

## INSTITUTE FOR MOBILITY AND SOCIAL DEVELOPMENT

### Policies to Combat Abandonment and Dropout<sup>1</sup>

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## 1. Introduction

School dropout is still a major Brazilian educational problem at the High School level, and it affects poorer students disproportionately. Despite the high return of the completion of High School and the numerous externalities it brings, one out of every 6 young people in Brazil do not conclude basic education, generating losses of more than 220 billion reais per year for the society (Paes de Barros et al, 2021). What policies could reverse this situation? Is it possible to rescue young people at risk of abandoning and dropping out of school, or would it be too late? How to identify young people at risk of abandoning school?

This paper aims to identify and discuss public policies focused on adolescents and young people<sup>3</sup> which have had proven success in reducing abandonment and dropout in High School. Decreasing them at this level of schooling is no simple task. Numerous experimental studies analyzing initiatives aimed at the prevention of abandonment showed disappointing results. Among the initiatives, we can highlight actions geared to counselling students, providing individualized attention, giving out information on the prevention of pregnancy among adolescents, intermediation with social services, implementation of an alternative syllabus, and offering alternative forms of teaching and preparation for equivalency certification (Dynarski and Gleason 2002; Dynarski et al. 2008).

The huge disappointment at the results of these interventions aimed at preventing school dropout, coupled with the perception of low economic returns from educational interventions for youngsters with insufficient skill levels, be they cognitive or socio-emotional, has caused many policy makers to turn their attention to early childhood, since early remediation of skill deficits during this phase of life would be less costly and more efficient (Cunha et al., 2006; Cunha and Heckman 2007).

In fact, as we have seen in the 2nd paper in this series, the ability of the teen brain to make new connections is gradually reduced, partly by the myelinization process itself. The fact that it is more difficult to make students with huge knowledge deficits improve their cognitive skills does not mean that the teen brain has little plasticity, nor that all intervention facing young people in vulnerability will be doomed to failure. The late development of the pre-frontal cortex, the myelinization and the synaptic pruning process open the possibility for interventions to change, dynamically, the unfolding of such processes. There is, therefore, a window of opportunity for adolescent interventions that is not necessarily linked to the learning of school content, but mainly in relation to the development of executive functions<sup>4</sup>, which are associated with maturation of the pre-frontal cortex.

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<sup>3</sup> And not about family or community, for example.

<sup>4</sup> Executive functions are those skills needed to control thoughts, actions, and emotions. Executive functions involve self-control skills, which is the ability to maintain concentration and make decisions in a non-impulsive way, work memory, which is the ability to maintain and organize information in the brain, and cognitive flexibility, which allows one to use creative thinking and adapt to different contexts and situations.

It is possible, as we shall see below, to make teenagers less impulsive in their actions, deal better with their emotions and be less short-sighted in their decisions that involve comparing the present with the future. As adolescence is a period of exposure to various risks, such as drug use, involvement with gangs, unsafe sex, and disengagement from school, especially in Latin America (Cunningham et al. 2008), keeping young people away from these risks and improving their way of making decisions in the face of risks can have high-impact consequences in the short, medium, and long term. In addition to avoiding such risks, some interventions can facilitate a smooth transition from school to the workplace, which affects not only immediate employability, but also the quality of future jobs (Oreopoulos and Salvanes 2011) and the acquisition of skills throughout the working life (Arellano-Bover 2020).

The economic return from such interventions, therefore, can be high, as evidenced by the most recent estimates of the marginal return on resources used in public policies aimed at adolescents. Hendren and Sprung-Keyser (2020), for example, when comparing the benefit and net cost of more than a hundred public policies with known impact estimates, find that policies aimed at children and adolescents have high returns up to the beginning of adult life, when returns fall off. Such results make the interpretation that returns to investment in human capital would monotonically decline between childhood and youth more complex. The fact remains that there are programs with such high returns that the tax revenue derived from their impacts is sufficient to finance their costs<sup>5</sup>, and these programs can target from infants to young people. The difference, however, is that while programs aimed at early childhood have consistently high returns, programs aimed at youth have more volatile returns. Nevertheless, the design and the actual implementation of these programs is crucial for achieving the program's potential social rate of return.

More traditional programs for combating High School dropout are based on the premise that adolescents and young people are rational individuals dynamically optimizing their expected happiness throughout life<sup>6</sup>. Actions of this type seek to increase the teaching time and return on what is taught at school<sup>7</sup>, promote academic reinforcement, reduce the cost for opportunities to continue studying<sup>8</sup>, make time spent at school more pleasant<sup>9</sup>, or provide information and advice enabling teenagers to make better career choices. The results

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<sup>5</sup> There is not always a match between the time the investment is made and the time the benefits appear. Early childhood programs, for example, only bring returns later on in life. The return to the state, through tax collection, therefore, only happens decades after the disbursement with the program. To calculate the return on these programs, you need to bring the benefits and costs to present value, discounting the time in the future using a rate, such as the interest rate.

<sup>6</sup> Just as in traditional human capital accumulation models, as in Becker 1964; Becker 1967; Ben-Porath 1967; Mincer 1958 and Mincer 1974.

<sup>7</sup> As in full-time schools and technical education programs.

<sup>8</sup> Through conditional income transfers, such as the Youth Variable Benefit, an integral part of the *Bolsa Família* Program.

<sup>9</sup> Through the practice of sports, for example.

of such interventions are indeed quite mixed. While there are some examples of success, there are several programs with zero impact, and even programs with negative returns.

According to some psychologists and neuroscientists (Armstrong 2016; Yeager, Dahl, and Dweck 2018), this huge variation in the impact of more traditional policies aimed at young people and adolescents is the result of theories of change in interventions that do not take into account the particularities of this phase of life, such as the typical sensitivity of a young person needing to be treated with respect and to be recognized by their peers, a young person's bias towards the enjoyment of the present and their keen appetite for risk.

In this regard, changes in the design and implementation of policies on a wide range of topics - such as reducing youth violence, school abandonment and dropout - could lead to completely different results, with a consequent increase in effectiveness (Yeager, Dahl, and Dweck, 2018).<sup>10</sup> According to Armstrong (2016), some educational practices would be more compatible with an adolescent's brain development, leading them to plan, organize, think about the consequences of their actions and inhibit their impulses. Among such practices, the following stand out: giving more choice to young people, carrying out self-knowledge and learning activities through peers, encouraging reflection on thoughts, and experiencing real decision-making situations in a strong emotional context.

The critique of psychologists and neuroscientists and the understanding of the changes experienced by the brains of adolescents and young people help us to think about why some interventions have failed, while others have managed to reduce High School abandonment and dropout. Unlike policies with more traditional theories of change, there is a set of strategies that assume that adolescents and young people have their particularities, and that there is a window of opportunity to enhance the executive functions of these individuals.

A first set of these initiatives involves Cognitive-Behavioral Therapy (CBT) sessions, usually in groups, in which young people are encouraged to reflect on their actions; to partition long-term goals into achievable short-term goals; to simulate real conflict situations; and to reflect before making automatic decisions. These are skills closely linked to the development of executive functions that, as we saw in the 2nd paper of this series, can still be worked on among teenagers.

Another set of experiences involves rethinking the school based on the logic of youth engagement and leadership, which means precisely honoring young people and giving them more decision-making power and more possibilities for being appreciated by their peers.<sup>11</sup> A

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<sup>10</sup> According to Yeager, Dahl, and Dweck (2018), for example, programs to combat violence among young people would tend to be more effective if, instead of having an adult tell the young person how to act in conflict situations, they promoted democratic group discussions on how to find non-violent ways of maintaining respect among peers, just as was done in the Becoming a Man program (Heller et al. 2017), which will be discussed later.

<sup>11</sup> This is the case, for example, of the full-time Reference High Schools in the state of Pernambuco.

third group of interventions includes offering jobs during school holidays under the supervision of a tutor. A fourth group of policies involves acknowledging adolescent intertemporally myopic behavior through the granting of financial incentives conditioned to their graduating from High School.

