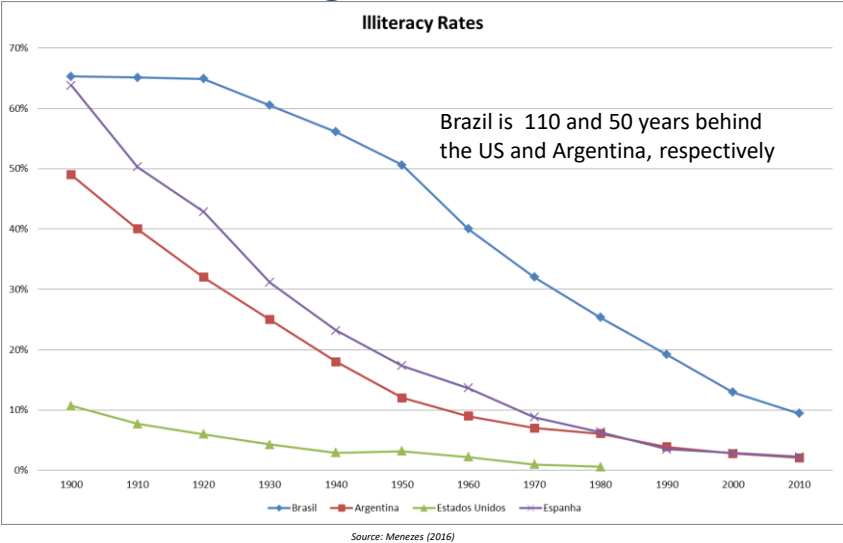


\*EDUCATION TARGETS & STRATEGIES

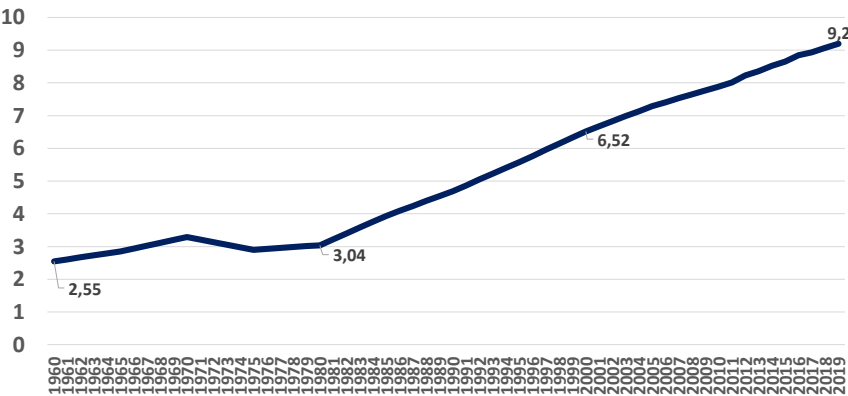
\*\*See part in text [Education Policies](#)

