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**THE POLITICAL ECONOMY OF EDUCATION UNDER MILITARY RULE IN  
BRAZIL, 1964-1985**

Porto Alegre

2019



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Tese submetida ao Programa de Pós-Graduação em Economia da Faculdade de Ciências Econômicas da UFRGS, como requisito parcial para obtenção do título de Doutor(a) em Economia, com ênfase em Economia Aplicada.

Orientador: Flavio Vasconcellos Comim

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“The language of (our) people is different from that of the nation of China and thus cannot be expressed by the written language of Chinese people. Because of this reason, the cries of illiterate peasants are not properly understood by the many (in the position of privilege). I am saddened by the situation. Therefore, twenty eight characters have been newly created. (My desire is) such that, each (Korean) person may become familiar (with the newly created written language of Korean) and use them daily in an intuitive way.”

– King Sejong (the Great),  
creator of the Korean alphabet,

1446



## RESUMO

O Brasil é um caso exemplar de histórica negligência com a educação básica. A universalização do ensino fundamental no país ocorreu apenas na década de 1990. Esta tese tem como objetivo investigar a economia política da educação durante o regime militar. Uma parte da literatura aponta que as políticas educacionais durante o período autoritário sob regime militar (1964-1985) foram prejudiciais à educação básica e favoreceram o ensino superior para uma parcela pequena da população. Uma importante parte da literatura internacional também afirma que a democracia tem papel positivo na expansão educacional para as massas. No entanto, a taxa de matrícula bruta e as despesas no ensino fundamental (em proporção do PIB) aumentaram substancialmente logo nos primeiros anos do regime militar. Houve uma estagnação destes indicadores apenas após a crise mundial em 1973, apesar da economia ter continuado a crescer. A literatura anterior não trata da expansão inicial, nem explica os motivos da estagnação posterior. A pergunta de pesquisa é: por que o regime militar não conseguiu expandir o ensino fundamental para toda a população? Nesta tese, argumentamos que o aumento da capacidade fiscal do Estado após a reforma tributária (1964/67) explica o aumento inicial dos gastos e matrículas. Entretanto, duas políticas prejudicaram a expansão do ensino fundamental. Em primeiro lugar, houve uma série de políticas para o ensino superior, incluindo uma expansão de matrículas e gastos sem precedentes às custas dos outros níveis de ensino no final da década de 1960. Esta política foi realizada para controlar os movimentos estudantis, vistos como uma ameaça à segurança nacional e para satisfazer os segmentos de elite e classe média, que foram os mais beneficiados pela política. Em segundo lugar, a estratégia de crescimento baseada em endividamento levou o governo federal a incentivar exportações industriais. Ao invés de aumentar a taxação ou desvalorizar o câmbio, houve políticas de incentivos setoriais a exportação, baseadas em larga medida em reduções e isenções de impostos estaduais. Essa política empobreceu os governos subnacionais, responsáveis pela provisão de educação básica. Assim, gastos e taxas de matrículas no ensino fundamental estagnaram. Ou seja, o aumento da centralização em um contexto autoritário permitiu ao governo federal incentivar políticas voltadas ao ensino superior e à industrialização. No entanto, o ensino fundamental pagou parte dos custos dessas políticas.

**Palavras-chave:** Ensino fundamental. História econômica da educação. Economia política da educação. Regime militar no Brasil. Capacidade fiscal.



## ABSTRACT

Brazil is an exemplary case of historical neglect of primary education. The universalisation of elementary schooling in the country occurred only in the 1990s. This thesis aims to investigate the political economy of education during the military regime in the country. Part of the literature points out that educational policies during the authoritarian period under military rule (1964-1985) were detrimental to basic education and favoured higher education for a small portion of the population. An important part of international literature also argues that democracy plays a positive role in educational expansion for the masses. However, gross enrolment rates and primary school expenditures (as a proportion of GDP) increased substantially in the early years of the military regime. These indicators stagnated only after the world crisis in 1973, although the economy continued to grow. The previous literature does not deal with the initial expansion, nor does it explain the reasons for the later stagnation. The research question is the following: why did the military regime fail to expand primary education to the masses? In this thesis, we argue that the increase in fiscal capacity after a tax reform (1964/67) explains the initial increase in spending and enrolment. However, two policies hampered the expansion of primary education. First, there were a number of policies for higher education, including an unprecedented expansion of enrolment and spending at the expense of other schooling levels in the late 1960s. This policy was designed to control student movements, seen as a threat to national security; and to satisfy elite and middle class segments, the largest beneficiaries of the policy. Second, the debt-based growth strategy led the federal government to promote industrial exports. Rather than increasing taxation or devaluing the exchange rate, there were sectoral export incentive policies, largely based on state-level tax reductions and exemptions. This policy impoverished subnational governments, which were responsible for providing basic education. Thus, state-level education spending and primary school enrolment rates stagnated. In other words, the increased centralisation in an authoritarian context allowed the federal government to undertake policies in favour of higher education and industrialisation. However, primary education paid for part of the costs of these policies.

**Keywords:** Primary education. Economic history of education. Political economy of education. Brazilian military regime. Fiscal capacity.



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## 1 INTRODUCTION

When I was a postgraduate student at the *Universidade de São Paulo* (USP), I used to play football with my classmates in the sport centre at the campus. The court's floor was rough concrete, but one of my classmates played with us barefoot. Marcos<sup>1</sup> had tried to wear football shoes once, but he felt uncomfortable since he was not used to wearing football shoes since his childhood. Playing barefoot made no sense to me, since I had been raised in a middle class neighbourhood of a capital city. Marcos had come from a completely different background. His family lived in the countryside of the state of Rio de Janeiro, where his mother used to be a landless worker. Living far away from any school, he had to walk for several miles to attend classes - and there was no escape, since his mother made him always go to school even under pouring rain. A mixture of stimulus, brightness and luck made him reach the most prestigious university in the country.

This anecdotal but true story becomes more astonishing if one takes into account that Marcos and I were born in the mid-1980s. Stories like that coming from the elderly might not be that surprising, but our generation entered primary school in the early 1990s. The most impressive fact is not that he succeeded (once you meet him you realize he is a gifted person). Striking is the fact that several Brazilian children had to face that sort of hindrances to attend schools as late as in the 1990s. Only in that decade the country managed to enrol virtually all school-age children in primary schools. Marcos' happy ending story is an exception that confirms the rule. The large majority of those who faced similar obstacles have very different stories to tell. According to Marcos, nearly all his friends in the countryside ended up in low-paying blue-collar or service occupations (mostly in construction and farming). This story makes plain how the Brazilian society has denied opportunities for several poor children across the country.

The late universalisation of primary education enrolment in Brazil made some scholars blame the military dictatorship for the educational backwardness of the country (SAVIANI, 2008; KOSACK, 2012). In 1964, the military seized power and remained in charge for 21 years. Differently from the autocratic style of military governments in other Latin American countries such as Chile or Paraguay, the Brazilian military regime did not shut down the National Congress for most of the period and allowed opposition (to a certain degree and under closed surveillance). The regime also resorted to torture and extra-judicial killings, particularly in the more repressive period between 1968 and 1973, but to a much lesser extent than its neighbours. Moreover, the Brazilian military regime undertook several reforms in taxation, labour regulations, financial markets and social welfare in general. In addition, the military regime implemented educational reforms with enduring consequences in all schooling levels. However, military governments did not manage to enrol all children in schools until the end of the regime in 1985. Primary education

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<sup>1</sup>Here I will not use his real name.

became universal in the country only years after power went back to civilians. Also, there was a substantial increase in primary education spending with the return of democracy (BROWN, 2002).

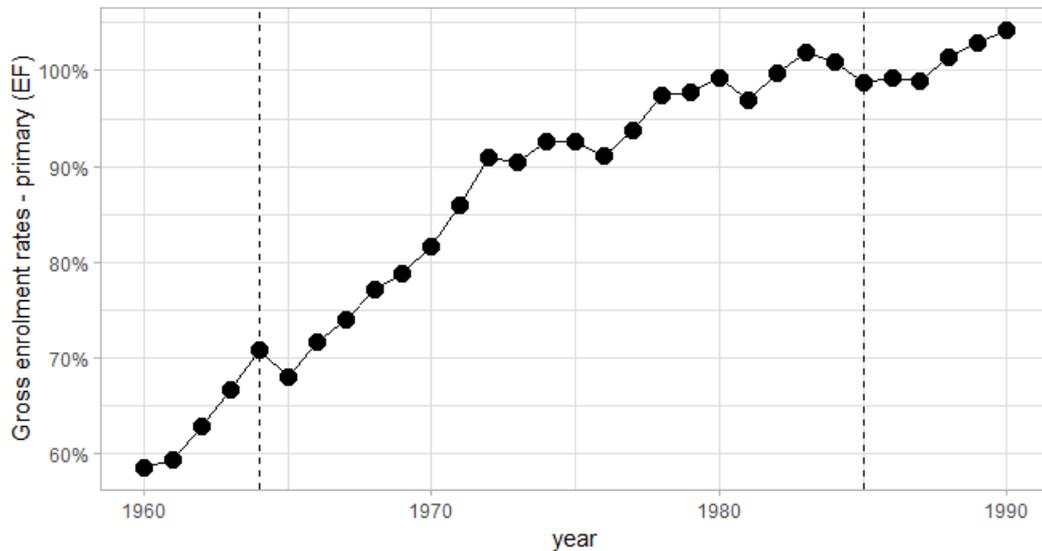
At first sight, the case of Brazil seems to fit the conventional wisdom of the literature: most scholars associate political openness to an expansion of mass education. However, the findings of the literature on education during the Brazilian military regime are puzzling. The pioneering work of Ames (1973) showed how the military government favoured the expansion of higher education to please middle and upper classes in the late 1960s. Following a similar line, Kosack (2012) argued that the military regime was an elite rule that shifted resources away from primary education. On the other hand, Klein and Luna (2017) argued that the Brazilian military regime carried out major improvements in public policies including education. Even though primary and secondary education had been developing prior to 1964, “it was the military regime that gave a great impulse to these two areas of activity” (KLEIN; LUNA, 2017, p. 122). The expansion of schooling was, at least in the view of the authors, part of the efforts of the military governments towards the construction of a welfare state in Brazil. For that reason, primary education would have been “fully supported” by the regime according to the authors (KLEIN; LUNA, 2017, p. 137).

Brown (2002) did not consider the whole military period monolithically. Instead, he related patterns of federal education spending to political changes within the military ruling period. The author associated a decrease in federal primary education spending to the more repressive period from 1967 to 1974. In his own words, “the early promises to improve and democratise primary education were not fulfilled during the first ten years of military rule” (BROWN, 2002, p. 126). When the military regime slowly started to open the political system around the mid-1970s, Brown (2002) found out that the share of federal spending on education increased. According to him, the military government started to pay more attention to social policies directed to a broader segment of the population from the mid-1970s onwards.

The aforementioned authors lacked a complete annual dataset on enrolment rates and education spending, which might explain why those interpretations about the role of the military regime in the expansion of mass education are not consistent with one another. According to our estimates (which will be presented in chapter 3), gross enrolment rates in primary education jumped from 68.0% in 1965 to 92.5% in 1975, which represented an annual increase of 3.1% on average. In the following decade, however, enrolment rates increased from 92.5% to 98.8% between 1975 and 1985, an average increase of 0.7% p.a. At first sight, one could think that the already high level of enrolments created barriers to further enrolment increases at a similar pace from the mid-1970s, which would explain the stagnation of enrolment rates in the last decade under military rule (see Figure 1). However, the numbers presented are gross rather than net enrolment rates. In net terms, one-fifth of the children aged between 7 and 14 years were not yet enrolled in primary schools in 1980. Therefore, there was still a large room to increase

enrolments, as it was done after democratisation.

Figure 1 – Gross enrolment rates, primary education (eight grades), Brazil, 1960-1990



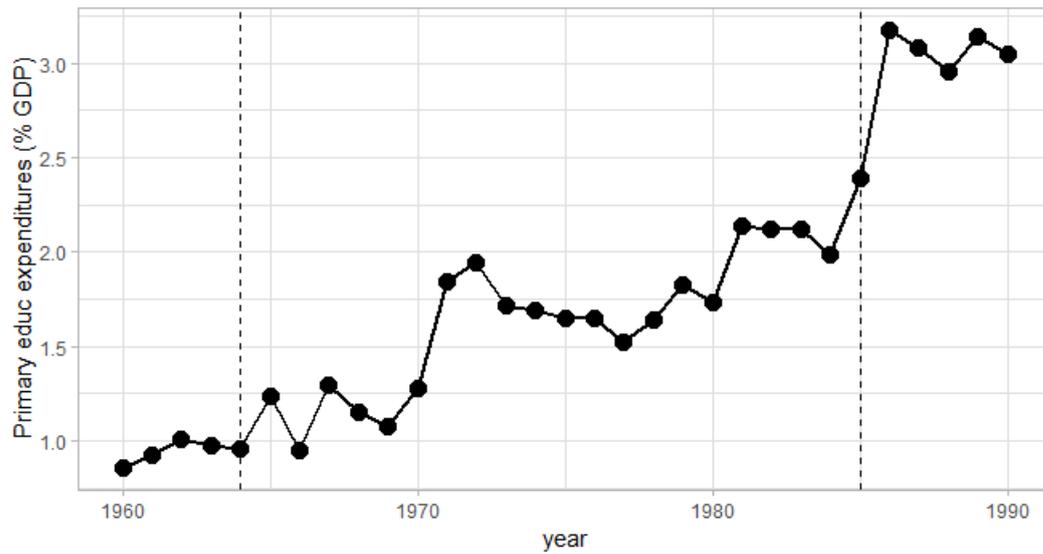
Source: Research data (2019).

In terms of education spending, [Brown \(2002\)](#) considered only federal expenditures. However, primary education was responsibility of subnational governments. Once one includes all government levels, the pattern described by [Brown \(2002\)](#) disappears as shown by our primary education spending estimates at [Figure 2](#). This data series must be analysed with caution: the positive spike in 1971 resulted from a reform in schooling levels that doubled the number of grades of primary education. However, even bearing in mind the distortion caused by the 1971 reform, there was a drop in basic education spending as a proportion of GDP in 1973, which was followed by a stagnation until the end of the decade. [Figure 3](#) considers the joint spending in both primary and secondary education (henceforth “basic education”)<sup>2</sup>, which does not suffer the influence of the 1971 reform. The conclusion remains the same. Expenditures on basic education stagnated after 1973. Even if spending data are not as clear as the enrolment series, the figures are not consistent with [Brown \(2002\)](#)’s view.

The previous literature cannot explain the evolution of enrolment rates and education expenditures in primary education presented in [Figures 2 and 3](#). Contrary to the conventional view that a more open political system stimulated the expansion of primary education, enrolment rates and education spending actually increased more rapidly prior to 1973, during the most repressive period of the military regime. When political opening started in the mid-1970s, enrolment rates and expenditures in primary educational nearly stagnated in Brazil. This puzzling finding raises a straightforward question: why after an initial increase in enrolment rates, the military regime fail to expand primary education to the masses?

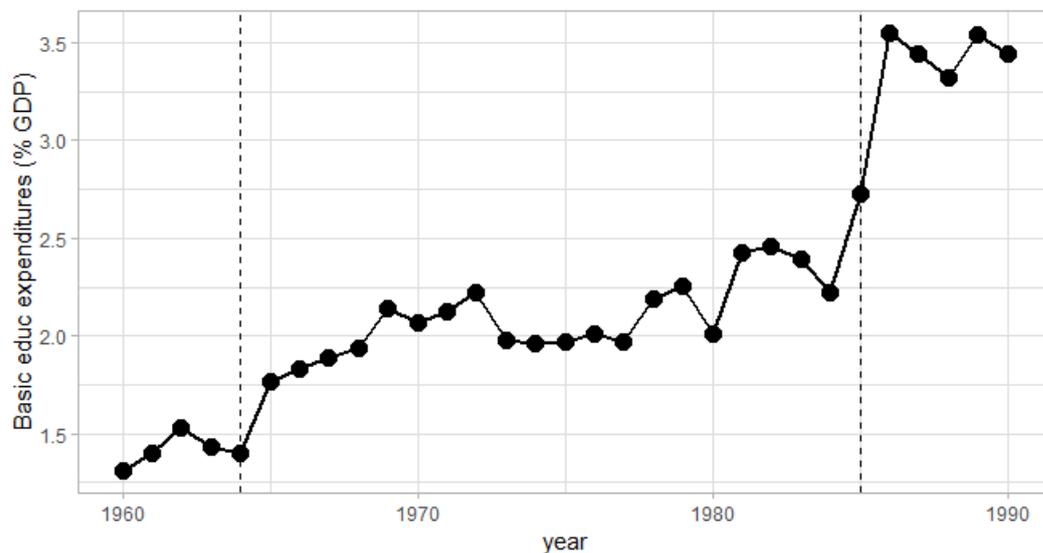
<sup>2</sup>Currently in Brazil, the term *educação básica* refers to all schooling levels except higher education (*ensino superior*). When we use this term along the thesis, we refer to primary *and* secondary education.

Figure 2 – Education spending as a proportion to GDP, primary education (change in 1971), Brazil, 1960-1990



Source: Research data (2019).

Figure 3 – Education spending as a proportion to GDP, basic education (primary plus secondary levels), Brazil, 1960-1990



Source: Research data (2019).

## 1.1 THE ARGUMENT

This thesis is a result of a research project that actually started years before the beginning of my doctoral studies. Under the supervision of Prof. Dr. Renato Colistete, I finished a master's dissertation in the *Instituto de Pesquisas Econômicas* at the *Universidade de São Paulo* (IPE-USP) in 2010. The dissertation sought to understand how federal education policies contributed to education backwardness in Brazil between 1930 and 1964. I arrived at the conclusion that the

centralisation of tax resources in the 1930s and the choices of several federal administrations led to an elite-biased education policy. I attributed those choices to the lack of political voice of non-elite groups in Brazil, under both dictatorship and democracy. The pattern of resource allocation and qualitative evidence showed that federal governments deliberately chose not to give the necessary attention to the expansion of mass education - despite having the power to do so (KANG, 2010; KANG, 2017).

Even though I was specifically concerned with the period between 1930 and 1964, there was a larger question underlying the research project. I wanted to understand why Brazilian education had persistently lagged behind other countries - including poorer Latin American neighbouring countries. However, two major challenges remained to be addressed in order to properly answer the larger question about the Brazilian educational backwardness. First, the lack of reliable data was a stumbling block to the continuation of the research agenda. Secondly, there was a need for a further investigation of more recent education policies, particularly during the military regime in Brazil between 1964 and 1985. Five years after finishing the master's dissertation, I finally got the opportunity to tackle those issues. Under the supervision of Prof. Dr. Flavio Comim, I started this dissertation project as a doctoral student in the *Programa de Pós-Graduação em Economia* at the *Universidade Federal do Rio Grande do Sul* (PPGE/UFRGS).

In this thesis, I am interested in the following research question: why did the military regime fail to expand primary education to the masses? Although the military administrations kept the upward trend until 1973, gross enrolment rates practically stagnated in the remaining period. I argue that a complete answer must be divided in parts:

1. The 1964-67 tax reform increased the fiscal capacity of the Brazilian state in general. Larger fiscal capacity initially benefited all government levels. Primary education was responsibility of subnational governments. The larger fiscal capacity of subnational governments led to an increase in primary education spending and enrolment rates until 1973.
2. The tax reform also centralised resources in the hands of the central government and decreased tax shares of subnational governments. The central government could have spent more in lower education levels. Instead, the federal government increased expenditures in higher education at the expense of other levels from the late 1960s onwards. This was done to (i) control higher education student movements, that were considered a source of political disorder; and to (ii) please middle and upper classes, the largest beneficiaries of an expansion of higher education.
3. The option for a debt-led growth strategy made the government promote exports to (i) avoid even larger external imbalances and (ii) promote industrialisation. Instead of increasing taxes or devaluating the currency, the central government deepened a policy of export incentives to the manufacturing industry along the 1970s. The policy was to

a significant extent based on state-level indirect tax exemptions and reductions, which impoverished states and municipalities. As a consequence, enrolment rates in primary education stagnated and partially bore the burden of the growth strategy.

The increasing fiscal capacity of the Brazilian state was a window of opportunity to expand schooling to the masses. The tax reform centralised resources in the federal level, but the military government blocked the expansion of education to the masses to favour (i) industrialisation objectives and (ii) higher education to the elites. As a consequence of financial centralisation, subnational governments had the mandate but not enough resources to take care of mass education.

## 1.2 CONTRIBUTION TO THE LITERATURE

This thesis brings an explanation to the puzzling pattern of education spending and enrolment rates throughout the military ruling period in Brazil. The Brazilian education policy between 1964 and 1985 is an understudied topic of research. The first contribution of this thesis to the literature relates to data. [Maduro \(2007\)](#) was the only comprehensive dataset on national enrolments and expenditures on education. The lack of a dataset on enrolment rates and education spending by regions prevented a more detailed investigation of the political economy of education throughout the period. We present a revised national series of enrolments and spending between 1933 and 2010. In addition, we present a state-level data on enrolments and enrolments by grade from 1955 to 2010. This dataset shows that, especially in northern and northeastern states, Brazil was in a backward situation in terms of enrolment rates and retention - even considering Latin American standards.

Secondly, this thesis links a recent political economy literature based on fiscal capacity and political order to the expansion of education, which provides a more solid explanation to both (i) the increase in enrolments and spending in primary education until the mid-1970s and (ii) the sudden expansion of the higher education system in the late 1960s. This explanation is also consistent with the upsurge in education spending after the regime change in 1964, which is clearly unrelated to democratisation.

Third, this thesis offers a political economy explanation to the stagnation of enrolment rates and education spending in lower education levels in the mid-1970s, which links the impoverishment of subnational governments to the national industrial strategy adopted during the period - particularly after the external oil shock. The increase in export incentives reduced state-level taxation, which in turn affected education spending and enrolments.

Concerning the centralisation of financial resources at the federal level, it is noteworthy that [Colistete \(2016\)](#) presented a similar argument considering the 1820-1920 period. Brazilian constitutional regimes prior to the military regime also left the financial responsibility of primary education in the hands of subnational governments. In his own words, “when the incomes

of intermediate government levels (provinces and states) were limited in face of mandates defined by constitutions, education expenditures tended to directly suffer from resource scarcity” (COLISTETE, 2016, p. 4). I argue that this interpretation also applies to the 1964-1985 period. Given the larger fiscal capacity obtained in the 1960s, the decision for a more centralised structure made the country waste a crucial opportunity to overcome its historical educational backwardness during a period of fast demographic and industrial growth.

An important consequence of those developments is that Brazil accumulated physical capital without providing the corresponding public schooling: a questionable decision during “the human capital century”, as Goldin and Katz (2009) called the 20<sup>th</sup> century. In fact, Pires (2010) argued that education and industrialisation were seen as substitutes rather than as complements by the influential developmentalist school. An interesting parallel is the Swedish case, an “impoverished sophisticate” according to Sandberg (1979): Sweden was a rural poor country but presented impressive high levels of human capital in the 19<sup>th</sup> century. When industrialisation arrived, the country was able to quickly catch up. Brazil, on the contrary, was a country of illiterates when industrialisation started. What is striking is that the country insisted on not providing schooling to the masses even when industrialisation was already underway (and still the country does not provide quality public schooling). During the military regime, instead of taking advantage of the larger fiscal capacity, central government decisions not only compromised long run growth and development, but also reinforced income and wealth inequality.

### 1.3 THE ROADMAP

In order to answer the research question, there are five additional chapters besides this Introduction. Chapters 2 to 4 deals with two important pre-requisites to answer the research question: theory and data. In chapter 2, there is a review comprising three relevant sets of the literature: the economic history of education in Brazil, the relationship between dictatorships and mass education, and the literature on fiscal capacity and federalism. Chapter 3 provides estimates of key education outcomes (gross enrolment rates and grade distribution ratios) in the primary level (eight grades) concerning the 1933-2010 period. The chapter also presents estimates of enrolment rates by federal states between 1955 and 2010. According to those state-level estimates, most states in Brazil lagged behind several Latin American countries in terms of enrolment rates and retention measures for a long period. In chapter 4, there is a new dataset on national estimates of education spending by government and schooling levels from 1933 to 2010.

In chapters 5 and 6, we attempt to directly answer the proposed research question. Chapter 5 deals with the tax reform in the first years under military rule (1964-67), which significantly increased the fiscal capacity of the government. It also shows how national security reasons and political capture shaped the decision to increase expenditures and enrolments in higher education. Chapter 6 shows that national trade policies negatively affected the financial

situation and education spending of states, particularly after the global oil crisis in the 1970s. As a consequence, gross enrolment rates in primary education stagnated and proved that policy-makers only paid lip service to the target of universalising primary education until 1980. Chapter [7](#) concludes the thesis.

## 2 LITERATURE REVIEW

After the military toppled the government in 1964, there was an initial growth of enrolment rates and education spending in basic education. However, the introductory chapter showed that there was a stagnation of those indicators in the mid-1970s. The rise and fall of primary education under military rule in Brazil cannot be explained by a more open political environment after the moderate group's return to power, as proposed by [Brown \(2002\)](#). If this was the case, enrolment rates and expenditures in primary education should have accelerated after military hardliners stepped back in the mid-1970s.

In this chapter, we present a review of four sets of literature that we consider relevant to understand what happened to primary education in Brazil during the period under military rule. First, we summarize the findings of the research on the economic history of education in Brazil in section 2.1. We point out to some shortcomings of the literature, particularly concerning the evolution of schooling during the 1964-85 period. Three major gaps deserve mention: (i) a low attention given to *fiscal capacity* issues; (ii) a disproportional emphasis on *political* aspects at the expense of *economic* explanations; and (iii) a focus on *federal* education spending rather than on *subnational* level expenditures.

Bearing in mind those gaps, we review the literature on fiscal capacity and federalism in section 2.2. A larger fiscal capacity enables the country to provide more public goods such as mass education. However, the literature indicates that accountability mechanisms are necessary to make the state provide public goods that benefit the bulk of the society. Most of the literature stresses liberal or democratic institutions such as a powerful parliament or open and competitive elections with universal suffrage ([BESLEY; PERSSON, 2009](#); [DINCECCO, 2017](#)). Alternatively, an alignment of elite objectives with the necessities of the whole population could make governments expand the provision of public goods even without the accountability mechanisms just mentioned. In section 2.3, we analyse the reasons elites could have to expand education to the masses under authoritarian rule. Even when liberal and/or democratic institutions are not working properly, other reasons such as integration to global markets and maintenance of political order may also drive elites to expand primary education even in a dictatorial regime ([ANSELL, 2010](#); [PAGLAYAN, 2017](#)).

Finally, we deal with a further accountability mechanism in section 2.4. Even in the absence of an effective parliament or competitive elections with universal suffrage, a decentralised structure of provision of public goods could compensate for the lack of liberal democracy and favour the expansion of mass education. Put differently, decentralisation could be a way to increase the political voice of the majority of the population, who could then effectively demand more and better schools given proximity advantages ([LINDERT, 2004](#)). Therefore, the distribution of resources and mandates among different government tiers may affect education

spending and outcomes. Section 2.5 is devoted to final remarks.

## 2.1 THE ECONOMIC HISTORY OF EDUCATION IN BRAZIL

Institutions have become the standard explanation for divergences in economic and social outcomes between countries and regions. According to [Acemoglu, Johnson and Robinson \(2005\)](#), institutions are the *fundamental* cause of long run economic growth, since they are considered the underlying reason for differences in technology, economies of scale, education and capital accumulation differentials ([NORTH; THOMAS, 1973](#)). The tendency of institutions to persist through time made clear that “history matters”, as famously stated by [North \(1990, p. 3\)](#). The concept of path dependence (or economies of scale applied to time), extensively used in the literature on historical institutionalism, captures the idea of persistence: timing and sequence matters or, in other words, past choices set up the conditions under which present choices are made ([PIERSON, 2000](#)). Countries that take on a low equilibrium path, for instance, might face difficulties to change its course, for the longer it remains in the original path, the more costly it becomes to change it ([NORTH, 1990; PIERSON, 2000](#)).

The growing interest in institutional persistence led several scholars to search for historical episodes that could have determined present economic and social outcomes. In the case of Americas, some scholars investigated the influence of colonisation patterns implanted nearly about half a millennium ago on long run economic performance. According to the classical work of [Engerman and Sokoloff \(1997\)](#), transatlantic trade and initial factor endowments in Latin American countries provided incentives to the adoption of large scale plantations and slave labour. In North America, on the other hand, a more benign colonisation pattern prevailed also because of initial conditions. As a consequence, institutions created in Latin American countries favoured the concentration of political power in the hands of a small elite. According to this view, inequalities in wealth, political power and human capital stem from the colonial era. Assuming that human capital has an important role in long run growth, the investigation of historical differences between education systems in the Americas was a natural extension of this line of research, a task undertaken by [Engerman, Mariscal and Sokoloff \(2009\)](#).

However, this sort of interpretation gives little weight to whatever happened between colonial times and today. There are variations of this interpretation that follow the methodology of [Acemoglu, Johnson and Robinson \(2001\)](#). In spite of their interesting findings, comparing two moments that are centuries apart might lead to an oversimplification or, as [Austin \(2008\)](#) called it, a “compression of history”. In a similar fashion, [North, Summerhill and Weingast \(2000\)](#) called attention to the excessively deterministic character of the colonial origins argument: despite the crucial role of initial factor endowments, “no deus ex-machina translates [...] endowments into political order and political choice” ([NORTH; SUMMERHILL; WEINGAST, 2000, p 48](#)).

Nevertheless, there are good reasons to believe that colonial origins are important determinants of current social and economic outcomes in Latin American countries and particularly

in Brazil. [Naritomi, Soares and Assunção \(2012\)](#), for example, showed that commodity booms at colonial times in Brazil were spatially associated to higher land inequality, lower institutional quality and lower provision of public goods such as education. However, patterns of colonisation alone do not provide a satisfactory answer to the educational backwardness in Brazil. Rewording the previous paragraph, even if arguments based on colonial origins are generally correct to explain the long run performance gap between the Americas, there is an underspecification problem: such arguments do not leave any role for the more recent past.

Jeffrey [Williamson \(2015\)](#) attempted to dismiss the role of colonial origins arguing that the rise of Latin American inequality stemmed from globalisation effects in the late 19<sup>th</sup> century. Those interpretations are not necessarily contradictory since inequality have probably arose from a combination of factors that might include colonial origins and the expansion of trade and finance from the late 19<sup>th</sup> to the early 20<sup>th</sup> century. As a result, this period has received some attention from the literature.<sup>1</sup> For instance, [Musacchio, Martínez-Fritscher and Viarengo \(2014\)](#) linked colonial times with information from this period. Using state-level data, they found out that commodity booms increased tax revenues of some states, which increased education spending and enrolment rates in the early 20<sup>th</sup> century. Moreover, the effect of increasing tax revenues on education spending was lower in states associated with extractive colonial institutions according to the authors. They also argued that the ranking of states in education outcomes presently in Brazil is almost the same as the early 20<sup>th</sup> century ranking, which justifies research on that historical period as the most important to explain current outcomes.

Despite the logic of persistence playing a role in favour of studies centred on that period, the fact that the Brazilian educational backwardness remained during a period of several economic shocks spawned by a fast industrialisation process after 1930 raises at least a question mark. In the context of developed countries, [Busemeyer \(2014\)](#) stressed that previous literature on historical institutionalism gave an excessive role to the “long shadow of the 19<sup>th</sup> century” on education outcomes at least in Western Europe. [Ansell \(2010\)](#) compellingly argued that the divergence between higher education systems of developed countries mostly stemmed from the post-war era. In the case of education systems in some developing countries, there also stories of divergence in the last decades. Singapore and South Korea, departing from low primary education enrolment rates in the 1950s, achieved world-class standards in education some decades later. Thus, even in the case of developing countries, there are good reasons to study the trajectories of institutions, policies and education outcomes throughout the 20<sup>th</sup> century.

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<sup>1</sup>Taking advantage of regional differences of landownership structure in the 19<sup>th</sup> century, [Wegenast \(2010\)](#) argued that Brazilian landlords did not favour the expansion of mass education in order not to pay higher taxes and wages. On the other hand, [Summerhill \(2010\)](#) and [Funari \(2017\)](#) did not find a clear association between provision of public goods and inequality measures in early 20<sup>th</sup> century Brazil. [Fujiwara, Laudaes and Caicedo \(2017\)](#) and [Papadia \(2017\)](#) found out that slavery negatively affected the local supply of public goods. [De Carvalho Filho and Colistete \(2010\)](#), [Witzel de Souza \(2018\)](#) and [Rocha, Ferraz and Soares \(2017\)](#) found a positive effect of immigration on long run education outcomes in São Paulo, while [De Carvalho Filho and Monasterio \(2012\)](#) arrived at similar results to Rio Grande do Sul.

The decade of 1930 is often considered a watershed in Brazilian economic history, since modernisation and industrialisation accelerated from that period onwards. A number of scholars investigated the evolution of education since the 1930s. [Plank \(1996\)](#), for example, argued that the Brazilian education system has consistently lagged behind other countries because private interests overshadowed public ones in the definition of national education policies. [Birdsall, Bruns and Sabot \(1996\)](#) and [Ansell \(2010\)](#) argued that under different political regimes, the maintenance of a semi-autarkic strategy of import-substituting industrialisation (ISI) for several decades since the 1930s created barriers to the expansion of mass education in Brazil. According to [Pires \(2010\)](#), social policies and industrialisation was seen as substitutes rather than complements by developmentalists during the ISI period. [Kang \(2017\)](#) argued that mass education was not a priority during the whole ISI era, but underlined the role of education finance and the relations between different government levels on the Brazilian education backwardness. On the other hand, [Kosack \(2012\)](#) argued that the dominant coalition counted on a cross-class alliance that favoured the expansion of primary schooling in the country between 1930 and 1961. After the instability of the 1961-1964 period, Brazil would have entered on a elite-biased phase under the military government that benefited the expansion of universities.

In the early 1960s, policymakers in several countries were enthusiastic about the advances of the human capital theory. The approach also made its disciples in Brazil: the first works on the field authored by Brazilian scholars started to appear in the late 1960s. Several technocrats of the new regime were sympathetic to the human capital theory and occupied key positions within the government. Nonetheless, the adoption of the human capital approach was not sufficient to actually make the country overcome its educational backwardness. Some scholars even blamed the human capital approach for the demise of the education system under military rule in Brazil ([SAVIANI, 2008](#)). That seems to overestimate the negative effects of the human capital theory on education performance. Brazil was already an educational laggard prior to the heyday of the human capital approach. Moreover, the technocrats were aware that earlier years of schooling yielded higher returns.

Since the view of technocrats did not make primary education become a priority (as we will show later), some political scientists argued that the causes of elite-biased policies during the military regime were political. Barry [Ames \(1973\)](#) argued that pressures from the middle and high strata in society made the government channel resources to higher education at the expense of other levels. [De Mattos \(1988\)](#) also underscored the role of political aspects in education policy, but he added that cultural traits, such as patrimonialism and clientelist practices within the Brazilian state, also played a role. [Brown \(2002\)](#) highlighted the role of the political regime on education spending. Taking advantage of the political regime change in the mid-1980s, he attributed improvements on primary and secondary education to the return of democracy.

Despite the contributions of those important studies, they left aside at least three issues that deserve a more careful examination. First, there is a burgeoning literature on the rise of fiscal

capacity and the role of states in providing public goods (BESLEY; PERSSON, 2009; BESLEY; PERSSON, 2013; DINCECCO; KATZ, 2014; BARDHAN, 2016; DINCECCO, 2017). The link between fiscal capacity and education spending and its impact on outcomes is almost completely ignored in Brazilian economic history, with the exception of Papadia (2017).

Secondly, all those studies focus on political aspects and underestimate the role of economic ones in the determination of education spending. Ames (1973) and Brown (2002) did not leave any role to economic reasons behind decisions on education policy. De Mattos (1988) acknowledged that the economic strategy was always treated as priority by the military government, but he failed to establish a clear connection between industrial and education policies.<sup>2</sup> In chapter 6, we establish a clear connection between trade/industrial policies and the demise of education spending and outcomes.

Thirdly, the authors mentioned in the last paragraph only analysed the behaviour of federal education spending. This is a large problem since state governments were the major providers of primary education. The authors correctly argue that the federal government was the richest level and decided to do little regarding primary education. Still states were responsible for more than half of primary education spending on the period. In order to bridge this gap in the literature, we provide a state-level analysis of education spending in the last chapter, which also allows us to analyse within-country differences. This is a particularly important aspect in a country with glaring regional inequalities such as Brazil, whose total population is currently larger than 200 million inhabitants in an area that is larger than the continental part of the United States.

The latter point is strongly related to the high level of financial centralisation of the Brazilian federation. This point has not been sufficiently explored as an explanation to the backward situation of education in Brazil. Apart from Brazilian public finance experts, the aforementioned authors tended to downplay the role of different forms of federalism in the provision of education during the military period. There is a large theoretical and empirical literature on the topic (see next section), but no works examined how centralisation affected education during the military regime. Lindert (2004) and Goldin and Katz (2009) partially attributed the early advance of primary schooling to the decentralised structure of basic education levels in 19<sup>th</sup> century United States. A few recent studies regarding Brazilian education dealt with the topic (COLISTETE, 2016).

## 2.2 FISCAL CAPACITY AND EFFECTIVE STATES

A recent literature has emphasised the crucial role of state capacity in long run economic growth and development (BESLEY; PERSSON, 2009; DINCECCO; KATZ, 2014). State capacity is a concept that “describes the ability of a state to collect taxes, enforce law and order, and

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<sup>2</sup>In a similar vein, Schneider (1995) highlighted that regimes alone have little explanatory power with respect to several social outcomes in Latin American societies.

provide public goods” (JOHNSON; KOYAMA, 2017, p. 1). In a nutshell, Dincecco (2017, p. 283) defines state capacity as “the state’s ability to accomplish its intended policy action”. The concept of state capacity was already well-known among historians and political scientists, thanks to the contributions of Tilly (1975), Skocpol (1985), Mann (1986) and Ertman (1997), among others. In the last few years, usage of the concept became widespread in mainstream economics (BARDHAN, 2016).

Several authors have argued that developed countries today have powerful states with a history of political centralisation (BOCKSTETTE; CHANDA; PUTTERMAN, 2002; CHANDA; PUTTERMAN, 2007; BESLEY; PERSSON, 2011; DINCECCO; KATZ, 2014; BORCAN; OLSSON; PUTTERMAN, 2018). Conversely, poverty, internal fragmentation and civil wars are widespread in countries with weak state capacity (HERBST, 2014; GENNAIOLI; RAINER, 2007; BLATTMAN; MIGUEL, 2010; BESLEY; PERSSON, 2011; MICHALOPOULOS; PA-PAIOANNOU, 2013). In a similar vein, Acemoglu et al. (2014, p. 1) argued that “weakness or lack of capacity’ of states is a fundamental barrier to their development prospects”, which relates to the low provision of “basic public goods such as the enforcement of law, order, education and infrastructure”.

According to Besley and Persson (2011), state capacity has two main components: (i) *legal capacity*, which refers to the ability of the state to enforce rules over its territory (the productive role of the state); and (ii) *fiscal capacity*, which refers to the extractive role of the state.

Fiscal capacity is a pre-requisite to make the state accomplish its goals. For that reason, Besley and Persson (2013, p. 2) boldly asserted that “the power to tax lies at the heart of state development”. Indeed, taxation per capita and GDP per capita levels are strongly correlated in cross-country comparisons (BESLEY; PERSSON, 2011). Recent papers argue that causation runs to a large extent from taxation to income levels rather than the contrary (DINCECCO; PRADO, 2012; DINCECCO; KATZ, 2014). Since fiscal capacity is one of the conditions for the implementation of complex policies that benefit the whole citizenry, it matters both to economic growth and broader views of development.

Following the seminal contributions of Tilly (1975), historical research has emphasised the early rise of fiscal capacity in Western Europe. According to several scholars, high political fragmentation (and hence high risk of war) created incentives to fiscal centralisation and increasing taxation (HOFFMAN, 2015; SABATÉ, 2016; DINCECCO, 2017). Therefore, increases in fiscal capacity are often associated to movements towards fiscal centralisation. However, major fiscal reforms that increased fiscal capacity took place in countries that were not threatened by a war. In the United States, the Great Depression led to fiscal reforms in response to population demands for public goods such as unemployment insurance (WALLIS; WEINGAST, 2005; GILLITZER, 2017). Gupta, Ma and Roy (2016) found that warfare was not sufficient to explain variations of fiscal capacity among Asian countries, a conclusion that also held to Latin America

according to [Centeno \(2002\)](#). Therefore, besides warfare, other sort of events that drop political resistance to taxation may lead to reforms ([DINCECCO, 2017](#)).