This paper aims to review the literature, listing initiatives with proven significant results in reducing High School abandonment or dropout. Only programs or strategies evaluated using robust and credible impact assessment techniques were selected.

This paper is structured in 9 sections, including this introduction and the conclusion. The paper begins by analyzing the impacts of interventions whose theories of change can be mapped onto traditional models of human capital accumulation by changing the students' information set or directly altering the cost and benefit of studying, but without considering the specifics of adolescent and youth behavior. Thus, we present in section 2 interventions that change the student's perception of returning to studies (sections 2.1 and 2.2), and interventions that can reduce the (perceived) cost of studying and increase the effectiveness of teaching (section 2.3). Section 3 deals with the expansion of technical education, which can bring the content taught closer to the student's preferences, decreasing the perceived cost of studying and increasing the return to study, while section 4 deals with the expansion of the offer of full-time schools. Section 5 talks more specifically about the issue of school management.

From section 6 onwards, we analyze interventions that consider in their design the particularities of adolescent and youth development, such as the search for peer acceptance, heightened sensitivity to immediate rewards, their appetite for risk, and the possibility of stimulating development of executive functions. In the 6th section we deal with programs that involve the use of Cognitive-Behavioral Therapy to reduce dropout and violence among young people. Section 7 deals with job-placement vacation programs. The 8th section is dedicated to financial incentive programs geared to High School graduation and the 9th section deals with programs that combine several of the elements analyzed herein. The last section is the conclusion.

## **2. More information for students and their parents**

One of the reasons why young people may dropout of school is because they believe the returns gained from education are low. The few data on the returns gained from a High School degree that reach the poorest young people do not come from household surveys and econometric estimates, but from daily contact with people in their surroundings. If students from poorer families know few people who have completed basic education, the inference about the returns from graduating from High School will be more imprecise and, ultimately, biased downwards.

At the same time, even if the student correctly knows the returns of completing their studies, they or their parents may not correctly know what actions to take to improve their

learning. Additionally, parents of students may have misperceptions about their children's performance.

Given the relative ease of implementing informational interventions, a myriad of studies over the past 10 years have estimated the effects of delivering messages to students, parents, and teachers. Such studies have randomized the sending of messages with different contents, among which we list the most common: a) information on student attendance and performance (Kraft and Dougherty 2013; Kraft and Rogers 2015; Rogers and Feller 2018; Bergman and Chan 2021; Bergman 2019; 2020; Barrera-Osorio et al. 2020; Berlinski et al. 2021; Bettinger et al. 2020; Dizon-Ross 2019); b) motivational messages and tips on how to monitor or support students (Avvisati et al. 2014; York, Loeb, and Doss 2019; Bettinger et al. 2020; Lichand and Wolf 2020); c) messages that only change the salience<sup>12</sup> of certain actions, changing the receiver's focal point (Bettinger et al. 2020); d) information on the return on investment in education (Nguyen 2008; Jensen 2010; Fryer 2013; Loyalka et al. 2013; Avitabile and de Hoyos 2018).

An experiment with 8th graders from rural schools in the Dominican Republic showed that, in fact, for certain students, the return in wages of finishing High School that they had in mind was much lower than that seen in the data (Jensen 2010). When a group of students (from randomly selected schools) received the correct information about their High School diploma returns, their perception of the return on their graduating increased, as did the likelihood of their returning to school the following year. Four years later, the students who received the information had studied 0.2 years longer than the others. It is as if one out of every 5 students who received the information had studied a year longer than the others (Jensen 2010). Another similar study providing information on educational returns, with 4th grade children<sup>13</sup> in Madagascar, also showed positive results regarding learning (Nguyen, 2008).

The encouraging results of the simple and inexpensive intervention piloted in the Dominican Republic led to replication of the study in other contexts. However, neither the study conducted in the US (Fryer, 2013)<sup>14</sup>, nor in China (Loyalka et al, 2013)<sup>15</sup>, nor in Mexico (Avitabile and de Hoyos, 2018)<sup>16</sup> found positive impacts on school performance or years of study. Other constraints, such as parents' lack of information about their children's school performance or the return on investment they can make on their children's education (Dizon-Ross 2019), lack of financial resources, students' lack of knowledge about which actions to take to improve school performance, poor school quality or even the present bias (hyperbolic discount) of young people may explain the lack of results in these cases.

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<sup>12</sup> Or the actions that stand out the most or receive the most attention from the individual.

<sup>13</sup>Through a simple lecture with the presentation of statistics or through a role model, a successful alumnus from the same background as the students at the school.

<sup>14</sup> With 6th and 7th grade students.

<sup>15</sup> With 7th grade students.

<sup>16</sup> With High School students.

The Chinese study also showed that students do not always underestimate the returns on completing their studies. On the contrary, they may overestimate it. In addition to information on payback, students participating in the Chinese experiment also received counseling on careers and on requirements to enter High Schools with an academic itinerary<sup>17</sup> vis a vis a technical itinerary (Loyalka et al. 2013). Faced with information about the attractive salaries paid by the Chinese economy to low-income workers and about the difficulty of entering an academic High School, students began to perceive that the returns from studies was lower than what they had in mind, and the cost of graduating was higher than expected. Given the new information, students began to exert less effort at school, get lower grades, and were more likely to abandon school than students who did not receive counseling.

In another experiment conducted in the US state of Virginia, researchers randomly selected parents of Junior High School and High School students to receive weekly messages about absences, incomplete homework assignments, and their children's low grades (Bergman and Chan 2021). Students whose parents received such messages were 27% less likely to repeat a course, 12% more likely to attend school, and more likely to remain enrolled in subsequent semesters.

## **2.1. How to identify students at risk?**

Even though they are relatively inexpensive, the cost of such informational interventions can be even lower if the messages are directed at students who are really at risk of dropping out. These have some characteristics in common, such as social vulnerability, a history of repetition, records of bad behavior and absences, among other variables that make it possible to predict and anticipate with good accuracy those students with a greater chance of dropping out.

The development of new machine learning and data mining techniques has made it possible to anticipate student dropout with increasing accuracy. Early dropout prediction models have been implemented in several places, such as US school districts, Denmark, different regions of India, and South Korea (Lee and Chung 2019; Sansone 2019; 2017; Şara et al. 2015; Frazelle and Nagel 2015), but there is no evaluation to date that has identified the causal impact of using these models.

Another way to identify students at risk of abandonment is to simply ask the school principal to point out students he believes may be at risk of abandonment. This is exactly the case described below, on the outskirts of Paris, where parents of students most at risk of dropping out received more information about the possibilities of choices their children could make in the transition between the Elementary and Junior High School level to the High School level.

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<sup>17</sup> That gives access to higher education.



## 2.2. Risk identification and counseling in France

In the transition from Elementary and Junior High School to High School, French students must choose between a purely academic<sup>18</sup> High School program or from among four vocational training programs. Students can submit their choices ranking their preferences, while a centralized allocation system pairs off students and schools, giving acceptance priority to students with the highest grades at the end of the 9th grade.

