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Policy Implementation for Full-Time Schools: An Analysis of the Performance of Ceará Students in the Saeb in 2013 and 2021

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Abstract: This article analyzes the academic performance differentials between students enrolled in full-time and traditional high schools in Ceará, Brazil, using data from the Brazilian Basic Education Assessment System (Saeb) for 2013 and 2021. The study employs the Oaxaca Blinder decomposition method to separate the role of observable factors such as parental education, access to technology, and teacher experience from unobservable components related to school quality and student motivation. Results indicate that full-time students consistently outperform their peers, with gains of 18.31% in mathematics and 16.53% in Portuguese in 2013, and 17.96% and 16.81% in 2021, respectively. These findings highlight the importance of extended instructional time combined with vocational and socioemotional training, suggesting that full-time schooling can reduce educational inequalities and provide valuable insights for policy design in contexts with limited resources.

Keywords: extended school day; academic achievement; educational policy; Brazil; achievement tests

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Política para la implementación de escuelas de tiempo completo: Un análisis del desempeño de los estudiantes de Ceará en el Saeb en 2013 y 2021
Resumen: Este artículo analiza las diferencias de rendimiento académico entre estudiantes matriculados en escuelas de tiempo completo y tradicionales en Ceará, Brasil, utilizando datos del Sistema de Evaluación de la Educación Básica (Saeb) para los años 2013 y 2021. El estudio emplea el método de descomposición Oaxaca–Blinder para separar el papel de factores observables, como la educación de los padres, el acceso a la tecnología y la experiencia docente, de componentes no observables relacionados con la calidad escolar y la motivación estudiantil. Los resultados indican que los estudiantes de tiempo completo superan de manera consistente a sus pares, con ganancias del 18,31% en matemáticas y del 16,53% en lengua portuguesa en 2013, y del 17,96% y 16,81% en 2021, respectivamente. Estos hallazgos destacan la importancia del tiempo de instrucción ampliado combinado con formación vocacional y socioemocional, sugiriendo que la escolarización de tiempo completo puede reducir desigualdades educativas y aportar valiosas orientaciones para el diseño de políticas en contextos con recursos limitados.
Palabras clave: jornada escolar extendida; rendimiento académico; política educativa; Brasil; pruebas de logro

Política para a implementação das escolas de tempo integral: Uma análise do desempenho dos estudantes do Ceará no Saeb em 2013 e 2021
Resumo: Este artigo analisa os diferenciais de desempenho acadêmico entre estudantes matriculados em escolas de tempo integral e tradicionais no Ceará, Brasil, utilizando dados do Sistema de Avaliação da Educação Básica (Saeb) referentes aos anos de 2013 e 2021. O estudo emprega o método de decomposição Oaxaca–Blinder para separar o papel de fatores observáveis, como escolaridade dos pais, acesso à tecnologia e experiência docente, de componentes não observáveis relacionados à qualidade escolar e à motivação dos estudantes. Os resultados indicam que os alunos de tempo integral superam de forma consistente seus pares, com ganhos de 18,31% em matemática e 16,53% em língua portuguesa em 2013, e de 17,96% e 16,81% em 2021, respectivamente. Esses achados ressaltam a importância do tempo ampliado de instrução aliado à formação vocacional e socioemocional, sugerindo que a escolarização em tempo integral pode reduzir desigualdades educacionais e oferecer subsídios relevantes para o desenho de políticas em contextos de recursos limitados.
Palavras-chave: jornada escolar ampliada; desempenho acadêmico; política educacional; Brasil; testes de desempenho

Policy Implementation for Full-Time Schools: An Analysis of the Performance of Ceará Students in the Saeb in 2013 and 2021

Education is a fundamental pillar of human development and socioeconomic progress, with widely recognized effects on both individual and collective growth (Becker, 1964). In Brazil, the 1988 Constitution marked a turning point in educational policies by prioritizing universal access and quality education—challenges that persist in many developing countries facing structural inequalities. In this context, full-time schools have emerged as a promising strategy for expanding learning opportunities and mitigating educational disparities, a topic of growing global interest (OECD, 2017). In Ceará, a pioneer in implementing this model in Brazil, the expansion of full-time schools since 2008 provides a unique laboratory for assessing their impacts, with potential lessons for other regions operating within resource-limited contexts.

The full-time education policy in Brazil gained momentum with the federal program *Mais Educação*, launched in 2007, and regulated by Decree No. 7,083/10, aiming to extend the school day to at least seven hours, integrating complementary activities such as academic reinforcement,

sports, and arts. In Ceará, this approach was adapted for high school education, combining the traditional curriculum with technical and socio-emotional training, reaching more than 70% of state schools by 2023 (Seduc, 2023). While empirical Brazilian literature, such as studies by Xerxenevsky (2012) and Galvão (2023), suggests positive effects on academic performance, the underlying mechanisms behind these gains remain underexplored, particularly in longitudinal comparisons. Internationally, extended-time disciplines have shown mixed results, with evidence indicating that success depends on factors such as pedagogical quality and resource availability (Duflo et al., 2011; Rivkin et al., 2005).

In light of this, the present study investigates whether full-time schools generate superior performance differentials compared to traditional schools in Ceará, analyzing high school students' Portuguese and mathematics scores in 2013 and 2021 based on data from the Brazilian System for the Evaluation of Basic Education (Saeb). Using the Oaxaca Blinder decomposition, we aim to distinguish the effects of observable characteristics such as technology access and parental schooling from unobservable factors, complementing approaches such as difference in differences, which are prevalent in the literature. Unlike previous studies that estimate causal impacts with quasi-experimental methods, this study employs a complementary diagnostic approach and applies the Oaxaca Blinder decomposition to identify the sources of observed performance gaps. The study period is justified by the initial availability of integrated school data in 2013 and the most recent update in 2021, allowing a temporal perspective on this policy. Thus, the objective is to contribute to the understanding of the effect of full-time education, providing evidence to inform educational policies in Brazil and other global contexts that focus on educational equity. Similar challenges have also been documented in other Latin American countries that adopted full-time schooling reforms, including Chile's Jornada Escolar Completa and Mexico's Escuelas de Tiempo Completo, where issues of scalability and quality assurance remain central to the debate.