High fiscal capacity is necessary but not sufficient to make the state work effectively. The literature emphasises that effective restraints on the executive increase the probability that state policies succeed. In other words, states are effective when there is a strong but limited government - in the spirit of the classical work of [North and Weingast \(1989\)](#). According to this tradition, clearly rooted in classical liberalism, the state must be strong enough to protect property rights, but the same power that protects could actually predate citizens' rights. Thus, limiting the power of a strong government translates fiscal capacity into effective statehood. The latter concept is defined as "the political arrangements that enable the state to *best* accomplish its intended policy actions" ([DINCECCO, 2017](#)). Effective states are able to provide public goods, such as mass education, while ineffective states supply private goods to specific interest groups.

[Bardhan \(2016\)](#) calls attention to how different accountability mechanisms might matter to broader development objectives. Here we highlight three accountability mechanisms that make the state focus on the provision of public goods: (i) parliament supremacy, (ii) universal suffrage and (iii) decentralisation. The first two mechanisms pertain to a set of institutions of liberal democratic orders. The third one may coexist with authoritarian political regimes.

The literature on the political economy of education often associates democratic regimes to an expansion of mass education. This result has its theoretical roots in the model of [Meltzer and Richard \(1981\)](#). According to the model, the larger the difference between the mean income and the median voter's income, the larger the redistribution from the rich to the poor under a democratic regime. Since mass primary education has egalitarian redistributive effects, extending this reasoning leads to the conclusion that democracy generates incentives to expand primary education to the masses.

The history of state formation in Western Europe, parliamentary control over public spending established an accountability mechanism that lowered the capture of government by special interests of a narrow group ([BARDHAN, 2016](#)). Parliamentary supremacy in budget matters created incentives to cooperation among elites ([NORTH; WEINGAST, 1989; STASAVAGE, 2003](#)). This literature stressed the role of institutional checks and balances in protecting property rights, which in turn allowed capital accumulation and the development of financial markets. However, effective market-supporting arrangements need not include a western-style parliament as in liberal democracies. In China, the central committee of the Communist Party seems to have this role ([DINCECCO, 2017](#)). Therefore, a variation of accountability mechanisms are possible.

A large empirical and historical literature also emphasised the positive role of democracy or suffrage levels in primary education. Rather than political regimes, [Mariscal and Sokoloff \(2000\)](#) and [Engerman, Mariscal and Sokoloff \(2009\)](#) associated the extension of voting rights to the expansion of mass education in different parts of the Americas. [Goldin and Katz \(2009\)](#) also

documented that an extension of suffrage preceded the expansion of publicly-funded primary schools in 19<sup>th</sup> century United States. Analysing developed countries, [Lindert \(2004\)](#) found out that enfranchising a larger proportion of the population had positive effects on primary education outcomes from the late 19<sup>th</sup> century to the early 20<sup>th</sup> century. Using dichotomous measures of political regimes, [Brown and Hunter \(1999\)](#) found a positive correlation between democracy and primary education enrolments. Using data from the 1960s to the 1990s and fixed effects estimations, [Baum and Lake \(2003\)](#), [Stasavage \(2003\)](#) and [Ansell \(2010\)](#) found that transitions from dictatorship to democracy increased enrolment rates and spending in primary education. In Latin America, [Brown and Hunter \(2004\)](#) and [Huber and Stephens \(2012\)](#) also found a positive association between democracy and education spending. [Gallego \(2010\)](#) attempted to rule out the possibility of reverse causality using an identification strategy and still found a positive effect of democracy on education.

In Brazil, the military government maintained the National Congress open for most of the period between 1964 and 1985. However, the legislative house was under the control of the government. Elections were not allowed for several executive positions. In addition, illiterate people, which comprised a large part of the population, did not have voting rights. In terms of formal institutions, the military government had little to worry about.

### 2.3 WHY DO AUTHORITARIAN REGIMES PROVIDE MASS EDUCATION?

Despite the positive role ascribed to democracy, several historical episodes of mass education expansion happened under dictatorships. Germany under Bismarck was one of the world educational leaders in the late 19<sup>th</sup> century ([LINDERT, 2004](#)). Throughout the 20<sup>th</sup> century, several socialist economies also expanded schooling to the masses ([LOTT JR, 1999](#); [HAGGARD; KAUFMAN, 2008](#)). As mentioned earlier, there was a dramatic increase of mass schooling in countries under dictatorships such as Singapore, Malaysia and South Korea during the post-war era ([ANSELL, 2010](#)). Contrary to the authors mentioned in the previous paragraph, some empirical studies found that autocracies performed similarly or better than democracies in terms of primary education enrolment rates or spending ([MULLIGAN; GIL; MARTIN, 2004](#); [AGHION et al., 2018](#)).

The literature, therefore, points out to a mixed evidence regarding the relationship between political openness and mass primary education. Given that dictatorships do not face competitive and open elections, why would dictatorships expand mass education? Since dictatorships are often supported by powerful elite groups, it is worth analysing the incentives elites face to expand or block the massification of primary schooling.

According to [Ansell \(2010\)](#), education has redistributive effects that ultimately depend on (a) who receives it and (b) who pays for it. If a society prioritizes the expansion of mass education, there is a fiscally progressive policy. On the other hand, if a country expends in higher education to a minority at the expense of mass primary education, the opposite happens:

education spending is fiscally regressive. Still according to him, expanding primary schooling has at least three redistributive impacts. First, there is a *fiscal effect*: if taxation is progressive, providing mass education becomes a transfer of resources from richer segments to poorer ones. Secondly, the expansion of mass education has a *scarcity effect*: if elites are able to block mass education, they reap scarcity rents because of the abundance of unskilled workers in the labour market. Thirdly, mass education decreases the effects of parental income on economic outcomes, what [Ansell \(2010\)](#) calls *lottery effect*. In other words, mass education increases the chances of poor able people to succeed in economic terms, while harming the situation of the less able among the rich. Therefore, if skilled elites have decisive power over education spending, they have at least those reasons to block the expansion of education to the masses.

While those negative effects of providing mass education must be taken into account, elites also might benefit from a more educated citizenry. Mass education might generate positive externalities, since a rise in human capital levels is expected to increase national income and benefit everyone including the elite. Moreover, there are other non-monetary external benefits to education such as lower criminality, more social cohesion, etc. ([LOCHNER, 2011](#); [GRADSTEIN; JUSTMAN; MEIER, 2004](#)). The existence of external effects would also justify government intervention, since education provision tends to be suboptimal in this case if only left to the market. However, since educating the poor has long run diffuse benefits and the burden of financing mass education (how much and who pays) is clear in the short run, there are barriers to overcome collective action problems ([OLSON, 1965](#)).

Besides positive externalities, the literature presents two further reasons why expanding mass education might become attractive under a dictatorship. First, labour markets and globalisation may have an important influence on education outcomes according to [Birdsall, Bruns and Sabot \(1996\)](#) and [Ansell \(2010\)](#). Bearing in mind the experiences of countries such as South Korea and Singapore, those authors stress that an export-oriented industrialisation strategy decreases the elite's aversion to mass education. Assuming factor price equalisation across countries (as in the standard Heckscher-Ohlin-Samuelson framework) and considering a labour market segmented in skilled and unskilled factors, scarcity effects in the labour market vanish under an outward-oriented industrialisation strategy. The reason is that international trade allows countries to "export skills". If international competition effects are strong enough, there might be an expansion of mass education even under an autocratic rule. Moreover, an outward-oriented strategy means that national firms will face competition from abroad. In this situation, a more skilled labour force facilitates adoption and diffusion of new technologies, which are a life-or-death matter to companies competing in global markets. On the other hand, countries such as India and Brazil relied upon an inward-oriented strategy of import substitution industrialisation (ISI). In those semi-autarkic countries, scarcity effects were larger and national firms were strongly sheltered from the world market. Therefore, there was a disincentive of elites to provide education to the masses. Quantitative evidence in favour of this thesis was found by [Kaufman and Segura-Ubiergo \(2001\)](#), [Avelino, Brown and Hunter \(2005\)](#) and [Ansell \(2010\)](#).

A second reason is based on the role of mass education in maintaining political order. This hypothesis draws on a long tradition of understanding education as a means of social control (TYACK, 1974; WEBER, 1976; BOWLES; GINTIS, 1976; GELLNER, 2008). According to Paglayan (2017), authoritarian governments may invest in primary education in order to instil values of order and obedience. In this case, governments spread education to the masses not because of democratisation, extension of suffrage or globalisation. Instead, governments use education “to maintain order in the aftermath of episodes of widespread internal political disorder” (PAGLAYAN, 2017, p. 20). According to Alesina, Giuliano and Reich (2013), autocratic governments that feel threatened might spread education to the masses in order to homogenise the population and maintain political order. Others called attention to the role of external factors (e.g. warfare) in making countries educate the population, since mass schooling can be used to promote national values and increase the skills of the military (RAMIREZ; BOLI, 1987; ALESINA; REICH; RIBONI, 2017; AGHION et al., 2018). Moreover, Paglayan (2017) downplayed the role of democracy in the increase of education provision: according to her estimates, democratisation increases enrolment rates by only 5 percentage points on average.

Some historical cases provide some support to the political order hypothesis. According to Melton (2003), absolutist Prussia, an agrarian economy, was one of the first countries to introduce compulsory education in the 18<sup>th</sup> century. During the period, a series of peasant revolts spread out in the countryside. In response, King Frederick II promoted an agrarian reform and created “a public primary education for the rural lower classes” (PAGLAYAN, 2017, p. 109). According to schooling regulations, schools should encourage values of obedience to the King among pupils since defying the established authority was against God’s will (MELTON, 2003). In a different setting, Eastern European socialist countries extended primary education to the masses in the post-war era (HAGGARD; KAUFMAN, 2008). Emphasis was given to natural sciences, technical education and, most importantly, ideological indoctrination. In a similar vein, Lott Jr (1999) found evidence that several totalitarian countries expanded education to the masses for indoctrination purposes. In summary, all the countries just mentioned were authoritarian and promoted mass education as a means to social control.

In some Latin American countries, Newland (1994) argued that public schooling was created as a nation-building project to promote culture homogenisation during the first half of the 20<sup>th</sup> century. In Argentina, the oligarchic government based in Buenos Aires was constantly challenged by provincial warlords along the 19<sup>th</sup> century. Elis (2011) and Paglayan (2017) showed that the central government set up a mass primary education as a nation-building strategy, which implied the “eradication of regional warlordism in the provinces” (ELIS, 2011, p. 3). In order to build a mass education system in Argentina, the oligarchic central government transferred resources to poor provinces to avoid political disorder. As a result, illiteracy decreased and enrolment rates rose in the country, particularly in poorer provinces (PAGLAYAN, 2017). Contrary to conventional expectations regarding the positive role of democracy in education, expansion of schooling in the poorer provinces ended about the time Argentina became an

electoral democracy (ELIS, 2011).

Taking stock, a dictatorship does not have electoral incentives as in democratic regimes with universal suffrage. However, other reasons may drive authoritarian governments to promote mass education. First, outward-oriented strategies of industrialisation could make the elite expand primary education because (i) integration to world markets decreases harmful effects of educational expansion on the relative incomes of skilled elites and (ii) a skilled labour force facilitates the acquisition and diffusion of technology needed to face international competition. Secondly, authoritarian governments have incentives to expand schooling if the latter is used to “nation-buildin” purposes. Concerning political order reasons to provide schooling, a further point should be noticed. Although the literature on education and political order emphasises the role of primary schooling in nation-building objectives, this sort of reasoning opens another possibility: governments may have reasons to support tertiary schooling if the threat of disorder comes from other elite segments. We will return to this point in chapter 5.

## 2.4 FEDERALISM AND DECENTRALISATION

The fiscal capacity literature, which highlights the benefits of political centralisation in the formation of strong states, often does not consider the downside aspects of centralisation. Acemoglu and Robinson (2012), for example, argue that a politically centralised state (understood as an effective state that implants a consistent set of rules across jurisdictions) is conducive to development. As highlighted earlier, political centralisation was an important feature in the historical development of fiscal capacity. This is not only a historical matter: in the tragic situation of failed states, citizens would clearly benefit from centralisation. However, given a certain level of political stability, asking if decentralised or centralised structures optimize provision of public goods make sense (DINCECCO, 2017). Bearing in mind more normal cases among developing countries, Bardhan (2016) correctly argues that the fiscal capacity literature does not properly address the trade-off between centralisation and local accountability. The literature on federalism shows that this trade-off is a crucial matter in the need of expanding public mass education.

Although there are variations of definitions and practises, decentralisation is often defined as “the transfer of authority for decision-making, finance and management to quasi-autonomous units of local governments” (CHANNA; FAGUET, 2016, p. 201). From this overall definition, one can divide decentralisation in three types: (i) political (decision-making), (ii) financial and (iii) administrative decentralisation (BARDHAN, 2002). Since the theoretical literature on federalism is already some decades old, Mookherjee (2015) divided it in several generations of models. First-generation models on federalism stressed the benefits and costs of different structures regarding resource allocation. Tiebout (1956) showed that preference heterogeneity could make decentralised provision more efficient, while Oates (1972) stressed spillovers across regions and economies of scale as reasons for centralisation. The second-generation literature focused on political economy aspects. Initial contributions, such as Lockwood (2002) and Besley

and Coate (2003), did not reach divergent recommendations from first-generation models. Later models dealt with political economy issues using agent-principal models, such as representatives versus constituents or agency problems within the government. In this line of research, some papers dealt with accountability issues: the proximity between provider and local citizens made a stronger case for decentralisation, since the results did not depend on heterogeneity across regions (WADE, 1997; TOMMASI; WEINSCHELBAUM, 2007). Other studies emphasised competition between jurisdictions as an argument in favour of decentralisation.<sup>18</sup> An old argument in favour of centralisation because of local elite capture was also considered by Bardhan and Mookherjee (2000). According to their model, there is no way to say a priori whether central or local governments are more prone to capture. In a recent survey, Mookherjee (2015) states that theory and evidence regarding elite capture present mixed results.

A recent survey that organised evidence according to its empirical quality showed that the effects of decentralisation on the provision of health and education are, in general, positive in developing countries (CHANNA; FAGUET, 2016). Specifically regarding education, the findings are “significantly more positive about decentralisation’s effects, especially when adjusted for quality of evidence. [...] they are almost unanimous in their support of decentralisation’s ability to enhance both quality and quantity of education” (CHANNA; FAGUET, 2016, p. 230).

In the historical research on the evolution of mass education, decentralisation often is depicted as a positive aspect to the expansion of mass schooling. Engerman, Mariscal and Sokoloff (2009) highlighted that the decentralised structure of schooling institutions partially explained the better outcomes of the United States and Canada vis-à-vis Latin America. Similarly, Goldin and Katz (2009) forcefully argued for the positive role of decentralisation in the expansion of mass education in the United States. Lindert (2004) argued that the benefits and costs of decentralised or centralised structures are context-dependent. However, he also argued that, because of decentralisation, local populations had a say concerning the education of their children in autocratic Germany under Bismarck. According to him, decentralisation was the major reason for the German leadership, along with the United States, in primary education enrolments at the end of 19<sup>th</sup> century. Basically, all those historical studies emphasise the positive accountability effects of decentralisation on provision: the proximity of providers ensured that beneficiaries could voice their concerns. Taking stock, in developing countries with relatively stable states, a decentralised structure may have positive effects on provision because of accountability advantages.

## 2.5 FINAL REMARKS

The literature on the economic history of education in Brazil has made substantial contributions to explain the historical educational backwardness of the country. A part of the literature devoted attention to the military regime and emphasised the political regime (BROWN, 2002), the social basis of support of the military government (AMES, 1973; KOSACK, 2012),

and also cultural aspects (DE MATTOS, 1988). However, this literature gave little attention to other important issues such as fiscal capacity, economic strategies and federalism.

The theoretical and historical literature on state capacity shows that increasing fiscal capacity is an important step to finance the provision of public goods such as mass education. However, to make states effectively produce public goods, more is needed. If the provision of public goods is not aligned with elite interests, accountability mechanisms must set boundaries to prevent the central government from benefiting specific groups in the society. Those mechanisms could be democratic institutions such as a powerful parliament or universal suffrage, which increase the political voice of citizens. In the absence of those institutions, decentralisation could ensure that beneficiaries had political voice. None of those accountability mechanisms were fully in place during the Brazilian military regime.

According to the literature, mass education could also arise from elite interests in educating the masses. First, an outward-oriented strategy of industrialisation could make elites demand mass education in order to face international competition. Secondly, if the elite rule envisioned a threat to political order, mass education could be used as a “nation-building” device. However, the country had adopted an ISI approach since the 1930s, a strategy that was kept during the military regime. As a result, Brazilian industrial elites were sheltered from world markets. Although national security was a major worrisome among the military, the foremost threat of political disorder were student movements in universities, not the poor population. As we will see in the next chapters, the military regime did not have many incentives to push for mass public education.



### 3 MEASURING ENROLMENTS AND RETENTION IN BRAZILIAN EDUCATION, 1933-2010<sup>1</sup>

Brazil is a case of persistent dismal education outcomes. As early as in the 19<sup>th</sup> century, the political elite already lamented the backward situation of schooling in Brazil (COLISTETE, 2016). According to Rui Barbosa (1947), a well-known statesman, “the truth [...] is that we are a people of illiterates”. In the early 20<sup>th</sup> century, Brazil lagged behind countries such as Argentina, Chile and Mexico in terms of enrolment rates (LINDERT, 2004). Brazil universalised enrolments in primary school about a century later than the United States and Canada, the early leaders in the continent. (ENGERMAN; SOKOLOFF, 1997). In 1930, approximately two-thirds of the adult population was illiterate in Brazil (ASTORGA; BERGÉS; FITZGERALD, 2005; VALLE SILVA, 2008). Although there was a substantial increase in literacy rates, as well as in the rest of the world, Brazilian education remained backwards. In 2010, the average schooling of a Brazilian adult aged 15 or more reached 7.8 years, a figure that is similar to the Zimbabwean ones and behind the averages presented by several Latin American countries (BARRO; LEE, 2013). In addition, Brazil has consistently presented one of the worst indicators in standardised proficiency tests such as the Program for International Student Assessment (PISA), an exam promoted by the Organization for Economic Cooperation and Development (OECD) that tests reading, mathematics and science abilities of 15-year-old students across the world (OECD, 2016).

However, national figures hide divergences within the country. Recent works on education in 20<sup>th</sup> century Brazil, such as Frankema (2009) and Ansell (2010), dealt with national figures, neglecting the fact that Brazil is the fifth largest country in the world and the largest in Latin America in terms of area and population. Given that the country is well-known for its glaring regional inequalities, a large related literature attempted to explain how historical factors shaped income inequality between Brazilian regions (MENEZES-FILHO et al., 2006; NARITOMI; SOARES; ASSUNÇÃO, 2012; MATTOS et al., 2012; REIS, 2014; FUNARI, 2017). However, few studies attempted to evaluate the causes of the long run educational performance in different federal states. Wegenast (2010) specifically addressed schooling and argued that landownership inequality was closely related to current educational results in different Brazilian regions.<sup>2</sup> Musacchio, Martínez-Fritscher and Viarengo (2014) argued that the current ranking of education outcomes between states stemmed from trade shocks during the First Republic (1889-1930). Komatsu et al. (2018) found out that regions with a higher proportion of descendants of slaves currently show larger within inequality in years of schooling.

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<sup>1</sup>I am grateful to Nilson F. A. Felix, who organised an important part of the dataset.

<sup>2</sup>In within-state contexts, Summerhill (2010) found that land concentration did not affect long run economic performance in the state of São Paulo. On the other hand, De Carvalho Filho and Colistete (2010) found a negative association between land concentration and educational outcomes in the same region.

This chapter supports to some extent the findings of previous works on educational inequality between Brazilian regions. However, none of the papers on regional differences dealt with education quality measures. As clearly demonstrated by Hanushek (2008) in the context of long run economic growth in Latin America, *quality* is clearly more important than *quantity*, since years of schooling are not equivalent across different places. For this reason, this chapter delves into the problem of measuring education *quantity* and *quality*. Furthermore, we also attempt to compare Brazilian federal states to other countries in Latin America, since some Brazilian federal states are larger than several neighbouring countries.

This chapter proposes at least three contributions to the literature on the history of education in Brazil. First, the paper provides a historical dataset containing information on (a) enrolment rates and (b) distribution of enrolment across grades. Adding new sources, we constructed a novel dataset on enrolment rates in Brazil between 1933 and 2010. We also built a data series on enrolments rates by federal state from 1955 to 2010. Moreover, we use an additional variable that measures the distribution of enrolment across grades by federal states in Brazil. The “grade distribution ratio” (GDR), devised by Frankema and Bolt (2006), provides information concerning retentions in a nutshell.<sup>3</sup> In the absence of proficiency examinations in the past, other types of quality measures such as GDRs are crucial to evaluate the history of schooling in underdeveloped countries - particularly in the case of Brazil. We applied the GDR to Brazilian states and regions and found that North and Northeast regions have consistently lagged behind other regions since the 1950s.

In the second place, there was a slowdown in the growth of both enrolment rates and GDRs from the mid-1970s to the 1980s, i.e., during the last decade of military rule in Brazil. According to our data, this stagnation started when fiscal constraints became prominent after the global oil crisis.

Finally, we compare education outcomes of Brazilian federal states to the ones presented by neighbouring countries. GDRs in Brazilian states were undoubtedly low even considering Latin American standards. We also found out that *given* a certain enrolment rate, Brazilian states were conditionally expected to present lower GDRs than Latin American countries on average. In other words, *retention* was a more severe problem in Brazil than in neighbouring countries as early as 1970. These results relate to the literature on high repetition rates in Latin America and Brazil (SCHIEFELBEIN, 1975; RIBEIRO, 1991). Even as early as 1970, enrolment rates were insufficient measures to assess education systems of Latin American countries, particularly in the case of Brazil.

The chapter is organised as follows. After this Introduction, we describe data and sources for the construction of the dataset in section 3.1. In section 3.2, we present enrolment rates and

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<sup>3</sup>“Retention” here is defined as “the proportion of students in grade  $j + n$  in year  $t + n$  with respect to students in grade  $j$  in year  $t$ ” (SCHIEFELBEIN, 1975, p. 468). Retention is caused by repetitions and/or dropouts. Indeed the GDR is a measure of retention.

GDRs by states and Brazilian regions throughout the entire period. In section 3.3, we undertake a comparative description of enrolment rates and GDRs between Brazilian states and Latin American countries in 1970. Section 3.4 concludes.

### 3.1 DATA AND SOURCES

#### 3.1.1 Enrolments

The number of enrolments are available in several sources of the *Instituto Brasileiro de Geografia e Estatística* (IBGE) and the *Ministério da Educação e Cultura* (MEC). The most well-known source is the *Anuário Estatístico do Brasil* (AEB), the Brazilian Statistical Yearbook published by the IBGE (1908-). An electronic version compiling data tables from several waves of the AEB is available online as *Estatísticas do Século XX* (IBGE, 2003). As it was readily available, this source had already been used by Maduro (2007). However, the AEB did not contain enrolments by states. In order to tackle that, we added further sources from MEC.

State-level enrolments are available only for primary education (eight grades) from 1955 to 2010. A report authored by Goldenberg (1990) is the major source of state-level enrolments by grades in primary education. From 1995 onwards, enrolment data is available at the website of the National Institute of Education Research (INEP), a research centre of the Ministry of Education.<sup>4</sup> Other documents were used as checks.<sup>5</sup> There is missing information on the number of total enrolments and enrolments by grade of *ensino fundamental* in 1988, 1989, 1990 and 1994.

A legal change in 1971 required an adaptation of our dataset. The Law 5,692/1971 (also called the 2<sup>nd</sup> Law of Directives and Bases or 2<sup>nd</sup> LDB<sup>6</sup>) reorganised the existing grades in different educational stages. The law change increased the first schooling level in additional four grades, merging the former primary (*ensino primário*) and lower secondary levels (*ensino médio - primeiro ciclo*), which in turn was named *ensino de primeiro grau*. In 1996, the eight-year level *ensino de primeiro grau* was renamed to *ensino fundamental*. As a consequence, the lower secondary was separated from the upper secondary level in 1971. The three-year *ensino médio - segundo ciclo* was renamed to *ensino de segundo grau* in 1971 and rebaptised again as *ensino médio* in 1996.

The 1971 change entailed a grade redistribution between different educational stages, even though the total number of schooling years did not change. It created difficulties for the construction of the dataset. There is relatively complete aggregate data on *ensino primário* until 1970. From 1970 onwards, aggregate data regarding the whole *ensino de primeiro grau* is

<sup>4</sup> Instituto Nacional de Estudos e Pesquisas Educacionais (INEP).

<sup>5</sup> Our major sources on education data are the following entries: MEC (1977a), MEC (1977d), MEC (1977b), MEC (1977e), MEC (1977c), MEC (1977f), MEC (1959a), MEC (1959b), IBGE (1940-), MEC (1985b), Goldenberg (1990), INEP (2003), MEC (1974).

<sup>6</sup> 2<sup>a</sup> Lei de Diretrizes e Bases - LDB

easier to find. We did all necessary adaptations, as [Maduro \(2007\)](#) had also done even though he did not explicitly acknowledge it.<sup>7</sup> After consulting him personally, we checked whether our enrolment data was similar to his (Maduro gently sent us his dataset by e-mail). There are some differences in the aggregate data by schooling level, but most of the information is the same. Besides national enrolment data, we collected data on enrolments by state and per grade. The first allows us to look at regional differences within a continental country, while the second provides us information on concentration of enrolments in the first grades, an evidence of high incidence of repetitions and dropouts.

### 3.1.2 School-age population

Population figures are based on the official demographic censuses from [IBGE \(1940-\)](#). There are several ways of interpolating population data. The literature has recently used cubic spline functions to avoid the occurrence of kinks in census' years.<sup>8</sup> Previous works used other kinds of interpolation, but we would expect only slightly different results among the several estimates.

Since 1940, Brazilian censuses present population by single years of age. From the 1970 Census onwards, population by single years of age are available through electronic means and microdata. Prior to 1970, electronic means only provides population by five-year age groups. [Maduro \(2007\)](#) only uses five-year age groups for the whole period. In order to construct the 7-14 age group, he took three-fifths of the 5-9 age group plus the total population of the 10-14 group. He similarly obtained the 15-17 age group from taking three-fifths of the 15-19 group. By doing that, [Maduro \(2007\)](#) assumes that the distribution of population across single years of age within a five-year age group is uniform, which is definitely inaccurate if birth rates are increasing or decreasing. However, hard copies of the 1940, 1950 and 1960 Censuses contain population by single year of age. Although those data suffer from the well-known age heaping problems, particularly regarding ages ending with 0 or 5, picking up the age group of interest directly (e.g. the number of children aged between 7 and 14 years) is certainly a better option than using proportions of five-year age groups to finally build the age group of interest.

In order to obtain inter-census estimates, we interpolated the age-groups of our interest through a cubic spline function. We opted for the default spline method available at the *splinefun* package for the R software, the FMM method (which stands for the work of [Forsythe, Moler and Malcolm \(1977\)](#) according to the *splinefun* package documentation).<sup>9</sup> The cubic spline interpolation applied provides internally consistent estimates: summing up state-level interpolated data equals nation-wide interpolations. The same consistency principle also applies to different

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<sup>7</sup>[Maduro \(2007\)](#) present a graph of enrolment rates in primary education considering eight grades from 1933 to 2004. However, data presented in his attachment provides enrolments in the older primary education (four grades) until 1970.

<sup>8</sup>In Brazil, [Souza \(2016\)](#) adopted this methodology. We thank him for valuable help on that matter.

<sup>9</sup><https://www.rdocumentation.org/packages/stats/versions/3.4.3/topics/splinefun>

age groups, so we did not have to care about interpolating the entire population between Censuses. Alternatively we could have deployed Sprague coefficients. However, the Sprague methodology did not yield trustworthy results taking as reference data from recent censuses (more accurate in terms of data collection). Therefore, we stuck to the cubic spline interpolation.

### 3.1.3 Grade distribution ratio (GDR)

Frankema and Bolt (2006) and Frankema (2009) developed the “grade distribution ratio” (GDR) approach. It is defined by the following equation:

$$GDR_{1-N} = \frac{\sum_{i=(n+1)}^N g_i}{\sum_{i=1}^n g_i} \times \frac{n}{N-n} \quad (3.1)$$

in which  $N$  is the total number of grades,  $n$  is a grade between 1 and  $N$ , while  $g_i$  is the share of students enrolled in the grade  $i$ .

In order to analyse the distribution of enrolments by grade at *ensino fundamental* within Brazil, we considered the range between grades one and eight. Frankema (2009) used national figures of several countries including Brazil and other Latin American countries. Here we make two extensions. First, we computed a complete national series of GDR figures in Brazil for 1955 to 2010. Secondly, we did the same for Brazilian states. In order to allow for international comparisons, we followed Frankema (2009) and used the GDR between the first and the sixth grade. Therefore, data is widely available for those grades across Latin American countries since primary education is comprised by the first six grades in most educational systems:

$$GDR_{1-6} = \frac{\sum_{i=4}^6 g_i}{\sum_{i=1}^3 g_i} \quad (3.2)$$

If we assume that “the influx of people is constant over time, the ratio of the grades 4 to 6 over 1 to 3 expresses the chance that a pupil in grades 1 to 3 reaches the higher grades 4 to 6 without repeating grades or dropping out” (FRANKEMA, 2009, p. 377).

As we stated in the introduction of this section, the GDR has the advantage of being a summary indicator, which facilitates comparative analyses. On the other hand, the standard GDR methodology does not take into account demographic changes. A way of tackling this problem is through a slight modification of the formula. However, this is not necessary if the countries and regions in the analysis are approximately in the same stage of demographic transition. In the case of Latin America, we do not expect that demographic factors lead to large distortions in a cross-country or cross-regional analysis.<sup>10</sup>

<sup>10</sup>We could have devised a “GDR frontier” if we had data on the number of new students in the first grade in each year, as wisely suggested by Peter Sims. Deviations from that frontier would be a better comparative measure. Unfortunately, data on new students are not trustworthy until the mid-1990s, as emphasised by Schiefelbein and others.

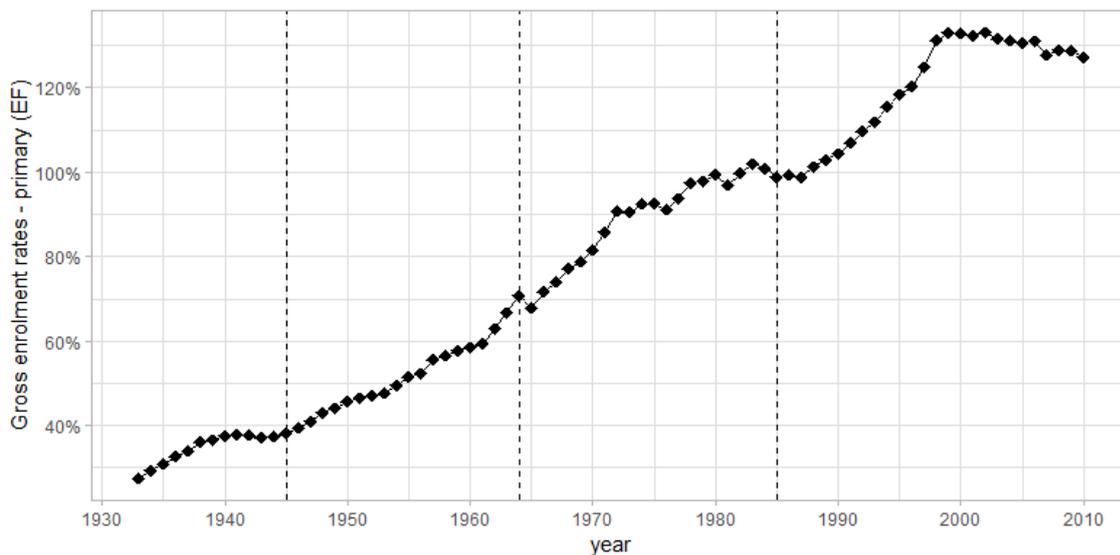
### 3.2 ENROLMENT RATES AND RETENTION IN BRAZIL, 1933-2010

In the first subsection we present yearly estimates of enrolment rates to the whole country. enrolments by states and regions are presented subsequently. In this section, we use subdivisions in accordance with the Brazilian legislation since 1971. Here we call “primary education” a level comprised of the first eight schooling grades (*ensino de primeiro grau*), while we call “secondary education” the stage comprised of the remaining three grades (*ensino de segundo grau*).

#### 3.2.1 Gross and net enrolment rates in Brazil

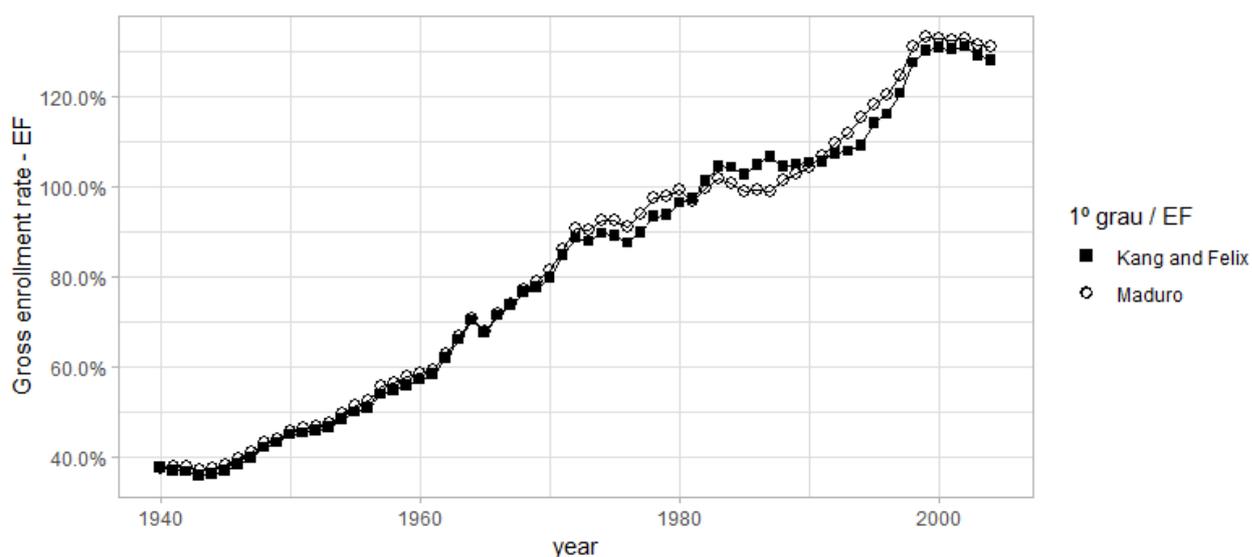
Information on gross enrolments in Brazil is available since 1933. Since we did not have population by single years of age before 1940, we estimated enrolment rates for the period between 1940 and 2010. Between 1933 and 1939, we kept the estimates of [Maduro \(2007\)](#). The complete series is shown in Figure 4. Our national estimates of enrolment rates to the *ensino fundamental* are similar to the series of [Maduro \(2007\)](#), as shown in Figure 5 (Pearson correlation of 0.997). Discrepancies between the estimates are slightly larger in the decades of 1970 and 1980. According to both estimates, the country achieved 100% of gross enrolment rates in the early 1980s. The next two graphs end in 2004 because that is the last year of [Maduro \(2007\)](#)’s database.

Figure 4 – Gross enrolment rates, primary education (*ensino de primeiro grau*), Brazil, 1933-2010



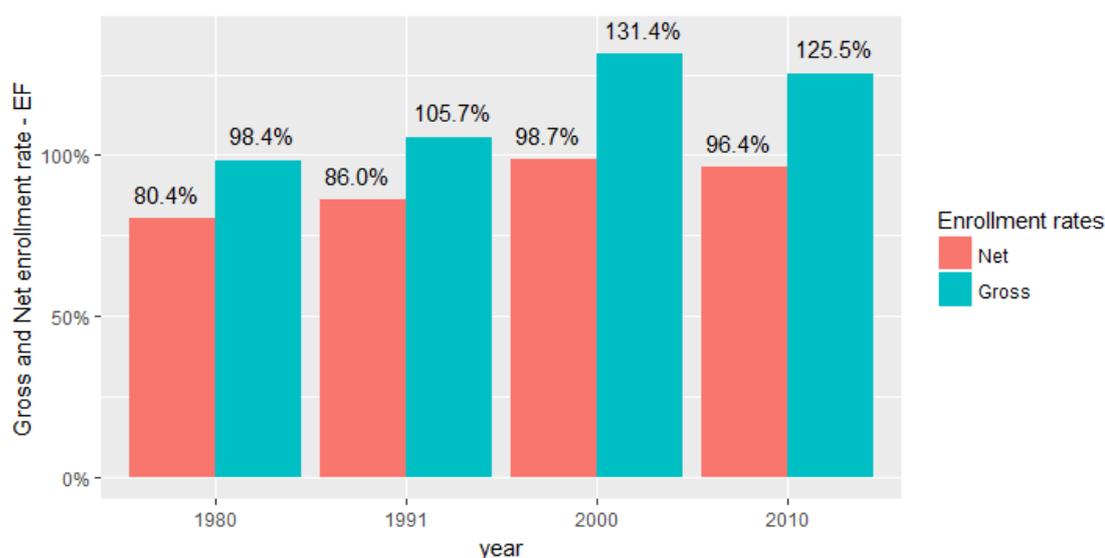
Source: Research data (2019).

The slight differences between [Maduro \(2007\)](#) and our estimates stem from small divergences in population estimates. The similar results in national estimates of primary education enrolment rates (and also upper secondary education, see Appendix ??) make us confident on our estimates by states and regions, which are presented in the next subsection.

Figure 5 – Gross enrolment rates, primary education (*ensino de primeiro grau*), 1940-2004

Source: [Maduro \(2007\)](#) and research data (2019).

Figure 6 – Net and gross enrolment rates, primary education (eight grades)



Source: Research data (2019).

[Maduro \(2007\)](#) did not provide any estimates on net enrolment rates. Those are only found in a consistent basis from 1979 onwards for primary education (eight grades). Net enrolment rates are defined as the “total number of students in the theoretical age group for a given level of education enrolled in that level, expressed as a percentage of the total population in that age group.” (UNESCO, 2018).<sup>11</sup> If net enrolment rates are low, it shows us that few students of a given age group were enrolled in the schooling level they were supposed to be. Here we extend

<sup>11</sup> Available at: <http://uis.unesco.org/en/glossary-term/net-enrolment-rate/>

the time span of Figure 6 up to 2010, the last year of our series.