To analyze the impact of providing information on student itineraries, researchers invited principals from 50 schools in the Paris suburb of the Versailles school district with a high proportion of vulnerable students to participate in an experiment. Of the 50 schools invited, 37 accepted the invitation. In these schools, each principal was asked to list the students in the (25%) quartile with the highest chance of dropping out of school in the transition from 9th grade to High School, which resulted, on average, in 6 students per class. Among these students, half had already repeated a year at some point, and a third came from low-income families (Goux, Gurgand, and Maurin 2017). Half of the classes were then randomly selected to receive the treatment, which consisted of 2 collective meetings between principals, educational experts from the Versailles district and parents of students, held at each school, to discuss the program choices that students should be making at the end of the year. The meeting protocols explained the importance of the decision being made by the students at the end of the year, encouraging parents to be involved in the decision, and that the aspirations and expectations of the family should be realistically adjusted<sup>19</sup> in relation to the student's performance. In addition, district experts also warned parents that repetition would not necessarily lead to a student's improvement in learning the following year, and that technical education could be a reasonable educational alternative.<sup>20</sup>

At the end of the first year of treatment, the study found that parents who attended the sessions were more involved with the school and had formed expectations more consistent with their children's low proficiency. As a result, the likelihood of children including vocational schools on their High School preference lists increased by 30%, while the proportion of students who said they wanted to repeat a year so they could be selected for stronger programs in the future decreased in the same proportion. Adjusting the aspirations of parents and students also reduced the rate of repetition and abandonment: the repetition rate dropped by 30%, from 13 percentage points (pp) to 9 pp and abandonment by 45% (from 9 pp

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<sup>18</sup> The main objective of which is the preparation for university, as opposed to the vocational paths that prepare for a technical profession.

<sup>19</sup>Downwards, in most cases.

<sup>20</sup>Many parents asked students to repeat grades, in the hope that the student might have a better chance of following an academic itinerary later. An important aspect of the meetings, unlike what took place in China, is that at no time was any information about the salaries associated with each of the alternative programs provided, or was any director encouraged to address this issue at the meetings.

to 5 pp). While aspirations have become more modest, the likelihood of achieving them has increased. The result is in line with the literature on psychology (Gottfredson 1981) and economics (Stinebrickner and Stinebrickner 2014) which shows that frustrated expectations can lead to undesirable consequences.

### **2.3. Flexibilization of the curriculum**

Among the numerous reasons for students to abandon studies, their lack of interest in the school appears among the first options in household surveys in Brazil. The traditional model of High School in Brazil, prior to the 2017 reform and before the approval of the new Common National Curricular Base (BNCC) for High Schools, obliged students to study 13 established subjects<sup>21</sup> without freedom of choice. For those who choose to go on to law school, for example, it does not make much sense to know the result of the oxidation reaction of aldehydes and ketones or know the Faraday-Lenz formula on electromagnetic induction.

A second set of interventions to combat dropout focuses on curricular reforms with the ability to make High School less dull and more attractive to the student. Such reforms may decrease abandonment and dropout by using at least two channels:

First, by offering courses closer to student preferences, the satisfaction of the young student in attending school should increase. Second, by adjusting what is being taught to the learning level of the student, there is an increase in the effectiveness of the teaching and therefore in the return of the investment that the student makes when remaining at school.

Some of the High School curricular reforms<sup>22</sup> aim to give more freedom to students to choose courses and their formative itineraries. This would allow students to choose courses whose level of difficulty is more appropriate for their level of knowledge, avoiding frustrations (Gottfredson 1981; Stinebrickner and Stinebrickner 2014). The mismatch between a heavily content-based curriculum<sup>23</sup> and students who arrive at High School with knowledge gaps can slacken the pace of learning (Pritchett and Beatty 2015; Muralidharan, Singh, and Ganimian 2019). If students cannot keep up with the rhythm dictated by the curriculum, they can end up falling behind, failing the course, and eventually abandoning school. A series of studies in India (Banerjee et al., 2017) with Elementary School students have shown that grouping students with similar knowledge levels and adjusting education to their level can accelerate learning<sup>24</sup>.

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<sup>21</sup> Portuguese Language, Mathematics, Biology, Physics, Chemistry, Philosophy, English, Geography, History, Sociology, Physical Education, Artistic Education and Literature.

<sup>22</sup> Like the reform currently being implemented in Brazil after the approval of the BNCC and the New High School.

<sup>23</sup> According to Banerjee and Duflo (2011), the curriculum of many developing regions is written by elites and includes learning that is unfamiliar or of little use to a large segment of the population. According to the same authors, such curricula tend to include a lot of content, at an unrealistically high level of demand, generating a mismatch between what is required and what is assimilated by students.

<sup>24</sup> However, we did not find any studies that rigorously analyze the causal impact of flexibilization of the curriculum or adjustment of teaching to the level of knowledge of students in High School.

### 3. Technical Education

Still in line with bringing the curriculum closer to the preferences and needs of students, another set of policies involves expanding the network of schools that offer technical and vocational courses. The proportion of students in technical High School education is still very low in Brazil when compared to other countries. Only 9% of our students attend some form of technical High School, against 23% in Latin America and the Caribbean (Elacqua, Prada, and Soares 2019).

The state of Pernambuco expanded the network of technical schools<sup>25</sup> with the creation of 36 schools, which made it possible to multiply the number of vacancies in this modality by 20 times (Elacqua, Prada, and Soares 2019). Pernambuco's technical High Schools offer the same regular-content teaching load as the semi-full-time schools and the same total teaching load as that of a full-time school, the difference<sup>26</sup> being fully covered by technical education.

When there are more students wanting to enroll in a technical education school than the number of placements available in Pernambuco, the selection of students is done through an exam, creating a discontinuity around the cut-off mark for admission. Elacqua, Prada, and Soares (2019) use this discontinuity to estimate the impact of attending a technical education school in Pernambuco. Achieving the cut-off mark increases the probability of attending a technical education school by 40 pp<sup>27</sup>, as not all admitted students choose to go to a technical education school<sup>28</sup>. This difference in probability of attending a technical education school for students whose grade is close to the cutoff allows one to estimate the impacts of technical education on dropout.

In fact, the chance of dropout is halved (6% versus 12% for the control) when the authors compare students whose grades were just above the cut-off point to students who were almost selected<sup>29</sup>. The probability of repetition falls by a similar proportion (3.1% against 6.7%), while the average scores in Portuguese and Mathematics in the state exam rise by 12% of 1 standard deviation<sup>30</sup>. In addition to being expressive when compared to the literature on High School dropout, the results are even more surprising when one considers that less than

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<sup>25</sup>The expansion was concomitant with the expansion of full-time or part-time Reference High Schools (EREM), which we will talk about later.

<sup>26</sup> 1,200 hours per year.

<sup>27</sup> Even so, around 7% of students who do not reach the cutoff grade manage to enroll in a technical education school.

<sup>28</sup>At the same time, admission to this exam reduces the probability of enrollment in full-time schools by 11 pp, in semi-full-time schools by 12 pp, in regular part-time schools by 16 pp, and in private schools by 2.5 pp.

<sup>29</sup>Recalling that only 40% of students with a grade above the cut-off point enrolled in technical education. The individual impact on each student who enrolls is therefore much greater. Assuming some statistical hypotheses, the impact on each student enrolled in the technical education school would be 15 pp (= 6 pp/40%).

<sup>30</sup> In education, it is common to measure test proficiency gains from percentages of a standard deviation. This is a way to standardize learning measures on proficiency scales that can be different.

half of the students who scored above the cut-off point enroll in technical education schools<sup>31</sup> (Elacqua, Prada, and Soares 2019).

Since technical education students attend schools with higher investment cost per student, better infrastructure, better-educated teachers and with higher average salaries, the question remains as to whether these are the factors behind the decrease in abandonment rates in technical education schools or if it is the technical content itself. To answer this question, Elacqua, Prada, and Soares (2019) restrict the sample to only students who enrolled in High Schools or full-time or part-time schools, since such schools also have better infrastructure and better teachers. The authors then repeat the exercise, comparing only students close to the cut-off grade. There is no significant difference in learning or repetition between technical and extended-time schools, but the dropout rate is significantly lower.

The results from Pernambuco are in line with the international literature that assesses the impacts of vocational High School education on school dropout. Kemple and Snipes (2000), for example, compare 1764 students selected and not selected to enter vocational High Schools (Career Academies) in the US, and find that selection for these schools improves knowledge about career possibilities after graduating from High School and reduces the dropout rate by one-third (21% versus 32% in control schools) among students with the lowest risk of passing.