The rest of this article is structured into six sections. The second and third sections review the literature on full-time education and academic performance. The fourth details the methodology, while the fifth presents the results and discussion. These results show that students in full-time high schools consistently outperform their peers in traditional schools, with significant gains in Portuguese and mathematics across 2013 and 2021. The final section offers concluding remarks and highlights the policy implications of these findings for reducing educational inequalities.

Full-Time Education in Ceará

The origins of this education model in Brazil trace back to the early 20th century, when the first movements emerged advocating for an education focused on the holistic development of children and young people (Pereira et al., 2023). In 1950, the full-time education model was conceived in Brazil by educator Anísio Teixeira in Salvador, Bahia, with the establishment of the Centro Educacional Carneiro Ribeiro, also known as Escola Parque. This initiative aimed to provide extended education hours for the children of workers, seeking to promote comprehensive student development (Júnior, 2022).

Overview of Ceará's Full-Time Education Model

Based on the Ceará State Education Secretariat (Seduc), the full-time education model, known as Ensino Médio em Tempo Integral, is a cornerstone of the state's educational policy, launched in 2008 to enhance academic outcomes and address socioeconomic challenges. The model extends the school day to a minimum of 7 hours (typically 7:00 AM to 4:00 PM), compared to four hours in traditional high schools, and integrates academic, vocational, and socio-emotional components to foster holistic student development.

The model comprises several key elements. First, the extended school day allows for in-depth coverage of core subjects (e.g., Portuguese, Mathematics, Sciences) aligned with Brazil's National Common Core Curriculum, supplemented by elective courses and extracurricular activities. Second, vocational training is a hallmark, with 131 state vocational schools offering technical-level courses in fields like Information Technology, Nursing, Tourism Guide, and Occupational Safety by 2023 (Seduc, 2023). These courses enable students to earn a professional certification alongside their high school diploma, addressing regional economic needs. Third, socio-emotional learning is embedded through workshops on leadership, teamwork, and resilience, aimed at reducing dropout rates and enhancing motivation. The pedagogical approach emphasizes active learning methodologies, such as problem-based learning and collaborative projects, supported by specialized facilities (e.g., computer labs, vocational workshops) and continuous teacher training (Seduc, 2023).

Compared to traditional schools, which focus on core academics with limited resources, full-time schools benefit from targeted investments in infrastructure, technology, and teacher development. This model aligns with Brazil's Mais Educação program (Decree No. 7,083/10) but is tailored to Ceará's high school context, emphasizing technical education and regional relevance. Bry 2023, the model served over 140,000 students across 165 municipalities, covering more than 70% of the state's public high school network (Falcão, 2023).

The implementation of full-time high schools in Ceará has unfolded gradually and consistently over the past 15 years. The initiative began in 2008 with the establishment of 25 vocational full-time schools serving approximately 5,000 students across 20 municipalities. By 2013, the program had expanded to more than 50 schools in 50 municipalities, marking a significant increase in coverage. Growth accelerated further in 2021, when the state reached 341 full-time high schools, including 131 vocational institutions, enrolling nearly 140,000 students in 165 municipalities. In 2023, the model was consolidated through rural expansion and strengthened teacher training, extending to more than 70% of the state's public high school network. This trajectory underscores Ceará's prioritization of full-time education as a central strategy to reduce educational inequalities and promote both academic and socioeconomic development.

Integral education is founded on a broad principle that connects multiple dimensions, including human vision, school, curriculum, teaching methods, society, and the different stages of basic education. This approach seeks to overcome the fragmentation of knowledge and integrate it into social practice and daily life (Brasil, 2023).

Academic Performance in the Full-Time Education Model

The expansion of school time as a strategy to improve student performance has been widely debated in the educational literature, both in Brazil and internationally. Empirical Brazilian studies, such as those by Xerxenevsky (2012), Granda (2017), Fernandes et al. (2017), and Galvão (2023), have investigated the impacts of full-time schools, often using impact assessment methods such as difference-in-differences (DiD) combined with propensity score matching (PSM). These studies reveal a heterogeneous landscape: while some identify positive effects on Portuguese and mathematics performance (e.g., Fernandes et al., 2017; Galvão, 2023), others point to null or negative impacts, especially in contexts of recent or prolonged implementation (e.g., Granda, 2017). Xerxenevsky (2012), for instance, found gains in Portuguese in the fourth grade in Rio Grande do Sul but negative results in mathematics, indicating that policy success depends on contextual factors and exposure time.

Internationally, the literature on extended school hours also presents mixed results. Studies such as Rivkin et al. (2005) in the United States emphasize that academic gains are more strongly associated with teaching quality than with mere time extension, while Duflo et al. (2011) demonstrate, through experiments in Kenya, that structured educational programs can improve

performance when combined with adequate resources. These global findings underscore the necessity of investigating not only aggregate effects but also the underlying mechanisms driving performance differentials, a gap still scarcely explored in the Brazilian context.

In Brazil, analyses of full-time education have focused on causal impacts but have rarely addressed disparities between student groups, such as full-time versus traditional schools. Fernandes and Justo (2018), for example, confirmed the superior performance of Pernambuco students using PSM but did not explore the role of specific student or teacher characteristics. Similarly, Miranda et al. (2017) suggested that factors such as teacher dedication influenced outcomes in São Paulo but warned that increasing school time alone does not guarantee meaningful learning. This lack of consensus and the emphasis on causal methods leave room for alternative approaches, such as the Oaxaca-Blinder decomposition, which allows for distinguishing explained effects (e.g., access to technology, parental education) from unexplained ones (e.g., teaching quality, motivation).

Thus, although the literature indicates that full-time education can improve academic performance, its effects vary according to context, implementation, and available resources. Brazilian studies often lack a longitudinal perspective and a detailed analysis of the factors driving observed differentials—gaps that this research aims to address. By focusing on Ceará between 2013 and 2021, this study complements existing literature by exploring not only whether full-time education generates better results but also how and why these differences occur, offering relevant insights both locally and for global debates on school time policies.

