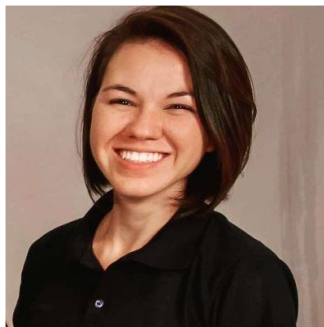


# ECD Costing Fellow: Jaqueline Natal



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**Project**  
Understanding the expenditure per child in ECE by Brazilian municipalities: An analysis of the effective expenditure per child, the driver of the expenses, and the cost of inaction for Brazil

Jaqueline holds an M. Sc. in Applied Economics and a Bachelor in Economic Sciences from the University of São Paulo. She currently works as an Education Network Management Specialist and focuses on guiding Brazilian municipalities in their efforts to expand access to Early Childhood Education (ECE) along with quality and equity.



# Understanding the expenditure per child in Early Childhood Education by Brazilian municipalities

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ECDAN Knowledge Fellow Program

Jaqueline F. Natal

Mentor: Naercio A. Menezes Filho



# Agenda

- Overview
- Methods
- Main findings
- Plans to use it

# Overview



- **Municipalities are in charge to offer Early Childhood Education (ECE) - 5568 municipalities**
- Enrollment in ECE is the main public policy to foster Early Childhood Development (ECD) in Brazil
- **Brazil has made significant advances in terms of access**
  - But, the access is unequal
  - Along with low quality

When it comes to the expenditure per child...

The expenses depends on **two factors:**

- **Political priorities**
- **Financial resources**

# Methods



## Data

- SIOPE
  - 2019
  - Revenue and Expenses data.
  - **Focus on the 95% of the financial resources which is compounded by the**
    - Constitutional minimum spend of 25% (Own and FUNDEB);
    - Salário-Educação (social contribution);
    - National School Feeding Program (PNAE);
    - National Transport Support Program (PNATE).

- School Census

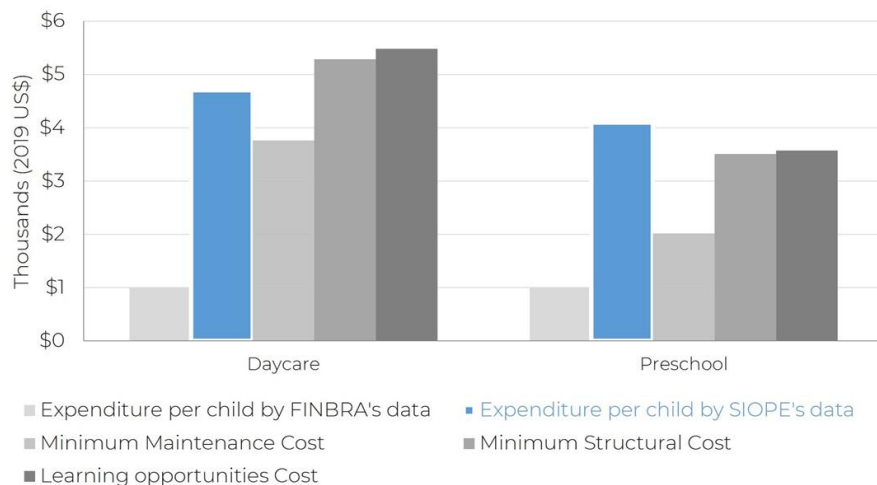
## Statistical Analysis

- Descriptive analysis
- COI model

# Main findings

The annual average expenditure per child through the Constitutional minimum spend of 25% is a **significant amount**

Annual average expenditure per child through the Constitutional minimum spend of 25% by Brazilian municipalities using SIOPE's data



The annual average expenditure per child by Brazilian municipalities observed through SIOPE's data is **four times higher** than FINBRA's data and **higher than some cost estimated** for Daycare and Preschool.

Note: The number of municipalities for daycare is 5352 and for preschool is 5564. Exchange rate of R\$3.94 per dollar. Source: Adapted from Natal et al. (2021) using SIOPE and School Census data.

