

Estimating the Potential COVID-19 Impacts on Learning Poverty in Brazil*

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April 2020

ABSTRACT

School closures due to COVID-19 have disrupted education in Brazil. Before this crisis, 42% of children in Brazil were learning poor. This note simulates the impacts on learning poverty, considering different lengths of school closure. In our intermediate scenario, where schools remain closed for one quarter of the academic year, learning poverty rises 2.6 to 5.2 percentage points.

GLOBAL PANDEMIC AND THE LEARNING CRISIS

Before the outbreak of the global coronavirus pandemic, **the world was already dealing with a learning crisis**, as evidenced by high numbers of Learning Poverty. With the spread of the coronavirus, the education system is facing a new crisis, as more than 170 countries (as of March 31) mandate some form of school closures impacting at least 1.5 billion children and youth.

For as long as school closures persist, facilitating the continuity of education through remote learning is a priority. Planning for the eventual safe reopening of schools is also key. Efforts to mitigate the pandemic impacts, particularly for more disadvantaged children, are essential to curtail the loss of learning in the short term, further loss in human capital and diminished economic opportunities over the long term. This brief estimate some of these effects in Brazil.

WHAT IS LEARNING POVERTY?

Learning Poverty means being unable to read and understand a short, age-appropriate text by age 10. All foundational skills are important, but we focus on reading because: (i) reading proficiency is an easily understood measure of learning; (ii) reading is a student's gateway to

learning in every other area; and, (iii) reading proficiency can serve as a proxy for foundational learning in other subjects, in the same way that the absence of child stunting is a marker of healthy early childhood development. For more details in concept of learning poverty please see World Bank (2019).

HOW IS THE BRAZILIAN LEARNING POVERTY MEASURED?

This indicator brings together schooling and learning. It starts with the share of children who haven't achieved minimum reading proficiency and adjusts it by the proportion of children who are out of school.

$$LP = [LD \times (1 - SD)] + SD$$

where,

LP is Learning Poverty;

LD is share of children in learning deprivation, defined by those below a minimum proficiency threshold;

SD is the share of schooling deprived children; and in the case of SD we assume LD = 1.

This brief uses the national learning poverty for Brazil, which is build using the Brazilian National Learning Assessment (SAEB) and a national definition of minimum proficiency (200 points in Portuguese). This indicator complements, with far greater spatial granularity, the Brazilian international learning poverty indicator, which is constructed using the regional assessment LLECE/UNESCO.

SCHOOL CLOSURES IN BRAZIL

In Brazil, the school year runs February to December, with 200 school days organized in quarters. All 27 states

* The authors would like to thank Andre Loureiro, Pablo Ariel Acosta, Marcelo Becerra, Ildo Lautharte, Omar Arias, Jaime Saavedra, Halsey Rogers, Shwetlena Sabarwal, and Harry Anthony Patrinos. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent. The authors may be contacted at [jazevedo\[at\]worldbank.org](mailto:jazevedo[at]worldbank.org).

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mandated school closures starting March 16-23, with most opting for anticipating the winter break. As of April 10, no state has reopened schools yet, and many have announced remote learning strategies that will be rolled out as the break ends.

Our main scenario considers a loss equivalent to one quarter of the school year. Rather than the duration of the school closures, this magnitude should be interpreted as the combined effect of fewer school days and lower efficiency of remote learning. Alternative scenarios are presented in the following section.

LEARNING POVERTY EFFECTS

- **Learning Poverty.** 42.2 percent of children in Brazil at late primary age today are not proficient in reading, adjusted for the Out-of-School children. Learning Poverty may **raise 2.6 pp**, to 44.8 percent. This is the equivalent of 84,000 additional children in Learning Poverty (in a single age-grade cohort).
- **School Deprivation.** In Brazil, 4.8 percent of primary school-aged children are not enrolled in school. These children are excluded from learning in school. This number may **increase 0.1 pp**, to 4.9 percent.
- **Learning Deprivation.** Large-scale learning assessments of students in Brazil indicate that 39.3 percent do not achieve the MPL at the end of primary school, proxied by data from grade 5 in 2017. This share may **raise 2.6 pp**, to 41.9 percent.