Components of Full-Time Education and Their Impacts

The full-time education model implemented in Ceará integrates extended school hours, vocational training, and socioemotional development activities. International studies, such as Duflo et al. (2011), indicate that extended instructional time can improve academic outcomes when paired with high-quality pedagogy, though results vary depending on context. Vocational training, as emphasized by Patrinos and Angrist (2018), enhances human capital by preparing students for entry into the labor market—a fundamental feature of the model adopted in Ceará. Socioemotional learning, increasingly emphasized in global education policies (OECD, 2017), fosters resilience and student engagement, potentially explaining observed performance gains. The control variables employed in this study—such as parental education (Curi & Menezes-Filho, 2009), access to technology (OECD, 2021), and teacher experience (Rivkin et al., 2005)—were selected based on their established influence on academic achievement, capturing both student- and school-level factors.

Methodology

To analyze the differences in academic performance between students in full-time and traditional high schools in Ceará, this study adopts the Oaxaca-Blinder model (Blinder, 1973; Oaxaca, 1973), a widely used econometric technique for investigating disparities between groups. The Oaxaca-Blinder model decomposes the average score difference into two components: the "explained effect," attributed to observable characteristics (e.g., access to computers, parental education), and the "unexplained effect," associated with various unobservable factors (e.g., teaching quality). This approach is particularly suited to the objective of this study, as it provides a complementary perspective on the underlying mechanisms of performance differentials, going beyond the identification of aggregate impacts.

The counterfactual decomposition uses traditional schools as the reference group, estimating how full-time school students would perform if they faced the same returns to characteristics observed in traditional schools.

The Oaxaca-Blinder decomposition does not estimate causal effects. Rather, it decomposes observed performance gaps into components associated with observable

characteristics and a residual unexplained component, which may capture unobserved heterogeneity and selection bias.

The modeling is based on studies of separate Mincerian equations for the two groups—traditional (T) and full-time (I)—expressed as follows:

$$ln\ ln\ Y_T = \beta_T X_T + u_T \quad (1)$$

$$ln\ ln\ Y_I = \beta_I X_I + u_I \quad (2)$$

Where LnY represents the natural logarithm of academic performance, β_T and β_I are the parameters to be estimated, Xi represents a vector of student, family, teacher, and school characteristics; the subscripts T and I denote the two groups being compared, and ui is the random error term. Decomposing the differential yields the following equation:

$$ln\ \bar{ln}\ Y_T - ln\ \bar{ln}\ Y_I = (\bar{X}_T - \bar{X}_I)\hat{B}_{I\_Eeffect\ explained} + \bar{X}_T(\hat{B}_T - \hat{B}_T)_{\_Eunexplained\ effect} \quad (3)$$

Equation (3) identifies the total academic performance differential between the two student groups, T and I. The total differential is decomposed into two components: the expression $(\bar{X}_T - \bar{X}_I)\hat{B}_I$ captures the performance differential due to the "endowment effect" or "explained effect," while the term $\bar{X}_T(\hat{B}_T - \hat{B}_T)$represents the differential attributed to the "unexplained effect.

This choice of reference group reflects the fact that traditional schools represent the baseline modality in the Brazilian public secondary education system, providing a benchmark against which the performance of full-time schools can be assessed.

Longitudinal Analysis Approach

To examine the evolution of performance differentials, the Oaxaca-Blinder decomposition was applied separately to the 2013 and 2021 Saeb datasets. This cross-sectional strategy enables the comparison of performance gaps between full-time and traditional high school students at two distinct points in time, capturing changes associated with the expansion of Ceará's full-time education policy. Separate estimations were chosen instead of a pooled model to avoid imposing assumptions regarding the stability of coefficients over time, given the substantial scale-up of the policy between 2013 and 2021 (Seduc, 2023).

Table 1 presents the description of the variables included in the Oaxaca-Blinder decomposition for the 2021 dataset, encompassing student, family, teacher, and school characteristics used in the analysis.

Control variables were selected based on reflective factors associated with academic performance in the literature (Curi & Menezes-Filho, 2009). Student characteristics include gender, race/color (categorized as white or non-white to simplify racial analysis), access to a computer and the internet, location (urban/rural), and history of grade repetition or school dropout. Parental education was divided into three levels (primary, secondary, and higher education), while teacher characteristics encompass gender, race, experience (categorized into 0-2, 3-10, and 11+ years, based on commonly used thresholds in educational studies), and employment contract type. The selection of these categories aims to capture relevant variations without overloading the model, although robustness tests with alternative specifications (e.g., continuous experience) were conducted and are available upon request.The set of covariates included in the decomposition represents key inputs of the educational production function commonly used in the education economics literature. These variables capture students' socioeconomic background, demographic characteristics, and school-level attributes, which have been consistently shown to be associated with educational outcomes.

This specification follows the standard conceptual framework in which student achievement is modeled as a function of family inputs, individual characteristics, and school resources (Hanushek, 1979; Todd & Wolpin, 2003).

