imds
instituto mobilidade e
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School abandonment and dropout in Brazil

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1. Introduction

Brazil has managed to substantially reduce school abandonment and dropout[2] over the past two decades. These reductions have a great potential to increase the future social mobility of the generation of young people with lower abandonment and dropout rates.

An IMDS study shows that the number of years a person stays in school depends heavily on their fathers' schooling. While 95% of the children of fathers with at least complete higher education complete High School, this percentage is 25.9% for the children of fathers without schooling. The same study showed that this difference has been falling systematically between generations, due to the reduction of dropout rates in High School precisely of the population that, a few generations ago, would not have completed High School (the children of less educated parents) (Institute for Mobility and Social Development 2021a).

For the generation born in 1980, using data from 2014 (when they were between 25 and 34 years old), 39.2% of the children of uneducated fathers completed at least High School. For the generation born 30 years earlier, for example, this percentage was only 12.3%. However, this rate is still low, especially considering that 98% of the children of fathers with higher education achieve the basic education diploma.

Therefore, from the point of view of the analysis of social mobility, especially educational mobility, it is critical to understand the determining factors of leaving school. Because of this, the IMDS chose the theme of abandonment and dropout as strategic since education is one of the pillars for social mobility.

Additionally, there is concern that this improvement in recent years may be partially reversed, depending on what occurs in the post-pandemic. On the one hand, the weakening of links with the school during the duration of the distance or hybrid education regime (identified in the IBGE publications of PNAD-Covid) can have a permanent effect on the engagement of adolescents who had this experience. On the

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[2] School abandonment occurs when, at the end of the school year, the student is no longer attending the class (without having been transferred). School dropout is characterized by the analysis between one school year and another and happens when the student was enrolled in one year and does not enroll in the next, without having completed basic education.

other hand, the loss of quality in the absorption of knowledge when transmitted remotely – especially when distance learning technologies are not used effectively – can further increase student dismay, which is usually associated with early school departure, or school delay.

Throughout 2021, the IMDS in partnership with other institutions organized national and international seminars on the impacts of the pandemic on schooling. Now, we are launching three technical articles, carried out in partnership with economist Vitor Azevedo Pereira Pontual. In addition, we provide four dashboards in our portal, which organize indicators from the databases of Continuous PNAD and the School Census and two presentations with highlights related to these dashboards.

This technical note seeks to summarize the great lessons based on the analysis of products listed in the paragraph above. Specifically, we contextualize the importance of the phenomenon of dropout and school abandonment and its relationship with social mobility (section 1), and then discuss more widely the problems from the perspective of human development and theories of human capital formation, relating them to social mobility (section 2). In section 3, we define both problems more accurately, and then present a diagnosis of the situation in Brazil, in section 4. The causes and consequences associated with the phenomena of abandonment and dropout are discussed in section 5. Section 6 presents possible paths to placate the problem. We conclude the note in section 7.

We hope that this input will help the reflection of public management in the country and serve as inspiration for future policies and research.

2. Dropout, Human Development and Social Mobility

Dropout is a symptom of the human development problem, whose roots are formed from early childhood. The accumulation of deficiencies in the formation of the child culminates in some cases in dropout, and in most cases, in low cognitive and socioemotional capacity, and low learning. Thus, when we observe the young people who interrupt their studies before the end of High School, we are analyzing a population for which these deficiencies are so extreme that they resulted in leaving school.

The association between dropout and income in the adolescent's home stems from a series of causal factors that cause poorer families to invest less in their children, and whose consequence is a lower rate of accumulation of skills (abilities) *vis-à-vis* children whose homes are more conducive to human development.

Therefore, understanding the problem of dropout and how it acts to reduce social mobility requires us to take a step back in search of an intergenerational logical model of human skills formation. Intergenerational in the sense that the model explains the association between attributes of fathers and children.

Intergenerational persistence of income is the association between the income of the father/mother and the income of the child (as an adult). Intergenerational income mobility is the absence of this relationship. At least 50% of the differences in income from work between people are due to attributes and capacities acquired up to the age of 18 (Cunha, Heckman, and Navarro, 2005). Therefore, increasing intergenerational mobility depends on knowing the factors that generate these differences.

There is a well-established empirical relationship between family income and the accumulated abilities of the child. There are several hypotheses for possible causes of the phenomenon. A widely used hypothesis in social mobility models is that the lack of income (or access to credit) to finance the family's investments in the child would cause children growing up in poorer families to get less training than children whose parents are richer.[3]

The issue is more complex because family income is strongly correlated with other characteristics of the family – and especially of fathers – which also potentially influence the accumulation of children's abilities, such as schooling, personality, skills – innate or not – and family values. Also, the network of social interactions of the family is strongly associated with family income (after all, poor families also generally live in neighborhoods where neighbors are less educated, where there is a higher incidence of violence, and in general where bad influences sometimes prevail). In addition, poor families generally have less information about pedagogical practices that work, tend to participate less in school meetings, tend to have subjective expectations regarding their children which are not the same as those of parents from wealthy families, and all these factors affect the chances of their children.

That is, the list of possible causes of educational underperformance is extensive, and research into the causes should necessarily include the family. As James Heckman and Stefano Mosso put it, "*childhood is the province of the family*" (Heckman and Mosso, 2014). Unfortunately, as the reader will note when reading the material published by IMDS, rare is the experience of programs that act on the family nucleus, and interventions, for the most part, are concentrated in schools, especially in curriculum strategies.

Due to this role of the family, much of the skill differential between poor and rich children is already present before school begins. For example, children of families of liberal professionals have a vocabulary more than twice as large as children of families recipient of welfare programs at the age of three (Heckman and Mosso, 2014). The design of pedagogical practices that do not recognize the previous

[3] For a complete model, see Becker and Tomes (1979), who are the first to develop a model in which parents decide how much they invest in their child, considering the choice between the income they want their children to have as adults and the consumption they themselves want to have throughout their lives. As the authors show, even in the absence of credit restriction, there is already reason for substantial persistence (which stems from the intergenerational inheritance of talents and the marginal propensity to invest in income).

difference (for example, the use of complex literacy methods) can cause the school to increase the differences between children, rather than functioning as an equalizer. Reducing the distance of capacities between poor and rich children through public policies requires ingenious design of strategies for the family, but also thinking of curricula that are not elitist, that is, that do not exclude those who arrive at school at a disadvantage that result from a vulnerable family environment.

A second important aspect of analysis is that performance in adulthood is influenced by multiple abilities. There is a wide range of cognitive-based abilities and socio-emotional abilities. There is also a wide range of actions in adulthood relevant to the well-being of the individual, in addition, obviously, to performance in the labor market. For example, critical decisions such as forming a family (having children and how many children to have and at what time); engage in criminal activities or not and consequently the likelihood of being arrested; living in a healthy way, thus reducing the probability of death, or disabling event, among others. The various forms of skills have different effects on critical decisions in adulthood, and consequently on their results.

A third relevant aspect for thinking about effective public policies on social mobility is that there are different windows of opportunities for the development of each of these capacities (capacity malleability). For example, while cognitive development is based on investments in early childhood, some socio-emotional skills are formed in adolescence. Understanding the time of each one, and the complementarity between them is crucial for the design of interventions with an effect on social mobility.

On the other hand, there is much to be done in the context of the transmission of knowledge, which involves a more efficient functioning of the public school. From research that calculates the value of a good teacher, for example, it is known, from data from the United States, that replacing a teacher who is among the 5% worst by one with average performance increases the income over the life of the class by 250,000 dollars (Chetty, Friedman and Rockoff, 2014). Still dealing with teaching issues, complex literacy pedagogies can delay the reading learning of the poorest, which ends up resulting in a rarer acquisition of knowledge, and later even a school dropout event.

The school is also a trainer of non-cognitive abilities, as well as shaping the reference base of the child and adolescent, especially the latter. Pedagogy within the school should associate formal learning with the acquisition of socio-emotional skills. For example, the use of pedagogy in the practice of collective sports is a gateway to various types of learning. Counseling programs can also be deployed from school and compensate for the absence of family support, partially reversing vulnerabilities of children, for example, whose father is absent. In Brazil, about 30% of children in poor households live only with a guardian, being the mother the one responsible in the vast majority of these cases (almost 92%), according to an IMDS study that analyzed poverty in childhood and adolescence and its correlations with the home environment (Institute for Mobility and Social Development 2021c).

Programs that use the formation of references for young people are, in this sense, inducers of social mobility, both by their impact on the reduction of dropout and because they also have effects on a number of other socio-emotional competencies fundamental for individual achievement.

Having made this preamble, let us return to the theme of dropout.

3. Definition of abandonment and dropout

For clarity on the terms used here, we will talk briefly about performance indicators and school flow. More details are presented in the article "Diagnosis of school abandonment and dropout in Brazil".

When we deal with the student's situation regarding the school, we can consider the period of one school year. In this case, the income variable is defined as that which expresses what occurred at the end of the school year. There are three main situations: approval, when the student achieves satisfactory grades and attendance; failure, when either the student does not attain the required grades or minimum attendance; and **abandonment**, characterized when the student is no longer attending school at the end of the school period, without having been transferred.[4]

The other way to analyze the student's situation is by looking at enrollment in two school years in a row – characterizing a variable called flow or transition, when what occurred at the beginning of a school year is compared to the previous school year. In this case, there are also three possibilities: promotion, when the student is enrolled in a higher grade compared to the previous school year; repetition, when he enrolls in the same grade/year as the previous school year; and **dropout**, when he was enrolled in the previous year, but is not enrolled in the subsequent school year.

Typically, abandonment and dropout are evaluated together because they are interconnected phenomena. But there is no deterministic bond between them. A student can abandon a grade one year and, the following year, enroll again in the same grade. In turn, the dropout may have been triggered not by abandonment the previous year but by failure.

That said, in the following sections, we will use these concepts to describe the problem of abandonment and dropout and discuss the results of available scientific evidence regarding their causes and consequences.

[4] The student can be classified as having abandoned even when he meets the minimum of 75% attendance so as not to fail due to absences (art. 24 of Law 9.394/1996). To characterize abandonment, it is enough to be absent at the end of the school period (e.g. for final exams).

4. Diagnosis

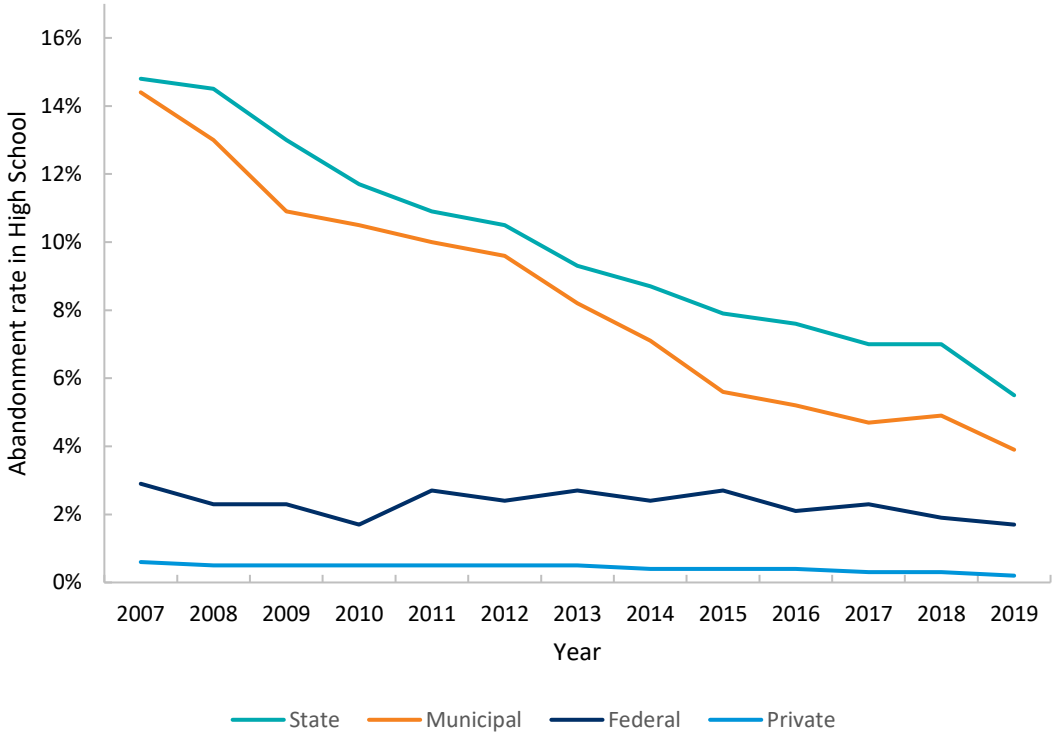
4.1 Situation of dropout and school abandonment in Brazil

The Law of Guidelines and Bases of Education imposes on the family and the State the duty to ensure the "full development of the student, his preparation for the exercise of citizenship and his qualification for work" (Art. 2).[5] In addition, it is established as the duty of the State to guarantee "compulsory and free basic education from 4 (four) to 17 (seventeen) years of age", which should be organized in the form of Preschool, Elementary and Junior High School and High School (Art. 4).

