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Relationship between the education of parents and children

Intergenerational mobility in education in Brazil and worldwide

Synopsis of Indicators

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Synopsis of Indicators | No. 2

Relationship between the education of parents and children: Intergenerational mobility in education in Brazil and in worldwide

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Presentation

The Institute for Mobility and Social Development – IMDS provides, through this synthesis, the analysis of social mobility indicators, positioning Brazil between several countries and groups of countries. These and other numbers can be accessed on the IMDS Portal, on the Internet, under the menu Indicators, Intergenerational Mobility, International, to find the panels "Global Panorama" and "Brazil compared to developed nations". With this publication, IMDS continues the dissemination of content stemming from intergenerational mobility in education.

In the Synthesis of Indicators no. 01, intergenerational mobility in Brazil and some territorial subdivisions were addressed. There the educational results of children are presented as well as other accomplishments of theirs in adulthood. Here, we focus on data from the education of parents and children from various countries in the world, which allows the comparability of intergenerational mobility in education in Brazil with countries of different levels of development.

The main data sources used to build the indicators are the National Household Sample Survey (2014), OECD reports - Education at a Glance (2014) and "A Broken Social Elevator? How to Promote Social Mobility" (2018) based on a database built and made available by the World Bank – Global Database on Intergenerational Mobility (2018). OECD data (2014; 2018) enable mobility analysis in around 25 developed countries and World Bank data (2018) contain information from 148 countries, which comprises 96% of the world's population.

In addition to the number of countries, we highlight the analysis of the mobility of children of different age groups (OECD data (2014; 2018)) and those born in different decades, from 1940 to 1980, (World Bank data, 2018). Thus, there is the evolution of cases of upward intergenerational mobility in education over time. In addition, comparative results between men and women are presented.

It is evident, through this synthesis, that Brazilians have been achieving increasing levels of education in relation to their parents. There is, however, a long way to go for Brazil to approach developed countries in terms of upward mobility, and especially in relation to access to higher education for children of less educated parents. In addition, it is noteworthy that women are excelling, in relation to men, as regards attaining higher levels of education, including those who are daughters of less educated parents.

The findings also show that Brazil is well ahead of low-income and lower-middle-income countries when it comes to upward intergenerational mobility in education. When, however, compared to upper-middle-income countries, the group to which it belongs, Brazil has worse results in some indicators. This is a point to be constantly monitored.

These and much more evidence are presented and commented on in this synthesis.

Summary

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Glossary

Low schooling "trap"[1] : occurs when more than 50% of the offspring of uneducated parents reach, at most, the incomplete Elementary or Junior High School level.

Degree of intergenerational mobility in education[2]: association between the schooling of the offspring and that of the father or mother, or the one with the highest schooling. There are different measures of intergenerational mobility in education. In this synopsis, we adopt those also used in comparative studies of the OECD and the World Bank. Intergenerational mobility can be absolute or relative. Absolute mobility refers to the proportion of children with a higher or lower level of schooling than that of their father, whatever the father's level may be. Relative mobility, in general, is related to differences in education between parents and children, i.e., which level of schooling of children is conditional to the parents' schooling.Imobilidade intergeracional de educação: é a situação em que filhos têm o mesmo nível de escolaridade ou anos de estudo do pai (ou mãe ou ambos).

Intergenerational immobility in education: is the situation in which children have the same level of schooling or years of study of the father (or mother or both).

Upward intergenerational mobility in education: refers to the situation in which children have a higher educational level than that of their father (or mother, or both). In countries undergoing processes of strong schooling, this indicator will tend to be higher.

Downward intergenerational mobility in education: refers to the situation in which children have lower levels of schooling than that of their father (or mother, or both).

Social mobility[3] is the variation that occurs in the socioeconomic status (educational, occupational, income and other measures correlated with well-being) of individuals. It can be intergenerational - between parents and children, or grandchildren - or intragenerational - in the individual's own life course.

Intergenerational persistence in education[4]: measures the degree of determination that the level of schooling of parents has over the level of schooling of their children, in years of study. It is obtained through the regression coefficient of ordinary least squares in which the dependent variable is the number of years of study of the child and the independent variable is the number of years of study of the father (or mother, or both). Values closer to zero indicate lower persistence (lower dependence between the years of study of parents and children) and, consequently, high intergenerational mobility in education, while values closer to one indicate greater persistence and low mobility.

Intergenerational privilege[5] describes the portion of children whose parents had complete undergraduate studies or higher, and who themselves reached complete undergraduate studies or higher.

[1] Own elaboration.

[2] Concept presented, among several sources, by World Bank (2018) and OECD (2018).

[3] Concept presented, among several sources, by World Bank (2018) and OECD (2018).

[4] Adaptation of the Intergenerational persistence indicator (World Bank, 2018).

[5] Adaptation of the Intergenerational Privilege indicator (World Bank, 2018).

Executive Summary

Intergenerational mobility in education: comparing Brazil with developed nations based on OECD data

A comparison of intergenerational mobility in education in Brazil and in OECD countries is carried out in section 1 of this synopsis. Education at a Glance (2014), OECD (2018) and PNAD (2014) data were used. The levels of schooling of parents and their offspring from all countries analyzed are divided into three categories: incomplete High School level or less; complete High School level or incomplete undergraduate studies; and complete undergraduate studies or higher. The main analyses of educational mobility were performed for different age groups of offspring, which are: 25-to-64-year-olds (the broadest), 25-to-34-year-olds (younger age group) and 55-to-64-year-olds (age group of older individuals who make up the sample). Some results were also analyzed according to gender (for all countries) and the skin color or race of the children (only for Brazil). The main results showed that:

- The level of schooling in Brazil, despite having increased among younger offspring, is lower than the average in OECD countries. While in Brazil the probability of 25-to-64-year-old offspring having more schooling than their parents when those have an incomplete High School level or less is 41.7%, the average of OECD countries is 66.6%. In addition, only 10.4% of offspring of parents with incomplete High School level or less manage to complete higher education in Brazil, about half the percentage of that in OECD countries.
- Most children of parents with complete undergraduate studies or higher have this same level of education. This percentage in Brazil is higher than in the average of OECD countries (69.8% compared to 65.2%). However, if only Black Brazilians are considered, the same percentage is lower than in the average of OECD countries (without considering the skin color clippings in these countries) (54.3% compared to 65.2%).
- In Brazil, as in the average of OECD countries, women are more likely than men to achieve a higher level of education than their parents. However, the difference between men and women is greater in Brazil than in the average of OECD countries. Moreover, the difference in level of schooling between Brazilians and individuals from OECD countries is greater among men than among women. The probability of men, offspring of parents with incomplete high school education or fewer years of schooling, having this same level of education is 30.6 p.p. higher in Brazil than in the average of OECD countries. This difference is smaller among female offspring (19.7 p.p.).
- In Brazil and in the OECD countries analyzed, the chance of children having incomplete High School level or less is greater if parents also have this level of schooling, when compared to those whose parents have complete undergraduate studies or higher. However, it is worth noting the difference in these two situations. While in Russia and Estonia the difference is 15.0 p.p., in Brazil, Italy and Spain it is more than 45.0 p.p.
- The chance of the offspring of a father with low education (incomplete High School level or less) completing undergraduate studies or higher in Brazil is 10.4%, a percentage higher than in countries such as the Czech Republic, Slovakia, and Italy. However, it is much smaller than in Russia, Canada and Finland, countries that give more chances to the offspring of parents with low education to

complete higher education.

- In Brazil, the chance of a male child reaching higher education if his father has a higher level of schooling is 8.4 times higher than those whose parents did not complete High School. Among women this ratio is 5.8. In Poland, Italy, Slovakia, and the Czech Republic this number is even larger, which represents greater inequality among those whose parents are less or more educated insofar as the chances of their offspring completing higher education.
- When analyzing mobility through the intergenerational persistence in education coefficient, which measures how determinant the father's schooling is over the child's schooling, it can be seen that the countries in which the coefficient is higher (indicating lower intergenerational mobility) are Spain, Italy, Germany and Brazil. In Australia, Estonia, Canada, Japan, and the United States the persistence coefficient is closer to 0 than in other OECD countries, indicating greater intergenerational mobility in education.
- Considered an upward mobility ranking, in which first appears the country with the highest percentage of upward mobility, Brazilians moved from the penultimate position (when considering 55-to-64-year-old offspring), that is, the second country with the lowest percentage of upward educational mobility, to 4th position (when considering 25-to-34-year-old offspring).
- Brazil, compared to OECD countries, presents one of the worst scenarios in terms of intergenerational immobility, where 57.6% of offspring have a level of education that fits into the same category of education level as that of their parents. In addition, among these cases of immobility, 83.5% of those who have the same level of education as that of their parents, interrupt their studies before completing High School, and this percentage is even higher among Blacks (90.1%). The OECD countries in which a similar situation occurs (intergenerational immobility at the lowest level of education considered) are Italy (81.5%) and Spain (80.1%)..

Intergenerational mobility in education: global panorama

In section 2 of this synopsis, a comparison is made of intergenerational mobility in education in Brazil and in 148 other economies. The data source used is the Global Database on Intergenerational Mobility (GDIM, 2018), created by the World Bank, which contains information on the education of individuals born between the years 1940 and 1980 and their parents. The levels of education of parents and offspring from all countries analyzed are divided into five categories: those who did not complete the Elementary School; those who did not complete Junior High School; those who did not complete High School; those who completed the High School level or higher; and those who completed undergraduate studies or higher.

The main analyses of educational mobility were carried out for different birth cohorts of the offspring, each cohort comprising a period of ten years. The oldest cohort of individuals refers to children born in the 1940s, and the youngest are those born in the 1980s. Most of the analyses were performed by comparing Brazil to groups of countries: Low Income, Lower-Middle Income, Upper-Middle Income, High Income, BRICS, OECD and G20. In addition, some results were explored according to the gender of the offspring. The main findings were:

- The average number of years of study in Brazil has been growing through the generations, though remaining below the average of the countries in the upper-middle income group, to which Brazil belongs. In the generation of children born in the 1940s, the average years of study in Brazil were 5.3, compared to 7.7 in upper-middle income countries (2.4 years of study in Brazil to reach average schooling in countries of its group). This difference decreases with each younger cohort and is 1.4 years for the cohort born in the 1980s.
- While among individuals born in the 1940s in high-income countries

about 57.5% completed High School, in low-income countries the percentage is 4.5%. Among those born in the 1980s, about 88.9% completed High School in high-income countries, and 15.5% in low-income countries. In Brazil, the proportion of people with complete High School more than tripled between the generations of 1940 and 1980, going from 18.8% to 66.6%.

- There is on average in high income countries a much higher percentage of offspring with higher education degrees than in the other groups of countries for all generations, and this difference is accentuated if the offspring born as of 1960 are considered.
- When compared to Brazil and other upper-middle-income countries, it is verified that the percentage of children who completed higher education is very close for all cohorts, being further behind only in the last cohort. Among those born in the 1980s, the average for upper-middle income countries is 33.0% for those having complete undergraduate studies or higher and in Brazil it is 26.0% for those having completed this level of education.
- Considering low-income countries, 31.5% of offspring born in the 1980s achieved higher education levels than that of their parents – less than half of what was observed for Brazil and for upper-middle-income and high-income countries, from the OECD, the G20 and the BRICS. Educational inequality (standard deviation from years of study) in Brazil and the vast majority of countries that make up the G20 has fallen, in line with what is expected of nations that increase average schooling.
- The relationship between educational inequality and average schooling is similar to an inverted U, that is, educational inequality increases at the rate that average number of years of schooling increases, until it reaches a peak, around 6.0 to 7.0 years. After this peak, inequality begins to decrease as average schooling increases even more.
- Also in inverted U is the relationship between upward educational mobility and average schooling. The younger cohorts have more years of schooling than their parents (poorly educated). Brazil is still in the upward stretch of the inverted U.
- In the 1940s generation, 54.1% of Brazilians had more education than their parents, while in the 1980s this percentage was about 84.2%. If we consider a ranking of countries, the first being the country with the highest mobility, we find that Brazil came out from the 48th position in the generation born in the 1940s (considering the existence of data available for 97 countries) and reached the 6th position in the generation of the 80s (considering the data available for 138 countries).
- Among those born in the 1980s in Brazil as well as in other Latin American countries, such as Mexico, Peru, Bolivia, Panama and Colombia, the intergenerational persistence in education coefficient indicated an intermediate degree of mobility. The country in Latin America with the lowest intergenerational persistence in education and greater mobility is Chile, equaling the United States, Japan, Russia, and most European countries.
- In some countries, mainly among those located in the African Continent, East Europe and South Asia, the level of education of offspring is strongly determined by the education of parents. In Ethiopia, Mali, and Benin, in Africa, and Guatemala, Central America, the intergenerational persistence coefficient indicates a much lower degree of mobility than in other countries.
- Brazil is among the five countries with the greatest reduction in intergenerational persistence in education among children born in the 1940s and 1980s. This indicates that the schooling of children born in more recent decades is less tied to the parents' schooling.

Introduction

Intergenerational mobility in education, which occurs when individuals reach levels of education different from those achieved by their parents, is a topic of great relevance when thinking about the well-being of society and economic development. This is because upward intergenerational mobility in education in less educated societies indicates lower inequality of opportunities between poorer and wealthier families, progress, and more opportunities in the labor market and in society as a whole, especially for individuals belonging to low- and middle-income families.

On the other hand, downward mobility, a situation in which children have less schooling than parents, tends to reduce life satisfaction, individual self-esteem, social cohesion, and people's feeling that their voice counts, which can be very negative for the development of a country (OECD, 2018). Therefore, several studies have been done to analyze mobility in each country and between countries and from this, public policies promoting mobility are considered.

In large studies, such as "A Broken Social Elevator? How to Promote Social Mobility" developed by the OECD (2018) and "Fair Progress? Economic Mobility across Generations around the World" developed by Narayan and co-authors (2018), in which mobility in different economies is compared, inequality becomes evident, which is of great proportion between the richest and poorest countries and even among countries with similar incomes. For example, while in some countries, such as Canada, the United States, Germany, Russia, Austria, among others, if individuals born in the 1940s were considered, about 80.0% completed High School, while in others located on the African continent, considering those born in the 1980s, this proportion does not reach 10.0%.

However, despite this reality, it is possible to say that the average years of schooling have increased over the generations almost everywhere, in some taking baby steps and in others long strides. In Brazil, there has been a lot of progress in the last generations in terms of upward intergenerational mobility, mainly because the offspring of less educated parents in younger generations are reaching High School. In addition, women are going further than men, including the daughters of parents with low schooling.

However, when comparing Brazil to developed countries, one verifies that Brazil is behind many such countries, especially when analyzing the percentage of offspring of less educated parents who complete undergraduate studies or higher, the high intergenerational persistence, and with regard to the very high percentage of intergenerational immobility in the lower category of education. There is also a difference between White and Black Brazilians in terms of educational achievement both for the offspring of parents with low schooling and for the offspring of parents with high schooling. If we consider only Black Brazil (adult persons who report themselves as Black or Brown in race or skin color), with the other OECD countries (without racial segmentation), the distance between Brazil and the developed countries is even greater.

When analyzing the global panorama from the perspective of income groups, it is verified that in some aspects Brazil is closer to the lower-middle-income countries than to the upper-middle-income ones (the category to which it belongs), a situation that signals the importance of giving due attention to intergenerational mobility in education and the means for it to happen, so as not to be left behind. When analyzing the differences between men and women, it is evident that since those born in

[1] Alguns dos estudos são o de Karlson e Landersø (2021)- Dinamarca; Azomahou e Yitbarek (2021)- África; Alesina et al. (2021)- África; Urbina (2018)- México; Sen and Clemente (2010) e Latif (2019)- Canadá; Li and Zhong (2017) e Lam and Liu (2019) - China; Heckman & Landersø (2021); Landersø and Heckman (2017)- Dinamarca; Heineck e Riphahn (2009)- Alemanha; Daouli et al. (2010)- Grécia; Checchi et al. (1999, 2013)- Itália; Niimi (2018)- Japão; Kalil et al. (2016)- Noruega; Güell et al. (2015)- Espanha; Azam and Bhatt (2015) e Emran and Shilpi (2015)- Índia; Amin et al. (2015); Lindahl et al. (2015); Heidrich (2017) - Suécia; Bauer and Riphahn (2006)- Suíça; Checchi et al. (1999); Landersø and Heckman, 2017- Estados Unidos; Lee e Lee (2021)- 30 países.

the 1940s, women have completed High School and higher education in greater percentages.

It should be noted that in the Synopsis of Indicators No. 1 of the Institute for Mobility and Social Development, an in-depth study was made into the situation of intergenerational social mobility in Brazil and its evolution between 1996 and 2014. In addition, the relationships between other socioeconomic results of the offspring were explored, such as occupation, income, living conditions, and others, as compared to the level of education of the parents. Here, in the Synopsis of Indicators No. 2, the objective is to present a global overview of intergenerational mobility in education and compare mobility in Brazil to that of other countries or groups of countries. In addition, the evolution of mobility indicators between younger and older generations and between men and women is shown.

This synopsis is organized into two sections. In the first, intergenerational mobility of education in Brazil and OECD countries is presented and compared. In this part, indicators produced by IMDS are analyzed, based on microdata from the Organization for Economic Cooperation and Development (OECD, 2014) and the National Household Sample Survey (PNAD, 2014). The data refer to the schooling of offspring who are between 25 and 64 years of age and who no longer study, with that of their parents.

In the second section, a global overview of mobility is outlined by analyzing a broad database that brings information on mobility in 148 countries from indicators produced by the IMDS with microdata from the World Bank (WORLD BANK, 2018). In this part of the synopsis, the schooling data are from offspring over 18 years of age who no longer study, the only exception being those aged 20 years or older who completed High School and were enrolled in higher education.

It is worth noting that the different indicators of intergenerational mobility analyzed in this synopsis (and others that do not appear here) are found on the IMDS website, in the International Intergenerational Mobility Indicators section. These indicators can be analyzed based on the education of the father (or responsible male), the schooling of the mother (or responsible female), the average schooling of the parents – in the case of years of study – or the higher schooling between the parents.

However, in this synopsis, the level of schooling considered in the evidence of intergenerational mobility will be that of the father, seeking greater compatibility with the literature on intergenerational mobility, which generally analyzes mobility relationships between father and son or daughter. Therefore, in this text, whenever there is reference to “parents”, the plural of father or man responsible for the children is considered.

In addition, it is emphasized that the mobility results related to Brazil found in this synopsis and in the dashboards of international indicators differ from those presented in the national data dashboard and analyzed in the Synopsis of Indicators No. 01/2021. Comparability cannot be performed, because in section one of this synopsis of international indicators, data from Brazil, despite also being from PNAD 2014, were adjusted to become comparable to those of the OECD, which consider only offspring aged 25 to 64 and no longer in school. And in section two, they come from the World Bank which have a certain age clipping, also different from that used in the Synopsis of Indicators No. 01/2021.

Finally, it should be noted that the results found in Section 1 and Section 2 will not be identical, even when the same indicators are analyzed, because they refer to different birth cohorts and because the categories of schooling used to measure mobility are different, as discussed in sections 1.1 and 2.1.

1 Intergenerational mobility in education: comparing Brazil with developed nations based on OECD

Chapter Highlights:

- The probability of men, the offspring of parents with incomplete High School education or fewer years of schooling, having the same level of education, is 30.6 percentage points (p.p.) higher in Brazil than in the average of OECD countries (62.6% compared to 32.0%). This same difference is smaller among women in Brazil and in the average of OECD countries (19.7 p.p.).
- • In Brazil, the probability of children having more education than their parents, when the latter have incomplete High School level or less, is 41.7%, while in the average of OECD countries it is 66.6%. In addition, about 10.0% of the children of parents with incomplete High School level or less completed higher education, whether among the older (aged 55 to 64) or younger (aged 25 to 34). In the average of OECD countries, this percentage is more than double if analyzing the younger age group (23.0%).
- The probability of the offspring of parents with complete undergraduate studies or higher also having this level of education, is higher in Brazil than in the average of OECD countries (69.8% compared to 65.2%).
- The countries with the highest percentage of children of parents with low education (incomplete High School level or less) who have completed higher education are Russia (45.2%), Canada (36.2%) and Finland (33.1%). This percentage in Brazil is 10.4%. In the Czech Republic, Slovakia and Italy, the percentages of children of low-educated parents who complete higher education are 3.2%, 5.5% and 6.4%, respectively.
- In Brazil, the chance of a male child reaching the higher education level if his father has higher education is 8.4 times greater than that of those whose parents did not complete High School. Among women this ratio is 5.8. In Poland, Italy, Slovakia, and the Czech Republic this number is even higher for both men and women.
- In Australia, Estonia, Canada, Japan, and the United States the persistence coefficient does not reach 0.4. In Brazil it is among the highest (0.5), behind only Spain (0.7), Italy (0.6) and Germany (0.7), which indicates less intergenerational mobility.
- Considered an upward mobility ranking, in which first is the country with the highest percentage of upward mobility, Brazilians moved from the penultimate position (considering offspring aged between 55 and 64 years), that is, the second country with the lowest percentage of upward educational mobility, to 4th position (considering offspring aged between 25 and 34 years).

Initially, characteristics of the data used in this section are presented. Then, intergenerational mobility in education is analyzed through transition matrices (Section 1.2) and indicators derived from the matrices (Section 1.3). In Section 1.4, the results of mobility are evidenced through the intergenerational persistence in education coefficient. It is worth noting that both methods of measuring mobility refer to relative mobility. Section 1.5 shows the results about absolute mobility, more specifically upward mobility, and intergenerational immobility.

1.1 Description of the data

This section, referring to educational mobility in OECD countries, was constructed from what is presented in chapter five on educational mobility of the report "A Broken Social Elevator? How to Promote Social Mobility", developed by the OECD (2018).

Some of the indicators presented in this section were collected from the report itself, such as the Intergenerational Persistence in Education, calculated by the OECD (2018) based on the European Social Survey (ESS) and Cross-National Equivalent File (CNEF). However, the data used in the construction of transition matrices and the results related to upward and downward mobility and immobility were searched for in the source cited in the report developed by the OECD (2018), which is the "Education at a Glance" of 2014, which is part of the OECD Indicators.