Brazil has steadily decreased Learning Poverty in recent years, from 60.3% in 2011 to 42.2% in 2017, an average annual improvement of 3.0 percentage points. With the spread of the coronavirus, the education system could backtrack a significant part of the recent progress.

WHAT ASSUMPTIONS WERE MADE?

Proficiency: learning gains are linear on school days and proxied by the average observed gains in early secondary, at the municipal level.

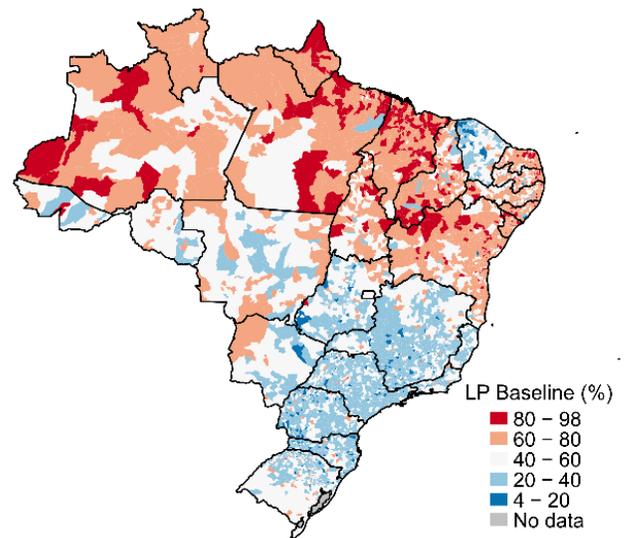
➤ Since SAEB is vertically scaled, we subtract from the 9th graders mean score, the 5th graders mean score four years prior, obtaining the cohort learning gains during early secondary. The average learning gain for each year of schooling is 15 points (0.3SD), ranging from 2-28 points in all +5,500 municipalities. This annual learning gain, accrued over 200 school days, is linearly scaled to an equivalent loss of N days (24, 50, or 75) and subtracted from individual student scores from

SAEB 2017, at the municipality level. Then, we proceed to calculate BMP as usual, with the MPL threshold of 200 points in Portuguese.

Enrollment: dropout rates and proficiency scores are negatively correlated. We use this relationship, computed nationally, to linearly estimate a decrease in enrollment at the municipal level.

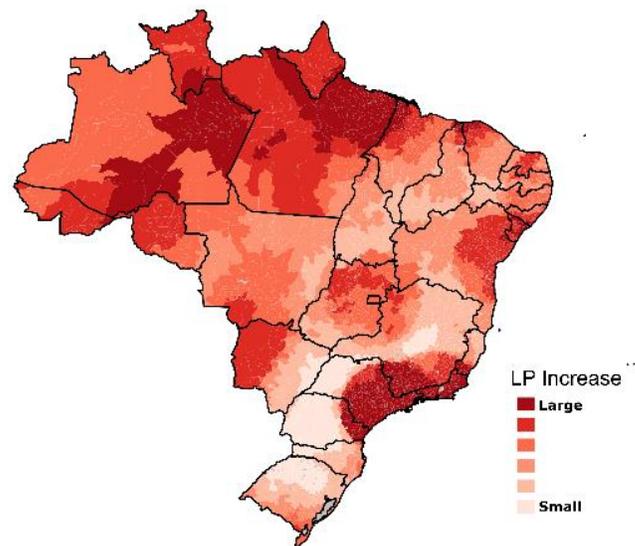
LEARNING POVERTY AT MUNICIPAL LEVEL

BASELINE (2017)



Source: Author’s calculation using SAEB, School Census and IBGE data

LEARNING POVERTY INCREASE (HOT SPOT ANALYSIS)