The results described in "Diagnosis of school abandonment and dropout in Brazil" indicate a positive evolution in abandonment and dropout rates, with both falling since 2007 up to 2019, with a greater reduction for abandonment, as can be seen in Figure 1 and Figure 2. In just over a decade, abandonment rates in state and municipal public schools have dropped from about 15% to 4% in municipal schools and less than 6% in state schools. Only part of the reduction in abandonment resulted in a decrease in dropout, although significant reductions occurred in all segments of public education – to note, a drop from 16% to 8% in the dropout rate in municipal education in the period 2007/2008 to 2017/2018.

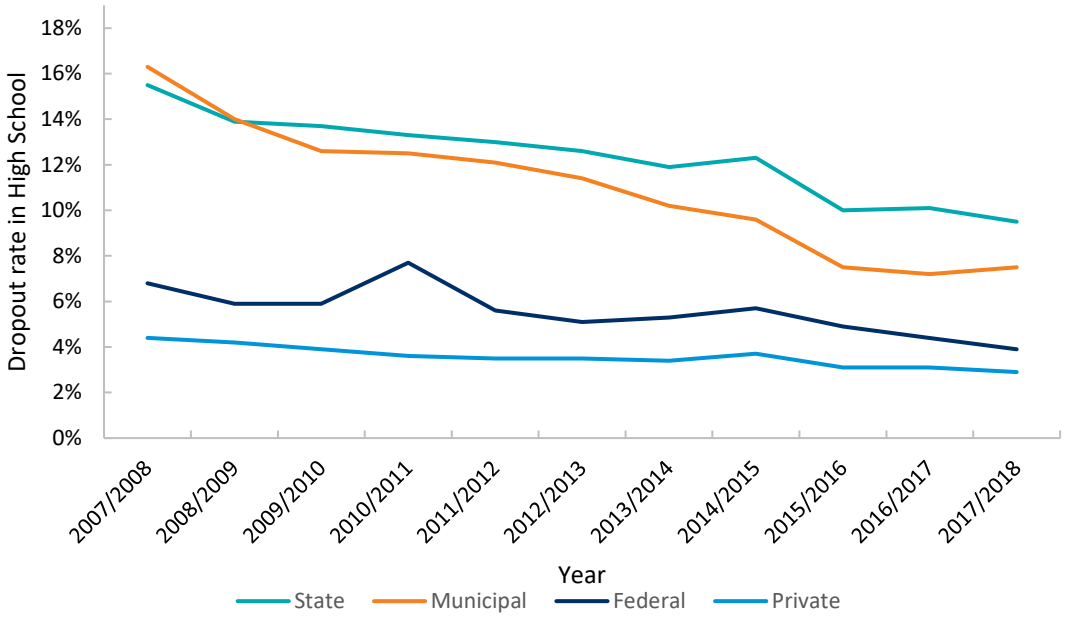
[5] Law No. 9,394, of December 20, 1996, the so-called Law of Guidelines and Bases of Education.

Figure 1: Evolution of school abandonment rates in High School – Brazil



Source: (Pereira 2022a), from the performance data of the National Institute of Educational Studies and Research Anísio Teixeira (INEP) tabulated by IMDS. The abandonment rate refers to the rate at the end of the year.

Figure 2: Evolution of the dropout rate in High School – Brazil



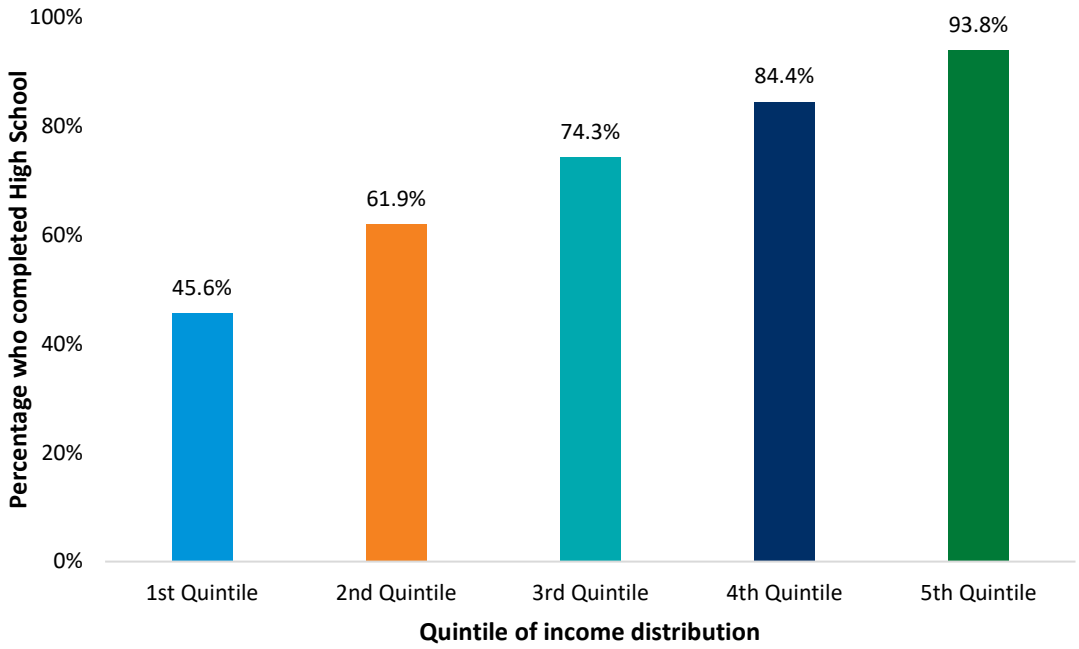
Source: (Pereira, Diagnosis of school abandonment and dropout in Brazil 2022a), from the transition data of the National Institute of Educational Studies and Research Anísio Teixeira (INEP) tabulated by IMDS. The dropout rate refers to the transition between the year shown in the chart and the next one.

Although still high, what draws attention is the remaining difference in both rates, between public and private networks, which translates into obstacles to educational mobility to the extent that it indirectly reveals that children in poorer homes abandon and dropout more frequently.

Another way to look at the issue is by analyzing the percentage of young people who finish basic education, by clipping household income (Figure 3). While about 94% of young people between 20 and 24[6] years of age in households in the highest income quintile obtain a high school diploma, this is true only for 46% of young people in the poorest quintile, a difference of almost 50 percentage points (Pereira, Diagnosis of school abandonment and dropout in Brazil 2022a). This pattern shown by the 2019 PNAD is predictive of low intergenerational income mobility in the future, when these young people are in the fullness of adulthood.

[6] This age group is above the age stipulated as ideal for completion of the cycle, or even completion with lag, and is above the age determined by law as mandatory to stay in basic education. In addition, it is observed in the 2019 data that the proportion of High School graduates rises between 18 and 20 years of age, to reach the level of about 70%, in which it remains stable until the age of 29. This is despite the considerable increase in young people between 20 and 29 years of age enrolled in Youth and Adult Education (EJA).

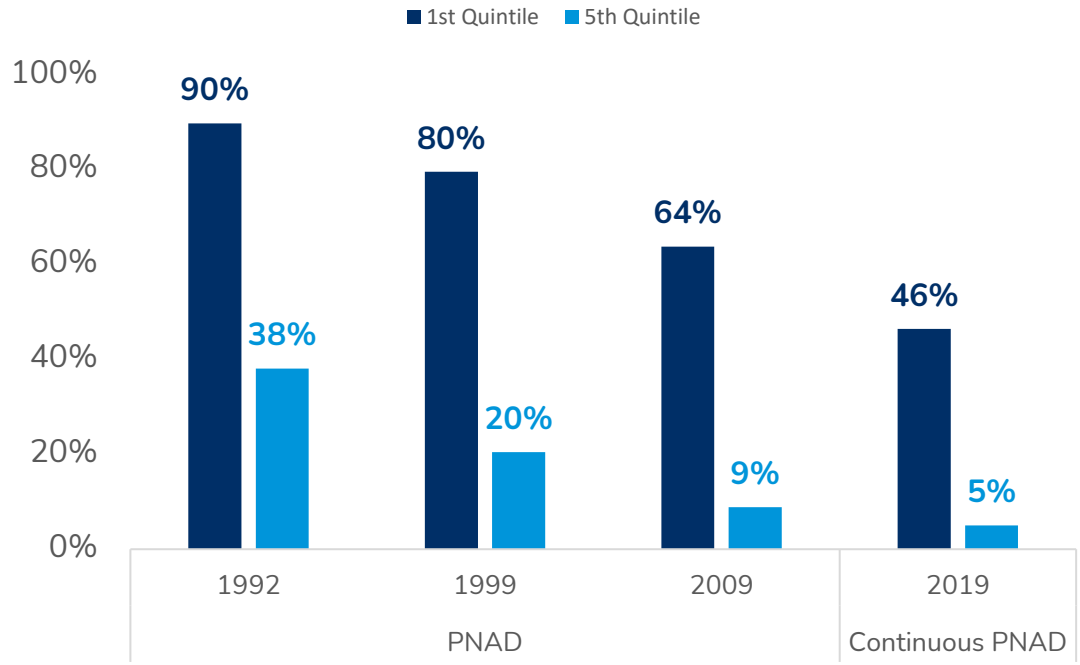
Figure 3: Percentage of young people aged 20 to 24 who have completed High School – Brazil, 2019, per fifth of per capita household income



Source: (Pereira, Diagnosis of school abandonment and dropout in Brazil 2022a), based on data from the 2019 Continuous PNAD, tabulated by IMDS.

Although the difference in schooling between poor and rich persists, this distance had been much greater, as shown in Figure 4. In 1992, 90% of 20-24 year olds out of school in the first quintile did not complete High School, compared to 46% in 2019. Substantial progress.

Figure 4: Percentage of young people aged 20 to 24 who do not attend school and who have not completed High School – Brazil; 1992, 1999, 2009 and 2019; first and fifth quintile of per capita household income



Source: Own elaboration, based on data from PNAD 1992, 1999 and 2009, and Continuous PNAD 2019.

4.2 Dropout as a Result of Deficiencies in Skills Accumulation

Dropout is one of the possible manifestations of a problem of deficient accumulation of cognitive and socio-emotional skills throughout childhood and adolescence.[7] One way to identify an increase in the risks of dropout occurring is by following indicators that precede and coexist with the problem. They are learning, measured by grades in standardized Mathematics and Portuguese language exams (collected by the Basic Education Assessment System – Saeb), and age-grade distortion, when the student is 2 or more years above the age considered ideal for a given year.

Students with more than two years of school delay dropout much more frequently than others (see Table 1 below). Dropout concludes a process that begins early, with late literacy, which turns into low grades in Mathematics and Portuguese, is solidified by abandonment or failure, and leads to repetition and age-grade distortion. The accumulation of the lag results in either late graduation or school dropout.