However, it should be noted that the data available in Education at a Glance (2014) come from the Survey of Adult Skills, a product of the OECD Programme for the International Assessment of Adult Competencies (PIAAC). In Education at a Glance (2014) data from twenty-four countries which participated in the first round of PIAAC are available, which took place between August 2011 and March 2012. The average of OECD countries is also available, calculated as the unweighted average of data values for all countries for which data are available or can be estimated, without taking into account the absolute size of the educational system in each country. In the appendix there is a table with the countries and their sample size.

Other indicators that appear in the Intergenerational Mobility Dashboard - International Indicators - Brazil compared to developed nations, and that consequently appear in this synopsis, are the Gini Coefficient of income and average income of countries, which have as their source the World Development Indicators (2021). In addition to these, there is the Educational Gini Coefficient, in which the data come from the study by Benaabdelaali, Hanchane and Kamal (2012).

Information on intergenerational mobility in education, provided by Education at a Glance (2014), includes educational outcomes for non-students aged 25 to 64 and their parents. In view of the objective of comparing the intergenerational mobility in education in Brazil in relation to developed nations, the same results were calculated for Brazil based on the PNAD (2014), in which non-student persons who were 25 to 64 years old were also considered at the reference date of the survey.

The levels of education of parents and children from all countries analyzed are classified based on the International Standard Classification of Education (ISCED, 1997) and are divided into three categories: incomplete High School level or less (below upper secondary), complete High School level or incomplete undergraduate level (upper secondary or post-secondary non-tertiary education) and complete undergraduate studies or higher (tertiary education).

It is observed that for most of the results presented in the dashboard of social mobility indicators - Brazil compared to developed nations, it is possible to perform analyses of educational mobility using different age groups, which are: 25 to 64 years (the broadest), 25 to 34 years (age group of younger individuals), 35 to 44 years, 45 to 54 years, and 55 to 64 years (age group of older individuals who make up the sample). It is also possible to see the results according to the gender of offspring (for all countries) and according to the skin color or race of offspring (only for Brazil).

[7] Australia, Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Korea, Netherlands, Norway, Poland, Russian Federation, Slovak Republic, Spain, Sweden, United Kingdom (England and Northern Ireland) and the United States.

[8] Full PIACC information can be accessed via the link: https://www.oecd.org/skills/piaac/

[9] As the data source in Brazil is not the same as in the other countries, adjustments were needed in the categories of educational levels, so that these follow the ISCED classification (1997). The categories were defined as follows: incomplete High School level or less, corresponding to no schooling, incomplete Elementary or Junior High School or equivalent, complete Elementary and Junior High School or equivalent, incomplete High School or equivalent; complete High School or incomplete undergraduate studies, corresponding to complete High School or equivalent and incomplete undergraduate studies or equivalent; and complete undergraduate studies or higher, corresponding to complete higher education, a classification that includes master's and/or doctorate levels, incomplete or complete.

1.2 Relationship between parents' and children's schooling: transition matrices

In order to identify the relationship between parents' schooling and their children's schooling, transition matrices are presented, which show in an organized way the possible transition probabilities between the levels of education of parents and offspring. For each level of education of the parents (in the lines), the percentage distribution of the children in their educational levels (in the columns) is presented. The transition matrix is a measure of relative mobility, as it describes the relative chances of people from different backgrounds studying less, equal to or more than their parents.

So as to facilitate the comparison of Brazil's transition matrix with that of the other OECD countries, the matrix with the data of parents and offspring from Brazil are presented on the left side of the tables and, on the right side, the matrix with the data from the average of the set of countries that are part of the OECD. Table 1 shows the transition matrices that refer to the entire reference population included in the analysis – people aged between 25 and 64 years, not students, with information about their parents' schooling.

Parents' Education	Child's Education							
	Brazil - Total				OCDE			
	1. Below upper secondary	2. Upper secondary or post-secondary non-tertiary	3. Tertiary	Total	1. Below upper secondary	2. Upper secondary or post-secondary non-tertiary	3. Tertiary	Total
1. Below upper secondary	58.3%	31.3%	10.4%	100.0%	33.4%	47.0%	19.6%	100.0%
2. Upper secondary or post-secondary non-tertiary	15.4%	46.4%	38.2%	100.0%	12.1%	50.9%	37.0%	100.0%
3. Tertiary	6.2%	24.0%	69.8%	100.0%	5.2%	29.6%	65.2%	100.0%
Total	50.2%	32.7%	17.1%	100.0%	20.3%	44.7%	35.0%	100.0%

Table 1 – Educational transition matrix: offspring relative to their parents, Brazil and average of OECD countries

Source: Own elaboration based on microdata from PNAD 2014 and Education at a Glance (2014).

[10] For a better understanding of transition matrices, see the Synopsis of Indicators No. 1, developed by IMDS, available at the link: https://imdsbrasil.org/doc/IMDS-SI001_SynopsisOfIndicatorsNr.01.pdf

The last line in Table 1 identifies the percentage of offspring by level of schooling, regardless of the father's schooling. One can see that the level of schooling of children in Brazil is lower than the average of OECD countries. While in Brazil half of the offspring have incomplete High School or less (50.2%), in the average of OECD countries, most have completed High School education or more years of schooling (79.7%). It is also noteworthy that in Brazil, 17.1% of offspring have complete undergraduate studies or higher, a percentage that corresponds to less than half of the percentage of the offspring who have complete undergraduate studies or higher in OECD countries (35.0%).

When considering the parents' education, one finds that in Brazil the probability of the offspring having more education than the parents, when the latter have incomplete High School or less, is 41.7%, while in the average of OECD countries it is 66.6%. Among these, 10.4% complete higher education in Brazil, about half the percentage in OECD countries.

POn the other hand, i**t is noteworthy that in Brazil, 69.8% of the offspring of parents with complete undergraduate studies or higher also complete this level of education, a percentage higher than that of the average of OECD countries (65.2%).** These percentages indicate that in Brazil there is a high percentage, as well as in the average of OECD countries, of what is defined as intergenerational privilege – a situation in which the offspring of parents with complete undergraduate studies or higher also have this level of education.

The association between the high education of the father and of the offspring can occur because more educated parents tend to possess and offer their children greater human capital. Thus, there is a higher propensity that their offspring, since childhood, have more incentives and conditions to dedicate themselves to studies, with favorable environment and family support (Becker and Co-authors, 2018).

The data also allows matrices to be built with groups of offspring of different age groups. Table 2 is presented below, which contains the transition matrices of older offspring (55 to 64 years) at the top, and the younger ones (25 to 34 years) at the bottom. Thus, it is possible to see whether there have been advances or not in terms of intergenerational mobility among individuals born in different cohorts.

Parents' Education	Child's Education - Offspring aged 55 to 64 years							
	Brazil - Total				OCDE			
	1. Below upper secondary	2. Upper secondary or post-secondary non-tertiary	3. Tertiary	Total	1. Below upper secondary	2. Upper secondary or post-secondary non-tertiary	3. Tertiary	Total
1. Below upper secondary	73.2%	16.6%	10.2%	100.0%	41.3%	42.1%	16.5%	100.0%
2. Upper secondary or post-secondary non-tertiary	20.5%	35.9%	43.6%	100.0%	17.0%	49.1%	33.9%	100.0%
3. Tertiary	9.1%	24.2%	66.7%	100.0%	7.8%	32.4%	59.8%	100.0%
Total	68.1%	17.9%	14.0%	100.0%	31.7%	42.2%	26.1%	100.0%

Parents' Education	Child's Education - Offspring aged 25 to 34 years							
	Brazil - Total				OCDE			
	1. Below upper secondary	2. Upper secondary or post-secondary non-tertiary	3. Tertiary	Total	1. Below upper secondary	2. Upper secondary or post-secondary non-tertiary	3. Tertiary	Total
1. Below upper secondary	45.4%	45.3%	9.3%	100.0%	29.3%	47.7%	23.0%	100.0%
2. Upper secondary or post-secondary non-tertiary	12.5%	49.1%	38.4%	100.0%	10.7%	51.3%	38.0%	100.0%
3. Tertiary	3.7%	24.6%	71.7%	100.0%	5.7%	29.2%	65.1%	100.0%
Total	35.6%	44.3%	20.0%	100.0%	13.2%	44.0%	42.8%	100.0%

Table 2 - Matrizes de transição educacional - filhos com idade entre 55 e 64 anos e 25 e 34 anos em relação aos seus pais: Brasil e média dos países da OCDE

Fonte: Elaboração própria com base nos microdados da PNAD 2014 e *Education At a Glance* (2014).

In Brazil, the percentage of those who have incomplete High School level or less had a drop of 32.5 percentage points (p.p.) when comparing the oldest and the youngest age groups (from 68.1% to 35.6%). Concomitantly, the percentage of individuals who had complete High School or incomplete undergraduate level had an increase of 26.4 p.p. and the percentage of those with complete higher education increased by 6.0 p.p. Thus, it is clear that the younger group (aged between 25 and 34 years) is more educated than the older group (aged between 55 and 64 years). And this is mainly due to the upsurge in High School, driven by the increase in the education of a fraction of the adult population, whose parents have less schooling.

This is a positive outcome for the country, even though the levels of schooling are lower than those observed in OECD member countries. It is evident that the advance, in terms of the completion of High School, has occurred later in Brazil, in relation to the comparison group.

Considering the oldest age group living in OECD countries, one finds that most have complete High School or incomplete undergraduate studies (42.2%), and this percentage has remained relatively stable among both the older and younger groups. In addition, considering the older ones, 26.1% have complete undergraduate studies or higher, and this percentage rises to 42.8% among the younger set.

It is evident that among the older age group in Brazil, considering the offspring of parents with incomplete High School or less, more than 70.0% of such offspring did not complete High School as well. This percentage has decreased, and among the younger age groups it is 45.4%. However, this is still higher than the average for OECD countries among the older age group.

It is also noteworthy that in Brazil, in relation to the offspring of parents with incomplete High School or less, about 10.0% completed higher education, whether among the oldest or youngest age brackets. In the OECD average, this percentage, which was 16.5% among older persons, has increased to 23.0% among the younger set. This percentage is more than double that observed in Brazil. If the percentage of offspring of parents with complete undergraduate studies or higher, who also completed undergraduate studies or higher, is analyzed, a higher percentage is identified in Brazil than in the average for OECD countries in both age groups.

Thus, a striking feature in Brazil, in relation to the OECD average, is the relatively low proportion of people with complete higher education even among younger generations. But the "cause" of this lies in the reduced fraction of children of parents with low schooling who have completed higher education. For the offspring of parents with at least High School education, the percentage of people who complete higher education is at least equal to the OECD average. Since most of the population of children have parents who have not completed High School (83.8%), the completion rate of higher education in Brazil is lower than in the OECD. In other words, the low Brazilian educational mobility at the base is associated with the low proportion of adults with complete higher education.

[11] Percentage calculated from the sample number of children by the father's level of education.

Box 1 – When does the "Intergenerational Privilege" indicator actually reveal a privilege?

In this Synopsis of Indicators and Dashboards with international comparisons, we follow the World Bank by calling it "Intergenerational Privilege" as to the probability that children of parents with higher education or more also have higher education or more. In Brazil, the probability of the offspring of parents with complete higher education or more years of schooling, also completing higher education or more is higher than in OECD countries and increases, when considering the generation of older individuals (55 to 64 years) and younger (25 to 34 years) - going from 66.0% to 71.0%. However, this scenario does not occur only in Brazil. In Russia, for example, the same probabilities are 81.9% and 93.5%, respectively. Nonetheless, while in Brazil, about 20.0% of the population have complete higher education or more, in Russia this percentage is 68.8% (sample of younger individuals).

This poses a terminological question: dealing with privilege can be misleading and even fallacious. Privilege is defined, by the Houaiss Dictionary of the Portuguese language, as "right, advantage, prerogative, valid only for an individual or a group, to the detriment of the majority; appanage, regalia." If many have a higher education level, it is not about privilege, but the general norm. For example, if a country has a very high level of schooling, the probability of the child of a father with completed higher education also having completed higher education will tend to 100.0%. But what if the probability of the child completing higher education, whose father did not complete High School, is also 100.0%? If this is the reality, what we are calling privilege would not be a privilege, according to the definition presented earlier.

One form that makes it possible to identify countries where a situation of intergenerational privilege occurs, according to the definition presented and the countries in which it occurs due to the high education achieved in the country, is by calculating the ratio of children who have completed higher education, whose parents have higher education and children who have completed higher education, whose parents did not complete High School (see section 1.3, Graph 5). Having done this calculation, among OECD countries, countries such as Russia, Canada and Finland have the smaller ratio, whereas in Brazil, and the Czech Republic (among others), we can identify that this ratio is quite high, indicating that the definition of "intergenerational privilege" makes a lot of sense in some countries, but in others it has, literally speaking, a different meaning than that of the concept.

Table 3 presents the transition matrices with the skin color or race clipping, which allows us to visualize the profile of educational mobility in Brazil for Whites and Blacks and identify the position of each group in relation to the average of OECD countries. It should be noted that the same clipping does not occur in the OECD transition matrix.

Among the Black population in Brazil, the chances of the offspring of parents with incomplete High School or less also having incomplete High School or less is 64.0%, 12.4 p.p. more than among Whites and almost twice as high as the average for OECD countries. **Regarding the completion of higher education or more, it is evident that among Black Brazilians the offspring of parents with at least complete higher education, 54.3% also complete this level of education or go beyond. Among Whites, the chance is 73.8%. In the average of OECD countries (without considering skin color or race) the percentage is 65.2%**. If this reality is visualized from the perspective of downward mobility, a Black child is 45.7% more likely to study less than his father, if said father has higher education or more years of schooling, compared to 26.2% for Whites.

This evidence can be explained due to racial differences in salary in Brazil, because if White parents have more financial capital than Blacks, they can invest more in the education of their children. According to the study by Gerard and co-authors (2020), White individuals are less likely to work in companies with higher salaries compared to non-Whites. In addition, the salary premiums offered by different employers are lower

Parents' Education	Child's Education							
	Brazil - White				OCDE			
	1. Below upper secondary	2. Upper secondary or post-secondary non-tertiary	3. Tertiary	Total	1. Below upper secondary	2. Upper secondary or post-secondary non-tertiary	3. Tertiary	Total
1. Below upper secondary	51.6%	34.3%	14.2%	100.0%	33.4%	47.0%	19.6%	100.0%
2. Upper secondary or post-secondary non-tertiary	11.2%	43.4%	45.5%	100.0%	12.1%	50.9%	37.0%	100.0%
3. Tertiary	4.3%	21.9%	73.8%	100.0%	5.2%	29.6%	65.2%	100.0%
Total	41.6%	34.4%	24.0%	100.0%	20.3%	44.7%	35.0%	100.0%

Parents' Education	Child's Education							
	Brazil - Black				OCDE			
	1. Below upper secondary	2. Upper secondary or post-secondary non-tertiary	3. Tertiary	Total	1. Below upper secondary	2. Upper secondary or post-secondary non-tertiary	3. Tertiary	Total
1. Below upper secondary	64.0%	29.0%	7.0%	100.0%	33.4%	47.0%	19.6%	100.0%
2. Upper secondary or post-secondary non-tertiary	21.2%	51.4%	27.3%	100.0%	12.1%	50.9%	37.0%	100.0%
3. Tertiary	12.8%	32.9%	54.3%	100.0%	5.2%	29.6%	65.2%	100.0%
Total	58.6%	31.2%	10.2%	100.0%	20.3%	44.7%	35.0%	100.0%

Table 3 – Educational transition matrices: offspring relative to their parents, Brazil (with clippings of skin color or race) and average of OECD countries (without clippings)
Source: Own elaboration based on microdata from PNAD 2014 and Education at a Glance (2014).

for non-Whites compared to Whites (even with control of education and experience, although the difference is smaller with these controls), especially in positions that require the highest levels of general skills (Gerard and co-authors, 2020).

It is possible that the introduction of quotas for higher education has changed the pattern of descending mobility of education for Black children of parents with higher education. However, nothing is apparent from the comparison data between Blacks and Whites who were between 25 and 34 years of age in 2014 (born between 1980 and 1989). Black people who finished higher education throughout the 2000s – assuming that they finished college after the age of 22 – when many universities had affirmative action policies in their admission procedures, may have benefited and therefore graduated in relatively greater numbers.

The difference between Blacks and Whites in the percentage of intergenerational privilege is 19.5 p.p. (respectively 54.3% and 73.8%), that is, practically equal to that of the total population of offspring with university education, if considering the youngest. Given that the National Quota Law is from 2012, however, it may be that its effects have even now been observed for the generation of younger adults of PNAD 2014. Analyses from impact assessments, however, indicate that in future generations there will be a substantial reduction in the difference in higher education graduation rates between Whites and Blacks.

Table 4 presents the educational transition matrices, with a gender clipping of the offspring. The upper matrix refers to the male children and the lower matrix to those of the female gender.

In Brazil, women are more likely to achieve higher levels of education than men: while 52.9% of women complete at least the High School level, this percentage is 46.2% among men. Considering the average for OECD countries, there is virtually no difference between men and women in the percentage that at least graduate from High School.

In addition, there is considerable difference in the percentage of sons and daughters who have completed higher education in Brazil and in OECD countries. In Brazil, 14.2% of men and 19.7% of women completed undergraduate studies or higher. In the average of OECD countries, these percentages are 33.2% and 36.8%, respectively. In Brazil, the lower percentage of men (than of women) who reach higher education is "explained" by the higher frequency of men with incomplete High School education or less. In the OECD, this slightly lower percentage of men with higher education (than women) is "explained" by the slightly higher percentage with the complete High School level (47.1% compared to 42.2%). That is, while in Brazil the higher frequency of men with incomplete High School education or less reflects the greater male than female dropout rate, in the OECD the higher frequency of men than of women with complete High School education seems to indicate an option for not attending higher education.

The probability of men, the offspring of parents with incomplete High School education or fewer years of schooling, having this same level of education is 30.6 p.p. higher in Brazil than in the average of OECD countries. This difference is smaller among the female offspring (19.7 p.p.). Moreover, in the average of OECD countries, the chance of women having lower schooling, being the offspring of parents with lower schooling (incomplete High School or less), is slightly higher than among men, differently from what occurs in Brazil. This reinforces the impression that the difference between men and women in Brazil is associated with school dropout, especially for those who are the offspring of less educated parents. There is virtually no difference between daughters and sons of parents with higher education in the probability of not completing High School.

It is recognized then that if parents have completed undergraduate studies or higher, the offspring are more likely to achieve this same level of education in Brazil than in the OECD average (among men 66.1%, compared to 62.5%, and among women 73.7%, compared to 67.9%). But the difference in this case is "explained" by the higher proportion of people with complete High School education in the OECD countries (i.e., revealing an apparent option).

[12] Vieira e Arends-Kuenning (2019) encontraram efeito substancial em matrículas de pessoas negras no ensino superior em função das cotas raciais e efeito nulo das cotas sociais. Os autores não analisam o efeito sobre a taxa de graduação no ensino superior. Em termos de desempenho na universidade, estudos que analisam a implantação de cotas em universidades federais, não encontram nenhuma evidência de diferenças nas taxas de evasão entre cotistas e não cotistas (Lloyd, 2015).

Parents' Education	Child's Education - Male							
	Brazil - Total				OCDE			
	1. Below upper secondary	2. Upper secondary or post-secondary non-tertiary	3. Tertiary	Total	1. Below upper secondary	2. Upper secondary or post-secondary non-tertiary	3. Tertiary	Total
1. Below upper secondary	62.6%	29.6%	7.9%	100.0%	32.0%	49.1%	18.9%	100.0%
2. Upper secondary or post-secondary non-tertiary	17.9%	51.6%	30.5%	100.0%	12.4%	53.7%	33.9%	100.0%
3. Tertiary	6.1%	27.8%	66.1%	100.0%	5.6%	32.0%	62.5%	100.0%
Total	53.8%	32.0%	14.2%	100.0%	19.7%	47.1%	33.2%	100.0%

Parents' Education	Child's Education - Female							
	Brazil - Total				OCDE			
	1. Below upper secondary	2. Upper secondary or post-secondary non-tertiary	3. Tertiary	Total	1. Below upper secondary	2. Upper secondary or post-secondary non-tertiary	3. Tertiary	Total
1. Below upper secondary	54.5%	32.9%	12.6%	100.0%	34.8%	45.1%	20.1%	100.0%
2. Upper secondary or post-secondary non-tertiary	13.1%	41.7%	45.2%	100.0%	11.9%	47.9%	40.1%	100.0%
3. Tertiary	6.2%	20.1%	73.7%	100.0%	5.1%	27.0%	67.9%	100.0%
Total	47.0%	33.2%	19.7%	100.0%	20.9%	42.2%	36.8%	100.0%

Table 4 – Educational transition matrices: offspring relative to their parents, by sex, Brazil and average of OECD countries (both with clippings of sex)

Source: Own elaboration based on microdata from PNAD 2014 and Education at a Glance (2014).

Box 2 - Parents' education and income of offspring in Brazil

Most offspring in the lowest per capita household income, more specifically the poorest 20.0%, have unschooled parents or at most those with incomplete Elementary or Junior High School levels. The percentage of offspring with unschooled parents or those with incomplete Elementary or Junior High School levels is also the majority among children who are part of the second, third and fourth quintile income, though decreasing as the per capita household income increases. This is in line with the picture of a country that has undergone more schooling in recent decades (see section 2).

However, among offspring who are in the 20.0% highest per capita household income bracket, although most of their parents have incomplete Elementary or Junior High School levels, about 40.0% of parents have at least complete High School education. This fraction is lower as the income quintile decreases, respectively, 18.4%, 10.7%, 9.3% and 6.0% (for fourth, third, second and first income quintile). There is also a significant difference in the percentage of parents with complete undergraduate studies or higher among the richest and poorest offspring. The percentage of parents with complete higher education, among the richest 20.0% of children, is 19.1%, as compared to 1.2% among the poorest 20.0% of children.

Such evidence may be justified by the fact that there has been an increase in the level of education of younger individuals in Brazil, as can be seen in Table 2. Even so, most parents of offspring aged between 25 and 64 years are unschooled or have few years of schooling.