# Main findings

Annual average expenditure per child through the Constitutional minimum spend of 25% by Brazilian municipalities per Major Regions (2019 US\$)

## Daycare

LOW-HIGH

	N	Min	1st Qu.	Median	Mean	3rd Qu.	Max
North	415	0	1780	2834	3629	4572	20796
Northeast	1756	0	1906	2678	3278	3870	73915
Mid-West	425	0	2626	4358	4953	6497	15917
Southeast	1577	0	2772	4399	5201	6790	39595
South	1179	0	4254	6006	6450	8105	28118
<b>Brazil</b>	<b>5352</b>	<b>0</b>	<b>2365</b>	<b>3853</b>	<b>4704</b>	<b>6245</b>	<b>73915</b>



## Preschool

LOW-HIGH

	N	Min	1st Qu.	Median	Mean	3rd Qu.	Max
North	450	0	1930	2745	3115	3765	17575
Northeast	1790	0	1959	2657	3014	3690	12474
Mid-West	466	210	2283	3407	4166	5145	22673
Southeast	1667	0	2760	4013	4629	5847	24871
South	1191	1042	3148	4767	5313	6737	30590
<b>Brazil</b>	<b>5564</b>	<b>0</b>	<b>2322</b>	<b>3409</b>	<b>4095</b>	<b>5107</b>	<b>30590</b>

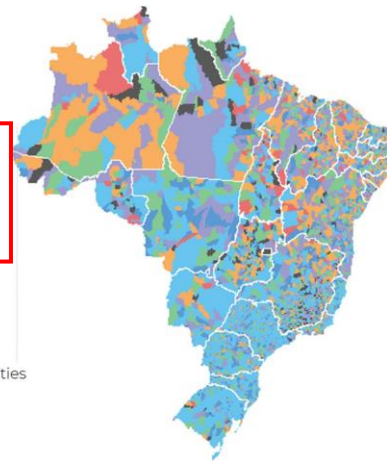
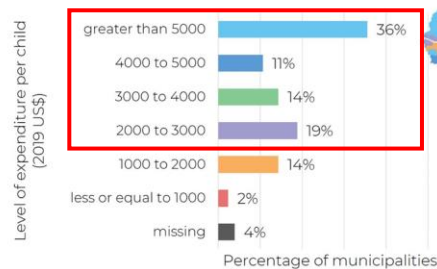


# Main findings

Percentage of municipalities per level of annual expenditure per child and the geographic distribution

Minimum wage in 2019 was equivalent to **253 (2019 US\$)**

Daycare



Preschool



Note: The number of municipalities considered is 5568. Exchange rate of R\$3.94 per dollar. Source: Own elaboration using SIOPE and School Census data.



# Main findings



- The annual average expenditure per child through the **Constitutional minimum spend of 25%** is a **significant amount**;
- However, **it is important to be cautious** when it comes to interpretation of it since **there is a significant variation in the expenditure per child throughout the school year**;
- **At least one-quarter of the municipalities' expenses** per bimester is compounded **only by FUNDEB resources** that requires to be done in a defined way;

The final report has more information about

- The expenditure per child through other financial resources;
- The driver of the expenditure per child;
- Total revenue and expenses;
- The relationship between expenditure per child and outcomes;
- Cost of Inaction

# Plans to use



- Publish
- The study seems to be a starting point
  - It's a change on the speech from “Brazilian municipalities don't have enough financial resources” to “how are Brazilian municipalities spending the financial resources?”
  - Future investigations



## Cost of Inaction model

It is calculated as the difference between the potential economic benefits and the costs of a possible Early Childhood intervention

$$COI = \left( \sum_{j=a}^{t+a} \frac{PCI_j * i * e_j * s_j}{(1+d)^j} - c \right) * N$$

- N is the number of children covered;
- d is the discount rate;
- t is the benefit duration;
- a is the first year the benefit is obtained;
- i is the impact on individual income as a consequence of the intervention;
- c is the average intervention cost;
- PCI is the per capita income projection;
- e is the employment rate;
- s is the probability to survive.



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