The impact of the mix of academic and technical content in technical High School education can also be seen through two curriculum reforms that increased academic content in technical schools in Sweden (Hall 2012) and Croatia (Zilic 2018), while reducing technical content. In both cases, the increase in academic content increased the dropout rate of students with lower grades. In the case of Sweden, dropout rates among the lowest graded students increased by more than 50%, jumping 8.3 pp from a previous average of 15.8%. By symmetry, therefore, the results suggest that the expansion of technical education content can reduce student dropout for those with greater academic difficulties.

#### **4. Full-time schools**

A third set of policies aims to reduce the school dropout rate among adolescents and young people by extending daily class hours. Theoretically, however, the impact on the dropout rate of converting schools from part-time to full-time is ambiguous. On the one hand, full-time can increase the return on education, making it more advantageous to stay in school. Full-time can also have a “disabling effect”, pulling vulnerable young people out of risky situations on the streets while they are in school. On the other hand, full time can prevent students who need to work from continuing to study, as it reduces the time available for work.

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<sup>31</sup> In the jargon of impact evaluation literature, these would just be Intention-to-Treat (ITT) results. To obtain the Treatment Effect on the Treated (TOT), it is sufficient to divide the estimates by the difference in enrollment (take up), which in this case is 40 pp. At this rate, technical High Schools would practically eliminate student dropout for those who pass the cut-off mark and enroll, since  $-6 \text{ pp}/0.4 = -15 \text{ pp}$ .

In this respect, full-time schools can force out the most vulnerable students if they do not have the option of continuing to study part-time.

#### **4.1. Full-time schools in Chile**

The case of Chile, which has encouraged a strong expansion of full-time High Schools, gives us some clues about the potential impact that extended-day schools can have on school abandonment and dropout. Between 1997 and 2010, the Chilean government increased the school day of all public schools in the country by 30%, obliging students to study from 8 am to 3 pm (Dominguez and Ruffini 2018; Dominguez and Ruffini 2021). The longer class time was not used for after-hour activities, such as sports, but for more instruction.

The expansion, which took place in phases due to budget constraints, allows comparing the evolution of indicators of students from extended-day schools to those from schools that had not yet incorporated longer hours. Dominguez and Ruffini (2021) take advantage of this phased expansion and estimate that the full-time regime increased the number of completed years of schooling, increased the likelihood of program graduates working in skilled occupations, and decreased the likelihood of teenage pregnancy. The pregnancy result confirms previous findings by Berthelon and Kruger (2011), who had also found that not only did full-time schooling reduce the chances of teenage pregnancy, but it also reduced their involvement in crime.

### **5. Improving school management: The Young with a Future Program**

The school principal's leadership and good school management are correlated with student learning (Bloom et al, 2015; Cazulo, 2020) and with the presence of high value-added teachers (Cazulo, 2020), factors in turn correlated with school abandonment and dropout (Cazulo, 2020). Better school management allows principals to implement good ideas more easily, in addition to directing teachers' efforts in the common direction of improving learning and school flow, with reduced failure, repetition, abandonment and dropout rates.

The Young with a Future program, supported by Instituto Unibanco (Unibanco Institute), aims to increase students' permanence in school and the High School completion rate, with higher levels of learning. Started in 2007, the program is based on the principle that school principals and managers have high potential, but that it is not fully realized due to a lack of adequate planning and attention to the implementation of school processes. To achieve this objective of increasing the High School completion rate, the program's main action is to strengthen leadership and management skills of directors and pedagogical coordinators through training, advice, and support in the use of data, goals, indicators and in the management of school processes. The program works with a methodology called Management Circuit, inspired by the PDCA method (Plan-Do-Check-Act), which includes planning, execution, monitoring and impact evaluation, and replanning of actions (Henriques, Carvalho, and Barros, 2020).

Since its conception and first round of implementation, the program has been subject to rigorous impact evaluations, through a draw conducted among participating schools. The existence of a control group in each partner state makes it possible to evaluate the program and measure its impact on learning and school flow, and even the program's contribution to the evolution of IDEB in partner states. From the 3rd generation of project implementation in 2015, when the actions of the Management Circuit were expanded from schools to regional schools and education secretariats, the program has had a 3.6 pp increase in the pass rate of the 1st year of High School, and 2.1 pp in the pass rate of the 2nd year of High School<sup>32</sup>, accompanied by improvements in student learning<sup>33</sup> (Henriques, Carvalho, and Barros, 2020).

## **6. Thinking twice or on autopilot?**

The next sections deal with interventions whose theories of change incorporate new understanding of adolescent behavior and the transformations that occur in the brain during adolescence. Part of these interventions consist of sessions that make use of elements of Cognitive-Behavioral Therapy (CBT), combined with temporary employment actions, or with financial incentives. The best-known program that employs CBT and that has been the subject of an impact assessment is *Becoming a Man*, which will be discussed in the next section.

### **6.1. Becoming a Man Program**

The *Becoming a Man* (BAM) program, initially implemented in Chicago, basically consists of 1-hour weekly meetings between up to 15 young people, mediated by counselors with higher education (not necessarily in psychology or social work), for one or two years (Heller et al. 2017)<sup>34</sup>. The curriculum of the sessions is based on the main elements of cognitive-behavioral therapy: 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. Finally, the curriculum also encourages young people to replace problematic or false beliefs or opinions.

The program was evaluated through two randomized clinical trials. In the first, young people from 7th to 10th grade participated, which would be equivalent to the final years of Junior High School and the first year of High School. The study sample consisted of 2,740 students spread across 18 schools. The 2nd clinical trial had the participation of 2,064 students

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<sup>32</sup>No significant impact was found on the pass rate in the 3rd year of High School.

<sup>33</sup>The program increased students' proficiency by 3.1 points on the SAEB Portuguese Language scale and 3.7 points on the SAEB Mathematics scale. Considering a standard deviation of 50 points adopted by INEP, it would be equivalent to 6.2% and 7.4% of 1 standard deviation, respectively.

<sup>34</sup> Heller et al (2017) present two randomized BAM evaluation experiments. In the 1st study, which has the longest data, the educational data cover a period of up to 5 years after the implementation of the program.

from the 9th and 10th grades. In both studies, the young participants were chosen through a draw, carried out for each grade of each participating school.

The experimental evaluation of the program found very encouraging results. On average of the two experiments, the participants' academic performance<sup>35</sup> improved by 43%<sup>36</sup>. The on-time High School completion rate rose between 12% and 19%. The number of times a young participant was arrested over the course of a year dropped by 26%. The number of violent crimes perpetrated by young participants dropped by 40%, while the chance of being involved in other crimes dropped by 35%. At a cost of less than US\$2000 per student, the program proved to be highly cost-effective. Considering only the crime reduction effects, the program returns between US\$5 and US\$30 for every US\$1 invested (Heller et al, 2017)<sup>37</sup>.

## **6.2. Juvenile detention in Chicago**

The second program evaluated by Heller et al (2017) involved youths in detention in Chicago's socio-educational system<sup>38</sup>. The intervention took place in the detention quarters where youths stay between the arrest and the moment of the custody trial, which lasts between 3 and 4 weeks. The program basically consisted of daily sessions that used elements of cognitive-behavioral therapy at times when young people would usually spend watching television. The curriculum of activities is very similar to that of BAM, but with some important differences. 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 (Heller et al, 2017).

The allocation of young people among the quarters was random. Each day, the young detainees would draw lots to see who would be assigned to which one of the 10 quarters. The study involved 2,693 young men admitted between 2009 and 2011, at an average age of 16, who were followed up for 18 months. Participation in the program reduced the readmission rate to the socio-educational system by 21%.

Although both programs generally deal with the socio-emotional development of young people, which is consistent with the window of opportunity for interventions in this area and in this age group, the mechanism that led to the success of the two initiatives is not exactly obvious. In fact, the authors of the study did not find any alteration or mediating effect

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<sup>35</sup> Measured through an index that combines student grades, classroom attendance, and end-of-year enrollment status.

<sup>36</sup> The increase was 0.088 standard deviation, against an initial average of 0.2 standard deviation in the control group (43% = 0.088/0.2013).

