

The evolution of schooling in Brazil, 1940-2010: insights from a new dataset*

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Abstract

This article presents a new dataset of enrollment rates and grade distribution ratios (GDR) in Brazil between 1940 and 2010. We also present enrollment rates and GDRs by Brazilian states from 1955 to 2010. To our knowledge, there were no estimates of enrollment rates by states for such a long period in Brazil. Our national estimates of enrollment rates are slightly different from previous estimates in the literature, mostly because we used more disaggregated data to build our demographic estimates. As expected, our results show that enrollment rates and GDRs in northern and northeastern states were strikingly low and comparable to the least performers in Latin America for most of the period. The “advanced” Brazilian states actually did not fare much better, lagging behind the early leaders of the region, such as Argentina and Uruguay up to the turn of the century.

1 Introduction

Brazil is a case of persistent dismal education outcomes. In 1930, approximately two-thirds of the adult population were illiterate in Brazil ([Astorga et al. 2005](#), [Valle Silva 2008](#)). Although there was a substantial increase in literacy rates throughout the 20th century, 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](#)). Historical records on enrollments reinforce the point: Brazil universalized enrollments in primary school about a century later than the United States and Canada, the early leaders in

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the continent (Engerman & Sokoloff 1997). More recently, Brazil has consistently presented one of the worst indicators in standardized proficiency tests such as PISA, despite considerable improvements in the last few years.

In this paper we use previously unexplored documents provided by the *Ministério da Educação e da Cultura* (MEC) and other sources in order to raise further quantitative information on the history of education in Brazil. The most well-known measure of education performance in history is the data compiled by Barro & Lee (2013) of average years of schooling of the population aged 15 and over. To our knowledge, Maduro (2007) was the only attempt to compile a long run dataset on enrollments in Brazil.¹ Maduro (2007) used data contained at several waves of the *Anuário Estatístico do Brasil* (AEB), the Brazilian Statistical Yearbooks. However, there are several other sources that provide a more comprehensive view of schooling in Brazil.

Since historical data on education that are currently available faces severe limitations, 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. Among the unexplored documents, the MEC irregularly published the *Sinopse Estatística do Ensino*, whose editions contain detailed data on enrollments, pass, repetition, and dropout rates in a more consistent basis than the AEBs. Some figures are found in the AEBs, but in a very incomplete basis. From those novel sources, we constructed a dataset on enrollments in Brazil between 1940 and 2010. We also built a dataset of enrollments rates by state from 1955 to 2010.

This endeavor provides at least two contributions to the literature on the history of education in Brazil. First, it provides a historical dataset of enrollment rates for states and regions in Brazil. As far as we know, few studies attempted to look at enrollment in different states - a very important aspect in the case of Brasil, a large country in terms of area and population and known for its glaring regional inequalities. Besides using the new data sources, we also computed yearly population estimates by state between 1940 and 2010 in order to generate enrollment rates by states. Our results show that states in *Norte* and *Nordeste* regions presented lower gross enrollment rates up to the late 1990s. Although our results are not unexpected, we provide a relatively complete dataset that describes the path of educational development in different states of Brazil. These findings are relevant, since there is a large related literature that attempts to explain how historical factors shaped regional inequality in Brazil (Menezes-Filho et al. 2006, Naritomi et al. 2012, Mattos et al. 2012, Reis 2014, Funari 2017). Wegenast (2010) specifically addresses schooling and argues that agrarian structures in the past are closely related to current educational results in different Brazilian regions.² Our work also has connections with the historical literature on spatial concentration of skills in Brazil (Ehrl & Monasterio 2016).

Secondly, we also look at the distribution of enrollments across grades. The enrollment rate by schooling level can be seen as a central tendency variable, but

¹Kang (2010) also tried to calculate primary schooling enrollment rates for the period 1930-1964, but Maduro (2007)'s series is a more comprehensive one.

²In 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 & Colistete (2010) found a negative association between land concentration and educational outcomes in the same region.

it does not provide any information on the dispersion of enrollments across grades within the same level. To tackle that problem, we use a methodology called “grade distribution ratio” (GDR) and apply it to Brazilian states and regions (Frankema & Bolt 2006). The GDR detects the dispersion of enrollments, which provides information concerning repetition and dropouts in a nutshell. Frankema (2009) utilized historical data from the Unesco Statistical Yearbooks in order to make a comparative assessment of education systems using the GDR. Since no other quality measures existed, he used the GDR to measure how pupils flowed in the education system. He found out that most students were concentrated in the first school grades in Latin American countries, which is an evidence of a high incidence of retentions and dropouts. As Birdsall et al. (1996) had already underlined two decades ago, Brazil is a special case of low performance even compared to its neighboring countries. Our results show that the best performers among states in Brazil were close to the Latin American average indices, while some poorer states presented astonishingly dismal results.

The paper is organized as follows. After this Introduction, the second section describes data and sources. The third section presents enrollment rates by states and Brazilian regions throughout the entire period. In section 4, we apply the GDR for states and regions. Section 5 concludes.

A warning: this work is still a preliminary draft and a part of an ongoing research project. Data revisions are necessary in the next versions of this paper in order to tackle data inconsistencies, which are common features when dealing with historical datasets.

2 Data and sources

2.1 Enrollments

The number of enrollments 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. An electronic version compiling data tables from several waves of the AEB is available online as *Estatísticas do Século XX*. This source had already been used by Maduro (2007). We added further sources from MEC such as *Sinopse Estatística do Ensino Primário*, *Sinopse Estatística do Ensino Médio*, *Estatísticas da Educação Nacional, 1971-73*, *A Educação no Brasil na Década de 1990*, etc.