Table 1

Description of Characteristics, 2021

Variables	**Variable Description**
Dependent variables	-
Ln_proficiency_lp_saeb	Logarithm of Portuguese scores
Ln_proficiency_mt_saeb	Logarithm of Mathematics scores
Explanatory variables	-
Student Characteristics	-
Gender	Dummy variable for student's gender: male = 1, female = 0
Race_color_student	Dummy for student's race or ethnicity: white (white and yellow) = 1, non-white (mixed, black, indigenous) = 0
Computer	Dummy for number of computers at home: one or more = 1, none = 0
Internet	Dummy for internet access at home: yes = 1, no = 0
Location	Dummy: urban = 1, rural = 0
Repeated_grade	Dummy for past grade repetition: yes = 1, no = 0
Dropped_out	Dummy for previous school dropout: yes = 1, no = 0
Family Characteristics	-
Mother's education	Dummy variables for mother's education level: primary education = 1, otherwise = 0; secondary education = 1, otherwise = 0; higher education = 1, otherwise = 0
Father's education	Dummy variables for father's education level: primary education = 1, otherwise = 0; secondary education = 1, otherwise = 0; higher education = 1, otherwise = 0
Mother's education	Dummy variables for mother's education level: primary education = 1, otherwise = 0; secondary education = 1, otherwise = 0; higher education = 1, otherwise = 0
Father's education	Dummy variables for father's education level: primary education = 1, otherwise = 0; secondary education = 1, otherwise = 0; higher education = 1, otherwise = 0
Teacher Characteristics	-
Teacher gender	Teacher's gender: male = 1, female = 0
Teacher race	Teacher's race or ethnicity: white = 1, non-white = 0
Teaching experience	Years of teaching experience: 0–2 years = 1, otherwise = 0; 3–10 years = 1, otherwise = 0; 11 or more years = 1, otherwise = 0
Income 1	From R$ 0 to R$ 3,300
Income 2	From R$ 3,300.01 to R$ 6,600
Income 3	Above R$ 6,600.01
Teacher gender	Teacher's gender: male = 1, female = 0
Teacher race	Teacher's race or ethnicity: white = 1, non-white = 0
School Characteristics [1]	-
Students_per_class	Number of students per class

Source: Own elaboration based on Saeb (2021) data.

[1] Although school characteristics (school library, computer lab, science lab, internet and computer for student use, and cafeteria) are important for this analysis, it was not possible to add the information from the census to the Saeb database. The school code (school_id) is different in both databases.

Data Construction and Variables

This study draws on data from the Brazilian Basic Education Assessment System (Saeb), a nationwide standardized assessment administered by Brazil's Ministry of Education to evaluate student performance in Portuguese and Mathematics. Data from 2013 and 2021 were selected to capture the evolution of Ceará's full-time education policy, comprising sample sizes of 3,028 and 92,950 students, respectively. Saeb tests are standardized and administered to upper secondary students in 9th and 12th grades, with scores reported on a continuous scale ranging from 0 to 500. Full-time schools are identified in the dataset based on reported instructional hours (≥7 hours/day) and participation in vocational programs, whereas traditional schools typically operate 4–5 hours per day.

Student characteristics (e.g., gender, race, access to technology) are self-reported through Saeb questionnaires; teacher characteristics (e.g., experience, contract type) are provided by educators; and school-level variables (e.g., students per class) are reported by school administrators. Students are matched to teachers and schools using hierarchical identifiers embedded in the Saeb dataset. Missing data were handled via listwise deletion, with robustness checks confirming minimal impact on the results (available upon request).

Methodological Limitations

Although the Oaxaca-Blinder model is robust for assessing performance differentials, its application in this study presents limitations. The absence of randomization in student allocation between full-time and traditional schools may introduce selection bias, as factors such as family motivation or local enrollment policies are not fully controlled. Additionally, the endogeneity of variables such as technology access or teaching experience—specifically correlated with unobservable school characteristics—may affect the estimates.

To mitigate these issues, the model includes a broad set of control variables, but instrumental variables or more detailed longitudinal data could further strengthen causal identification in future research. These limitations are inherent to observational studies and do not invalidate the results but suggest caution in interpreting the unexplained effect as definitive evidence of discrimination or differential quality.

Results and Discussion

This section is structured into two subsections. The first presents the descriptive statistics of the variables considered in this study. The second analyzes the econometric results of the Oaxaca-Blinder model.

Descriptive Statistics

This subsection presents the descriptive statistics of the variables analyzed. Table 2 reports information on the characteristics of students, their parents, teachers, and schools for the year 2013, while Table 3 provides the corresponding data for 2021. The results highlight that, in 2013, students enrolled in full-time high schools achieved higher average scores in both Portuguese and Mathematics compared to their peers in traditional high schools, suggesting that full-time education may be associated with improved academic outcomes in these subjects.

Regarding the proportion of students by gender, in both traditional and full-time models, the proportion of female students was higher than that of male students, standing at 58.83% and 60.14%, respectively. In terms of race/color, the proportion of non-white students exceeded that of white students in both educational models, with 77.12% in Traditional Schools and 74.84% in Full-Time Schools.

Regarding student location, all Full-Time School students were from urban areas, whereas a small percentage of Traditional School students (5.52%) came from rural areas, reflecting limited access to full-time education in rural regions.

As for the number of computers at home, a higher proportion of Full-Time School students had access to computers and the internet compared to those in Traditional Schools, which may positively influence academic performance by providing additional educational resources.

Regarding grade repetition, the proportion of students who had never repeated a grade was significantly higher in Full-Time Schools, at 88.21%, compared to 64.83% in Traditional Schools. Regarding school retention, the percentage of students who had never dropped out was 87.98% in Traditional High Schools and 97.84% in Full-Time High Schools.

In terms of parental education, the proportion of mothers (and fathers) with higher education degrees was higher among Full-Time High School students, reaching 37.09%, compared to 20.13% in Traditional Schools.

Examining teacher characteristics, the years of experience in the 3- to 10-year range were higher in full-time schools. Regarding employment contracts, the proportion of tenured teachers was greater in full-time schools, at 34.20% compared to 29.93% in traditional schools. In terms of salary ranges, the majority of teachers in both traditional and full-time schools fell within Income Level 2 (R$ 3,300.01 to R$ 6,600.00), an indicator that may positively contribute to student performance.

Based on school characteristics, the average number of students per class was lower in Traditional Schools, with 34 students per class, compared to Full-Time Schools, which had an average of 35 students per class.