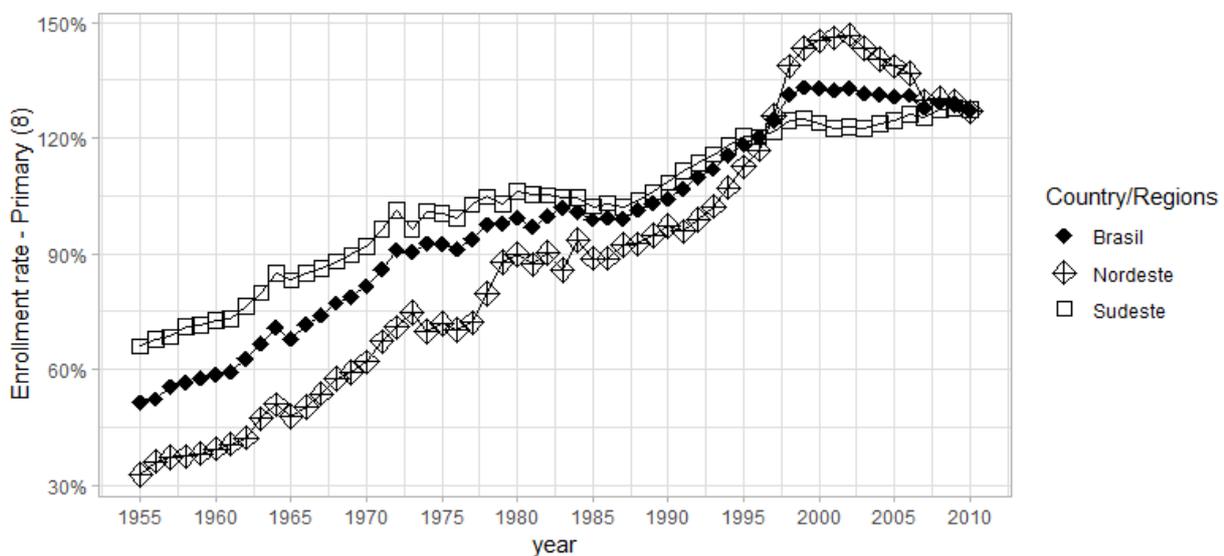
Even though the gross enrolment rate achieved 100% in the early 1980s, net enrolment rates show that around 20% of the children aged between 7 and 14 were not enrolled in *ensino fundamental* in 1980. The universalisation of the first level was achieved in practice only during the 1990s. The information contained at Figure 6 shows that net enrolment rates achieved 99% in 2000.<sup>12</sup>

### 3.2.2 Enrolment rates by states and regions

Assessing the situation of Brazil without looking at its regions and states is a major problem if we consider the size of the country and the glaring inequality between regions.

Some Brazilian states are larger than many Latin American countries. For instance, the southernmost state of *Rio Grande do Sul* is more than three times larger than its neighbor Uruguay in demographic terms (11.3 million and 3.4 million inhabitants respectively). In the North region, the state of *Amazonas*' territory (1.56 million  $km^2$ ) is larger than the area of any country in Latin America except for Argentina (2.74 million  $km^2$ ) and Mexico (1.96 million  $km^2$ ). Brazil's area is actually larger than the continental portion of the United States (8.51 million and 7.82 million  $km^2$  respectively).

Figure 7 – Gross enrolment rates, primary education, Northeast and Southeast regions, 1955-2010



Source: Research data (2019).

In economic aspects, Northeast region's GDP per capita was about a quarter of South-east's product per head in 1955. Although the gap decreased through time, this ratio was still about a third in the early 1980s. In the extreme cases of each region, *São Paulo*'s GDP per

<sup>12</sup>We have also estimated gross and net enrolment rates for the secondary education (three grades). Since this paper is not about secondary education, we decided to leave those data in the Appendix ??.

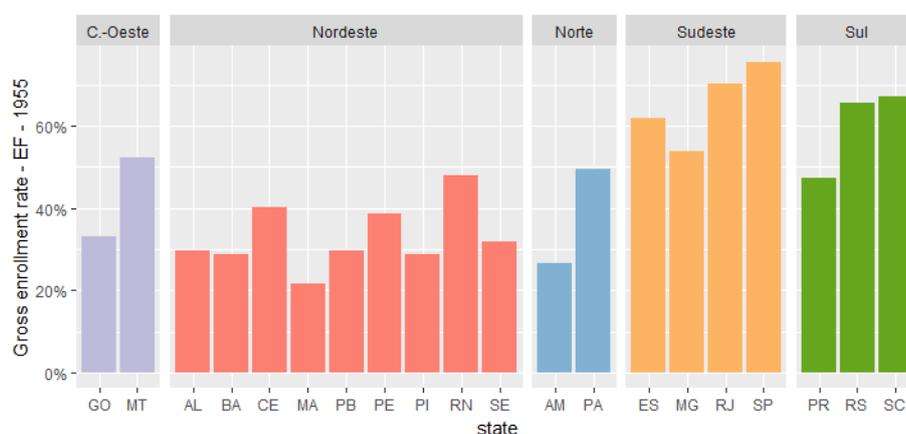
capita (the richest state) was almost eight times larger than the GDP per capita of *Maranhão* (the poorest state) in the early 1970s (AZZONI, 1997).

The story was not much different regarding educational indicators. Figure ?? clearly shows the gap between rich and poor regions in Brazil. Considering only primary education, gross enrolment rate in the modern Southeast was about 66.0%, while in the mostly rural and backward Northeast it was only 32.7% in 1955. National estimates were somewhere in the middle (51.4%). Two decades later, the country had already developed a large and diversified manufacturing sector of durable goods. The industrial Southeast achieved a gross enrolment rate of 100%, but Northeast's rate was only 71.9% in 1975 - including older students retained in that level for whatever reason.

Figure 8 shows that Centre-West's performance was not much different from the North and Northeast regions, while Southeast and South was on the lead. Fifteen years later, Center-West had caught up with its southern neighbors and distanced itself from the northern states. In the end of military rule, almost all states had surpassed 100% regarding gross enrolment rates, but some backward states in the Northeast such as Ceará and Maranhão were far from reaching its counterparts.

There was an acceleration of the growth of enrolment rates during the mid-1980s in the country as a whole, including the regions depicted on Figure 7. Some scholars have argued that the turn to democracy and the enactment of a new constitution in 1988 had a positive role on the improvement of educational indicators. Actually, there was an apparent reversal of patterns: Northeast's gross rates of enrolment become clearly higher than Southeast's figures in the late 1990s. Since primary education was universalised in the late 1990s, higher gross rates in Northeast is to a large extent a result of larger retention of children aged more than 14 years in that level.

Figure 8 – Gross enrolment rates, primary education (eight grades), Brazilian states, 1955



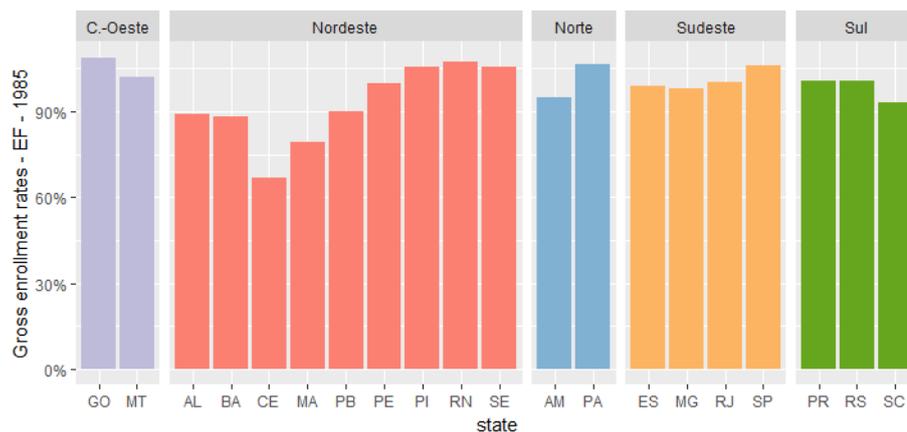
Source: Research data (2019).

Figure 9 – Gross enrolment rates, primary education (eight grades), Brazilian states, 1970



Source: Research data (2019).

Figure 10 – Gross enrolment rates, primary education (eight grades), Brazilian states, 1985



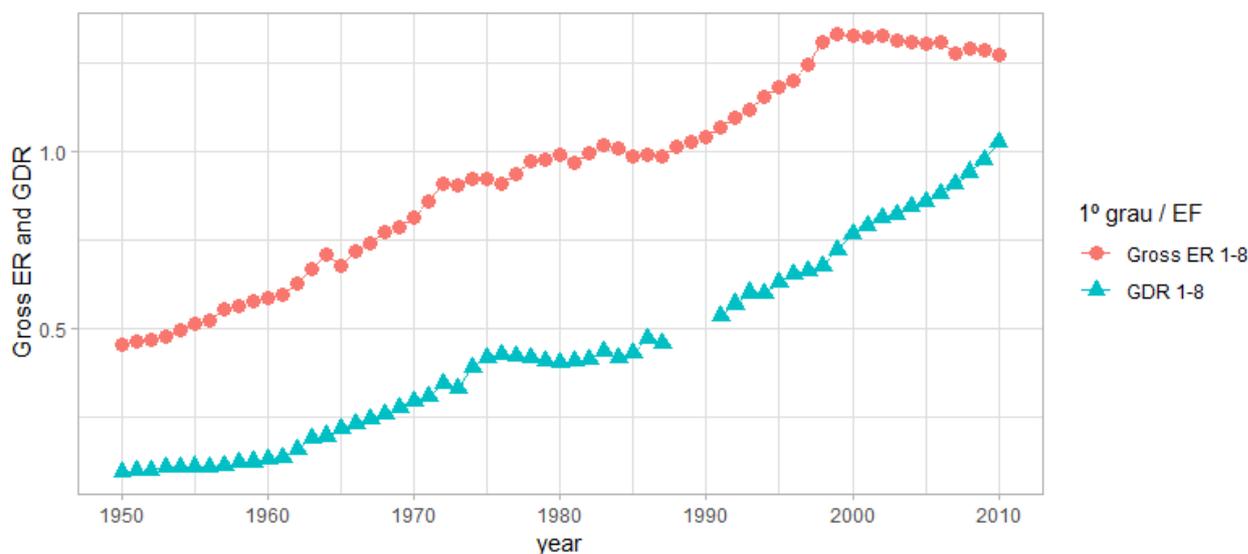
Source: Research data (2019).

### 3.2.3 Enrolments by grade and GDRs

Enrolment rates provide only a rough idea of the breadth of the Brazilian education system. Gross enrolment rate in the former *ensino primário* was about 28% of the population aged between 7 and 10 years in 1933. However, about 1.3 million students were enrolled in the first grade in 1933, while only 151,647 pupils were enrolled in the fourth grade in 1936 – roughly 12% of the 1933's first graders. Bearing in mind that we did not control for repetition and demographic changes, those figures were not much better for the children who started their schooling in the late 1950s: the ratio between students enrolled in the fourth grade in 1960 and first graders in 1956 were about 20%. This ratio achieved 30% only in the early 1970s.

Gross enrolment rates were already low without taking into consideration the distribution of pupils across grades in Brazil. Taking into account enrolments by grade, the system was inefficient according to international standards. Some states in Brazil, mostly in the northern

Figure 11 – Gross enrolment rates and GDR, *ensino fundamental* (primary and lower secondary level), Brazil, 1950-2010



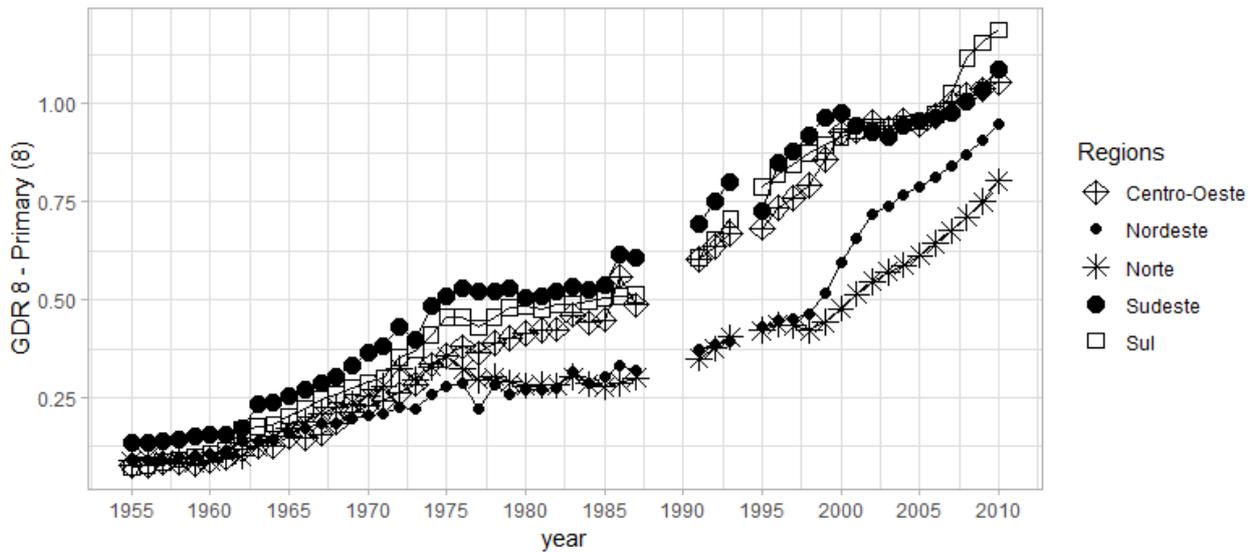
Source: Research data (2019).

and northeastern areas, have historically presented a pattern of enrolment flows comparable to the least performers in Latin America. The comparative analysis of the “grade distribution ratio” (GDR) for Brazilian states bluntly exposes not only the education backwardness of the country as a whole, but the dismal situation of some specific regions.

Instead of calculating the GDR, we could have taken several indicators such as repetition and dropout rates for all countries. Unfortunately those indicators are not widely available. Since the GDR is a synthetic indicator that comprises repetition and dropouts, it is a helpful tool for comparative analysis.

Figure 11 shows the evolution of both enrolment rates and GDR of the *ensino fundamental* through time. From the mid-1970s to the late 1980s, there is a stagnation in the growth of GDR. A possible explanation for the GDR stagnation could be a positive shock on enrolments in the first grades in times of demographic growth. However, there was no acceleration on the growth of enrolment rates - on the contrary, there was a decrease. Rather than a rise in enrolments leading to a stagnation of GDR, the reverse hypothesis is more likely: an increase in repetitions and/or dropouts have probably led to a slowdown in enrolment rate growth. Regional GDRs (see Figure 12) reveal that the slowdown was more pronounced in the poorer North and Northeast regions of the country from the mid-1970s to at least the late 1980s.

If a sudden increase in enrolments cannot explain the slowdown, some sort of political economy candidate must be considered. After the 1964 military coup, technocratic bureaucracy had a preference for increasing spending on primary and, most importantly, secondary education. However, after pressure from upper and middle strata, the Brazilian military regime expanded

Figure 12 – GDR, 1-8 grades, *ensino fundamental* (primary and lower secondary level), Brazil, 1955-2010

Source: Research data (2019).

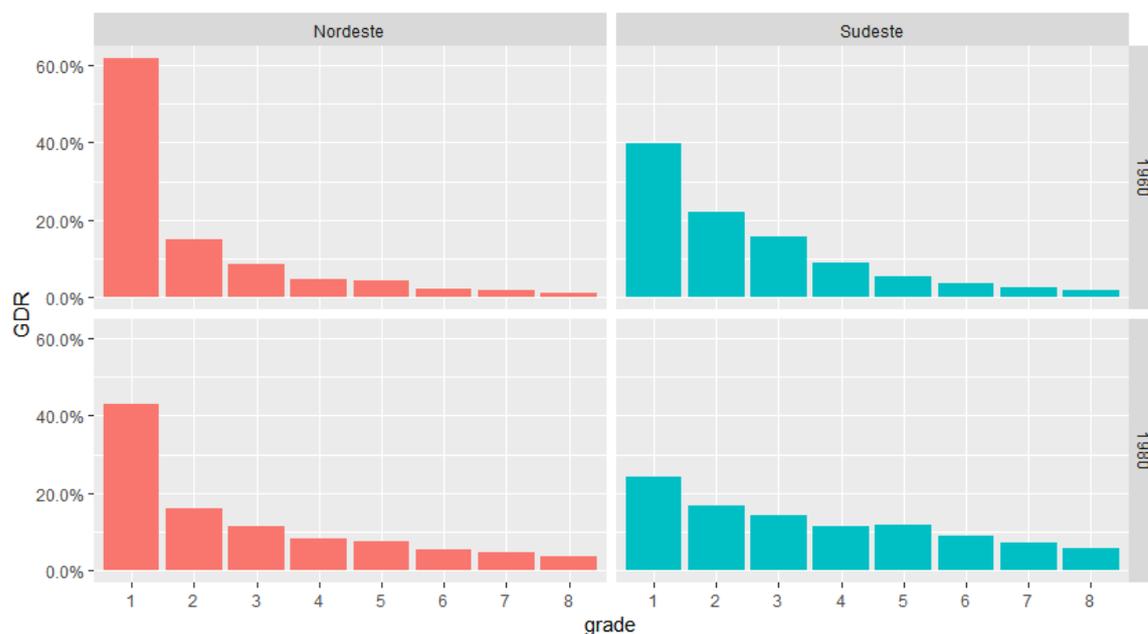
access to the tertiary education in the early 1970s (AMES, 1973; BROWN, 2002).<sup>13</sup> The focus on tertiary education has probably depleted resources from the primary level: a decrease in *outputs* might have led to lower *outcomes*. Even with the 1971 reform of schooling, which abolished the entrance examination to the lower secondary level, GDRs stagnated. A second possibility is that part of the pupils of regular schools might have possibly started to attend adult education lessons. The *Movimento Brasileiro de Alfabetização* (MOBRAL) was the adult literacy programme of the military regime in Brazil. Despite being addressed to adults, MOBRAL ended up reaching 9-14 years old children (a quarter of MOBRAL pupils in Northeast were actually in that group in 1973), which might have crowded-out pupils from regular schools (HAUSSMAN; HAAR, 1978).

Whatever the case was, the contemporary literature asserts that retention was caused more by high repetition rates than by dropouts at least in the early 1980s. Statistical data from the Brazilian Ministry of Education mistakenly ascribed a greater weight to dropouts for explaining the lack of school progression. According to Schiefelbein (1975), that was not a Brazilian exclusivity: there was a general underestimation of repetition rates in Latin American countries. Based on data from sample household surveys in the early 1980s, some Brazilian scholars forcefully argued that repetition rates in Brazil were much higher than claimed by official statistics.<sup>14</sup> Pupils that stopped attending school before the end of the school-year were not considered as repeaters in the following year's statistics because of a mistaken assessment system (FLETCHER, 1985; KLEIN; RIBEIRO, 1991; FLETCHER; CASTRO, 1993).

<sup>13</sup>This issue will be later taken again in chapter 4.

<sup>14</sup>Teixeira de Freitas (1947) had already called attention to the problem of repetition in the Brazilian school system, but his findings were largely ignored until the 1980s.

Figure 13 – Distribution of enrolments by grade, *ensino fundamental* (primary plus lower secondary) Northeast and Southeast regions, 1960 and 1980



Source: Research data (2019).

According to [Ribeiro \(1991\)](#), the probability of a new first-year grade student to pass was close to zero in Northeast region. Indeed the situation of Northeast was absolutely dismal: in 1960 over 60% of the pupils matriculated at *ensino fundamental* were concentrated in the first grade in that region. In industrial Southeast, 40% of the *ensino fundamental* students were registered as first-graders in the same year. Northeast reached Southeast's figures only two decades later (see Figure 13). In the view of [Ribeiro \(1991\)](#), Brazil championed a “pedagogy of repetition” (*“pedagogia da repetência”*) among educators and teachers. The Brazilian education system might have needlessly blocked the progression of most children and reinforced backwardness.<sup>15</sup> Evidence for that case is hard to find, but the next section shows that Brazil was clearly a backward country in terms of school progression *even comparing to other Latin American countries*.

### 3.3 EDUCATION IN BRAZILIAN STATES AND LATIN AMERICA: A COMPARATIVE PERSPECTIVE

Enrolment rates in Brazil were comparatively low taking international standards into account. According to [Frankema \(2009\)](#), Brazil lagged behind in primary education enrolment rates. While Argentina had nearly universalised primary schooling for the masses around 1950, Brazilian rates were about 67%. Countries such as Ecuador and Dominican Republic, which

<sup>15</sup>Contrary to Brazil, [Goldin and Katz \(2009\)](#) argue that the expansion of mass schooling in the United States was pushed by the establishment of an *open* and *forgiving* system. By *open* they mean universal access, while by *forgiving* the authors emphasise that repetitions were minimised in order to keep children attending classes.

were clearly not among the leaders in the region, presented higher enrolment rates. Only poorer countries from Central America had lower rates.

However, Frankema (2009)'s figures are not the most appropriate to undertake international comparisons. In some countries, primary education was composed of four grades, which was the case of Brazil until 1971, whilst completion of the first educational stage required eight grades in Bolivia or Chile. Aware that comparing primary level enrolment rates between a four-year system and an eight-grade level is not adequate, texts in UNESCO Statistical Yearbooks clearly stated that comparisons should be undertaken with care. There are ways to tackling the problem though. Rather than using each country's definition, we decided to use total enrolments in the first six grades - no matter if they belonged to the first or the second educational stage according to the regulation of each country. Enrolment rates of the first six grades are comparable across countries.

The UNESCO Statistical Yearbooks provided only the percentage of students enrolled in each grade relative to the total enrolments in that schooling level. In some years, when the total number of enrolments by level was available, we retrieved the absolute number of enrolments by grade. We found information on total enrolments, proportion of enrolments by grade in both primary and secondary levels (as defined by each country) and school-age population from nearly all Latin American countries in 1970 and 1980. That allows us to compare both enrolment rates and GDRs across countries in the region.

Table 1 shows the difference between our own calculations using only the first six grades and Frankema (2009)'s calculations of gross enrolment rates in 1970. Frankema (2009) adapted the denominator of each country multiplying the population between 5 and 14 years old by  $10/n$ , where  $n$  is the number of grades of the first schooling level in each country. That explains why his estimates are expected to be constantly above our numbers. The most important consequence is that rank differences matter more than the rates themselves. Rank correlation at Table 1 shows that there was not a large difference between the two datasets. In any event, enrolment rates using the same number of grades are definitely more comparable across countries. According to these new estimates, Brazil's gross enrolment rates (1-6 grades) were slightly higher than Honduras and Bolivia, but worse than El Salvador. In this list of countries, Brazil was ranked 14<sup>th</sup> in a list of 18 countries.

The same data source allows us to compare GDRs across countries in 1970. According to the data, the Brazilian pattern of enrolments across grades was comparable to the ones presented by Colombia (0.38 and 0.37 respectively), while Latin America had already achieved 0.57. The relatively advanced South and Southeast regions had a GDR of 0.42 and 0.48 respectively, not much different from poorer economies such as Paraguay (0.43) and El Salvador (0.46). At the same time, the Northeast region presented a dismal index of 0.24, a result not even close to any Latin American country in the database.

Enrolment and GDR data are jointly mapped in Figure 14: the first grid presents enrolment

Table 1 – Gross enrolment rates, first six grades and primary level according to each country, Latin America and Caribbean countries (selected), 1970

Country	Enrolment rate (1-6)	Rank	Enrolment rate (Frankema 2009)	Rank
Argentina	71%	7	105%	8
Bolivia	56%	16	68%	17
Brazil	59%	14	87%	14
Chile	81%	2	119%	1
Colombia	65%	11	103%	10
Costa Rica	82%	1	112%	2
Dominican Rep.	66%	9	107%	5
Ecuador	71%	6	97%	11
Guatemala	37%	18	58%	18
Honduras	57%	15	93%	13
Mexico	73%	5	104%	9
Nicaragua	46%	17	80%	16
Panama	71%	8	110%	3
Peru	76%	3	107%	5
El Salvador	61%	13	87%	14
Trinidad y Tobago	64%	12	107%	5
Uruguay	73%	4	110%	3
Venezuela	66%	10	95%	12

Spearman  
correlation: 0.849

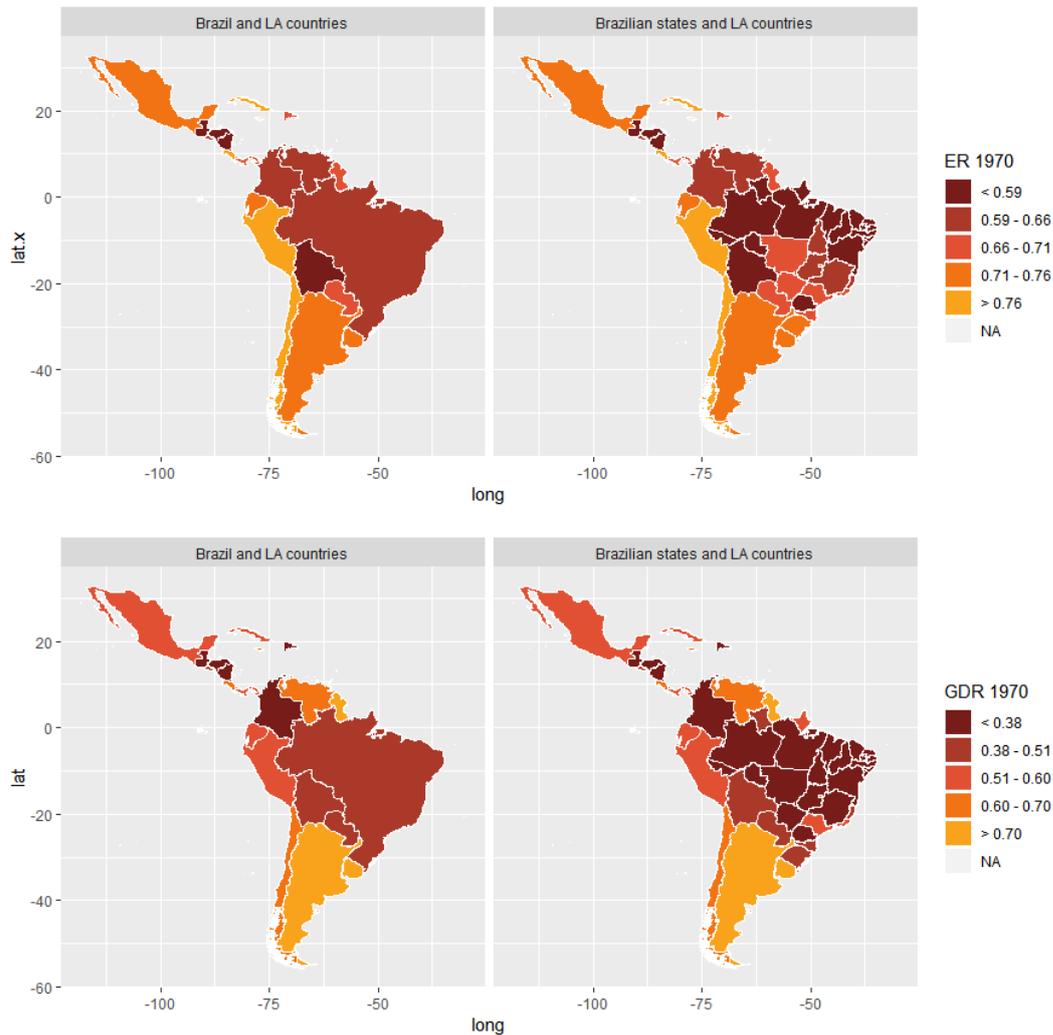
Source: [Goldenberg \(1990\)](#), [UNESCO \(1973\)](#) and [Frankema \(2009\)](#).

rates, while the second one contains GDRs. The colours are defined by the quintiles of the distribution of country-level data (including Brazil). The clear disadvantage of Northeast and North in both variables calls attention. Moreover, the GDR map shows that nearly all states presented ratios comparable to the lower quintile of countries. The densely populated areas of São Paulo and Rio de Janeiro lessen the problem, pushing up the country's overall indicators. However, the population of other regions are not negligible as demonstrated by Figure 15.

Figure 15 also presents the same data in another setting. It clearly shows that splitting Brazil into federal states is essential for analytical purposes.<sup>16</sup> First, the size of each observation reflects the absolute population aged between 5 and 14 years in each country or Brazilian state. Most Brazilian states had larger populations than a number of Latin American countries. In addition, it goes beyond showing that federal states had strikingly low enrolment rates and GDRs. According to our data, Brazilian states were in fact expected to present a lower GDR than neighbouring countries *given* a certain enrolment rate level. As Figure 16 shows, the result is qualitatively the same ten years later, even though enrolment rates increased comparatively more in some Brazilian federal states *vis-à-vis* Latin American countries between 1970 and 1980.

<sup>16</sup>In fact, there is also considerable inequality within states, and even cities and neighborhoods in Brazil. Analyzing that is beyond the scope of this dissertation, but certainly an important matter particularly in Brazil. Some historical works have analysed education outcomes in a more micro-level perspective ([DE CARVALHO FILHO; COLISTETE, 2010](#); [DE CARVALHO FILHO; MONASTERIO, 2012](#); [SUMMERHILL, 2010](#); [NARITOMI; SOARES; ASSUNÇÃO, 2012](#)). I thank Flavio Comim for this comment.

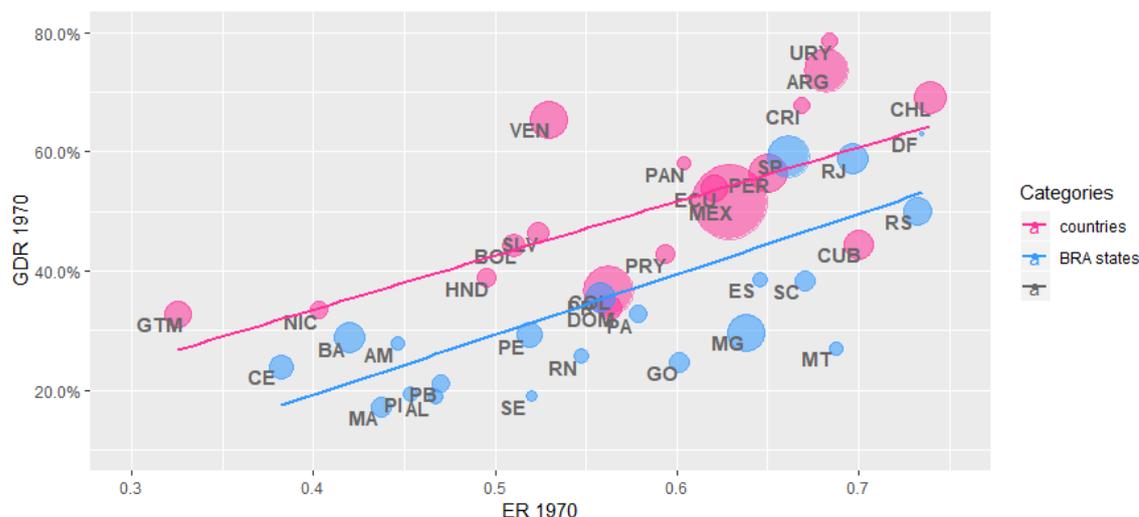
Figure 14 – Gross enrolment rates and GDR 1970, grades 1-6, Latin American countries and Brazilian states



Source: Research data (2019).

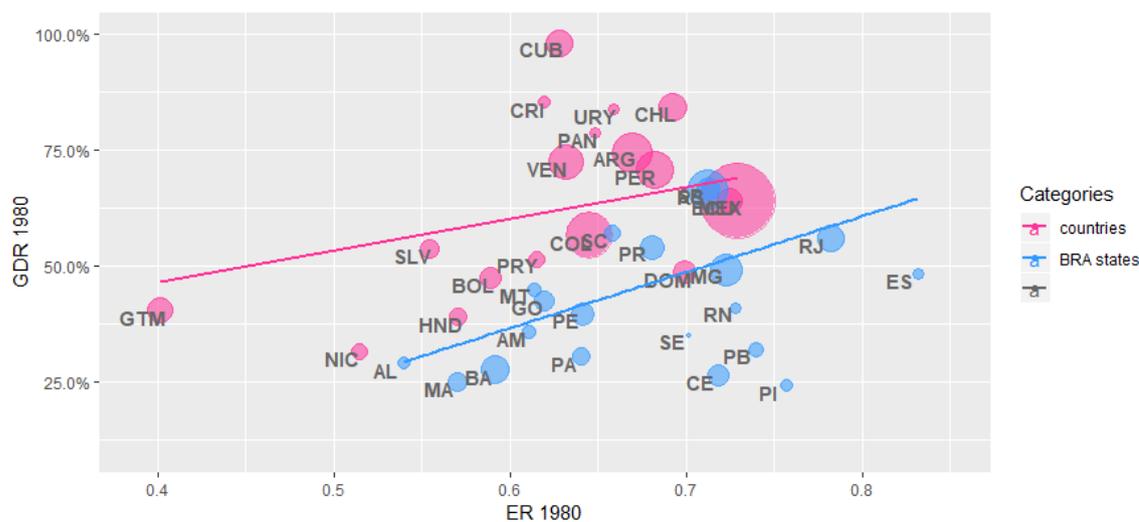
Maps at Appendix ?? show the evolution of GDRs in Brazilian states *vis-à-vis* Latin American countries between 1960 and 2000. Indeed several Brazilian states lagged behind Latin American countries for decades. Brazil caught up with the Latin American average only in the turn of the century, when our comparative analysis of this indicator ends. The country achieved a GDR of 0.82 in 2000, a result close to the Latin American average of 0.83 in the same year. Both Southeast and South had already achieved a GDR larger than 1.00. The Northeast region, however, lagged behind (0.67) and the situation in the North region was even worse (0.57). While national GDR was similar to the ones presented by Paraguay or Colombia, states of the regions South, Southeast, and Centre-West was clearly ahead the rest of Latin America. The improvement in those areas relative to Latin American standards is a reversal of the prevailing historical pattern, even though some states were still lagging behind the rest of the continent in 2000.

Figure 15 – Gross enrolment rates and GDR 1970, grades 1-6, Latin American countries and Brazilian states.



Source: Research data (2019).

Figure 16 – Gross enrolment rates and GDR 1980, grades 1-6, Latin American countries and Brazilian states



Source: Research data (2019).

Despite the persistent backwardness of the northern part of the country being widely known, there was no attempt to compute a long run series of education indicators by regions and states. As a consequence, there was no way of making international comparisons taking regional indicators. Said that, we are left with two questions: why did the education system in Brazil lead to a large retention rate even taking into account Latin American standards? And why were some regions more backwards than others within Brazil? Here we attempt to shed some light on that matter.

Brazilian educational backwardness seems to follow a regional pattern to a significant

extent, since all Latin American countries lagged behind its Anglo-Saxon counterparts in the continent. One could argue that legal or national origins have played a determinant role. However, that does not explain why Argentina and Uruguay were the leaders of the region during a large part of the period. Indeed Brazil had a slightly different background as a former Portuguese colony, but it is hard to argue that there was a large difference between Spanish and Portuguese heritages.<sup>17</sup> Rather than national heritages, Engerman and Sokoloff (1997) have forcefully pointed out that initial factor endowments in colonial times led to the creation of different institutions in the Americas. According to this perspective, institutions reinforced the political power of the elite through time in Latin America, which have in turn led to the dismal education outcomes of the region. The same reasoning could apply to differences within Latin America: Brazil and other tropical countries exported crops that lead to the adoption of large estates for scale reasons, while Southern Cone's climate was not suitable for those crops, which led them to achieve universal enrolments in primary education earlier than its neighbours (ENGERMAN; MARISCAL; SOKOLOFF, 2009).

Bearing in mind factor endowments, we consider the federal state of Ceará as an example. Located in a tropical area, Ceará is also in the Northeast region. Matriculation rate until the sixth grade in Ceará was 38.2% (considering the 5-14 aged population), a figure even larger than the one presented by Guatemala (36.7%). However, GDR in Ceará was 0.24, a figure substantially lower than the Guatemalan GDR (0.33) in 1970. That sort of problem was widespread in northern and northeastern states. Both enrolment rates and GDRs in those federal states were below other countries in similar latitudes such as Ecuador and Peru, but the GDR problem was more intense. Those findings corroborates Brazilian educator J. R. Moreira, who wrote the following at a UNESCO (1958) report:

“[...] retardation in the primary schools reaches alarming proportions, expanding and enlarging the school age band, multiplying the first grades, crowding the classroom, and dividing the school periods into two, three, or even four sessions because there are not enough funds to build more schools”.<sup>18</sup>

The same conclusion held for some richer states. Even though the differences in outcomes between Southern Cone countries and the Brazilian state of *Rio Grande do Sul* cannot be considered outcomes of a natural experiment, there were several similarities between the regions. Besides sharing similar climate conditions with Argentina and Uruguay, *Rio Grande do Sul* was initially colonised by Spanish settlers, since it was located west to the Tordesillas line. Similar to Uruguay, the Brazilian southernmost state specialised in cattle raising and received a huge flow of Italian and German immigrants from the nineteenth century onwards. Following the logic of

<sup>17</sup>We consider here that there is no much difference between Portuguese and Spanish heritages. That is definitely not emphasised by the literature, perhaps because those differences seems insignificant or hard to define. An exception is the classical book of Raymundo Faoro (1958), which highlights specific Portuguese heritage as a major source of the Brazilian backwardness.

<sup>18</sup>Frankema (2009) had also highlighted the same quote.

Engerman and Sokoloff (1997)'s argument, Rio Grande do Sul and Uruguay shared not only a national border, but also the same enrolment rates (73% in 1970). However, Rio Grande do Sul's GDR lagged substantially behind during the period, only surpassing its neighbour during the 1990s: 0.50 against 0.79 in Uruguay. Apart from São Paulo, Rio de Janeiro and Distrito Federal (the industrial centre, the former capital and the new capital, respectively), all other federal units were below the Latin American expected mean *given* their enrolment rates.

Our analysis suggests that nation-wide institutional effects interacted with factor endowments and played a substantial role in the trajectories of educational development. Pairwise correlations show that the logarithm of per capita income of Brazilian states and Latin American countries were associated with both enrolment rates and GDRs. However, the association with GDRs was clearly stronger - even though we are relying only on crude pairwise correlations by now (see Figures 17 and 18). To reveal the sources of those gaps, different institutional settings such as the widespread use of slave labour in Brazilian history and policy differences (both economic and educational ones) deserve a thorough investigation.

Even though we obviously cannot attribute causation from a rough correlation measure, actually the correlation between GDP per capita and GDRs in Brazilian states and Latin American countries raises a questionmark on the so-called "pedagogy of repetition" hypothesis (RIBEIRO, 1991). If GDP per capita in fact explains to a large extent GDR variation (or the other way around), it is hard to sustain that Brazil had a unique kind of pedagogy that blocked the progression of pupils. If Ribeiro (1991) was correct about the "pedagogy of repetition", then that was likely a Latin American issue rather than a distinctive feature of the Brazilian system.

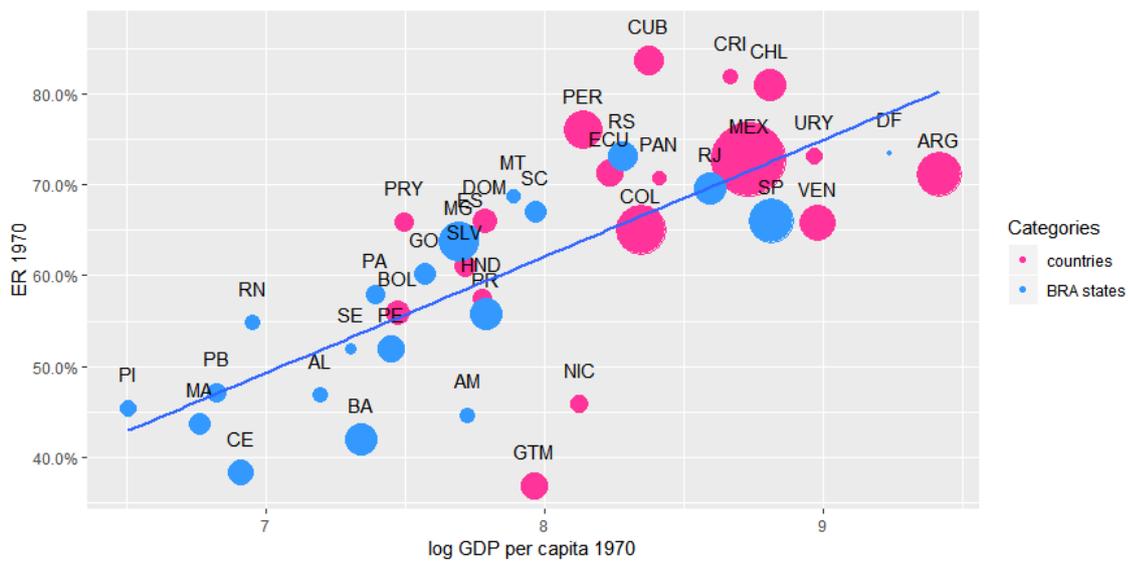
### 3.4 FINAL REMARKS

In this chapter, we analysed national and state-level enrolment and retention indicators from in a comparative perspective. Here we did not investigate the causes of the Brazilian educational backwardness throughout the twentieth century. Several studies have attempted to answer this question (PLANK, 1996; WJUNISKI, 2013; KANG, 2010; KANG, 2017). However, the lack of quantitative data on the evolution of Brazilian education along the 20<sup>th</sup> century was a major barrier to the continuation of the research agenda.