State-level enrollments are available only for *ensino fundamental* from 1955 to 2010. A report authored by Goldenberg (1990) is the major source of state-level enrollments by grades in the *ensino fundamental*. From 1995 onwards, enrollment data is available at the website of the *Instituto Nacional de Estudos e Pesquisas Educacionais (INEP)*, a research organization of the Ministry of Education. A more comprehensive list of sources is available at References.³ There is missing information on the number of total enrollments and enrollments by grade of *ensino fundamental* in 1988, 1989, 1990 and 1994. We completed the missing data through a geometric interpolation.

³Our major sources are the following entries: MEC (1977a,d,b,e,c,f; 1959a,b), IBGE (n.d.), MEC (1985), Goldenberg (1990), INEP (2003), MEC (1974).

A legal change in 1971 required an adaptation of our dataset. The 2nd *Lei de Diretrizes e Bases da Educação Nacional* (2nd LDB) reorganized 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 drifted apart from the upper secondary level in 1971. The three-year *ensino médio - segundo ciclo* was renamed to *ensino de segundo grau* in 1971 and rebaptized 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 easier to find. We did all necessary adaptations, as [Maduro \(2007\)](#) had also done even though he does not explicitly acknowledge it. After consulting him personally, we checked whether our enrollment 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 enrollment data, we collected data on enrollments by state and per grade - which are the major added-values of this paper. The first allows us to look at regional differences within a continental country, while the second provides us information on concentration of enrollments in the first grades, an evidence of high incidence of retentions and dropouts.

2.2 School-age population

Population figures are based on the official demographic censuses from IBGE (*Censos Demográficos*). 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.⁴ 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.

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. Doing the latter, [Maduro \(2007\)](#) assumes that the distribution of population across single years of age within a five-year age group is

⁴In Brazil, [Souza \(2016\)](#) adopted this methodology. I thank him for valuable help on that matter.

uniform, which is definitely inaccurate if birth rates are increasing or decreasing.

Ideally, we should take the population of our interest (say 7-14 years) in a census year and apply statistical techniques to minimize age-heaping effects. Later we should use annual information on newborn infants and mortality indicators to consider children whose births take place in years between censuses. However, this information is not available for the most part of our time span.

Given the limitations of our data, we have chosen to simply interpolate 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 et al. (1977) according to the *splinefun* package documentation).⁵ 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 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). Even if we are not entirely comfortable with our solution, a cubic spline interpolation of the age-groups of our interest is clearly more appropriate than simply dividing the five-year age group in five equal parts and sum them to build the group of interest, as done by Maduro (2007).

3 Enrollment rates in Brazil, 1940-2010

Enrollment rates in Brazil were comparatively low according to international standards. Data from Unesco Yearbooks presented by Lindert (2004) and Frankema (2009) shows that Brazil lagged behind in primary education enrollment rates. While Argentina had nearly universalized primary schooling for the masses around 1950, Brazilian rates were about 67 percent. Only very poor countries from Central America had lower rates. Countries such as Ecuador, Mexico and Dominican Republic presented higher enrollment rates.

In the first subsection we present yearly estimates of enrollment rates to the whole country. Enrollments by states and regions are presented subsequently. Instead of focusing on primary schooling, we use subdivisions in accordance with the Brazilian legislation since 1971: the *ensino de primeiro grau* and the *ensino de segundo grau*. From 1996 onwards, those schooling levels were renamed to *ensino fundamental* and *ensino médio*. In a nutshell, the first level is a merge between the primary and the lower secondary levels (K-8), while the second level is the upper secondary level, comprised of three grades.

3.1 Gross and net enrollment rates in Brazil

Information on gross enrollments in Brazil is available since 1933. We estimated enrollment rates for the period between 1940 and 2010 because we did not have population by single years of age before 1940. Our national estimates of enrollment rates to the K-8 level are similar to the ones found by Maduro (2007), as shown

⁵<https://www.rdocumentation.org/packages/stats/versions/3.4.3/topics/splinefun>

in Figure 1 (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 per cent of gross enrollment rates in the early 1980s. The next two graphs end in 2005 because that is the last year of [Maduro \(2007\)](#)'s database.

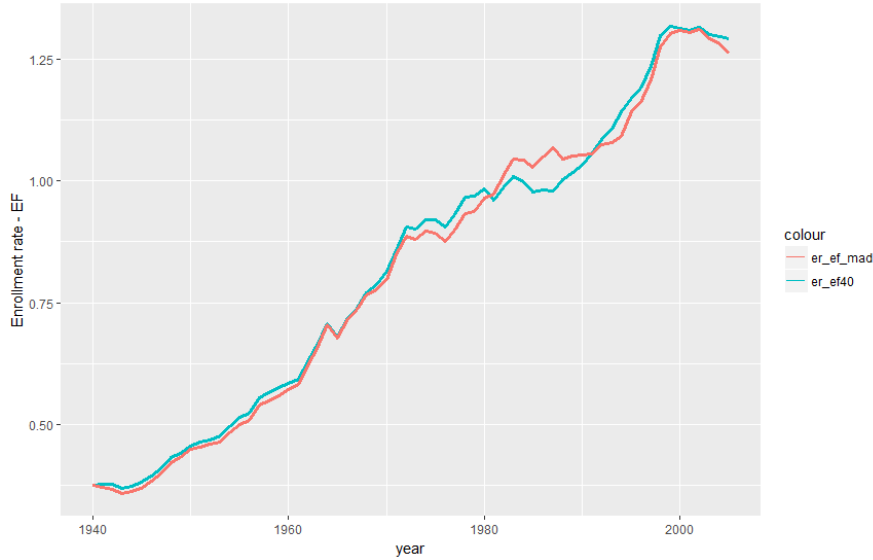


Figure 1: Gross enrollment rates, *ensino fundamental* (K-8, primary plus lower secondary level), Source: [Maduro \(2007\)](#) and Appendix