Table 2

Profile of Students, Families, Teachers, and Schools in Traditional and Full-Time High Schools in Ceará, 2013

Variable (2013)	**Category**	**Traditional High School**		**Full-Time High School**	
Dependent variables	-	Mean	SD	Mean	SD
Portuguese Proficiency	Mean	247,86*	47,84	287,51*	47,06
Mathematics Proficiency	Mean	251,73*	45,91	297,74*	51,36
Logarithm of Portuguese Score	Mean	5,49*	0,20	5,65*	0,18
Logarithm of Mathematics Score	Mean	5,51*	0,18	5,68*	0,18
Explanatory variables		*N*	%	*N*	%
Gender	Male	879	41,17%	275	39,86%
	Female	1256	58,83%	415	60,14%
Race or Color	White	455	22,88%	157	25,16%
	Non-White	1.534	77,12%	467	74,84%
Location	Urban	3.183	94,48%	1058	100,00%
	Rural	186	5,52%	0	0,00%
Computer/Internet Access	Yes	844	36,89%	499	69,99%
	No	1444	63,11%	214	30,01%
Grade Repetition	Yes	772	35,17%	83	11,79%
	No	1.423	64,83%	621	88,21%
School Dropout	Yes	266	12,02%	15	2,16%
	No	1.947	87,98%	681	97,84%
Mother's Education	Primary	1.257	66,40%	275	43,04%
	Secondary	255	13,47%	127	19,87%
	Higher	381	20,13%	237	37,09%

Variable (2013)	**Category**	**Traditional High School**		**Full-Time High School**	
Father's Education	Primary	1.383	74,96%	309	50,99%
	Secondary	222	12,03%	106	17,49%
	Higher	240	13,01%	191	31,52%
Teacher Characteristics		*N*	%	*N*	%
Gender	Male	1.557	59,31%	517	71,41%
	Female	1.068	40,69%	207	28,59%
Race or Color	White	940	32,82%	135	17,29%
	Non-White	1.924	67,18%	646	82,71%
Experience	0 to 2 years	473	15,12%	2	0,22%
	3 to 10 years	1.315	36,99%	758	63,64%
	11+ years	1340	30,83%	129	13,10%
Employment Status	Tenured	900	29,93%	304	34,20%
	Temporary Contract	2.106	70,04%	552	62,09%
	CLT Contract	0	0,00%	0	0,00%
	Other	1	0,03%	33	3,71%
Gross Salary as Teacher	Income 1	643	21,80%	62	7,57%
	Income 2	1.614	54,73%	438	53,48%
	Income 3	692	23,47%	319	38,95%
School Characteristics		Mean	SD	Mean	SD
Number of Students per Class	Mean	34,28	5,96	35,33	7,5

Source: Own elaboration based on Saeb (2013) data.
Notes: A mean comparison test was performed between students in traditional and full-time schools: * indicates that the mean difference between the two student groups is statistically significant (p-value < 0.05)

Table 3 presents the analysis comparing Traditional and Full-Time High Schools in the year 2021. Among the key results from Table 3, students in full-time schools exhibited higher academic performance in Portuguese and Mathematics compared to those in traditional high schools. This difference was statistically significant based on the mean test.

Examining the proportion of male and female students, in both traditional and full-time education models, the proportion of female students (51.84% and 56.82%, respectively) was higher than that of male students. Regarding race/color, the proportion of non-white students (74.72% and 70.03%, respectively) exceeded that of white students in both educational models.

The near absence of rural students in full-time schools in 2013 and the persistent urban concentration observed in 2021 suggest that the expansion of the model has faced significant territorial constraints. This highlights the need for targeted infrastructure investments and differentiated implementation strategies for rural areas.

Regarding access to computers at home, 71.87% of traditional school students reported having one or more computers at home, while in full-time schools, 51.80% of students reported the same. Regarding internet access at home, the majority of students in both traditional and full-time schools (86% and 92.36%, respectively) reported having internet access.

Concerning grade repetition, the proportion of students who had never repeated a grade was higher in full-time schools (92.10%) compared to traditional schools (71.79%). Regarding school retention, in traditional high schools, this percentage was 88.30%, while in full-time schools, it was 98.03%.

Table 3

Profile of Students, Families, Teachers, and Schools in Traditional and Full-Time High Schools in Ceará, 2021

Variable (2013)	**Category**	**Traditional High School**		**Full-Time High School**	
Dependent variables	-	Mean	SD	Mean	SD
Portuguese Proficiency	Mean	270,64*	48,71	313,74*	40,95
Mathematics Proficiency	Mean	263,88*	49,46	309,57*	47,72
Logarithm of Portuguese Score	Mean	5,58*	0,19	5,74*	0,14
Logarithm of Mathematics Score	Mean	5,56*	0,19	5,72*	0,16
Explanatory variables		*N*	%	*N*	%
Gender	Male	34.655	48,16	7.588	43,18
	Female	37.305	51,84	9.983	56,82
Race or Color	White	18.105	25,28	5.251	29,97
	Non-White	53.518	74,72	12.267	70,03
Location	Urban	82.564	94,17	19.151	94,18
	Rural	5.111	5,83	1.183	5,82
Computer/Internet Access	Yes	62.077	86	16.456	92,36
	No	10.107	14	1.362	7,64
Grade Repetition	Yes	44.017	71,87	7.935	51,8
	No	17.225	28,13	7.384	48,2
School Dropout	Yes	20.485	28,21	1.404	7,9
	No	52.137	71,79	16.363	92,1
Mother's Education	Primary	8.500	11,7	349	1,97
	Secondary	64.165	88,3	17.407	98,03
	Higher	33.508	58,67	7.439	46,23
Father's Education	Primary	18.498	32,39	6.184	38,43
	Secondary	5.109	8,95	2.470	15,35
	Higher	2.709	5,72	1.017	7.23
Teacher Characteristics		*N*	%	*N*	%
Race or Color	White	14.465	50,67	2.347	40,04
	Non-White	14.085	49,33	3.515	59,96
Experience	0 to 2 years	9.325	32,69	1.583	27,83
	3 to 10 years	19.204	67,31	4.105	72,17
	11+ years	238	0,91%	168	5,19
Employment Status	Tenured	10.276	62,37	2.027	79,16
	Temporary Contract	15.559	28,88	3.510	12,88
	CLT Contract	16.839	60,39%	3.530	60,26%
Gross Salary as Teacher	Other	11.038	39,58%	2.199	37,54%
	Income 1	4	0,01%	0	0,00%
	Income 2	4	0,01%	129	2,20%
School Characteristics		Mean	SD	Mean	SD
Students_per_class	Mean	38,75	7,24	40,66	5,3

Source: Own elaboration based on Saeb (2021) data.