Since historical data on education faces severe limitations in Brazil, expanding data sources is crucial for the continuation of the research agenda. That is particularly important for empirical research on long run growth and inequality, since schooling is expected to have a considerable role on both variables. As Birdsall, Bruns and Sabot (1996) had already underlined two decades ago, Brazil is a special case of low performance even compared to its neighbouring countries.

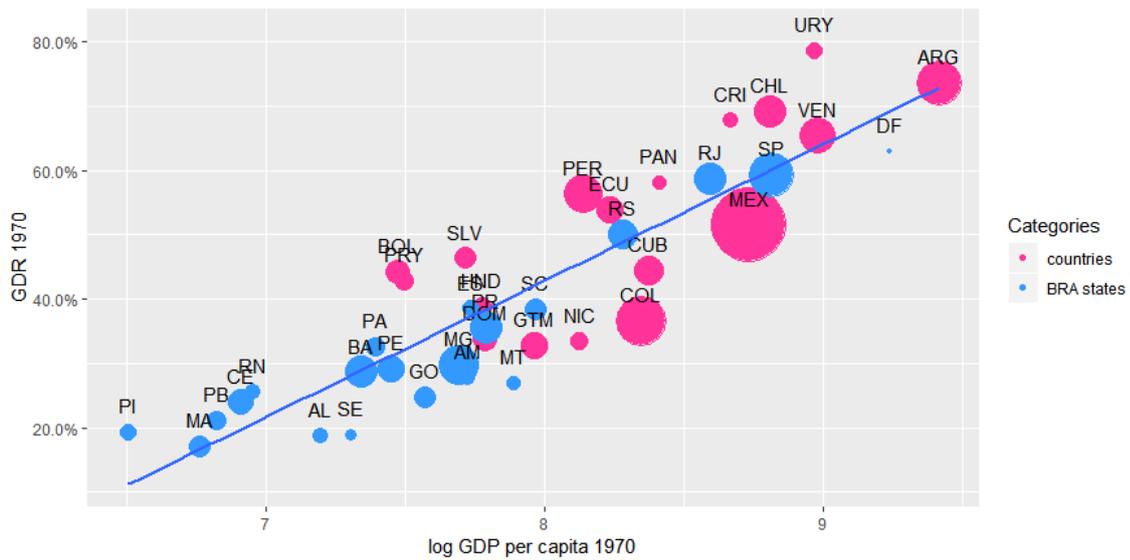
We argued here that analyzing Brazilian regions and federal states is an important step given the size of the country. Previous comparative literature on education in Latin America

Figure 17 – Per capita GDP and gross enrolment rates, 1970, grades 1-6, Latin American countries and Brazilian states



Source: Research data (2019), [Azzoni \(1997\)](#) and [Bolt and Van Zanden \(2013\)](#).

Figure 18 – Per capita GDP and GDR, 1970, grades 1-6, Latin American countries and Brazilian states



Source: Research data (2019), [Azzoni \(1997\)](#) and [Bolt and Van Zanden \(2013\)](#).

often neglected Brazilian regional inequalities. Both [Maduro \(2007\)](#) and [Frankema \(2009\)](#) had not dealt with regional indicators. In order to tackle that, we built a new long run dataset of education outcomes in Brazilian regions and states, since there was not any long run database on regional or state-level enrolment rates. We also constructed a series of GDRs by federal state. According to the data, gross enrolment rates and GDRs grew relatively steadily in the country until the mid-seventies. In the last decade of the military regime, both enrolment rates and GDRs stagnated.

In order to allow for international comparisons, we reconstructed enrolment rates for Brazil and Latin American countries in 1970 and 1980. We also compared federal states to Latin American countries using GDRs as a further relative measure of education performance.

Although Brazil lagged behind several neighboring countries in terms of enrolment rates, GDRs deserve a special mention: nearly all Brazilian states could be compared to the worst performers among Latin American countries in 1970 and 1980. Given a certain level of enrolment rate, Brazilian states were expected to present lower GDRs. Furthermore, the poorer North and Northeast regions were also those with lower enrolment rates and lower GDRs. Despite being an expected result, the degree of educational backwardness of those regions might be surprising. In the early 1960s, the situation in those regions were worse than in the poorest Latin American countries. Moreover, the performance of advanced regions was not much better bearing in mind the undemanding Latin American standards.

The persistent low GDRs of the country reinforces the conclusion that the Brazilian education system has always been in a trouble. We did not try to isolate the causes of the low educational performance. In pairwise correlations, GDR levels were strongly related to per capita GDP. Even acknowledging all endogeneity bias issues, economic reasons might have been the main drivers of retentions, which led to low GDRs. Further investigation on child labour markets and other determinants of demand for schooling should be developed in the future. Clearly, supply drivers such as elite behaviour and institutional reasons must also be considered.

The country's educational backwardness has likely played a substantial role in the determination of high income inequality in Brazil. Several works have already attempted to decompose the sources of inequality in Brazil.<sup>19</sup> This chapter does not provide evidence for this hypothesis, but it makes a contribution to a better understanding of the Brazilian low-skill trap, exposing the Brazilian educational backwardness along the twentieth century from several angles.

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<sup>19</sup>Some examples of works relating education to inequality in Brazil are [Langoni \(1972\)](#), [Velloso \(1979\)](#), [Paes de Barros and Mendonça \(1995\)](#), [Ferreira and Veloso \(2005\)](#), [Menezes-Filho \(2007\)](#), [Tavares \(2007\)](#), [Paes de Barros, Franco and Mendonça \(2007\)](#) e [Menezes-Filho and Kirschbaum \(2015\)](#).



#### 4 THE EVOLUTION OF EDUCATION SPENDING IN BRAZIL, 1933-2010<sup>1</sup>

According to Hanushek (2013, p. 134), most studies “have found that differences in either the absolute spending level or spending increases bear little or no consistent relationship to student achievement”. As teacher salaries are often the major item in current expenditures, increasing salaries without any other change in terms of management or longer school days, for example, has limited effects on proficiency levels. This international evidence was used in Brazil to argue for a reassessment of public spending in education before advocating its increase. Since there is evidence of inefficiency on education spending in Brazil, Menezes-Filho (2007), for instance, recognised that there is room for improvements on education performance without increasing public spending levels. Liang (2000), Hernani-Limarino (2005), Castro and Ioschpe (2007) and Barbosa Filho and Pessôa (2011) argued that teacher salaries are relatively high in Brazil.

However, in a study on the *historical* evolution of education spending in an underdeveloped country such as Brazil, we need to consider other factors. First, some studies have found that students from low-spending education systems benefit from additional resources. Even Hanushek (1994) recognised that spending matters in certain contexts. In developing countries, Fuller and Clarke (1994) and Glewwe et al. (2013) found out that some inputs that depend on spending (e.g. textbooks, infrastructure, teacher quality and instructional time) mattered to education performance. Vegas and Coffin (2015) estimated that per pupil expenditures increase student achievement levels until a threshold around USD 8,000.

Secondly, there are long term effects of a rise in education spending. In the long run, larger salaries are expected to attract qualified teachers, who otherwise would look for other jobs. Hirata, Oliveira and Mereb (2019) found that basic education teachers receive on average lower salaries than other jobs that require higher education in Brazil. Even though there is room for more efficient use of resources, Menezes-Filho and Pazello (2007) showed that a funding reform that increased teacher wages led to higher proficiency levels in Brazil. A recent paper that took into account long run effects of education spending on education attainment and earnings in the United States found compelling evidence that money does matter, particularly through increased teacher salaries and other factors that may have attracted more qualified teachers (JACKSON; JOHNSON; PERSICO, 2015).

Reflecting on the Latin American historical lag in schooling, Lindert (2010) acknowledges the findings of Hanushek and associates. However, he insists that scholars should “follow the money”, since the historically low levels of education spending in the region does not leave much room to the possibility of “overspending”. In addition, spending bias against primary education was acute in the region. In the early 1960s, U.S. expended about four times more in

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<sup>1</sup>Isabela Menetrier organised the dataset and co-authored the chapter.

higher education students *vis-à-vis* primary ones, while Latin Americans spent about 15 times more (LINDERT, 2010). Although resources may have been used inefficiently along the 20<sup>th</sup> century, the study of long run education spending is relevant in Brazil, the largest Latin American country in demographic and economic aspects.

This chapter investigates the long run evolution of education spending in Brazil from 1933 to 2010. It offers two contributions to the literature on education spending in post-1930 Brazil. First, it provides a novel long run dataset on education spending in Brazil. The only attempt to construct a long run dataset on education spending in Brazil is the master thesis of Maduro (2007). Using a larger number of sources than the previous attempt, we provide information on education expenditures considering federal, state and local government levels. The dataset also discriminates spending per schooling levels and covers the period between 1933 and 2010. Our results present expressive differences from Maduro in the decades of 1970 and 1980. Those differences are largely attributable to Maduro's larger utilisation of interpolations to fill gaps in the dataset.

Secondly, we attempt to locate the timing of major changes in education spending policy. In order to do that, we apply structural break tests in the novel dataset. We use the methodology of Bai and Perron (1998), which look for multiple breaks without any prior definition of the break points (endogenous test). Wjuniski (2013) already applied this procedure looking for changes in expenditure priorities between different schooling levels using Maduro (2007)'s dataset. Besides using a new dataset, we extended the tests to more series of education spending in Brazil.

According to our novel results, *periods* of political regime change are associated to breaks in the levels of education expenditures as a proportion to GDP. The most glaring structural break towards a higher level of education spending was found in 1964, when a military-led coup started a dictatorship in Brazil that lasted more than two decades. Another important break that increased education spending levels was found around 1985, when the military left the government. The first break seems initially at odds with the previous literature on education in Brazil, which blamed the military regime for the demise of education in Brazil (ROMANELLI, 1978; FREITAG, 1984; SAVIANI, 2008). On the other hand, the second break is consistent with other studies that pointed out to the beneficial effect of the return of democracy on social policies in Brazil (BROWN, 2002; KOSACK, 2012).

We also applied structural break tests using data on education spending per pupil. In this case, we found breaks in 1943 and 1984 for basic education. It shows that apparently there was no significant change in the pattern of expenditures per student during nearly four decades. In the case of tertiary education, however, we located a break in 1943 and an outstanding structural change in 1968. The latter break resulted from a policy of expansion of higher education during the military regime, which led to a large decrease in expenses per student.

Finally, this chapter also detects structural breaks in another variable: the ratio between basic education expenditures per pupil and tertiary education spending per pupil. This indicator

attempts to measure the priority given to mass education or to an elite-oriented policy (LINDERT, 2010). The tests found a major structural change again in 1968. The lower average ratio from 1968 onward would initially point out to a more egalitarian pattern of education spending. However, the decrease in the ratio was largely driven by an expansion of enrolments in higher education rather than an increase in basic education spending. That was a questionable choice in a period when the expansion of schooling to the masses should have been a priority.

The findings of this chapter have statistical limitations. The data series are not stationary according to several tests. In this situation, the BP methodology cannot distinguish whether a mean change is a structural break or just a larger random spike in a unit root process. Qualitative evidence, however, provides support to our findings. We already present some glimpse of the historical evidence in this chapter, but we also provide a detailed historical account of the education policy under military rule in chapter 5. In summary, two measures stand out. First, the tax reform in the first years of the military regime enlarged the fiscal capacity of the state, which led to increased education spending in the first years of the regime (1964-67). Second, the deliberate policy of expanding the higher education system from 1968 onwards. Therefore, historical backing makes us confident that our major statistical findings are not spurious.

This chapter is divided in four sections besides this Introduction. In section 4.1 we describe data and sources of our new estimates of education spending in Brazil and compare our estimations to the previous work of Maduro (2007). In section 4.2, we use the novel estimates to compute structural breaks in the pattern of education spending (total and by schooling level) in Brazil. Next, we measure the bias on education spending in against primary in Brazil in section 4.3. Finally, section 4.4 is left to some final remarks.

#### 4.1 DATA AND SOURCES

There are two major sources for education spending data in Brazil: (a) issues of the Brazilian Statistical Yearbook (*Anuário Estatístico do Brasil - AEB*) (IBGE, 2003) and (b) issues of Finances of Brazil (*Finanças do Brasil - FINBRA*) (MINISTÉRIO DA FAZENDA, 1941-). They comprise the backbone of our dataset. Other publications of the Ministry of Education (MEC) and other federal organisms were also consulted to fill the gaps left by the two aforementioned publications. A complete list of sources by year and type of spending is available at the Appendix D.

The major differences between our estimates and Maduro (2007)'s ones are located in the decades of 1970 and 1980, where the AEB left more gaps in state and municipality level data.<sup>2</sup> To fill the gaps, Maduro (2007) resorted to interpolations. We also used interpolations, but to a lesser extent because we used a larger number of sources. Therefore, there were less gaps to

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<sup>2</sup>Some studies have used the dataset of Maduro (2007). Besides Wjuniski (2013) and Kang (2018), Barbosa Filho and Pessôa (2009), for example, utilize the same dataset in order to provide an overview of Brazilian education during the 20<sup>th</sup> century.

complete.

In [Maduro \(2007\)](#)'s dataset, the most glaring example of a long period gap is data on state and local government levels between 1971 and 1985. In the case of municipalities, [Maduro \(2007\)](#) assumed that the proportion of spending in each level in the periods 1971-74 and 1980-85 were identical to 1986. Concerning state level spending, the author kept the distribution of state level spending in 1984 and applied the same structure to the gaps in 1971-74 and 1980-83.<sup>3</sup> A second important source of divergence is the entire decade of 1980, when [Maduro \(2007\)](#) used data on federal spending from the AEB 1993 that is clearly incompatible with all other contemporaneous sources from both MEC and even previous AEB issues.

In order to fill the gaps in the shares of each schooling level, we sought for additional sources in several places: *Instituto de Pesquisa Econômica e Aplicada* (IPEA) libraries (in both Brasília and Rio de Janeiro), the *Centro de Pesquisa e Documentação* at the *Fundação Getúlio Vargas* (CPDOC/FGV) and the *Instituto Nacional de Estudos e Pesquisas Educacionais* (INEP) Library and Historical Archives.<sup>4</sup> We also found sources in government websites that store digitalised historical documents such as *Domínio Público*, *Repositório do Conhecimento do IPEA* and the Ministry of Finance account at *archive.org*.

A possible problem is that statistics on education hardly were separated from culture spending (*função educação e cultura*). As a consequence, there might be a slight overestimation of education spending in several years as [Maduro \(2007\)](#) had already noticed. In the federal level, sparse information on culture spending shows that it represented a very small proportion of total spending on education and culture. For example, education represented about 98% of the "education and culture" expenditures between 1977 and 1982 ([MEC, 1985b](#)). On the other hand, some extra-budgetary financial sources were sometimes not considered in education statistics. As far as we know, those sources did not fund regular education programs but rather special programs. MOBREAL, for example, the adult literacy program during the military regime, was to a large extent financed by lottery funds - an extra-budgetary income. If culture spending may have led to slightly overestimated figures, extra-budgetary sources have probably acted in favour of an underestimation of education spending.

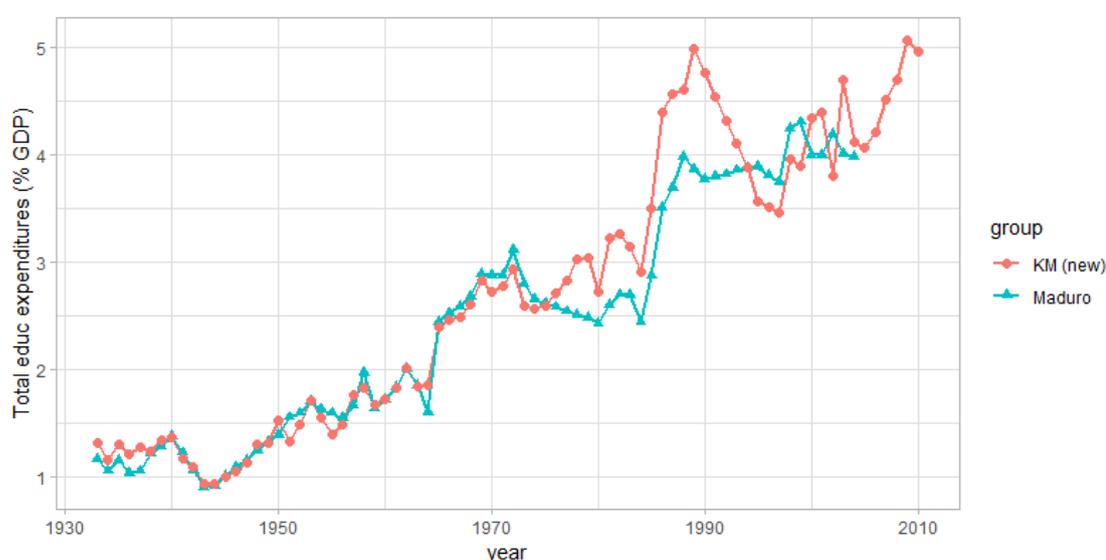
Comparing the two estimates ([Maduro's](#) and ours) of total education spending as a proportion of GDP, results are very similar until the mid-1970s (see [Figure 19](#)). We reported a higher level of general spending from that period onwards. As mentioned earlier, besides the fact that there were significant gaps particularly regarding information on subnational government expenditures from the 1970s to the mid-1980s, [Maduro](#) used an AEB document (AEB 1993) that underestimated the data.

[Figure 20](#) shows expenditures on *basic* education (primary plus secondary) as a propor-

<sup>3</sup>See details in [Maduro \(2007, p. 7-10\)](#). [Kang \(2018, p. 733\)](#) also summarize the main problems of the dataset.

<sup>4</sup>We received an invaluable help from several librarians at INEP, particularly Raphael Vinicius da Costa. The INEP Historical Archives also provided an efficient service of digitalised documents by request.

Figure 19 – Total education expenditures as a proportion of GDP (%), Brazil, 1933-2010



Source: Research data (2019) and [Maduro \(2007\)](#)

tion of GDP. The similarities between total and basic education spending series (including the differences between our data and [Maduro's](#)) suggest that changes in the former were largely driven by changes in the latter. In the case of higher education expenditures, divergences from the [Maduro](#) series also becomes larger from the mid-1970s onwards (see [Figure 21](#)). According to the new data, [Maduro](#) series underestimated spending from the mid-1970s to the mid-1990s.

## 4.2 STRUCTURAL BREAKS

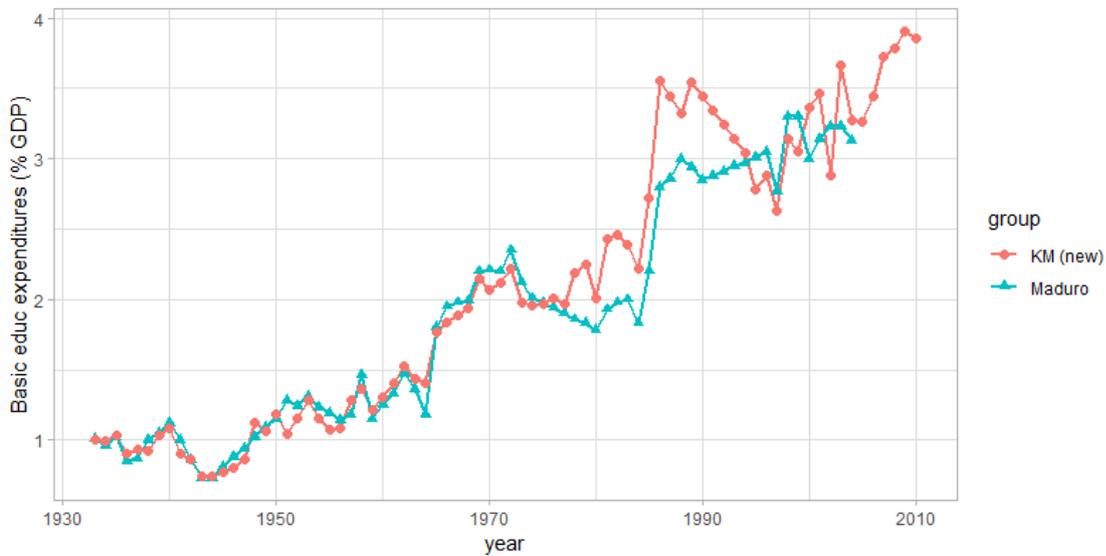
A procedure that has become commonplace is the detection of multiple structural breaks as devised by [Bai and Perron \(1998\)](#) (hereafter BP). Several scholars have used the BP methodology in quantitative historical studies.<sup>5</sup> Finding structural breaks is a hard task when there are several shocks in long run data. Changes in the mean or the trend associated to policy decisions can hardly be distinguished from random walks as defined in time series theory.

In the case of Brazilian education spending data, [Wjuniski \(2013\)](#) had already applied this methodology to [Maduro \(2007\)](#)'s dataset. After finding breaks around 1971 that showed a decrease in spending on secondary education and a rise in primary education spending, [Wjuniski \(2013\)](#) attributed the change to the military regime bias against secondary schooling. However, he did not take into account the 1971 reorganisation of primary and secondary levels. As we already mentioned in the Introduction, the 1971 reform merged the former primary education to the lower secondary level, "increasing" the length of the primary level in four additional grades. This change artificially inflated the data on primary education spending.

Despite recognising the pioneering attempt of [Wjuniski \(2013\)](#), [Kang \(2018\)](#) criticised it

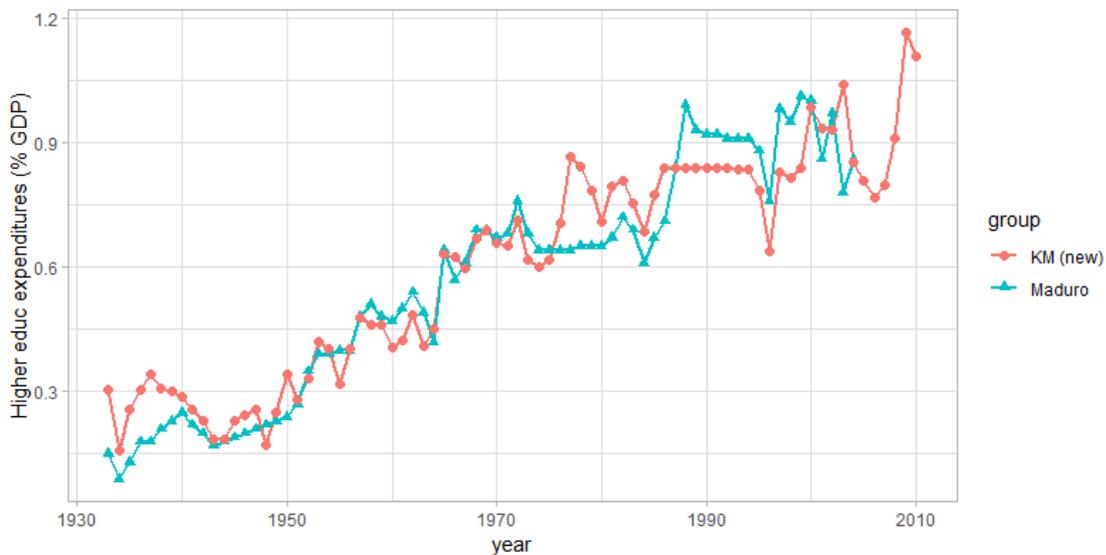
<sup>5</sup>[Summerhill \(2015\)](#)), for example, applies the BP methodology to financial data in 19<sup>th</sup> century Brazil.

Figure 20 – Basic (primary plus secondary) education expenditures as a proportion of GDP (%), Brazil, 1933-2010



Source: Research data (2019) and [Maduro \(2007\)](#)

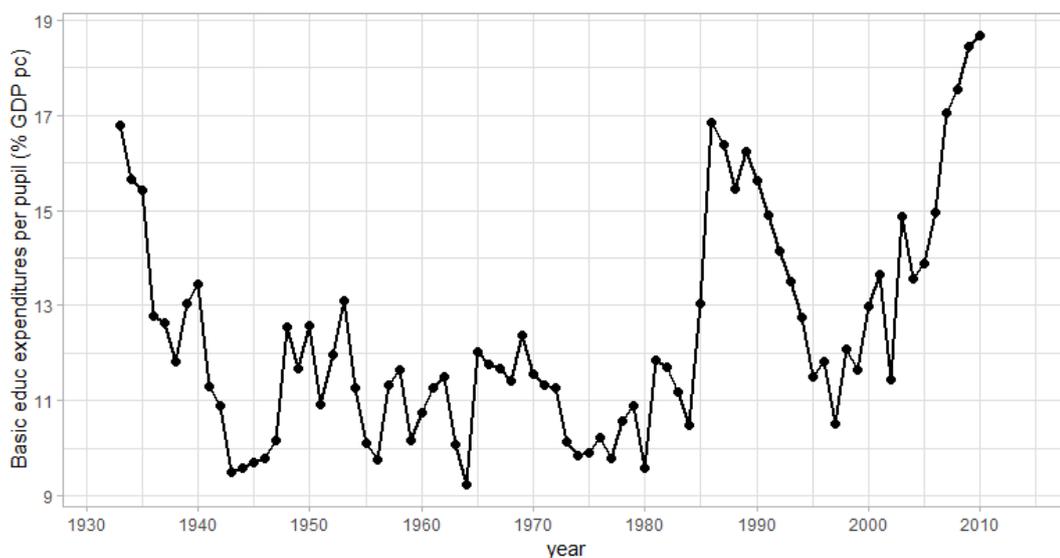
Figure 21 – Higher education expenditures as a proportion of GDP (%), Brazil, 1933-2010



Source: Research data (2019) and [Maduro \(2007\)](#)

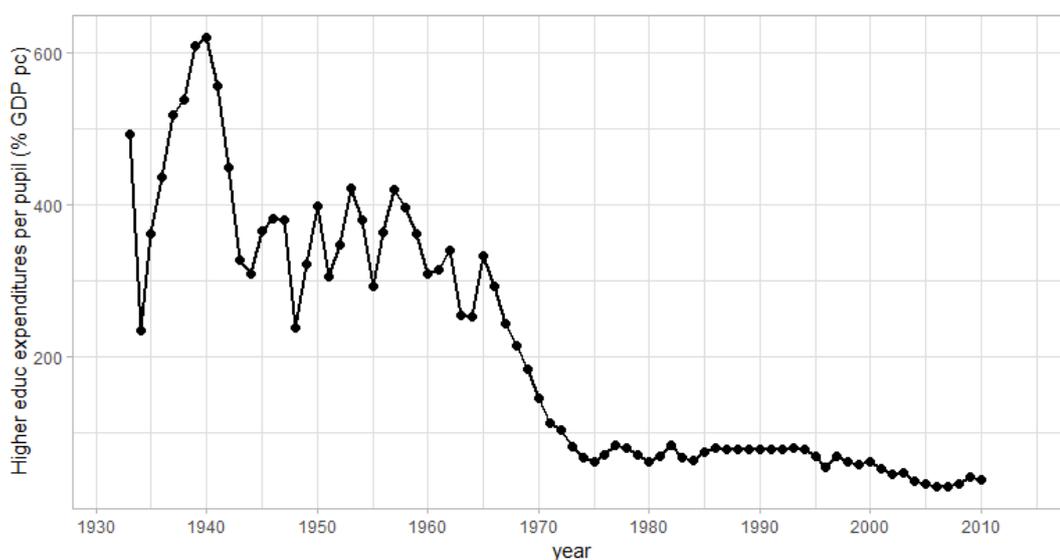
for not taking into account the 1971 reform. Moreover, [Kang \(2018\)](#) presented divergent findings using another data series from the same source: [Maduro \(2007\)](#) also computed statistics on education spending *per pupil* enrolled in public schools as a proportion of GDP per capita (that [Wjuniski](#) had not utilised). [Kang \(2018\)](#) did *not* find any break around 1971 in both primary and secondary levels when the number of pupils were taken into account. However, the gaps in [Maduro \(2007\)](#)'s data, particularly in the 1970s, makes a further investigation necessary using the novel dataset just presented.

Figure 22 – Basic (primary plus secondary) education expenditures per pupil as a proportion of GDP per capita (%), Brazil, 1933-2010



Source: Research data (2019)

Figure 23 – Higher education expenditures per pupil as a proportion of GDP per capita (%), Brazil, 1933-2010



Source: Research data (2019)

#### 4.2.1 The Bai-Perron multiple structural break test

The methodology proposed by [Bai and Perron \(1998\)](#) considers a multiple linear regression with  $m$  breaks, i.e.,  $m + 1$  regimes. The exposition here closely follows the seminal papers. Consider the equation 4.1:

$$y_t = x_t' \beta + z_t' \gamma_j + u_t, (t = T_{j-1} + 1, \dots, T_j) \quad (4.1)$$

for  $j = 1, \dots, m + 1$  and  $T_0 = 0$  and  $T_{m+1} = T$ .  $y_t$  is the independent variable,  $x_t$  and  $z_t$  are the vector of covariates, while  $\beta$  and  $\gamma_j$  are the vectors of coefficients; and  $u_t$  is the disturbance term. Since  $\beta$  is not subject to shifts, the model is a more general version of structural change: if  $x_t$  does not exist, we have a pure model. The indices  $T_1, \dots, T_m$ , which are the breakpoints, are treated as unknown. The model also allows for the inclusion of lagged dependent variables, as well as for heteroskedacity and serial autocorrelation.

There are several approaches to find the breakpoints. In one of them the breakpoints  $T_i, i = 1, \dots, m$  are so that minimizes the sum of squared residuals (SSR):

$$\sum_{n=1}^{m+1} \sum_{t=T_{i-1}+1}^{T_i} [y_t - x'_t\beta - z'_t\gamma_j]^2 \quad (4.2)$$

In a second approach, one should follow a sequential process of determining breakpoints. The first break, chosen through the SSR, creates two partitions. The same procedure is applied for each partition, and so forth. There are other approaches based on the Akaike (AIC) and Schwartz (BIC) criteria. According to [Bai and Perron \(2003\)](#) and [Zeileis et al. \(2003\)](#), the standard AIC tends to overestimate the number of breaks, while BIC is suitable in some situations.

The BP methodology requires stationarity of the time series after considering the possibility of breaks into account. The usual procedure before testing for multiple structural breaks is to run the standard stationarity tests such as ADF, DF-GLS, KPSS and Phillips-Perron, for example.<sup>6</sup> If the unit root hypothesis cannot be rejected (or the stationarity null hypothesis in the case of KPSS), one may use the test proposed by [Zivot and Andrews \(1992\)](#), which performs a unit root test allowing a break in the series. If this further test still cannot reject the null hypothesis of unit root, the next step is to run the test devised by [Clemente, Montañés and Reyes \(1998\)](#), which allows for two breaks.

In all our cases, we cannot reject the hypothesis of the existence of a unit root.<sup>7</sup> That means that the data series are not statistically different from a random walk according to the tests. Rather than detecting *structural* changes, the breaks *could* be spurious findings that reflect random spikes. Nonetheless, our tests detected breaks that are remarkably consistent with well-known institutional changes. The political history of the country could hardly agree more with our findings. As we will see later, the most glaring breaks were found close to periods of political disruptions (political regime changes) or critical policy decisions (as the expansion of higher education in 1968).

All tests were applied to several different yearly data on education spending from 1933 to 2010. The maximum number of breaks allowed were set to five and the trimming was 0.15 as recommended by [Bai and Perron \(2003\)](#). We used the *strucchange* package of R software ([KLEIBER et al., 2002](#)).

<sup>6</sup>Original papers are [Dickey and Fuller \(1979\)](#), [Phillips and Perron \(1988\)](#), [Elliott, Rothenberg and Stock \(1996\)](#) and [Kwiatkowski et al. \(1992\)](#).

<sup>7</sup>Given the results, we decided not to report the unit root and stationarity tests.

Table 2 – Break points in education expenditures as a proportion of GDP series (total, primary plus secondary, tertiary levels), 1933-2010

Education expenditures as a proportion of GDP	Break Year	Boundary years for confidence intervals (95%)	Average spending (% GDP)
Total			1.2
	1951	1949 - 1953	1.7
	1964	1963 - 1965	2.8
	1985	1983 - 1986	4.3
Primary + Secondary			0.9
	1947	1944 - 1949	1.2
	1964	1963 - 1965	2.1
	1984	1983 - 1985	3.3
Tertiary			0.3
	1952	1951 - 1954	0.4
	1964	1963 - 1965	0.6
	1976	1974 - 1977	0.9

Notes: Both the sum of squared residuals and the BIC values were minimized at four breaks. However, the statistics between three and five breaks were nearly the same. After checking the confidence intervals and applying OLS-CUSUM tests, we decided to keep three breaks. Therefore we might be underestimating the number of breaks, which seems appropriate given that most unit root tests did not reject the non-stationarity hypothesis in levels.

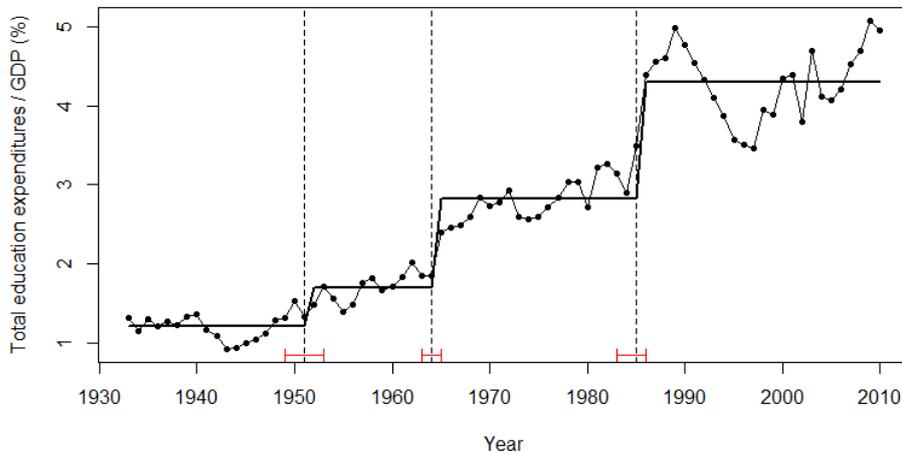
#### 4.2.2 Structural breaks in education spending

In the first round, we analysed *education spending as a proportion of GDP*. We began searching for breaks in total education expenditures data. Later we ran the same test to the joint spending on primary and secondary education (basic education). We also did the same to tertiary education expenditures. Table 2 shows all breaks found in the three tests. It is noteworthy that all tests detected a break in 1964.

In the total education spending application, three breakpoints were found: 1951, 1964 and 1985. Two of the three breaks captured *precisely* years of political regime changes: 1964 and 1985. According to Table 2, the country spent on average 1.2% of the GDP in education from 1933 to 1951. In the period between 1951 and 1964, average education spending increased to 1.7%. During the military ruling period, average education expenditures achieved 2.8% as a proportion of GDP. From 1985 to 2010, the country reached an average education spending of 4.3% of the GDP. Before a more detailed explanation, it is useful to run further tests that decompose the analysis in different schooling levels.

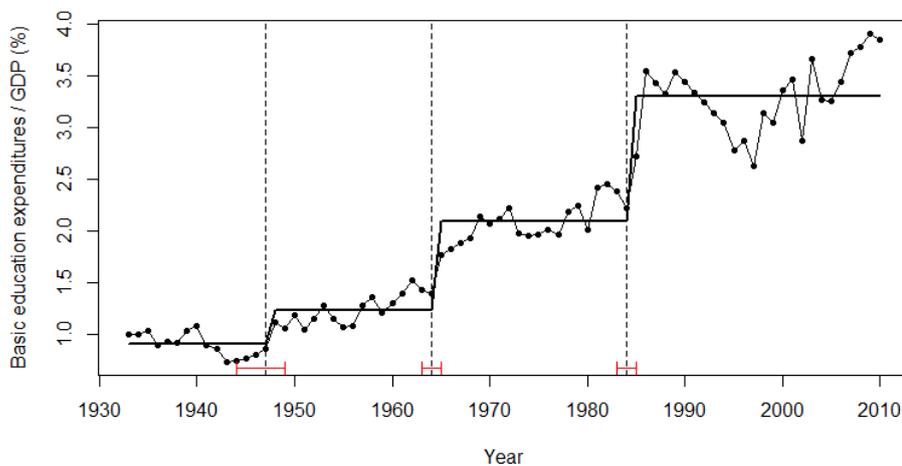
Testing different schooling levels reveals the source of each break. We did not test, however, primary and secondary education separately. In order to circumvent the 1971 reform issue, we used the sum of expenditures on primary and secondary education as a proportion of GDP. Both BIC and sequential SSR procedures detected four breaks: 1947, 1964, 1984 and 1999. However, sequential SSR values were nearly the same from two to five breaks. BIC values between three and five breaks were also close. We conservatively decided for three breaks after

Figure 24 – Break points: total education expenditures as a proportion of GDP (%), Brazil, 1933-2010



Source: Research data (2019)

Figure 25 – Break points: education expenditures on basic education (primary plus secondary levels) as a proportion of GDP (%), Brazil, 1933-2010

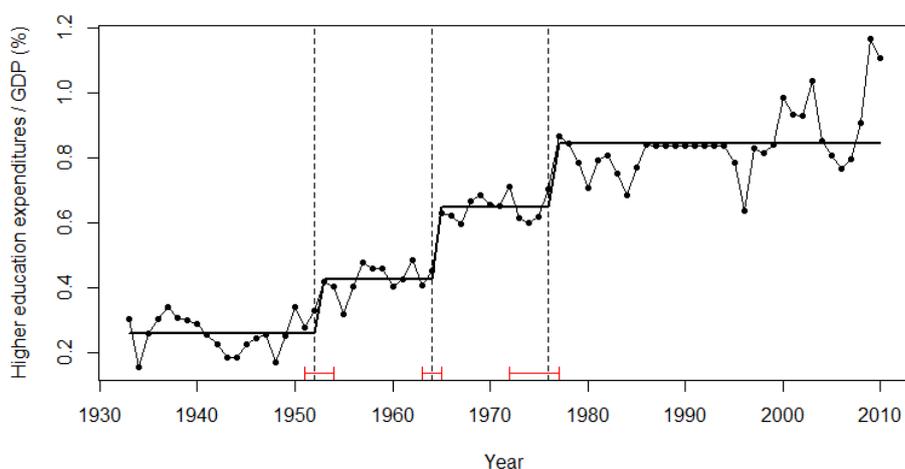


Source: Research data (2019)

analysing the OLS-based cumulative sum test as suggested by [Zeileis et al. \(2003\)](#). The three remaining breaks are 1947, 1964 and 1984. Therefore, there might be an underestimation bias in the selection of the number of breaks, which seems more appropriate given that unit root tests did not reject the non-stationarity hypothesis. The break left aside was 1999, which presented large confidence intervals (1991 - 2007).

One important result of testing basic education spending data is that all selected breaks for basic education were close to political regime changes. The first break was found in 1947. By

Figure 26 – Break points: tertiary education expenditures as a proportion of GDP (%), Brazil, 1933-2010



Source: Research data (2019)

then, Brazil had just enacted a liberal constitution in 1946, after some years under the semi-fascist *Estado Novo* constitution. After a fall in basic education spending in the early 1940s, there was a positive change in basic education spending in 1947. It is tempting to attribute the increase in basic education spending to democratisation. However, there was an even larger structural change in 1964, when the military regime started. Even though the 1967 Constitution dropped most of the earmarking of resources to education, basic education spending level increased expressively in the mid-1960s. The third break was in 1984, a year before the last military president left office. In the process of political opening, the National Congress approved a law that earmarked resources to education in 1983.<sup>8</sup> Each break shows that increases in basic education spending as a proportion of GDP were associated to political regime changes, no matter if the country was transitioning to a dictatorship (in the case of 1964) or to democratic regimes (1945 and 1985). The 1964 break clearly shows that democratisation is not enough to explain increasing financial support to the expansion of mass education.

In the case of tertiary education expenditures, [Wjuniski \(2013\)](#) had found three break points: 1951, 1964 and 1986. Using the new series, our results are similar for the two first break points. Initially, both sequential SSR and BIC criteria also found four breaks in tertiary education spending as a proportion of GDP: 1952, 1964, 1976 and 1999. Again we excluded 1999 and selected the first three breaks using the same procedure as in the earlier case. The confidence interval of the 1999 break was between 1988 and 2001. The lack of precision suggests that 1999 is likely an accidental finding again. That leaves us the remaining three breaks: 1952, 1964 and 1976. Therefore, we found a turning point in 1976 instead of 1986.