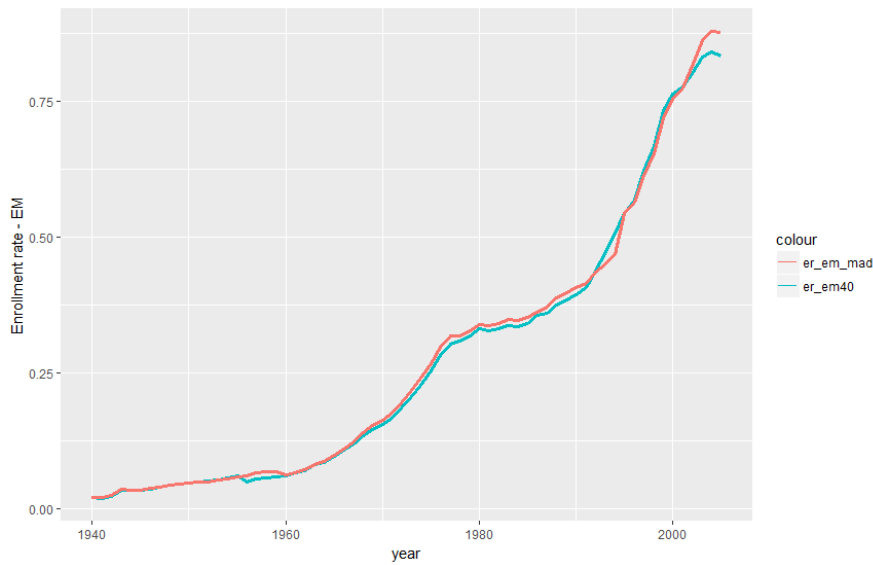


Figure 2: Gross enrollment rates, *ensino médio* (upper secondary level), Source: [Maduro \(2007\)](#) and Appendix

Enrollment rates in the upper secondary school (*ensino de segundo grau* or the current *ensino médio*) are plotted at Figure 2. The number of enrollments is almost identical in both datasets (Pearson correlation of 0.999). The slight differences on enrollment rates stem from small divergences in population estimates. Although those two data series are not a large added-value with respect to previous works, the similar results according to both data sources in elementary and upper secondary

education rates make us confident on our estimates by states and regions, which are presented in the next subsection.

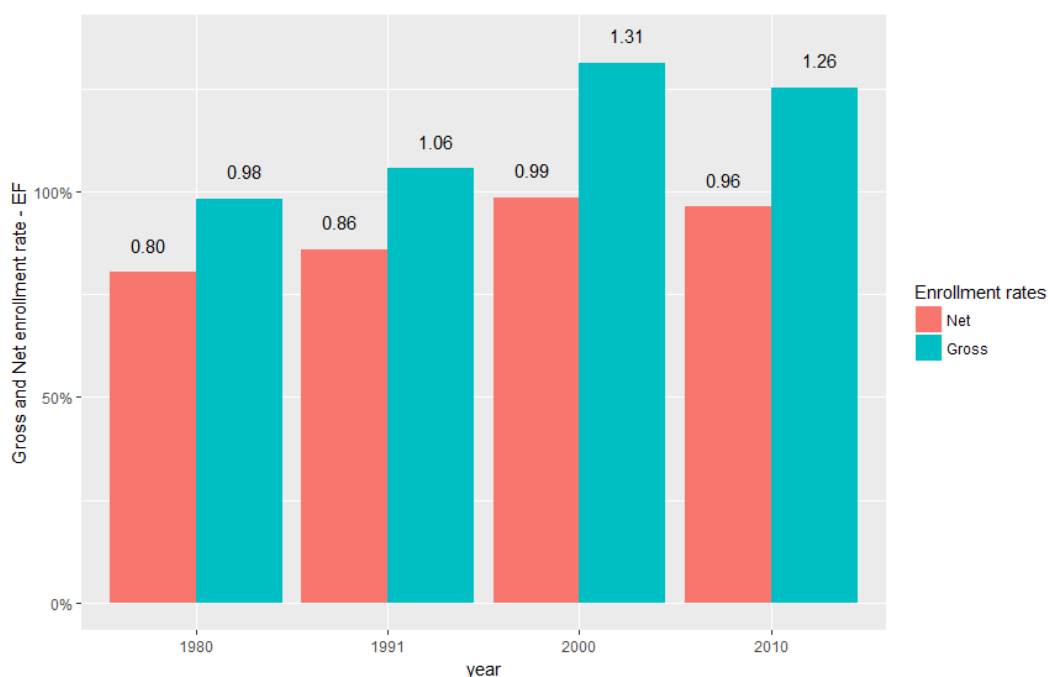


Figure 3: Net and gross enrollment rates, *ensino fundamental* (primary plus lower secondary level), Source: Appendix