Maximum level of schooling between father and mother	Percentage of parents in each level o schooling according to the offspring's income quintile				
	1°	2°	3°	4°	5°
No schooling	**51.0%**	37.1%	33.6%	23.6%	10.5%
Incomplete Elementary or Junior High School level	37.0%	**45.0%**	**46.4%**	**47.5%**	37.8%
Complete Elementary and Junior High School level	5.2%	7.6%	8.4%	9.6%	**9.9%**
Incomplete High School level	0.7%	1.0%	1.0%	0.8%	0.9%
Complete High School level or incomplete Undergraduate level	4.8%	7.9%	9.0%	13.7%	21.7%
Holds a Bachelor's degree or higher	1.2%	1.4%	1.7%	4.7%	19.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5 - Percentage of parents in each level of schooling, according to the offspring's income quintile

Source: PNAD (2014

Note: Only adult individuals in the household are considered for the construction of per capita household income quintiles. Thus, each income quintile is composed of the same number of individuals aged 25 to 64. The numbers circled and in bold refer to the median in each income quintile and the arrow indicates the median level of schooling which the father is in.

1.3 Inequalities in educational outcomes: indicators derived from the transition matrix

In this section, three synthesis indicators of the transition matrix are analyzed, related to the profile of intergenerational mobility in education, which are:

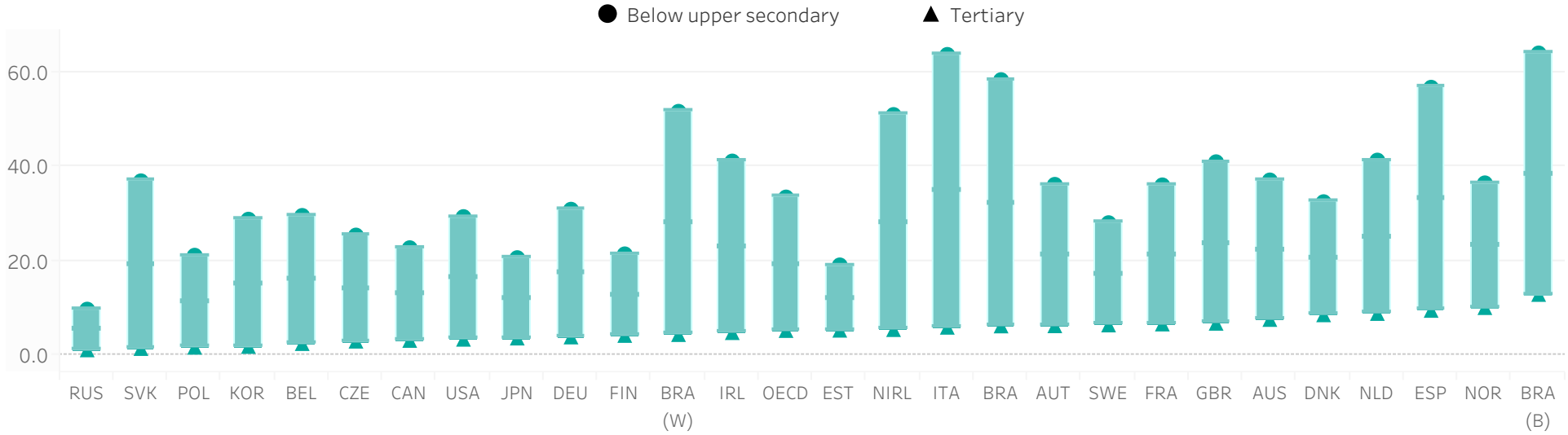
i) The chances of the children not completing High School, according to different levels of education of parents (more educated and less educated parents);

ii). The chances of offspring completing undergraduate studies or higher, as compared to the different levels of schooling of parents;

iii) The ratio between the chances of the children completing higher education having the father higher education and the chances of their completing higher education having the father incomplete High School or less.

Graph 1 shows the percentage of children with incomplete High School or less, according to the level of education of parents (less educated - with up to incomplete High School, i.e., below upper secondary - and more educated - with at least complete undergraduate studies, i.e., tertiary). It is evident, as expected, that in all countries analyzed, the chance of children having incomplete High School or less, is higher when parents also have this level of education and lower when parents have completed higher education. However, one can clearly see here the difference between these conditions among the countries. For example, **in Russia and Estonia, the difference is less than 15 percentage points, while in Brazil, Italy and Spain it is more than 45 percentage points.**

The analysis of Graph 1 allows us to conclude that in many developed countries and in Brazil, the chances of a child having low schooling differs



Graph 1 – Percentage of children with below upper secondary, according to parents' level of schooling, Brazil and OECD countries

Source: Own elaboration based on microdata from PNAD 2014 and Education at a Glance (2014).

greatly according to the parents' schooling. Parents' schooling is the variable observed and can hide several factors that inhibit the schooling of children, such as the opportunity to study, which is higher in lower-income families. Thus, those individuals from families with less income, who probably have less educated parents, need to leave school before even completing High School. Countries which have successfully reduced school dropout will also be able to reduce the differences between children of schooled parents and those of unschooled parents. In Russia, Estonia, Japan, Poland, Finland, and Canada, less than 25.0% of children have an incomplete High School level. Thus, the universalization of High School is a policy objective that increases the intergenerational mobility in education.

The probability of Brazilians presenting low schooling, as well as their parents, remains high if Blacks and Whites are considered separately, when compared to other countries. In addition, the probability of their child not completing High School in Brazil, when parents have completed higher education is also higher than in most OECD countries.

Graph 2 shows the same indicator according to the gender of the offspring. It is shown that the countries where there is the highest percentage of male offspring with up to incomplete High School, whose parents also did not complete High School are Italy, Brazil, Spain, and Northern Ireland. In these countries, more than 50.0% of the offspring of parents with the lowest level of education considered also have schooling that fits into the lower educational level category.

The countries with the highest percentage of less educated female offspring, whose parents are also less educated, are the same, however the percentages are lower when compared to their male offspring, and in Brazil the difference is greater (8.1 p.p.). In Spain the difference is 1.8 p.p., in Italy it is 0.5 p.p. and in Northern Ireland it is the same. One of the reasons that may explain the higher percentage of men than women in Brazil that have incomplete High School or less, being the offspring of parents who are in this same category of education, is that they dropout earlier than women (INSTITUTO UNIBANCO, 2016).

It is also possible to perform the same analyses, though, comparing Brazil, with a skin color or race clipping, to the other OECD countries (without skin color or race clippings). In this case there is Brazil-Whites and Brazil-Blacks. One can verify that Brazil, considering only Black children, is the country with the highest percentage of children with up to incomplete High School, whose parents have a level of education that is in this same category (68.5%). On the other hand, if considered only White Brazilians, the percentage in Brazil is 55.3%, lower than that of Italy (63.9%) and of Spain (57.6%). If considered Black female offspring, Brazil has a lower percentage than Italy's (59.8% compared to 63.4%). Among White Brazilian women, the same percentage is lower than that of Italy, Spain, and Northern Ireland.

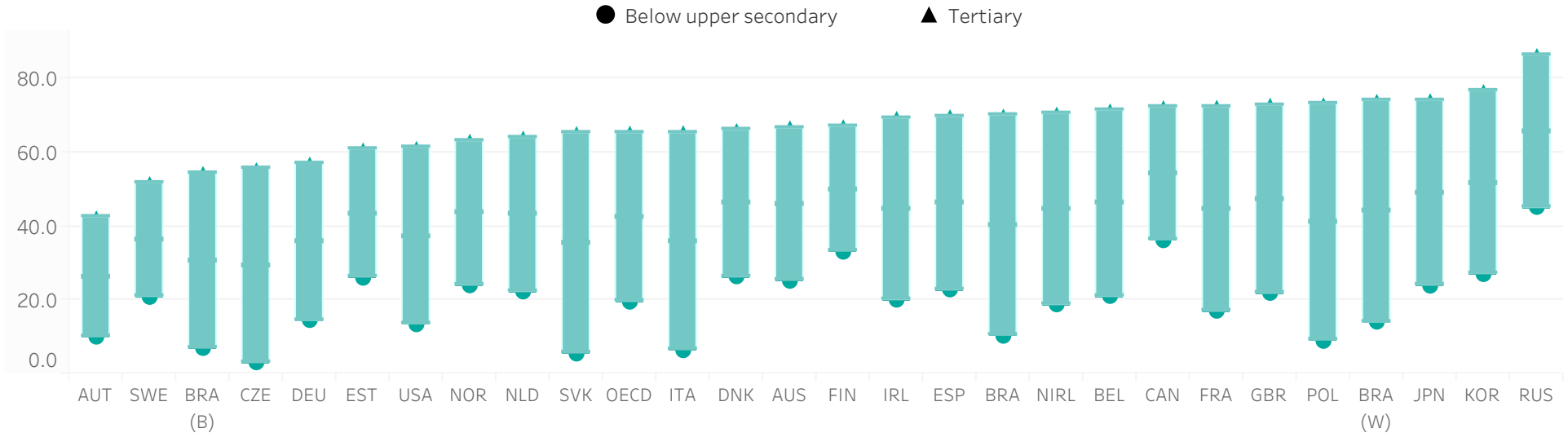
It is also noteworthy that Brazil, considering only Blacks, is the country in which there is a higher percentage of male and female offspring with up to incomplete High School, whose parents have undergraduate studies or higher (12.9% and 12.7%, respectively). If White Brazilians are considered, the percentages of sons and daughters are 3.9% and 4.7%, respectively, lower than in several countries.

In the probability analysis of the offspring having completed higher education or going beyond (Graph 3), the large differences in performance depending on the father's schooling are repeated. Children of parents with undergraduate studies or higher are more likely to also complete the highest levels of education, whereas if parents have incomplete High School or less, their offspring also have less likelihood to do so.

It is noteworthy that the countries that give more chances for the offspring of parents with low education to complete higher education are Russia, Canada, Finland, Denmark, and Estonia. **In Russia, 45.2% of the offspring of parents with incomplete High School reach complete undergraduate studies or higher. That same percentage in Canada is 36.2%.** If considered a ranking, in which in the first place is the country where there is a higher percentage of offspring of parents with little education who have completed higher education, Brazil, including the entire reference population and the black population cutout, is in the last

Graph 2 – Percentage of children with below upper secondary, according to parents' level of schooling, Brazil and OECD countries – Male (A) and Female (B)

Source: Own elaboration based on microdata from PNAD 2014 and Education at a Glance (2014).



Graph 3 – Percentage of children with tertiary level, according to parents' level of schooling, Brazil and OECD countries

Source: Own elaboration based on microdata from PNAD 2014 and Education at a Glance (2014).

third of the ranking. In the Czech Republic, Slovakia, Poland, and Italy the percentages of children of low-educated parents who complete higher education are also low, i.e., less than 10.0%.

In the case of countries with higher percentages of offspring of parents with complete undergraduate studies or higher, and in which their level of education fits in this same category, there is also Russia (86.2%), South Korea (76.4%), Japan (74.0%), Poland (72.9%), Great Britain (72.8%), as well as Brazil (considering the population clipping of White Brazilians) (73.8%). Graph 4 shows the same indicator, but by the gender of the offspring.

It is shown that, in terms of intergenerational privilege, the greatest differences between men and women occur in Finland (17.9 p.p.), Estonia (16.3 p.p.) Sweden (14.5 p.p.) and Australia (13.0 p.p.). In all of them, the percentage of women with higher education, daughters of parents with incomplete High School education or less, and daughters of parents with complete undergraduate studies or higher, is greater than that of men.

In Brazil, 73.7% of daughters of parents with complete higher education also have this level of education. Among sons, this percentage is 66.1% (a difference of 7.6 p.p.). Considering only Black Brazilians, the difference between men and women decreases (3.5 p.p.), and only for White Brazilians does it increase (7.7 p.p.).

If considered a ranking of countries in which the first place is the country with the highest intergenerational privilege in education and the last (twenty-fifth place) is the country with the lowest percentage of intergenerational privilege, separated by the gender of offspring, it is seen that women are in eighth and men in eleventh place. If we divide Brazil into Whites and Blacks, White women would be in second place and White men in seventh place. Black women, on the other hand, would be in 23rd place, as would Black men.

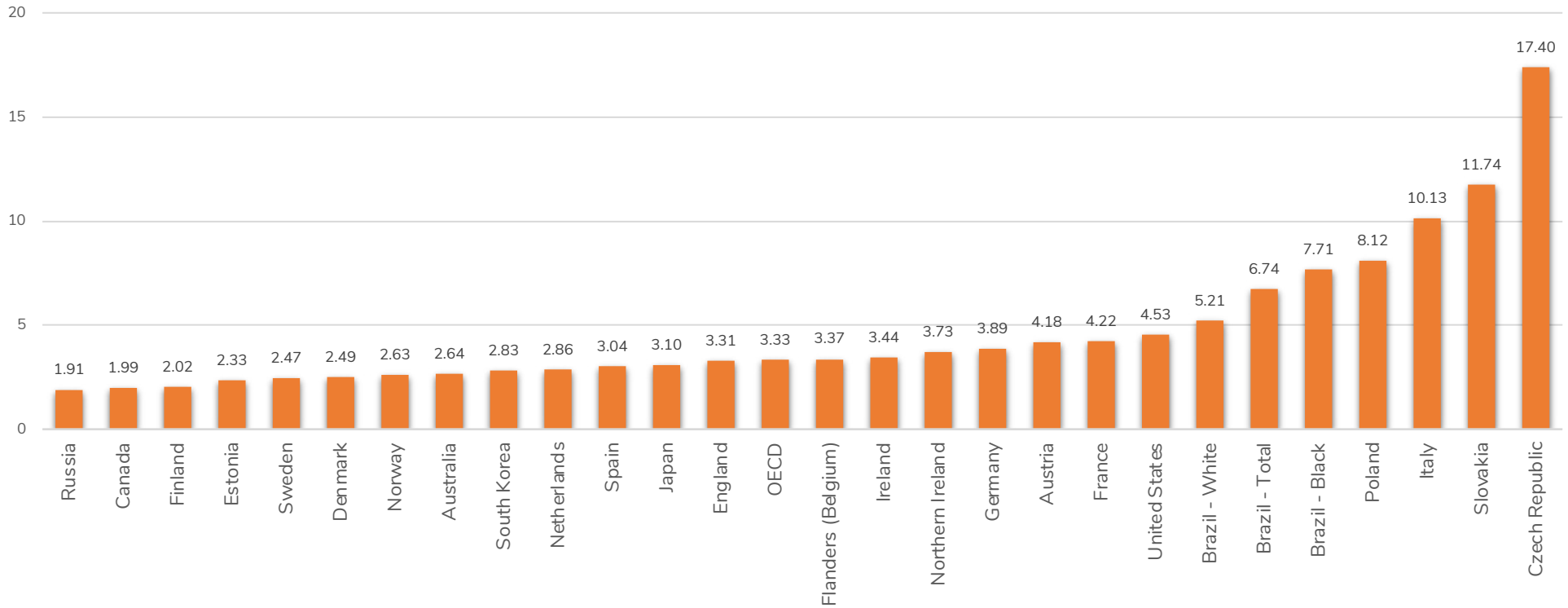
Graph 4 – Percentage of children with tertiary level, according to parents' level of schooling, Brazil and OECD countries – Male (A) and Female (B)

Source: Own elaboration based on microdata from PNAD 2014 and Education at a Glance (2014).

Graph 5 refers to the third indicator, which shows the inequality of educational outcomes, among children of parents with low schooling and children of parents with higher schooling. More specifically, the indicator refers to the ratio between the percentage of offspring that complete undergraduate studies or higher, given that the father also has completed undergraduate studies or higher (numerator) and the percentage of offspring that complete undergraduate studies or higher but whose parents did not complete High School (denominator).

It is recognized that in Brazil, the chance of offspring reaching the higher education level if the father has a higher education level is 6.7 times greater than if the father has not completed High School. This difference shows the high degree of inequality of opportunities in Brazil, linked to the situation of that individual's birth.

Only in Poland, Italy, Slovakia, and the Czech Republic are the chances of the individual achieving higher education if the parents have this level



Graph 5 – Children with tertiary level: ratio between the percentage of those with parents with tertiary level and those with parents who have below upper secondary level

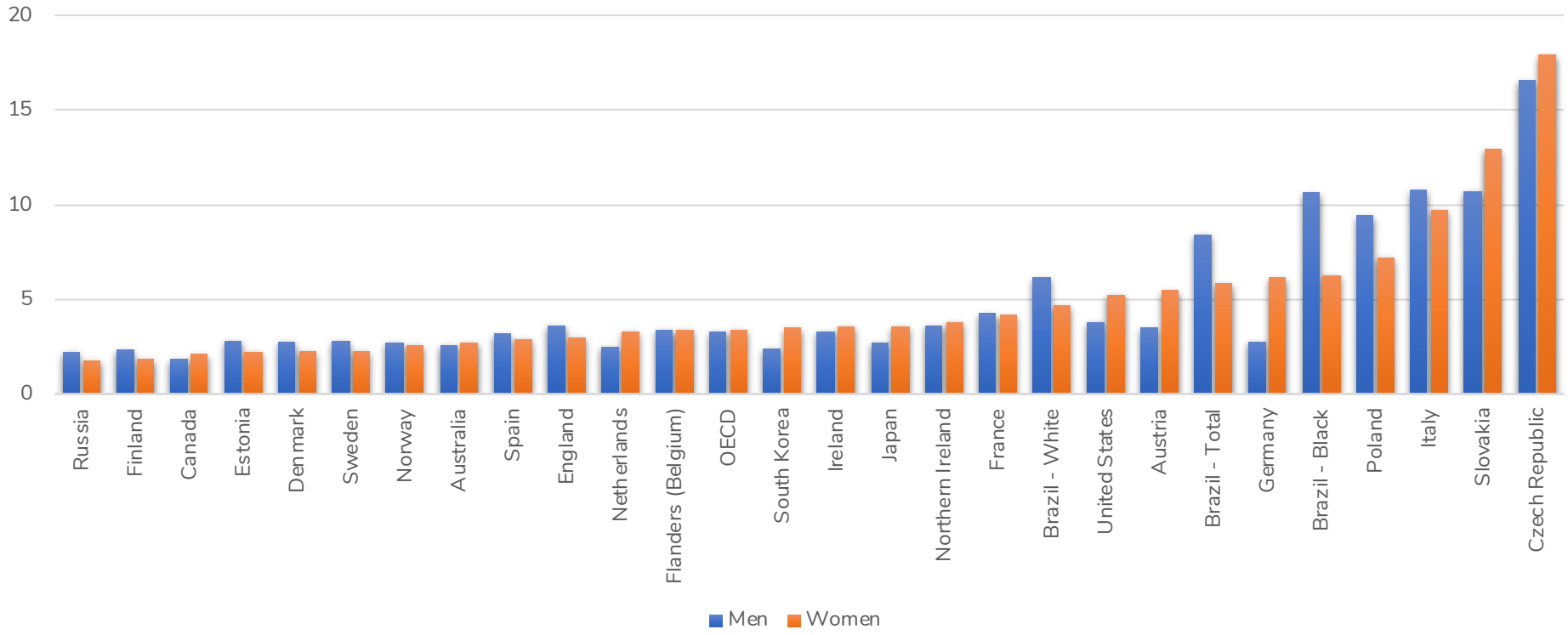
Source: Own elaboration based on microdata from PNAD 2014 and Education at a Glance (2014).

Note: The graph presents y axis in logarithmic scale.

of education, compared to those that the parents did not complete High School, higher than in Brazil. On the other hand, the smallest inequalities between the top and base are found in Russia, Canada, Finland, Estonia, Sweden, and Denmark. Graph 6 shows the same indicator, but by gender of the offspring.

One can see that the countries that have the greatest differences between men and women in relation to the chances of the offspring reaching higher education if the father has a higher education level or has not completed High School are: Germany, Brazil, Slovakia, and Poland.

In Germany, the chance of the son reaching the higher level of education if the father has a higher education level is 2.8 times greater than if the father has not completed High School. For daughters, the chance of reaching higher education if the father has a higher education level is 6.1 times higher than if their father has not completed High School. In Slovakia these ratios are, respectively, 10.7 and 13.0 and in Poland, respectively,



Graph 6 – Children with tertiary level: ratio between the percentage of those with parents with tertiary level and those with parents who have below upper secondary level, by sex

Source: Own elaboration based on microdata from PNAD 2014 and Education at a Glance (2014).

Note: The graph presents y axis in logarithmic scale.

9.4 and 7.2.

In Brazil, the chance of a male child reaching the higher level of education if the father has a higher education level is 8.4 times greater than that of those whose parents did not complete High School. Among women this ratio is 5.8. For Black men, the ratio is 10.7, which is still lower than the rates found in the general population for the Czech Republic, Slovakia, and Italy, and for Black women it is 6.3, lower than for the Czech Republic, Slovakia, Italy, and Poland.

In view of these results, it is confirmed that the problem of public policy for mobility in Brazil affects mainly Black men and men in general, both with regard to the high percentage of those who have incomplete High School education or less, who in some cases are children of parents who have complete higher education, as well as those who complete higher education, who are much more likely to do so if their parents have also completed this level of education than those whose parents have not completed this level. In general, what differentiates Brazil from other countries is the percentage of offspring of parents with low schooling who also have low schooling, and who consequently do not reach higher education.

1.4 A synthetic indicator of relative mobility: intergenerational persistence

In Sections 1.2 and 1.3, educational transition matrices between parents and children and derived indicators were presented in graphs, which allow for a joint visualization of all OECD countries. In this section, we analyze the intergenerational persistence in education, also by country, which, as in previous sections, is a measure of relative mobility.

The measurement is performed through a linear regression of ordinary least squares of the educational result of the children in the same result for the parents, as presented in Box 3. From the value of β, which indicates the intergenerational persistence between the years of study of parents and their offspring, the degree of intergenerational mobility in education (1- β) is calculated.

Box 3 - Measurement of Intergenerational Mobility in Education

Intergenerational mobility in education can be measured by means of different statistical methods. When investigating relative mobility, the most commonly used methods are intergenerational regression models (or intergenerational elasticity), correlation coefficient* and transition matrices. In this section, the mobility measurement is performed through a linear regression model (according to Equation 1) in which the degree of intergenerational persistence in education is identified.

$$S_{fi} = \alpha + \beta S_{pi} + \varepsilon_i \quad \text{(Equation 1)}$$

Where S_{fi} represents the education of the child of the family i, S_{pi} represents the education of the father of family i and ε_i is a stochastic term with $E(\varepsilon_i) = 0$; $E(\varepsilon_i S_{pi}) = 0$ e $E(\varepsilon_i^2) = \sigma_\varepsilon^2$.