<sup>37</sup> The benefits related to crime come from estimates of what potential victims would not have lost if the crimes had not been perpetrated, in addition to savings for the government by not having to spend on the incarceration of these young people. See Heller et al (2017), Appendix C.

<sup>38</sup> Cook County Juvenile Temporary Detention Center.



regarding self-control, grit, understanding about the returns on education, or social skills. Neither program teaches values. Counselors always avoid telling young people what might be right or wrong. They never say, for example, that a young person should not get upset or angry, much less that a young person should never get into fights. Instead, they always say “if you are going to get into a fight, make sure it is necessary!”. One of the possible explanations, therefore, would be the fact that the program encourages young people to always pause and reflect before taking initiatives on impulse, replacing previously automated behaviors (Heller et al, 2017).

## **7. Work experience programs during the vacation**

Another type of program aims to give young people an opportunity to work and earn income during summer vacations, a period in which students lose part of the content learned at school, especially those with a more vulnerable social background (Cooper et al. 1996). The logic behind it is that, having work experience before completing basic education, the young person could develop socio-emotional skills during the holidays that would also help in school and in the work environment, such as self-efficacy, punctuality, and impulse control. In addition, they could be more easily inserted in the labor market (Heller 2014).

Programs of this type, known by the acronym SYEPs<sup>39</sup>, are implemented in several locations across the US, with slightly different designs but maintaining the common structure of offering a summer employment opportunity at the local minimum wage with some mentoring. Programs are managed locally, by cities, through public<sup>40</sup> and private sector funding. Below, the impact of each of these interventions is analyzed in more detail.

### **7.1. One Summer Chicago Plus**

The One Summer Chicago Plus Program offers a chance of employment during the summer break to students enrolled between Grades 8 and 12 (equivalent to third year of High School). The job is part-time and pays the Illinois state minimum wage, totaling \$1,600 by the end of the summer. Jobs are offered by the government or non-governmental organizations, and may include jobs in gardening, office assistants, summer camp monitors, among other activities.

There are several differences in the program. First, while other traditional job placement programs generally select students who have already dropped out of school, this is a program aimed at students regularly enrolled in school. Second, in addition to offering the chance of employment during the holidays, the program places young people with a mentor, who helps them overcome the difficulties of the work environment, also offering 10 hours a week of socio-emotional learning activities. The curriculum is based on Cognitive-Behavioral

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<sup>39</sup>Summer Youth Employment Program.

<sup>40</sup> The Workforce Innovation and Opportunities Act provides federal assistance for implementing summer vacation employment programs. For details on funding the initiatives, see Congressional Research Service (2017).



Therapy, with the aim of helping young people to understand and manage their thoughts, emotions, and behavior, as this may interfere with their employability (Heller, 2014). The logic of the program is, therefore, to prevent school dropout before it happens, as prevention is better than cure.

As the program offered fewer placements than the demand, young people were chosen through a raffle, which allowed the impact of the program to be evaluated. The study involved 1,634 young people from 13 schools located in the most violent areas of Chicago, a city in the US. Participation in the program was responsible for reducing the number of violent crimes by 43% in the 16 months following the intervention<sup>41</sup>. On average, the program generates 4 fewer arrests for violent crimes per 100 youths<sup>42</sup>. The reduction in violent crime persists for at least 2 years after the end of the program, which rules out the hypothesis that this effect could be due to the simple fact that these young people are busy during the holidays. The total number of arrests, however, remained the same, driven by an increase in arrests for property crimes. Regarding employability and school results, no statistically significant impact was found.

Davis and Heller (2020) analyzed the program's heterogeneous results using one of the new techniques that combine causal inference and machine learning, called causal forests<sup>43</sup>. The program's impacts on employability are heterogeneous. Those who benefited most were younger, female, Hispanic youths, more engaged with school and least likely to have had any stints with the police. Regarding schooling and arrests for violent crimes, the authors found homogeneous impacts. Thus, according to the authors, it would be advantageous to focus the program on students most at risk of committing violent crimes.

The program results show a more nuanced picture of the dynamics between the issue of school dropout, employability, and the opportunity to commit crimes. There is one group on which the program is especially effective in improving employability, and this is the group already most engaged with the school. Access to jobs introduces poor young people to wealthier areas of the city, where there are more opportunities for theft but less chance of getting into fights. Furthermore, anecdotal evidence from employers, reported by Davis and Heller (2020), is that they help students develop self-regulation and respond positively to criticism, which can reduce conflict. Finally, it is possible that employment experience and the influence of new peers change beliefs, norms, and attitudes towards violence (Davis and Heller 2020).

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<sup>41</sup> The estimated reduction was 3.95 violent crimes per 100 young people, compared to an average of 9.1 violent crimes per 100 young people ( $3.95/9.1=43\%$ ).

<sup>42</sup> The number of arrests for violent crimes was 9 per 100 youths, against 5 per 100 youths in the control group.

<sup>43</sup> This technique was developed by Athey and Imbens (2016).

## **7.2. The Summer Youth Employment Program (SYEP) in New York**

A similar program to One Summer Chicago Plus was also implemented in another US city, New York, and studied through rigorous impact evaluation. The assessment tracked youth aged 14 to 21 who entered the city's summer employment program, SYEP. Similar to the Chicago case, SYEP had a much higher number of applications than the number of places that could be offered, which made it possible to select young people through a raffle and carry out impact evaluation (Gelber, Isen, and Kessler 2016).

The evaluation study followed 294,100 young people who applied to the program between 2005 and 2008, of whom 164,641 were chosen by the raffle to participate. The study found no positive effects on participants' income or on the likelihood of entering higher education in the years after youth participation. On the contrary, there was even a slight drop in income among the older youths who had already had previous work experience.

Despite this, the program had very positive effects on youth involvement in violent activities, which is consistent with the idea that the summer employment program removes young people from problematic contexts during the part of the year when they are not studying and consequently have more idle time. The probability of being arrested decreased by almost 10%. The probability of dying in the following years decreased by 18%. This means that the program saved around 80 lives by 2014, resulting in a benefit to society of US\$747 million, against a total cost of US\$236 million. The reduction in violence promoted by the program makes it very cost-effective (Gelber, Isen, and Kessler 2016).

## **7.3. The Summer Youth Employment Program (SYEP) in Boston**

The City of Boston has implemented a Summer Youth Employment Program since the 1980s. Participants are 14- to 22-year-olds, work 20 to 25 hours a week, and earn the Massachusetts, US state minimum hourly wage. Young people working in publicly subsidized jobs also receive 15 hours of training, which includes classes on personal and work skills (soft skills), as well as tips on how to search for and apply for a job online.

The program had several positive impacts that were not identified in the New York case. As in New York, the demand for the program was greater than the number of placements available, and the choice of participants was random, allowing impact evaluations to be carried out. According to one of the program's evaluations, student attendance in the classroom increased by 2 percentage points over the course of the school year, and chronic absenteeism was reduced by 27%. Small effects on grades were found, although the impact on standardized tests is not statistically significant. The probability of dropping out of school decreased by 25%, and the chance of finishing High School increased by 6 pp (Modestino and Paulsen 2019; 2021). Violent crime reports were down 35% compared to the control group, and the drop was sustained beyond the summer vacation period. Participants also showed improvements in socio-emotional skills, such as managing their own emotions or resolving conflicts with a peer, which may explain part of the effect on school dropout and violence. When imputing the

benefits associated with higher income, less chance of involvement in criminal activities and less use of social services<sup>44</sup>, the authors of the study calculate that the benefits of the program exceed by 4 times its cost (Modestino and Paulsen 2021).

Taken together, the randomized evaluations of the three initiatives show that there is potential to reduce the chances of youth involvement in violent crime by participating in employment programs during the summer vacation. The Boston case shows that such programs can also reduce High School truancy and dropout. The mechanism for this would be the same: the development of socio-emotional skills such as self-regulation and conflict resolution. In this regard, both the job itself and mentoring can be complementary. The results are consistent with recent neuroscience literature that shows that there is a window of opportunity among young people and adolescents for the development of socio-emotional skills, especially those linked to executive functions. Similar programs can be adapted and implemented in Brazil<sup>45</sup>.