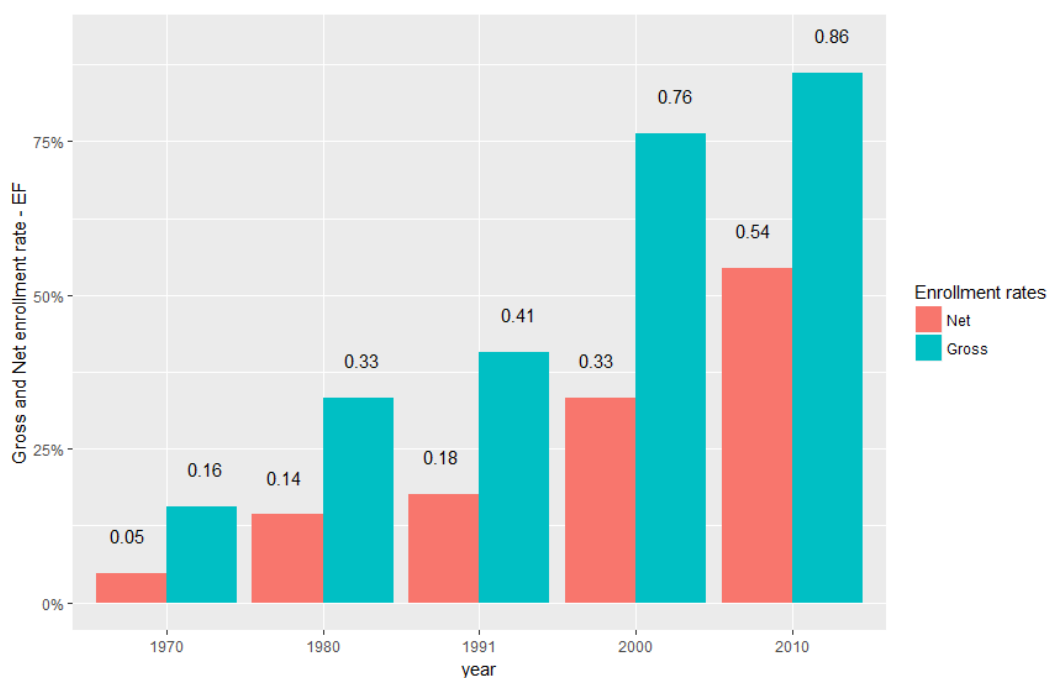


Figure 4: Net and gross enrollment rates, *ensino médio* (upper secondary level), Source: Appendix

Net enrollment rates are only found in a consistent basis from 1979 onwards for *ensino fundamental* and from 1970 onwards in the case of *ensino médio*. Net

enrollment 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).⁶ If net enrollment 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 the time span of Figure 3 up to the last year of our series (2010).

Even though gross enrollment rate achieved 100 percent in the early 1980s, net enrollment rates show that around 20 percent of the children aged between 7 and 14 were not enrolled in the K-8 level in 1980. The universalization of the K-8 level was achieved in practice only during the 1990s, as widely known. The information contained at Figure 3 shows that net enrollment rates achieved 99 percent in 2000.

The case of the upper secondary school is less optimistic. In 1970, only 5 percent 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 percent.

3.2 Enrollments 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 within the country.

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 *Norte* 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).

In economic aspects, *Nordeste* region's GDP per capita was about a quarter of *Sudeste*'s product per head in 1955. Although the gap decreased though time, this ratio was still about a third in the early 1980s. In the extreme cases of each region, *São Paulo*'s GDP per 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. The Figure 5 clearly shows the gap between rich and poor regions in Brazil. In 1955, K-8 level gross enrollment rates in the modern *Sudeste* was 66.0 percent, while in the mostly rural and backward *Nordeste* it was only 32.7 percent. National estimates were somewhere in the middle (51.4 percent). Two decades later, the country had already developed a large and diversified manufacturing sector of durable goods. The industrial *Sudeste* achieved a gross enrollment rate of 100 percent, but *Nordeste*'s rate was only 71.9 percent in 1975 - including older students retained in that level for whatever reason.

Figure 6 shows that *Centro-Oeste*'s performance was not much different from the *Norte* and *Nordeste* regions, while *Sudeste* and *Sul* was on the lead. Fifteen