[7] This logic of the learning process based on blocks of development of competencies that are complementary throughout the educational cycle of basic education is present in the construction of the common national curriculum base.

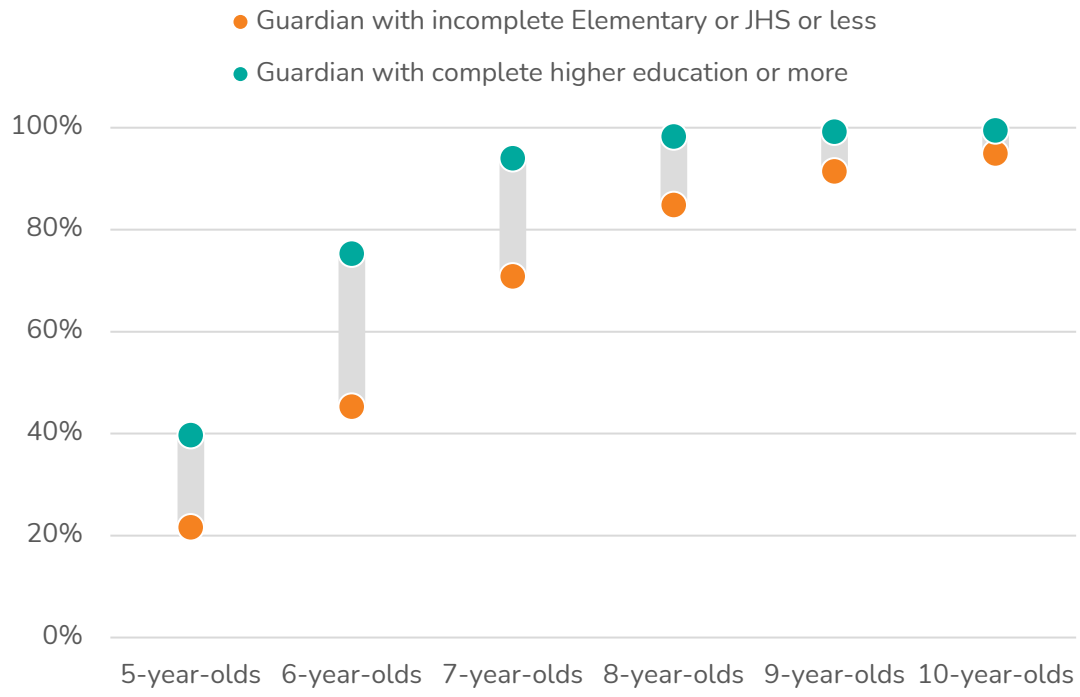
Table 1: Abandonment in High School by age-grade distortion

	Abandoned	Didn't abandon	Total
Up to 1 year lag	78,632	4,430,769	4,509,401
2 or more years of lag	257,986	1,501,011	1,758,997
Total	336,618	5,931,780	6,268,398

Source: Own elaboration, based on the data of the School Census, 2019.

If we trace the trajectory performed for all cycles of basic education for a given cohort, we notice that differences accumulate along the way. While from 7 years of age, more than 90% of the children whose guardians have at least higher education are already literate, only at 9 years of age is this percentage reached among those with guardians who did not complete Elementary or Junior High School.

Figure 5: Literacy according to the guardian's schooling, by age of the child



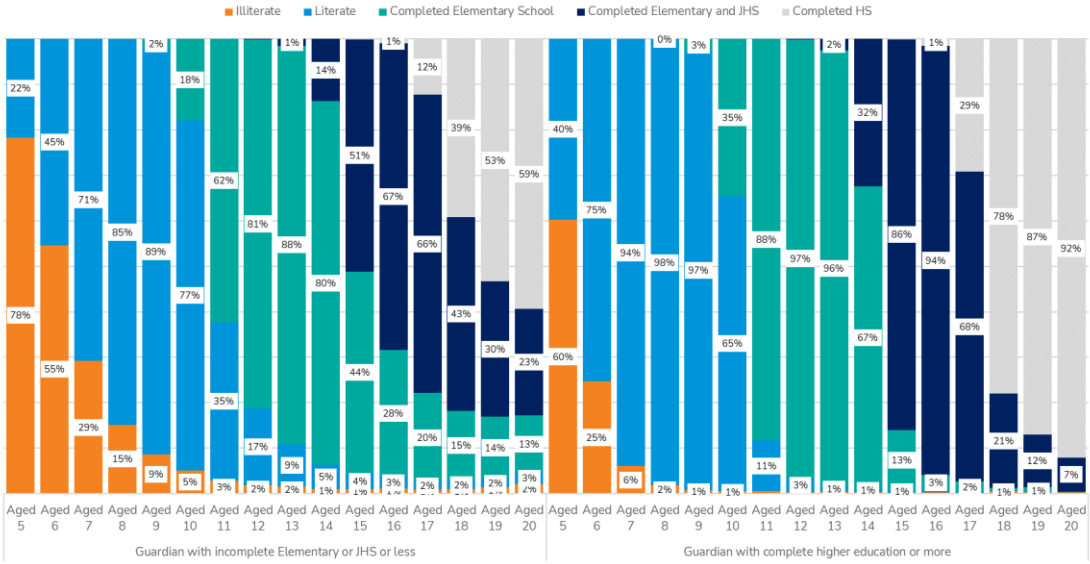
Source: Own elaboration, based on data from the Continuous PNAD Quarterly Q2, 2012 to 2021.

Note: Cohort of births between 2001 and 2007, except for those responsible for household.

At the age of 11, 88% of children in households commanded by someone with an undergraduate degree finish Elementary School, while this happens for 62% of those who have guardians with even incomplete Elementary or JHS – a percentage that reaches 88% at age 13.

The performance gap is widened as age progresses. At age 15, only 51% of children in households whose guardians are less educated have complete Elementary and JHS, compared with 86% of those whose guardians have higher education. At age 18, while 78% of the privileged group completed High School, only 39% of the adolescents with less educated guardians did so.

Figure 6: Schooling achieved by the child according to the guardian's schooling



Source: Own elaboration, based on data from the Continuous PNAD Quarterly Q2, 2012 to 2021.

Note: Cohort of births between 2001 and 2007, except for those responsible for household.

Students are expected to have completed the following stages, according to their age: literacy – at age 7; Elementary School – at age 10; Junior High School – at age 14; High School – at age 17.

4.3 The problem during the covid-19 pandemic

The pandemic increased performance differences among students from different social contexts. The closure of schools for a long period, leaving a large contingent of children and adolescents without classes and, in many cases, without school activities, affected poor students more.

For example, among students between the ages of 6 and 17 who in November 2020 were not having face-to-face classes, 89% received school activities (which according to the definition of the PNAD-Covid could be from online classes to booklets and homework physically distributed through the education network, that is, it grossly captures a minimal relationship with the school). However, this percentage varies with the social context of the household: 85% where the responsible person has at most incomplete Elementary or JHS and 95% where the responsible person has higher education; 83% among households with per capita household income in to the first quintile of distribution and 97% on average in households in the fifth quintile (the richest); 87% among public school students and 96% in private schools; 86% among

Blacks and Mixed race and 93% among Whites; 82% among *Bolsa Família* recipients and 90% among those who did not receive this income transfer (Institute for Mobility and Social Development 2021b).[8]

In addition, distance learning does not replace the classroom in terms of quality. Lichand *et al*. (2022) make use of administrative records to show that the pandemic – or more specifically distance learning – increases the risk of abandonment, using data from the State Department of Education of São Paulo, with information per High School student. Indeed, the migration from classroom classes (in the first quarter of 2020) to distance learning (in the other quarters of the year) would have had a causal impact of 365% on the risk of abandonment, according to the authors.[9]

Given this scenario, over the next few years, the government needs to join forces and propose solutions in an even more creative and efficient way, seeking to build a future with more opportunities for children and young people, regardless of the socioeconomic context in which they live.

5. Causes and Consequences of Dropout and Abandonment

In this section, we will discuss what is behind the high rates of abandonment and dropout – the causes – and what the implications – consequences – are of this phenomenon in the lives of young people who leave school without having completed basic education.

As a starting point, we will present some statistics from the 2019 Continuous PNAD, which brings reasons why young people who have not completed basic education claim to be out of school. We will do this by comparing young children of guardians with incomplete or less High School education with those whose guardians have complete High School education or higher, as well as those in families with a per capita household income among the 40% lowest and those among the 40% highest.

Next, we will discuss the most common points addressed in the literature, drawing a parallel with what is reported in the main household survey in the country.

Finally, we will include in this context the issue of social mobility, based on the observation of different probabilities of achieving good results according to the socioeconomic context. Thus, we try to understand what the implications of the problem are for the reproduction of inequalities between generations.

5.1 What motivates dropout

The definitive disruption of the relationship with the school is a complex phenomenon, cumulative and often caused by multiple factors. But it is possible to monitor

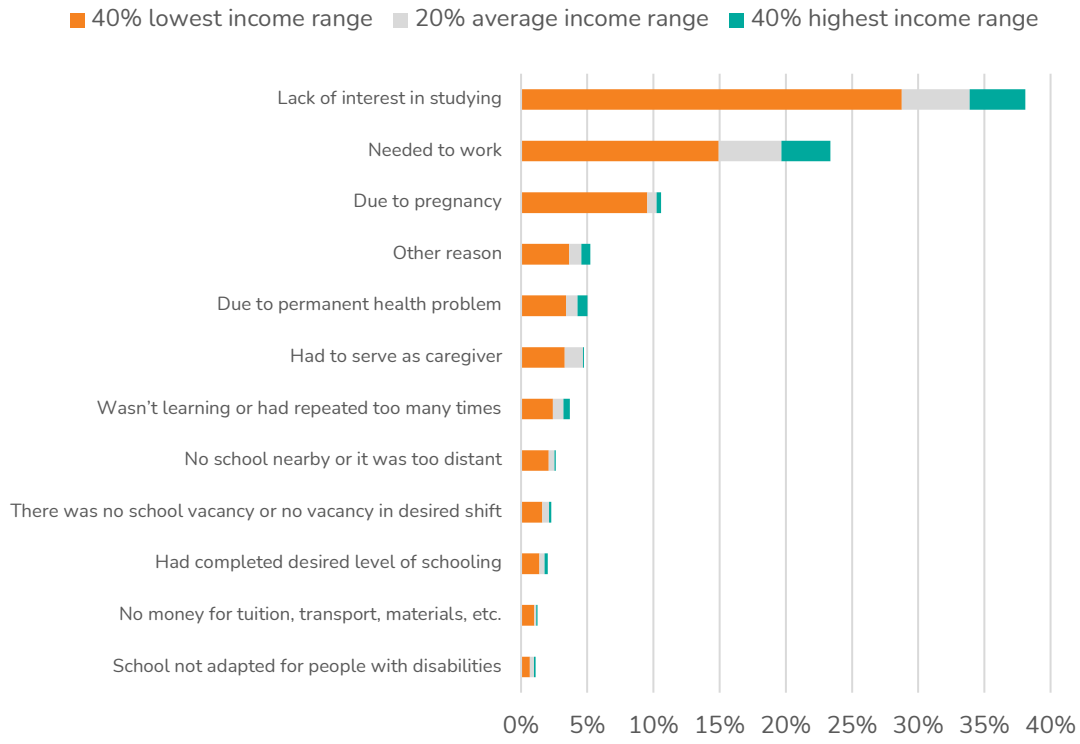
[8] See slide 53.

[9] The variable risk of abandonment assumes unit value when the student misses both Math and Portuguese exams, and zero otherwise.

indicators that are associated with school dropout, both antecedents, such as school performance, and concomitant, such as school delay, which help us to monitor risks.