Notes: A mean comparison test was performed between students in traditional and full-time schools: * indicates that the mean difference between the two student groups is statistically significant ($p < 0.05$).

Based on student family characteristics, it is noteworthy that the proportion of mothers (and fathers) with higher education degrees was higher among full-time high school students (15.35%) compared to traditional school students (8.95%). Curi and Menezes-Filho (2009) highlight that parental education levels are directly related to their children's academic performance—that is, the higher the parents' education level, the better the students tend to perform academically.

Examining teacher characteristics, work experience (i.e., years of experience as a teacher) was higher for full-time education, particularly in the 3 to 10-year experience range. Regarding employment contracts, the proportion of tenured teachers was high in both models—60.39% in traditional schools and 60.26% in full-time schools. In terms of salary ranges, the largest number of observations for both traditional and full-time education falls within Income Level 2 (R$ 3,300.01 to R$ 6,600.00). These factors tend to contribute positively to improved student performance.

Based on school characteristics, the average number of students per class in traditional schools was lower (39 students) compared to full-time schools (41 students).

Results of the Oaxaca-Blinder Model

Table 4 reports the Oaxaca-Blinder decomposition results for 2013 and 2021, presenting academic performance differentials between full-time and traditional high schools in both Mathematics and Portuguese. The table shows that full-time students consistently achieved higher mean scores, with differences of 18.31 percent in Mathematics and 16.53 percent in Portuguese in 2013, and 17.96 percent and 16.81 percent in 2021, respectively. The decomposition indicates that part of these gains can be explained by observable characteristics such as parental education and access to technology, while a substantial share remains unexplained, reflecting factors such as school quality and student motivation. These findings underscore the persistence of performance advantages associated with full-time schooling across both years.

Table 4 shows that students in Full-Time High Schools had a mean logarithm score for Mathematics of 5.6809, compared to 5.5129 for students in Traditional High Schools. This difference represents a performance differential of 0.1681 (or 18.31%) in favor of Full-Time School students.

Table 4

Academic Performance Differentials Between Full-Time and Traditional High Schools, 2013 and 2021

Variable	2013 (Math)	2021 (Math)	2013 (Portuguese)	2021 (Portuguese)
Full-Time High School Mean	5.6809*	5.7226*	5.6465*	5.7391*
Traditional High School Mean	5.5129*	5.5574*	5.4935*	5.5837*
Difference (%)	0.1681* (18.31%)	0.1652* (17.96%)	0.1530* (16.53%)	0.1554* (16.81%)
Explained Effect	0.0827*	0.0320*	0.0416	0.0329*
Unexplained Effect	0.0853*	0.1332*	0.1114	0.1225*

Source: Own elaboration based on Saeb (2013, 2021) data.

Note: Standard errors in parentheses (available in detailed tables). *$p < 0.05$.

Considering the logarithm of performance in Portuguese, Full-Time School students had a mean score of 5.6465, while students in Traditional High Schools presented a mean score of 5.4935. This result also revealed an academic performance differential of 0.1530 (or 16.53%) benefiting Full-Time School students.

The explained effect is statistically significant and presents a positive sign, indicating that differences in observable characteristics between the two student groups influence academic performance by 0.0827 (or 8.62%). The unexplained effect also contributes to the performance gap by 0.0853 (or 8.90%).

Regarding the explained effect for the logarithm of Portuguese scores, the coefficient was not statistically significant, suggesting that observable characteristics did not account for the difference in Portuguese scores between the two groups.

The unexplained effect, which accounts for 8.90% of the differential in Mathematics and 11.78% in Portuguese in 2013, and 13.25% and 12.23% in 2021, points to intangible factors beyond those captured by Saeb variables. Recent studies, such as Glewwe and Muralidharan (2019), suggest that teaching quality—including the use of active methodologies and teacher engagement—is a critical determinant of performance in extended school time contexts, particularly in developing countries. In Ceará, this may reflect the emphasis on continuous teacher training (Seduc, 2023), though variables such as school climate and student motivation remain unexplored.

While the unexplained component is often interpreted as capturing differences in pedagogical quality, school climate, and teacher engagement, it may also reflect unobserved selection mechanisms, such as higher student motivation or parental involvement. This underscores the importance of caution when attributing performance gaps solely to school practices, since unobserved factors may also play a significant role.

Table 5 presents the detailed coefficients of the explained effect (year 2013).
It is observed that students with access to a computer at home show higher performance in Portuguese (1.12%) in favor of Full-Time School students. Additionally, students who have never repeated a grade present a significant and positive coefficient, indicating that maintaining a history of academic progression without grade repetition is associated with better school performance, benefiting Full-Time School students.

Teachers with 3 to 10 years of experience, compared to those with up to two years of experience, have a positive impact on students' Mathematics performance (14.60%), favoring Full-Time School students. The coefficient for the income range of R$ 6,600.01 or more was positive and statistically significant. This result suggests that teachers in this income bracket, compared to those earning up to R$ 3,300.00, are positively associated with improvements in Full-Time School students' academic performance (by 0.74%).

Table 5

Explained and Unexplained Effects, 2013

Explained Effect	**Coefficients**	**SD**	**Coefficients**	**SD**
Female	-0,0028	(0,0017)	0,0001	(0,0005)
Black, Mixed-Race, and Indigenous	0,0004	(0,0008)	0,0004	(0,0008)
Mother's Secondary Education	0,0008	(0,0012)	0,0002	(0,0012)
Mother's Higher Education	0,0042	(0,0025)	-0,0036	(0,0025)
Father's Secondary Education	0,0006	(0,0010)	0,0022	(0,0012)
Father's Higher Education	0,0013	(0,0025)	-0,0001	(0,0025)
Computer Access	0,0062	(0,0044)	0,0111*	(0,0046)
No School Dropout	-0,0033	(0,0026)	-0,0040	(0,0027)
Never Repeated a Grade	0,0202*	(0,0047)	0,0242*	(0,0048)