⁶Available at: <http://uis.unesco.org/en/glossary-term/net-enrolment-rate/>

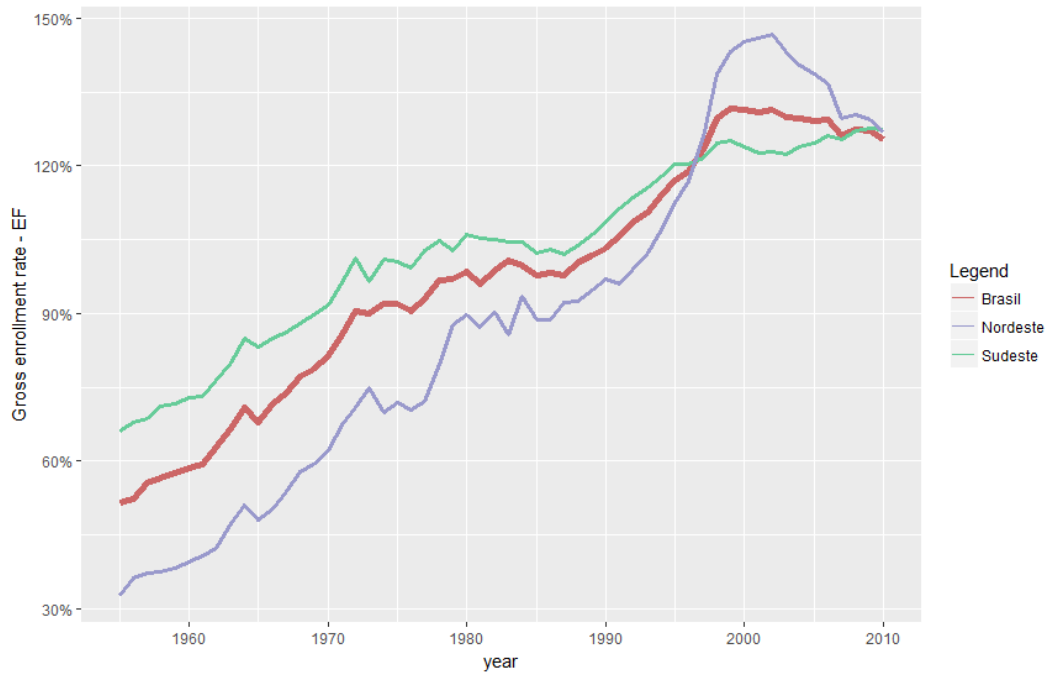


Figure 5: Gross enrollment rates, *ensino fundamental* (primary plus lower secondary level), Brazil, *Região Nordeste* and *Região Sudeste*, 1955-2010. Source: Appendix

years later, *Centro-Oeste* 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 percent regarding gross enrollment rates, but some backward states in the Northeast such as *Ceará* and *Maranhão* were far from reaching its counterparts.

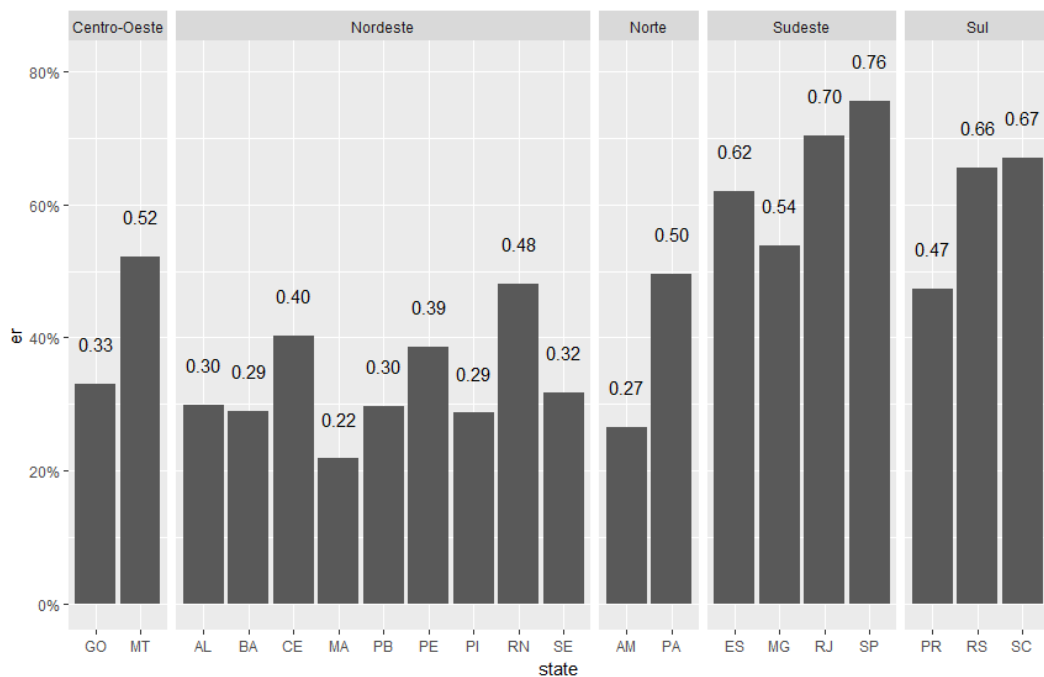


Figure 6: Gross enrollment rates, *ensino fundamental* (primary plus lower secondary level), Brazilian states, 1955. Source: Appendix

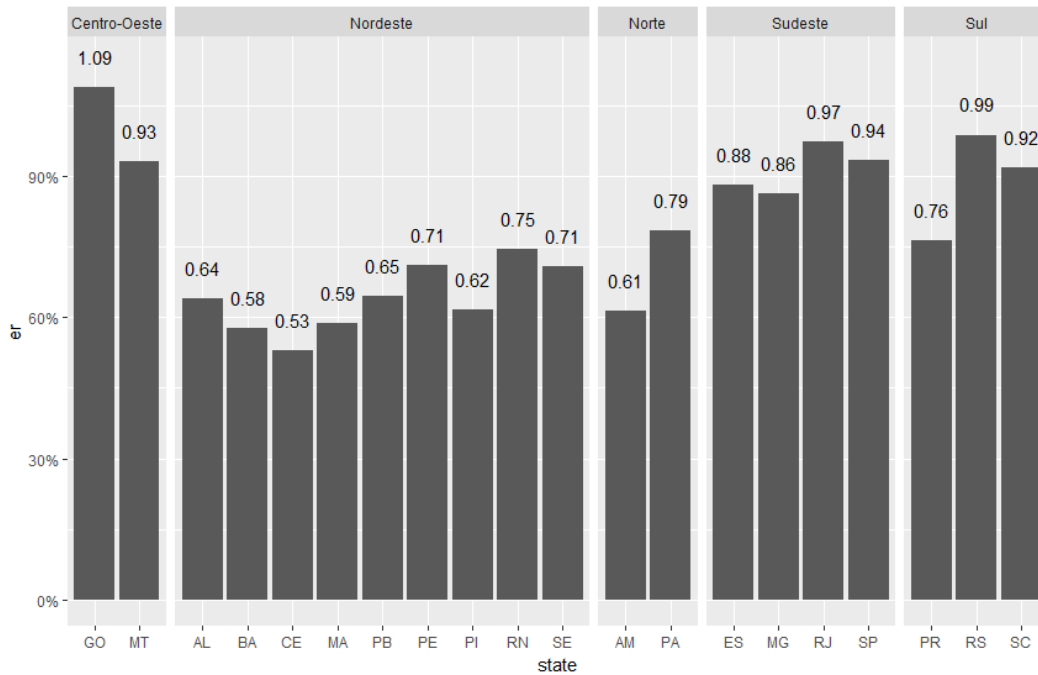


Figure 7: Gross enrollment rates, *ensino fundamental* (primary plus lower secondary level), Brazilian states, 1970. Source: Appendix