Brazil took long to invest in education

FGV SOCIAL

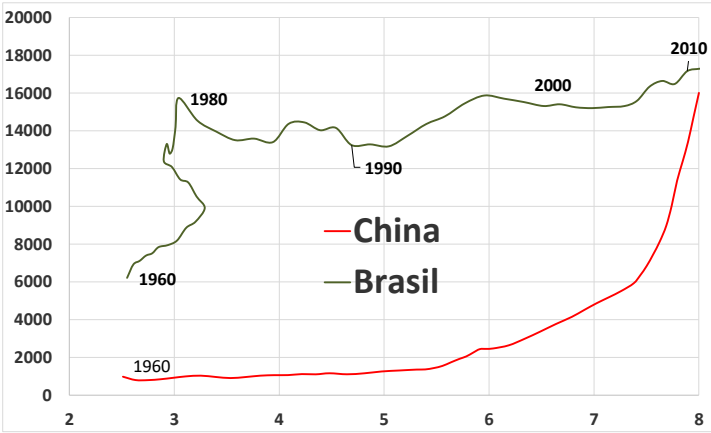


Years of Schooling: Brazil 1960 to 2019



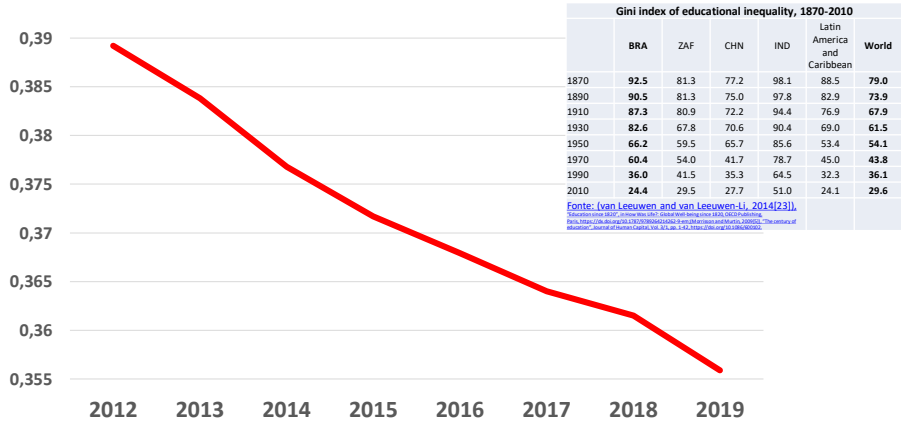
Fonte: FGV Social Escolaridade Barro-Lee ate 2011 e depois PNADC Anual - 15 anos ou mais de idade

Years of Schooling and Productivity per Worker: Brazil X China



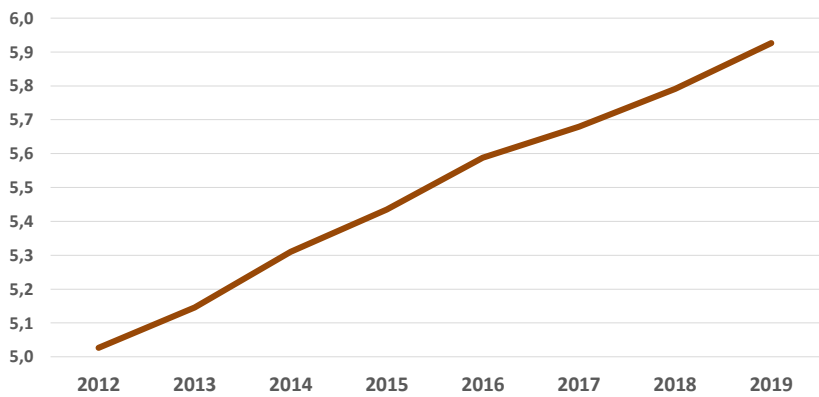
Fonte: FGV Social Escolaridade Barro-Lee; Produtividade por Trabalhador Penn World Tables

Inequality of Years of Schooling (Gini )



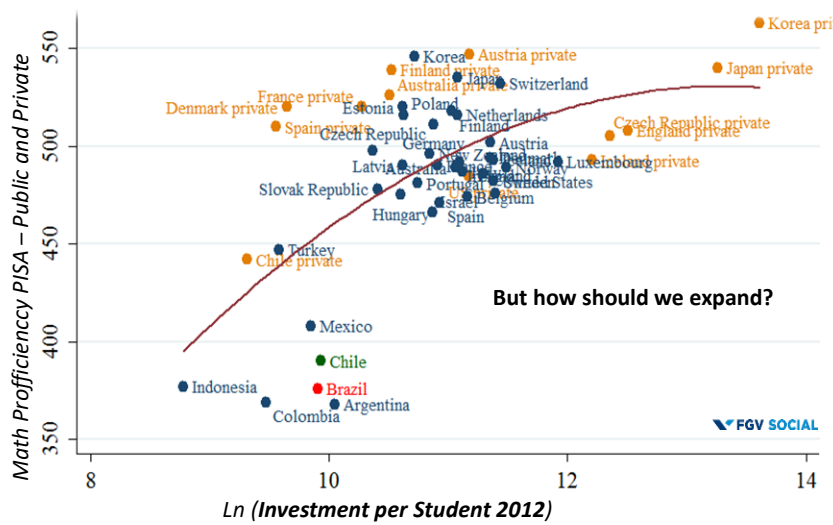
Fonte: FGV Social microdados da PNADC Anual - 15 anos ou mais de idade

Educational Welfare (Years of Schooling - Gini based)



Fonte: FGV Social microdados da PNADC Anual - 15 anos ou mais de idade

Inefficiency in Education Investment



Source: World Bank

**\*EDUCATION TARGETS**

**Ideb (Index of Basic Education Development)**

- The center of a educational target-based system (just as a mobilization tool).