In some cases, it is possible to use the average education of the father and mother and even the maximum schooling between them to identify the relationship between the parents' and the children's schooling.

Regression coefficient, β, is known in economic literature as the "degree of persistence" and captures the intergenerational persistence in education between parents and children, showing how determinant the education of parents is for the education of their children.

Quanto mais próximo de 1, maior é a determinação dos anos de estudo dos pais sobre os anos de estudos dos filhos e, por isso, menor é a mobilidade. Quanto mais próximo de 0, menor é essa determinação e maior é a mobilidade.

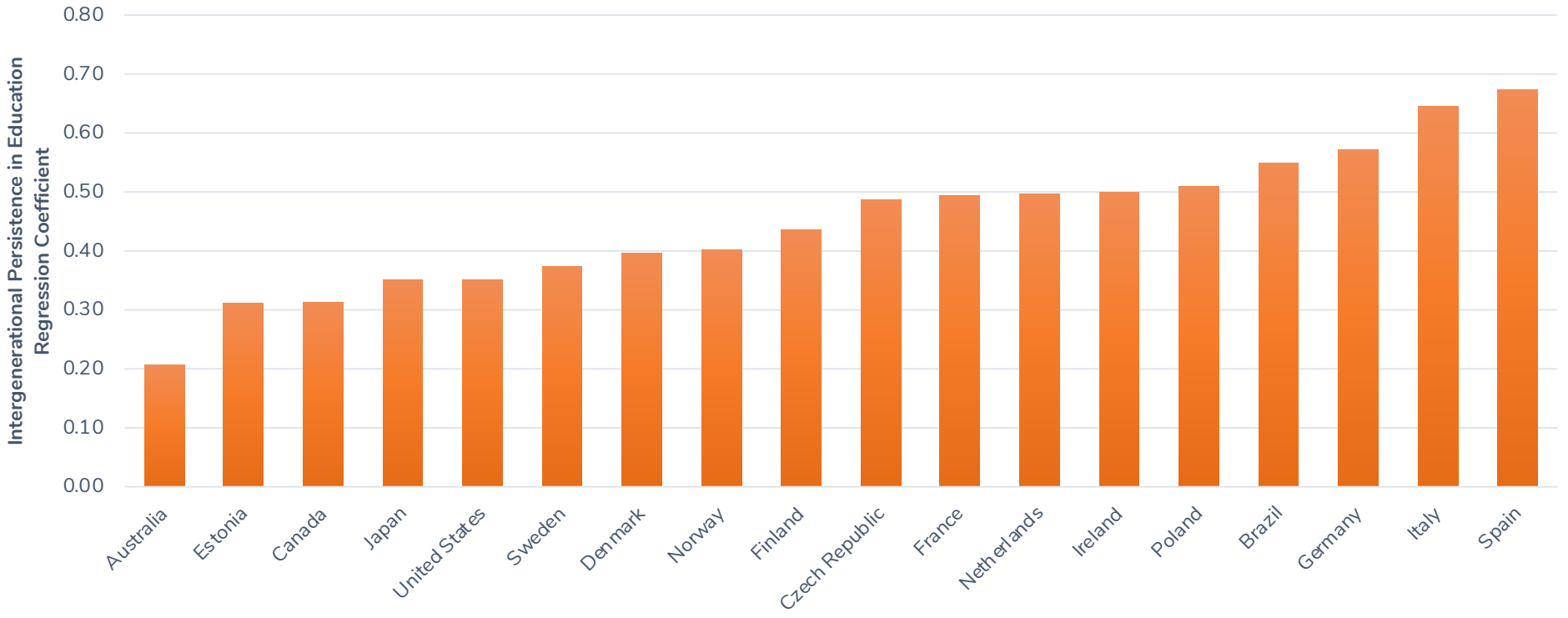
Por exemplo, se β é 0,5, então o filho de um pai cuja educação exceda em dois anos a média (da educação dos pais de sua geração) terá uma educação cujo valor esperado será um ano acima da média (da educação dos filhos de sua geração). A medida 1 – β é chamada de grau de regressão à média, ou grau de mobilidade intergeracional de educação.

Note: Unlike intergenerational elasticity and transition matrices, the coefficient of correlation of Person (β),which is the linear interdependence of two variables that measure the educational outcome of parents and children, is not calculated in this synopsis. For further details of this mobility measurement index, see OECD (2018) and Jäntti and Jenkins (2015).

Graph 7 shows the coefficient of intergenerational persistence in education for each OECD country, for which data can be obtained. Persistence varies between 0.2 (Australia) and 0.7 (Spain). Thus, in Australia, the offspring of a father whose education is one year below the average education of his generation will have an education whose expected value is 0.2 years below average (of the education of the offspring). In Spain, this child would have an education whose expected value would be 0.7 years below the average (of the education of offspring). The reasoning is symmetrical for those who were above average in their parent's generation.

As can be seen, there are disparities in intergenerational persistence in education among the countries that are part of the OECD. While in Australia, Estonia, Canada, Japan, and the United States the persistence coefficient does not reach 0.4, the indicator in Brazil is among the highest (0.5), behind only Spain (0.7), Italy (0.7) and Germany (0.6), which indicates lower intergenerational mobility.

It should be noted that these discrepancies can occur due to the persistence between parents and offspring in primary education or at higher levels of education, which has different meanings (see Box 1). In the following subsections, the relations of average schooling and educational inequality with intergenerational persistence in education will be explored.



Graph 7 – Intergenerational persistence in education – regression coefficient: Brazil and OECD countries

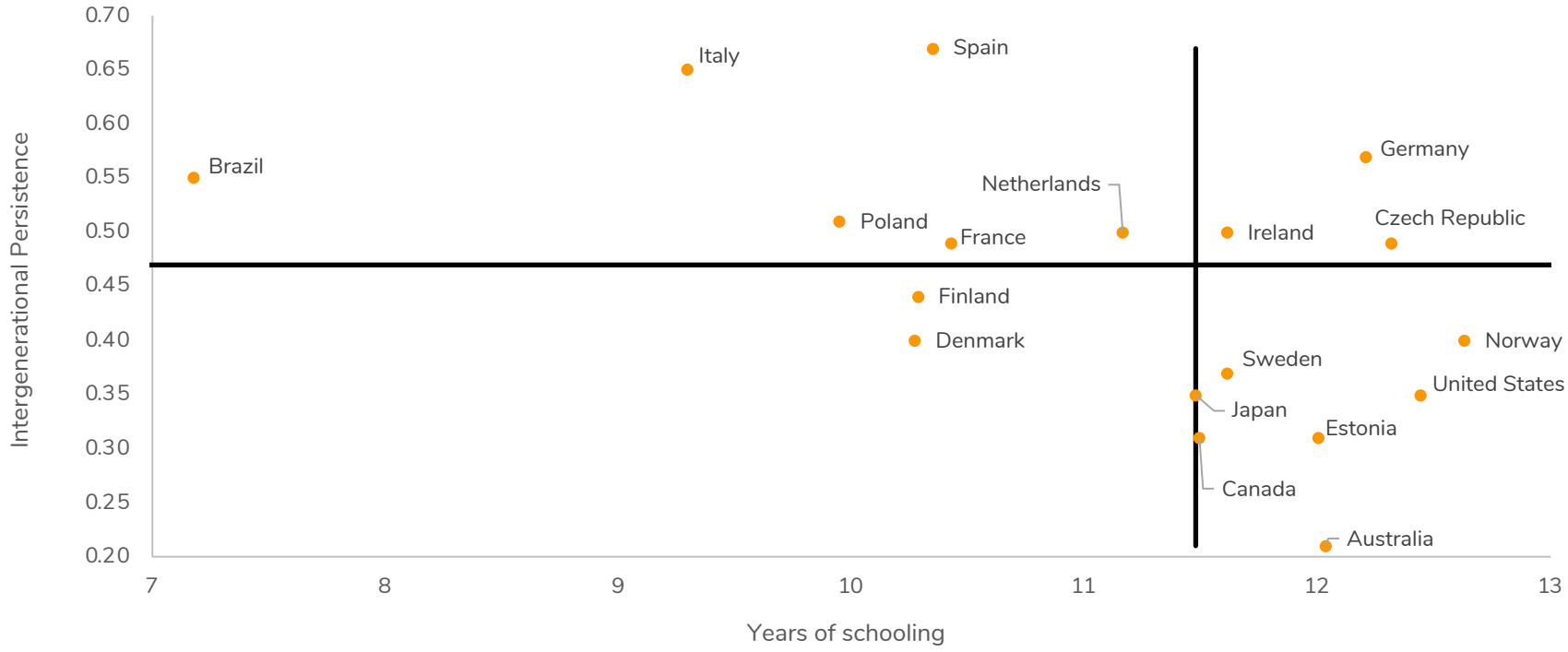
Source: IMDS (2021) based on microdata from PNAD 2014 and OECD 2018.

1.4.1 A synthetic indicator of relative mobility: intergenerational persistence

Intergenerational persistence in education is a limiting factor in the progress of children of parents with few years of study because their educational achievement will be closely tied to that of their parents. In this case talents are lost or underutilized and the income of the generation of offspring tends to remain at levels similar to the income of the generation of parents. However, if intergenerational persistence is accompanied by a high average in studies, it is no longer necessarily a limiting factor and becomes the reality of a very educated country.

Graph 8 divides OECD countries and Brazil into four blocks: high persistence and high average in schooling (e.g., Germany); low persistence and high average in schooling (e.g., United States); high persistence and low schooling (Brazil and Italy) and low persistence and low schooling (e.g., Denmark).

Graph 8 shows that in Australia, the generation of offspring has an average of 12 years of schooling and persistence is low in relation to other



Graph 8 – Relationship between average years of schooling and intergenerational persistence in education: Brazil and OECD countries

Source: Own elaboration based on microdata from PNAD 2014 and OECD 2018.

countries. This demonstrates that this generation of offspring, who are between 25 and 64 years of age, is the first to be reaching higher levels of education in the country. To the contrary, Germany has average years of study similar to that of Australia, but persistence is higher, which indicates that the parents of these individuals were already more educated.

On the other hand, in Brazil, the average number of years of study is low compared to other OECD countries, and persistence is high. This indicates that parents had little schooling as did many of the children. If it were possible to construct this graph only with younger offspring, a drop in intergenerational persistence in Brazil would be noticeable since they are reaching higher levels of schooling, as seen in Table 2.

1.4.2 Relationship between inequality and intergenerational persistence: Great Gatsby Curve

Alan Krueger, chairman of the Council of Economic Advisers under Barack Obama, in a speech, drew attention to the association between inequality and intergenerational persistence in income levels, based on the comparison between OECD countries (KRUEGER, 2012). The deceased economist named the positive association the Great Gatsby Curve.

Even so, the causal link between inequality and intergenerational mobility is unclear. Kearney and Levine (2014) propose that a higher level of inequality can lead to an underestimation of the return on investment in human capital for the offspring of socially vulnerable families, which would increase their dropout rates, thereby reducing their chances of mobility. Another view is that there is no causal relationship between inequality and mobility, but rather a summary of all the mechanisms that reflect the result of a series of ways in which income inequality affects children's development (CORAK, 2013; KEARNEY; LEVINE, 2014).

At the microeconomic level, poor children tend to live in a family environment less conducive to the accumulation of knowledge, less able to contact with enriching experiences, worse spaces for social interaction, worse schools, among other factors that influence the acquisition of capacities for a more productive adult life with greater well-being. Poor people will tend, by all these factors, to reproduce the social position of their parents, in the absence of a complex social assistance network to deal with the reproduction of poverty holistically – including considering their intrafamily reproduction. On the other hand, at the macro level, a high fraction of poor people usually coexists with high income inequality.

So far, the relationship between inequality and income persistence has been discussed. However, a positive relationship between inequality and educational persistence should be expected in the same way that it is usually found for income. Graph 9 plots, for each OECD country and for Brazil, the ordered pair of educational Gini and intergenerational persistence in education.

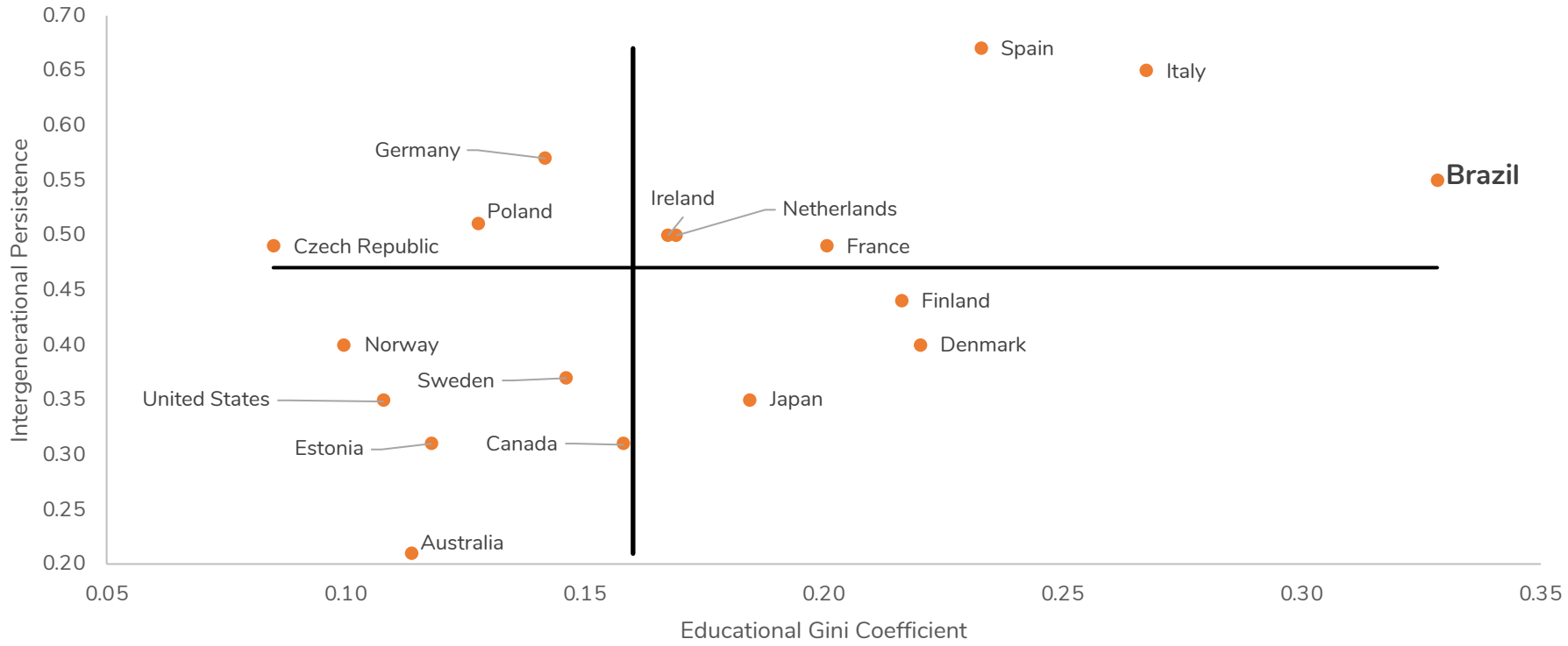
Australia, Estonia, and Canada are the countries with the lowest intergenerational persistence in education. The Czech Republic, in turn, has a higher persistence than would be expected due to its low educational Gini (the lowest in the sample). On the other hand, Spain, Italy, Germany, and Brazil have higher persistence, but Gini indices are quite different (from 0.1 in Germany to 0.3 in Brazil).

The positive relationship between these characteristics indicates the absence of a tradeoff between combating educational inequality and combating the absence of educational mobility. Thus, a policy to reduce inequality tends to increase intergenerational mobility and vice versa (BERMAN, 2017).

Some of the mechanisms that explain this relationship are: poorer families with less educated parents make fewer investments in their children's human capital and, consequently, the chances of these children reaching higher levels of education decrease (LEONE, 2019; SOLON, 2004). In addition, children and young people living in a situation of social

[14] The pattern was identified by Miles Corak in 2011 and cited by Krueger in his speech at the Center for American Progress (CAP) in 2012. The name given to the curve by Krueger "The Great Gatsby", is a tribute to Scott Fitzgerald's character Jay Gatsby, an example of the American dream, having left a poor family to become a millionaire. For an account of the story made by a witness who helped elaborate Krueger's speech, see https://en.wikipedia.org/wiki/Great_Gatsby_curve.

[15] The Educational Gini Coefficient measures the extent to which the distribution of years of study among individuals in a given group is diverted from a perfectly equal distribution. Thus, it provides a synthetic measure of the degree of inequality in education. The higher its value, the greater the inequality of schooling among the studied group.



Graph 9 – Relationship between educational Gini coefficient and intergenerational persistence in education: Brazil and OECD countries

Source: Own elaboration based on microdata from PNAD 2014, OECD 2018 and Benaabdelaali, Hanchane and Kamal (2012).

vulnerability, in some cases, end up not identifying the possibility of social ascension through education. This feeling comes from the economic, social, and cultural needs of the families, negative neighborhood behavior patterns, in addition to access especially restricted to high quality schools (KEARNEY; LEVINE, 2014; LEONE, 2019; ROTHWELL; MASSEY, 2015).

In general, the younger generations in Brazil have expanded their schooling to complete High School, and this accomplishment has had little relation to the parents' schooling. This result tends to reduce both educational Gini and intergenerational persistence.

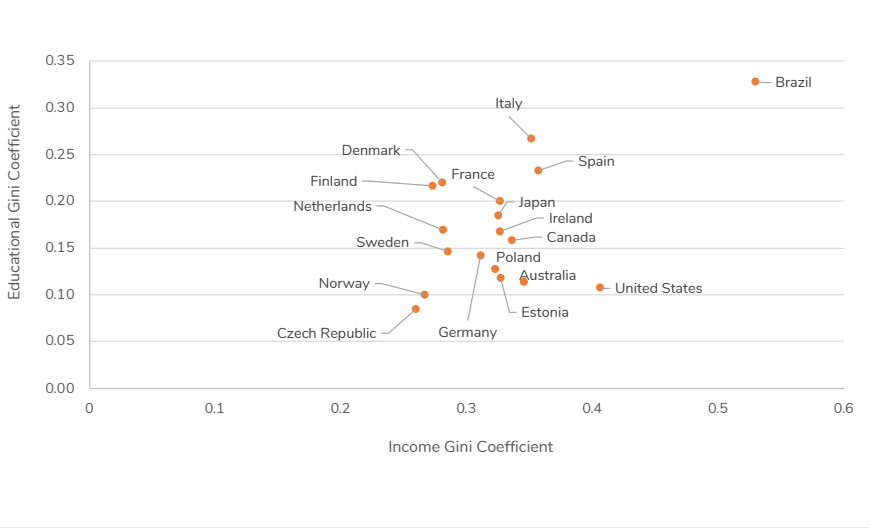
Of course, education and income are very much associated in individual terms and in aggregate terms, as shown in Box 4.

Box 4 - Educational inequality and income inequality: two distinct problems that go together

Educational inequality plays a decisive role in the transmission of inequalities between generations, becoming a robust indicator for future trends in income inequality (BLANDEN; MACMILLAN, 2014). Graph 10 shows the relationship between education and income inequality in Brazil and OECD countries.

It is acknowledged that Brazil is the country with the highest income inequality and highest educational inequality, compared to the countries that are part of the OECD. The United States is, after Brazil, the country with the highest income inequality (when compared to other OECD countries) but has low educational inequality. On the other hand, Italy and Spain have the highest income inequalities and the highest educational inequalities (when compared to other OECD countries). One can see that income inequality is greater than educational inequality in all countries. For most OECD countries, income inequality is between 0.25 and 0.35, while educational inequality varies between 0.10 and 0.25. Brazil is a negative outlier in this graph because the income Gini coefficient is 0.50 and that of education is 0.30, well above the inequalities of other countries. In general, when comparing countries, it is known that the most common pattern is that income inequality and educational inequality go hand-in-hand. The higher the income inequality, the greater the educational inequality and vice versa.

However, exceptions exist, such as the United States, Canada, and Australia, which, despite having greater income inequality, have lower educational inequality. It is noteworthy that this can occur due to some characteristics (MEDEIROS AND COAUTORES, 2019), one of which refers to the fact that more education does not necessarily imply higher salaries, as it is not automatically rewarded. The ability to pay more for individual skills depends on a demand for skilled labor



Graph 10 - Relationship between income inequality and educational inequality
Source: Own elaboration based on microdata from PNAD 2014 and OECD 2018.

that ensures the adequacy between the individual's training and occupation (job-skill matching). Moreover, it should not be ruled out that there are unobservable factors (such as quality and extension of social networks – social capital – and the quality of schools themselves, which may differ greatly given the administrative category and regions) that interact with education in a complex way. If such interactions do in fact occur, expanding the educational system to encompass the underprivileged may even provide equalization of productive capacities. However, if the factors not observed are not equally leveled, the same effects on salaries will not be discernable (MEDEIROS AND COAUTORES, 2019).

1.5 Upward mobility and immobility: Brazil and OECD countries

In addition to the transition matrices and indicators presented in the previous sections, OECD data enable the analysis of the upward intergenerational mobility in education and immobility in each country, as will be explored in this subsection. It is noteworthy that these measurements refer to absolute mobility, a situation in which the offspring do better, equal, or worse in a certain measure of economic or social status than their parents, without considering the relationship of progress between the children.

Before these results are presented, some points should be revisited and taken into consideration in this subsection. First, the data used in this section on intergenerational mobility in developed countries and Brazil considers only three categories of education (incomplete High School level; complete High School level or incomplete undergraduate studies; and complete undergraduate studies or higher). Thus, there are cases, for example, in which the offspring studied more than the parents, but did not reach a certain level considered, especially High School, because the lowest level aggregates unschooled with Elementary School and Junior High School and incomplete High School. In this manner they will be considered cases of intergenerational immobility, but if there were categories for all levels of education, they would be cases of upward intergenerational mobility.