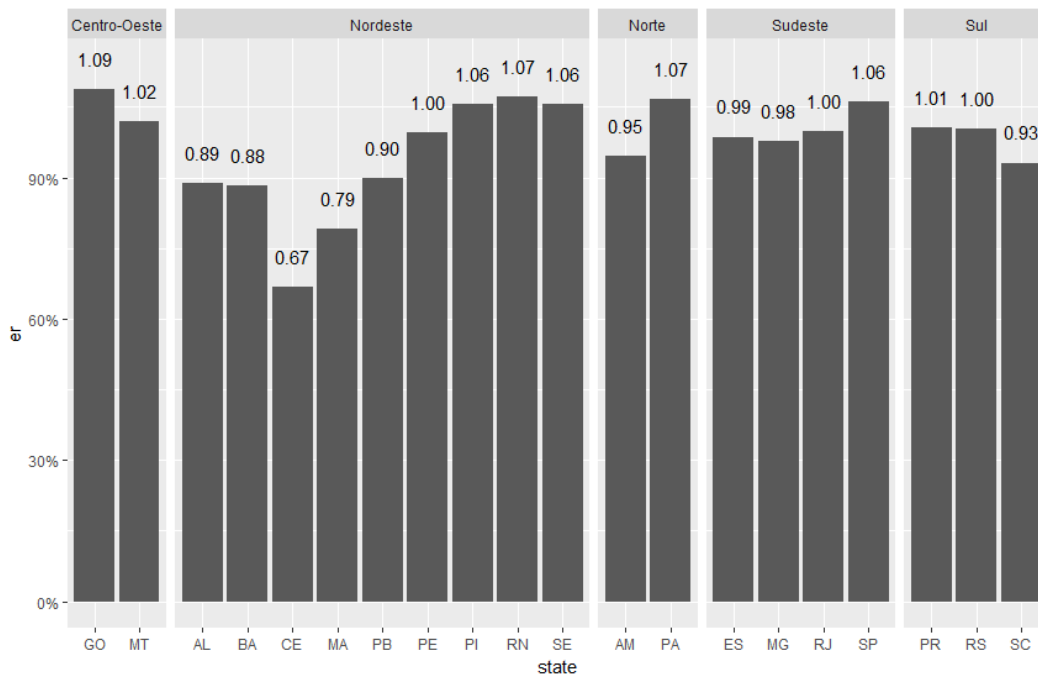


Figure 8: Gross enrollment rates, *ensino fundamental* (primary plus lower secondary level), Brazilian states, 1985. Source: Appendix

There was an acceleration of the growth of enrollment rates during the mid-1980s in the country as a whole, including the regions depicted on Figure 5. Some scholars have already 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. The situation was reverted only in the late 1990s - when *Nordeste's*

gross rates of enrollment become clearly higher than *Sudeste*'s figures. However, there is nothing to celebrate about that - actually it only revealed another problem. Since *ensino fundamental* level was universalized in the late 1990s, high gross rates in the *Nordeste* is to a large extent a result of retention of children aged more than 14 years in that level.

4 Enrollments by grade

Enrollment rates provide only a rough idea of the breadth of the Brazilian education system. We did not estimate enrollment rates for 1933, but let us consider the estimates of [Maduro \(2007\)](#). According to his dataset, the gross enrollment rate in the *ensino primário* was about 28 percent 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 per cent 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 percent. This ratio achieved 30 per cent only in the early 1970s.

Gross enrollment rates were already low without taking into consideration the distribution of pupils across the grades in Brazil. Taking into account enrollments by grade, the system was awkwardly inefficient according to international standards. Some states in Brazil, mostly in the northern and northeastern areas, have historically presented a pattern of enrollment 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. That would be a demanding task and we would have to undertake several comparisons to reach a conclusion. Since the GDR is a synthetic indicator that comprises repetition and dropouts, it is a helpful tool for comparative analysis. In the next subsections we present the methodology to compute the GDR and apply it to Brazil, its regions and states in a comparative perspective.

4.1 Grade distribution ratio (GDR)

[Frankema & Bolt \(2006\)](#) and [Frankema \(2009\)](#) developed the "grade distribution ratio" (GDR) approach. It is defined by the following equation:

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

in which N is the total number of grades, while g_i is the share of students enrolled in the grade i .

In order to allow for international comparisons, we followed [Frankema \(2009\)](#) and used the GDR between the first and the sixth grade. In most systems primary education is comprised by the first six grades:

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

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, 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.

4.2 GDR by Brazilian regions and states

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 9 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 *Norte* and *Nordeste* had a GDR of 0.13, a figure lower than any other small Central American country according to Frankema (2009)’s dataset. The industrial *Sudeste* presented a less unbalanced pattern of enrollment 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 northern and northeastern states becomes plain. A comment of a Unesco (1958) report about schooling in the *Nordeste* region seems consistent with our findings:

“ [...] 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”.⁷

Ten years later, the situation was not much better. In the early 1970s, the Brazilian pattern of enrollments across grades were comparable to the ones presented

⁷Frankema (2009) also called attention to this sentence.