The federal government determines targets for the evolution of the *Ideb* and then condition part of its education-related transfers to the local governments to the accomplishment of these targets

- Ideb's form:  $Ideb = Q \cdot F$

*Q*: Students' average Profficiency

*F*: Average Passing Rate

**EDUCATION QUALITY TARGETS  
IDEB 2005 & 2021**

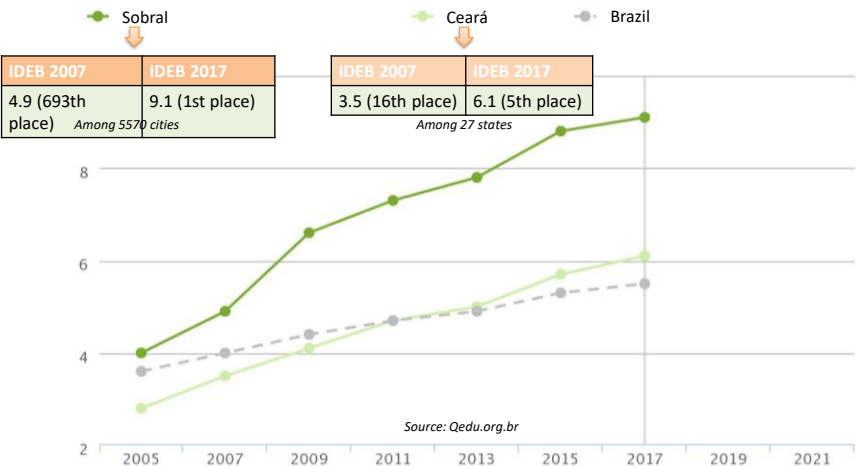
	<b>First Years of Primary Schools</b>	
	<b>2005</b>	<b>2021</b>
<b>TOTAL</b>	<b>3,8</b>	<b>6,0</b>
<b>Public</b>	<b>3,6</b>	<b>5,8</b>
<b>Private</b>	<b>5,9</b>	<b>7,5</b>

Source: Saeb 2005 and School Census 2005 - INEP/MEC

Social Goals: the example of Ceará in education

- The Literacy Program at the Right Age (PAIC) was created in 2007 aiming to **estimate literacy, including the ciation of a bonus system linked to students’ proficiency**; it also aimed the implementation of technical and meritocratic criteria for the selection process of school directors;
- Funds were obtained from the **Tax on the Circulation of Products and Services (ICMS)**: implemented in 2008, **18% of the revenue of this tax became connected to cities’ Index of Educational Quality (IQE)**; Therefore, the **transference of resources would be linked to city’s educational improvement**;
- According to the **principal-agent model**, this **resources attachment could improve the educational performance** of the municipalities regardless of the aversion of the school directors to the non-improvement of students’ proficiency at school **because the imposition of educational goals nullify the crowding-out effect of the resources destined to education in each municipality**;
- Campos (2019) shows that **the distribution of a share of the ICMS tax revenue linked to the cities’ educational results in the state of Ceará led to students’ better performance at school in mathematics and portuguese in the primary level**;

The Evolution of IDEB (Basic Education Quality Index) in Public Primary Schools



## Pursuing an ideal educational index

### Index's Weighting

- The equal weight of its two components is an arbitrary choice
- May incentive unbalanced behaviors: local government may choose corner solutions when trying to increase the index, such as (i) to accelerate artificially the promotion of the students or (ii) to increase retention or to motivate the worst students to evade
- We propose an index in the form  $Ideb = Q^* F^*$  and suggest that it is important to estimate which would be the optimal weighting

### Incorporating out-of-school children

- The low enrollment rate (M) in some age ranges is a problem that has also to be addressed
- The present incentive is for preventing children from failing and evading school, but giving up on them as soon as they abandon school
- Double aim: (a) to make the local managers responsible for non-enrolled school age children, (b) to take into account the process of enrollment expansion in the evolution of the Ideb
- Alternative ways of incorporating this dimension

$$(i) Ideb = \hat{Q} F \quad (ii) Ideb = Q^* F^* M^*$$

## Utilizing the indicator in a target-based system

### Value-Added

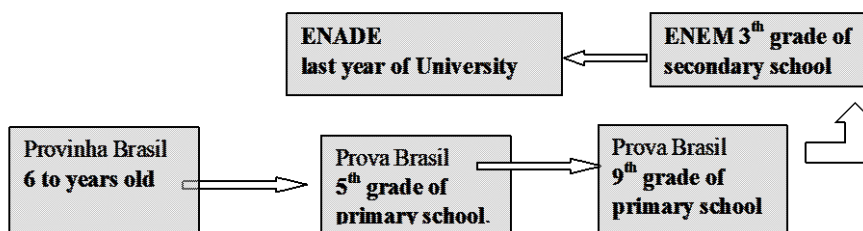
- **Evaluation should be based on the value-added by the schools to the students rather than on level**
- Benefits students from **disadvantaged backgrounds**
- Incentive for schools to mix students -**Increasing diversity** in admission choices