In the same way, undergraduate and graduate levels are considered in the same category of education, i.e., in the database there is a maximum value that is distinct from the true value for a fraction of individuals (those with graduate studies). Hence, countries that have a high fraction of offspring and parents with undergraduate studies or higher will tend to have low upward mobility. Briefly, even if there are upward or downward movements of education between parents and their offspring, they will not be captured by the indicator, given the scope of the categories, especially those of lower and higher schooling. This also explains differences in the numbers on mobility evidenced in this section and in section 2 of this synopsis, in which results on mobility are presented from World Bank data. Given this caveat, we move on to the presentation of the results of this subsection.

1.5.1 Characterization of upward intergenerational mobility in education

Graph 11 shows the percentages of upward intergenerational mobility in education for Brazil and OECD countries. Upward educational mobility is the ratio between a numerator that considers the sum of all offspring who have more schooling than their parents, and a denominator where the universe of the offspring is deducted from those with complete higher education and whose parents also have complete higher education.[17]

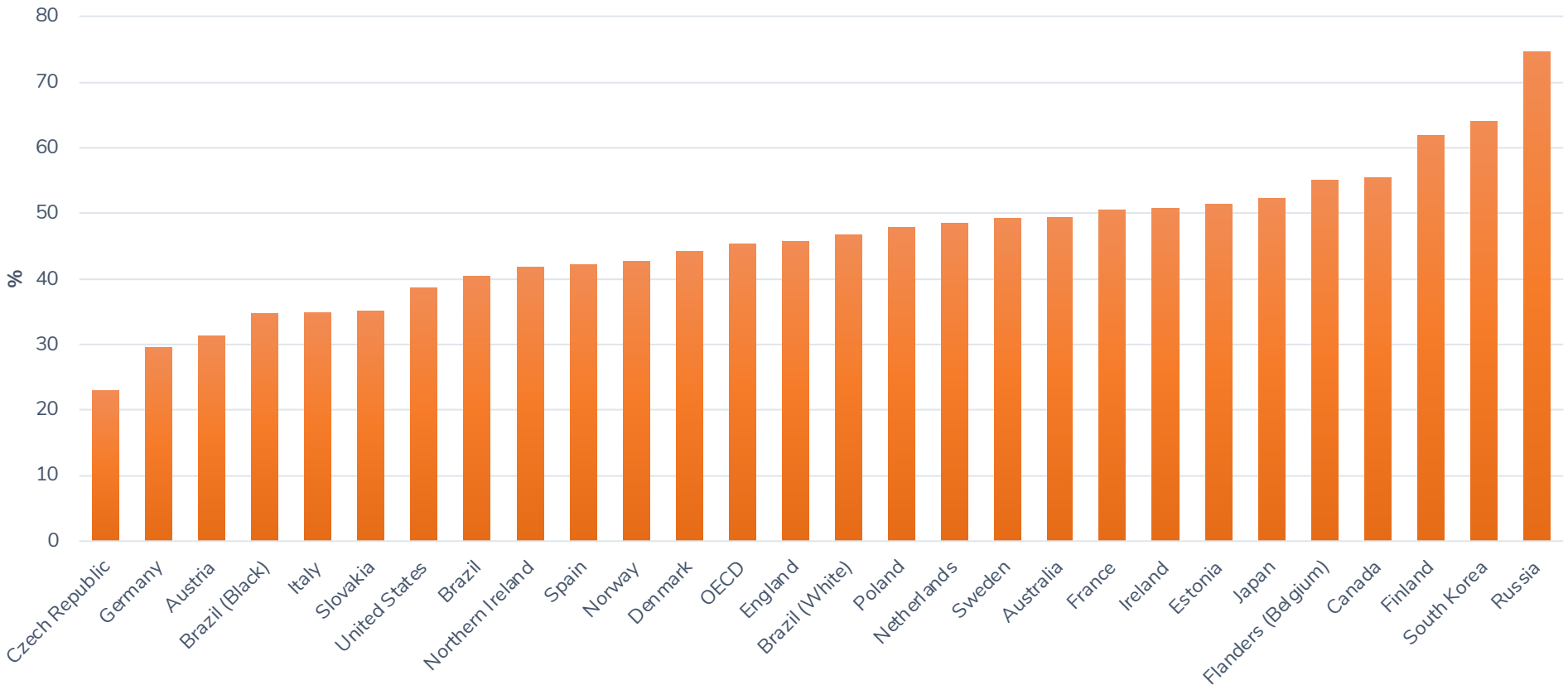
It is evident that if considered a ranking of upward intergenerational mobility in Education, and first placed is the country with the highest mobility and last the one with the lowest mobility, Brazil occupies the 19th position, in 25 countries. This placement is justified by the fact that 40.5% of the children have higher schooling than their parents, ahead of the Czech Republic, Germany, Austria, Italy, Slovakia, and the United States. The countries that occupy the top five positions in the upward mobility ranking are Russia, South Korea, Finland, Canada, and Belgium.

It should be noted that countries may present absolute high mobility and low relative mobility (e.g., with high persistence in education), as shown in Graph 12.

The countries in which there is high persistence, i.e., the parents' schooling is more determinant over their children's schooling, and where there are lower percentages of upward mobility are Brazil, Spain, Italy, Germany, and the Czech Republic. France and Ireland have above-average upward mobility but low relative mobility (above average persistence).

[16] This problem is mitigated by the concept of weak upward mobility, which includes in the numerator offspring with higher education whose parents also have higher education.

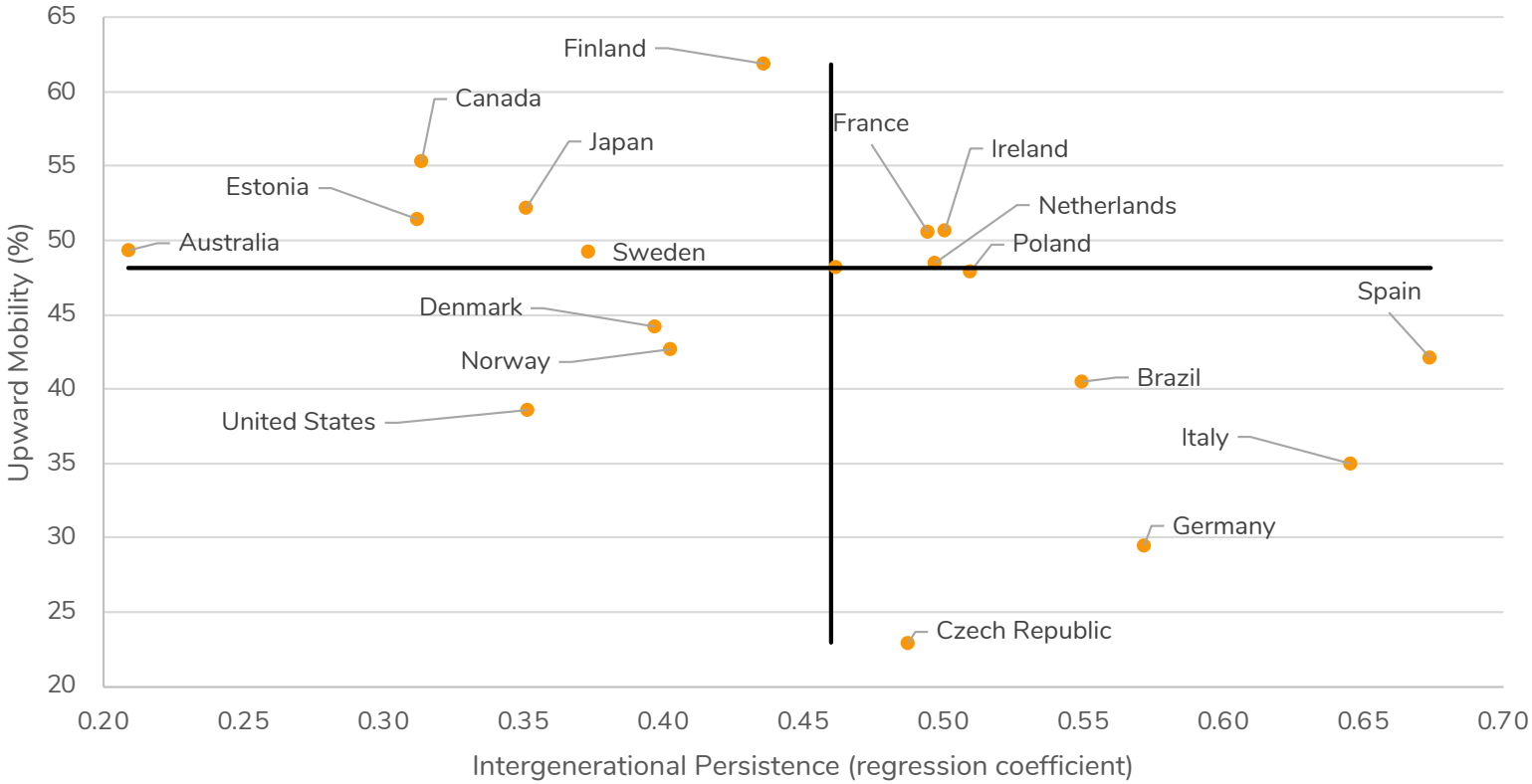
[16] The OECD also calculates weak upward mobility, which has in the numerator the number of offspring with higher or equal schooling compared to their parents, provided the level is higher education, and in the denominator all offspring.



Graph 11 – Upward Intergenerational Mobility in Education: Brazil and OECD countries

Source: Own elaboration based on microdata from PNAD 2014 and Education at a Glance (2014).

Note: Upward educational mobility indicates the percentage of individuals who exceeded their parents' level of schooling, among all offspring, except those who achieved complete undergraduate studies or higher, and whose parents had complete undergraduate studies or higher.



Graph 12 – Relationship between intergenerational persistence of education and upward mobility: Brazil and OECD countries

Source: Own development based on microdata from PNAD 2014 and OECD 2018.

Note: Greater intergenerational persistence means less relative mobility.

However, there has been an evolution in the schooling of Brazilians. Therefore, it is plausible to verify Brazil's position in the ranking of countries, considering age intervals of children, as shown in Table 6.[18]

Groups analyzed	Children aged between:			
	25 and 34 years old	35 and 44 years old	45 and 54 years old	55 and 64 years old
All the reference population	4th	19th	21st	24th
Whites	3rd	13th	16th	21st
Blacks	11th	20th	23rd	25th
Women	5th	19th	19th	20th
White women	3rd	10th	16th	17th
Black women	11th	20th	22nd	23rd
Men	6th	16th	21st	23rd
White men	4th	13th	17th	22nd
Black men	12th	20th	23rd	23rd

Table 6 – Position of Brazilians in the ranking of upward educational mobility according to the age clipping of offspring

Source: Own elaboration based on the microdata of PNAD 2014 and Education at a Glance (2014).

Note: The 1st place is the country with the highest percentage of children who are cases of intergenerational mobility in education in relation to their

The results of Table 6 show that there is an important difference between older and younger offspring in Brazil, if an upward mobility ranking were being considered. Brazilians aged between 25 and 34 years occupy better positions, showing that younger individuals have been reaching higher levels of education than their parents in greater proportion.

More specifically, Brazilians moved from the penultimate position (considering offspring aged between 55 and 64 years), that is, the second country with the lowest percentage of upward educational mobility, to 4th position (considering offspring aged between 25 and 34 years).

In addition, inequality in the positions between Whites and Blacks, whether men or women, is highlighted. Blacks, regardless of the age of their offspring, occupy worse positions in the ranking, although the evolution of age groups was significant. This situation shows that Blacks face more difficulties to ascend educationally (among the categories considered) in relation to their parents than Whites do. However, this result does not exclude the possibility of Black and White children studying more than their parents, because the category for the lower level of schooling is quite comprehensive, comprising up to incomplete High School level.

1.5.2 Characterization of intergenerational immobility in education

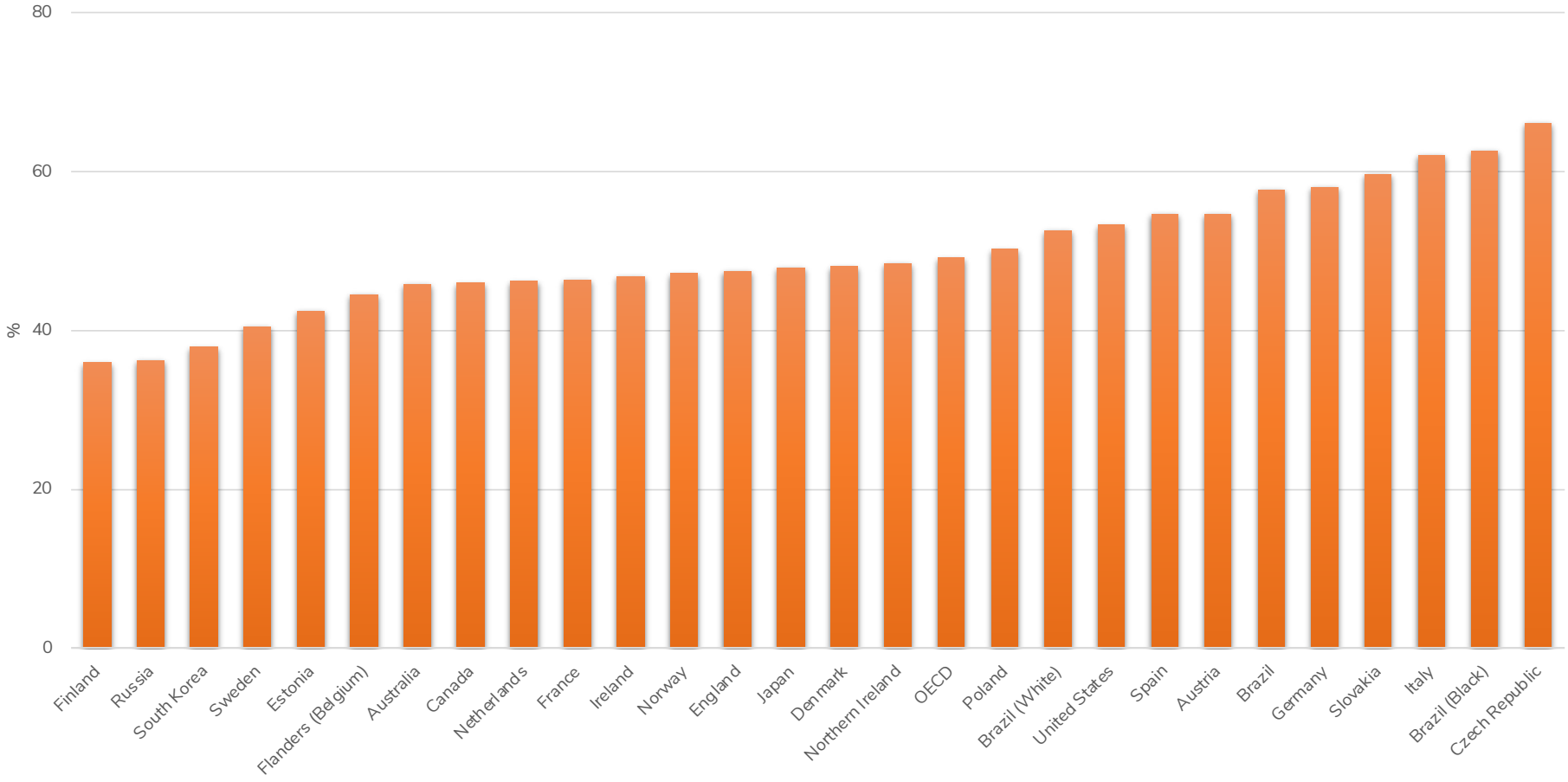
Graph 13 shows the percentage of offspring who have a level of education that is in the same category of level of schooling as their parents.

It is observed that in Brazil, most offspring between 25 and 64 years of age are cases of intergenerational immobility in relation to their parents (57.6%). This percentage places Brazil in the 5th position in the ranking of countries in relation to the percentage of children with a level of schooling that is in the same category of schooling as their parents, being that the first place has the highest percentage and the last, the lowest. In this case, Brazil is behind the Czech Republic,

[18] Attention is given to the fact that the comparison of the age, gender and skin color or race of Brazilians are performed with OECD countries, and for these no skin color/race delimitations were made in the sample, only age and gender.

Italy, Slovakia, and Germany. In addition to knowing the percentage of immobility, it is important to know at what level of schooling the highest immobility occurs, as shown in Graph 14.

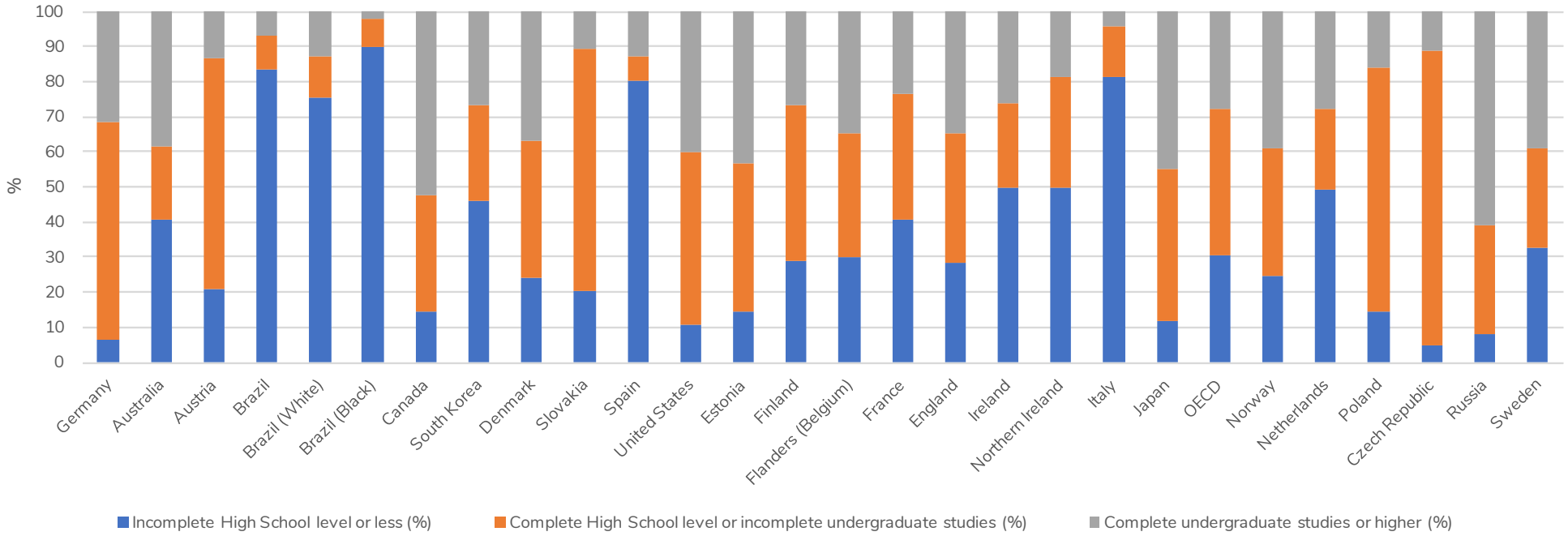
Brazil, compared to OECD countries, presents the worst-case scenario in terms of intergenerational immobility, since 83.5% of Brazilians with the same level of schooling as their parents interrupt their studies before completing High School, and this percentage is even higher among Blacks (90.1%). The OECD countries in which a similar situation occurs (intergenerational immobility at the lowest level of schooling considered) are Italy (81.5%) and Spain (80.1%). In Northern Ireland, Ireland, the Netherlands, South Korea, Australia and France, most cases of immobility are also of the offspring of parents with the lowest schooling, but these are not the majority of the population.



Graph 13 – Intergenerational Immobility in Education: Brazil and OECD countries

Source: Own elaboration based on microdata from PNAD 2014 and Education at a Glance (2014).

In Belgium, Finland, England, Denmark, Austria, Slovakia, Poland, the United States, Germany and the Czech Republic, most cases of intergenerational immobility (in some countries most), are of parents and offspring with complete High School and incomplete undergraduate studies. The Czech Republic has the highest percentage (84.2%), followed by Poland (69.6%), Slovakia (68.6%) and Austria (65.8%). Only in Russia and Canada do most cases of immobility occur among parents and offspring with complete undergraduate studies or higher (61.2% and 52.2%, respectively). It is emphasized here that on the IMDS website – International Intergenerational Mobility Indicators – it is possible to verify immobility by age group, and thus it is seen that in Brazil, Spain, and Italy, even considering only younger offspring, most cases of immobility occur at the lowest level of schooling.



Graph 14 – Percentage of offspring who have a level of schooling that is in the same category of education level as their parents in the three levels analyzed: Brazil and OECD countries
Source: Own elaboration based on microdata from PNAD 2014 and Education at a Glance (2014).

2 Intergenerational mobility in education: global panorama

Chapter Highlights:

- The average number of years of study in Brazil has been growing throughout the generations, though it remains below the average of countries in the upper-middle income group to which it belongs. In the generation of children born in the 1940s, the average years of study in Brazil were 5.3, compared to 7.7 in upper-middle income countries (2.4 years of study between Brazil and the average schooling of countries in its group). This difference is of 2.3 years; 2.0 years; 1.7 years; and 1.4 years, respectively, for generations born in 1950, 1960, 1970 and 1980.

- Educational inequality in Brazil (standard deviation from years of study) has fallen, in line with what is expected of nations that increase average schooling. The relationship between educational inequality and average schooling is similar to an inverted U.

- Also in inverted U is the relationship between upward educational mobility and average schooling. Younger cohorts, as they have more schooling, advance in relation to their parents (less schooling). Brazil is still in the upward stretch of the inverted U.

- While among individuals born in the 1940s in high-income countries, 57.5% completed High School, in low-income countries the percentage does not reach 5.0%. In Brazil, for individuals of this generation, only 18.8% had completed High School or more. Among those born in the 1980s, 88.9% completed high school in high-income countries, and less than 16.0% in low-income countries. In Brazil, where 66.6% completed High School in the generation born in the 1980s, the schooling of this cohort is similar to the schooling of those born in the 1950s in high-income countries.