<sup>8</sup>The law became known as *Lei Calmon* after the congressman who authored the project.

The first break in the tertiary education series is 1952. This suggests that the first break in *total* education spending series, dated in 1951, was largely driven by a change in the pattern of spending in tertiary education. Indeed two crucial events in the development of higher education took place precisely in 1951: the foundation of the National Research Council (*Conselho Nacional de Pesquisa - CNPq*) and the National Campaign for Higher Level Human Resources (*Campanha Nacional de Aperfeiçoamento de Pessoal de Nível Superior - CAPES*) under Getúlio Vargas. CNPq and CAPES are still the most important financial agencies for post-graduate level research in Brazil. A second break was found in 1964, exactly as in the case of basic education. Finally, the 1976 break possibly relates to the expansion of investments in higher education during the period. In late 1974 the Geisel government started the *II Plano Nacional de Desenvolvimento* (II PND), which stimulated an industrialisation strategy of substituting imports in energy, oil and machinery sectors. Such an endeavor needed highly qualified human resources.

In all structural break tests presented until now, 1964 appears as an outstanding turning point towards an increasing level of education spending in all levels. This might be initially puzzling. The literature on the political economy of education usually stresses the positive role of democracy in expanding education. In 1964, the country became a dictatorship. Education historians in Brazil are often critical to the military regime, particularly calling attention to the 1967 Constitution got rid of the earmarking of resources to education. In fact, the end of earmarked resources might still have been a problem given the extent of the educational backwardness. However, that was more than compensated by the tax reform, which substantially increased the fiscal capacity of the state in the mid-1960s. The rise in taxation allowed for increasing expenditures on education, even though it was not a priority area of the military regime. Since our statistical findings here are only suggestive, we will deal more carefully with the 1964/67 tax reform in chapter 5.

### 4.2.3 Structural breaks in education spending per pupil

We also tested structural changes in education expenditures *per pupil* as a proportion of GDP per capita using the new dataset. Two breaks were selected in each test. Here we focus on the structural changes in basic education (primary plus secondary) and tertiary levels.<sup>9</sup> In both basic and tertiary education, the procedure detects 1943 as a break point. However, confidence intervals are large, ranging from 1941 to 1953. During this period, several changes happened - including the enactment of the 1942 law of secondary schooling (which organised the structure of secondary education in the country), the end of *Estado Novo* regime in 1945, the 1946 democratic Constitution, and the 1946 law of primary schooling.<sup>10</sup>

<sup>9</sup>Table 3 also reports breaks for primary and secondary education separately. For the reasons stated in the earlier section, we did not analyze those findings here. However, it is noteworthy that none of the tests find any break around 1971, which contradicts Wjuniski (2013)'s findings.

<sup>10</sup>The results found here are similar to Kang (2018), who tested structural changes in education expenditures per student enrolled in the *public schooling system* as a proportion of GDP per capita using Maduro (2007)'s dataset.

Table 3 – Break points in education expenditures per pupil as a proportion of GDP per capita, Brazil, 1933-2010

Education expenditures per pupil as a proportion of GDP per capita	Break Year	Boundary years for confidence intervals (95%)	Average spending (% GDP pc)
Primary*	1943	1941 - 1953	11.7
	1984	1982 - 1985	9.0
Secondary*	1962	1960 - 1967	14.8
	1979	1977 - 1982	30.2
Primary + Secondary	1943	1941 - 1956	21.0
	1984	1978 - 1985	12.6
Tertiary	1943	1941 - 1952	13.0
	1968	1967 - 1969	11.0
			14.4
			468.1
			330.1
			70.6

Notes: Primary education: sequential method found five breaks and BIC found three breaks. BIC statistics for two and three breaks were very close. After checking OLS-based cumulative sum tests, we decided for two breaks. Secondary education, basic education, tertiary education: SSR method found five breaks, while BIC values delivered more conservative results: two breaks. Therefore, we might be underestimating the number of breaks, which seems appropriate given that most unit root tests did not reject the non-stationarity hypothesis.

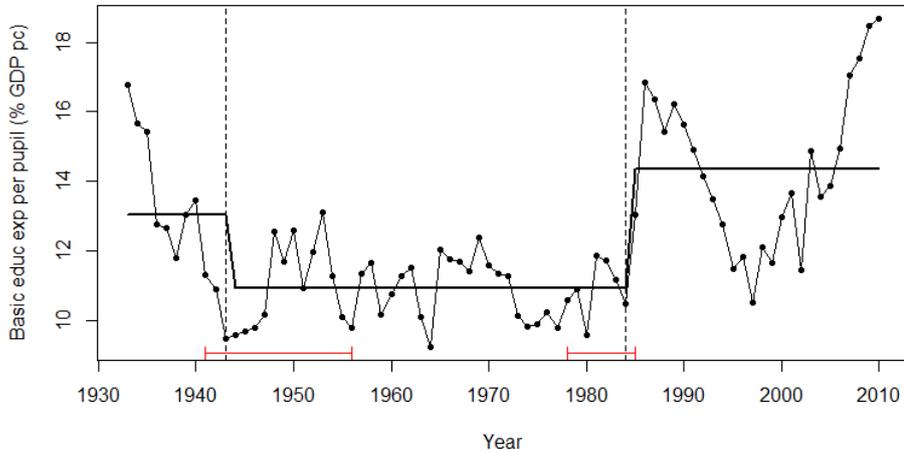
In the case of basic education, the procedure also detected a break in 1984. Again the 1983 Calmon Law (which earmarked resources to education) and the return of democracy in 1985 shall be considered. In the tertiary education series, a second break is located in 1968. As we will show in the next chapter, that was a particularly contentious year: several protests and riots organised by higher education students took place in the country. In response, the federal government started a large reform in the higher education system in late 1968. Moreover, the government promoted a large increase in tertiary enrolments.

Our findings, particularly the outstanding structural changes in the 1960s, show that research on education policies in the military regime are necessary. In fact, the two most robust structural breaks found were 1964 (for education spending as a proportion to GDP) and 1968 (considering education spending per pupil as a proportion to GDP per capita). After 1964, education spending in both basic and higher education achieved higher levels. From 1968 onwards, the level of education spending per pupil in tertiary education was clearly lower. Those two findings will receive more careful analysis in the next chapter.

### 4.3 TESTING THE SPENDING BIAS

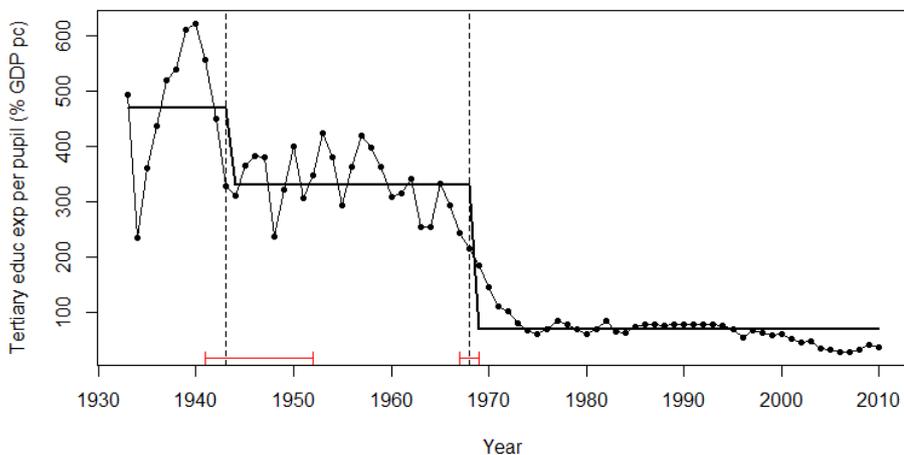
The last section showed that political regime changes in Brazil, even in the case of a transition from a democracy to a dictatorship, led to higher levels of education spending. In the case of the military ruling period, the tax reform in the first years of the regime has probably had an important role. It is hard to guess whether taxation would have increased had the military not seized power in 1964. Since the 1950s, it was widely known that the federal government lacked

Figure 27 – Break points: education expenditures on basic education (primary plus secondary levels) per pupil as a proportion of GDP per capita (%), Brazil, 1933-2010



Source: Research data (2019)

Figure 28 – Break points: tertiary education expenditures per pupil as a proportion of GDP per capita (%), Brazil, 1933-2010



Source: Research data (2019)

fiscal capacity to carry out its programs. Nevertheless, the *de facto* absence of opposition has probably paved the way to the rapid implementation of the tax reform.<sup>11</sup>

However, *given* the larger fiscal capacity, it is possible that the military government underinvested in primary and secondary education levels *vis-à-vis* higher education. To detect an elite bias on education spending, Lindert (2010) suggests the use of “public input fingerprints”.

<sup>11</sup>This issue will be analyzed more thoroughly in the next chapter.

In historical research, obtaining loads of historical data to run more precise quantitative tests is a hard task. Thus, this sort of indicators might shed some light on the extent of the elite bias on public education expenditures. One of those “public input fingerprints” is the *primary/tertiary double ratio*, represented by:

$$db_{1/3} = \frac{desp_1}{pupil_1} / \frac{desp_3}{pupil_3} \quad (4.3)$$

where  $db_{1/3}$  is the double ratio,  $desp$  represents public expenditure and  $pupil$  is the absolute number of students. The indexes (1, 2, 3) represents each schooling level (primary, secondary and tertiary respectively).

The larger the figure, the more egalitarian is the pattern of education spending - at least in principle. In OECD countries, the indicator is nearby 50% in present days (LINDERT, 2010). Since the inverse of this figure states how many times a higher education student receives as public spending *vis-à-vis* a primary education pupil, higher education students receive about twice as more resources than primary education pupils in OECD countries.

Lindert (2010) presents some data that show how education spending in Latin America was biased towards higher education. In the early 1960s, the primary/tertiary ratio was 25.2% in Canada and 51.2% in the United States, while the same indicator was 6.7 in Latin America (18 countries). Brazil registered an even lower ratio according to data presented at Table 4 (2.2%). In other words, tertiary education students received about 45 times more resources than a primary education pupil. According to information in the same table, Brazil has consistently presented a biased pattern of spending during a time span of nearly half a century. The country not only had a lower primary/tertiary ratio than richer OCDE countries, but also several poorer Latin American countries presented better results.

Since we have yearly data on education spending per schooling level, we have also computed a complete yearly series of primary/tertiary double ratio. Since we are dealing with a ratio, we applied a logarithm operator. Figure 29 shows a erratic behavior of the series in the first decades after 1930. Later on, the pattern becomes more stable. Applying the BP endogenous structural break test, we have found three break points according to the BIC methodology. However, both BIC and sequential SSR statistics show similar values from two to five breaks. In the case of two breaks, we found 1969 and 1999. If we consider three breaks, then we also have 1980.

However, the 1971 reform on schooling *could* have distorted the series. Since there was a grade extension in primary education and a corresponding decrease in secondary education, it is possible that the structural change test is capturing the effects of the reform on education spending by level. The problem is not as large as it may initially appear because the ratio considers also the number of pupils: even though primary education expenditures grew with the extension of primary schooling length from four to eight grades, the number of pupils also

Table 4 – Primary/tertiary double ratio, selected regions and countries, 1960-2002

Region or country	1960-65	1970-75	1985	1995	2002
<b>Core OECD</b>			<b>51.0</b>	<b>43.2</b>	<b>56.1</b>
Canada	25.2	29.8	67.2	63.4	
Japan	90.9	200.0	90.9	108.4	126.6
USA	51.2	81.3	71.3	73.4	77.5
<b>Developing countries</b>			<b>14.7</b>		
<b>Latin America and the Caribbean</b>					
<b>18 countries</b>	<b>6.7</b>	<b>10.6</b>	<b>13.7</b>	<b>17.9</b>	
Argentina	22.2	12.1	31.5	40.1	52.4
Brazil	2.1	8.2		7.2	8.1
Chile	3.9	8.6	9.6	45.5	
Colombia	2.9		17.5	21.7	
Costa Rica	10.9	17.2	12.9	23.1	
Cuba	71.4*		43.5	50.0	
Jamaica	6.5	9.1	4.0	5.5	
Mexico	9.2	9.8	8.5	23.3	29.4
Venezuela	6.5	11.8	11.6	6.8	

Notes: \*1950-55 figures

Source: Lindert (2010)

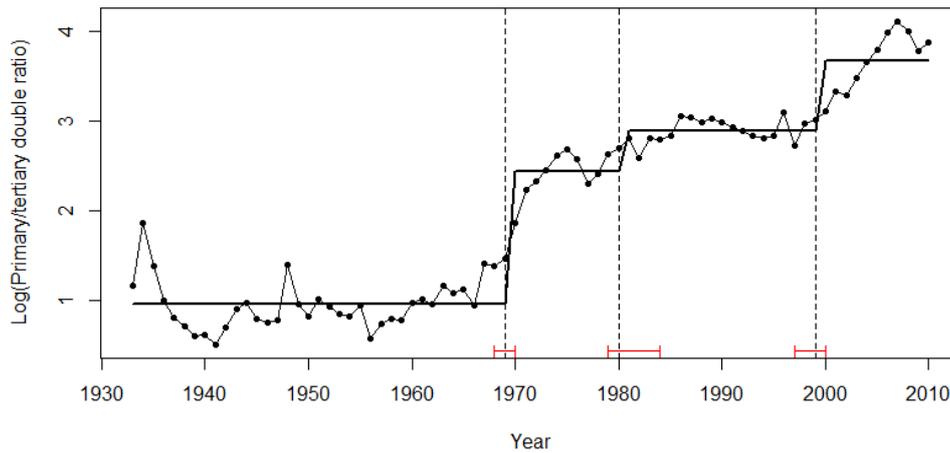
Table 5 – Break points in education spending bias (primary/tertiary double ratio and basic/tertiary double ratio), 1933-2010

Education expenditures as a proportion of GDP	Break Year	Boundary years for confidence intervals (95%)
log (primary/tertiary)	1969	1968 - 1970
	1980	1979 - 1984
	1999	1997 - 2000
log (basic/tertiary)	1968	1967 - 1969
	1979	1978 - 1984
	1999	1996 - 2000

*Notes:* Sequential SSR method found four breaks, BIC values were minimised at three breaks. However, the statistics between three and five breaks were nearly the same. Given that and after checking the confidence intervals and applying OLS-CUSUM tests, we decided to keep three breaks. Therefore, we might be underestimating the number of breaks, which seems appropriate given that most unit root tests did not reject the non-stationarity hypothesis.

increased. Also, the earlier section showed that spending per pupil patterns remained around the same level despite the 1971 grade reconfiguration of the education system. In addition, since the confidence interval places the 1969 break point between 1968 and 1970, a role of the 1971 reform on the structural change looks unlikely.

Figure 29 – Break points: log(primary/tertiary education) double ratio, Brazil, 1933-2010



Source: Research data (2019)

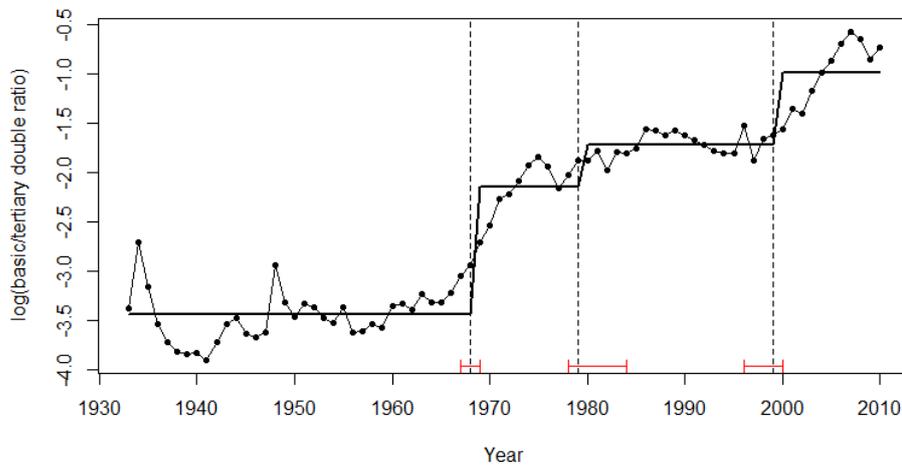
Any doubt disappears if we slightly change the double ratio and consider the sum of expenditures in primary and secondary education and the sum of students in the two levels. That rules out any *direct* effect of the grade reorganisation on education spending. Expressing it in mathematical terms, we have:

$$db_{(1+2)/3} = \frac{desp1 + desp2}{pupil1 + pupil2} / \frac{desp3}{pupil3} \quad (4.4)$$

Using this modified double ratio, the result is similar. There is a clear change of patterns of spending per student in 1968. Although the shift in the mean is visually perceptible around 1968, we applied the BP test again. We computed three breaks: 1968, 1979 and 1999.

The 1968 break stands out. A single break test based on the supF statistics points out to 1968 as a break point, suggesting that the period around 1968 deserves a special attention. 1968 was indeed a turning point on education spending. Initially, the structural change in that year looks like an improvement in terms of educational egalitarianism. Subsidies per pupil in primary and secondary education clearly increased *vis-à-vis* tertiary education. However, a careful examination shows that the increase in the double ratio did not come from an expansion on primary education spending. Instead, a sudden rise in higher education enrolments drove the apparent improvement of the basic/tertiary double ratio. In the next chapter, we will show how a

Figure 30 – Break points: log(primary plus secondary/tertiary education) double ratio, Brazil, 1933-2010



Source: Research data (2019)

combination of financial centralisation, national security reasons and pressure from middle and upper classes led to a spike in tertiary education enrolments.

The point just made shows the limits of the indicator. An increase in the double ratio depends on four possibilities: (a) an increase in basic education spending, (b) a decrease in basic education enrolments, (c) a decrease in higher education spending or (d) an increase in tertiary enrolments. In a long run perspective, (b) and (c) are unlikely to happen unless there are exceptional circumstances with long-lasting effects, such as a war or a revolution. However (a) and (d) both increase the indicator and are *a priori* expected to happen simultaneously. The question is whether (a) a rise in basic education expenditures or (d) a rise in higher education enrolments drove the change. Depending on the answer, political economy explanations point out to completely different directions.

Larger expenditures per pupil in basic education levels are supposed to have an egalitarian effect in terms of income. However, Brazil was far from achieving universal primary education in the 1960s and the spending increase was largely absorbed by rising enrolments, thus exerting a mild upward pressure (if there was any) on the ratio. On the other hand, one initially also expects that a rise in tertiary enrolments would follow from an expansion of absolute spending in higher education. However, given the small size of universities at the time, the Brazilian higher education system benefited from the economies of scale in the higher education sector. In addition to the spike in the number of higher education pupils, there was a higher education reform in 1968. Among the institutional changes, the classical chair system was replaced by departments, which allowed a more rational use of resources with courses shared among students from different faculties. Because of those changes, costs did not increase proportionally to the number of students, which in turn led to the structural change of the double ratio.

That does not mean, however, that costs did not increase substantially in absolute terms. In a country where primary education was far from reaching the whole school-age population, the decision for a large expansion in the number of vacancies in the higher education system was a costly one. To understand why that decision was taken, we need to dig into the political economy aspects of the education policy during the military regime. This will be done in the next chapter.

#### 4.4 FINAL REMARKS

In this chapter, we offer two contributions to the literature. First, we presented a novel dataset on education spending by schooling levels in Brazil. Departing from the seminal work of [Maduro \(2007\)](#), we consulted extra sources to increase consistency and minimize the use of interpolations. Secondly, we applied endogenous structural break tests on that dataset and attempted to improve [Wjuniski \(2013\)](#)'s procedures. We found out that important breaks took place in periods close to regime changes: in the 1960s and in the mid-1980s.

Around 1964, there was an increase in the level of education expenditures as a proportion to GDP. This finding seems to be strongly associated to the political regime change and the large scale tax reform undertaken in the period. In 1968, there was an important break point in series of education spending *per pupil* (as a proportion to GDP per capita). We also found a break in 1968 after applying a structural break test in the primary/tertiary double ratio, which measures the proportion of spending per pupil in primary education in relation to tertiary education. Rather than reflecting a larger spending in primary education, the turning point resulted from a large increase in enrolments in tertiary education from 1968 onwards.

In order to understand the changes in the pattern of education spending in the first years under military rule, more should be investigated about the rise in government's fiscal capacity with corresponding capture of expenses. The reasons behind federal decisions on education policy in terms of enrolments and expenditures between 1964 and 1985 are scrutinised in the next chapter.



## 5 FEDERAL EDUCATION POLICIES UNDER MILITARY RULE IN BRAZIL, 1964-1985

Several changes in education finance happened during the military regime between 1964 and 1985. From 1964 onwards, resources to all levels of education as a proportion of GDP increased, including primary education. Moreover, there was a fall in the level of tertiary education spending per pupil (as a proportion to GDP per capita) after 1968. Also in the late 1960s, there was a substantial decrease in the ratio between spending per pupil in tertiary education and spending per pupil in the primary level (tertiary/primary double ratio), an indicator proposed by Lindert (2010) as a measure of elite bias in education expenditures. At first glance, the results found seem positive to a massive expansion of primary education. However, the literature often stresses that the military regime's policy privileged higher education and benefited a little group in society at the expense of mass primary education (DE MATTOS, 1988; BROWN, 2002; KOSACK, 2012).

The tax reform carried out by the military government indeed led to an increase in the fiscal capacity of the Brazilian state. Initially, the larger fiscal capacity had a positive effect on all education levels, which explains the larger proportion of education spending in all levels, including the primary level, after 1964. On the other hand, the fall in the tertiary/primary double ratio in the late 1960s did not happen because more resources were devoted to primary and secondary schooling. On the contrary, it was a result of an unprecedented expansion of tertiary enrolments. Eventually, the military did give more attention to higher education and, as a consequence, universal primary education was not achieved until the 1990s.

What limited the effects of a larger fiscal capacity in the provision of primary education during the Brazilian military regime? The literature on fiscal capacity highlights that taxation is an important condition for long run economic growth and development in general (TILLY, 1975; BESLEY; PERSSON, 2009; DINCECCO, 2017). Increasing taxation provides resources for the supply of welfare-enhancing public goods and the implementation of complex policies. However, a strong fiscal capacity does not entail an effective state. Most scholars argue that a fiscally strong state may use the resources to satisfy specific groups in society rather than producing public goods such as primary education.<sup>1</sup> To make a state effectively provide public goods, the literature calls attention to the role of accountability mechanisms that limit executive powers.

In this chapter, we argue that the larger fiscal capacity of all government levels in Brazil led to an increase in education expenditures during the first years of the regime. However, the powers of the executive were unchecked. None of the accountability mechanisms raised in the literature (an effective parliament, competitive elections with universal suffrage or a decentralised

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<sup>1</sup>Clearly primary education is not strictly a public good as defined in microeconomic theory. However, primary education has more public good features, while tertiary education has more private good characteristics.

structure) was effectively present. The National Congress remained open for most of the period, but under the control of the military. Suffrage was still limited to literates and there were no direct elections to several executive posts, including the presidency. School provision was in general centralised in the intermediate government level. Without facing binding constraints, the federal level increased even more its share in tax revenues. In order to meet demands of specific groups, the central government channelled more resources to (i) the expansion of higher education and (ii) industrialisation efforts - at the expense of basic education levels.

According to the theoretical literature, even under a centralised and authoritarian rule, the country could have prioritised mass education if another condition had been present: internal political disorder could have made the government expand mass education to instill values of order and obedience, as it happened in several countries (PAGLAYAN, 2017).<sup>2</sup> However, the major threat of political disorder came from left-wing groups in universities, not from the poor people who would benefit from an expansion of primary education. Actually, the objective of maintaining political order acted in favour of a policy biased to the higher education system.

After this introduction, we describe the Brazilian tax system after the 1964/67 reform in section 5.1. We show that technocrats within the government were in favour of expanding the basic levels in section 5.2. Next, we show that political considerations drove the federal government to increase expenditures in the tertiary education in section 5.3. In section 5.4, we describe the evolution of basic education and adult literacy policies, which only received some attention after the higher education issue was settled. Therefore, the previous literature provides only a partial understanding as to why education remained backwards during the period. 5.5 concludes the chapter.

## 5.1 TAX REFORM AND FISCAL CAPACITY

Fiscal capacity and constraints on the executive are important factors to make states provide public goods according to the literature (BESLEY; PERSSON, 2009; BESLEY; PERSSON, 2013; BARDHAN, 2016; DINCECCO, 2017). In the early years of the military regime in Brazil, the federal government was able to substantially increase its fiscal capacity through a wide-ranging tax reform.

In 19<sup>th</sup> century Brazil, the paltry tax resources of all government levels was already a matter of discussion (NUNES LEAL, 1975; PAPADIA, 2017). Fiscal reforms in the 1930s increased fiscal capacity and centralisation, but the necessity of tax reform was already considered urgent as early as 1947 (VARSANO, 1997). The fiscal fragility of the Brazilian state became evident during the Kubitschek administration (1956-1961). Treasury expenditures, which comprised about 8% of the GDP in the late 1940s, reached 11% in 1957 and 13% in the early

<sup>2</sup>The theory points out to a further incentive to a massive expansion of schooling under an authoritarian regime: an outward-looking industrialisation strategy (BIRDSALL; BRUNS; SABOT, 1996; HAGGARD; KAUFMAN, 2008; ANSELL, 2010). Even though the regime sought to diversify exports, the military regime supported an ISI strategy for most of the period. However, this is not enough evidence to the hypothesis.

1960s (VARSANO, 1997). The lack of fiscal capacity and adequate sources of funding made the federal government resort to debt and seigniorage in order to speed up the industrialisation process and support regional development.<sup>3</sup> The clear upward trend of public expenditures led to the creation of study commissions that advocated for tax reform, such as the Special Commission of the Tributary Code and the Fundação Getúlio Vargas / Inter-American Development Bank (FGV/IADB) Commission (LIEBERMAN, 2003).

In the early 1960s, the prospects of the Brazilian economy were dull according to several economists.<sup>4</sup> Public deficits were basically covered through money emissions, given the backward structure of both taxation and bond markets. Before the military takeover, the Ministry of Finance established a commission to deal with fiscal reforms in 1963 (VARSANO, 1997). At the beginning of the military period, the government launched the Government Plan of Economic Action (PAEG).<sup>5</sup> The PAEG consisted in several measures that included not only traditional macroeconomic measures, but several institutional reforms in the areas of taxation, labour policy and finance.<sup>6</sup>

Among PAEG measures, there was a profound reform in the tax system. The coup paved the way to the reform, since political and institutional resistances slackened (VARSANO, 1997). The new system was gradually implemented from 1964 to 1966. Some of the changes were consolidated in the text of the 1967 Constitution. Besides aiming to fight public deficits, the reform's major objective was to make the central government capable of stimulating economic growth. For that reason, inequality concerns were not at sight (VARSANO, 1997). Instead, the tax reform was largely based on increasing indirect taxes, which were known to be regressive. The comparative works of Lieberman (2003) and Souza (2016) forcefully demonstrate that Brazil did little to raise income tax revenues.

Concerning indirect taxes, the reform responded to demands of the productive sector, which complained about the inefficient structure of taxation based on a cascading turnover tax (VARSANO, 1997). The novel tax system was among the most advanced in the world: Brazil was one of the first countries to adopt a value-added tax (GIAMBIAGI; ALÉM; PINTO, 2015).<sup>7</sup> Despite focusing on the role of the central government in taxation, the reform created the *Imposto*

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<sup>3</sup>See Orenstein and Sochaczewski (1989) for the finance problems of the ambitious programs of the Kubitschek administration: the Targets Plan (*Plano de Metas*) and the construction of the new capital, Brasília. In 1959, the creation of SUDENE was another source of pressure over public finances (VARSANO, 1997).

<sup>4</sup>Celso Furtado (1961), for example, thought that the end of the industrialisation cycle required distributive measures to make economic growth return. Those measures included an agrarian reform, for example. That would spur the supply of agricultural products given that the landownership structure did not provide incentives to productivity increases in ECLA's view. M. C. Tavares (1964) had a similar view, even though she changed it later. Based on a Kaleckian idea, Tavares and Serra (1976) proposed a different explanation for the "economic miracle" based on a demand-driven growth based on the consumption of the capitalist class.

<sup>5</sup>*Plano de Ação Econômica do Governo* in Portuguese.

<sup>6</sup>Lara Rezende (1982) makes a good summary of PAEG measures. An interesting book that compares the macroeconomic effects of PAEG and the Real Plan is Moura (2007).

<sup>7</sup>In 1963, the European Economic Community (EEC) established a committee on fiscal matters that acted in favour of replacing cascading turnover by value-added taxes in European countries (LONGO, 1986). Curiously, Brazil implemented it (to some extent) before European countries except for France (VARSANO, 1997).

*de Circulação de Mercadorias* (ICM), the state-level value-added tax. The ICM was devised to support the implementation of subnational policies.<sup>8</sup> Funds were also created to help poorer states and municipalities (*Fundo de Participação dos Estados* (FPE) and *Fundo de Participação dos Municípios* (FPM), respectively). Despite creating specific taxes to subnational governments, the federal government was responsible for tax policy according to the 1967 Constitution. In other words, decision-making in tax matters was centralised.

Another important aspect was a more efficient taxation in the period. According to Lieberman (2003), the government started to fight tax fraud, automate record keeping and deploy other modern technologies to avoid tax evasion. As a result, costs of collecting taxes in Brazil declined.<sup>9</sup>

As a result of both the reform and the rise in efficiency, the fiscal capacity of the Brazilian state significantly increased: tax proportion in terms of GDP increased from 16.0% in 1963 to nearly 26.0% in 1969. In addition, the federal level was the major winner of the reform: there was a centralisation of tax revenues in favour of the central government at the expense of states and municipalities. During the preceding regime between 1945 and 1964, the central government collected 63.3% of total tax revenues on average, while states and municipalities got 31.0% and 5.7% on average respectively. The already large share of the central government rose in the period 1964-85: 71.3% on average, leaving states and municipalities with 25.8% and 3.0% on average in the same period. As a proportion to GDP, states and municipalities did not increase their tax revenues. Nearly all rise in fiscal capacity benefited the central government rather than subnational levels (see the period between the dashed lines in Figure 31).<sup>10</sup>

Therefore, the tax reform in the mid-1960s enhanced the fiscal capacity of the Brazilian state. It likely explains, to a large extent, the spending increase in all schooling levels around the same period. However, welfare-enhancing policies were not effectively implemented. The expansion of mass education, for example, a necessity for a long run economic growth and a more egalitarian pattern of development, was interrupted in the 1970s. An effective National Congress could have constrained the executive and pushed the government to a different direction.

Although the reform had already increased centralisation at the federal level, centralisation was intensified throughout the military period until achieving its peak in the mid-1970s. In the next section, I show that the richer federal level met upper class demands regarding education matters. Subnational governments are left to the chapter 6.

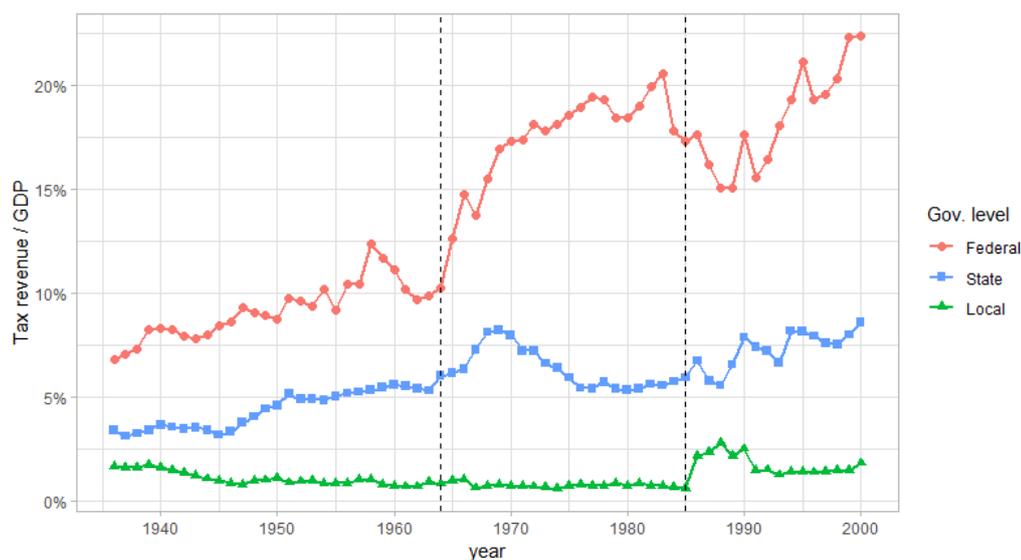
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<sup>8</sup>80% of the ICM collected in a given state was taken by the state government, while the remaining 20% was transferred to municipalities in that state.

<sup>9</sup>In spite of the decline, those costs were about three or four times higher than in South Africa according to the comparative study of Lieberman (2003) In the case of income taxes, those changes led to a near tenfold increase in the pool of tax payers from 1967 to 1969 (SKIDMORE, 1988).

<sup>10</sup>Actually, Delfim Netto argued for an even higher level of centralisation (LIEBERMAN, 2003, p. 162).

Figure 31 – Tax revenues as a proportion of GDP (%), all government levels, Brazil, 1936-2000



Source: IPEA (2019)

## 5.2 HUMAN CAPITAL: THE TECHNOCRATIC VIEW

In the early 1960s, key left-wing leaders such as João Goulart and Leonel Brizola seemed to understand the importance of basic education. There was an increase in primary gross enrolment rates (eight grades) during Goulart's term as president (from 59.4% in 1961 to 70.8% in 1964). One could argue that the rise in enrolments was partly a result of the enactment of the Law of Directives and Bases (LDB)<sup>11</sup>, which raised the earmarking of resources education in 1961. Education spending as a proportion of tax resources indeed increased in the early 1960s. However, Goulart's presidential addresses and economic plans highlighted basic education issues more than his predecessors (KANG, 2017). Leonel Brizola, Goulart's brother-in-law, was feared as a radical leftist and a rising star in national politics. As Rio Grande do Sul state governor, he actively supported the expansion of primary education while in office (BANDEIRA, 1979; DE QUADROS, 2003). It seems likely that both the 1961 LDB and government efforts have played a role in rising enrolments.

In a study centred on post-war Western Europe, Busemeyer (2014) argued that political cleavages and cross-class coalitions influence education policy. In the Brazilian case, Kosack (2012) argued that the best moment for basic education was in the heyday of the left between 1961 and 1964. According to Kosack (2012)'s framework, the cross-class coalition that supported Vargas made the government invest in all schooling levels, while Goulart was supported only by workers, who would be interested in the expansion of primary education. In his view, once elites took power in 1964, primary education was left aside in Brazil.

However, the new government was aware of the importance of primary education after

<sup>11</sup> *Lei de Diretrizes e Bases (LDB)*

the regime change in 1964. Marichal Castello Branco, who took office after the coup, had close connections with military education institutions and demonstrated his sympathy to the cause. The 1965 budget showed a rise in resources for the Ministry of Education and Culture from 5.1% to 7.5% of the total budget (AMES, 1973). Moreover, Castello Branco demonstrated he was aware of the country's dismal educational situation in his first Presidential Address:

“We are all aware of the serious and unfortunate situation the Revolution found in the education sector, where the government did not sin by omission only, but also for complacency and sometimes by deleterious action.” (CASTELLO BRANCO, 1965, p. 169).<sup>12</sup>

Secondly, the human capital approach was on the rise among economists since the contributions of Jacob Mincer (1958), Theodore Schultz (1960) and Gary Becker (1962). According to the approach, formal education was one of the major sources of human capital formation. Productivity advances (and therefore long run economic growth) depended not only on the accumulation of physical capital, but also on the improvement of human resources. Several technocrats who supported the regime were influenced by the human capital approach (CAMPOS; SIMONSEN, 1974). Moreover, they had a special role within the new government, particularly through the powerful Ministry of Planning headed by Roberto Campos.

Since the first years of research on human capital, a crucial result already emerged: early years of education yielded higher returns. Following the contemporary literature, Roberto Campos was aware of the necessity of improving primary and secondary education. A Columbia-trained economist, Campos had been part of the Kubistchek's government and helped to devise the well-known Targets Plan.<sup>13</sup> He also coordinated a study on public education finance demanded by the Ministry of Education (BRASIL, 1957). Moreover, Campos was on the debates on education at the IPES, a think-tank basically comprised of entrepreneurs and high-ranked military staff, which provided several names to the military government (DREIFUSS, 1987; SOUZA, 1981; SAVIANI, 2008).

Campos brought Arlindo Corrêa, a 27-year old engineer who worked at his consulting company, to the technical area of the Ministry of Planning, the Office of Applied Economic Research (EPEA).<sup>14</sup> At the EPEA, later transformed into the Institute of Applied Economic Research (IPEA)<sup>15</sup>, Corrêa coordinated research on education and labour markets in what was later known as the National Centre of Human Resources (CNRH/IPEA).<sup>16</sup> An engineer by training, Corrêa's team attempted to raise quantitative information on the situation of Brazilian education, which were published in two reports on the country's education system. Parts of the

<sup>12</sup>“É do conhecimento de todos a grave e lamentável situação que a Revolução encontrou no setor de Educação, onde o poder público não pecou apenas pela omissão, mas também pela complacência e, por vêzes, pela ação deletéria”

<sup>13</sup> *Plano de Metas*.

<sup>14</sup> *Escritório de Pesquisa Econômica e Aplicada* (EPEA).

<sup>15</sup> *Instituto de Pesquisa Econômica Aplicada* (IPEA).

<sup>16</sup> *Centro Nacional de Recursos Humanos* (CNRH).

material were included in the 1967 Ten Year Plan on Economic and Social Development still under Castello Branco.<sup>17</sup> Later the new President, Costa e Silva, also used some of the material in the Strategic Plan of Development (1968-70), which replaced the previous one.<sup>18</sup>

Higher education was clearly not a priority in the beginning (AMES, 1973; HAAR, 1977). Corrêa was aware that basic education should be the priority.<sup>19</sup> Roberto Campos believed that secondary education was the major bottleneck of the Brazilian economy in terms of human capital. Given opportunity costs, tertiary education should not be free of charge: the great majority of students were rich enough to pay for university level education, while poorer students should receive subsidies (CAMPOS; SIMONSEN, 1974). However, economists in the Ministry of Planning could not make decisions without the Ministry of Education and the Federal Education Council (CFE)<sup>20</sup>, the major decision-making body regarding the allocation of federal resources to education. Universities had more power at the CFE, since each rector of a federal university had a seat at CFE. Meanwhile, primary and secondary education had one representative each.

The military regime undertook two important reforms in schooling, whose origins started years earlier. Since at least the early 1950s, Brazil and United States had already a history of cooperation through the United States Agency of International Development (USAID). The USAID provided technical assistance and most of the agency's recommendations were adopted. However, USAID influence had limits, since the government formed national commissions to deal with the matters (ROMANELLI, 1978; DE MATTOS, 1988). According to documents of the Ministry of Planning, the reforms on basic and higher education were already in the agenda since 1965 (DE MATTOS, 1988). However, threats of political disorder and pressure from specific groups made higher education reforms become a priority.

### 5.3 POLITICAL ORDER, ELITE DEMANDS AND THE EXPANSION OF HIGHER EDUCATION

Student unrests and critiques to the national university system were widespread in the 1960s. In the midst of the Cold War period, the major reason for the military worrisome concerning higher education was national security. Following the doctrine of the ESG, the military elite viewed leftist activities in universities with strong suspicion. According to Castello Branco, the new administration had come to reestablish order, which involved the pacification of trade unions and students (FREITAG, 1984).<sup>21</sup> As a result, the new government attempted to weaken leftist student movements such as the *União Nacional de Estudantes* (UNE) – the

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<sup>17</sup> *Plano Decenal de Desenvolvimento Econômico e Social*.

<sup>18</sup> *Plano Estratégico de Desenvolvimento*.

<sup>19</sup> Interview with Arlindo Corrêa, June 2018.

<sup>20</sup> *Conselho Federal de Educação* (CFE).

<sup>21</sup> Suplicy de Lacerda, the first Minister of Education of the military regime, expressed the same idea differently in June 1964: “os estudantes devem estudar e os professores, ensinar” (“students must learn and professors must teach”) (FREITAG, 1984).

nationwide university students organisation.<sup>22</sup> A number of clandestine radical student groups that supported an armed revolution were active during the period. Police incursions on university campuses became commonplace since the early days of the regime.<sup>23</sup> Facing mounting unrest, the government formed a special commission led by Colonel Meira Mattos, a teacher at ESG, to investigate why universities were an enduring problem.