It is important to recognize this complexity, especially from the point of view of the public manager concerned with mitigating the problem. A relevant element for this is to understand the main motivation allocated by the young person who evades. This can help point out the challenges and help find paths to the solution. Among young 15-to-19-year-old dropouts, the main reason mentioned for dropping out is lack of interest in the school: 38.1% of the interviewees stated this reason (Figure 7). In second place, interviewees mention the need to work (about 23%).

Figure 7: Main reason declared by 15-to-19-year-old adolescents and young people for having left school – Brazil, 2019

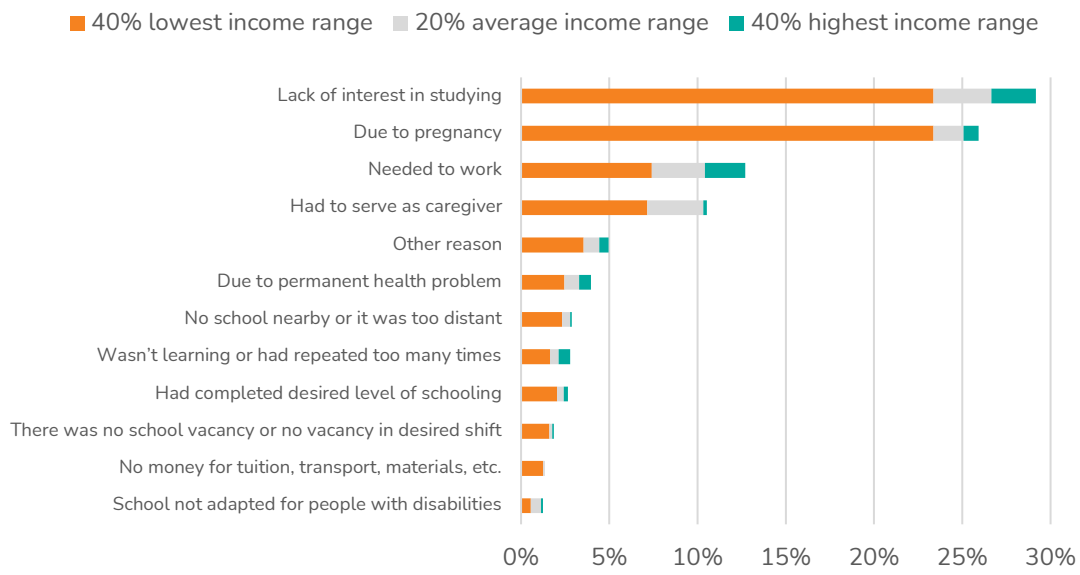


Source: (Institute for Mobility and Social Development 2022).
Note: (1) Population: people aged 15 to 19 who were not attending school and had not completed basic education, except for those responsible for the household, for groups of the distribution of per capita household income. (2) The information is related to the reference date of the survey. (3) They are considered "care activities" whenever they had to perform household duties or care for children, adolescents, the elderly, or people with disabilities. Source: Annual PNADC Quarter 2 microdata, (2019) – IBGE.

Note, however, that there is significant contrast in the hierarchy of motives. First, most of the sample of 15-to-19-year-olds who had left school without completing basic education reside in households among the poorest 40% (comparing orange bar segments with those of other colors). Second, we note that the lack of interest in studying is more important, from a relative point of view, than "needed to work" for young people in poorer households – when compared to other young people (the grey and green bars have sizes close in the first two reasons). Third, pregnancy is the third reason mentioned for young people among the poorest households, but it is not so among the five most important for other young people.

Figure 8 analyzes only the response of 15-to-19-year-old adolescent women outside of school who did not finish basic education. For the poorest young women, the reason for pregnancy is as important as "lack of interest in studying" and it is more than double the percentage of those who mention serving as caregivers or "needed to work". The analysis of young women belonging to 60% of households with higher per capita income is quite different, and "needed to work" is mentioned almost in the same proportion as lack of interest in studying.

Figure 8: Main reason declared by 15-to-19-year-old adolescent women for having left school – Brazil, 2019



Source: (Institute for Mobility and Social Development 2022).
Note: (1) Population: 15-to-19-year-old women who did not attend school and did not complete basic education, except for those responsible for the household, for groups of the distribution of per capita household income. (2) The information is related to the reference date of the survey. (3) They are considered "care activities" whenever they had to perform household duties or care for children, adolescents, the elderly, or people with disabilities. Source: Microdata of The Annual PNADC, Quarter 2 (2019) - IBGE.

These indicators suggest, therefore, that not only young people from lower socioeconomic levels drop out more, but also that the use of their time is less associated with the possibility of obtaining current or future income.

5.2 Consequences of dropout: what does the literature tell us?

Accounting the mapped consequences of dropout from estimates and approximations based on the literature, studies estimate for Brazil an annual dropout cost for high school youth that amounts to between R$ 36 billion and R$ 130 billion in 2015 values, and reaches R$ 220 billion, in 2018 figures.[10]

[10] The divergences in values are related to the year of the estimate and depend on the associated hypotheses and the consequences of dropout (personal and social) that are accounted for in the models. For example, Paes de Barros, et al. (2021) – which reach the highest annual value of all studies – assume that young people who dropped out spend 10% less of their productive life occupied, and at 20% to 25% lower salaries. Young people who do not complete high school would have three years less life and that those years would be less healthy. In addition, they consider the social costs of violence produced by young people and the greater likelihood that young dropouts will commit more homicides. Thus, with parametric assumptions that allow to value these differences, they reach the social cost (in present value

These costs are associated with the consequences of the discontinuity of basic education, whose causal effect on various dimensions of human life is estimated by econometric studies. These surveys show that students who drop out of school before high school have lower income as adults and are more likely to be unemployed. In addition to the effect of lower consumption throughout life, a fragile insertion in the labor market also affects mental health – there are mapped effects on depression and self-esteem, for example – and job and life satisfaction. Additionally, there is an (empirical) association between dropouts and risky behaviors, such as the practice of unprotected sex and involvement with crime. Studies also find causal effects of one more year of study on (lower) dependence on social assistance, (lower) probability of imprisonment and (higher) life expectancy. On the other hand, more schooling (measured by number of years in school) has effects on the socialization of the individual (formation of better quality social interaction networks), with a decisive impact on quality of life. For example, studies identify a causal impact of one year more study on the probability of marriage with more educated peers and the reduction in the likelihood of divorce.[11]

Education acts upon these attitudes directly – it can reduce the rate of impatience with which young people discount the future, in addition to developing several socio-emotional skills that contribute to better self-control and decision-making as adults. Or indirectly, by affecting income throughout life and therefore increasing the private cost of opportunity of risk taking (we can, for example, think about the personal cost of being imprisoned for a year, in terms of undue income, of a person with complete basic education, compared to the cost of the same person had he only completed Elementary and Junior High School).

Therefore, there is ample evidence about the consequences of dropout, measured in different ways – from the use of so-called natural experiments to the comparison of twin-sibling results.

5.3 Causes of dropout: what does the literature tell us?

Exploring the causes of school dropout and, more generally, the underlying reasons that lead to the decision to leave school involves two steps: The specification of a logical behavioral model, and econometric strategies that identify the importance of each element of the model.

5.3.1 Credit restriction

What can explain the coexistence of a high salary premium for high school completion, and high dropout rates? One hypothesis is that the poorest cannot finance their studies by leaving their own human capital as collateral, that is, there would be

per young dropout) of 395 thousand reais. Considering the number of young dropouts per each birth cohort, they reach the aggregate value of R$ 220 billion per year.

[11] For example, Oreopoulos and Salvanes (2011). For more details on this academic literature, see Pereira (2022b).

no educational credit market to which poor young people, or their parents, could access at a cost less than or equal to the expected rate of return on investment.

The argument that income restriction directly causes dropout, however, depends on the presence of credit restriction that prevents access to education in Elementary and JHS and High School. Free public education partially solves this problem (and so do transfer programs, such as educational vouchers). However, it can be argued that in poor families, the support of minimum well-being sufficient for a healthy life requires (given the low productivity of the person responsible for the household) offer of work on the part of children and adolescents. This logic is behind the creation of programs such as PETI (Program for the Eradication of Child Labor) and *Bolsa Escola* (later *Bolsa Família* and *Auxílio Brasil*). In the absence of such programs, the argument goes, poverty directly causes dropout.

5.3.2 Repetition

But there are other plausible and complementary hypotheses to that of credit restriction on causes of school dropout. Data from the 2019 School Census show that the abandonment rate of students who are lagging in their studies two or more years is 14.7% – compared to only 1.7% among students under two years of lag. This points to a strong association between poor accumulation of skills and dropout (or abandonment). This result is consistent with the fact that the lack of interest in studying is ranked as the main reason for abandonment – the impossibility of following the content represents a disincentive sufficient to abandon, especially if the delay is accompanied by low self-esteem and low expectation from parents and teachers in relation to the student.

This school delay is germinated before school, as poorer parents have less information or resources to stimulate their children's cognitive development, and is in many cases aggravated after school entry, as dominant pedagogy excludes the most vulnerable by not offering individualized treatment and applying teaching methods that presuppose cultural baggage incompatible with the preexisting conditions of many of the children in the classroom.

The association between school delay (which results from several repetitions) and abandonment is not necessarily causal. Both abandonment in the past would generate school delay today (a mechanical relationship, to the extent that abandonment during year t leads to enrollment in the same grade and, therefore, to age-grade distortion), while the opposite may be true (school delay leads to demotivation and abandonment).

School delay may also occur as a symptom of latent disabilities and not as a direct cause of abandonment. For example, a student cannot follow the content due to deficiencies in the knowledge acquired previously and even if the school strives to always keep them in the grade appropriate to their age, it is these latent deficiencies that end up generating abandonment. It is very difficult to identify, in this case, to what extent the act of the school having failed them or not, is causing the abandonment.

However, there are studies that can isolate the role of failing [12]on dropout, which has produced the present "consensus", in Brazil, that the school should avoid, whenever possible, failure. This consensus is solidified in the form of public policy in the composition of the IDEB (Basic Education Development Index), whose formula punishes networks where there is high age-grade distortion, *i.e.*, it encourages schools not to fail.[13]

There is, however, a problem in this conclusion of the literature. For the Brazilian case, it is based purely on studies that cannot identify causal effect, but a mere correlation between failure and subsequent academic performance (*e.g.*, De Leon and Menezes-Filho, 2002; Klein and Ribeiro, 1991).

On the other hand, returning to the academic literature that in fact identifies causal effects (which does not include papers with Brazilian data), it is not conclusive in relation to failing in the early years of Elementary School. Different papers assess the impact of failure on 3rd graders (Elementary School) and on 6th graders (Junior High School) and they do not find negative effects. In the case of Florida, a particular study finds short-term positive effects for failure in 3rd grade that last until high school: positive effects on grades; negative effects on the likelihood of taking remedial courses, and null effects on the likelihood of graduation.[14]

Identifying the positive impact of failing in the early years does not mean that failure is cost-effective. It is possible, and even likely, that acceleration programs from timely identification of deficiencies are more cost-effective than failure. Unfortunately, we have not found studies that do this kind of analysis.

5.3.3 Good pedagogy

Good school pedagogy permanently affects individual development. A good school makes a huge difference in people's lives. A teacher with didactics and ability to transmit positive teachings and values plays a transformative role. There are several studies that, using different techniques, calculate the value added by a good teacher. The results measured are in terms of grades obtained on applied external

[12] The vast majority of studies (in the case of Brazil, the totality) analyze only the correlation between repetition and subsequent school performance, which is insufficient to demonstrate causal effect. According to Pereira (2022b), three studies assess the causal impact of repetition, reaching negative effects not only on learning but also on other dimensions, such as involvement in crime. For the United States, Jacob and Lefgren (2009) study 8th graders in Chicago, and Eren, Lovenheim and Mocan (2020) study 8th graders in Louisiana. For Uruguay, Manacorda (2012) studies failure for students from 7th to 9th grade. In all three cases, the impact assessment uses, as a control group, students who almost repeated (the RDD method – Regression Discontinuity Design). This is possible when in fact the difference between approval and failure is so small – around a threshold – that treatment and control can be considered as equivalent in terms of acquired skills.