- In the generation of the 1940s, 54.1% of Brazilians had a higher level of education than their parents, while in the generation of those born in 1980 this percentage was 84.2%. If we consider a ranking of countries, Brazil would have come out in the 48th position in the generation of the 1940s (considering the existence of data available for 97 countries) and would have reached the 6th position in the generation of the 80s (considering the data available for 138 countries).

- Brazil is among the five countries with the greatest reduction in intergenerational persistence in education among children born in the 1940s and 1980s, decreasing from 0.7 to 0.4. This indicates that the schooling of children born in more recent decades is less tied to their parents' schooling.]

This section is organized as follows: initially (section 2.1) offers a brief description of the data. In section 2.2, advances in schooling over generations are evidenced. Following (section 2.3) the progress of schooling is still analyzed, however, in terms of completion of High School and higher education. Section 2.4 deals with upward intergenerational mobility in education, followed by section 2.5, in which intergenerational persistence in education between parents and their offspring is presented.

2.1 Description of the data

The data source used in this section is called Global Database on Intergenerational Mobility (GDIM, 2018). GDIM is a statistically harmonized database created by the World Bank, which contains information on the schooling of individuals born between the years 1940 and 1989 and their parents. To build the global database, surveys already conducted in each economy were used, most of which between 2006 and 2016, which collected information about the schooling of adult respondents and their parents [19] [20].

The database includes estimates of educational mobility in 148 economies, if considered individuals born in the 1980s. In addition, for 111 of these, data for previous birth cohorts are available. The full sample of 148 economies represents 96 percent of the world's population (87 percent of the world's population if considered the 111 countries with cohort data prior to 1980). Except for the Middle East and North Africa, population coverage in all regions exceeds 90 percent. In the case of the Middle East and North Africa, 81% of the population is covered (49% with data from cohorts prior to 1980).

For harmonization and subsequent comparability of data between countries, respondents under 18 years of age and individuals who were still enrolled in school or college were excluded from the sample. The only exception is to keep in the sample the respondents with 20 years or more who completed High School and were enrolled in higher education. In this case, the individuals were categorized as having completed higher education in order to reflect a final educational result.

Income group, region	Number of economies covered		% of population covered	
	With data from cohorts prior to the 1980s	All	With data from cohorts prior to the 1980s	All
High-income economies	37	37	94	94
Developing economies	74	111	86	96
East Asia and Pacific	8	16	92	96
Eastern Europe and Central Asia	20	20	99	99
Latin America and the Caribbean	16	16	96	96
Oriente Médio e Norte da África	5	10	49	81
Middle East and North Africa	5	8	89	100
South Asia	20	41	72	95
Total	**111**	**148**	**87**	**96**

Table 7 – Global Database on Intergenerational Mobility (GDIM) Coverage

Source: Narayan et al. (2018, p. 79).

[19] The full list of surveys used in each economy can be found in the document "Description of the Global Database on Intergenerational Mobility (GDIM)", available at https://datacatalog.worldbank.org/search/dataset/0050771/Global-Database-on-Intergenerational-Mobility. In this document you can see, in addition to the survey name used, the year of its realization and whether the respondents co-reside with their parents or not.

[20] It should be noted that in some of the surveys used by the World Bank, information on the level of education of parents could be obtained only in relation to respondents who live in families with their parents as co-residents. As adult co-residents may not be representative of the adult population in general in the economy, estimates derived from this type of data may be subject to co-residence bias. Nevertheless, to reduce the likelihood of co-residency bias, the samples were restricted to co-residents aged between 21 and 25 at the time of the study, and these respondents are assigned to the cohort of the 1980s. Thus, in these economies, mobility estimates are available only in the cohort of the 1980s. In addition, an exercise was conducted with research that presents retrospective data on the educational achievement of parents (and which reveal whether the interviewees co-reside with their parents) to estimate mobility with and without assuming co-residency, to evaluate the magnitude of the co-residency bias, and the bias proved to be small. This exercise is shown in detail in Narayan et al. (2018, p. 78). For a more in-depth reading of biases derived from co-residency and how to attenuate them, read the paper by Emran & Shilpi (2018).

The categories of education of parents and offspring are based on the International Standard Classification of Education (ISCED) and refer to the highest educational level completed by the interviewee. The categories used in this section are: 1) did not conclude the Elementary School; 2) did not conclude Junior High School; 3) did not conclude High School; 4) concluded High School or more; 5) concluded undergraduate studies or higher.

It is noteworthy that most of the analyses of this section were performed for groups of countries : Low Income , Lower-Middle Income, Upper-Middle Income, High Income, BRICS, OECD and G20. On the IMDS website you can see the results for each country individually or other combinations of countries. In addition, one can see the results according to the gender and the decade of birth of the generation of offspring.

2.2 The advancement of schooling over generations: years of study and inequality

The average number of years of study in Brazil has been growing throughout the generations, but still, it remains below the average of the countries of the upper-middle income group, to which it belongs. Graph 15 shows the behavior of the evolution of years of schooling for each cohort of years of birth in high-income countries, upper-middle income (which includes Brazil), lower-middle income and low income, and compare them with Brazil's performance.

One can see that the higher the per capita income of the group of countries, the higher the average education of the population in years of study. For example, for the birth cohort of the 1980s, the average years of study per capita in high-income countries is approximately 14 years, and in low-income countries it is 4.9 years. It is also verified that the differences of years of study between countries of different income groups remain over the decades analyzed.

It is noted that for generations born in the 1970s or earlier, the average years of study in Brazil were closer to lower-middle-income countries than to upper-middle-income countries. However, this reality has been changing, and among children born in the 1980s, the average number of years of schooling in Brazil is higher than the average for lower-middle-income countries, but still lower than the average for upper-middle-income countries.

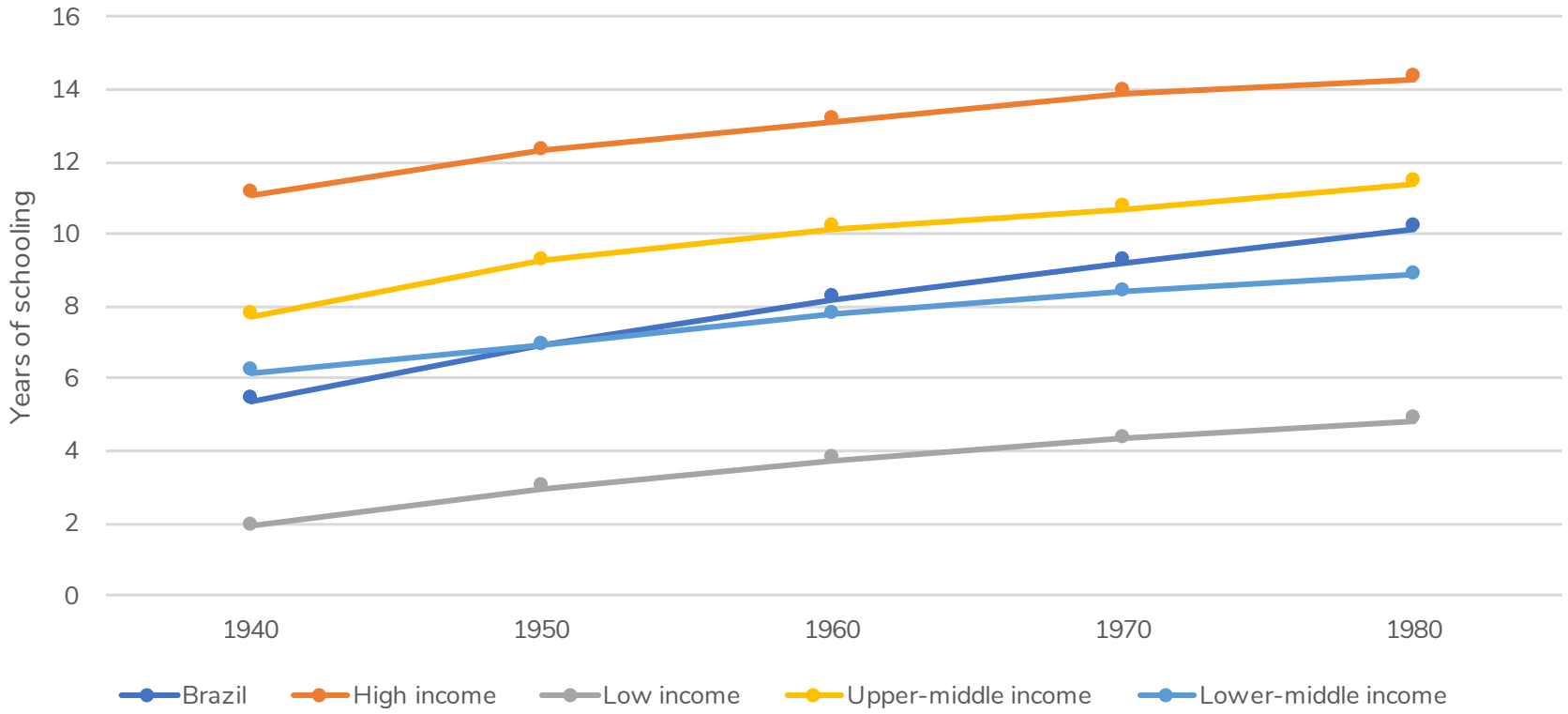
In the generation of children born in the 1940s, the average years of schooling in Brazil were 5.3, compared to 7.7 in upper-middle-income countries (distance of 2.4 years of study from Brazil to the average schooling of the countries in their group). This difference is respectively 2.3 years; 2.0 years; 1.7 years and 1.4 years, for generations born in 1950, 1960, 1970 and 1980. In other words, extrapolating the 10-year-old rhythm of the reduction in the difference between average schooling of inhabitants in Brazil and that of upper-middle-income countries, it would make both equal as of the generation to be born throughout the 2020s.[24]

[21] In some cases where only data on years of schooling are available, they have been carefully transformed using the years of study for each ISCED category (and vice versa, where applicable). The rule of thumb (when information is missing) is ISCED 1: 6 years; ISCED 2: 9 years; ISCED 3: 12 years; ISCED 4: 13 years; ISCED 5: 15 years; ISCED 6: 16 years; ISCED 7: 18 years; and ISCED 8: 21 years.

[22] The groups of countries presented are BRICS: Brazil, Russia, India, China and South Africa. G20: South Africa, Argentina, Australia, Brazil, Canada, South Korea, United States, India, Japan, Mexico, European Union, among other components, except Saudi Arabia, Luxembourg, and Malta. For the full list of countries: http://www.g20.org/. OECD: Australia, Germany, Chile, South Korea, United States, France, Greece, Israel, Japan, Mexico, among other components except Luxembourg and New Zealand. For the full list of countries: http://www.oecd.org/. Low Income: Afghanistan, Ethiopia, Nepal, Senegal, Sierra Leone, South Sudan, Uganda, Tanzania, among others. High Income: Germany, Australia, Belgium, Chile, Spain, United States, Estonia, France, Greece, Israel, Portugal, among others. Lower-Middle Income: Bolivia, Cape Verde, El Salvador, Philippines, Morocco, Nicaragua, Sri Lanka, Kosovo, Vietnam, among others. Upper-Middle Income: Brazil, Mexico, Bulgaria, Russia, South Africa, Angola, Malaysia, Iraq, Tuvalu, among others. For full list of countries by income group, see GDIM (2018). The absence of results for a country can occur due to the lack of information for the chosen filters.

[23] According to The World Bank Atlas Method (2018), as of July 1, 2018, economies are defined as Low Income – Gross National Income (GNI) per capita of $996 or less; Lower-Middle Income – GNI per capita between $996 and $3,895; Upper-Middle Income – GNI per capita between $3,896 and $12,055; and High Income – GNI per capita of more than $ 12,055. These amounts refer to annual income, calculated in dollars. For more details visit: : https://datahelpdesk.worldbank.org/knowledgebase/articles/378833-how-are-the-income-group-thresholds-determined.

[24] By selecting, on the dashboard, bars/ years of study/high average income, it can be verified that Brazil's position, in all generations, is always among the five least educated countries in the group.



Graph 15 – Evolution of the average years of schooling in Brazil and the average of the countries that make up each income group
Source: Own elaboration based on GDIM 2018 (World Bank).

Table 8 shows data from Brazil and other G20 countries for average ($\bar{x}$) and standard deviation (σ) of the years of study for each birth cohort.

It is verified that in all countries there has been a continuous increase in the years of study between generations. The strongest growth occurred among those born in the 1940s and 1980s in South Korea (6.6 percent) and China (6.3), Indonesia (5.9), Mexico (5.6), South Africa (5.2), Italy (5.1) and Brazil (4.7). In countries such as the United Kingdom, Japan, Canada and the United States, growth was small, because among those born in the 1940s, the average number of years of study was already high (more than 12 years).

Among individuals born in the 1940s, the average schooling in Brazil is 5.3 years, above only China, India, and Indonesia. However, among

Country	1940		1950		1960		1970		1980	
	$\bar{x}$	σ	$\bar{x}$	σ	$\bar{x}$	σ	$\bar{x}$	σ	$\bar{x}$	σ
South Africa	6.1	5.2	7.8	5.2	9.0	4.6	10.6	3.6	11.3	2.6
Germany	12.6	3.3	13.4	3.0	14.1	3.3	14.6	3.2	14.9	3.0
Australia	11.8	2.9	12.7	2.6	13.0	2.5	13.6	2.4	13.6	2.4
Brazil	5.3	5.0	6.8	5.1	8.1	4.9	9.0	4.5	10.0	3.8
Canada	13.5	2.9	14.0	2.5	14.3	2.4	14.7	2.2	14.6	2.2
China	3.8	4.4	5.2	4.9	7.1	4.5	7.8	4.6	10.1	4.2
South Korea	8.4	4.4	11.0	3.6	13.0	2.9	14.4	2.2	15.0	1.7
United States	13.9	3.0	14.0	2.9	13.9	2.7	14.4	2.5	14.4	2.4
France	10.7	4.2	11.8	3.8	12.7	3.5	14.2	3.4	14.7	2.9
India	4.8	4.9	5.2	5.0	5.1	5.0	6.1	5.1	7.7	5.0
Indonesia	4.3	4.3	5.9	4.6	7.4	5.0	9.2	4.0	10.2	3.8
Italy	8.6	3.9	11.2	3.8	12.2	3.6	13.1	3.3	13.7	3.0
Japan	12.3	2.3	13.4	2.2	13.6	2.1	13.8	2.2	14.3	2.0
Mexico	5.4	4.7	7.6	5.0	8.7	4.7	9.7	4.1	11.0	4.0
United Kingdom	12.4	3.4	13.2	3.5	13.9	3.5	14.6	3.6	14.9	3.3
Russia	11.4	3.0	12.2	2.5	12.4	2.4	13.0	2.5	14.0	2.5
Turkey	6.0	4.5	6.9	3.5	7.7	4.0	8.6	3.8	10.3	3.7
G20 average	10.0	-	11.2	-	12.0	-	12.8	-	13.4	-

Table 8 – Mean ($\bar{x}$) and Standard Deviation (σ) of the years of study of the countries that compose the G20

Source: Own elaboration based on GDIM 2018 (World Bank).

Note: The countries of the European Union are not placed in the table. No data is available for Argentina and Saudi Arabia.

those born in the 1980s, the average is 10 years of study, very similar to that of China, Indonesia, and Turkey. Considering the entire G20, average Brazilian schooling is identified as being among the three lowest. For the generation of 1980, Brazil only has average schooling higher than that of India (tied with China and surpassed by Indonesia and Turkey).

The average years of study of the G20 for the 1940 cohort was 10 years – 4.7 years more than the Brazilian average – and rises to 13.4 for the 1980 cohort – 3.4 more than in Brazil. That is, despite the expansion of High School for younger generations of adults, the evolution has not been as significant when compared to that of the group of twenty economies with higher gross domestic product.

Noteworthy is the increase in the average years of study in South Africa, which went from about 6.0 years among those born in the 1940s to 11.3, considering those born in the 1980s. Most specifically, there is an acceleration in the increase in schooling for the generation born in the 1970s, which can be as much a result of sample variance as of having a history behind it: this is the first generation that is old enough to complete High School after the end of the Apartheid (in 1991).

Attention is also given to the average years of study in Mexico, which despite being very similar to that in Brazil, if considering individuals born in the 1940s, had a greater increase among those born in the later decades, presenting a parallel trend as of 1950.

The increase in average number of years of study in countries reflects an advance in educational terms, as it tends to be accompanied by a reduction in inequality in education. Nevertheless, it is important that less educated classes also benefit from increased schooling. Otherwise, there will be no reduction in dispersion of education and the educational gap in society will increase, as the increase in years of study will be concentrated on the individuals born to more educated parents.

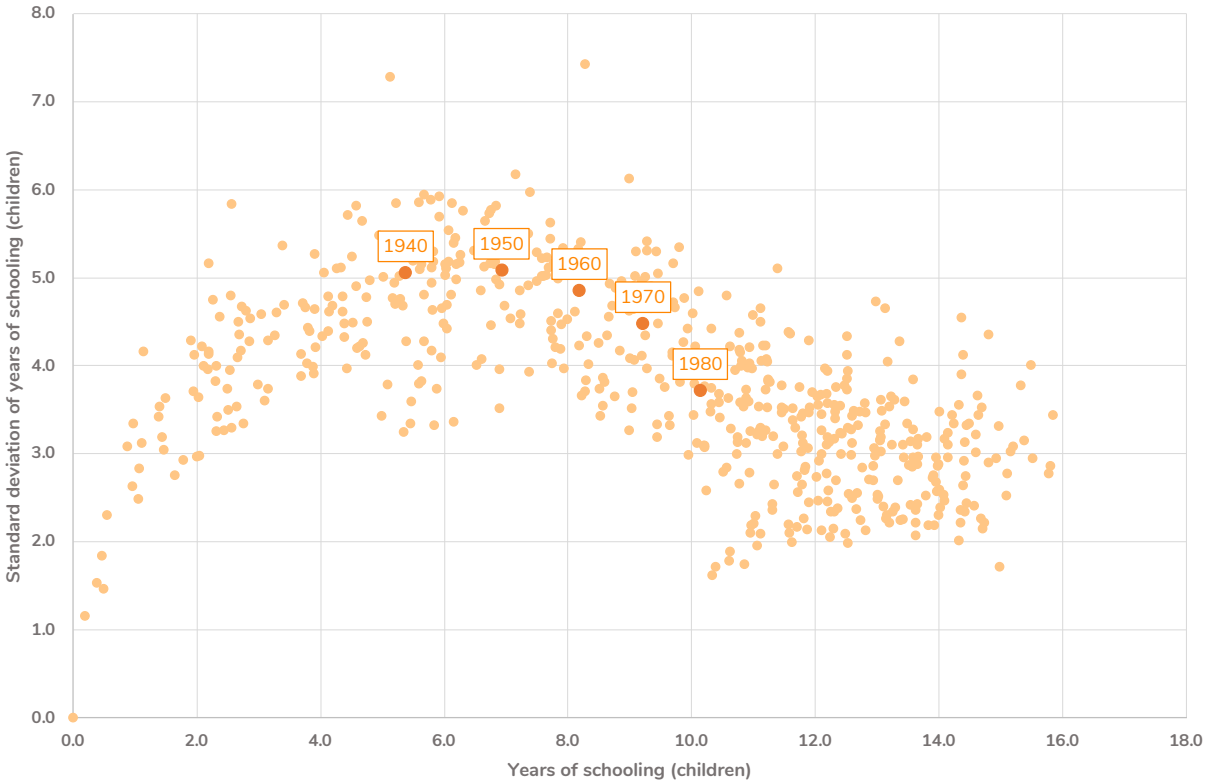
Table 8 also presents the standard deviation of years of study, as it is possible to identify whether there has been an increase or decrease in educational inequality over the years in these countries. **Among those born in the 1940s and 1980s in all countries except India, there was a fall in educational inequality, with the largest falls in South Korea and in South Africa (2.7 and 2.3 years, respectively)**. This result indicates that schooling is becoming more homogeneous in these countries. That is, it is not only one part of the population getting a lot of education and the other part, little, generating a higher average, and with a lot of inequality; but rather a wider distribution of schooling for the population of these countries.

Graph 16 combines average schooling and educational inequality (standard deviation of years of study) for each country/cohort. **An inverted U relationship between the two quantities for the pair set can be observed. Specifically, it is observed that educational inequality is on a continuous downward trajectory for cohorts born after 1950 in Brazil, while the average schooling rises – in line with the general pattern presented for the other cohort/country pairs.**

Educational inequality increases as the average years of schooling increase, until it peaks around 6.0 to 7.0 years. After this peak, inequality begins to decrease as average schooling increases further. In Brazil, the peak occurred in the generation of individuals born in the 1950s and has been decreasing among younger generations (points in bold color on the chart).

This pattern of data by country has been known at least since Ram (1989). One possible reason is that the first educational gains of the adult population in poor countries occur only for a fraction of the population, which increases educational inequality. As basic education is universalized, with the increase in national income, there is a decrease in inequality.[25]

[25] This literature arose as a result of the provocation of Simon Kusnetz who, in 1954, formulated a general hypothesis for empirical (fragile) evidence that middle-income countries would have greater inequality than poor countries and than rich countries (his hypothesis is that this could occur due to the process of urbanization and release from agricultural work). Ram's work offers an alternative and complementary explanation to that of Kusnetz, who goes through the schooling movement. This is quite complex literature. The very empirical evidence that the inverted U for income actually occurs is quite disputed. There is little data covering the entire distribution of income for countries when they were poor. Kusnetz uses panel data from the period 1870 to 1930 from Prussia, USA, and the United Kingdom and from relatively fragile evidence formulates the famous hypothesis (the author himself considers his paper "95% theoretical and 5% empirical" and warns of the fragility of the data).



Graph 16 - Relationship between years of schooling and educational inequality

Source: Own elaboration based on GDIM 2018 (World Bank).

Note: The highlights with the birth cohorts refer to the data from Brazil and the other points are from the other countries with available data.

2.3 High School and higher education completion rates for offspring

Brazil has shown significant gains in the percentage of individuals who complete at least High School, throughout generations, as can be seen in Graph 17. The proportion of the population with complete High School more than tripled between the generations of 1940 and 1980, from 18.8% to 66.6%.