Furthermore, a team of analysts working under MEC-USAID agreements produced a report on university administration in Brazil. According to the so-called “Atcon Report” (labeled after the leading author, Rudolph Atcon) only three of Brazilian universities had the administrative conditions to operate properly (ATCON, 1966). The report indicated the necessity of a more modern structure, including postgraduate and research systems (FIGUEIREDO, 1987). Bearing in mind national security and modernising purposes, the government sought to undertake a university reform and created a national task group. The government nominated two students as task group members, but they refused to participate (SAVIANI, 1996).

USAID involvement on higher education matters was an important source of contention. Left-wing nationalist student organisations understood it as an unacceptable U.S. intrusion on national affairs. As the *linha-dura* (hardliners) stream were in charge, there was increasing repression and political polarisation under General Costa e Silva, who replaced Castello Branco as President in 1967. Moreover, student protests for a number of reasons (including generational conflicts over cultural and moral issues) were a trend in several countries. As a result, riots and demonstrations mounted in 1968. The killing of a 18-year old protestor by the police in Rio de Janeiro called attention of the public opinion in March 1968. Given the sensitivity of the matter, the controversial Meira Mattos Report, which was already complete in April, was only released in late August 1968. Meanwhile, a task group under the Ministry of Planning started to work on a large administrative reform at the MEC (DE MATTOS, 1988).

In the midst of this turbulent environment, the Higher Education Reform was finally enacted in late November 1968 (Law 5,540). Bearing in mind the modernisation of universities through administrative rationalisation, the reform organised the courses in three categories: undergraduate, postgraduate and extension courses (FIGUEIREDO, 1987). In order to lower costs, the reform extinguished the traditional chair system (*cátedra*) and reorganised universities through the establishment of departments and the credit system (CUNHA, 1980).

The Higher Education Reform was clearly among the measures of the military government to fight political disorder. Some days after issuing the Higher Education Reform, the federal government enacted The Institutional Act no. 5 (AI-5) in December 1968. The AI-5 was the most draconian measure taken by the regime. It suspended the Congress indefinitely, revoked mandates and suspended *habeas corpus*, among other measures. The AI-5 also granted

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<sup>22</sup>Right after the coup, UNE headquarters were burned in April 1st, 1964.

<sup>23</sup>The invasions of the campus of the *Universidade de Brasília* (UnB), considered a stronghold of liberal thinking (or subversive, depending on the view), was a particularly remarkable event.

the central government the power to deprive any citizen of political rights for ten years. In order to secure control, all police forces were put under the command of the Ministry of War. Soon after, the government managed to compulsorily retire three Supreme Court justices.<sup>24</sup> In the wake of repressive measures, dozens of university professors were forcibly retired as well (Law-by-decree 477), including well-known scholars such as Caio Prado Jr., Florestan Fernandes and Fernando Henrique Cardoso.

In addition, the government also established a course in “Moral and Civic Education” in 1969. The content of the course was designed by the Higher War College (ESG) in face of “the need to reshape the mentality of the upcoming generations” (SKIDMORE, 1988, p. 272). Teaching materials were previously approved by the military government. The course was compulsory for all pupils and should be taken every year - not only in primary schools, but also including undergraduate and even postgraduate levels. According to Skidmore (1988), students in general did not take the course seriously. In any event, this measure makes plain that fighting subversive elements and political disorder was the major reason for the military prompt action on higher education issues.

The government faced another delicate issue concerning higher education. Despite all efforts to rationalise the higher education system, federal spending in universities rose suddenly from 1968 onwards. Rather than a result of the reform, Barry Ames (1973) attributed the increase to the problem of “surpluses” (*excedentes*). In order to enter universities, Brazilian students had to take an entrance examination called *vestibular*. A candidate whose grade was above a minimum threshold was labeled as approved, but it did not entail that the candidate would actually become a university student. The number of approved candidates were often significantly larger than the number of places available at universities. As competition for vacancies increased significantly since the late 1950s, pressure for changes were increasing. However, as one of the measures to reduce public spending, the federal government attempted to cut the number of university vacancies in 1967. The number of “surpluses” increased as a consequence and the attempt backfired: press coverage to the “surpluses” issue became widespread (AMES, 1973).

The government started to consider an expansion of the system. The Ministry of Planning was against the expansion because of budgetary consequences. J. P. Reis Velloso – who was the President of the Commission for Higher Education Reform and head of IPEA – alerted that the excess number of professionals would flood the market in some years (DE MATTOS, 1988). Despite the opposition of the technical area of the federal government, pressure from upper and middle strata prevailed (AMES, 1973).<sup>25</sup> There was an expressive increase in tertiary enrolments from 1968 onwards. To enable that, the government both increased vacancies in the

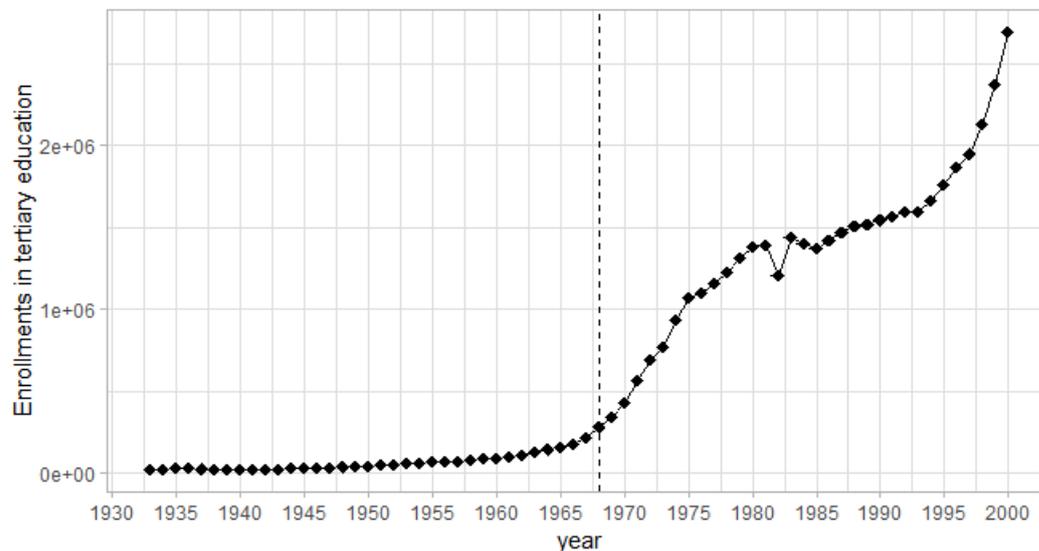
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<sup>24</sup>Vitor Nunes Leal, Hermes Lima and Evandro Lins e Silva were forcibly retired, while Gonçalves de Olivera, the president of the Supreme Court, resigned in protest (SKIDMORE, 1988).

<sup>25</sup>Mrs. Iolanda Costa e Silva, wife of the President, was particularly sensitive to that situation. She directly engaged in dialogue with the students and lobbied on their behalf – to the point she was called the “godmother of *excedentes*” (DE MATTOS, 1988). Although we are not suggesting that she had a major role in the expansion policy, she represented the view of several upper and middle class families on the matter.

public system and relaxed requirements for private higher education schools to operate.

Figure 32 – Enrolment in tertiary education, Brazil, 1960-1990



Source: IBGE (2003)

Jarbas Passarinho, a former military with strong political skills, was chosen by the new President, General Médici, to become the Minister of Education in late 1969. He continued the policy of increasing access to higher education, which “received the greatest attention of the federal government” during his tenure (HAAR, 1977, p. 79). On the one hand, Médici kept the high levels of repression initiated during Costa e Silva’s term. On the other hand, the president attempted to improve the public image of the Revolution through several means including media campaigns. Aligned with that policy, Passarinho succeeded in establishing some dialogue with students until leaving the position in 1974 (DE MATTOS, 1988).

The return of moderates made the government invest in different programs within the higher education system. The new administration, under the authority of General Geisel, also privileged higher education. Geisel’s education policy was consistent with the economic strategy of becoming a self-sufficient industrial country and with *abertura* (political opening). Under Minister Ney Braga, the new government focused on incentives to science and technology at the postgraduate level with the *National Postgraduate Plan* (PNPG).<sup>26</sup> MEC increased resources to research centres, postgraduate training and full-time professorships. Moreover, the government also gave incentives to arts and humanities with the creation of several organisations. Even if national security was no longer as critical a problem as it had once been, the priority in higher education became even stronger. This likely explains the structural break found in tertiary education spending as a proportion of GDP in 1976 (see previous chapter).

Figueiredo administration, the last one of the military period, continued the policy of

<sup>26</sup>In Portuguese, *Plano Nacional de Pós-Graduação* (PNPG).

political opening. He chose Eduardo Portella, a professor and literary critic, as Minister of Education. Portella revised punishments for professors and students under the Law-by-decree 477. He also emphasised that education was not only instrumental, but also an end in itself – which represented to some extent a departure from the human capital approach. Portella left the Ministry after a crisis and was replaced by General Rubem Ludwig, who remained almost two years in charge. Ludwig was finally replaced by Esther Ferraz, the first primary teacher and woman to achieve this position in the country – a clear sign of the more liberal policies at the end of the regime (DE MATTOS, 1988).

As we have shown, universities were a major source of political disorder to the military regime. Moreover, middle and upper segments were increasingly demanding more places in the higher education system. In order to eliminate more immediate threats and please elite and middle strata, the military government engaged in several changes in the higher education system. Those changes included a wide-range reform, a large expansion of enrolments and the introduction of a mandatory course in “moral and civic education”. Mass education only received more attention later, but then the expansion of higher education was already underway.

#### 5.4 LEFTOVER ISSUES: BASIC EDUCATION AND MOBRAL

After dealing with politically sensitive issues involving higher education, government projects for basic education began receiving some attention again.<sup>27</sup> Médici’s government plan came with a motto for education policy: “Revolution by means of education”. The document included educational targets such as (a) the universalisation of the primary level and (b) the elimination of adult illiteracy. Both targets were not met.

In order to tackle the first target, the military government designated a commission. Eventually, the government promoted changes in both primary and secondary levels through an extensive reform. As described in chapter 2, the Law 5,692/1971 extended compulsory education from four to eight years through a merge of the primary (*primário*) with the lower secondary level (*ginásial*). The reasoning behind the reform was to prevent children from dropping out after the end of the former primary level. Entrance in secondary schools often required an examination, which was practically abolished after the reform.

Another important feature of the 1971 reform was the change in the curriculum. Prior to the reform, the secondary education system was divided in different tracks (academic, industrial, commercial, etc.). In theory, the reform integrated professional (VET) and academic training in order to create a more flexible labour force. In any event, detractors argued that the reform, inspired by the human capital approach, championed an instrumental and market-driven view of education. In a different direction, Ghiraldelli Jr (2005) argued that the reform led to the demise of normal schools, which worked properly under the previous framework in his opinion. On the

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<sup>27</sup>At least regarding education policy. De Mattos (1988) argues that education has never been a priority to the military regime, despite the sympathy of some to the cause.

other hand, in the view of supporters, the reform suppressed the previous system that promoted specialisation and social segmentation in secondary education, which decreased the probability of a working class student to achieve a higher education diploma.<sup>28</sup>

However, the reform had limited results. First, available statistics led the government to a misdiagnosis of the situation of basic education. As shown later by several scholars, repetition in the first grades of primary education was much larger than previously thought. Rather than the transition from the primary to the secondary level or large dropout rates, repetition in the first grades was the main problem (FLETCHER, 1985; FLETCHER; CASTRO, 1993; RIBEIRO, 1991; KLEIN; RIBEIRO, 1991). As GDR indicators show, high repetition rates reflected on the distribution of students across grades (see chapter 2).

In the second place, implanting four additional grades as compulsory education required more resources in order to reach all children aged between 7 and 14 years. The professionalisation of secondary education also demanded extra resources in terms of infrastructure. Subnational governments complained about the lack of resources to pursue both the expansion of compulsory education and the integration of VET and general education in the secondary level – the latter point was even recognised by the MEC years later (MEC, 1985a).

Finally, the Law 5,692/1971 recommended an administrative decentralisation to the municipality levels. In spite of being a good idea in terms of increasing accountability, there was no mention to a financial decentralisation that could leave more resources to local governments (MELLO E SOUZA, 1979). Although the participation of municipalities slightly increased after the reform, state tax revenues were still the major source of basic education funding (Table 13 at the Appendix). Those shortcomings of the reform might explain its limited effect in the expansion of mass education in the country.<sup>29</sup>

A second line of defense for the policymakers in the military period was the *Movimento Brasileiro de Alfabetização* (MOBRAL), a large scale adult literacy program. Although illiteracy rates had been falling, the government realised that the absolute number of illiterates kept increasing because of the demographic growth. MOBRAL was created in 1967, but its activities

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<sup>28</sup>Arlindo Corrêa, interview with the author.

<sup>29</sup>The following note found in De Mattos (1988, p. 285) about Geisel's personal views on basic education is at least curious: "would President Geisel's personal views have made a difference or somehow influenced his ministerial team? The position of the general in the following episode, reported to the author by Col. Mauro Rodrigues, former MEC's General Secretary (1970- 71), is curious. Recently appointed President, Gen. Geisel worked in the preparation for his government. During a visit to the State of Rio Grande do Sul, at early 1974, he talked with Col. Rodrigues, who was the State Secretary of Education and was supported by the State Governor as a candidate to become the new minister of education (in a good temper, the colonel recalled the episode as "a disastrous interview which eliminated my chances"). Gen. Geisel started the conversation abruptly: 'I was told you spend too much on education,' 'No, I scarcely managed to spend it over the legal 20% minimum limit,' 'But the Secretary of Finance told me that it had been quite more, something around 30%!' 'Maybe this is the figure if he adds other education-related expenditure and those out of my control as the school of the Military Brigade; for me is still 21%,' Then - relates the colonel - he began criticising the legal provision. 'But this is the law', [Col. Rodrigues] said, 'We can change the law', replied the general, finishing the interview (and the colonel's chances of becoming minister)".

started effectively under the Medici administration in 1970. In the inaugural message to the Congress, Médici said that the country was “starting today to stop the torrent of illiteracy, in order to have even more worthy people, capable of generating the greatest wealth, in the great step of national education”.<sup>30</sup> Mário Henrique Simonsen, a well-known professor of Economics at *Fundação Getúlio Vargas* (FGV), became the President of MOBRAL. Arlindo Corrêa left the CNRH/IPEA to become the executive secretary of the new program.<sup>31</sup>

According to [Campos and Simonsen \(1974\)](#), there were two main challenges to MOB-RAL: financial resources and large scale mobilisation of teachers, students and infrastructure. In Simonsen’s view, the earlier challenge was not a difficult one, provided the federal government made an effort towards it.

Even though the tax reform had substantially increased the fiscal capacity of the federal government, the first problem was solved through a new national lottery. *Loteria Esportiva* (Sports Lottery) provided extra-budgetary resources that became the major source of funding to MOB-RAL: 30% of the revenues went to literacy programs (80% out of it to MOB-RAL). Another important source was a possible donation of 1% of income taxes to MOB-RAL ([CAMPOS; SIMONSEN, 1974](#)). In administrative terms, the central task of the national coordination of MOB-RAL included distribution of financial resources, teaching material and training. The execution of the program was in charge of local commissions. If a pupil wanted to pursue further education after the literacy course (five months), there was a course on “integrated education”: a summary of the first four grades of primary education in twelve months in order to prevent relapse into illiteracy ([CAMPOS; SIMONSEN, 1974](#)).

In order to attract instructors, salaries paid to MOB-RAL teachers were larger than teacher salaries in several rural areas of the country. Since classes were offered at evenings, teachers could keep their jobs during the day. MOB-RAL also offered training and assistance, which teachers seldom received in their regular teaching jobs ([CAMPOS, 1980](#)). Furthermore, since it was devised in a more flexible and less bureaucratic structure, MOB-RAL was a low cost program – a point often emphasised by Simonsen and Corrêa. The program became well-known and Brazil provided assistance to other adult literacy programs in foreign countries ([HAUSSMAN; HAAR, 1978](#)).

Simonsen left the MOB-RAL in order to become the Minister of Finance in 1974. Arlindo Corrêa then replaced his former colleague. Around that time, MOB-RAL started a project to catch school dropouts aged between 9 to 14 years. The new project aimed to regulate the flow of pupils throughout the system given the high rates of repetition ([CUNHA, 1980](#)). However, the

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<sup>30</sup><https://acervo.oglobo.globo.com/em-destaque/created-in-ditadura-por-medici-em-1970-mobral-queria-erradicar-analfabetos-17468183ixzz5uVg4T7zystest>.

<sup>31</sup>According to some commentators, the methodology to teach adults was largely inspired in Paulo Freire’s method but adapting its political content ([FREITAG, 1984; PLANK, 1996](#)). In interview with the author, Arlindo Corrêa denied any influence of Freire. Since assessing the pedagogical approach is beyond the scope of this research, we just leave it as a note.

new project might have competed with formal schooling (PLANK, 1996).

Facing a more open environment under Geisel, the opposition succeeded in installing a parliamentary investigation (CPI) to analyse MOBRAL's activities in 1975. Among the major criticisms against MOBRAL, detractors accused the program of being "extravagantly funded in a country which needed every available penny to organise proper education for its children" (HAUSSMAN; HAAR, 1978). Also, MOBRAL was accused of "selling illusions" and defined as a "total economic waste" (HAUSSMAN; HAAR, 1978). According to Cunha (1980), MOBRAL students in general returned to illiteracy soon after they left the program. On the other hand, supporters emphasised that high rates of dropouts were expected in an adult literacy program, but MOBRAL was cheap, flexible and had good results.<sup>32</sup>

In 1970 about 500 thousand people enrolled in MOBRAL programs. Figures achieved around 5 million people in 1973. From 1970 to 1973, approximately 6.3 million people, which represented 51% of MOBRAL students, were estimated to have become literate according to official figures (CUNHA, 1980). Later on, however, enrolments in MOBRAL started to decline. In 1979, MOBRAL enrolments were still significant, comprising 3.3 million people. Those numbers decreased to 668 thousands in 1983. At that time, Corrêa had already left the program as well. In 1981, MOBRAL lost its independent character and became a program of the Ministry of Education (MEC). According to the Secretary of Primary and Secondary Schooling at the MEC, MOBRAL had to be extinguished because of its "inefficiency and gigantism".<sup>33</sup> MOBRAL was later replaced by the Fundação Estudar in 1985.<sup>34</sup>

Taking stock, the bias towards higher education actually defied the views of technocrats of the regime. Influenced by the human capital approach, they were aware of the crucial role of early schooling levels to productivity growth. That explains their suspicion towards the initiative to expand tertiary enrolments, which was undertaken in spite of their concerns. It also probably explains why Simonsen and Corrêa devoted their efforts to MOBRAL from 1970 onwards. MOBRAL should have begun in 1867, but the start of the program was postponed because, according to Minister Passarinho, "the money that would be allocated to MOBRAL ended up being allocated to university education to address the problem of surpluses" (MEC, 1973, p. 12). Despite changes in basic education levels and the promotion of a large adult literacy program, education measures largely favoured higher education at the expense of other schooling levels. According to Haussman and Haar (1978), more than 4 million youngsters aged between 7 and 14 years were not attending schools. The II PND target of achieving universal primary education in the late 1970s was not even close to be met. Meanwhile, enrolments in tertiary education increased tenfold (0.142 to 1.42 million) between 1964 and 1986.

Simonsen (1974) recognised that rates of return in primary schooling were larger in

<sup>32</sup>This chapter does not intend to evaluate the MOBRAL, but the program seems to have achieved mixed results.

<sup>33</sup>Folha de São Paulo, 24 November 1985, p. 37 and also cited in Melchior (1987, p. 55) and Plank (1996).

<sup>34</sup>Fundação Estudar was also closed down later by the Collor administration, which implemented another literacy program.

Brazil, but he attempted to justify the increase of tertiary level enrolments vis-à-vis other levels. First, rates of return as calculated by [Langoni \(1972\)](#) were average rates instead of marginal ones – data for the latter was not available. In the second place, the government felt the necessity of improving “the shape of the educational pyramid” in order to fight income inequality ([SIMONSEN, 1974](#), p. 123). Those apparently technical reasons to the rise of university level enrolments seem less convincing than the explanations we provided here: financial centralisation, national security and interest groups.

Recognising that Brazilian governments prioritised higher education in the 1970s, the government asserted that primary education was the priority in the 1980s ([CASTRO, 1985](#)). Minister Portella, in the early 1980s, attempted to improve the salaries of teachers through the creation of a fund (*Fundo de Valorização*). However, the debt crisis in the 1980s severely constrained the possibilities for the MEC. After a passage at the MEC, [Castro \(1985\)](#) demonstrated no hope for an immediate improvement of the conditions of basic education in Brazil. Fortunately, he was not completely right. Despite chronic problems remaining in the country’s schooling system until today, basic education improved in terms of quantity and quality, particularly from the mid-1990s onwards.

## 5.5 FINAL REMARKS

The incursions of the military government on basic education issues had long-lasting despite limited effects. The organisation of the Brazilian school system remained similar after the end of the military dictatorship. Apart from changes in funding, major regulatory changes in education were only undertaken in the mid-1990s. However, the military government could have taken advantage of its higher fiscal capacity to actually expand education to the masses. It did not and that was a glaring mistake in a period of rapid demographic growth.

This chapter showed that the military government was able to substantially expand the fiscal capacity of the Brazilian state. Tax resources became increasingly centralised in the federal level. Despite strengthening the position of the central government to overcome coordination problems, the federal government was not able to actively support the expansion of mass education. Instead, the federal government focused on higher education for two reasons: (a) national security (as universities were a stronghold of left-wing threats) and (b) to meet the demands of middle and upper classes, which were the vital constituencies of the regime.

Differently from the hypothesis raised by [Paglayan \(2017\)](#), internal political disorder did not push for an expansion of primary education in military Brazil. Universities were a constant source of actions deemed subversive, which made the government draw more attention to the tertiary level. Moreover, under a financially centralised framework, the federal government met the demands of the “surpluses”, students who achieved a minimum grade but were not able to enter universities. The latter were mostly youngsters from middle and upper classes. To solve the problem, the government sponsored a sharp increase in tertiary level enrolments in both public

and private system. That reveals the fragility of the federal government in terms of capture by special interests.

This is another example that challenges the view that centralisation is a solution to local level capture. As we mentioned in the Introduction, the theoretical and empirical literature on federalism shows that capture is context-dependent and possible in any level. I have attempted to argue that, in the Brazilian context under military rule, the *central* government suffered from high levels of capture. As Fishlow (1986) once emphasised, the military government constantly needed to assure its legitimacy despite its exceptional powers.<sup>35</sup> De Mattos (1988) pointed out that the bias toward higher education was a compensation for the mounting political repression.

The next chapter analyses the other levels of government, which were left with lower shares of tax resources. Assessing the effects of industrial policies and financial centralisation on state-level education finance completes our study on the political economy of education during the military regime in Brazil.

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<sup>35</sup>See also Fonseca and Monteiro (2008) on that.

## 6 EXPORT INCENTIVES, STATE LEVEL EXPENDITURES AND PRIMARY EDUCATION IN BRAZIL, 1967-1985<sup>1</sup>

In the first years under military rule in Brazil, enrolment rates in primary education increased steadily. As highlighted in the previous chapter, well-known technocrats of the military regime, such as Roberto Campos and Mário Henrique Simonsen, often stressed the crucial role of education on productivity increases (CAMPOS; SIMONSEN, 1974). The research on human capital was a growing field and young economists trained in the U.S. were coming back with those novel ideas to Brazil. According to the human capital approach, education could be seen as an investment that yielded returns in the future. Early studies on the field already indicated that the first grades of schooling generated higher returns and called attention to the importance of early schooling levels (SCHULTZ, 1960; MINCER, 1958; BECKER, 1964).

In Brazil most children ended up retained in the four-grade primary level and those who made it through often did not advance to the lower secondary education. Staff members from technical areas within the federal government were convinced that national policies should emphasise secondary education (AMES, 1973). However, most studies hold the military rule in Brazil as responsible for deepening the educational backwardness in the country (AMES, 1973; BROWN, 2002; HAAR, 1977; DE MATTOS, 1988). Kosack (2012), for example, draws a sharp line in 1964. He argues that the military governments supported elite-biased education policies in stark contrast to the Vargas era and the democratic period (1930-1964). Klein and Luna (2017) offer an alternative perspective: they recognise that secondary and university enrolments grew substantially during the military era, but they also hold that military administrations “fully supported” primary education. According to their view, the expansion of primary education was part of the efforts of the military regime to construct a welfare state in Brazil.

Those perspectives seem caricatural to a large extent. Actually, primary education persistently lagged behind even poorer neighboring countries in Latin America according to several indicators throughout the 20<sup>th</sup> century (PLANK, 1996; ASTORGA; BERGÉS; FITZGERALD, 2005; FRANKEMA, 2009; KANG, 2017). Enrolment rates even decreased in some years during the autocratic *Estado Novo* regime (1937-1945). Moreover, primary education was clearly not a priority throughout the 1950s: central governments deliberately chose to spend on higher education.<sup>2</sup> On the other hand, Ames (1973) forcefully argued that policymakers were indeed sensitive to elite demands, which led to an expressive rise in higher education enrolments during the military ruling period.

Adopting an intermediate perspective, Brown (2002) analysed the behaviour of federal

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<sup>1</sup>Isabela Menetrier organised the dataset and co-authored the chapter.

<sup>2</sup>For instance, Clóvis Salgado, the Minister of Education in the Kubitschek administration, recognised that lower schooling levels lacked resources, but he revealed that his “option was for the concentration of resources in higher education” to support industrialisation (MEC, 1967, p. 39-40). See also Pires (1996) and Kang (2017).

education spending during the military regime and identified two periods. In the first decade under military rule, a more repressive period, the author reported lower levels of federal spending in primary education. When the moderate group among the military assumed power in the mid-1970s, political repression started to wane. According to [Brown \(2002\)](#), there was a rise in the share of federal spending in the primary level during the latter period.

In fact, neither there was a sharp change towards elite-biased policies when the military took over the government, nor the military patently stimulated the expansion of mass education as [Kosack \(2012\)](#) and [Klein and Luna \(2017\)](#) emphasised, respectively. Our results run also counter [Brown \(2002\)](#)'s view: there was an initial growth in primary enrolment rates and expenditures in the first half of the military period and a slowdown from the mid-1970s. All authors just mentioned stressed *federal* education policies, but little is known about the role of subnational governments in the expansion of mass education. Once one considers education expenditures of lower government tiers, the findings of [Brown \(2002\)](#) do not hold. Instead, education spending and outcomes in the primary level stagnated precisely during the more open years of the regime.

In this paper we argue that the major cause of the stagnation of primary level enrolments throughout the 1970s resulted from federal decisions that reflected on subnational levels. The federal government imposed several sectoral export incentives from 1967 onwards including exemptions and subsidies based on the *Imposto sobre Circulação de Mercadorias* (ICM), the state indirect tax, which undermined states' financial capacity. After the oil crisis in 1973, the central government intensified export incentives. A combination of export incentives and slower economic growth impoverished subnational entities. Rates on the ICM, the major financial source of state governments, reached its minimum in the period after the oil shock. We will show that enrolment rates stagnated precisely during those years, when the central government obtained the largest shares of tax revenues.

In other words, we argue that the costs of national industrial policies were partly absorbed by a relative decrease in the fiscal capacity of states and municipalities, which led to a stagnation in the expansion of primary education in the mid-1970s. Particularly after the global adverse shock, the latter was not absorbed *only* through a rising external debt as the literature often underscores. Education outcomes also paid a price for it. Primary education in industrial states such as São Paulo were strongly hit by those measures. In those regions, enrolment rates in primary schools only started to increase again after the end of the military regime, when the situation of external accounts were more stable and the tax system was decentralised in favour of subnational government levels.

This paper relates to a literature on the economic history of education in Brazil.<sup>3</sup> [Musacchio et al. \(2014\)](#) is the closest paper to ours in methodological aspects: it investigates how

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<sup>3</sup>Some examples of other works on the topic are [Maduro \(2007\)](#), [Wegenast \(2010\)](#), [De Carvalho Filho and Colistete \(2010\)](#), [Kang \(2011\)](#), [Kang \(2017\)](#), [Wjuniski \(2013\)](#), [Musacchio, Martínez-Fritscher and Viarengo \(2014\)](#), [Colistete \(2019\)](#) e [Witzel de Souza \(2018\)](#).

commodity booms led to an upsurge of education spending in several Brazilian states between 1890 and 1930, since export tax revenues went to state budgets during that period. During the military regime, the tax system had evolved and states did not depend anymore on trade taxes as they did in the beginning of the 20<sup>th</sup> century. However, export policy had effects on state-level tax revenues since the 1967 Constitution centralised tax policy decisions on the federal level, even in the case of a state tax such as the ICM.

This paper is organised as follows. Section 6.1 describes the evolution of education outcomes during the military period. Section 6.2 delineates how state level taxation and education spending evolved during the period. Section 6.3 presents data and econometric methodology. Results are presented in section 6.4. In section 6.5, we show how a combination of export incentives and other factors led to stagnation of both education spending and enrolment rates in primary education. Section 6.6 concludes.

## 6.1 EDUCATION OUTCOMES DURING THE MILITARY REGIME

In the first decade under military rule, enrolment rates increased substantially in Brazil. Gross enrolment rates were 68.0% in 1965, whilst a decade later that figure achieved 92.5%. The annual growth rate of enrolment rates were 3.1% on average between 1965 and 1975. However, the situation changed dramatically in the last decade of the military regime. In 1980, national gross enrolment rate reached 99.3%, a result of an annual average increase of 1.4% since 1975. In 1985 the matriculation rate (98.8%) was even lower than the figure in 1980. In other words, primary enrolments nearly stagnated for a decade as Table 6 shows.

One could argue that enrolment rates stagnated because Brazil had already achieved a high level of enrolments in the mid-1970s. However, while *gross* enrolment rates were close to 100%, the country had reached a *net* enrolment rate of only 80% in 1980. Given the exceptionally high retention rates that prevailed in Brazil, gross enrolment rates had to be much larger than 100% to reach the entire school-age population. The sharp growth of enrolment rates (even with gross enrolment rates nearby 100%) after the military left the government proves the point: there was room for an expansion of enrolments from 1975 to 1985.

The sluggish increase in enrolment rates seems relatively consistent with the fluctuations of the Brazilian economy during the last decade under military rule. After a period of adjustment at the beginning of the military regime, the country achieved high rates of economic growth throughout the so-called “miracle” between 1968 and 1973 (annual average economic growth rate of 11.3%). The pace decreased after the oil shock, but the Brazilian economy managed to keep high growth rates (annual average of 6.4% between 1974 and 1979). In spite of the slowdown, a stagnation of enrolment rates is surprising given that the country was still growing between those years. That is different from the early 1980s, when the Brazilian economy was engulfed by a debt crisis.

Analysing the performance of enrolment rates in different states might be revealing. In the period of rapid growth in enrolment rates, a regional perspective does not show very different results between states. In economically backward states such as Piauí and Maranhão, enrolment rates rose quickly in the first decade under military rule (6.1% p.a. and 8.0% p.a. on average). Most states in all regions of the country, however, presented an average growth between 2.0% and 4.0% in enrolment rates. Even states that already had a high level of enrolments such as Paraná (3.8%) and Rio Grande do Sul (3.5%) also presented a good performance between 1965 and 1975.

Performance differentials between states became more pronounced from 1975 to 1985. During that period, there was a stagnation of enrolment rates in the densely inhabited and industrial state of São Paulo (0.2% per year on average). Southern states such as Rio Grande do Sul (-0.6%) and Santa Catarina (-0.5%) presented a *decrease* in enrolment rates between 1975 and 1985. On the other hand, some states presented a fast growth of enrolment rates in the second half of the military regime: Alagoas (3.7%), Amazonas (3.4%), Pará (3.2%) and Sergipe (3.0%) for instance. Overall, enrolment rates nearly stagnated in the country given the weight of *Sudeste* and *Sul* regions.

To rule out the debt crisis in the early 1980s as the only explanation for the slowdown in enrolments, we also present figures for the period between 1975 and 1980 (see Table 6). In Goiás, Rio Grande do Sul, Santa Catarina and São Paulo, enrolment rates nearly stagnated or even decreased, while the majority of states still presented growth but at a lower pace. On the other hand, growth in enrolment rates accelerated in some states (most of them in the *Nordeste* region) from 1975 to 1980.

Since the second oil shock and the subsequent debt crisis lowered economic growth rates in Latin America in general, it is easier to understand what happened to education in the early 1980s. However, what can explain the stagnation of enrolment rates from 1975 to 1980? And why did enrolment rates nearly stagnated or decreased in several states, but not in others? To start answering those questions, we need to take a look at state level fiscal conditions and education spending during the decade of 1970.

## 6.2 EDUCATION SPENDING AND TAXATION IN BRAZILIAN STATES

Even though municipalities had a non-negligible responsibility in the development of primary education, states still played a larger role because of their stronger fiscal capacity. Data in the Appendix E show that more than half of primary education spending was undertaken by states, while municipalities were responsible for approximately a third of primary education expenditures in 1977 and in 1980.<sup>4</sup> Furthermore, three-quarters of total state-level education expenditures (except administrative and other types of expenditures) went to primary education in

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<sup>4</sup>Unfortunately we do not have education spending data discriminated by schooling level for several years. More information on this in the Appendix E.

Table 6 – Gross enrolment rates in primary education (ensino de primeiro grau), level (%) and average annual growth (%), Brazil, 1965-1985

State	Gross enrolment rate				Average annual growth of enrolment rates			
	1965	1975	1980	1985	1965-1985	1965-1975	1975-1980	1975-1985
AL	51	62	75	89	2.9	2.0	4.0	3.7
AM	53	68	87	95	5.9	2.4	5.3	3.4
BA	44	70	82	88	7.2	4.7	3.3	2.4
CE	46	57	98	67	3.9	2.3	11.5	1.6
ES	74	96	119	99	2.9	2.7	4.3	0.2
GO	65	109	111	112	5.5	5.2	0.3	0.3
MA	31	67	79	79	9.7	8.0	3.2	1.7
MG	81	97	102	98	1.9	1.8	0.9	0.1
MT	68	93	86	102	4.2	3.2	-1.4	1.0
PA	58	78	89	107	6.3	2.9	2.8	3.2
PB	52	75	104	90	5.7	3.8	6.8	1.8
PE	56	81	90	100	5.9	3.7	2.2	2.1
PI	48	86	103	106	8.3	6.1	3.6	2.1
PR	62	90	96	101	5.0	3.8	1.3	1.2
RJ	88	101	111	100	1.3	1.4	2.1	-0.1
RN	67	90	102	107	4.9	3.0	2.6	1.8
RS	76	106	104	100	2.9	3.5	-0.5	-0.6
SC	77	98	95	93	2.0	2.4	-0.4	-0.5
SE	54	79	98	106	6.9	3.8	4.3	3.0
SP	83	104	106	106	2.5	2.2	0.4	0.2
Brazil	68	93	99	99	1.9	3.1	1.4	0.7

Source: Author's estimates based on [IBGE \(1940-\)](#) and [Goldenberg \(1990\)](#)

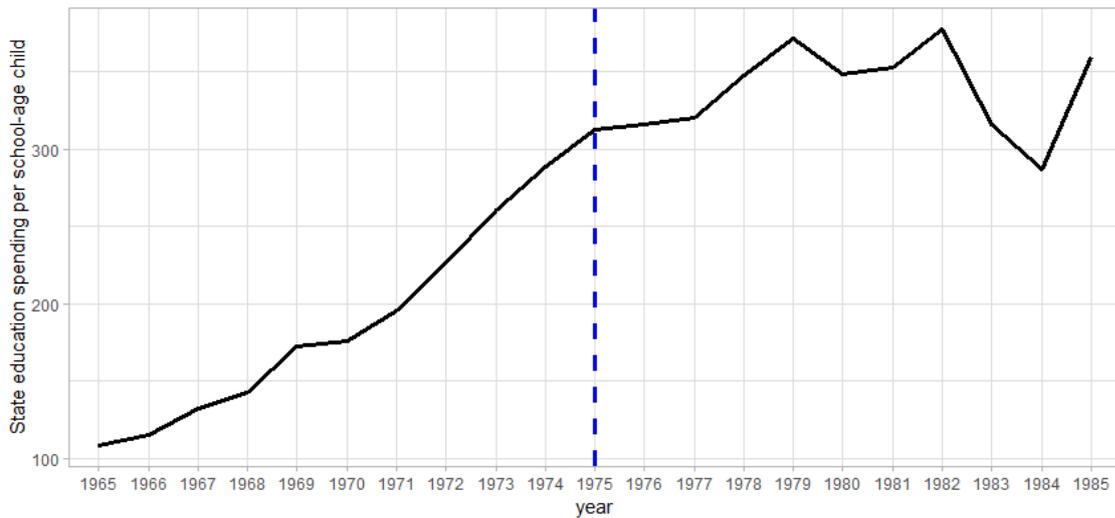
1980. The situation was similar for other years we have disaggregated data ([MELLO E SOUZA, 1979](#)). Therefore, first we describe the behavior of state-level education expenditures and then we take a look at the major source of state tax revenues.

### 6.2.1 State level education expenditures

The annual average increase in state level education spending per school-age child was approximately 6.2% between 1965 and 1985. However, there was a sharp difference before and after 1975. During the earlier period, education expenditures per child increased 11.2% on average per year, whereas the same indicator presented an annual average increase of 1.4% from 1975 to 1985. That was not entirely due to the debt crisis, since the annual growth of education expenses per child was also low (2.2%) between 1975 and 1980 (see [Figure 33](#)).

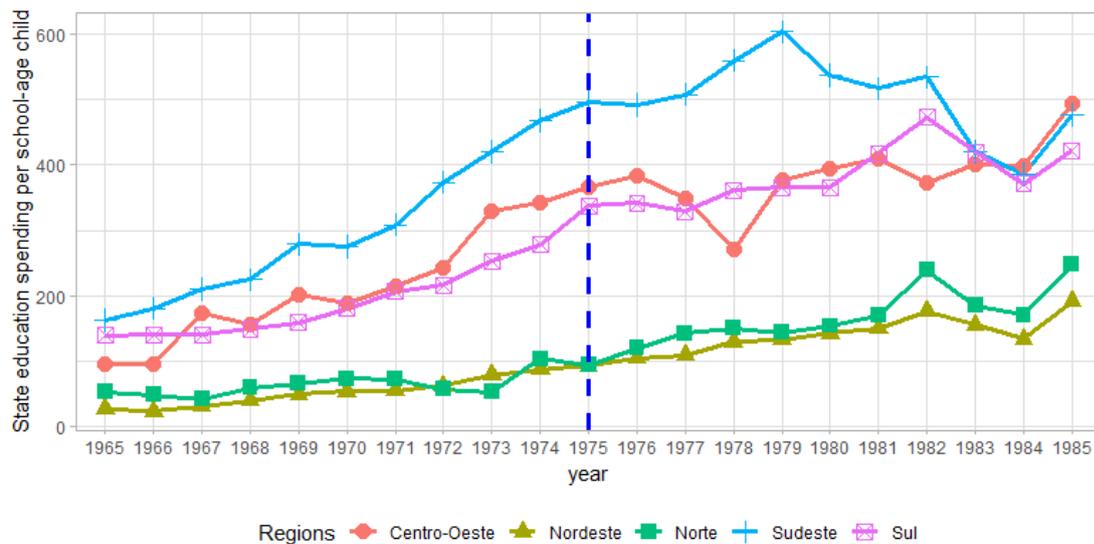
[Figure 34](#) shows that state-level education expenses per child increased steadily in the richer regions until the mid-1970s, when the indicator started to present an erratic behavior. In several states there was a stagnation or fall of education spending per school-age child in real terms. In the industrial state of São Paulo (SP), there was a slight drop from 1975 to 1977. After a brief recovery in 1978 and 1979, real education spending per child fell continuously in that state until the end of the military regime. In the southern states, the graph shows almost a flat line representing that variable from 1975 to 1980. Thereafter, the erratic behavior in the early 1980s gave rise to a recovery in 1985. On the other hand, education spending kept increasing in

Figure 33 – State level expenditure on education per school child, Brazil, 1965-1985



Source: IPEA (2019)

Figure 34 – State level education spending per school-age child, Brazilian Regions, 1965-1985



Source: IPEA (2019)

*Nordeste* and *Norte*. In some cases expenditures per child on education grew even faster after 1975 – that was the case in the northeastern states of Rio Grande do Norte (RN) and Ceará (CE), just to mention a few examples.