[13] Some authors evaluate the impact of failure in the 3rd grade of Elementary School and 6th grade of Junior High School and find no effects, respectively.

[14] See Schwerdt, West and Winters (2017).

standardized tests. Surveys conducted with data from the city of Rio de Janeiro show that a good teacher improves students' grades by 20% of a standard deviation in the distribution of state grades. Also, with data from Rio de Janeiro, students who are enrolled in good schools reduce by 82% the chances of abandonment (abandonment of 7 percentage points below the average of schools) (Cazulo, 2020). Research with U.S. data shows a good teacher's effects on early pregnancy, high school graduation rate, and student salaries in the labor market (Chetty, Friedman and Rockoff, 2014).

It is important to say that there is no deterministic relationship between the socioeconomic index of the school, or the HDI where it is located, and the added value of the school. There is anecdotal evidence from very poor municipalities with spectacular results in Mathematical Olympiads, bordering municipalities with very high abandonment rates (*e.g.*, Cocal dos Alves-PI in the first case, has abandonment rates below 2% as compared to 15% in the municipality of Cocal). And there is evidence of studies that make, for 5500 municipalities, wrap analyses that compare IDEB results in municipalities with the same expenditure per student and with the same average maternal education, to conclude that there is a wide variability of results from the same initial condition and, therefore, enormous possibilities of progress within the frontier of efficiency.[15] The rich Brazilian federative experience, provided it is accompanied by rigorous evaluation of results of different pedagogical and managerial practices of schools, serves as a basis for comparative studies that allow innovations to be copied and disseminated – if teachers and managers are willing to incorporate learning into their daily lives.[16,17]

5.4 The role of socio-emotional skills

According to data from the Information System on Live Births (SINASC), 15% of children born in 2018 in Brazil have mothers under 19 years of age. The rate reaches 23% in the Northern Region of the country. We have shown above (section 5.1) that the young women interviewed by IBGE who did not obtain the basic education diploma mention pregnancy with high frequency as the reason for having dropped out, and this response strongly correlates with those belonging to the first quintile of per capita household income.

[15] As is the case with the study prepared by the World Bank with data from 2013 (see World Bank 2017), currently being updated by IMDS in partnership with Vivian Amorim and Pedro Olinto.

[16] Guiding the manager in the application of innovative practices and programs is the goal of IMDS through a novel to be published soon, the Social Mobility Impact Monitor.

[17] The Evidence Award also seeks to recognize and give visibility to initiatives that already seek to guide decision-making by scientific data and evidence. Its Sister Award, the IMDS Trophy – Social Mobility, aims to add focus on increasing social mobility to the Award. In both cases, it seeks to promote the practice of developing and implementing evidence-informed public policies, as well as creating a collection of successful initiatives that inspire replication. See how the 1st edition of the award ceremony went by clicking here.

Qualitative issues such as this "list the main reasons" do not prove that pregnancy is a cause of abandonment. The cause may be deeper, and early pregnancy is just the tip of an iceberg that hides problems of self-control, or of discipline, or otherwise, the inability to control their impulses (which is called conscientiousness) [18], or even a behavior that seeks to belong and be accepted by peers. Studies that control these associated factors, using appropriate identification methods, still identify a strong effect of pregnancy on the number of years of school study completed – for Brazil, the estimate is that an unexpected pregnancy reduces, on average, 1.3 years of study for a girl (Kassouf et al., 2020).

Other "thoughtless" decisions have causes associated with the adolescent's stage of brain development. Examples of such actions are those driven by anger (excessive violence), immediate search for pleasure (drug addiction, unprotected sex). Also, actions resulting from the search for novelty, the keen appetite for risk and the concern with social interactions with peers are compatible with the neurological changes that occur in this phase of life. The understanding of this phenomenon by science is still limited.

On the other hand, the introduction of curricular elements with a focus on socioemotional development is fundamental not only to mitigate the risks of abandonment and dropout, but because such abilities are as or more important for success in the labor market than cognitive abilities. Understanding what can work in combating abandonment and dropout is the theme of the last section of this technical note.

6. Possible Paths: anti-dropout programs with impact evaluations

After understanding the causes and consequences of dropout, it is necessary to think about what can be done to mitigate the problem. The article "Policies to combat school abandonment and dropout" brings several initiatives whose impact assessments show promising results. This section is based on that article and other experiences cataloged by IMDS and published on the portal Social Mobility Impact Monitor. Many of them can even be implemented simultaneously by the public administration, attacking different causes with combined tools.

A first warning, especially aimed at the policymaker, is that sometimes initiatives that seem to make perfect sense do not work in practice. This can result from implementation errors or design errors.

[18] Conscientiousness is one of the five great socio-emotional abilities (personality traits – the big five). The others are neuroticism (or emotional stability – a tendency to experience negative reactions to events such as anger, anxiety, and depression), extroversion, agreeableness (or kindness or condescension – a tendency to be compassionate and cooperative), and openness to experiences.

A second warning: the analysis of the programs that work should also be looked at with some care, because the results indicate that they work under certain conditions. None of the programs mentioned should be replicated without an *ex-ante* evaluation in the context in which it is intended to be applied, and without the proper diagnosis and without proper proof of concept. This is a caution that the public manager should always bear in mind.

A third warning: our analysis is not exhaustive, that is, what has not been mentioned here can still be effective. For example, we will not address programs whose target audience are children in early childhood. It is well established that earlier interventions have higher rates of return on several dimensions, for the reasons already listed in section 2. We will, however, be more concerned with adolescent-focused programs, whose success rates are more volatile and return rates lower than those dealing with early childhood, but which are directly focused on solving problems of abandonment and dropout.

That said, we classified the initiatives grouping them into thirteen types of programs focused on adolescents and that have an impact on school dropout, classified in seven categories: a) informational interventions; b) positive references and advice; c) initiatives within the school (curriculum flexibility, technical education, full-time schools, management improvements in High School, and charter schools of the 'No Excuses' type); d) financial incentives; e) remedial education and summer schools; f) development of socio-emotional skills and focus on adolescents (cognitive-behavioral therapy; and summer jobs); and g) housing programs with an impact on school dropout.

6.1 Informational interventions

One initial type of intervention is informational. The investment of time and money made by a young person (and their family) in their own education depends on the expected rate of return on the investment. But where does a young person draw data to form their expectations about the rate of return on investment? Most likely not from IBGE, estimating an equation of average wages as function of the number of years of study. You're more likely to do this by watching your peers, young people who look like him or her, neighborhood residents, and close family members. If a young person doesn't know anyone who has arrived at university, they won't know the rate of return on acquiring a higher educational degree. Worse, both the young person and his family will find that the chance to pass exams and enter a college are very low, given their accumulated skills.

The good news is that informational interventions have very low cost and disseminate data and individual experiences of alumni success to students; give practical and objective tips on how to spend study time; send motivational text messages via SMS; provide information on the rate of return in the labor market for a high school diploma

– all of these are examples of relatively easy-to-implement actions. The results, however, vary widely.[19]

Interventions that provide information to parents about absences, homework not handed in, and low grades may be more promising, especially for younger students. For example, there was an experience of a pilot project in Virginia, USA, where this type of procedure generated a substantial decrease in school failure (Bergman and Chan, 2021). In general, these experiences seek to involve parents in the school journey and in the decision-making process of their children, providing information on grades and attendance, with guidance on how to monitor young people, even regarding their returning to education. If we assume that less educated guardians participate less in the educational process, due to lack of knowledge or time, for example, informative messages can help in obtaining better school results.

The introduction of the so-called "New High School" will require students to make critical decisions on the itinerary to be followed already in the first year of High School. The involvement of parents in this process is desirable, equipped with correct information about prospects in the labor market conditioned to each itinerary. Experience that selected students with high probability of dropout and called in parents to meet with school principals in France, generated better itinerary choices and substantially reduced the rate of repetition and abandonment of students who were more likely to drop out before the experiment. A likely mechanism causing the reduction in dropout was that by opting for less demanding itineraries from an academic point of view, after being informed of their true chances in excessively demanding careers, the young people were able to follow the lessons and keep up with the content given in the classroom. Perhaps what has occurred, therefore, is that expectations have adjusted to reality.

6.2 Role models and counseling

Part of the problem of young people's decision-making is associated with a lack of inspirational figures to stimulate dreams or references to ambitious and positive aspirations in their circle. There is a range of social programs in the world that combine counseling, patronage, and creation of role models to: a) provide emotional support; b) transmit ethical values and socio-emotional skills; and c) change expectations. For developed countries, some of these experiences have had impact evaluations.

This type of program is very difficult to conceive. The construction of bonds of trust, especially when the young person has a recent history of trauma and frequent contact with violence, especially in the home and produced by his caregivers, is very difficult, not to say unlikely.

There is preliminary evidence that the presentation of role models influences young peoples educational (self)investment. For example, an experiment in Uganda drew

[19] Of the four studies cited in (Pereira, Policies to combat school abandonment and dropout 2022c), only one had a significant effect.

students from the Junior High School to see a film in which heroin was a female chess player of humble origin. The impact evaluation showed a causal effect on math scores a week later (Riley 2019).

An analysis of the evaluations of some programs implemented in rich countries[20] shows disappointing results of mentoring and counseling programs, because the impact, when positive and statistically significant, is short-term (not affecting social mobility prospects). Programs also benefit girls more than boys (in the case of the latter, the effects are not significant in most cases). And in the examples analyzed, when the program manages to affect the outcome for boys, the effect is on the most vulnerable (with adverse effect of worsening the results of those at lower risk – a result that raised the hypothesis that by grouping high and low risk children together, the program generated positive effects on those at high risk and negative on those at low risk).

The search for a consensus on what works and what does not work is very difficult, because there is great heterogeneity in the models. It's worthwhile going over the main programs. The Big Brothers Big Sisters of America (BBBSA) paired off children with volunteer mentors. Pairing is mediated by school and parents/guardians. The target audience is made up of vulnerable adolescents. The intensity of the interaction is high (144 hours of direct contact between mentor and adolescent over the course of a year). The nature of the contact is also important – the mentor builds the relationship to be seen more as a friend than as a teacher, and the relationship of trust is shaped from this principle. The program monitoring infrastructure offered by the institutional support network is significant, being decisive, in the opinion of the evaluators, for the results obtained. Results mapped in short-term assessments (18 months) indicate a 45% reduction in the probability of using illegal drugs, with stronger effects on racial minorities, particularly boys. However, for the object on screen in this technical note, that is, engagement in school activities, the positive impact is exclusively obtained from what occurs with girls. The program does not affect the socio-emotional skills measured in the evaluation (Grossman and Tierney 1998).

A key lesson pointed out as a determinant of the effectiveness of mentoring programs is the construction of the relationship between mentor and mentored, the type of care that the BBBSA takes.

An example of a mentoring program that fails to obtain results in any of the dimensions evaluated after the end of the school period, is the *Across Ages*, which pairs off young people aged 9 to 13 with adults over the age of 55. A mentoring program that generated negative results on the treated is the Quantum Opportunity Program, which offers mentoring, tutoring, coaching and other educational assistance

[20] The following programs were analyzed by (Rodríguez-Planas 2014): SMILE, Big Brothers Big Sisters of America, Across Ages, Quantum Opportunity Program, and Cambridge-Somerville Youth Study.

to 9th graders and higher. One of the objectives of the program is to increase numbers of High School graduates. The program has positive results, though modest, in the short term in relation to educational objectives, but presents negative results in the long term regarding involvement in crime.

Among the hypotheses discussed to explain these adverse effects, one is that such results may result from an overprotective posture of mentors, which can minimize the costs of bad behavior. Another is that mentors may be replacing the role of parents, which is not a good result, because it breaks important social bonds – mentoring programs should work in association with and complementary to the role of parents, not in replacement of.