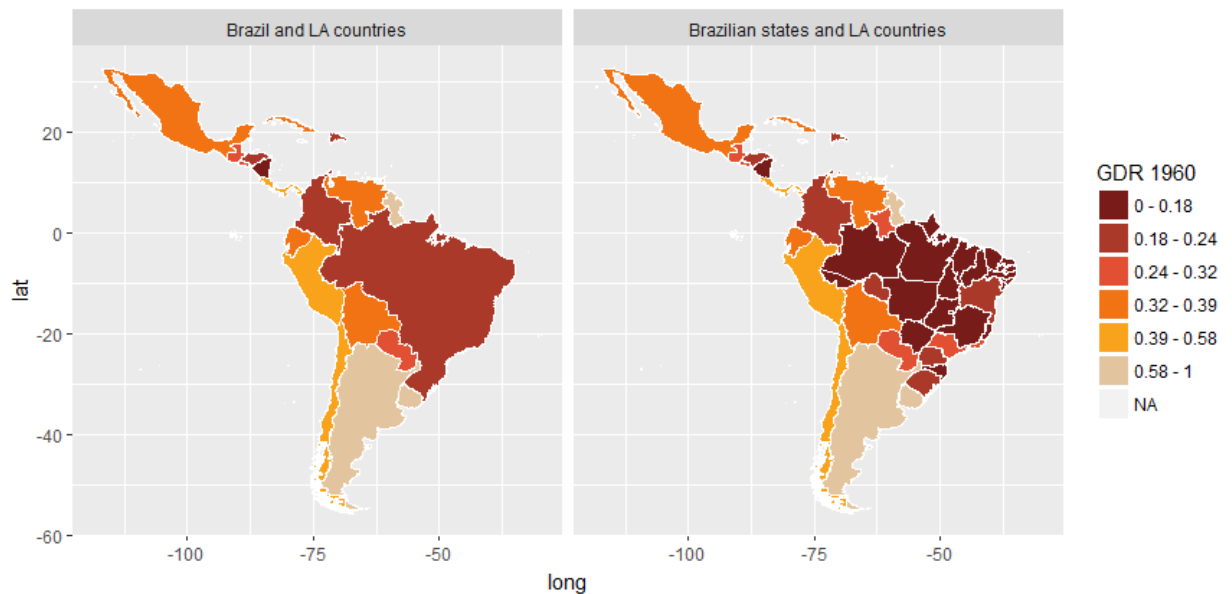


Figure 9: GDR 1960, Latin American countries and Brazilian states, Source: Appendix

by Colombia (0.38 and 0.37 respectively), while Latin America had already achieved 0.57. The advanced *Sul* and *Sudeste* regions (in Brazilian terms) 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 *Nordeste* region presented a dismal index of 0.24, a result not even close to any Latin American country in the database.

In 1980, Brazil's GDR was 0.46, still much lower than the Latin American average (0.68). *Nordeste* (0.30) and *Norte* (0.32) regions achieved a level similar to Nicaragua (0.32), which occupied the last position in the ranking of Latin American countries. *Sul* and *Sudeste* (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). Figure 10 shows that despite considerable improvements, the poorer regions had a long way to go in order to leave poor Central American countries behind in the ranking.

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, *Nordeste* and *Norte* (0.45 both) were stuck on levels not substantially greater than Nicaraguan ones (0.41). On the other hand, the *Sudeste* region achieved 0.88, surpassing Argentina (0.83), Chile (0.86) and Uruguay (0.85), the early leaders in South America.

Brazil caught up with the Latin American average only in the turn of the century,

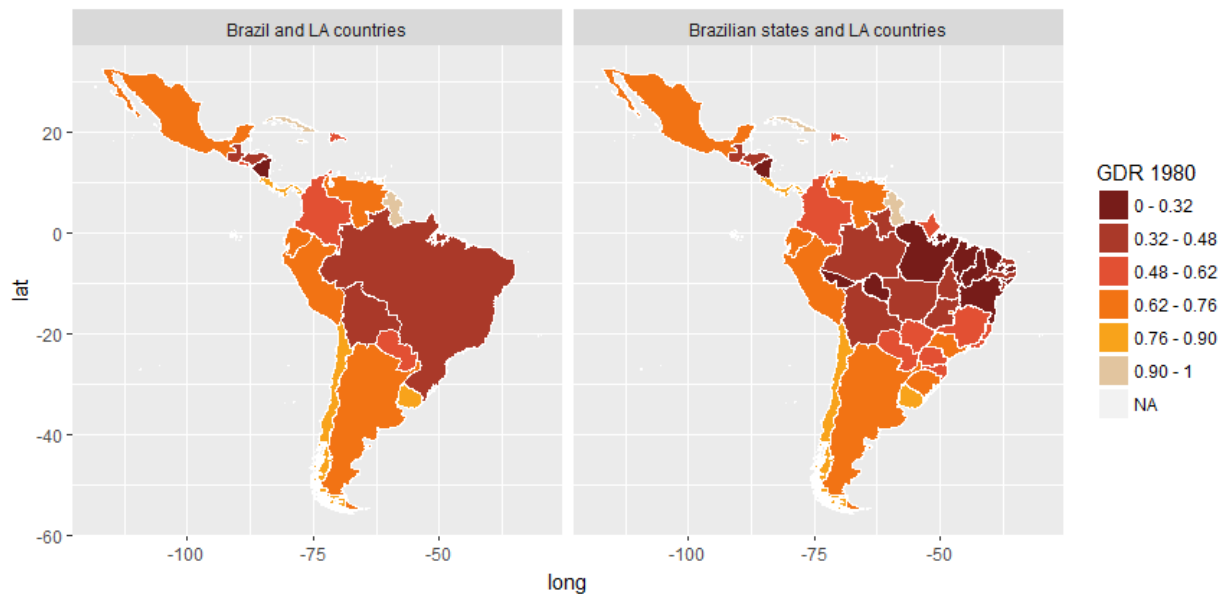


Figure 10: GDR 1980, Latin American countries and Brazilian states, Source: Appendix