### Relative Performance Comparison

- The difference in the value-added to the students by each municipality
- In a context of uncertainty: large probability that the municipality fails to reach the target due to aggregate exogenous shocks out of their control
- In the Social Goals part- Mechanisms based on performance comparison => local government investing an optimal amount in education and doing it in a efficient way will receive an optimal transfer: robustness to aggregated shocks
- Contracts based only on the variation, or value-added, are usually pro-cyclical (2 types of poor model)

## Integrated Evaluation System

**Learning Evaluation System**  
**Added Value Between Exams (D in D)**



One possibility is just mobilize the population (weak responsibility). Other is to reward progress (strong responsibility). Examples:

Família Carioca rewards students with higher or steeper learning curves  
 Ceará State distribute its ICMS to municipalities revenues according to performance  
 Various States rewards professors according to student grades

## How About Equality? (sort of externality)

Alternative to Concentration ratio **What is a pro-poor policy?**

- A pro-poor government policy benefits the poor more than the non-poor.
- This means that, at a fixed cost to the government, pro-poor policy should achieve greater poverty reduction compared to a situation in which everyone also benefits from.
- Policy A will be more pro-poor than policy B if, for a given cost, policy A leads to further poverty reduction than policy B.

**\*\*Pro-Poor Policy Index:** 
$$\lambda = \frac{1}{\bar{b} \eta \theta} \int \frac{\partial P}{\partial x} b(x) f(x) dx$$

*Example:* (i) = 1.20: a certain program reduces poverty by 20% more compared to a universal targeting policy

(ii) = 0.70: a certain program increases poverty by 30% more compared to a universal targeting policy



Pro Poor Policy Index – Different Education Levels -			
Targeting PPP Index (Pro Poor Policy) What is the ability of each Real spent, public or private, to reach a poor Student?	Education PPP Index		+ Pro-Poor – p <sup>2</sup>
	By Grade	Same Weight to Each Poor – p <sup>1</sup>	
But How much each course Cost? Ex: private H.E. courses cost per Brazilian more than all other regular courses What is the return?	Childcare	1.08	1.14
	Pre-School	1.46	1.56
	Alphabetization – adults	1.73	1.90
	Elementary Education – regular	1.53	1.57
	Elementary Education – regular public	1.68	1.73
	Elementary Education – regular private	0.27	0.23
	Adult Education – elementary education	1.09	1.04
	Secondary Education – regular	0.73	0.63
	Secondary Education – regular public	0.83	0.72
	Secondary Education – regular private	0.10	0.09
	Adult Education – secondary education	0.52	0.44
	College Entrance Exam (Pré-Vestibular)	0.19	0.15
	<b>Tertiary Education</b>	<b>0.07</b>	<b>0.07</b>
	<b>Tertiary Education – public</b>	<b>0.12</b>	<b>0.10</b>
	<b>Tertiary Education – private</b>	<b>0.05</b>	<b>0.06</b>
	<b>Graduate</b>	<b>0.00</b>	<b>0.00</b>
	Source: PNAD /IBGE Microdata		

Brazilian Federal CCT program PPP = 2,5 (good delivery platform)

Besides Returns other key Characteristic of Education is Targeting  
It may be used to construct targets (weights to internalize incentives)

## Education Goals and Other Policies:

**Targets** for Improvement Diff in Diff, PPP Weights  
Include Out of School Children & **Shock protection**  
***Bolsa Familia 2.0*** platform to reach the poor  
Longer School Hours with Freedom of Choice  
**Talent Attraction, Higher & Professional Education**  
Public-Private Interaction and Productivity Focus  
Inform students about **Private Returns**  
& Profficiency also Listen to the Stakeholders  
Alignment of Incentives (students, parents,  
teachers, policy makers)  
**Early Childhood Education**