More than raising all possible hypotheses, what is reinforced is: i) the need for evidence from middle-income countries; ii) to seek to build pilot programs that adhere to a good diagnosis of the problem in the situation analyzed; and iii) that the designs test the hypotheses of adverse effects, so as to arrive at a model that contains the strengths and eliminates unwanted results.

6.3 Initiatives within the school: curricular and management changes

A second block of interventions is associated with the school, more specifically with curriculum and management changes. As we have seen above from the data from Continuous PNAD, the lack of interest in the studies is mentioned by most dropouts. Instigating this interest in the student is very difficult, especially in contexts of accumulation of lag, also as seen earlier, and when formal education competes with the attractions of the modern world and with the explosion of hormones typical of adolescence (we will deal with this later). Changes in the way school is taught and, in the content, can be decisive for the reduction of school abandonment and dropout, stimulating the student's greater interest. As exemplified (Pereira, Policies to combat school abandonment and dropout 2022c), "for those who choose to go to law school, for example, it does not make much sense to know the result of the oxidation reaction of aldehydes and ketones, or to know Faraday-Lenz's formula on electromagnetic induction."

In this sense, curricular flexibility, as occurred in the reform of the New High School, 2017 – to be started in 2022 with the adoption for the first year – has at least three positive effects on the student's engagement with the classroom. First, it allows students a better match between their professional goals and aspirations and the set of disciplines in which they will invest their time.

Secondly, the student benefits from having more similar colleagues in preferences and equally stimulated. For someone who wants to do engineering, learning chemistry among adolescents who want to study human sciences is worse than in the situation where their colleagues want to do natural sciences, because there are more exchanges of experiences useful for the acquisition of knowledge in related disciplines.

Third, the elaboration of a technical professional itinerary, which is usually introduced in these flexibilization processes (as in Brazil) allows a High School diploma that is not academicist.

Evaluations in both Brazil (Pernambuco) and the United States show that the difference in the dropout rate between selected and unselected groups to take technical education (randomly or by entrance exam) can reach 50% – in the case of Pernambuco, for example, the first group had a dropout rate of 3.1% and the second group of 6.7% (Elacqua et al., 2019). Part of the reduction may be due to the curriculum (more appropriate, leading to more motivation) and partly to resources (they are schools with more teaching time, with more resources invested, with better teachers). But one way or another, it demonstrates the relevance of school quality to the theme of dropout.

In Brazil, only 9% of students attend technical or vocational education compared to 23% in Latin America and the Caribbean.[21] Therefore, there is large room for growth for the inclusion of a vocational itinerary in High School.

Some curricula that emphasize discipline have proven to be very effective in schooling and reducing learning inequalities, especially for boys in fragile social contexts. This point is relatively well established in the literature. Josh Angrist, Nobel Laureate in economics thanks to creative empirical causal impact identification strategies, has studied charter schools *(*privately run public schools under concession) both in the United States and in South America. A stylized fact about U.S. data, where charter schools are widespread, is that urban charter schools are more effective at improving outcomes of the poor non-whites (and students with lower grades picked up at baseline) than traditional public schools, but that this does not occur in rural charter schools. Angrist tries to understand this heterogeneity of results by looking at school supplies and practices, and finds that the positive results of urban charter schools are linked to daily workload and school philosophy, particularly those schools that use the method called No Excuses[22], and that charter schools that do not use the method have poor results (Angrist, Pathak and Walters 2013).

The method emphasizes discipline and good behavior (*e.g.*, emphasis on wearing school uniforms even at the High School level, and cleanliness in dress and habits), development of reading and math skills from an early age, longer instruction time, greater monitoring, and internal training, and hiring teachers in an agile manner and using rigorous selection criteria.[23]

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[21] See Elacqua et al. (2019).

[22] See also https://plataformamobilidade.imdsbrasil.org/politica/escolas-emcharterem-no-estado-norte-americano-de-massachusetts.

[23] On internal training, charter schools that use this method are characterized by the frequent practice of recording classes and generating feedback on improving teaching for teachers. On strict selection criteria, such schools use more intensely than other schools, teachers selected by the support network called Teach for America (TFA). TFA

Conditioned to be a No Excuses-type school, Josh Angrist shows that more resources (measured by money and instructional time spent per student) have no impact on the effectiveness of the school. To the contrary, the fact is that among the characteristics of this type of school, the quality of teaching and the emphasis on discipline make a difference (Angrist, Pathak, and Walters 2013).[24]

Medium-term results (six years after being exposed to the No Excuses method) were estimated for the Promise Academy Project in Harlem (Fryer and Dobbie 2015). Women admitted to the academy (by a lottery process) are 10.1 percentage points less likely to become pregnant in adolescence (down 59% from the control group average) and men are 4.4 percentage points less likely to be incarcerated (100% drop compared to the control group rate). These results remain even when compared to groups with similar scores in Mathematics and English. This last result indicates that the No Excuses method has results on risk attitudes that is mediated by factors that go beyond academic performance and cognition, which is in line with the thesis that discipline has effects on the formation of socio-emotional skills, taking advantage of the window of opportunities conferred by the adolescent's brain development.

Experiences of school shift expansion were also evaluated. Many of the networks have made efforts to expand the typical shift to 7 hours a day (for example, entering at 8 a.m. and leaving at 3 p.m.), and additionally occupying the two extra hours with classroom instruction. Where there was evaluation (in Chile, there was a large-scale expansion throughout the country between 1997 and 2010), the results indicated not only reduction of abandonment and dropout, but also effects on violence and early pregnancy.[25]

Improving the quality of school management is another important element for reducing dropout. The training of High School principals and the preparation of a three-year planning based on the Management Circuit method (Plan-Do-Check-Act) was the object of the Young with a Future Program. The initiative was launched in 2007 and has already been implemented in several state networks in Brazil, with the aim of improving the learning of High School students in the public school system and reducing school dropout, among others. External evaluation (the program was initially

(https://www.teachforamerica.org/) is a non-profit organization that recruits graduates from elite universities to serve as teachers. Those selected commit to teaching for at least two years at a charter school in one of the 52 low-income communities the organization serves. The organization generally suffers strong opposition from teachers' unions.

[24] There is no correlation between educational outcomes in English and Mathematics and the school being one of the No Excuses type, after being controlled for two factors: emphasis on discipline and behavior, and wearing uniforms. As Angrist says, "with the inclusion of these two factors, the No Excuses coefficient becomes small and statistically insignificant for both languages and mathematics." (Angrist, Pathak and Walters 2013), pp 23).

[25] See Dominguez and Ruffini (2021).

designed already predicting the randomization of schools for impact measurement) shows significant results in increased learning.[26]

6.4 Financial incentives

The idea that students are motivated by payments for academic performance is not new, but only recently such programs have been designed in the form of experiments that allow measurement of causal impact.

Different logical models can generate similar predictions. The decrease in dropout and abandonment can occur for those students who suffer from high restrictions in income, and who may be dropping out to supplement family income. More income would relax the budget constraint and, provided everything remains constant, there would be an increased investment in human capital (captured by data from the approval and learning records).

However, many of these programs are designed to encourage perseverance and reduce the discount on future consumption. Inducing the postponement of pleasure from a "little nudge" (so-called in literature) is educational. The association between effort and greater future gain is idealized in the form of savings for the young. For every 100 monetary units of premium per completion of a school year, for example, 70 are retained for withdrawal only at the conclusion of High School. It could be said, alternatively, that the student receives 30 each completed school year and 210 at the completion of the third year. However, this can be perceived differently by the brain – the logical design of forced savings can function as a pedagogical element. The premise is that the decision to drop out would be moved not only by a problem of income restriction, but associated with the insufficiency of a socioemotional ability, conscientiousness (see above).[27]

If income shortfall dominates as a cause, a program that pays an increasing amount as age advances makes sense (because the demand for employment of unqualified labor is increasing for this age group (15-18), and so the transfer must be designed to cover the opportunity cost of staying in school).[28] On the other hand, one can do

[26] See, for example, Barros et al. (2017). *Jovem de Futuro* (Young with a Future Program) received first place, winning the title of Featured Program, in the 1st edition of the Evidence Award, in 2022, organized by IMDS in partnership with ENAP and FGV EESP Clear. The experience also won the IMDS Trophy – Social Mobility, which selected, among the ten finalists, the one with the greatest potential for permanent transformation in the life of the target audience – in this case, High School youth.

[27] The association of evasion with the lack of socio-emotional skills is supported by evidence cited in Pereira (2022c).

[28] As some conditional income transfer programs do, simply increasing transfers as the series are fulfilled. For example, *the Mexican program Prospera* (formerly *Progresa/Oportunidades*) pays an increasing amount to the family as the teen advances the series: $175 in the third grade primary, $205 in the fourth, $265 on fifth, $350 on sixth, and so on, up to $570 in the third year of high school ($660 for women) – see (Lárraga 2016).

this with a nudge ("you're getting 30 currency units today and 100 tomorrow, because 70 will be retained"), passing on the perception that putting off pleasure yields benefits.

The only experimental evaluation that attempts to compare the effect of these two models was made in Bogotá, Colombia. Three random groups of students were created: in the first group, the transfer consisted of bimonthly payments throughout the year, conditioned to classroom attendance. In the second group, one third of the value of the traditional transfer was retained, being paid in full at the end of the year, at the time of re-enrollment. A third group of students received no transfer of income and remained as a control group. The evaluators find a lower dropout rate in the second scheme, that is, there is an increase in the completion of High School when young people realize that this is the cost to access the savings account (Barrera-Osorio, Linden and Saavedra 2019). If this result means that the program influences the rate at which the young person discounts his future (or teaches the young man to control his impulses in exchange for a higher future reward), or if it stems from a reward for the increasing cost of opportunity, we cannot know from the experiment. Both explanations are plausible.

The fact is that programs that associate one more year of studies with a savings account have been applied by some states and municipalities in Brazil – to cite examples, we have the first experience, which occurred in Minas Gerais, implemented by the Department of Education in 2009, with the Youth Savings program; the *Renda Melhor Jovem* (implemented by the secretariat of social assistance and development of the state of Rio de Janeiro in 2011); The Piauí Young Savings (in 2015, by the department of education of that state); and the Project *Poupança Escola Niterói* (by the city hall of that city, in 2018). The designs use the notion of a financial account on behalf of the young person as an additional nudge. And the results point to substantial decreases in abandonment (in the order of 30%).[29]

6.5 Remedial education and summer schools

As seen above, dropout is one of the plausible outcomes that result from insufficient cognitive and socio-emotional abilities, which begin in the family itself in the first years of life and are manifested through late literacy and school delay. When such deficiencies materialize in the form of school dropout, the tip of the iceberg is revealed in the lack of interest (according to the data shown here), an answer that hides more than it reveals. It hides the misalignment between the individual's ability to understand that generates the impossibility of absorbing new knowledge at the required pace in more advanced school stages.[30] Attacking the issue from the beginning is essential, and the way to do this is through so-called remedial education. Identifying weaknesses in an individualized way and acting upon them in a precise

[29] See Pereira (2022c) for full review of academic literature.

[30] More advanced stages can even be the Junior High School when the basic foundations for understanding more sophisticated ideas have not been laid yet.

and effective way with the formation of specific classes for so-called "reinforcement", or for "acceleration programs" in the counter shift.

