A Re-examination of the Expected Years of Schooling:
What Can It Tell Us?

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Expected Years of Schooling (EYS) is a measure of the number of years of schooling a child at the start of his/her education trajectory is expected to receive, if current rates of enrolment are maintained throughout the child's life (UNESCO, 2009). It is one of the components of the education indicator in the Human Development Index (HDI) (UNDP, 2010). Among the advantages of using this indicator are that it takes into account both stock and flow dimensions in the school system, and that it does not require standardisation in comparisons involving countries with distinct age profiles.

One of the shortfalls of the EYS is that it does not capture age-grade-specific enrolment structures, which in turn could represent different flows of promotions, repetitions, late entries and school drop-outs. Therefore, the indicator tends to be overestimated in regions where the repetition rate is high—as in the case of Brazil— since repeating students have the same contribution to the average schooling as regular students, according to the UNESCO (2009) method.

This study proposes adjustments to the original indicator by introducing a new weighting function. A regular student contributes one year to the EYS indicator, while a late student contributes a fraction of a year, which will be proportionally lower according to his/her age-grade gap. Thus, in addition to age and enrolment, the adjustment also takes into consideration a third component, related to the grade in which the student is enrolled. This adjusted indicator for comparative purposes works better if calculated up to an age compatible with the completion of the last cycle in the school system.

Equation 1 calculates Adjusted Expected Years of Schooling (EAYS).

The ratio $\left(\frac{a_{i,x}}{r_{i,x}}\right)$ is the adjustment or weighting factor.

$$EAYS_\alpha = \sum_{x=\alpha}^{\omega} \sum_{i=1}^{z} \left(\frac{a_{i,x}}{r_{i,x}}\right) \times \frac{f_{i,x}}{p_x} \qquad (1)$$

i = grade of pupils aged x;
z = highest grade finished by pupils aged x;
$a_{i,x}$ = years of schooling concluded by pupils, up to grade i at age x;
$r_{i,x}$ = years of schooling a regular pupil would have concluded by grade i at age x;
$f_{i,x}$ = *number of pupils enrolled in grade i at age x;*
p_x = *population at age x.*

The original and new indicators — EYS and AEYS — were calculated for the population aged 6–18 years for all 27 Brazilian states. The figure depicts the overall changes in the ranks of the Brazilian states, by plotting the highest value in the first position and the lowest in 27th position.

The most interesting results are found in Quadrants II and IV, since Quadrants I and III do not show a clear pattern of improving or worsening positions. Quadrant II includes states that ranked lower after the age-grade adjustment. These are predominantly in the Northeast, such as Piauí (PI), Paraíba (PB) and

Position of states according to Expected Years of Schooling (EYS) and Adjusted Expected Years of Schooling (AEYS) — Brazil, 2010
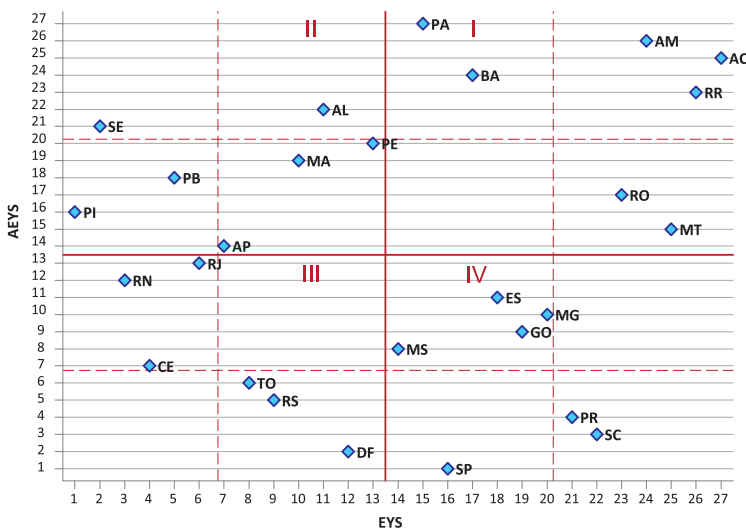
Source: Author's elaboration based on the 2010 Brazilian Demographic Census.

Sergipe (SE), which went from 1st, 5th and 2nd places, respectively, to 16th, 18th and 21st, respectively. The Northeast is one of the most impoverished regions of Brazil, and is also characterised as having the poorest levels of school performance in the country. This exercise clearly shows that the original EYS is inappropriately inflated due to high levels of repetition that affect students in that region. Quadrant IV shows states that moved up in the ranking after the adjustment: São Paulo (SP), Santa Catarina (SC) and Paraná (PR) moved from 16th, 22nd and 21st places, respectively, to 1st, 3rd and 4th, respectively. They are located mainly in the South and Southeast, the two more developed regions of Brazil.

Our findings suggest that the proposed indicator—Adjusted Expected Years of Schooling—is more suitable to the localities with irregular school flows. Its use can bring greater robustness to the measure, ensuring a fairer comparison among countries or regions, by overcoming some of the shortfalls in the original Expected Years of Schooling indicator.

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Notes:

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