## **8. Programs that pay financial rewards to young people**

The idea that students can be motivated by financial rewards is not new. The first reports of financial payments paid to motivate students date back to the 19th century (Ravitch 1974). The evidence of the impacts of this type of program, however, is relatively new, and only started to be documented after the explosion of randomized evaluations in the last 20 years.

### **8.1. The Variable Youth Benefit of the *Bolsa Família* Program**

The Variable Youth Benefit (BVJ) is one of the components of the *Bolsa Família* Program, which consists of monthly payments of an extra benefit of approximately R\$50 for families who keep children aged 16 to 17 in school. The amount of the transfer is made directly to the family responsible for the *Bolsa Família*, which is usually the mother. The impact of BVJ was analyzed by at least 3 studies. Chitolina, Foguel, and Menezes-Filho (2016) show that the introduction of the BVJ had a positive and significant impact on enrollment and work decisions. The results, however, are entirely concentrated in rural areas and are absent in the urban setting. The same expansion resulted in less violence around schools with a higher proportion of poor adolescents, but the effect does not increase with time spent in school (Chioda, De Mello, and Soares 2016). Finally, Machado, Neto and Szerman (2017) explore the discontinuity

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<sup>44</sup> As an assessment made in the short term, the long-term effects on income, involvement in crime or use of social services are not yet known. In this case, the authors impute the impacts of graduating from High School present in the literature. According to the authors, each student who completes High School adds \$127,000 for society over their lifetime.

<sup>45</sup> The results also contribute to the debate about the regulation of the work of adolescents and young people in Brazil, since work for children under 16 and over 14 years of age can only be undertaken in the condition of young apprentice.

in the eligibility rule for the program from 17 to 18 years of age, finding no effects regarding dropouts or schooling.

## **8.2. The Bagrut incentive in Israel**

The first rigorous evidence of a financial rewards program that pays directly to students comes from Israel, where 20 schools were chosen at random by the Ministry of Education to be part of a pilot program that paid small amounts for passing grades 11 and 12 (Angrist and Lavy 2009). Additionally, students with satisfactory performance on the Bagrut (the unified entrance exam for higher education) would receive an award of approximately US\$1500. In total, the student could make up to US\$2400 if he passed the two grades covered and the Bagrut. This equates to roughly one-third of the salary students would receive if they dropped out of school. Comparing students from treatment and control schools, Angrist and Lavy (2009) find a 30% increase in the Bagrut certification rate for girls, but no effect for boys<sup>46</sup>.

## **8.3. Conditional Benefits of Bogotá**

In 2005, the city of Bogotá, Colombia, introduced 3 different ways of making transfers to High School students. Students from poor families eligible for the benefit were randomized to receive one of 2 separate cash transfer payments schemes. In the basic scenario, the transfer was made in the traditional way, with bimonthly payments, conditional on the student's presence at school. In the alternative scheme, one third of the value of the traditional transfer was retained, being fully paid at the end of the year, at the time of re-enrollment. A third group of students did not receive the cash transfer and remained as a control group.

Economists Barrera-Osorio, Linden, and Saavedra (2019) estimated the impact of the two transfer schemes and found that forcing the family to save a third of the amount of payments had a superior result to the traditional cash transfer design, mainly because it made more students access higher education. The dropout rate of students participating in the savings scheme was 3.2 pp lower than that of students in the traditional scheme<sup>47</sup>. In contrast, there was no significant difference between students in the traditional scheme and the control group regarding the probability of accessing higher education. In other words, a simple, fiscally neutral modification of when part of the transfer is paid generates a superior benefit, keeping the total value of the transfers unchanged.

In a parallel experiment, the same researchers tested the impact of withholding one-third of the basic amount of the traditional transfer and making payment of this amount conditional to timely completion of High School and enrollment in higher education. Students who graduated at the correct time, but who perhaps did not enroll in higher education, had to

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<sup>46</sup> Among girls, there were more students in the situation where the incentive was more powerful. They were neither in a situation where admission to the university was guaranteed, nor in a situation where there was no longer any hope of passing.

<sup>47</sup> The dropout rate in the control group was 38%. In other words, an alternative forced savings scheme reduced evasion by 8.4% ( $=3.2/38$ ).

wait one more year to receive the amounts withheld. The dropout rate of students drawn to be part of the alternative scheme that only paid the amount withheld at the end of High School was 3.6 pp lower than that of the control group<sup>48</sup>. Such a parallel experiment also increased higher education enrollment, which rose 5.8 pp, or 19%, from an average of 31% in the control group. However, this came at the cost of more enrollments at lower quality universities, when compared to the outcome of the experiment that paid the amount withheld at the end of the year.

#### **8.4. New Brunswick Learning Accounts**

The province of New Brunswick, Canada, has implemented an experimental program very similar to the Bogotá benefit, called Learning Accounts. The program consisted of financial aid to low-income students, conditional on the students' passing each grade of High School. For the beneficiary student who passed 10th grade (corresponding to the 1st year of High School), the program deposited approximately US\$ 2,100 in the account opened in his/her name. If the student passed 11th grade (2nd year of High School), the student received an additional US\$ 2,100, and for those who graduated from High School at the end of 12th grade, an additional US\$ 4,200, totaling US\$ 8,400 at the end of the 3 years.

The program's impact evaluation randomized, at the individual level, 1,145 low-income students across 30 schools, dividing them into treated students and control students. All students were in the 1st year of High School, with an average age of 14.5 years, 95% of them were white and only 10% of them had parents with a university degree. Five and a half years after the students were drawn, one study (Ford et al. 2012) found a 6.5 percentage point increase (statistically significant at 1%) in the probability of High School graduation (82% of students in the control group have graduated). Ten years after the draw, that is, 7 years after the expected period for students to graduate from High School if they did not repeat, another study (Ford, Hui, and Kwakye 2019) showed that 36% of beneficiary students had graduated from college versus 29% of the control students, a difference of 6.8 percentage points (significant at 1%). The whole effect came from more students attending community colleges, which are less academically-demanding, shorter-duration colleges.

#### **8.5. Renda Melhor Jovem (Better Income Youth) Program**

In Brazil, programs that give a financial reward to students for their academic performance are a relatively recent innovation. The pioneering experience was launched in 2007 by the Minas Gerais State Department of Education with the Youth Savings program, which offered up to R\$3,000 to students from 8 municipalities if they completed High School. In 2011, the state of Rio de Janeiro launched the *Renda Melhor Jovem* (RMJ) program, which paid students for each grade successfully completed. Finally, the state of Piauí launched

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<sup>48</sup> Whose average evasion was 23%. In other words, the alternative scheme reduces school dropout by 15% (=3.6/23).

*Poupança Jovem Piauí* in 2015, while the city of Niterói launched *Projeto Poupança Escola Niterói* in 2019, both with a design very similar to that of RMJ.

The RMJ program used to reward High School students from the state of Rio de Janeiro for each grade successfully completed. Students who passed the 1st year of High School received R\$700, those who passed the 2nd year received R\$900 and those who passed the 3rd year received R\$1000. The money was deposited in a savings account in the student's name, earning interest. Each year, the student could withdraw only 30% of the deposited amount. Everything else was locked in, as in forced savings. The full amount could only be withdrawn after completing High School. If the student repeated any year, or dropped out of school, he lost the entire account balance, including the amount that could have been withdrawn. To be part of the program, the family needed to have a per capita income below R\$ 100 per month, measured using a mathematical model of income predictor, and to be a beneficiary of the local income supplementation program called *Renda Melhor*.