Remedial education programs vary widely in format and way of implementation, and therefore impact evaluation results should be seen on a case-by-case basis in light of the design of each initiative. For example, in India, a program hired young women to teach children basic skills in reading and mathematical calculus. Another used a teaching method using computers to develop fundamentals in mathematics. Both experiments generated high effects in the short term, but that lost the momentum on a longer time-scale (Banerjee, *et al*. 2005).[31]

A method of remedial education, applied in Italy during the pandemic, was successful: the use of tutoring for students from the Junior High School (Carlana and La Ferrara 2021). Although only limited to aiding in the resolution of Math, Italian and English exercise lists for students previously selected by teachers (among those who would benefit the most from help), and exclusively done online, the initiative, which lasted less than two months (three hours per week, one tutor per student), had important effects on the grades of the students benefited (in addition to having affected even the aspirations of the pupils in attending university). One detail: most tutors underwent a short training period and were themselves students attending the universities of Lombardy – and a minority were attending pedagogy (most were students of exact sciences and natural sciences).[32]

By the way, the advent of the Covid-19 pandemic gave urgency in the post-event to the need for remedial education. Yamini Aiyar of the Center of Policy Research, an Indian think tank, in an interview for an IMF blog[33], proposes the use of vacation periods to deal with deficiencies accumulated during the pandemic.

This leads us to another issue, associated with the school holidays and the negative impact it has on the learning of the poorest children, and the solutions to deal with this problem on a permanent basis. What is the average loss for poor children during the summer holidays? Obviously, the answer depends on the quality of the school (if, for example, it guides reading activities to be done during the school recess) and the cultural environment in which the child or adolescent is a part of (if their day to day is intense in intellectual activities – visits to museums, family meals where there is rich interaction, etc.). A study conducted in Baltimore public schools – which vary widely in terms of average socioeconomic level – followed 800 students over a five year

[31] Another assessment, of a remedial education program applied in Chicago public schools, finds effects on third-year Elementary School students, but no effect for the sixth graders (Jacob and Lefgren 2004).

[32] Of course, the training required to assist in the correction of exercise lists is much lower than that to manage a classroom in remedial education, but there is also the question of whether the pedagogy course forms such capabilities in the proper way. It is not the purpose of this note to address this issue.

[33] See Rhoda Metcalfe (2022).

period, applying tests at the beginning and end of each school year. The students were classified by socioeconomic level (SES) based on information on their parents' education, occupation, and income. The value added in the school period is similar for students with high and low SES, both in reading and mathematics. However, during the holiday period, the results are very different: in mathematics, those with low SES lose on average 4% of the school period gain per year, those with high NSE earn 13%. In reading, those with low SES stagnate during the holidays and those with high NSE earn 24% of the value added in the school period.[34]

How to remedy such a situation? It is quite difficult to compensate for the drag effect that vulnerable families have on their children on average, and to make these children move at the same rate as those in more stimulating homes. A cheap way to mitigate such effects is through the use of bots that send messages to parents of students identified as having a high risk of loss during the holidays, making reading recommendations to young people, or giving relevant information about losses arising from intellectual idleness on vacation. An experimental evaluation that does this with students from the Elementary School shows substantial results in reading comprehension (up to 0.29 standard deviation) for students in the 3rd and 4th grades, but not for the others (Kraft and Monti-Nussbaum, 2017).

A (more expensive) way to partially remedy the problem of vacation losses is by arranging summer schools. An analysis of 93 summer program assessments found positive effects for math and reading, but with stronger results for middle-class children than for children from low-income families. The authors of meta-analysis speculated that this result was due to the heterogeneous quality of the programs (middle-class students would have access to better programs).[35]

The format matters: a) good teachers; b) correct incentives for high student attendance; c) blending with recreational activities (to reduce the opportunity cost of children during the vacation period; d) intensity in tasks (a form of teaching in which the student is the protagonist of the learning process). It is noted that effectiveness depends on a format absent in most public networks. Given these characteristics, an alternative is the offer of summer schools through the private network (charter schools). Whatever the mechanism, the cost of this format will be higher than homemade processes.

A middle ground between simple bots and expensive schools is the creation of a home curriculum to be implemented with the help of parents during the holidays. A home-based summer reading program for 2nd to 5th grade children is READS for Summer Learning, implemented by Harvard's education school. The key elements are: a) access to books at home; (b) books combined with the interests and reading level of children; c) text interpretation activities throughout the process, to promote student engagement with reading; d) follow-up throughout the summer; e) family support for

[34] Study conducted by Entwisle, Alexander and Olson (1997) and cited in Krueger (2002).

[35] See Cooper *et al.* (2000).

reading.[36] Students receive ten books in the mail (one per week) and, with each book, a brochure with pre-reading activities and a comprehension test. Families receive, by SMS, a reminder when the brochure is not returned with the activities done. Results point to positive effects on reading ability in the first evaluation after the vacation for 3rd grade girls (no effects for boys or girls of the 2nd grade).[37]

In one way or another, the search for effective strategies to increase reading performance in the Elementary School, considering its respective cost-benefit, can avoid a process of accumulation of deficiencies that results in abandonment and dropout.

6.6 Development of socio-emotional skills and focus on adolescents

From the experiences of programs focused on reduction of abandonment and dropout, we note the relevance of the effectiveness of those who seek to explore the so-called window of opportunity resulting from transformation stages the adolescent undergoes, and more specifically, the special predisposition to the acquisition of socio-emotional skills at this stage of neurological development. We highlight here two types of initiatives: experiences that incorporate elements of cognitive-behavioral therapy; and work experiences on vacation.

6.6.1 Cognitive behavioral therapy

A set of experiments uses the foundations of cognitive behavioral therapy to re-educate the young person in the process of choices. The Becoming a Man (BAM) program, implemented in the school counter shift, with students from Chicago schools between the 7th grade of Junior High School and the 3rd year of High School, basically consists of weekly 1-hour meetings with up to 15 young people, mediated by counselors with higher education (not necessarily in psychology or social work), for one or two years (depending on the experiment). "*Young people are called to reflect on their lives, on aspects in which they believe they are doing well or badly; share their insights with the group; participate in group dynamics and learn to relax, breathe, and channel anger productively. In addition, youngsters go on field trips to local colleges and stay in touch with an adult mentor*" (Pereira, Policies to combat school abandonment and dropout 2022c). In addition to group discussions, there are a series of exercises that use theatrical representation for an immersion in problem situations, which then serve as group discussion about the attitudes taken by each character in the enactment. There is neither right or wrong, nor a moral judgment of acts being staged, but only a space for maturation from reflection.

Positive causal effects, high and statistically significant, are identified in school performance (improvement of 43%) and high school completion rate at the right age (between 12% and 19%). The program also had an impact on reducing involvement

[36] See https://www.readsforsummerlearning.org/.

[37] Ver Guryan, Kim and Quinn (2014).

with violence (the number of violent crimes perpetrated by young participants fell by 40%, while the chance of engaging in other crimes fell by 35%) in the two-year period in which these young people were followed up. The program is run by an NGO called Youth Guidance, which has implemented the program in other cities in the United States.[38]

A similar program was applied to adolescents in a closed regime in a socio-educational institution in Chicago. "*At the beginning of the sessions, young people are asked to reflect on the period they had spent in solitary confinement due to bad behavior in their quarters. As with BAM, the program encourages young people to set personal goals, solve interpersonal problems, pay attention to their feelings, and emphasizes the need for young people to learn to reflect before making decisions, under the motto "stop, look and listen" before acting*" (Pereira, Policies to combat school abandonment and dropout 2022c). The study involved 2,693 young males admitted between 2009 and 2011, on average at 16 years of age, who were closely monitored for 18 months. Participation in the program decreased the readmission rate in the socio-educational system by 21%.

The successful use of cognitive behavioral therapy elements in reducing youth risk involvement and ease of application at both the school and community level make technology attractive for application in poor and middle-income countries. An example of a pilot program with evaluation was applied in El Salvador by the NGO Glasswing International, through the so-called After-School Clubs. Participants between 10 and 16 years of age, enrolled in public schools of vulnerable communities in El Salvador, participated in training in: (i) socialization skills, through exercises that used elements of cognitive behavioral therapy and positive psychology; and (ii) activities that prevented the exposure of young people to risks in their community, working, under adult supervision, any of the following elements – leadership, art and culture, sport, or science. The experiment consisted of two weekly meetings of 1 and a half hours, over a seven month period. The results show a substantial increase in involvement with the school (20 minutes more per day doing homework, or a 16% increase in time; reduction in absenteeism by 23%), and reduction in involvement with violence (6.4% decrease in annotations on bad behavior). The effects are generally more concentrated among students who, prior to the experiment, had been identified as more prone to violence. These students are twice less likely to be absent from school after the intervention, when compared to less violent peers (Dinarte 2021).

6.6.2 Working during vacation

Socio-emotional development and acquisition of so-called interpersonal skills (soft skills) – expertise that involves skills valued in the work environment, such as proactivity, zeal, etc. – can be reinforced with practical experience in the work environment. Several summer work programs, mediated by the school, have been evaluated, with positive results on the student's behavior at school after the

[38] See https://www.youth-guidance.org/bam-becoming-a-man/.

experience, such as increased punctuality and a sense of commitment. In some cases, there is also a substantial reduction in absenteeism and dropout, as well as an increase in the high school completion rate. The activities involve simple jobs such as gardening and other urban chores, office assistance, monitoring at summer camp, for young people in the Junior High School and High School. Some programs also involve mentoring and training.

The programs whose evaluations are summarized in (Pereira, Policies to combat school abandonment and dropout 2022c) are as follows: One Summer Chicago Plus; and Summer Youth Employment Program (SYEP), in New York and Boston. There are positive impacts on employability (for younger Hispanic girls engaged in school) and negative impacts on crime (crime decreases by almost 50% in one of the experiments). The impacts do not vary much according to the design but are very sensitive to the characteristic of the target audience, and there is evidence that effects persist up to two years after the intervention.

6.7 Combining various foundational components

Finally, there are successful experiences that combine several of the foundational elements described in sections 6.1 to 6.6. Programs, such as the Canadian Pathways to Education, combine counseling, mentoring, financial support, and youth empowerment. Evaluations that accompany the student after the end of the program found an impact of up to 20 percentage points on enrollment in higher education. At the age of 28, former pupils earn an average of 19% more than they would in the absence of the program, and the probability of being employed increases by 15%. There is also a large savings for public coffers, as the receipt of social transfers by former pupils falls by up to 50%.[39]

6.8 Moving to more promising territories

We try to focus in this survey on programs that, in one way or another, act on the foundational elements of the accumulation of human capital. This implied not exploring the universe of interventions not modeled to have effects on schooling, but that by the logic of design and its mechanisms of action, usually affect several dimensions of adolescent behavior (including those associated with academic engagement).

Popular housing programs, whether through rental vouchers or property transfers, are examples of these interventions. These programs, with rare exceptions, are designed assuming that residential quality is what will make a difference in family life, which ends up being, in some cases, a cause of negative effects on social mobility,

[39] See Lavecchia, Oreopoulos and Brown (2020).

moving the family to poorer neighborhoods with less urban infrastructure complementary to the formation of human capital.[40]

One housing experiment designed to address intergenerational concerns was Moving to Opportunity, administered by the U.S. Department of Housing, which offered rent vouchers between 1994 and 1998 for families to move to less poor neighborhoods. The effect of the intervention on the children of the beneficiaries, evaluated from administrative income tax records when they were 21 years or older, shows substantive impacts on enrollment in higher education (the program had an impact on other behavioral dimensions as well, such as involvement in crime). However, the effects are exclusive for children aged 13 or younger at the time of receiving the voucher offer (Chetty, Hendren and Katz, 2016).[41]

Another example of intervention that is based on neighborhood change as a mediator for intergenerational impacts is the Free Vivienda Program, established by the Colombian federal government in 2012, and which offers housing (through transfer of property) to poor families that are selected through lottery draw (due to over-demand). Public condominiums are in better located neighborhoods (where the quality of the location is based on the average time of travel from the neighborhood to hospitals, high schools, day care centers, compared to the average commuting time in the control group's neighborhood). The program positively affects High School graduation – seven percentage points, or 17% in relation to the control group (not attended by the lottery), and the students' grades in the High School completion test.[42]

7. Conclusion

The decrease in dropout and abandonment rates in recent years before the pandemic has brought hope. The pandemic threatens a reversal of the trend, especially for the cohort victimized by the absence of face-to-face classes. More than that, the same data prior to the pandemic also showed a great inequality in the dropout rate when analyzed by clippings of per capita household income, or when territorialized. Additionally, it is necessary to find ways to improve learning, so that lag and other factors that arise throughout school life do not rupture and break the ties of adolescents and young people in Brazil with school. Just as important as ensuring access to education is working to get these young people to complete basic education and advance the flow of learning at the right age. School delay, as was shown, is not

[40] For example, an Indian relocation program to neighborhoods far from the city center had zero effect on schooling, even though it relocated people in very bad early living conditions (slum dwellers). See Barnhardt, Field and Rohini (2016).