Explained Effect	**Coefficients**	**SD**	**Coefficients**	**SD**
Teacher Experience (3-10 years)	0,1363*	(0,0547)	0,0325	(0,0556)
Teacher Experience (11+ years)	-0,1000*	(0,0361)	-0,0349	(0,0364)
Income Level 2	0,0091	(0,0063)	0,0116	(0,0065)
Income Level 3	0,0074*	(0,0030)	0,0044	(0,0029)
Tenured Teacher	0,0044	(0,0023)	0,0037	(0,0020)
Students per Class	-0,0022	(0,0017)	-0,0061*	(0,0021)
Unexplained Effect	**Coefficients**	**SD**	**Coefficients**	**SD**
Female	-0,0196*	(0,0077)	-0,0279*	(0,0080)
Black, Mixed-Race, and Indigenous	-0,0286*	(0,0096)	-0,0191	(0,0100)
Mother's Secondary Education	-0,0013	(0,0023)	-0,0008	(0,0024)
Mother's Higher Education	-0,0028	(0,0030)	-0,0081*	(0,0032)
Father's Secondary Education	-0,0010	(0,0021)	-0,0001	(0,0022)
Father's Higher Education	0,0013	(0,0020)	-0,0025	(0,0022)
Computer Access	-0,0045	(0,0056)	0,0001	(0,0058)
No School Dropout	-0,0328	(0,0227)	-0,0268	(0,0234)
Never Repeated a Grade	0,0024	(0,0119)	0,0067	(0,0123)
Teacher Experience (3-10 years)	0,1295*	(0,0472)	0,0454	(0,0481)
Teacher Experience (11+ years)	0,1549*	(0,0522)	0,0640	(0,0532)
Income Level 2	0,0056	(0,0094)	0,0092	(0,0097)
Income Level 3	-0,0212*	(0,0085)	-0,0158	(0,0087)
Tenured Teacher	0,0226*	(0,0060)	0,0235*	(0,0063)
Students per Class	0,0325	(0,0471)	0,1638*	(0,0486)
Constant	-0,1518	(0,1219)	-0,1002	(0,1248)
N	3028		3028	

Source: Own elaboration based on Saeb (2013) data.
Notes: (a) Standard errors in parentheses and (b) * indicates *p*-value < 0.05.

Based on the Oaxaca-Blinder decomposition, the results in Table 6 report the academic performance differential between students in Traditional and Full-Time High Schools for 2021. Full-Time High School students had an average logarithm score for Mathematics of 5.7226, while Traditional High School students had an average of 5.5574. The academic performance differential was 0.1652 (or 17.96%) in favor of Full-Time School students.

Considering the average logarithm of performance in Portuguese (Table 6), Full-Time School students had an average score of 5.7391, while students in Traditional High Schools had an average of 5.5837. The academic performance differential was 0.1554 (or 16.81%) in favor of Full-Time School students.

The explained effect (Table 6) is statistically significant, with a positive coefficient in Mathematics (0.0320) and Portuguese (0.0329). This positive effect contributes to increasing the disparity in performance between Traditional and Full-Time School students. Therefore, the characteristic effect reflects the average increase in the logarithm of academic performance that Traditional School students would have if they possessed the same characteristics as Full-Time School students.

The evolution of differentials between 2013 and 2021—a decline from 18.31% to 17.96% in Mathematics and an increase from 16.53% to 16.81% in Portuguese—may be influenced by

changes in the scale of Ceará's policy, which expanded from 25 to 341 schools by 2023 (Seduc, 2023). According to the OECD (2021), the impact of extended school time varies with implementation quality, and resource dilution in rapid expansions may reduce gains in subjects like Mathematics, which require greater investment in teaching materials. Conversely, the slight increase in Portuguese may indicate the resilience of the full-time education model in response to disruptions such as the COVID-19 pandemic, suggesting local adaptations that warrant further investigation. These results align with Fernandes and Justo (2024), who, in evaluating the full-time education program in Pernambuco between 2009 and 2016 using ENEM data, also identified positive performance differentials, reinforcing the robustness of this model in Brazilian state contexts.

The comparison between 2013 and 2021 reveals a decline in the performance differential for Mathematics (from 18.31% to 17.96%), contrasting with a slight increase in Portuguese (from 16.53% to 16.81%). This variation may reflect changes in the implementation of Ceará's full-time education policy, such as the expansion from 25 schools in 2008 to 341 by 2023, potentially diluting resources or altering the student profile (Seduc, 2023). Alternatively, external factors such as the impact of the COVID-19 pandemic in 2020-2021 may have affected subjects differently, with Portuguese benefiting more from strengthened in-person activities in the full-time model.

Table 6 presents the detailed decomposition of explained and unexplained components for Traditional and Full-Time High Schools in 2021. Providing a detailed coefficient analysis, the variable related to students who have never repeated a grade accounts for the largest share of the characteristic effect on the academic performance differential concerning the natural logarithm of Mathematics and Portuguese scores, with effects of 2.28% and 1.98%, respectively.

An important and somewhat unexpected result emerges from Table 6. In 2021, female students enrolled in full-time schools exhibit a negative unexplained component relative to their peers in traditional schools, amounting to −1.25% in mathematics and −1.05% in Portuguese. This suggests that, after accounting for observable characteristics, female students in full-time schools did not translate these advantages into higher test scores. This result may reflect gender-differentiated responses to the full-time schooling model, potentially related to curriculum design, pedagogical practices, or differential opportunity costs faced by female students, such as domestic responsibilities. However, given data limitations, these mechanisms remain speculative..

Regarding the impact of parental education, students in Full-Time Schools whose mothers have higher education degrees exhibit better academic performance in both Mathematics and Portuguese (0.18% and 0.10%, respectively) compared to students in Traditional Schools. This underscores the importance of parental education levels in students' academic achievements, as highlighted by Curi and Menezes-Filho (2009).