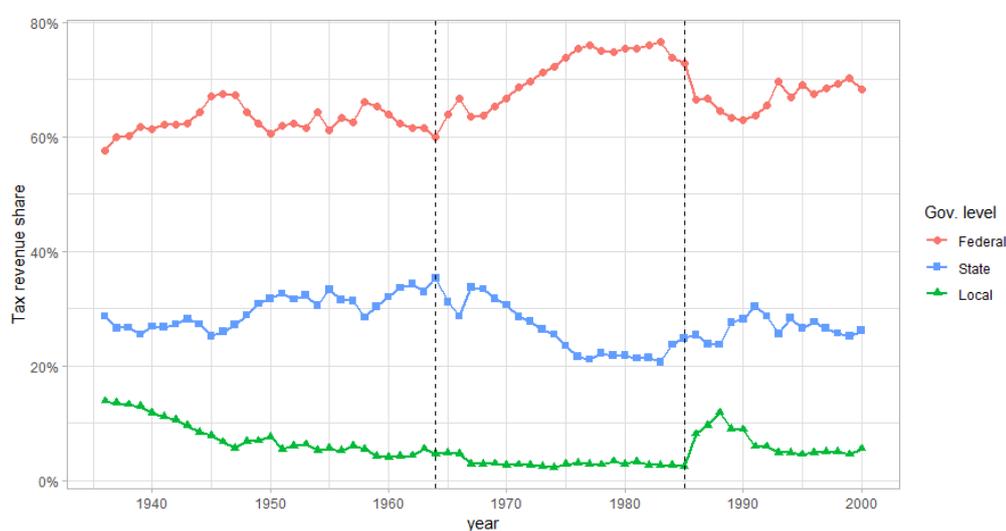
### 6.2.2 ICM revenues

In order to analyse the behavior of state level finances, we must consider the 1966/67 tax reform. In the late 1950s, there was a clear diagnosis that the Brazilian state had a low fiscal capacity to finance industrialisation efforts without leading the country to inflation and

indebtedness. Given the recurrent fiscal deficits, an increase in taxation was deemed necessary by the policymakers (VARSANO, 1981; COSSÍO, 1998). The tax reform modernised the system: it clearly defined the competence of each government level and created value-added taxes, making the Brazilian tax system one of the most advanced at the time (GIAMBIAGI; ALÉM; PINTO, 2015). As we have underlined relentlessly, the tax reform significantly increased the fiscal capacity of the Brazilian state.

The lowest participation of state governments in total tax revenues considering all government levels was in the late 1970s. From 1967 onwards there is a clear declining movement on the share of states in total tax revenues as Figure 35 presents (see the period between the dashed lines).

Figure 35 – Share of total tax revenues (%), all government levels, Brazil, 1936-2000.



Source: IPEA (2019).

In order to finance state government responsibilities, the tax reform created the *Imposto sobre Circulação de Mercadorias* (ICM), which became the most important financial source of states. It replaced the *Imposto de Vendas e Condições* (IVC), which already was the major source of state level revenues: it comprised 77% of state level total revenues in 1951 and achieved more than 90% in 1964 (ARAÚJO; HORTA; CONSIDERA, 1973). However, the IVC was a cumulative tax while the ICM was devised as a value-added tax. 80% of the ICM was assigned to the states, while the remaining 20% was transferred to municipalities.<sup>5</sup>

ICM had a uniform rate in the beginning as shown in Table 7 (BARATTO, 2005). Neither the origin nor the destination of goods mattered: all cases were due 15.0% in 1967. However, the situation changed shortly after. ICM rates increased to 18.0% only on goods from northeastern and northern states (no matter the destination), while ICM rates regarding within-state operations increased to 17.0% in the case of southern and southeastern states. Though biased to the poorer

<sup>5</sup>An excellent survey on the history of ICM is Rezende (2012)

regions, this initial increase in ICM rates along with the economic boom led to a general rise on state level tax revenues.

However, circumstances changed once again when ICM rates began to decrease in 1970. The 1967 Constitution assigned the central government the responsibility to determine the level of fiscal incentives even concerning taxes that were competence of other government levels (COSSÍO, 1998). Considering within-state operations, the richer regions experienced a decrease in ICM rates from 17.0% in 1970 to 14.0% in 1978, whereas in poorer states ICM rates also diminished from 18.0% in 1970 to 15.0% in 1977 (as shown in the Table 7). The policy achieved its peak between 1976 and 1979, when ICM rates attained its lowest levels in all categories. The decline in ICM rates explain to a large extent the decreasing share of state governments in the total amount of tax revenues.

Table 7 – ICM/ICMS rates (%), 1967 onwards

Years	From North/Northeast (1)			From South/Southeast (1)			
	Within state	Between states	Exports	Within state	Between states (to N/NE/CO + ES)	Between states (to SU/SE - ES)	Exports
1967 (2)	15.0	15.0	15.0	15.0	15.0	15.0	15.0
1968 (2)	18.0	18.0	18.0	15.0	15.0	15.0	15.0
	18.0	18.0	18.0	16.0 (3)			
1969	18.0	18.0	18.0	17.0	15.0	15.0	15.0
				17.0 (4)			
1970 (5)	18.0	15.0	15.0	17.0	15.0	15.0	15.0
1971 (5)	17.5	14.5	14.5	16.5	14.5	14.5	14.5
1972 (5)	17.0	14.0	14.0	16.0	14.0	14.0	14.0
1973 (5)	16.5	13.5	13.5	15.5	13.5	13.5	13.5
1974 (5)	16.0	13.0	13.0	15.0	13.0	13.0	13.0
1975 (7)	15.5	12.0	13.0	14.5	12.0	12.0	13.0
1976 (6) (7)	15.0	11.0	13.0	14.0	11.0	11.0	13.0
1977 to 1979(8)	15.0	11.0	13.0	14.0	11.0	11.0	13.0
1980 (8) (9)	16.0	11.73	13.0	15.0	10.0	11.78	13.0
		11.0				11.0	
1981	16.0	11.0	13.0	15.5	9.5	11.0	13.0
1982 and 1983	16.0	11.0	13.0	16.0	9.0	11.0	13.0
1984 (10) to 1988	17.0	12.0	13.0	17.0	9.0	12.0	13.0
1/6/1989 (11)	selective	12.0	13.0	selective	8.0	12.0	13.0
1990 to 16 Sep 1996	selective	12.0	13.0	selective	7.0	12.0	13.0
From 17 Sep 1996	selective	12.0	exemption (12)	selective	7.0	12.0	exemption (12)

Source (until 1977): MINIFAZ/Secretaria Economia e Finanças/Revista Finanças Públicas nº 85 apud Baratto (2005).

Notes: N, NE, CO, SU and SE refer to North, Northeast, Centre-West, South and Southeast, respectively.

ES refers to the state of Espírito Santo.

Information from 1978 onwards was obtained from the legislation present on the specific notes:

(1) CO Region joined the bloc in 1977 and ES in 04.23.80 (RS 07/80)

(2) Ato Complementar nº 31, from 12.28.66, established a uniform national tax rate of 15%; to compensate losses with the exemption of industrialised goods exports (1967 Constitution) some states adopted a 18% tax rate in March 1967; there were other different rates on the first two years.

(3) Tax rate valid until March 31.

(4) Tax rate valid between April 1 and April 30.

(5) *Resolução do Senado 65/70*, 19 August 1970.

(6) *Resolução do Senado 58/73*.

(7) *Resolução do Senado 98/76* (unified intern and interstate tax rates so that they were not reduced by CONFAZ agreement, through reduction on the calculation basis)

(8) Effective interstate tax rate, through reduction on the calculation basis for operations among taxpayers: from 1977 to 22 April 1980, through 44/76 agreement (withdrawn by 02/80 agreement) and Ajuste Sinief 04/76; from 23 April 1980, through RS 07/80 (reestablished the old interstate tax rate and defined a smaller tax rate for goods from SU/SE-ES destined to N/NO/CO+ES)

(9) For goods with international destination, *Resolução do Senado 129/79*, which was changed by 07/80.

(10) EC 23/83 (Passos Porto); Senate rectified it increasing the interstate tax rate to 12%, keeping the rates for goods leaving from SU/SE-ES to N/NO/CO+ES at 9%.

(11) *Resolução do Senado 22/89*.

(12) LC 87/96 discharged the export of primary goods and share of semi-processed industrialised goods which were subject to taxation.

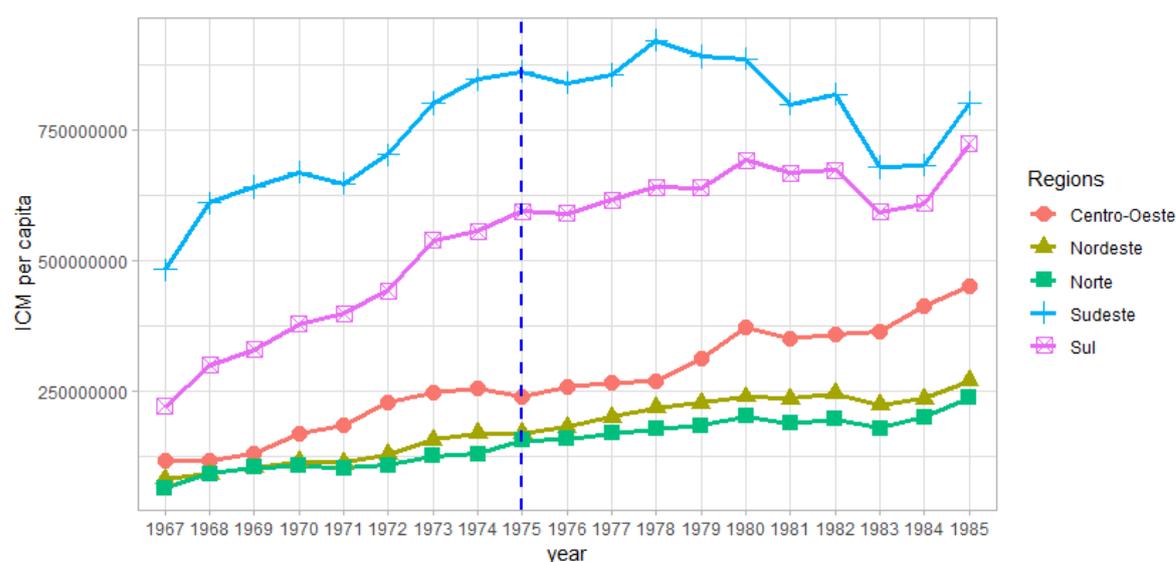
Richer states lost comparatively more from the policy for at least three reasons. First,

southeastern and southern states had lower within-state destination ICM rates from 1967 to 1981. Secondly, richer states depended more on tax revenues and less on federal transfers. Most of those transfers occurred through the States Participation Fund (FPE)<sup>6</sup>, created to compensate the increasing centralisation of tax revenues in the federal capital.<sup>7</sup> The major redistribution condition of the FPE was income related: poorer states received larger shares of the fund. Third, ICM rates to exports were either lower or null - in the latter case because all exports of manufactured goods were exempted from ICM since 1967. Later, the government created more incentives to exporters, which will be discussed in section 5. ICM-based export incentives were a main source of contention, since richer states were the major exporters.

In addition, we must consider demographic dynamics since we are dealing with per capita variables. In the 1970s, a large number of people migrated from northeastern states to the industrial Southeast region. Population increased around 23% in the Northeast region from 1970 to 1980, but in the richer Southeast demographic growth achieved 30% during the same period. To a significant extent, the faster population growth in southeastern states is a result of migration flows.

It is not coincidence that ICM revenues per capita in southern and southeastern states stagnated in the mid-1970s (see Figure 36). Even though the 1967 Constitution did not earmark state level tax revenues to education, education expenditures per child seem to have followed the per capita amount of ICM raised by state governments. We give some statistical evidence to our claim in the next section.

Figure 36 – ICM revenues per capita (Cr\$, constant prices, IGP-DI Aug. 1994), Brazilian Regions, 1967-1985



Source: Author's estimates based on [Ministério da Fazenda \(1941-\)](#) and [IBGE \(1940-\)](#).

<sup>6</sup> *Fundo de Participação dos Estados (FPE)*.

<sup>7</sup> It also created a corresponding fund for municipalities, the *Fundo de Participação dos Municípios (FPM)*.

### 6.3 DATA AND METHODOLOGY

In this section we first describe data and sources. We also explain the econometric methodology in the following subsection. Finally, we provide results using several econometric specifications. We show that ICM revenues were associated to education spending in states, which in turn related to enrolment rates during the military regime.

#### 6.3.1 Data

As already explained in Chapter 2, data on enrolment by state were constructed using official sources of IBGE and MEC.

Public finance data from 1965 onwards are mostly available at the Ipeadata website, including state level education expenditure and current transfers (the original source is the National Treasury (*Tesouro Nacional*) of the Ministry of Finance (*Ministério da Fazenda*).<sup>8</sup> ICM data per state were obtained from official sources (Ministry of Finance and state level finance departments).<sup>9</sup> Other data such as energy consumption by state and state-level GDP can also be found at Ipeadata, even though in the case of GDP several years are not available from 1971 to 1984. Table 8 shows descriptive statistics of the variables used in the regressions. Most of the data are available in nominal terms, but we obtained real values using IGP-DI, a general nationwide price index. The exception is GDP, which was deflated through the GDP implicit deflator.

Table 8 – Descriptive statistics, 1967-1985

	Enrolment rates	Population density	Proportion of school-age children	Education spending per school-age child (R\$)
Min	0.45	0.54	0.15	8.73
1st quarter	0.76	9.16	0.19	84.25
Median	0.90	32.22	0.21	155.32
Mean	0.87	41.41	0.20	207.11
3rd quarter	1.00	48.07	0.22	287.96
Max	1.19	277.24	0.23	888.10
	ICM revenues per capita (R\$)	Current transfers per capita (R\$)	GDP per capita (R\$ mi)	Energy consumption per capita (MWh)
Min	13.73	0.00	0.56	0.004
1st quarter	47.76	7.25	1.67	0.035
Median	83.05	15.71	3.22	0.064
Mean	116.14	21.68	4.76	0.093
3rd quarter	167.78	29.17	4.99	0.110
Max	465.18	152.95	26.62	0.450

Along the 20<sup>th</sup> century, some states in northern areas of the country were partitioned. In 1920 the country had only 20 federal states, while currently there are 26 states in Brazil. Most

<sup>8</sup><http://www.ipeadata.gov.br/>.

<sup>9</sup>We thank José Roberto Afonso and especially Gedalva Baratto for helping us with ICM revenues data.

of the newly created states have had a sparse and small population - often smaller than cities in several other states. For example, Acre, Amapá and Roraima had less than 800 thousand inhabitants each in 2010. Domestic migration to those new states actually increased during the military regime. We decided to keep those new states as part of their original states in 1920 for comparison sake.<sup>10</sup> Despite making us lose some observations, adding those states could not only distort our estimates (because of their population size) but also could generate inconsistency of our demographic estimations on time.

### 6.3.2 Methodology

We expect that the variation of ICM revenues reveals us some effects of the ICM policy on education expenditures. In order to do that, we ran standard panel data OLS regressions by Brazilian states using fixed effects during the period 1967-1985. The model is the following:

$$y_{it} = \beta s_{it} + X'_{it}\gamma + \delta_i + \theta_t + \epsilon_{it} \quad (6.1)$$

where  $y_{it}$  is the log of education spending per child of school age (7-14) in state  $i$  and year  $t$ .  $s_{it}$  is the log of ICM tax revenues per capita.  $X_{it}$  are controls for population density, population share of school-age children, etc. Besides state fixed effects ( $\delta_i$ ), we included year dummies ( $\theta_t$ ) in order to capture time varying trends.

In the second place, we also used education outcomes as dependent variables using a similar model. In this case,  $y_{it}$  is gross enrolment rates, while  $s_{it}$  is the log of education spending. Therefore, after establishing an association between ICM revenues and education spending, we show that the latter is associated to enrolment rates.

## 6.4 RESULTS

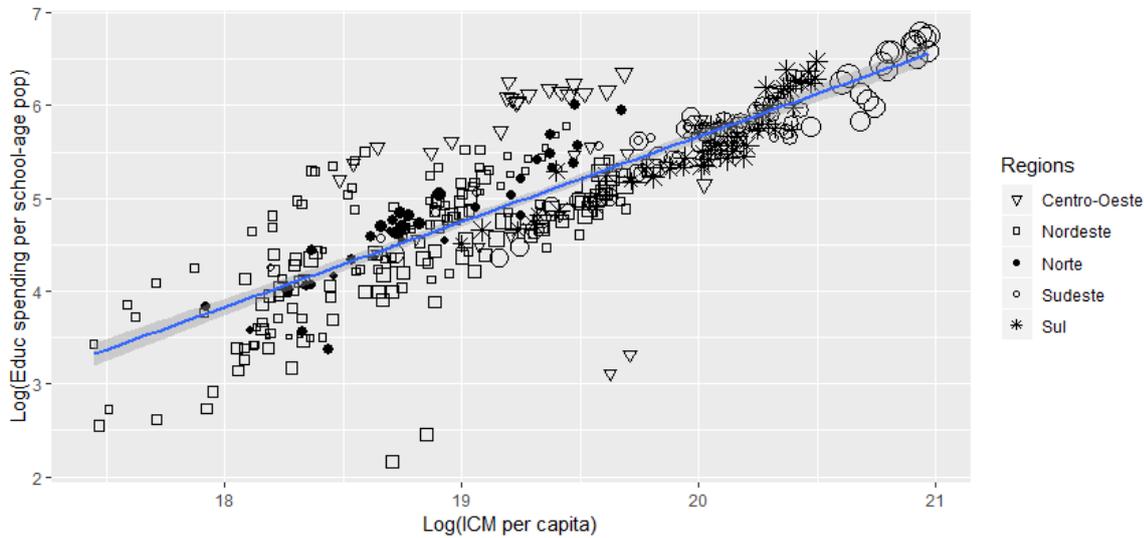
### 6.4.1 Results on education spending

A first look at the relationship between ICM and education spending already suggests a strong association, as shown in the scatterplot (Figure 37). Our regressions show that in most specifications ICM tax revenues per capita are correlated to education spending per child even controlling for several other variables. This is not an obvious finding since state taxes were not earmarked to education according to the 1967 Constitution. The 1969 Amendment no. 1 earmarked tax resources for municipalities, but not for states.

Table 9 shows that ICM revenues per capita are significant at 1% level in all specifications. Even when we included state-specific time trends (specification 4) or GDP per capita (specification 6), ICM revenues per capita are significant at 1% level. In short, ICM revenues per capita seems to be strongly associated to education expenditures per child. Results do not change

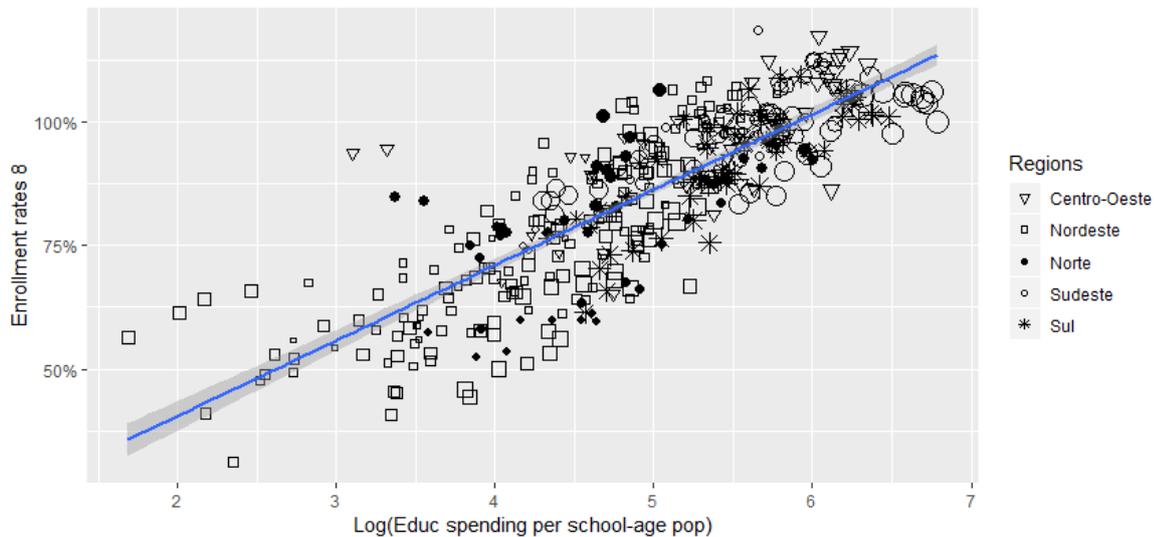
<sup>10</sup>Acre, Amapá, Roraima and Rondônia are considered as part of Amazonas. Tocantins is considered part of Goiás. Mato Grosso do Sul is treated as part of Mato Grosso.

Figure 37 – ICM revenue per capita vs. state-level education spending per school-age child, Brazilian states, 1967-1985



Source: Research data (2019)

Figure 38 – State-level education spending per school-age child vs. gross enrolment rates (primary), Brazilian states, 1965-1985



Source: Research data (2019)

qualitatively when we apply other panel data methodologies such as pooling OLS, random effects or first differences. We decided to report estimations using fixed effects because it is the most appropriate methodology given we are dealing with a panel of states, but the results are robust to several estimation methods.

Since there were two groups of states with different ICM rates, we ran specification (5) using both groups separately as a robustness check. In the first group we kept only states from Southeast and South regions, while in the second group only states from Centre-West, North

and Northeast regions were kept. As the number of states decreases, p-values become larger, but ICM revenues per capita is still significant at 5% level (specification 7) in the first group regression and at 10% level in the regression with poorer states (specification 8). All regressions present similar coefficients for ICM revenues: a 1 p.p. increase in ICM revenues per capita is expected to increase education expenditures per child between 0.40 p.p. and 0.56 p.p.. We also dropped one state at a time to check whether a specific state was not driving the results, but they are robust to those changes.

These findings are also consistent with the hypothesis raised by Melchior (1987): ICM policies that impoverished states could have had negative consequences to education spending. In a different setting, these results are also similar to the ones found by Musacchio, Martínez-Fritscher and Viarengo (2014) for the 1889-1930 period.

Table 9 – OLS regressions with expenditures on education per school-age child at the state level, 1967-1985

<i>Dependent variable: state-level expenditures on education per school-age child</i>								
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7) only Southeast and South states	(8) North, Northeast and Centre- West states
ln(ICM revenues per capita)	0.564*** (0.195)	0.499*** (0.166)	0.473*** (0.169)	0.449*** (0.149)	0.401*** (0.145)	0.496*** (0.185)	0.442** (0.203)	0.416* (0.223)
ln(current transfers per capita)			0.004 (0.034)	0.018 (0.030)	0.011 (0.032)	0.015 (0.072)	0.025* (0.015)	-0.037 (0.069)
ln(population density)		-0.483 (0.489)	-0.555 (0.527)	-0.095 (1.728)	-0.414 (0.536)	-0.194 (0.389)	-0.771 (0.640)	-0.717 (0.447)
proportion of school-age children		6.056 (2.165)	6.189 (3.826)	-10.187 (7.575)	-6.113 (3.426)	8.107 (4.837)	-11.670*** (3.784)	-10.381** (4.536)
log(energy consumption)					0.315*** (0.092)		0.021 (0.334)	0.078 (0.086)
ln(GDP per capita)						0.226 (0.163)		
state-specific trends	N	N	N	Y	N	N	N	N
state fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
observations	379	379	390	359	359	79	126	233
number of states	20	20	20	20	20	20	7	13
R <sup>2</sup>	0.086	0.11	0.101	0.343	0.137	0.266	0.448	0.072

\* Significant at 10% level

\*\* Significant at 5% level

\*\*\* Significant at 1% level

Notes: Heteroskedacity-robust standard errors between parentheses. Errors clustered at the state level.

The population estimates of our dataset considered states as in 1940.

Distrito Federal was excluded from the sample because of its distinctive character.

Acre, Roraima and Rondônia are considered part of Amazonas, Amapá as part of the state of Pará,

Mato Grosso do Sul as part of Mato Grosso, and Tocantins as part of Goiás.

Some possible sources of bias must be addressed. The central government had undertaken a large scale reform on Brazilian schooling in 1971 (Law 5,692). It was a profound reorganisation of the system: the reform created the new primary education (*ensino de primeiro grau*), a

merge between the old primary education and the lower secondary education. The reform extended compulsory education from four to eight years of schooling. Thus, besides an increasing population and the demise of ICM revenues per capita, states suffered an extra financial pressure because of the 1971 reform.

The central government responded through a change in *salário-educação*, another financial source for primary education besides state tax revenues. It consisted on a tax levied upon the payroll of companies and exclusively allocated to primary education since 1964. Based on the cost of primary education, the tax rate was 1.4% of the payroll of all firms. Half of the revenues of *salário-educação* remained in the state where the revenue was collected, while the other half went to a national fund (*Fundo Nacional de Desenvolvimento da Educação* – FNDE). As a result from the extension of compulsory education in the early 1970s and the demising fiscal capacity of states, the *salário-educação* rate was raised to 2.5% of the payroll in late 1975 (starting in March 1976). Moreover, the share of states rose to two-thirds of the revenue and only one third was left to the FNDE. No matter if the destination were state revenues or the FNDE, all resources should be spent on primary education.

The federal quota of *salário-educação* was among the transfers of the central government to subnational entities, which are included in the regressions as “current transfers”. However, we did not find information on state quotas by states. According to aggregate information we obtained, *salário-educação* revenues represented about 10% of state-level education spending. Figures increased to approximately 15% after the government rose the aliquot. In addition, since the state quota increased from 1975 onwards, the redistribution effect of *salário-educação* among states decreased. Given the upward bias of the state quota of *salário-educação* in southern and southeastern states, we would expect a rise in education spending in those states. However, education spending per child stagnated in *Sul* and *Sudeste* regions. Therefore, the new aliquot has likely not changed the general picture or just prevented enrolment rates from decreasing in those states.

Another financial relief for state governments was the increase of FPE and FPM aliquots. Initially FPE and FPM received 10% each from federal indirect tax and income tax revenues.<sup>11</sup> From 1969 to 1975, the quota was reduced to 5% for each fund. The quota was increased year by year from 1976 (6%) to 1980 (10%). Since the largest beneficiaries of FPE and FPM were the poorer states, the quota increase was more helpful for those states. That was particularly true regarding education spending in those states, since 20% of FPE resources should be spent on primary and secondary education. However, that had little importance for richer southern and southeastern states. Overall, coefficients and statistical significance show that current transfers (among them the *Fundos de Participação*) had indeed little influence on education spending.

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<sup>11</sup>By federal indirect tax, I refer to the “Manufacturing Goods Tax” (*Imposto sobre Produtos Industrializados* - IPI).

### 6.4.2 Results on education outcomes

The next step is to establish a relationship between state level education spending and education outcomes. Here we analyse only gross enrolment rates as education outcomes.<sup>12</sup>

The level of enrolments depends both on the supply of places (mostly offered by the state government and, to some extent, by local governments) and the demand for schooling. Supply depends basically on infrastructure (capital) and the availability of teachers (labour). Adopting a standard economic approach to the decision to enroll children, parents will do it when the benefits of schooling are perceived to surpass the opportunity costs. Following [Goldin and Katz \(2009\)](#), we have a simple two-period model of a family who decides to invest in education. An individual with no education earns  $w_n$  in both periods, while the one who gets education earns  $w_b$  in the second period. The cost of education is given by  $C$  and  $r$  is the discount rate. The opportunity cost depends on the economic conditions of the family, distance or the availability of transport to school, if school meals are offered, etc. Therefore, the family decides to invest in education when:

$$\frac{(w_b/w_n) - 1}{(1 + r)} \geq \frac{w_n + C}{w_b} \quad (6.2)$$

Therefore, even if  $(w_b/w_n)$  is high, there are no incentives to invest in education if  $r$  and the cost  $C$  are too large, which is the case of poor families. Therefore, only the rich will get education and the equilibrium  $(w_b/w_n)$  will be kept high.

A first approximation shows that education spending and gross enrolment rates were strongly related (see [Figure 38](#)). Our regressions using fixed effects OLS and several controls, reported on [Table 10](#), also support the existence of an association between education spending and enrolment rates. Despite not addressing possible sources of endogeneity in our quantitative tests, qualitative evidence gives additional support to our findings.

Many studies have provided compelling evidence that education spending does not explain education outcomes in several settings.<sup>13</sup> In the Brazilian case, there was reportedly a shortage of teachers. Salaries were often considered low and even interruption of payments were common for several reasons ([DE MATTOS, 1988](#)). There was also underutilised capacity in Brazilian schools because of the lack of teachers. *Jornal do Brasil*, an important newspaper in Rio de Janeiro, already reported the lack of teachers in 1973 and 1974.<sup>14</sup> However, the matter gained more prominence after 1975. For example, the same newspaper reported that prospective teachers with grades slightly above zero in the public exam to become a teacher were called to

<sup>12</sup>We have also considered grade distribution ratios (GDR), which is a synthetic measure of retention ([FRANKEMA; BOLT, 2006](#)). Our results show that retention might be correlated with income, but taking all regressions the results are inconclusive.

<sup>13</sup>For a survey, see [Hanushek \(2013\)](#). However, there are good reasons to think that education spending mattered to the variation of enrolments during the military regime in Brazil. As we have already mentioned, spending may matter in the long run if the money is used to hire teachers as shown by [Jackson, Johnson and Persico \(2015\)](#)

<sup>14</sup>*Jornal do Brasil*, 10 March 1973 and 2 September 1974.

Table 10 – OLS regressions with education outcomes (enrolment rates in primary education) at the state level, 1965-1985

<i>Dependent variable: enrolment rates in primary education (eight grades)</i>				
Variables	(1)	(2)	(3)	(4)
ln(education expenditures per child)	0.071*** (0.023)	0.061*** (0.020)	0.069** (0.028)	0.053*** (0.019)
ln(population density)		-0.026 (0.103)	0.055 (0.092)	-0.010 (0.092)
proportion of school-age children		1.917 (1.191)	2.046 (1.520)	1.897* (1.058)
log(gdp per capita)			0.086** (0.039)	
log(energy consumption)				0.050** (0.024)
state-specific trends	N	N	N	N
year fixed effects	Y	Y	Y	Y
state fixed effects	Y	Y	Y	Y
observations	418	418	99	390
number of states	20	20	20	20
R <sup>2</sup>	0.134	0.227	0.222	0.227

\* Significant at 10% level

\* Significant at 5% level

\*\* Significant at 1% level

*Notes:* States as 1920 because of the population estimates of our data.

Distrito Federal was excluded from the sample because of its distinctive character.

Acre, Roraima and Rondônia are considered part of Amazonas, Amapá as part of the state of Pará, Mato Grosso do Sul as part of Mato Grosso, Tocantins as part of Goiás.

take office in 1976.<sup>15</sup> According to another news, the state of Rio de Janeiro used to lose about 50 teachers every month - likely because of low salaries.<sup>16</sup>

In some cases, there was a spatial distribution problem biased to richer areas. In the metropolitan area of Belo Horizonte (capital of the state of Minas Gerais), a study found that while richer neighborhoods presented excess supply, there were no places enough for students living in poorer and densely inhabited areas (VEIGA, 1975). In Rio de Janeiro, secretary of education Teresinha Saraiva also acknowledged that poorer areas lacked schools.<sup>17</sup> Another study found that public schools located in richer neighborhoods in Rio de Janeiro received more resources than its counterparts in poorer areas of the city (CASTRO et al., 1979). Basic education was clearly underprovided in the most needy areas.

Our results show that enrolment rates in southeastern and southern states stopped growing because of the stagnation of ICM revenues per capita, which led to lower education spending

<sup>15</sup>Jornal do Brasil, 2 February 1976.

<sup>16</sup>Jornal do Brasil, 22 July 1976.

<sup>17</sup>Jornal do Brasil, 31 December 1975

per child. On the other hand, education outcomes in poorer states kept improving after 1975. A more centralised financial structure is expected to transfer resources from richer to poorer areas – which could reduce inequality between regions. However, transfers were based on federal government taxes rather than on ICM. Had not the federal government imposed a large cost of the national economic policy upon states and municipalities, enrolment rates in richer states would have been larger without harming the expansion of mass education in poorer areas.

## 6.5 THE POLITICAL ECONOMY OF EXPORT INCENTIVES AND TAXATION IN BRAZIL

According to the results of the previous section, ICM revenues per capita were associated to state-level education spending per child, which in turn affected enrolment rates. Although ICM revenues in absolute terms kept growing until the end of the decade, the stagnation of ICM revenues *per capita* started years before the debt crisis in the early 1980s. Here we argue that a national policy of export incentives halted the growth of ICM revenues per capita in the mid-1970s, even though the economy was still growing. Despite the complaints of state authorities, particularly those from Southeast and South regions, the debt-led growth strategy ended up harming the expansion of mass schooling.

### 6.5.1 Export incentives

The policy of export incentives was set up during the Brazilian “economic miracle”. According to [Veloso, Villela and Giambiagi \(2008\)](#), lagged effects of reforms undertaken from 1964 to 1967 explain to a large extent the high rates of economic growth during the period. Moreover, commodity prices and expansionist policies also contributed to the “miracle”. Partly as a result of the economic expansion, tax revenues blossomed in all government levels, but the central government tax revenues increased relatively more during the period. As we already highlighted earlier, two reasons explain the increasing control of the federal government over tax resources: the tax reform and the ICM policy.

The 1967 Constitution allowed federal intervention in state finance issues to make states’ policies compatible with the national economic policy ([LAGO, 1989](#)). The federal government determined several incentives to stimulate exports. Exports were already exempted from the federal indirect tax to manufactured goods (IPI) since 1964, but the exemption was extended to the ICM in 1967. The government stressed the necessity of increasing export revenues given the already high level of external debt ([PRESIDÊNCIA DA REPÚBLICA, 1970](#)). In line with that, other benefits were created from 1970 onwards, such as state indirect tax credits – which also affected state finances. Other incentives included exemption of income taxes to profits from export activities, duty drawbacks, federal indirect tax credits, among others ([BALASSA, 1979](#); [PINHEIRO et al., 1993](#)).

During the “miraculous” years, ICM tax revenues per capita kept increasing in spite of ICM-based incentives. The situation began to change after the 1973 oil shock, which strongly

affected the Brazilian economy. The quadruplication of oil prices and the world recession led to a fall of 16.7% of the Brazilian terms of trade between 1973 and 1974. The new President, General Ernesto Geisel, had just took office in 1974. Geisel was a representative of the moderate stream among the military, who wanted to give the power back to the civilians when, according to their view, conditions allowed (SKIDMORE, 1988).<sup>18</sup>

Initially, the government reacted through some austerity measures in 1974. However, inflation did not halt and industrial activity decreased. The electoral defeat of the government party in the legislative elections became an additional problem (FISHLOW, 1986). Simonsen, the Minister of Finance, who supported a conventional adjustment, lost ground to Reis Velloso, the Minister of Planning.

The political project of the new leadership could not survive a standard adjustment to the shock. According to Reis Velloso, adopting a traditional adjustment was “inconvenient” since recession and unemployment would not help a country undertaking a “necessary political distension” (REIS VELLOSO, 1978, p. 115). Instead of depreciating the domestic currency or raising general taxes, the government launched the II PND. It consisted on a massive investments plan in order to complete the industrialisation process through the stimulation of the production of basic inputs (e.g. energy), intermediate and capital goods. In terms of avoiding an immediate recession, the plan was successful: the average rate of economic growth was around 6.4% between 1974 and 1979. According to Reis Velloso, the government had deliberately avoided recession “through an increase in exports and in self-sufficiency in basic inputs” (CARNEIRO, 1989, p. 253).<sup>19</sup>

The adoption of a strategy of massive investments in a period of international crisis created a further pressure on external accounts. On the one hand, the Geisel administration restricted imports raising tariffs in some sectors as a response to the external situation. On the other hand, the government also deepened export incentive policies. ICM rates for exports achieved its lowest point in 1975 (13%), while ICM exemptions and credits for exporters of manufactured goods were kept. According to several estimates, fiscal subsidies and incentives increased substantially in the mid-1970s (CARDOSO, 1980; MUSALEM, 1981; BAUMANN; MOREIRA, 1987).

Contemporary academic literature raised criticisms against those policies, but mostly underscored efficiency issues and argued that fiscal and credit subsidies to exports largely benefited high cost industries. According to Balassa (1979), the distribution of subsidies and tax reductions were discretionary to a significant extent. Moreover, the plethora of controls and

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<sup>18</sup>The *castelista* stream was more moderate than the so-called hardliners (*linha dura*), who strengthened repression under the presidencies of Costa e Silva and Médici. That does not mean that torture and other human rights violations did not happen when the castelistas were in charge.

<sup>19</sup>The well-known view of Castro and Souza (1985) highlighted the benefits of the plan, which included the structural change achieved with the completion of the ISI strategy and the recovery of external accounts in 1983/1984. However, they overlooked the costs of the policy: economic growth was basically financed by an uncontrolled increase in external debt (CRUZ, 1984; FISHLOW, 1986; SANTOS; COLISTETE, 2010).

incentives stimulated the private sector to divert “the effort of firms from productive activities” (BALASSA, 1979, p. 1038). Even less liberal observers showed unease with the policies. Fishlow (1986, p. 523), for example, critically observed that fiscal incentives included “generous benefits for exporters of manufactured goods”. Fishlow (1986) also criticised the option of keeping an appreciated exchange rate and general taxation levels. If those options were available, it means that education outcomes also ended up paying for the external shocks.

### 6.5.2 Centralisation and state finances

Subnational governments finances were especially hit - particularly in the exporting regions. As mentioned previously, large migration flows went from poorer states in Northeast especially to industrial Southeast, which released resources in the earlier but reinforced the problem in the latter region. This criticism touches a feature of the policy that those who emphasised the macroeconomic aspects of the plan often ignored: the subordination of ICM rates to the national economic policy impoverished states and municipalities in highly populated regions. Since states and municipalities were the government entities responsible for most social policies, education spending was severely harmed in those regions.

Even politicians of the government party complained about the financial situation of subnational entities. According to Luís Viana Filho (ARENA/BA), “we are in a regime in which the federal government is rich, the states are poor and the municipalities very poor”.<sup>20</sup> In the early 1980s, there was a near consensus among public finance specialists on the necessity of a tax reform entrusting more resources to subnational governments. They recognised the positive innovations brought by the 1967 tax system, such as the introduction of value-added taxes and the economic rationality in terms of the competence of each government level. However, there was an excessive financial centralisation in the hands of the central government (VARSAÑO, 1981; REZENDE, 1982; LONGO, 1984).

The impoverishment of subnational governments had important consequences on basic education. As the statistical analysis showed, enrolments and education spending stagnated or decreased in several states *because of* lower tax revenues. Even if states could have chosen a different pattern of resource allocation in order to protect the expansion of schooling to the masses, it is clear that the federal trade policy had clear negative implications to primary education. Therefore, the costs of industrialisation policies were to a large extent postponed to the future through increasing external debt – starting in the “economic miracle”, but especially after 1974. However, a part of the costs turned into lower enrolment rates: export incentives based on ICM harmed subnational government finances and hence primary education in several states.

States attempted to react through several ways in the mid-1970s. The aliquot of *salário-educação* increased from 1.4% to 2.5%, as described in the previous section. However, that

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<sup>20</sup>Folha de São Paulo, 13 April 1975.

was far from enough for states. According to the thesis of [De Mattos \(1988\)](#), studies hired by the FNDE advised for an increase of the *salário-educação* rate to 4.8% of the payrolls to make schools reach all population between 7 and 14 years of age. The Secretariat of Planning (former Ministry of Planning) resisted and a compromising solution was found: the aliquot was settled at 2.5%. Moreover, states demanded a larger share of federal taxes through the FPE (as described in the previous section). Despite the relative success of some initiatives of states toward less centralisation, the share of tax revenues in the hands of the central government remained relatively stable until 1983. Therefore, it is clear that countervailing measures sterilised decentralising initiatives ([VARSAÑO, 1997](#)).