Source: Author’s calculation using SAEB, School Census and IBGE data

SENSITIVITY ANALYSIS

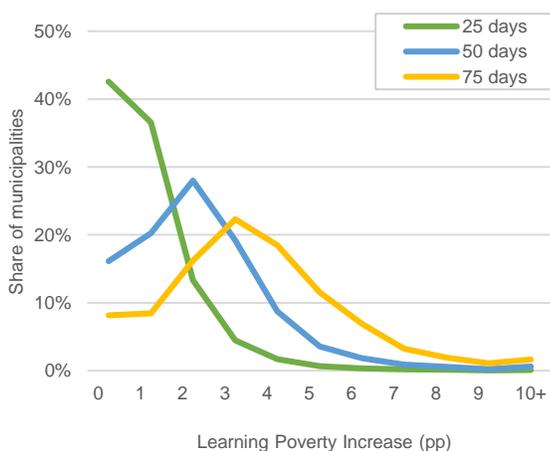
Our main scenario considers a **loss equivalent to one quarter (25%) of the regular school year**. Table 1 contrasts these estimates for learning poverty and its component indicators in other two alternative scenarios. These should be interpreted as a lower and upper bound of estimates, and the success of the mitigation strategies is paramount to determine the real impact.

Table 1. Sensitivity Analysis

Indicator	Baseline (2017)	12.5% SYE	25% SYE	37.5% SYE
Learning Poverty (%)	42.2	43.5	44.8	46.1
School Deprivation	4.8	4.8	4.9	5.0
Learning Deprivation	39.3	40.6	41.9	43.2
Learning Poverty increase (pp)	-	1.3	2.6	3.9
Learning Poverty Increase (%)	-	3.0	6.1	9.2
Increase in 5 th grade learning poor (thousands)	-	41.5	83.7	126.9
Mean score (points)	214.5	212.7	210.9	209.0
Mean score change (%)	-	-0.9	-1.7	-2.6

Notes: all values are rounded. SYE = School Year Equivalent

LEARNING POVERTY INCREASE (SHARE OF MUNICIPALITIES)

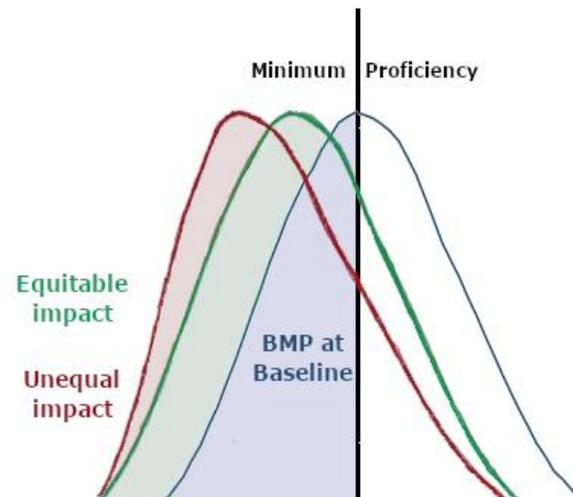


Source: Author's calculation using SAEB, School Census and IBGE data

LEARNING EQUITY CONCERNS

Changes in Learning Poverty are sensitive to the shape of the learning distribution. For that reason, small changes in the average learning score, can result much larger shifts in the Learning Poverty Indicator. In the case of Brazil, the projected decrease on average score is only 1.7%, but learning poverty increases 2.6pp (6.6%) (see Table 1, 25% SYE scenario).

This estimate considers all children being equally affected by the crisis and mitigation strategies (green curve).



However, the learning losses may be much higher for vulnerable children. In this case, the impact in learning poverty may be twice as large, increasing 5.2pp (red curve).

BENCHMARKING ASSUMPTIONS

The most important parameter in this simulation is the **schooling productivity** – how much a student learns per year of schooling. This system-level parameter reflects the combined effect of the effort of teachers, students and parents, instructional quality, curricula and school management.

There is a vast literature documenting the heterogeneity of schooling productivity. In OECD countries, learning gains on most national and international tests during one school year are between 0.25-0.33sd (Woessman, 2016). A similar range is observed in developing countries. Singh (2019) estimates a much higher productivity in Vietnam (0.45sd) than in Peru (0.2sd), and intermediate values for

India and Ethiopia. Jones (2017) estimates schooling productivity of 0.2-0.3sd in Tanzania, Uganda and Kenya.

In Brazil, both states and municipalities have responsibility for education within their jurisdictions, with the municipality being the dominant provider of primary education. Thus, we estimate schooling productivity at the municipal level, finding a range of 0.04-0.56sd and an average of 0.3sd, in line with the literature.

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