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 *Sudeste* and *Sul* had already achieved a GDR larger than 1.00. The *Nordeste* region, however, lagged behind (0.67) and the situation in the *Norte* region was even worse (0.57). While national GDR was similar to the one presented by Paraguay or Colombia, states of the regions *Sul*, *Sudeste*, and *Centro-Oeste* 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.

5 Final remarks

This paper is basically descriptive. Here we did not investigate the causes of the Brazilian educational backwardness throughout the 20th century. Several works have attempted to answer this question (Plank 1996, Wjuniski 2013, Kang 2010, 2017). However, the lack of quantitative data on the evolution of Brazilian education along the 20th century is a major barrier to the continuation of the research agenda. This paper is an attempt to create the conditions to deepen our investigation.

What is clear from this analysis is that Brazilian education lagged behind other countries in several aspects. In terms of enrollment rates, Brazilian figures stood out as one of the worst among Latin American countries. Even if we consider the distribution of enrollments across grades, Brazil also lagged considerably behind. Given that Latin America as a whole was a laggard region in the world, the Brazil-

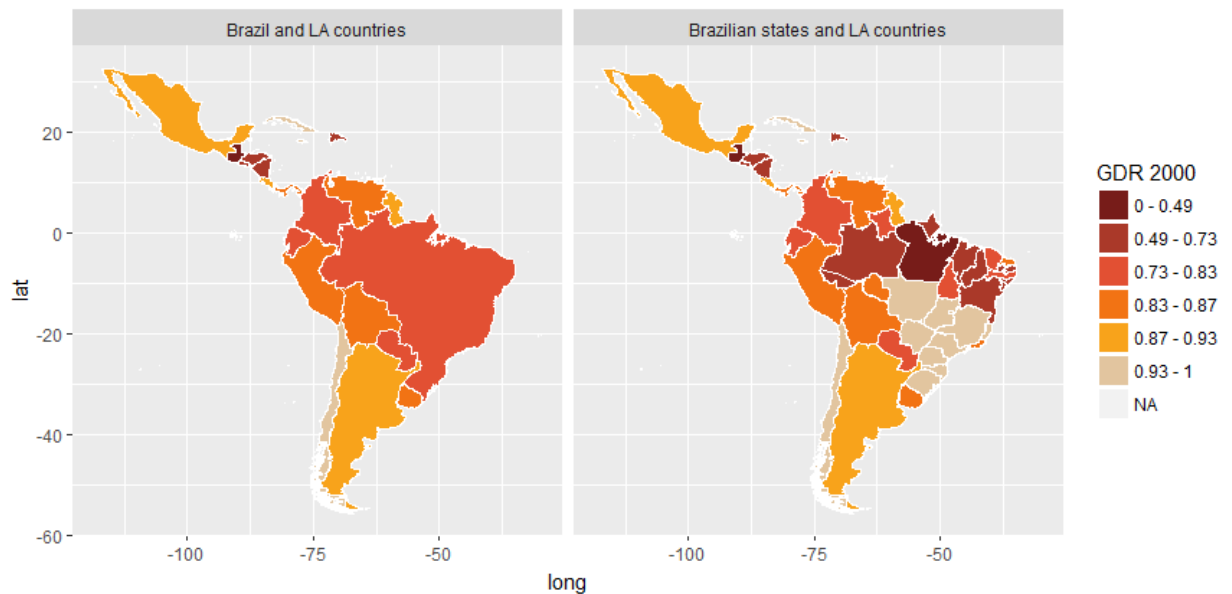


Figure 11: GDR 2000, Latin American countries and Brazilian states, Source: Appendix

ian dismal figures raise the suspicion that there was something deeply wrong with Brazilian educational policies.

Of course the negative results at both enrollment rates and GDRs are not unexpected, since dropouts are one of the major causes of low performance at both variables. The persistent low GDRs of the country reinforces the conclusion that the Brazilian education system has always been in a trouble.

In regional terms, the new dataset confirms a basic intuition about schooling in Brazil. In general, the poorer northern and northeastern regions are also those with low enrollment rates and low GDRs. However, the degree of educational backwardness of those regions might be surprising. In the early 1960s, it was worse than the poorest Latin American countries. Moreover, the performance of advanced regions was not much better bearing in mind the undemanding Latin American standards.

From this perspective, the persistent high levels of income and wealth inequality in Brazil seem easily explainable. On the supply side, Brazilian labor markets have presented an abundance of unskilled workers combined with a system that consistently failed to instruct new generations. On the demanding side, there was a vigorous policy of import-substitution industrialization with sequential skill-biased technological shocks that endured for five decades. If this description is consistent with facts, then the country's educational backwardness has likely played a substantial role on the determination of high income inequality in Brazil. Several works have already attempted to decompose the sources of inequality in Brazil. This paper 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 20th century from several angles.

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