In January 1977, secretaries of finance complained to the central government over state financial autonomy because of the fall of ICM rates in previous years.<sup>21</sup> The cost of the policy was unevenly paid by the states that exported the most. A document prepared by the state finance officers from several states argued for an increase in the ICM rates in exchange of a decrease in IPI, a federal value-added tax. According to this document, fiscal incentives to exports should bear on the shoulders of the central government rather than punishing subnational entities.<sup>22</sup> In the following year, six governors went to President Figueiredo to complain that their states were near bankruptcy.<sup>23</sup>

The National Monetary Council decided for the abolition of several incentives including fiscal subsidies to exports starting in January 1979. The abolition was gradual and completed only in mid-1983 ([BALASSA, 1979](#)). However, that was not enough to recover state revenues since the country was among the victims of the debt crisis in the early 1980s. State revenues and enrolment rates only recovered by the end of the military regime, when a decentralisation process bestowing more autonomy to states and municipalities started to take place. The growth of enrolment rates also resumed around that time.

## 6.6 CONCLUDING REMARKS

The historical literature on the political economy of education in Brazil often stresses the social basis of the political regime as the main cause of the priority given to tertiary education between 1964 and 1985. Nevertheless, primary level enrolment rates actually grew substantially during the first decade of the military regime. Enrolment rates only stagnated afterwards.

In this paper, we argued that the major cause of the slow increase in enrolments was a federal policy that weakened the fiscal capacity of subnational entities in industrialised regions. Despite the centralisation of tax revenues in the federal level and ICM-based incentives, ICM revenues per capita kept increasing during the “miracle” years. In order to support industrial policies and exports, the central government intensified incentive policies after the global oil

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<sup>21</sup>Folha de São Paulo, January 29th, 1977, 12-13

<sup>22</sup>Folha de São Paulo, 6 April 1977, 2-3

<sup>23</sup>Folha de São Paulo, 22 December 1978

shock. The combination of slower economic growth and export incentives led to a decrease in state level education expenditures per child and a stagnation in enrolment rates in several states.

Rather than only postponing the resolution of the problem through increasing debt, national export policy made some states bear a substantial share of the burden. Southeast and South regions were especially affected. Primary education was one of the major victims of the policy. Despite exemption of indirect taxes to exports were commonplace and allowed by the GATT, subnational governments did not receive enough compensations to fulfill their social policy mandates - including those regarding education.

Low quality schooling is a huge burden for a society in the long run: the consequences in terms of growth, inequality and development (broadly conceived) are considerably large. However, those costs are harder to estimate and often not taken into account. Our study has shown that national economic policies in the 1970s harmed mass education in Brazil. There were not enough resources to reach universal schooling and even less so for granting universal quality.<sup>24</sup> The target of universalising primary education had to wait for about two more decades more to be achieved in Brazil.

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<sup>24</sup>I thank Bruno Witzel de Souza for this formulation.



## 7 FINAL REMARKS

In this thesis, we argued that the rise in fiscal capacity under military rule was not sufficient to fund universal primary education for two reasons: (a) the executive could not be restrained through any accountability mechanism (presidents were only accountable to the military leadership); and (b) the central government was captured by specific groups. The central government, despite having the means, prioritized higher education and industrialisation rather than mass schooling. In its turn, subnational governments had the mandate but not the means to promote this expansion. As a consequence, after an initial growth, education spending and enrolment rates in primary education nearly stagnated after the end of the economic “miracle” in the 1970s.

Even though the country was able to significantly increase taxation in a short period, the Brazilian military administrations took decisions that harmed long-run growth, equality and human development from the late 1960s to the early 1980s. In particular, interests of certain groups prevailed. Additional resources obtained from the tax reform and the efficiency gains in tax collection were siphoned off from basic schooling. Two competing objectives stood out during the period. First, to fight political disorder in universities and to please middle and upper classes, those additional resources were partly utilized to the expansion of tertiary schooling. Secondly, the policy of export incentives was particularly harmful to the finances of subnational governments: primary education ended up paying for the growth strategy. Taking stock, resources that could have been used to universalise primary education were directed to the expansion of higher education and to ill-conceived industrial policies.

Here we are not arguing that the decision to expand higher education did not have *any* benefit. To a significant extent, several measures taken during those years positively affected post-graduate level research in the country, for example (SAVIANI, 2008). However, the opportunity cost of the decision was high if one takes into account that approximately 40% of the adult population was illiterate in 1960 according to the national census. Similarly, exempting exports is also not a problem in itself. On the contrary, the best taxation practices recommend that good should be taxed where they are consumed. Exports, for example, should not be taxed according to this view. For that reason, the GATT allowed export incentive policies based on tax exemptions. However, given the distribution of responsibilities and revenues in our fiscal federalism, the decision to exempt exports of manufacturing goods from state indirect taxes was a problem. Moreover, there were several incentive policies besides exemptions that further undermined the financial situation of subnational entities. There were not sufficient countervailing measures to help states and, hence, the policy harmed finances of states and municipalities in the mid-1970s. As a result, primary education bore the burden of the trade/industrial policy.

We did not deepen our research to encompass the post-1985 period. After the return

of democracy, education indicators improved to a significant extent (BROWN, 2002). The National Congress and the Federal Supreme Court were properly rehabilitated, while suffrage was extended to the entire adult population for the first time in the country's history. Those changes paved the way to the universalisation of primary education in the 1990s. Perhaps here lagged effects of the tax reform in the 1960s finally came out. After the demise of the dictatorship, the country was able to use more effectively the resources raised by the tax reform promoted decades ago. In a certain way, the military government might have planted the seeds of the welfare state in Brazil, as Klein and Luna (2017) have argued. However, the benefits were only effectively sowed after the return to democracy.

Bearing in mind the evolution of education in 20<sup>th</sup> century Brazil, there are several avenues of research that deserve further exploration. In order not to be exhaustive, we will call attention to three of them here.

First, few studies explore the decade of 1920. In that period, the growth of enrolment rates in primary education accelerated in the country (COLISTETE, 2016; MUSACCHIO; MARTÍNEZ-FRITSCHER; VIARENGO, 2014). Moreover, taking advantage of the decentralised structure of the Brazilian polity in the period, pedagogical innovations took place in several states under the leadership of educators that became later associated to the *Escola Nova* movement. Even though several historians of Brazilian education have already dealt with the topic, more detailed studies on the political economy of education in that period are still needed.

Secondly, more thorough investigations about the role of import-substitution industrialisation strategy on education are necessary. Did the ISI actually harm mass education? Ansell (2010) provided cross-country evidence in favour of this hypothesis and comparatively analyses the cases of Brazil and South Korea. However, there are obvious limitations in the latter approach given that Brazil and South Korea are strikingly different countries in almost every single aspect. Alternatively, Schneider (2013) argued that an industrial strategy based on multinationals did not allow a concerted action of industrialists in favour of mass education in Brazil. However, he did not provide enough evidence for the hypothesis.

Finally, there is basically nothing concerning gender differences in the economic history of education in Brazil. It is well-established that educated mothers have a large influence on their children's lives in several dimensions. Goldin and Katz (2009) highlighted the importance of gender in the history of schooling in the United States. We are aware that primary level enrolments of boys and girls were surprisingly egalitarian in Brazil since the 1930s. However, little else is known about gender issues in the economic history of education in Brazil, particularly concerning more advanced schooling levels.

Overcoming education backwardness is a task that cannot be solved quickly. After centuries of inaction, solutions to the problem are costly. Bearing in mind the historical centralisation of resources in the federal level and the lack of attention given to lower schooling levels throughout history, two current challenges for education in Brazil must be mentioned here.

First, the literature and this thesis suggest that empowering subnational governments, particularly municipalities, may be an important step to ensure adequate funding to mass education. Despite several important advances since redemocratisation, much remains to be done regarding decentralisation of public policies in Brazil. Secondly, as in other parts of the world, enhancing early childhood education is a further challenge. Compelling research findings from James Heckman and associates have shown that investing in young children is less costly and more effective considering several dimensions of development.<sup>1</sup> In face of another deep fiscal crisis in the country, the Brazilian society needs to do something it has never done: finding a solution that prioritizes spending in our children and increase efficiency in education spending. It is better to start it late than never.

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<sup>1</sup>See [Elango et al. \(2016\)](#) for a recent survey.



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## APPENDIX A – ENROLMENTS IN PRIMARY AND SECONDARY EDUCATION

Table 11 presents our dataset on enrolments and gross enrolment rates in Brazil from 1933 to 2010. The column “Primary” refers to the elementary level as defined by the Law 5,692/1971 comprised of eight grades: the *ensino de primeiro grau*, later renamed to *ensino fundamental*. “Secondary” refers to the three-year *ensino de segundo grau*, later renamed as *ensino médio*. In the period prior to 1971, primary enrolment series was constructed through merging the former *ensino primário* with the *ensino ginásial*, while the secondary series was built taking only the former *ensino colegial*. More details can be found at section 3.1. Further data on enrolment by states, net enrolments and enrolment by grade is available through request.

Table 11 – Enrolments and gross enrolment rates (GER) (%), Brazil, 1933-2010

Year	Primary		Secondary	
	Enrolments	GER(%)	Enrolments	GER(%)
1933	2184960	27.6	30964	1.2
1934	2356915	29.4	32807	1.2
1935	2522728	31.0	33865	1.3
1936	2688426	32.6	36727	1.4
1937	2843013	34.0	41440	1.6
1938	3157880	36.0	49151	1.9
1939	3256275	36.6	52477	2.0
1940	3256275	37.5	57109	2.1
1941	3299766	37.8	56544	2.0
1942	3318641	37.7	67411	2.4
1943	3297983	37.0	101162	3.5
1944	3379268	37.4	100484	3.4
1945	3513097	38.2	103819	3.5
1946	3710610	39.5	112579	3.7
1947	3933735	41.0	125732	4.0
1948	4243198	43.2	137233	4.3
1949	4446613	44.1	146927	4.5
1950	4731093	45.6	159296	4.8
1951	4957103	46.5	168292	5.0
1952	5154444	46.9	174537	5.1
1953	5390863	47.6	189131	5.4
1954	5791259	49.6	204866	5.7
1955	6200456	51.4	223708	6.0
1956	6519118	52.3	191543	5.0
1957	7155752	55.5	214909	5.5
1958	7537650	56.5	232112	5.7
1959	7970056	57.7	247429	5.9
1960	8368285	58.4	267144	6.1
1961	8805639	59.3	301137	6.7
1962	9664423	62.8	335761	7.1
1963	10622434	66.7	396596	8.1
1964	11670985	70.8	439040	8.6
1965	11568503	67.9	509110	9.6
1966	12585190	71.6	593413	10.8
1967	13384193	73.9	688302	12.0
1968	14348120	77.1	801075	13.4
1969	15013508	78.6	910210	14.7
1970	15894627	81.4	1003475	15.6

Source: IBGE (2003) and research data (2019).

Table 11 - Enrolments and gross enrolment rates (GER) (%), Brazil, 1940-2010 (cont.)

Year	Primary		Secondary	
	Enrolments	GER (%)	Enrolments	GER (%)
1971	17066093	85.6	1119421	16.8
1972	18370744	90.5	1299937	18.8
1973	18573193	90.1	1477650	20.6
1974	19286611	92.1	1681728	22.8
1975	19549249	92.0	1935903	25.4
1976	19523058	90.5	2212749	28.3
1977	20368436	93.1	2437701	30.4
1978	21473100	96.7	2537949	31.0
1979	21886805	97.0	2658078	31.8
1980	22598254	98.4	2819182	33.2
1981	22472979	96.0	2820998	32.8
1982	23563884	98.7	2874505	33.1
1983	24555789	100.8	2944097	33.7
1984	24789318	99.8	2951624	33.6
1985	24769359	97.8	3016138	34.1
1986	25358634	98.2	3166855	35.7
1987	25708308	97.9	3206207	35.9
1988	26754501	100.2	3368150	37.5
1989	27557542	101.8	3477859	38.4
1990	28252904	103.2	3601496	39.4
1991	29203724	105.7	3772698	40.8
1992	30177447	108.5	4104643	43.7
1993	30887951	110.7	4478631	46.9
1994	31910974	114.2	4932552	50.7
1995	32668738	117.0	5374831	54.3
1996	33131270	119.0	5739077	56.9
1997	34229388	123.4	6405057	62.3
1998	35792554	129.8	6968531	66.7
1999	36059742	131.6	7769199	73.3
2000	35717948	131.4	8192948	76.4
2001	35298089	130.9	8398008	77.6
2002	35150362	131.5	8710584	80.0
2003	34438749	130.0	9072942	83.1
2004	34012434	129.6	9169357	84.1
2005	33534561	129.1	9031302	83.3
2006	33282663	129.4	8906820	83.0
2007	32122273	126.2	8369369	79.2
2008	32086700	127.3	8366100	80.9
2009	31705528	127.1	8337160	82.9
2010	31005341	125.5	8357675	86.1

Source: [IBGE \(2003\)](#) and research data (2019).

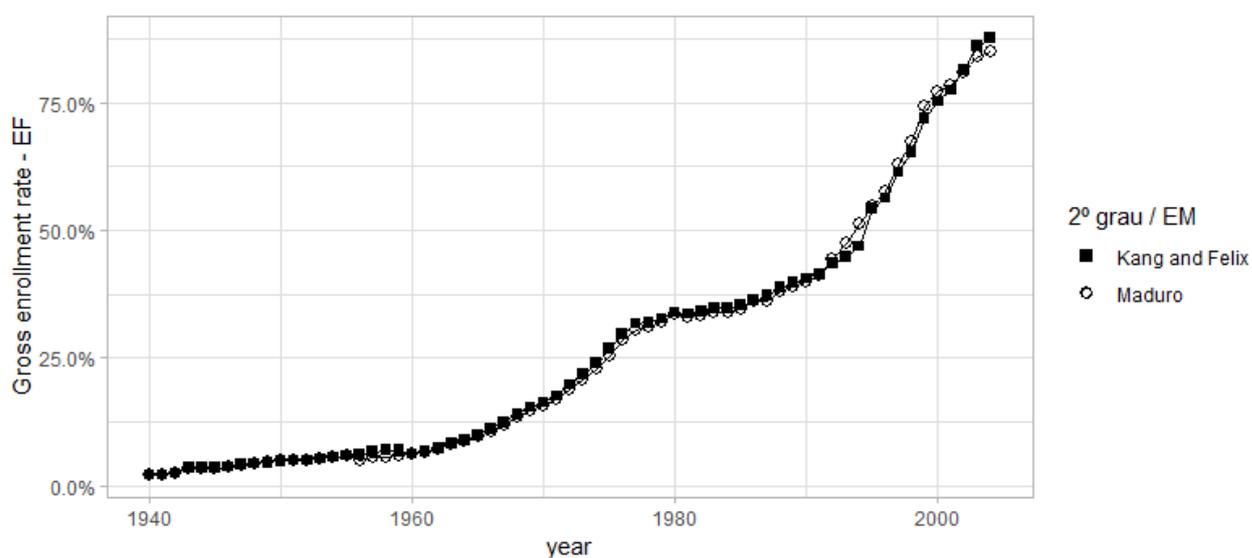


## APPENDIX B – GROSS AND NET ENROLMENT RATES IN UPPER SECONDARY EDUCATION, BRAZIL

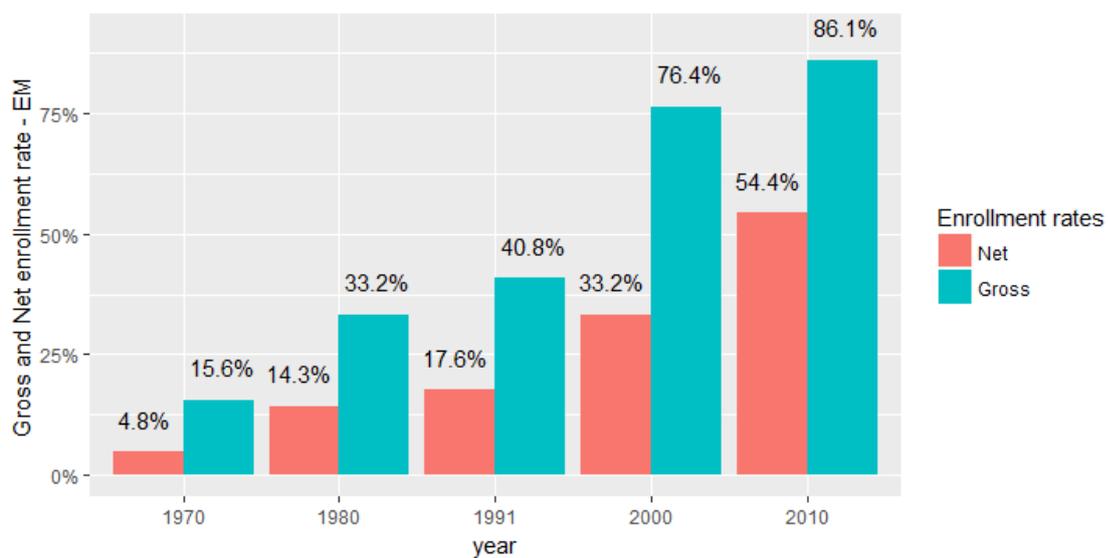
Enrolment rates in the *ensino médio* between 1940 and 2004 are plotted at Figure 39. The number of enrolments is almost identical when comparing our dataset to [Maduro \(2007\)](#)'s (Pearson correlation of 0.999). Here we also kept the time span as constructed by [Maduro \(2007\)](#) (until 2004) in order to allow for comparisons.

Net enrolment rates are found from 1970 onwards in the case of *ensino médio*. In 1970, only 5 per cent of the children aged between 15 and 17 years were enrolled at the upper secondary. Although improvements occurred, only a third of the children at this age group were in the schooling level considered adequate for their age in 2000. In 2010, this figure was around 54 per cent (see Figure 40).

Figure 39 – Gross enrolment rates, secondary education (*ensino de segundo grau*)



Source: [Maduro \(2007\)](#) and research data (2019).

Figure 40 – Net and gross enrolment rates, secondary education (*ensino de segundo grau*)

Source: Research data (2019).

## APPENDIX C – GDR IN BRAZILIAN STATES, 1960-2000

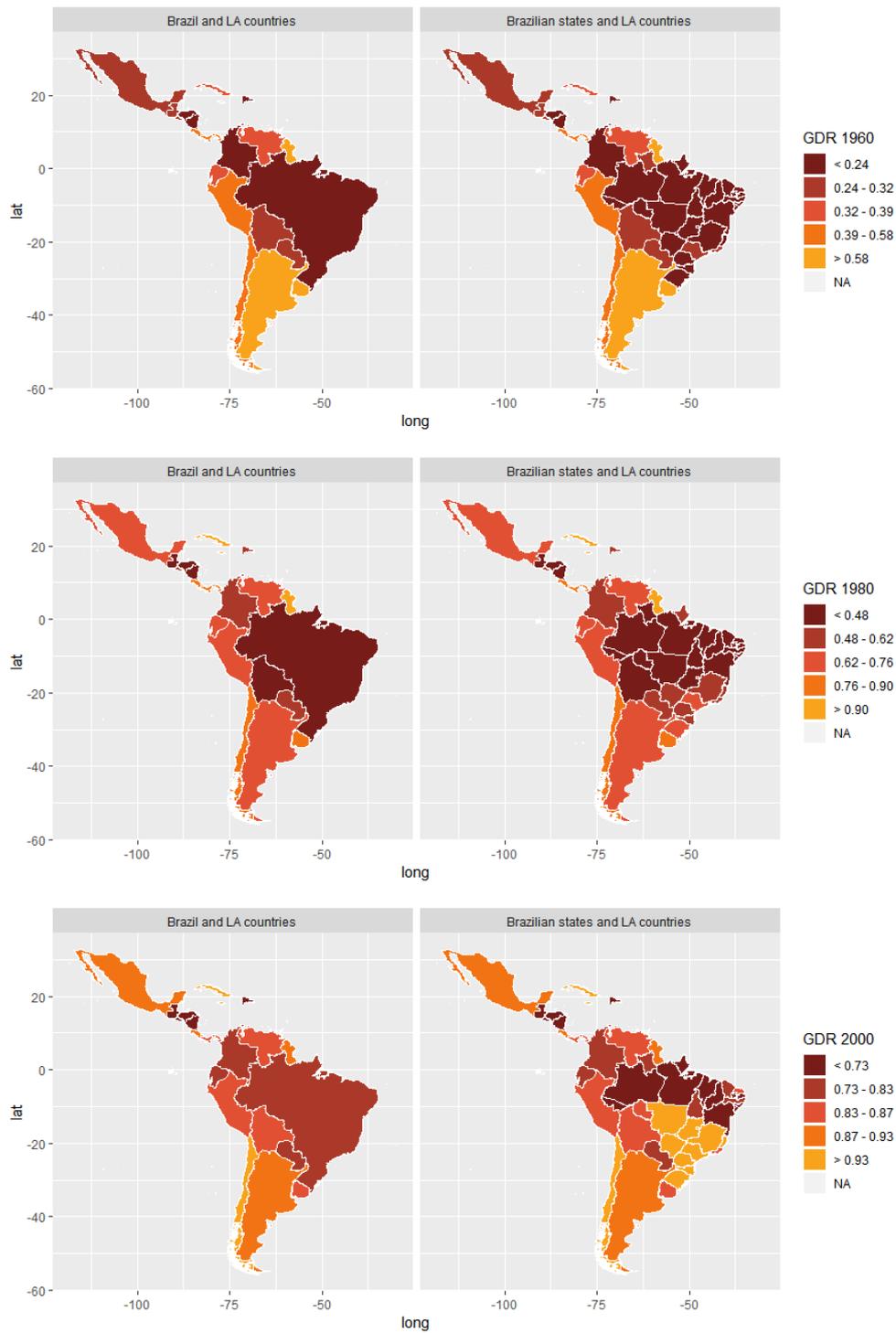
GDRs in Brazil demand special attention. In 1960 the Latin American GDR was 0.41. Caribbean islands such as Trinidad y Tobago, Guyana and Barbados presented GDRs above 0.80. Among Latin American countries, Argentina (0.63), Uruguay (0.58) and Panama (0.57) stood out (FRANKEMA, 2009). On the other hand, Brazil presented a GDR of 0.19 according to our dataset (Frankema found an even lower GDR: 0.17 in 1960). This index was comparable only to countries such as Nicaragua (0.18), Honduras (0.20) and Colombia (0.20). The first grid of Figure 41 depicts what was just stated: Brazilian GDR was comparatively low taking into account Latin American standards.

Applying GDR for Brazilian regions and states shows that the situation was even worse. In 1960, Brazilian regions North and Northeast had a GDR of 0.13, a figure lower than any other small Central American country according to Frankema (2009)'s dataset. The industrial Southeast presented a less unbalanced pattern of enrolment across grades (0.23), close to the result presented by the Dominican Republic (0.24) but far from the results of neighboring countries such as Uruguay (0.58) and Argentina (0.63). It becomes clear how unequal was schooling in different parts of Brazil, since the GDRs in most states were smaller than the ones presented by almost all Latin American countries. The richer states of São Paulo and Rio de Janeiro in the southeastern region presented relatively better indicators. The backward situation of northeastern states becomes plain in Figure ??, which shows the distribution of enrolments by the eight grades of the *ensino fundamental* in Northeast and Southeast regions in 1960. Although the Southeast region's results were already worrisome, 60 per cent of the pupils of the *ensino fundamental* were enrolled in the first grade in the Northeast region. This proportion clearly cannot be attributed to a mass schooling policy or a demographic phenomenon.

We did an extensive analysis of 1970 along the paper. In 1980, Brazil's GDR was 0.46, still much lower than the Latin American average (0.68). Northeast (0.30) and North (0.32) regions achieved a level similar to Nicaragua (0.32), which occupied the last position in the ranking of Latin American countries. South and Southeast (0.59 and 0.58 respectively) had better indicators than Paraguay and El Salvador, but still worse than Ecuador (0.64), Mexico (0.64) and even the Latin American average (0.68). Despite considerable improvements until 1980, the poorer regions still had a long way to go in order to surpass poor Central American countries.

Brazilian figures were not available for 1990, so we selected 1991 indicators. Democracy seems to have had an influence on Brazilian elementary education, since results became relatively better in the early 1990s (0.68 against 0.75 of Latin America). That seems consistent with the literature on regime transitions in Latin America and Brazil (BROWN, 2002; BROWN; HUNTER, 2004). In regional terms, Northeast and North (0.45 both) were stuck on levels not substantially greater than Nicaraguan ones (0.41). In 2000, the center-south portion of the country

Figure 41 – GDR 1-6, Latin American countries and Brazilian states, 1960, 1980 and 2000



Source: Research data (2019).

was clearly ahead the rest of Latin America. Finding the reasons of such a transition in the 1990s in a comparative perspective is also an important research agenda.

## APPENDIX D – SOURCES: EDUCATION EXPENDITURES

The only attempt to construct a long run education spending series is [Maduro \(2007\)](#). Lack of easily available sources led to two important difficulties in the dataset:

1. *Inconsistent sources*: In most of the years, the AEB presents spending data on “education and culture”. In some years, it refers only to “education”. Moreover, he added a few more bibliographical sources that are not necessarily consistent with the AEB, which is his basic reference.
2. *Gaps for long periods*: there are several missing lines. The most glaring example of a long period gap is data on state and local government levels between 1971 and 1985. In the case of municipalities, [Maduro \(2007\)](#) assumed that the proportion of spending in each level in the periods 1971-74 and 1980-85 were identical to 1986. Concerning state level spending, the author kept the distribution of state level spending in 1984 and applied the same structure to the gaps in 1971-74 and 1980-83.<sup>1</sup>

We attempted to deal with the first issue, but to a large extent the problem remains because data still comes from different sources. On the other hand, our new dataset presents a considerable improvement regarding the gap issue. In order to tackle those problems, we adopted the following methodology:

1. Whenever possible, total expenditures on education and culture by each government level were taken from *Finanças do Brasil* (FINBRA), a publication of the Ministry of Finance;
2. When FINBRA was not available, we looked for sources that were in principle compatible with FINBRA;
3. Other sources determined the *shares* of each schooling level on total expenditures on education and culture;
4. The sum of the shares of each schooling level (primary, secondary and tertiary) is equal to total expenditures for any government level.

Table 12 contains a complete list of sources of education expenditures year by year from 1933 to 2010. The list is divided in two columns, “total” and “shares” because total education spending data sources not always coincide with the data sources for each schooling level. In order to ensure consistency, we held total education spending as presented in original sources

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<sup>1</sup>See details in [Maduro \(2007\)](#), p. 7-10). [Kang \(2018\)](#), p. 733) also summarize the main problems of the dataset.

Table 12 – Primary and secondary sources, education expenditures, Brazil, 1933-2010

Year	Total						Shares					
	Federal		State		Municipality		Federal		State		Municipality	
	source 1	source 2	source 1	source 2	source 1	source 2	source 1	source 2	source 1	source 2	source 1	source 2
1932	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro
1933	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro
1934	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro
1935	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro
1936	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro
1937	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro
1938	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro	AEB	Maduro	interpolation	Maduro
1939	AEB	Maduro	AEB	Maduro	AEB	Maduro	interpolation		INEP (1953)		interpolation	
1940	AEB	Maduro	AEB	Maduro	AEB	Maduro	interpolation		INEP (1953)		interpolation	
1941	AEB	Maduro	FINBRA		FINBRA		interpolation		INEP (1953)		interpolation	
1942	AEB	Maduro	FINBRA		FINBRA		interpolation		INEP (1953)		interpolation	
1943	AEB	Maduro	FINBRA		FINBRA		interpolation		INEP (1953)		interpolation	
1944	AEB	Maduro	FINBRA		FINBRA		interpolation		INEP (1953)		interpolation	
1945	interpolation		FINBRA		FINBRA		interpolation		INEP (1953)		interpolation	
1946	interpolation		FINBRA		FINBRA		interpolation		INEP (1953)		interpolation	
1947	interpolation		FINBRA		FINBRA		interpolation		INEP (1953)		interpolation	
1948	AEB		FINBRA		FINBRA		Presidência (1957)		Presidência (1957)		Presidência (1957)	
1949	AEB		FINBRA		FINBRA		Presidência (1957)		Presidência (1957)		Presidência (1957)	
1950	AEB		FINBRA		FINBRA		Presidência (1957)		Presidência (1957)		Presidência (1957)	
1951	AEB		FINBRA		FINBRA		Presidência (1957)		Presidência (1957)		Presidência (1957)	
1952	AEB		FINBRA		FINBRA		Presidência (1957)		Presidência (1957)		Presidência (1957)	
1953	AEB		FINBRA		FINBRA		Presidência (1957)		Presidência (1957)		Presidência (1957)	
1954	AEB		FINBRA		FINBRA		Presidência (1957)		Presidência (1957)		Presidência (1957)	
1955	AEB		FINBRA		FINBRA		Presidência (1957)		Presidência (1957)		Presidência (1957)	
1956	AEB		FINBRA		FINBRA		Presidência (1957)		Presidência (1957)		Presidência (1957)	
1957	AEB		FINBRA		FINBRA		AEB	Maduro	AEB	Maduro	AEB	Maduro
1958	AEB		FINBRA		FINBRA		AEB	Maduro	AEB	Maduro	AEB	Maduro
1959	AEB		FINBRA		FINBRA		AEB	Maduro	AEB	Maduro	AEB	Maduro
1960	AEB		FINBRA		FINBRA		AEB	Maduro	AEB	Maduro	AEB	Maduro
1961	AEB		FINBRA		FINBRA		interpolation		interpolation		interpolation	
1962	AEB		FINBRA		FINBRA		interpolation		interpolation		interpolation	
1963	AEB		FINBRA		FINBRA		AEB		interpolation		interpolation	
1964	AEB		FINBRA		FINBRA		interpolation		interpolation		interpolation	
1965	FINBRA (AEB)		FINBRA		FINBRA		AEB	Souza (1979) - Maduro	AEB	Souza (1979) - Maduro	AEB	Souza (1979) - Maduro
1966	FINBRA (AEB)		FINBRA		FINBRA		AEB	Souza (1979) - Maduro	AEB	Souza (1979) - Maduro	AEB	Souza (1979) - Maduro
1967	FINBRA (AEB)		FINBRA		FINBRA		AEB	Souza (1979) - Maduro	AEB	Souza (1979) - Maduro	AEB	Souza (1979) - Maduro
1968	FINBRA (AEB)		FINBRA		FINBRA		AEB	Souza (1979) - Maduro	AEB	Souza (1979) - Maduro	AEB	Souza (1979) - Maduro
1969	FINBRA (AEB)		FINBRA		FINBRA		AEB	Souza (1979) - Maduro	AEB	Souza (1979) - Maduro	AEB	Souza (1979) - Maduro
1970	FINBRA (AEB)		FINBRA		FINBRA		AEB	Souza (1979) - Maduro	AEB	Souza (1979) - Maduro	AEB	Souza (1979) - Maduro
1971	FINBRA (AEB)		FINBRA		FINBRA		AEB	Souza (1979) - Maduro	AEB	Souza (1979) - Maduro	AEB	Souza (1979) - Maduro
1972	FINBRA (AEB)		FINBRA		FINBRA		AEB	Souza (1979) - Maduro	Maduro (interpolation)		Maduro (interpolation)	
1973	FINBRA (AEB)		FINBRA		FINBRA		AEB	Souza (1979) - Maduro	Maduro (interpolation)		Maduro (interpolation)	
1974	FINBRA (AEB)		FINBRA		FINBRA		AEB	Souza (1979) - Maduro	Maduro (interpolation)		Maduro (interpolation)	
1975	FINBRA (AEB)		FINBRA		FINBRA		AEB		interpolation		interpolation	
1976	FINBRA (AEB)		FINBRA		FINBRA		AEB		interpolation		interpolation	
1977	FINBRA (AEB)		FINBRA		FINBRA		AEB		MEC (1985)		MEC (1985)	
1978	FINBRA (AEB)		FINBRA		FINBRA		AEB		MEC (1985)		MEC (1985)	
1979	FINBRA (AEB)		FINBRA		FINBRA		AEB		MEC (1985)		MEC (1985)	
1980	FINBRA (AEB)		FINBRA		FINBRA		AEB		MEC (1985)		Maduro (interpolation)	
1981	FINBRA (AEB)		FINBRA		FINBRA		AEB		MEC (1985)		Maduro (interpolation)	
1982	FINBRA (AEB)		FINBRA		FINBRA		AEB		MEC (1985)		Maduro (interpolation)	
1983	FINBRA (AEB)		FINBRA		FINBRA		AEB			Maduro (interpolation)	Maduro (interpolation)	
1984	FINBRA (AEB)		FINBRA		AEB	Maduro	AEB		AEB	Maduro	Maduro (interpolation)	
1985	FINBRA (AEB)		FINBRA		AEB	Maduro	AEB		AEB	Maduro	Maduro (interpolation)	
1986	FINBRA (AEB)		FINBRA		AEB	Maduro	AEB		BGE	Marques (1991)	Marques (1991)	
1987	BGU	Marques (1991)	FINBRA		AEB	Maduro	AEB		BGE	Marques (1991)	Marques (1991)	
1988	BGU	Marques (1991)	FINBRA		AEB	Maduro	AEB		BGE	Marques (1991)	Marques (1991)	
1989	BGU	Marques (1991)	FINBRA		AEB		AEB					
1990	interpolation		interpolation		interpolation		interpolation		interpolation		interpolation	
1991	interpolation		interpolation		interpolation		interpolation		interpolation		interpolation	
1992	interpolation		interpolation		interpolation		interpolation		interpolation		interpolation	
1993	interpolation		interpolation		interpolation		interpolation		interpolation		interpolation	
1994	INEP		INEP	Maduro	INEP		INEP		INEP		INEP	
1995	INEP		INEP		INEP		INEP		INEP		INEP	
1996	INEP		INEP	Maduro	INEP		INEP		INEP		INEP	
1997	INEP		INEP	Maduro	INEP		INEP		INEP		INEP	
1998	INEP		INEP	Maduro	INEP		INEP		INEP		INEP	
1999	INEP		INEP	Maduro	INEP		INEP		INEP		INEP	
2000	STN		IBGE		STN		STN		interpolation		interpolation	
2001	STN		IBGE		STN		STN		STN		STN	
2002	STN		STN		STN		STN		STN		STN	
2003	STN		STN		STN		STN		STN		STN	
2004	STN		STN		STN		STN		STN		STN	
2005	STN		STN		STN		STN		STN		STN	
2006	STN		STN		STN		STN		STN		STN	
2007	STN		STN		STN		STN		STN		STN	
2008	STN		STN		STN		STN		STN		STN	
2009	STN		STN		STN		STN		STN		STN	
2010	STN		STN		STN		STN		STN		STN	

and kept the *shares* of each schooling level. Therefore, the sum of expenditures in each schooling level necessarily equals total spending as a result of a methodological choice.

Table 12 is also further divided by government tiers. In addition, each source type is indicated: “source 1” refers to primary source and “source 2” to secondary source - the terms “primary” and “secondary” is unrelated to schooling levels here. Most data come from AEB (IBGE, 2003) and FINBRA (MINISTÉRIO DA FAZENDA, 1941-), as explained in section 4.1. We also used some information from Mello e Souza (1979), BRASIL (1957), INEP (1953), MEC (1985b), Marques (1991) and STN (2013). Maduro (2007) is the major secondary source and an important reference to be consulted.

## APPENDIX E – WHO FUNDED PRIMARY EDUCATION?

In terms of education finance, responsibilities did not change from the previous system: primary and secondary education were administered by states and municipalities, while the central government was in charge of tertiary education. Each government level had different financial sources to education, as detailed below:

### E.1 CENTRAL GOVERNMENT

According to Marques (1980), the central government had two kind of financial sources: budgetary and extra-budgetary ones. Budgetary sources included:

- ordinary sources, which came mostly from tax revenues; and
- earmarked sources, which came from *salário-educação* – a tax levied upon the payroll of companies and exclusively allocated to primary education since 1964. Based on the cost of primary education, the tax rate was 1.4 per cent of the payroll of all firms. Half of the revenues of *salário-educação* remained in the state where the revenue was collected, while the other half went to a national fund (*Fundo Nacional de Desenvolvimento da Educação* – FNDE). As a result from the extension of compulsory education in the early 1970s, the *salário-educação* rate was raised to 2.5 per cent of the payroll in late 1975 (starting in March 1976). Moreover, the share of states rose to two-thirds of the revenue and only one third was left to the FNDE. No matter if the destination was state revenues or the FNDE, all resources should be spent in primary education (primeiro grau after the Law 5,692, the 1971 education reform).

Extra-budgetary sources was essentially comprised of:

- Federal and Sport Lotteries;
- credit operations; and
- fiscal incentives.

### E.2 STATES

Besides some minor sources specific to each state, state governments had three major financial sources:

- tax revenues: mostly from the *Imposto sobre Circulação de Mercadorias* (ICM). ICM was initially devised as a value-added tax. 80% of the ICM was assigned to the states, while the remaining 20% was transferred to municipalities.
- *salário-educação*: 50 percent of the revenues in the beginning and two-thirds after 1975.
- *Fundo de Participação dos Estados* (FPE). It was created after the 1966 tax reform. In 1967 and 1968, the FPE was comprised of 10 percent of the revenues raised from the income tax (*Imposto de Renda* – IR) and the manufacturing products tax (*Imposto sobre Produtos Industrializados* – IPI). During the period 1969-1975, FPE contributions were drastically reduced to 5%. The quota was increased year by year from 1976 (6%) to 1980 (10%). 20% of the FPE resources should be spent on primary and secondary education.
- *Fundo especial* (FE): Created to 1968 as a compensation of the reduction of FPE and FPM. Resources came from 2% of IR and IPI revenues. The central government decided over the allocation of FE resources.

### E.3 MUNICIPALITIES

Municipalities depended basically on two sources:

- tax revenues, based on the tax on services (ISSQN) and the urban property tax (IPTU). According to the Constitution, 20% of tax revenues should be allocated to schooling. The Law 5,692 (article 59) stipulated that those resources towards schooling should be specifically channeled to the primary level (*primeiro grau*).
- Municipalities Participation Fund (*Fundo de Participação dos Municípios* – FPM): transfers from the central government to municipalities. Also in this case, 20% of the transfers should be spent on primary education (Law 5,692 - 1971).

After filling some gaps on the pioneering work of [Maduro \(2007\)](#) using several other data sources, we found out some figures on education spending for the military regime period as presented in Table 5. First we analyze which government levels financed primary education. Between 1965 and 1970, around 70 percent of the overall expenses on the former primary education (*ensino primário*) were undertaken by state governments. Although there was a decrease in the share, a large part of state-level spending on education went to the eight-grade *primeiro grau* level after the 1971 reform. Still more than 50 percent of the overall spending on primary education came from state budgets. Therefore, the participation of states was essential to the development of primary education – as it had been throughout the history of schooling in Brazil.

In the second place, we looked only at state-level spending on education. Unfortunately, there is only data on primary education spending in the periods 1965-1970 and 1977-1985.

Moreover, we did not find the data by state, only the nationwide state-level spending. The former four-grade primary education comprised Cr\$ 1.6 billion out of the Cr\$ 3.6 billion spent on education by state governments in 1970. Expenses on secondary education (including lower and upper secondary levels) reached about Cr\$ 1.2 billion (MELLO E SOUZA, 1979). In 1980, three-quarters of state-level education spending (except administrative and other types of expenditures) went to primeiro grau.

Table 13 – Education spending in primary education, all government levels, Brazil, selected years, 1965-1983

Education spending on four-year primary education ( <i>ensino primário</i> )						
Year	Central gov.		States		Municipalities	
	Cr\$	share	Cr\$	share	Cr\$	share
1965	69811	14.7%	337744	71.3%	66081	14.0%
1970	129987	5.6%	1566814	67.2%	636280	27.3%
Education spending on eight-year primary education ( <i>ensino de primeiro grau</i> )						
Year	Central gov.		States		Municipalities	
	Cr\$	share	Cr\$	share	Cr\$	share
1977	3417000	10.2%	18870000	56.2%	11272000	33.6%
1980	18258000	10.0%	107553000	58.6%	57684000	31.4%
1983	485701000	23.8%	1100433000	54.0%	451000000	22.1%

Source: Mello e Souza (1979) and Maduro (2007)