[41] For adolescents, the effect was negative – a hypothesis being the rupture of community ties, combined with little time of exposure to the amenities of the new neighborhood.

[42] See Camacho *et al* (2022).

only linked to poor accumulation of skills, but also to abandonment rates (much higher among those with school delay prior to the abandonment).

In this technical note, we seek to bring elements of reflection on the phenomenon of abandonment and dropout and suggestions for concerned managers, as well as for candidates in the next state elections in 2022, since dropout is higher in High School, whose responsibility lies constitutionally with the Units of the Federation.

We sought to show that several programs around the world have had positive evaluations regarding the impact on abandonment and dropout. By acting on the acquisition of cognitive and socio-emotional skills, making the school environment more attractive, such solutions improve the involvement of students with the school. The results indicate both greater learning and chance of completion of the stages of basic education, as well as greater rates of admission to higher education. In addition, the effects are usually accompanied by a lower risk of involvement with violence and lower incidence of teenage pregnancy. Combined, these results increase the likelihood that the young person will be employed and earn better wages years later.

It is important to remember that the analysis of programs with an impact on dropout was not exhaustive. Although the literature is clear regarding the impacts of early childhood interventions that are cost-effective, we chose to focus on adolescence precisely because it is an age group usually little explored as a target audience of programs.

Part of the experiences we portray in this publication are reported in more detail in the accompanying articles, produced by Vitor Pereira, on request from IMDS. Therefore, we strongly suggest reading the materials published on the institute's website, which brings together, in addition to the three articles that served as the background of this note, also the dashboards of indicators based on the Continuous PNAD and the School Census, and the presentations on each of these panels, which highlight its main results.

Many of the remedies analyzed in the last sections of this technical note are automatically applicable by any local government, depending only on managerial effort that provides an evidence-based management cycle so that adaptations to the original designs are made surgically, considering logical milestones referenced by appropriate *ex-ante* analyses, which accurately characterize the diagnoses of the local situation[43]. For a subset of the interventions, however, a legislative effort would be necessary, for the adaptation of the legal framework that would allow implementation without further judicialization.

[43] The IMDS is preparing and will soon release a collection of indicators on the situation of states in various areas, such as education, health, social assistance, among others, mapping the current situation and the evolution of these numbers. Titled IMDS Elections, the material aims to help candidates to state governments to map out key challenges and set up their government programs.

There is a job of mapping particular difficulties to each context and planning innovative and agile solutions on the way forward. The good news is that the accumulated knowledge and experiences already tested in the recent past, together with new evidence learned on how to deal with challenges can help in this planning.

References

Angrist, Joshua, Parag Pathak, and Christopher Walters. "Explaining Charter School Effectiveness." *American Economic Journal: Applied Economics*, 2013: 1-27.

Banco Mundial. "Um Ajuste Justo: análise da eficiência e equidade no Brasil." Brasília: Banco Mundial, 2017.

Banerjee, Abhijit, Shawn Cole, Esther Duflo, and Leigh Linden. "Remedying Education: evidence from two randomized experiments in India." *NBER*, 2005.

Barnhardt, S, E. Field, and P. Rohini. "Moving to Opportunity or Isolation? Network Effects of a Randomized Housing Lottery in Urban India." *American Economic Journal: Applied Economics*, 2016: 1-32.

Barrera-Osorio, F., L. Linden, and J. Saavedra. "Medium and long-term educational consequences of alternative conditional cash transfer designs: experimental evidence from Colombia." *American Economic Journal: Applied Economics*, 2019, 11(3) ed.: 54-91.

Barros, R. P, R. Mendonça, S. Franco, and G. Rosa. "O impacto do programa Jovem de Futuro sobre a aprendizagem nas escolas públicas." *Observatório de Educação*, 2016.

Barros, Ricardo Paes de, Samuel Franco, Laura Muller Machado, Daiane Zanon, and Grazielly Rocha. "Consequências da violação do direito à educação." Fundação Roberto Marinho; Insper, 2021.

Becker, G., and N. Tomes. "An equilibrium theory of the distribution of income and intergenerational mobility." *Journal of Political Economy*, 1979: 1153-1189.

Bergman, P., and E. Chan. "Leveraging Parents through Low-Cost Technology: the impact of high-frequency information on student achievement." *Journal of Human Resources*, s.d.: 125-158.

Camacho, A., V. Duque, M. Gilraine, and F. Sanchez. "The Effects of Public Housing on Children: Evidence from Colombia." *NBER*, 2022.

Carlana, Michela, and Eliana La Ferrara. "Apart but Connected: Online Tutoring and Student Outcomes during the COVID-19 Pandemic." *IZA Discussion Papers*, 2021.

Cazulo, P. M. V. "Contribuição dos Professores ao Aprendizado dos Alunos no Estado do Rio de Janeiro." UFRJ, 2020.

Chetty, R., J. N. Friedman, and J. E. Rockoff. "Measuring the impacts of teachers II: teacher value-added and student outcomes in adulthood." *American Economic Review*, 2014: 2633-2679.

Chetty, R., N. Hendren, and L. F. Katz. "The Effects of Exposure to Better Neighborhoods on Children: new evidence from Moving to Opportunity Experiment." *American Economic Review*, 2016: 885-802.

Cooper, Harris, Kelly Charlton, Jeff Valentine, Laura Muhlenbruck, and Geoffrey Borman. “Making the Most of Summer School: A Meta-Analytic and Narrative Review.” *Wiley*, 2000.

Cunha, F., J. Heckman, and S. Navarro. “Separating Uncertainty from Heterogeneity in Life Cycle Earnings.” The 2004 Hicks Lecture. *Oxford Econ Papers*, April 2005: 191-261.

De Leon, F. L. L., and N. A. Menezes-Filho. “Reprovação, avanço e evasão escolar no Brasil.” *Pesquisa e Planejamento Econômico*, 2002: 417-452.

Dinarte, Lelys. “Peer Effects on Violence: experimental evidence in El Salvador.” *Working Paper*, 2021.

Dominguez, P., and K. Ruffini. “Long term gains from longer school days.” *Journal of Human Resources*, May 2021: Online.

Elacqua, Gregory, Patricia Navarro-Palau, Maria Fernanda Prada, and Sammara Soares. “Does technical education improve academic outcomes? Evidence from Brazil.” *IDB WORKING PAPER SERIES*, September 2019.

Entwisle, Doris, Karl Alexander, and Linda Olson. “Children, Schools, and Inequality.” *Bolder-CO: Westview Press*, 1997.

Eren, O., M.F. Lovenheim, and H.N. Mocan. “The Effect of Grade Retention on Adult Crime: evidence from a test-based promotion policy.” *Journal of Labor Economics*, 2020.

Fryer, Roland, and Will Dobbie. “The Medium-term impacts of High-achieving charter schools.” *Journal of Political Economy*, 2015: 985-1037.

Fundação Brava; Instituto Unibanco; Insper; Instituto Ayrton Senna. “Políticas públicas para redução do abandono e evasão escolar de jovens.” 2018.

Grossman, Jean, and Joseph Tierney. “Does Mentoring Work? An impact study of The Big Brother Big Sister Program.” *Evaluation Review*, 1998.

Guryan, Jonathan, James Kim, and David Quinn. “Does Reading during the summer build reading skills? Evidence from a randomized experiment in 463 classrooms.” *NBER*, 2014.

Heckman, J., and S. Mosso. “The economics of human development and social mobility.” *Annual Review of Economics*, 2014: 689-733.

Institute for Mobility and Social Development. Children and adolescents: monetary poverty and conditions for skills development in Brazil. 2021c. https://imdsbrasil.org/en/indicators/conditions-for-skills-development-in-brazil.

Institute for Mobility and Social Development. Fathers' schooling and children's achievements in adulthood: analysis of Brazilian data. Rio de Janeiro: IMDS, 2021a.

Institute for Mobility and Social Development. “Profile of Children and adolescents during the pandemic: education.” 2021b.

Instituto Mobilidade e Desenvolvimento Social. “Evasão escolar de adolescentes e jovens: Cenário recente no Brasil.” 2022.

Jacob, B. A., and L. Lefgren. "The Effect of Grade Retention on High School Completion." *American Economic Journal: Applied Economics*, 2009: 33-58.

Jacob, Brian, and Lars Lefgren. "Remedial Education and Student Achievement: a regression-discontinuity analysis." *The Review of Economics and Statistics*, 2004.

Kassouf, A. L., V. Ahmed, A. Zabsonré, R. Burger, and M.I. Conchada. "Examining the impact of early childbearing on labor outcomes in Brazil." *Partnership for Economic Policy Working Paper*, 2020.

Kearney, M S, and P B Levine. "Income inequality, social mobility, and the decision to drop out of high school." *National Bureau of Economic Research* No. w20195, 2014.

Klein, R., and S. C. Ribeiro. "O censo educacional e o modelo de fluxo: o problema da repetência." *Revista Brasileira de Estatística*, 1991.

Kraft, Matthew, and Manuel Monti-Nussbaum. "Can Schools Empower Parents to Prevent Summer Learning Loss? Text Messaging Field Experiment to Promote Literacy Skills." *The ANNALS of the American Academy of Political and Social Science*, 2017.

Krueger, Alan. "Inequality: too much of a good thing." 2002: 16.

Lárraga, Laura. "How does Prospera Work." *Inter-American Development Bank*, 2016.

Lavecchia, A., P. Oreopoulos, and R. Brown. "Long-run effects from comprehensive student support: evidence from pathways to education." *AER Insights*, 2020.

Lichand, Guilherme, Carlos Doria, Onicio Neto, and João Cossi. "The Impacts of Remote Learning in Secondary Education during the Pandemic in Brazil." 2022.

Manacorda, M. "The cost of grade retention." *Review of Economics and Statistics*, 2012: 596-606.

Metcalfe, Rhoda. "Yamini Aiyar on the Education Pandemic." *Podcast IMF*, 2022.

Oreopoulos, P, and K Salvanes. "Priceless: the nonpecuniary benefits of schooling." *Journal of Economic Perspectives*, 2011: 159-184.

Oreopoulos, P. "Do dropouts drop out too soon? Wealth, health and happiness from compulsory schooling." *Journal of Public Economics*, 2007: 2213-2229.

Pereira, Vitor. "Causes and consequences of school abandonment and dropout." Institute for Mobility and Social Development, 2022b.

Pereira, Vitor. "Diagnosis of school abandonment and dropout in Brazil." Institute for Mobility and Social Development, 2022a.

Pereira, Vitor. "Policies to combat school abandonment and dropout". Institute for Mobility and Social Development, 2022c.

Riley, Emma. "Role models in movies: the impact of Queen of Katwe on students' educational attainment." *Working Paper IZA*, 2019.

Rodríguez-Planas, Núria. "Do youth mentoring programs change the perspectives and improve the life opportunities of at-risk youth?" *IZA World of Labor*, 2014.

Schwerdt, G., M. West, and M. Winters. “The effects of early grade retention on students’ outcomes over time: regression discontinuity evidence from Florida.” *Journal of Public Economics*, 2017, 152(4) ed.: 154-169.

Shirasu, Maitê Rimekká, and Ronaldo Albuquerque Arraes. “Avaliação dos custos econômicos associados aos jovens nem-nem no Brasil.” *Revista de Economia Política*, January-March 2020: 161-182.