The difference between the set of high-income countries and those with low income stands out. **While among individuals born in the 1940s in high-income countries, about 57.5% completed High School, in low-income countries, the percentage is 4.5%. Among those born in the 1980s, about 88.9% completed High School in high-income countries, and 15.5% in low-income countries.**

Considering some countries, it is verified through the data available on the IMDS website that, as in Brazil, there was also a significant increase

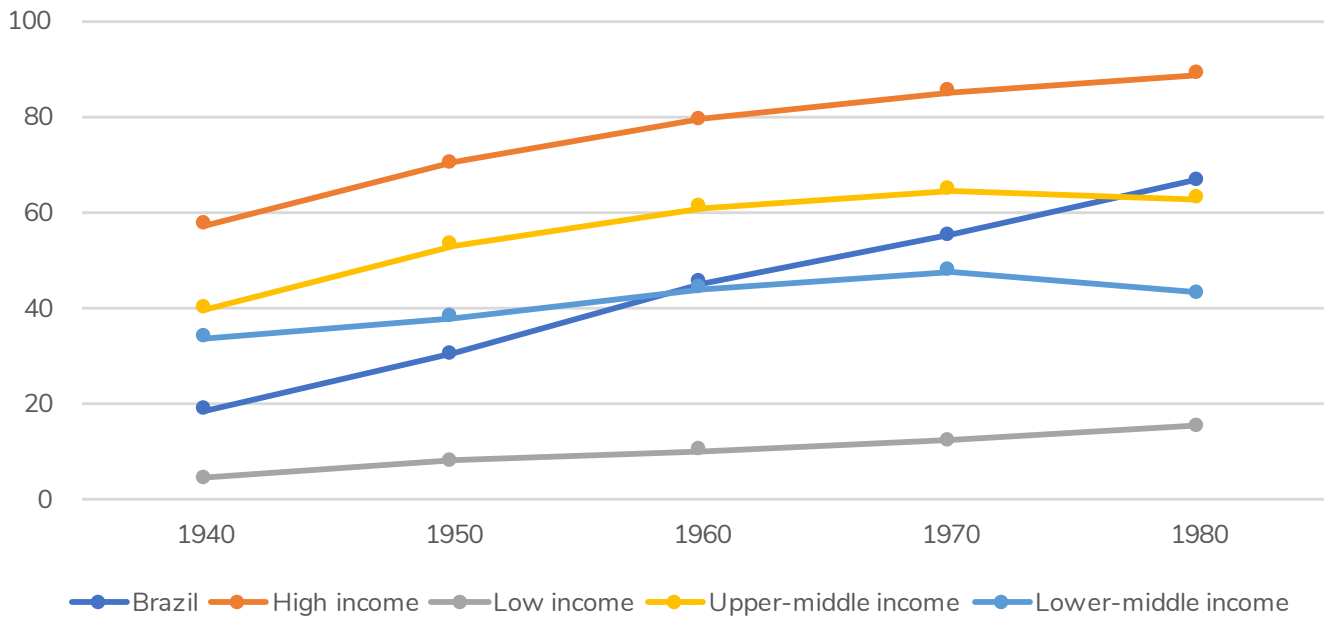


Gráfico 17 - Taxas de conclusão do ensino médio ou mais no Brasil e conjuntos de países
Fonte: Elaboração própria com base no GDIM 2018 (World Bank).

in the percentage of children with complete High School education in Mexico, China and India. In China, 7.8% of children born in the 1940s completed High School, reaching 48.2% for those born in the 1980s.

However, this is not the reality for several countries located mostly in the African continent. In countries such as Niger, South Sudan, Tanzania, Chad, Senegal, in the generation of children born in the 1980s, less than 10.0% completed High School. On the other hand, in countries such as the United States, Canada, Russia and Kazakhstan, already in the generation of those born in the 1940s, more than 80.0% of children completed High School. Graph 18 shows the High School completion rate by gender of offspring.

In lower-middle-income and low-income countries, for all cohorts the percentage of High School completion is higher among men than among women. The average for upper-middle-income countries, among those born in the 1980s, women had a higher percentage than men. In high-income-countries, though, women born as of the 1970s surpass the percentage of men who have completed High School. On the other hand, it is verified that in Brazil, for all cohorts, the percentage of women who complete High School or more is higher than that of men.

When comparing the percentage of Brazilian men who completed High School born from the 1940s to 1960s, to those from lower-middle-income countries, the former are always at a lower percentage. Only

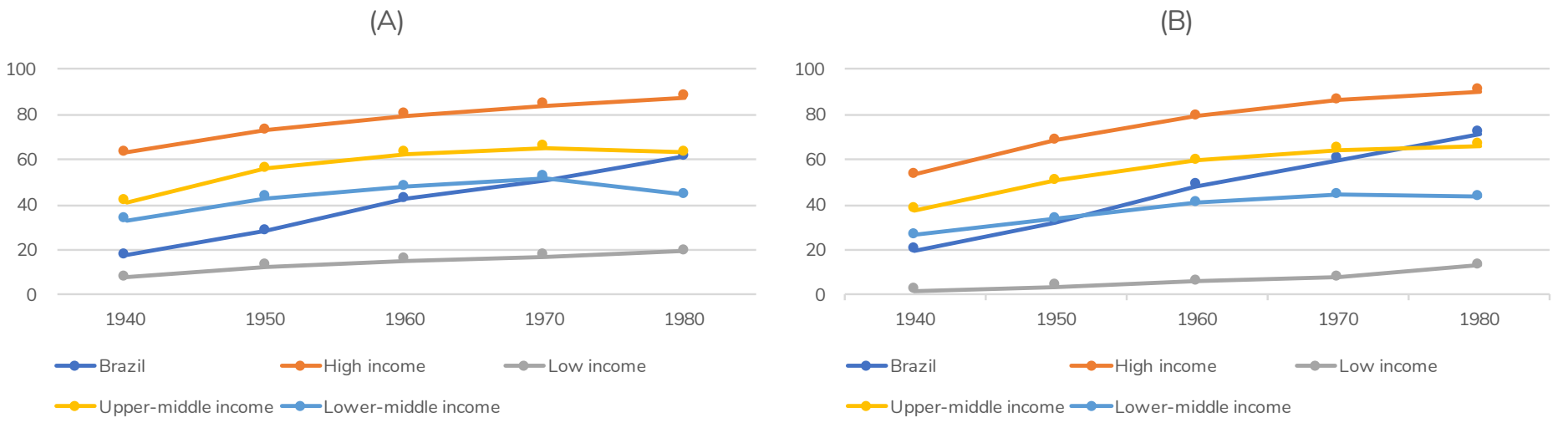


Gráfico 18 - Taxas de conclusão do ensino médio ou mais - Homens (A) e Mulheres (B)
Fonte: Elaboração própria com base no GDIM 2018 (World Bank).

among those born in the 1970s is this situation reversed and the High School completion rate of Brazilian men approaches the average for upper-middle-income countries, the group to which it belongs.

Among women, the reality is different, only if considering those born in the 1940s and 1950s when the percentage of High School graduates is lower than that for the average of middle-income countries. Those born in the 1960s have higher High School completion rates than those born in lower-middle-income countries, and over the decades are approaching, and even surpassing (considering those born in the 1980s) the rate of those born in upper-middle-income countries.

However, despite evolving in High School completion rates, Brazil is still behind several countries in terms of higher education completion rates.

Graph 19 shows the percentage of individuals born in different decades who completed higher education in Brazil and the average of countries of different income groups.

It is verified that in the average of high-income countries the percentage of offspring with higher education is much greater than in other groups of countries throughout all generations, and this difference is accentuated if children born as of 1960 onwards are considered.

When Brazil is compared to other upper-middle-income countries, there has been a very close performance for all cohorts, only lagging behind the last cohort. Among those born in the 1980s, in the average of upper-middle-income countries, 33.0% completed undergraduate studies or higher and in Brazil 26.0% completed this

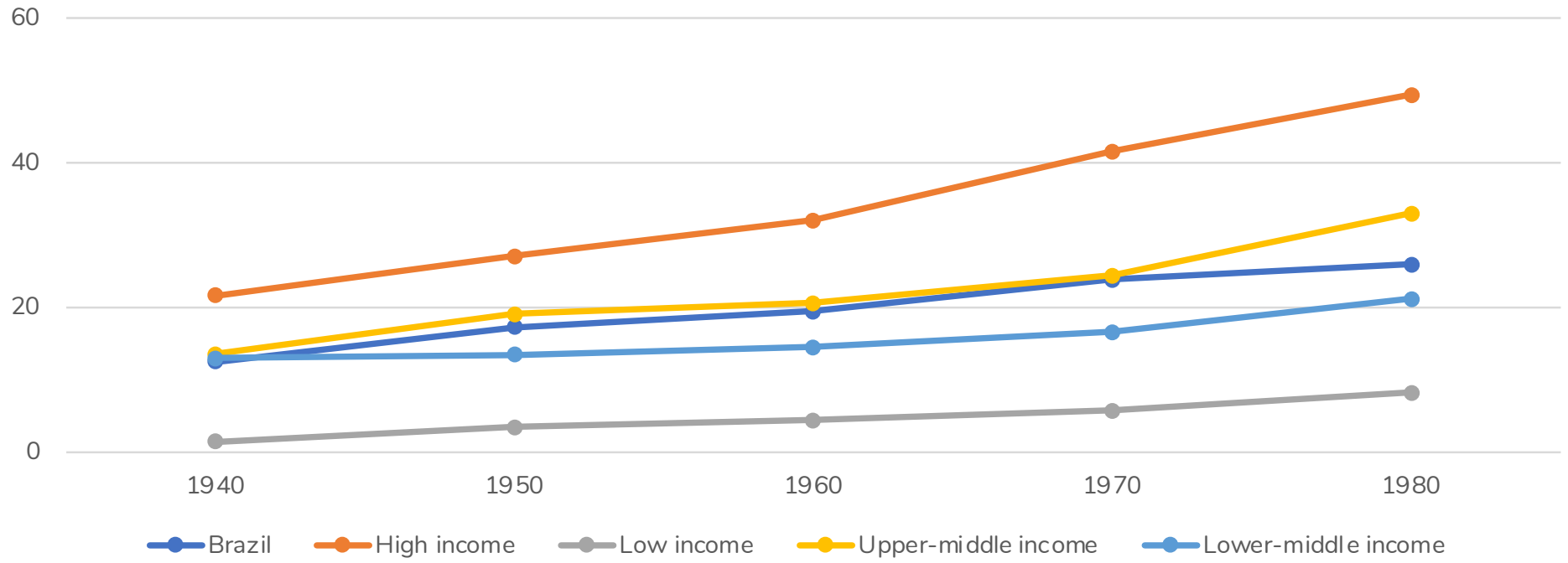


Gráfico 19 - Taxas de conclusão do ensino superior ou mais no Brasil e conjuntos de países
Fonte: Elaboração própria com base no GDIM 2018 (World Bank).

level of education. This lower percentage may have some relation to the engagement in higher education later on by these individuals and the fact that this generation (born in the 1980s) is not young enough to catch the expansion of higher education in the 2000s. Thus, the percentage of individuals who will complete higher education among those born in the 1990s is expected to show a remarkable increase. Graph 20 shows the rate of completion of higher education by gender of the offspring.

In low-income countries, in all cohorts the percentage of completion of undergraduate studies or higher is greater among men than among women. In upper-middle-income countries, women born in the 1970s already have a higher percentage of higher education than men. In high-income countries, women born from the 1960s onwards surpass the percentage of men who have completed higher education. On the other hand, it is verified that in Brazil, the percentage of women who complete

High School or more is higher than that of men since those born in the 1950s, and in the 1940s' cohort the percentage was already quite similar.

It is also possible to identify that the percentage of undergraduate studies graduates or higher among Brazilian men is very close to that of individuals from lower-middle-income countries, while that of Brazilian women is very similar to those in upper-middle-income countries, except in the cohort of those born in the 1980s. This implies that in Brazil, women are ahead of men in terms of the completion of higher education, and the gap has been increasing over the decades. Among men born in the 1980s, 21.6% of men have completed undergraduate studies or higher and among women this percentage is 30.1%.

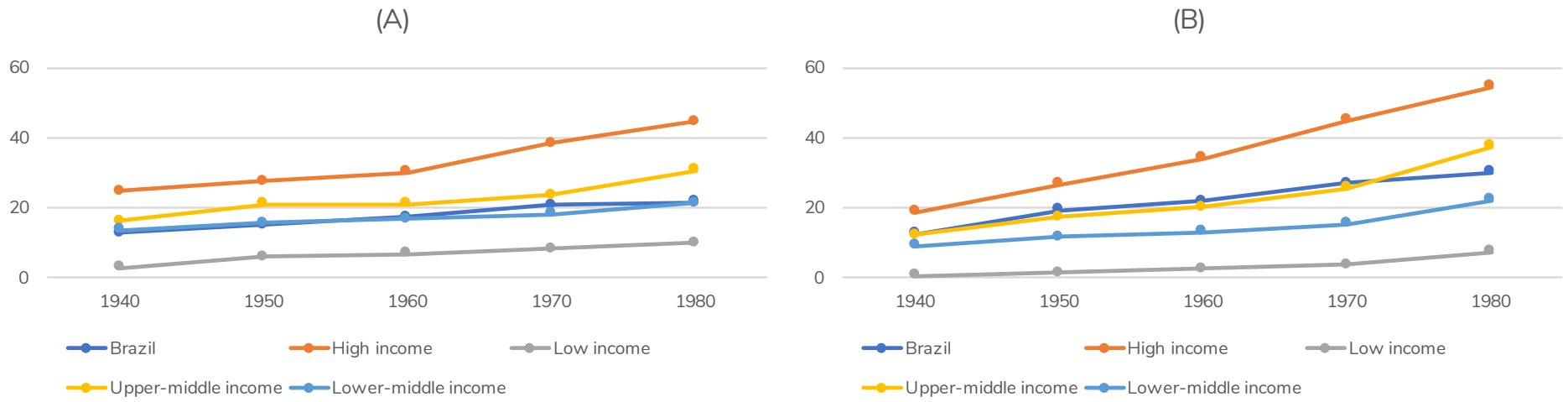


Gráfico 20 - Taxas de conclusão do ensino superior ou mais - Homens (A) e Mulheres (B)
Fonte: Elaboração própria com base no GDIM 2018 (World Bank).

Box 5 - Educational outcomes of parents and offspring in BRICS

Table 9 shows the percentage of parents and children who completed High School or more years of schooling in the 1940s to 1980s in Brazil, Russia, India, China, and South Africa. It turns out that the reality is quite different between these countries, and Russia stands out in relation to the others. Among children born in the 1950s, 90.0% or more completed High School or more years of schooling in Russia. In addition, among those born in the 1980s, the difference between the percentage of parents and children with complete High School education is 9.2 p.p. only.

In South Africa, the percentage of children born between the 1940s and 1980s who completed High School increases considerably (from 20.9% to 54.0%), however the percentage of parents is much shyer (from 10.8% to 16.7%). In China, the percentage of children with complete High School or more born in the 1940s is the lowest among these countries, as is the percentage of parents with this level of education. The percentage of children who complete High School has a higher growth with the generation of children born in the 1970s. And among children born in the 1980s, the percentage who completed High School or more is higher than in India.

In Brazil, the percentage of children with complete High School or more grows much faster between generations than in South Africa (except between 1960 and 1970), China, and India. In addition, the difference between the percentage of parents and children with complete high school or more born in the 1980s is 43.2 p.p., lower only than in Russia, referring to children born in the 1940s and 1960s.

But what does the difference between the percentage of parents and offspring with complete High School or more mean? In general, it shows that the generation of children is studying more than their parents, in addition, a greater difference shows that the opportunities to study are increasing more and more in the generations of their children, in relation to the generation of parents. And a small difference, what does it represent? This one can have two explanations. Either the percentage of parents who have completed High School or more is low and that of children is also low (cases mainly from South Africa. Brazil. and China among those born in the 1940s), or percentage of parents who have completed High School or more is high and that of their offspring is also high (Russian case among children born in the 1980s). In the first case there is a negative reality and in the second a positive reality.

The tendency is for there to be a small difference in previous years, when parents and children studied little; afterwards, when the opportunities for schooling increase this difference increases, and when these schooled children have their children at completion age of studies, in this case High School, the difference decreases again, though with parents and children presenting higher levels of education.

		Percentage of parents and offspring with completed High School education or more		
		Parents	Offspring	Difference
South Africa	1940	10.8	20.9	10.1
	1950	13.4	30.1	16.8
	1960	9.5	35.1	25.6
	1970	13.3	49.8	36.5
	1980	16.7	54.0	37.4
Brazil	1940	7.1	18.8	11.7
	1950	8.3	30.5	22.2
	1960	10.8	45.4	34.6
	1970	16.9	55.3	38.5
	1980	23.4	66.6	43.2
China	1940	2.9	7.8	4.9
	1950	3.7	16.9	13.2
	1960	7.1	21.4	14.3
	1970	11.6	24.6	13.0
	1980	19.9	42.5	22.6
India	1940	6.7	21.7	14.9
	1950	8.5	24.5	16.0
	1960	10.8	22.9	12.2
	1970	15.8	29.1	13.3
	1980	21.3	38.1	16.8
Russia	1940	26.2	79.0	52.7
	1950	31.4	90.0	58.7
	1960	45.2	94.8	49.6
	1970	64.3	93.7	29.4
	1980	85.0	94.2	9.2

Table 9 – Percentage of parents and offspring with complete High School or more years of schooling

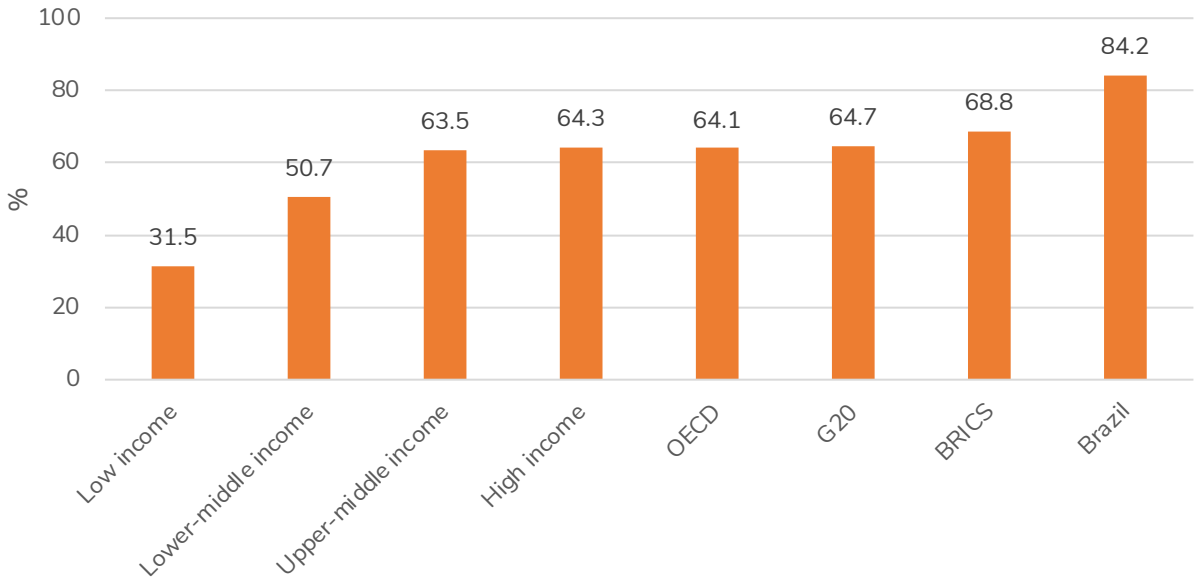
Source: Own elaboration based on GDIM 2018 (World Bank).

2.4 Upward educational mobility

Upward educational mobility indicates the percentage of individuals who strictly surpassed the level of schooling of their parents . Graph 21 shows the percentages, considering the average of the groups of countries analyzed and Brazil, of children born in the 1980s who present upward intergenerational mobility in education in relation to their parents.

Considering low-income countries, 31.5% of children born in the 1980s achieved higher education levels than their parents – less than half of what was observed in upper-middle-income and high-income countries, the OECD, the G20 and the BRICS. For the same generation of children born in the 1980s, Brazil has unexpectedly positive results: approximately 8 out of 10 achieved higher levels of education than their parents (84.2%). Considering the upper-middle-income group, in which it is classified, about 6 out of 10 represent cases of upward educational mobility.

Graph 22 shows the difference in terms of upward intergenerational mobility in education in Brazil and other upper-middle-income countries.



Graph 21 – Upward Intergenerational Mobility in Education: children born in the 1980s, groups of countries and Brazil

Source: Own elaboration based on GDIM 2018 (World Bank).

[26] That is, the offspring are not considered in the numerator who completed undergraduate studies or higher, and whose parents did so as well. The reason for the exclusion is that the vast majority of countries do not separate complete undergraduate studies from master's and doctorates, and even if they were to do so, many of them would have a very small sample in this range (we are analyzing about 190 countries, the vast majority of them with low average adult education). In addition, the idea when analyzing this indicator is to identify the percentage of children who presented educational improvements in relation to their parents. Therefore, although we may consider it positive that the offspring reach the highest level of education considered, as well as their parents, this result, strictly speaking, does not express upward movement.

Box 6 - Very high disparities in intergenerational mobility in education on the African continent: what can explain this reality?

Major differences in terms of upward intergenerational mobility in education occur among African countries. For example, while "The likelihood that children born to parents with no education complete primary schooling exceeds 70% in South Africa and Botswana; the corresponding statistic in Sudan, Ethiopia, Mozambique, Burkina Faso, Guinea, and Malawi hovers below 20%" (Alesina and co-authors, 2021, p.2). And what did the authors (Alesina and co-authors, 2021) evidence as characteristics that are tied to this inequality between the countries of the African continent?

Evidence has indicated that parents' literacy is a strong indicator of upward and downward mobility. A 10.0 percentage point increase in parents' literacy is associated with an increase of about 7.0 percentage points in the likelihood that the offspring of illiterate parents will complete Elementary and Junior High School and a 4.5 percentage point lower chance that children of literate parents will be illiterate.