The program has been expanded in phases. First, it was implemented in the 3 municipalities with the highest proportion of poor people in the metropolitan region of Rio, then in another 52 municipalities, and finally in the entire state. This allowed an impact evaluation of the program to be carried out. According to Pereira (2016), the entry of the *Renda Melhor Jovem* Program in a municipality in Rio de Janeiro increased the average pass rate of state schools in the municipality by 1.5 percentage points (pp), and reduced failure by 1.1 pp.

Within the same municipality, there are those schools with more and those with less students eligible for the program due to the targeting criterion, which only includes students with a predicted per capita income below R\$ 100. This variation in the number of eligible students allows estimating the effect on the student eligible for the program. For this student, school abandonment decreases by 5.6 percentage points, which corresponds to a 37% decline in relation to the abandonment rate before entering the program. The probability of passing goes up by 14%, while failure goes down by 20%. Despite the encouraging results, program payments were suspended in 2016.

## **8.6. The *Poupança Jovem Piauí* (Piauí Youth Savings) Project**

The *Poupança Jovem Piauí* Program was created in 2015 to combat school dropout in the state. The design of the program is very similar to that of the RMJ, being also an annual school savings program. The program pays R\$400 for students who pass 1st year of High School, R\$500 for those who pass 2nd year and R\$600 for those who pass 3rd year. Students from technical schools with the 4th year of High School receive an additional R\$700 for passing the final year. Students can withdraw up to 40% of the awarded amount each year, and the total amount can only be withdrawn at the end of High School, the balance adjusted with interest.

For the student to withdraw the amount to which he is entitled, he need only go to a post office or Banco do Brasil, with his ID and CPF and get his debit card entitling him to withdraw. In the case of the RMJ, the student needed to open an account in his name, which on the one hand already included the student in the banking system, but on the other hand made it difficult for some students to provide documents or take their parents to the branch during business hours<sup>49</sup> and so some ended up not opening the account. Two other important differences in relation to the RMJ are the inexistence of the rule of loss of all the accumulated value in the case of repetition or dropout, and the targeting by municipality, and not by student through an income predictor. The program also featured motivational lectures at the beginning of the year, a booklet on choosing a profession and meetings between managers to monitor the program's actions.

*Poupança Jovem Piauí* was first implemented in the 4 poorest municipalities in each of the 11 development territories in the state, making all High School students in these 44 municipalities eligible for the benefit, regardless of family income. Subsequently, the program was expanded to other municipalities, following the order of poverty within each development territory, reaching 77 municipalities and 99 schools in 2019.

The program was evaluated by Pereira (2019), also using the difference-in-differences and synthetic control methodology, exploring the phased entry of municipalities into the program, and comparing participating municipalities with municipalities that had not (yet) entered the program, but restricting the sample to only the 15 poorest municipalities in each development region to increase sample comparability. The results show a decrease in High School abandonment of almost 1 percentage point (over an average of 10%) in the (calendar) year in which the project begins to be implemented in the municipality (but not significant) and drops of 3.5 pp and 3.4 pp in the 2nd and 3rd year of implementation (for the 3 years of High School), which correspond to reductions of 33% and 31% in the abandonment rate in relation to the initial average. Approval rose 1.2 pp (non-significant), 3.5 pp and 4.1 pp in the 1st, 2nd, and 3rd years of implementation, respectively. No significant results were found on student learning in the state test. The effects are greater for schools with more precarious infrastructure, with higher initial abandonment rates, higher rates of age-grade distortion, less adequacy of the qualification of the teaching staff to the classes, and less complexity of school management.<sup>50 51</sup>

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<sup>49</sup> In the case of minors, the presence of the parents was mandatory when opening the account.

<sup>50</sup> The school management complexity index is calculated by INEP according to the size of the school, number of grades offered, the complexity of these grades and the number of shifts offered.

<sup>51</sup> The experiences of the *Programa Renda Melhor Jovem* and *Poupança Jovem Piauí* inspired other states, municipalities, and the federal legislature to propose and adopt similar programs. The city hall of Niterói-RJ, for example, started to implement the *Poupança Escola Niterói*, which includes the 9th grade of Junior High School and pays a decreasing scale of awards, paying R\$1200 for approval in the 9th grade of Junior High School, and R\$1,100, R\$1000 and R\$800 for passing the 1st, 2nd and 3rd grades of High School, respectively, and another R\$400 for a score above the national average on ENEM. The *Bolsa do Povo Educação*, from the government of the state of São Paulo, and the *Cartão Escola 10*, from



## 9. All together and mixed

Finally, it is not difficult to imagine that there is some program that combines several of the elements of the programs analyzed herein. We identified two that merge several of the interventions listed here. The first are the Reference Schools in Pernambuco, which combine increased workload, improved school management and the introduction of the concept of youth protagonism, giving students greater autonomy. The second, called Pathways to Education, mixes group sessions based on cognitive behavioral therapy, student mentoring and financial incentives based on savings formation.

### 9.1. The Reference Schools of Pernambuco

The best documented experience in Brazil of giving greater responsibility to young people for their choices and helping young people to set up their life plan are the Reference High Schools of Pernambuco. The pedagogical concept of these schools, which emerged as a public-private partnership, was developed by businessman and educator Antônio Carlos Gomes da Costa and has as its axis the concept of youth protagonism, placing the student as a central element of the educational practice. The idea is that the entire school organization, including the choice of partial, full, or semi-integral regime, is thought through from the point of view of the student's aspirations and needs, making him the protagonist of the design and implementation of educational projects.

The Reference Schools of Pernambuco emerged from a pioneering experience of public-private partnership in education, from the joint management of some public High Schools<sup>52</sup> between the secretary of education and a group of businessmen. Subsequently, the partnership was finalized, with the state assuming the integral management of the schools but expanding the model to other schools by incorporating a series of pedagogical, teacher hiring and school management innovations (Bloom et al. 2015) that had been introduced during the public-private partnership period. Among such innovations, we can mention the hiring of teachers on an exclusive basis, establishment of management goals, director selection processes, an interdisciplinary curriculum focused on rationality, affectivity, corporeality, and spirituality<sup>53</sup>, and weekly 1-hour classes in which the student is called upon to build a life project, and to monitor its progress. Based on the students' needs, schools also have extended study time. While part-time High Schools in Pernambuco offer 3,000 hours of classes per year,

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the government of the state of Alagoas, have some characteristics in common with the *Renda Melhor Jovem* Program. Bill No. 54/2021, also inspired by *Renda Melhor Jovem*, provides for the payment of savings grants for the completion of each grade of High School to students from families participating in *Bolsa Família*. Finally, Bill No. 5343, known as the Social Responsibility Law, also incorporates forming savings and payment of accumulated value conditional on High School graduation.

<sup>52</sup> Among them, the famous *Ginásio Pernambucano*.

<sup>53</sup> Spirituality in this case refers to the search for a meaning for life that transcends the individual level; it is not about religion.



the semi-full-time Reference Schools offer 4,200 hours of classes per year, and 5,400 hours of classes per year for those schools on a full-time basis.

The success of the new school model is reflected in the improvement of Pernambuco's educational indicators in High School education, which jumped from the last positions in the SAEB performance ranking to the first positions, with low abandonment and dropout rate<sup>54</sup>. According to Rosa et al. (2019), the student's enrollment in a reference school causes an increase of 10% of 1 standard deviation in the Portuguese Language grade and of 18% of 1 standard deviation in the Mathematics grade.

A study by Instituto Sonho Grande compared students from High Schools in Pernambuco with students from other part-time schools using the propensity score matching technique and found that the chance of a student from a reference school entering higher education is 17 pp higher (63% more), as is the chance of choosing higher value-added careers, such as activities related to the financial sector. The salary of graduates of the Reference Schools is 18% higher (Instituto Sonho Grande 2019). The success of schools is such that it has brought the middle class back to public schools and caused the closure of private schools in the state of Pernambuco (Rosa 2019).

## **9.2. The Pathways to Education Program**

The Pathways to Education program emerged from the initiative of community workers in the Regents Park area of Toronto, Canada, a large housing project where less than half of young people completed High School and half of residents had no income (Lavecchia, Oreopoulos, and Brown 2020).