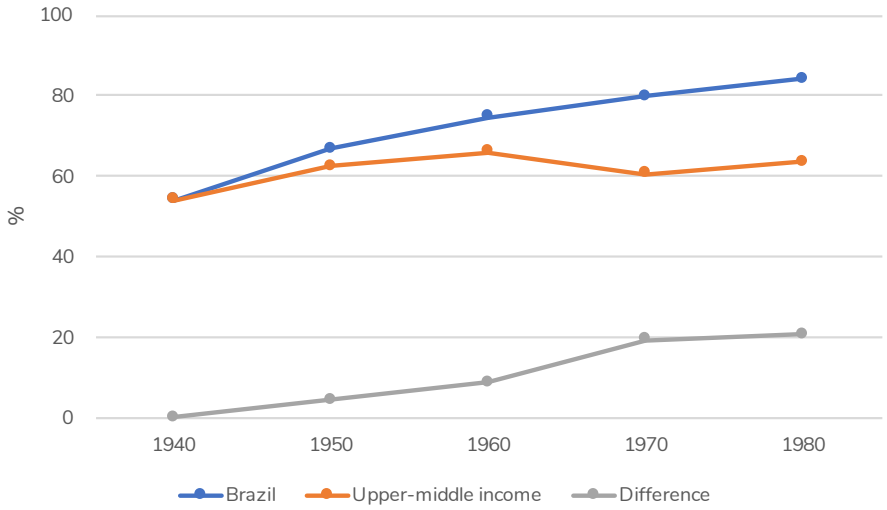
Population density, used as a proxy for development, distance to railways and colonial roads (shorter distance), proximity to Protestant missions, proximity to coastal areas and type of topography (rugged regions) have a positive relationship with upward mobility. On the other hand, agricultural employment and a malaria-friendly ecology are negatively correlated with upward intergenerational mobility in education in African countries. The region in which the child grows up also explains mobility. Boys and girls whose families move to regions with higher upward mobility before children are 12 years old are significantly more likely to complete Elementary and Junior High School*.

* Chetty and Hendren (2018) also investigated the educational performance of children whose families moved to a better/worse region – in terms of average mobility – at different ages to identify the rate at which their performance converges to that of permanent residents. However, they investigated families who moved in areas and counties in the United States.

It is noticeable that, among children born in the 1940s, the percentage of upward mobility was identical, if Brazil and the average of the countries in its group (upper-middle income) is considered. However, for each generation, Brazil presented a consistent and distinct (greater) evolution of the trend presented by the average of upper-middle-income countries, and the greatest difference occurred among the offspring born between the 1970s and 1980s, about 20.0 p.p.

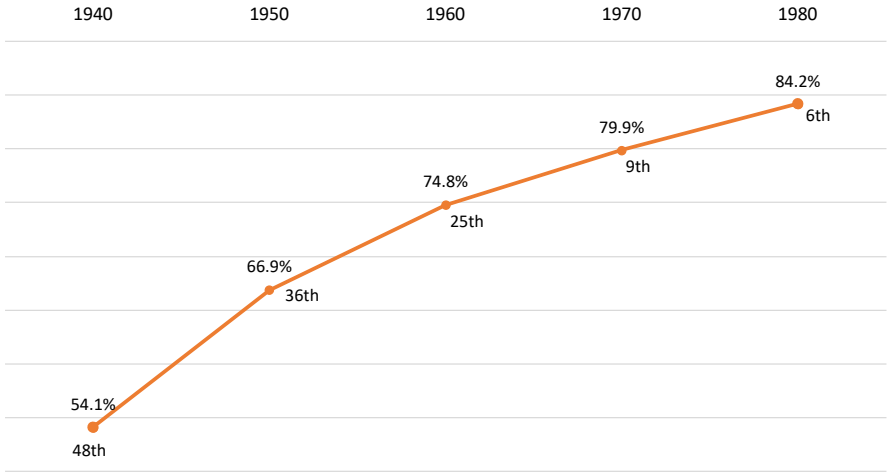
It is also noteworthy that, if the percentage of upward mobility of each of the countries included in the World Bank data were considered and a ranking constructed, the first place would go to the country with the highest percentage of upward intergenerational mobility in education, and it is possible to verify that Brazil has been the one moving up from one position to the next along all these generations (Graph 23).

Brazil came out in the 48th position in the 1940 generation (considering the existence of data available for 97 countries) and reached the 6th position in the 80s generation (considering the data available for 138 countries). Among offspring born in the 1940s, 54.1% had higher schooling than their parents. Among those born in the 1980s, the percentage is 84.2%, which reveals a great advance in educational terms for Brazil.[27]



Graph 22 – Upward intergenerational mobility in education: Brazil and the average in upper-middle-income countries

Source: Own elaboration based on GDIM 2018 (World Bank).



Graph 23 – Percentage of upward intergenerational mobility and relative position of Brazil in upward intergenerational mobility in education

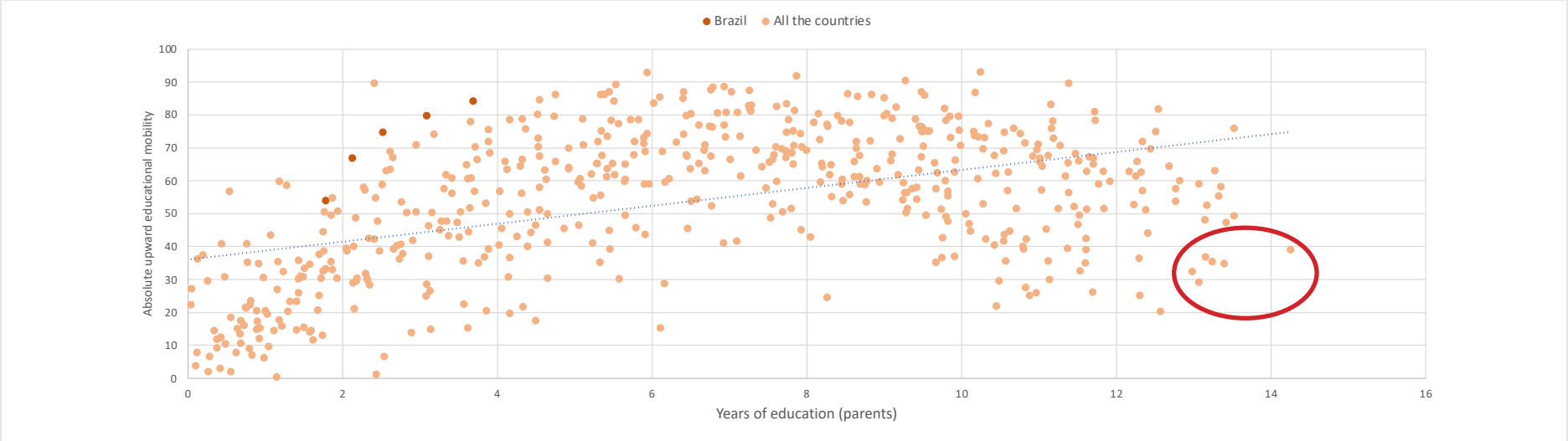
Source: Own elaboration based on GDIM 2018 (World Bank).

[27] In Section 1, we analyzed upward mobility based on the OECD database and adapted the indicator to the categories of that organization, which were only three (as shown in section 1.1). In the case of World Bank data, there are more educational categories, specifically a greater opening of education levels of uneducated parents (as shown in section 2.1), so the results of Section 1 and Section 2 differ for the same country and indicator..

Box 7 - Relationship between the years of study of parents and upward educational mobility

Graph 24 shows the behavior of the curve that relates the years of study of parents and upward educational mobility (indicates the proportion of individuals who exceeded their parents' level of education, disregarding those whose parents achieved at least complete higher education). It turns out that it is a concave curve (resembling an inverted U), in which at first, when parents have fewer years of study, the percentage of children who study more than their parents increases. This percentage tends to increase up to a certain average of parents' years of schooling (mainly between 6 and 9 years) and after that the percentage of mobility tends to decrease. This decrease tends to occur because parents have a high average of years of schooling and children reach at most the same level of education as parents, in this case, complete High School.

More specifically in relation to Brazil, intergenerational mobility in births presented an upward path, in which each decade the offspring studied more than the parents. This is because the average years of study of parents is quite low (the average years of study of the parents of offspring born in the 1980s is 3.7 years). It is also noteworthy that Brazil is above the average of other countries, such as Jordan and China, in terms of upward mobility, if considered those whose parents have the same average years of study, in this case 2.1, 2.5, 3.1, and 3.7 (parents of offspring born in the 50s, 60s, 70s and 80s). On the other hand, the countries that are circulating, in this case Germany (children born between 40 and 80) and the Czech Republic (children born in the 1980s), are in the downward part of the curve, because the average number of years of study of parents is more than 13 years, thus the percentage of upward mobility decreases*.



Graph 24 – Relationship between the years of study of parents and the upward educational mobility
Source: Own development based on GDIM 2018 (World Bank).

*To see which country and decade of birth of the offspring, which each point represents, visit the IMDS website > Section Indicators of Intergenerational Mobility > International > Intergenerational Educational Mobility - Global Panorama (World Bank) > Relationship: parent's level of schooling and intergenerational mobility.

2.5 Intergenerational persistence in education

The intergenerational persistence in education coefficient (years of study) is a measure of intergenerational mobility widely used in the literature, which evidences the degree of determination of parents' schooling on their children's schooling (in Box 3 of Section 1.4 the characteristics of this coefficient are presented in more detail).

Figure 1 lists countries according to the degree of intergenerational persistence in education between parents and offspring born in the 1980s. On the IMDS website, it is possible to verify the intergenerational persistence for children born in previous decades.

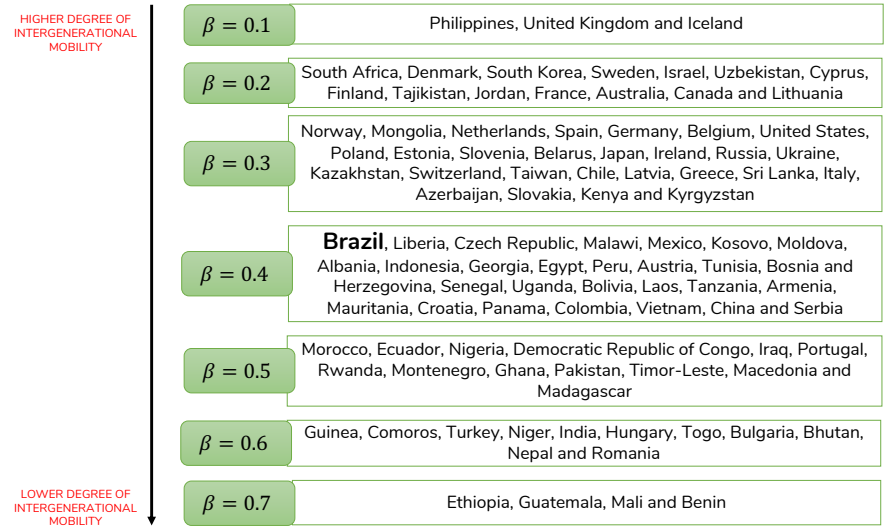


Figure 1 – Overview of the intergenerational persistence in education in Brazil and in the world for offspring born in the 1980s

Source: Own elaboration based on GDIM 2018 (World Bank).

[28] Visit the IMDS website via the link: www.imdsbrasil.org

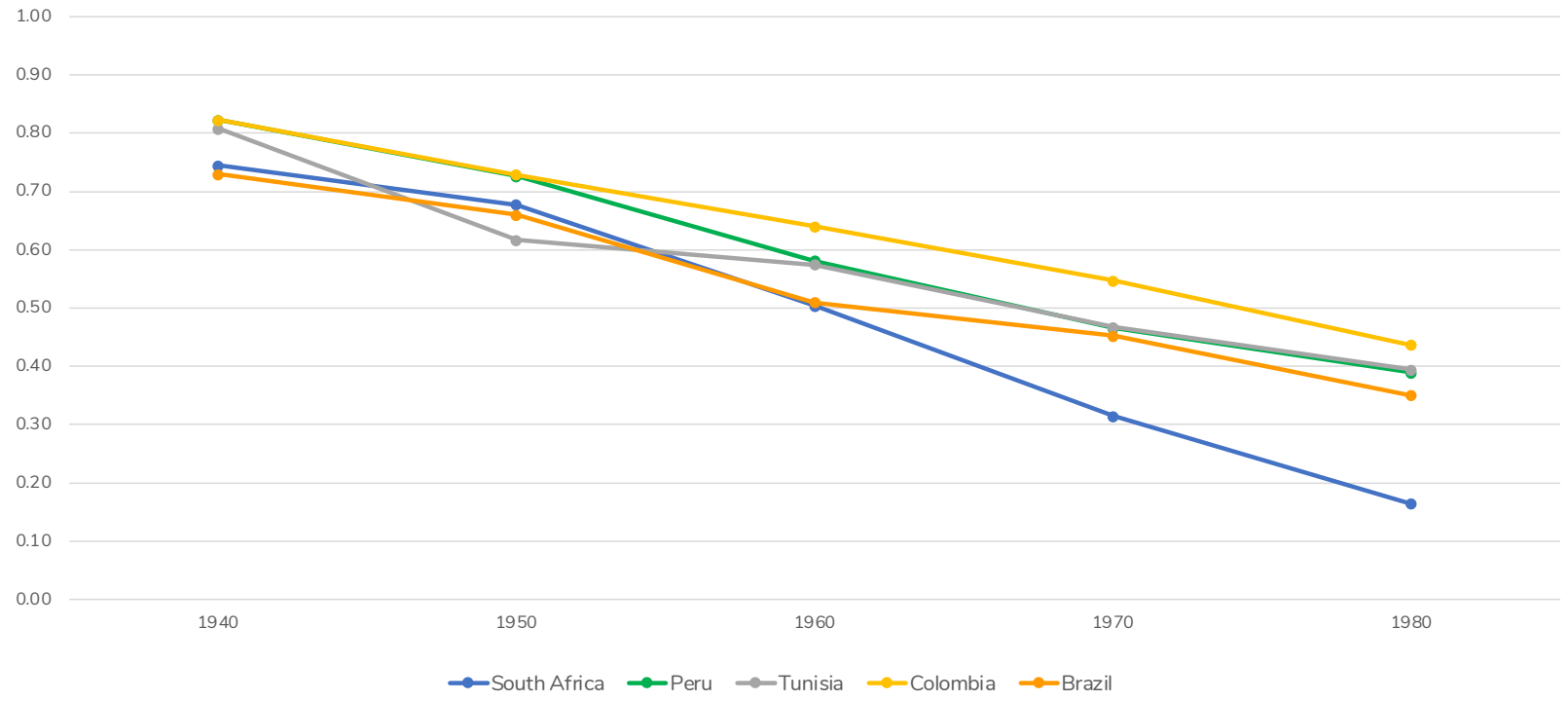
It is identified from Figure 1 that most countries have an intergenerational persistence coefficient of 0.3 or 0.4. **In Brazil, as well as in other Latin American countries, such as Mexico, Peru, Bolivia, Panama and Colombia, the intergenerational persistence coefficient in education is 0.4, which can be considered an intermediate degree of mobility.** The country in Latin America with the lowest intergenerational persistence is Chile, equaling the United States, Japan, Russia and most European countries (0.3).

In some countries, however, especially among those located in Africa, Eastern Europe and South Asia, the level of education of children is strongly determined by the parents' schooling (coefficients between 0.5 and 0.7). In Ethiopia, Mali and Benin, Africa, and Guatemala, Central America, the intergenerational persistence coefficient is 0.7, indicating a lower degree of mobility than other countries.

High persistence coefficients, when compared to those of other countries or previous times, suggest that there is considerable talent loss in different generations. This reality, which is that of most countries on the African continent, is unfair to individuals who are unable to realize their potential and live in better financial conditions and quality of life. And more than unfair, it is detrimental to the country's overall economic productivity (MAJOR & MACHIN, 2020).

Graph 25 shows the variations in the intergenerational persistence in education coefficient among children born in different decades in the five countries that presented the greatest changes between the 1940s and 1980s. Although high for children born in the 1940s, all of them showed a consistent reduction in the persistence coefficient over 40 years, though most of them still have a high value for this statistic.

Brazil is among these countries, with an intergenerational persistence level between parents and children born in the 1940s of more than 0.7 and among children born in the 1980s of about 0.4. This decrease in the coefficient shows that the schooling of children born in more recent decades is less tied to the parents' schooling, thus suggesting greater equality of educational opportunities among younger individuals.



Graph 25 – Countries with the greatest variation in the intergenerational persistence in education coefficient among generations born in the 1940s and 1980s
Source: Own elaboration based on GDIM 2018 (World Bank).

The country with the highest variation in the intergenerational persistence coefficient is South Africa, which had a coefficient of more than 0.7 in the generation of children born in 1940, and for the generation of children born in the 1980s is less than 0.2. It is also noted that for the countries presented in the graph, there was a continuous fall in the coefficient of intergenerational persistence with each younger generation of children.

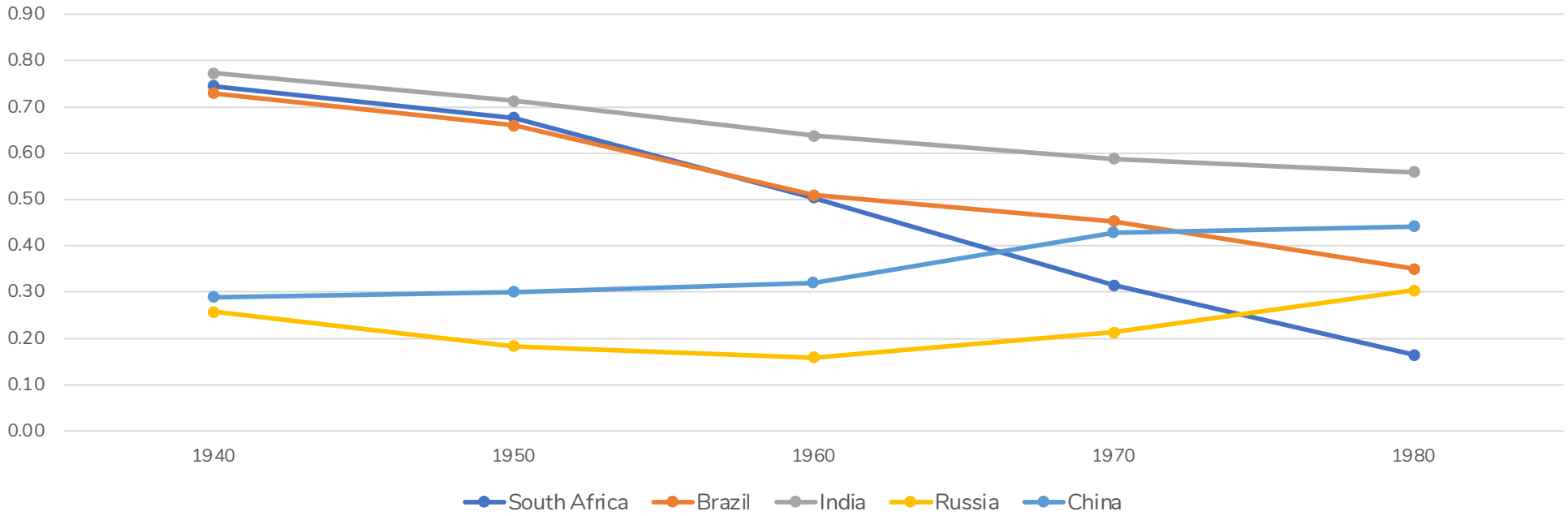
Graph 26 shows, in a comparative way, the evolution of intergenerational persistence in education over generations in the five major emerging countries that make up the BRICS – Brazil, Russia, India, China, and South Africa – which together represent about 42.0% of the world population, 23.0% of GDP, 30.0% of the territory and 18.0% of world trade (BRICS BRASIL, 2019)[29].

It is noteworthy that in India, South Africa, and Brazil, there was a decrease in intergenerational persistence with each younger generation of children. In India, however, the reduction was lower than in Brazil and South Africa. The latter, in turn, which for generations born between 1940 and 1960 presented results very similar to those of Brazilians, maintains the

[29] http://brics2019.itamaraty.gov.br/

pace of reduction of intergenerational persistence and distances itself from Brazil. On the other hand, in China and Russia, where intergenerational persistence was low considering children born in the 1940s (between 0.2 and 0.3), for the generation of children born in 1980, intergenerational persistence increased, especially in China.

More specifically, in relation to Brazil, there was a reduction in intergenerational persistence over the generations of 1940 and 1980, keeping it in 3rd place in the BRICS ranking in terms of intergenerational persistence. South Africa is the country with the greatest reduction over the generations of 1940 and 1980, from 0.7 to 0.2 the association between the schooling of parents and offspring, the lowest of the 1980s. This result, as well as the others shown in this synthesis, indicate that despite advances in terms of educational achievements in Brazil among those born in the 1940s and 1980s, Brazil is still behind many countries and great efforts are still needed to make the country more egalitarian, in which the child's schooling is not determined by the father's schooling.



Graph 26 – Evolution of intergenerational persistence in education in the BRICS

Source: Own elaboration based on GDIM 2018 (World Bank).

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Appendix

Table A1 - Participating countries and sample sizes in PIAAC

Country	Sample without sample weight	Sample with sample weight
Austria	5,130	5,647,341
Belgium	5,463	4,138,042
Canada	27,285	23,381,067
Czech Republic	6,102	7,395,111
Germany	5,465	53,657,540
Denmark	7,328	3,629,087
Spain	6,055	31,091,563
Estonia	7,632	896,163
Finland	5,464	3,496,909
France	6,993	40,049,569
England	5,131	34,257,191
Northern Ireland	3,761	1,165,218
Ireland	5,983	2,994,368
Italy	4,621	39,369,830
Japan	5,278	81,059,238
South Korea	6,667	34,602,008
Netherlands	5,170	11,160,541
Norway	5,128	3,282,755
Poland	9,366	26,741,987
Russia[1]	3,892	87,415,088
Slovakia	5,723	3,870,993
Sweden	4,469	5,985,923
United States	5,010	203,144,374

Source: OECD (2019, p. 470)

Note: [1] The sample of the Russian Federation does not include the population of the municipality of Moscow. The published data, therefore, do not represent the entire population residing in Russia, but rather the population of Russia, excluding the population residing in the municipal area of Moscow.