The program has 4 pillars: counseling, financial, academic, and social.

Counseling is provided through a support agent, paid by the program, who meets with young people at least twice a month to discuss their participation in the program, school attendance, school performance, university applications, job search, among other subjects. The support agent forms the link between the young person, the parents, and the school. In the last years of High School, the agent also helps the young person to put together their resume, train for job interviews, and make visits to institutions of higher education or potential employers.

The financial pillar consists initially of short-term aid for the student to be able to go to school, which includes the public transport fare and a small monthly allowance. Combining elements also present in the Bogotá Conditional Benefit and the RMJ, the program constitutes a fund, of \$1000 Canadian dollars (CAD) per year of participation in the program, possibly

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<sup>54</sup> In addition to the expansion of reference schools, other actions may also have contributed to the jump of IDEB (Basic Education Development Index) in Pernambuco in High Schools, such as the introduction of the Educational Performance Bonus, incentives to improve school management, such as the Additional for Managerial Efficiency, reforms of school infrastructure and other measures to improve the education offered in the state.

culminating at \$4000 CAD. The fund can only be accessed after completion of High School, but there is no punishment for the student who eventually repeats or abandons and then comes back.

Free tutoring forms the academic pillar. Tutoring sessions are conducted both individually and in groups. Tutors are volunteers trained by the implementing organization, and provide help to students in basic subjects, up to 4 nights a week.

Finally, the social pillar, also combines elements of youth protagonism. Students are entitled to collective mentoring sessions. In the lower grades (9th and 10th grades), students choose activities from a pre-defined list, such as sports, drama, cooking and martial arts. In higher grades, students have more freedom to suggest activities that are closer to their interests, which can even include mentoring students in lower grades.

A first evaluation showed that the program increased High School completion and higher education enrollment rates by 10 and 20 percentage points, respectively (Oreopoulos, Brown, and Lavecchia 2020). Initially, the increase in High School completion rates ends up reducing the income of students in the treatment group, in relation to those in the control group. Students are at school, not working. The difference appears later. From the age of 25 onwards, the income of treated students becomes higher. At age 28, the youth who had gone through the program had an annual income of \$3,200 CAD higher than those in the control group, which is equivalent to a 19% jump. The probability of being employed goes up by 15%. Receipt of social assistance transfers have decreased by 30 to 50%, and the chance of having an early child has dropped by around a third.

## 10. Conclusion

This paper is part of a series of three papers on the abandonment and dropout phenomenon, specifically with the objective of listing interventions with measured effectiveness in reducing abandonment or dropout, especially in High School, when the problem gets worse. Several past experiences of interventions implemented for this purpose have produced disappointing results. On the other hand, some more traditional interventions, such as extending the school day, expanding the network of technical education schools, or providing information to students and their parents, have had mixed results, with some positive examples. Only recently, with a better understanding of adolescent behavior, has the literature identified policies that can significantly reduce dropout of vulnerable youth. These are policies that involve and sometimes combine elements of cognitive-behavioral therapy among youth, summer vacation work experiences, and financial incentives conditional on High School completion. The evidence presented here can help public policymakers to design interventions with the objective of reducing High School dropout.

It is important to emphasize that the non-inclusion of certain policies in this paper does not mean that a certain intervention cannot have an impact on school dropout. It just means that no robust evidence, documented in a rigorous impact evaluation, was found that

the intervention has reduced High School dropout. Given this, we chose not to include programs that did not specifically have a proven impact on High School abandonment or dropout.

This was the case, for example, of more comprehensive programs for development and generation of local opportunities, such as the American program Promise Neighborhoods or Excellence in Cities, implemented in the United Kingdom, which aim to change the opportunities for upward social mobility of entire neighborhoods, breaking part of the cycle of perpetuating poverty in marginalized neighborhoods (Chetty and Hendren, 2018). The Excellence in Cities program was evaluated by Machin, McNally and Meghir (2004), having found an impact on the grades and absenteeism of students in the 9th year of Junior High School. To the extent that there is a relationship between the dynamics of poverty, violence, and the quality of local education, which feed into each other, programs that reduce violent crime among young people can improve the quality of neighborhood education, either by reducing class interruptions due to shootings, or by failing to repel good teachers, thereby increasing opportunities for younger generations. On the other hand, improving the quality of local education should increase local income and reduce violence. Given the enormous potential for synergy in the implementation at the local level of several of the policies listed in this paper, it is even possible that geographic targeting is superior to individual targeting of policies.

Several of the policies analyzed herein deal with segments of the Brazilian public education that are often relegated to a secondary level of importance, such as Youth and Adult Education (EJA)<sup>55</sup> or young people in a situation of internment or semi-liberty in the socio-educational system<sup>56</sup>. The example of the intervention that uses cognitive-behavioral therapy in Chicago shows that it is possible, for example, to rescue young people from the socio-educational system, increasing the chances of their completing High School and reducing criminal recidivism.

Recently, Brazil has adopted a series of measures with the aim of increasing the quality of what is taught in High School and reducing school abandonment and dropout, such as the approval of the New Common Curriculum Base for High Schools. Such measures come in the form of expanding the choices of young people, making school schedules and choice of courses more flexible, incorporating elements of youth protagonism, expanding the workload and introducing more possibilities of joining technical education to academic training. In this

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<sup>55</sup> EJA students do not take the SAEB exams, but the quality of teaching seems to be low. Firmo (2021), compares adults who bought EJA degrees in fraudulent schemes with other adults who attended EJA and even have a work history, finding no impact in their having genuinely obtained the diploma. The result suggests that the content learned in EJA does not increase the productivity of workers in the labor market.

<sup>56</sup> The cost per student is typically higher than that of a regular High School student (*Conselho Nacional do Ministério Público*, 2019).

regard, such measures are in line with several of the policies presented herein and which have had good results in reducing dropout.

Despite the enormous progress in the inclusion of adolescents and young people in Brazilian High Schools that has taken place in the last two decades, there is still a long way to go before Brazilians born among the poorest families have the same educational opportunities as those of the richer families. The Covid-19 pandemic makes this scenario even more complex and challenging. Children from wealthier families were exposed at home to an environment with more access to books, newspapers, magazines, and other types of reading, in addition to more family stimulation. To complicate the situation, the private network was quicker to return to face-to-face classes than the public education networks. The innovations introduced by the new Brazilian High School and the BNCC will probably be insufficient to eliminate the increase in inequality of opportunities that may occur in the coming years.

The challenge to reverse the damage caused by the pandemic will be great, and it will require boldness from managers to implement innovative policies with the impact of reducing the dropout rate of the most vulnerable students. Active search policies are extremely important when returning to face-to-face classes. Changes in family composition due to the loss of relatives and changes of address make this process especially more complex in the post-pandemic period, demanding actions that involve not only traditional actors such as Guardianship Councils, Social Assistance Reference Centers (CRAS) and school directors, but also the students themselves who maintain contact networks with their peers. The introduction of remote classes during the pandemic also opens a range of opportunity for educational managers to incorporate different media and communication channels with students in the post-pandemic period, streamlining learning and offering complementary content, personalized mentorships, and other innovative solutions.

As we have seen through this series of 3 papers, school abandonment and dropout are complex and long-term phenomena, with roots in low learning curves in early years/grades, the still strong culture of failing and repeating in Brazil, the age-grade distortion, and a series of psychological factors that make school dropout manifest with greater intensity during adolescence. In this respect, if nothing is done, the low learning and mass approvals that occurred during the pandemic will tend to take their toll in the following years, in the form of increases in the failure rate and age-grade distortion, with future consequences on dropouts. We hope that the diagnosis of the causes of school dropout and the programs analyzed herein can help educational managers to face the short, medium, and long term challenges imposed by the pandemic, thus allowing Brazil to resume and accelerate the path of continued reduction of abandonment and dropout in the coming years.

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