Table 6

Explained and Unexplained Effects, 2021

Explained Effect	**Coefficients**	**SD**	**Coefficients**	**SD**
Female	-0,0030*	(0,0003)	0,0008*	(0,0001)
Black, Mixed-Race, and Indigenous	0,0003*	(0,0001)	0,0006*	(0,0001)
Urban	-0,0000	(0,0001)	-0,0000	(0,0001)
Mother's Secondary Education	0,0012*	(0,0003)	0,0009*	(0,0002)
Mother's Higher Education	0,0018*	(0,0003)	0,0010*	(0,0002)
Father's Secondary Education	0,0012*	(0,0002)	0,0014*	(0,0002)
Father's Higher Education	0,0007*	(0,0001)	0,0006*	(0,0001)
Internet Access	0,0010*	(0,0003)	0,0016*	(0,0003)
Computer Access	0,0055*	(0,0004)	0,0046*	(0,0004)
No School Dropout	-0,0035*	(0,0007)	-0,0030*	(0,0006)
Never Repeated a Grade	0,0225*	(0,0009)	0,0196*	(0,0008)

Explained Effect	**Coefficients**	**SD**	**Coefficients**	**SD**
Teacher Experience (3-10 years)	0,0000	(0,0001)	0,0000	(0,0001)
Teacher Experience (11+ years)	0,0000	(0,0000)	-0,0000	(0,0000)
Income Level 2	0,0000	(0,0001)	-0,0000	(0,0001)
Income Level 3	0,0005*	(0,0002)	0,0000	(0,0002)
Tenured Teacher	-0,0005*	(0,0002)	-0,0001	(0,0001)
Students per Class	0,0050*	(0,0006)	0,0051*	(0,0005)
Unexplained Effect	**Coefficients**	**SD**	**Coefficients**	**SD**
Female	-0,0126*	(0,0013)	-0,0106*	(0,0012)
Black, Mixed-Race, and Indigenous	-0,0038	(0,0020)	0,0015	(0,0018)
Urban	0,0320*	(0,0054)	0,0322*	(0,0048)
Mother's Secondary Education	-0,0031*	(0,0008)	-0,0043*	(0,0007)
Mother's Higher Education	-0,0022*	(0,0003)	-0,0028*	(0,0003)
Father's Secondary Education	-0,0002	(0,0006)	-0,0010	(0,0006)
Father's Higher Education	-0,0005*	(0,0002)	-0,0006*	(0,0002)
Internet Access	-0,0171*	(0,0037)	-0,0152*	(0,0033)
Computer Access	-0,0014*	(0,0007)	-0,0029*	(0,0006)
No School Dropout	-0,0522*	(0,0059)	-0,0430*	(0,0052)
Never Repeated a Grade	0,0085*	(0,0031)	0,0027	(0,0028)
Teacher Experience (3-10 years)	0,0026*	(0,0006)	0,0018*	(0,0006)
Teacher Experience (11+ years)	0,0027*	(0,0008)	-0,0001	(0,0007)
Income Level 2	-0,0072*	(0,0025)	0,0006	(0,0022)
Income Level 3	-0,0010*	(0,0003)	-0,0002	(0,0003)
Tenured Teacher	0,0075*	(0,0026)	-0,0001	(0,0023)
Students per Class	0,0687*	(0,0103)	0,0671*	(0,0092)
Constant	0,1117*	(0,0137)	0,0970*	(0,0122)
N	92950		92950	

Source: Own elaboration based on Saeb (2021) data.
Notes: (a) Standard errors in parentheses and (b) * indicates *p*-value < 0.05.

The effect of Full-Time School students having a computer at home is positive for Mathematics and Portuguese performance compared to Traditional School students with similar characteristics.

Regarding the detailed effects of the unexplained component, female students in Full-Time Schools exhibit lower academic performance (-1.25% and -1.05%, respectively) compared to female students in Traditional Schools in terms of Mathematics and Portuguese scores.

The results reflect the success of Ceará's strategy of integrating technical education and socio-emotional activities into the full-time education model, an approach that has evolved since its introduction in 2008 with 25 vocational schools (Marcelino & Justo, 2017).
The expansion to over 140,000 students across 165 municipalities by 2023 suggests that scaling up the policy could amplify its benefits, particularly in urban areas where access is greater (Falcão, 2023). These findings have implications for educational policies in similar contexts; however, the persistence of the unexplained effect highlights that the quality of implementation is as crucial as its expansion.

Ceará's experience of integrating technical and socio-emotional education since 2008 reflects a scalable model that has benefited more than 140,000 students by 2023 (Falcão, 2023).

Patrinos and Angrist (2018) argue that educational policies in developing countries rely on targeted investments in human capital, reinforcing the relevance of technology access and teacher experience observed in this study. These factors indicate that full-time education can be a powerful tool for reducing inequalities, provided it is accompanied by pedagogical quality. Ceará's case offers a blueprint for other regions but requires attention to sustainability as the scale increases.

Discussion

This study analyzes performance differentials between students enrolled in full-time and traditional secondary schools in Ceará using the Oaxaca Blinder decomposition applied to Saeb data from 2013 and 2021. Rather than estimating causal effects, the analysis decomposes observed achievement gaps into components associated with differences in observable characteristics and an unexplained residual component. This diagnostic approach complements quasi-experimental evaluations of full-time schooling by shedding light on how student composition and differential returns to characteristics are associated with performance gaps (Hanushek, 1979; Todd & Wolpin, 2003).

The findings indicate that a substantial portion of the performance gap is explained by differences in students' socioeconomic background, demographic characteristics, and school attributes, which is consistent with the educational production function literature emphasizing the role of family inputs and school resources in shaping learning outcomes (Hanushek, 1979). However, the unexplained component remains sizeable, particularly in 2021, suggesting that factors beyond observable endowments are relevant. While the unexplained component is often interpreted as capturing differences in pedagogical quality, school climate, and teacher engagement, it may also reflect unobserved selection mechanisms, such as higher student motivation or parental involvement, a well-documented concern in observational studies of education policies (Todd & Wolpin, 2003).

An important and unexpected result emerges from the gender-disaggregated analysis for 2021. Female students in full-time schools exhibit a negative unexplained component relative to their peers in traditional schools in both Mathematics and Portuguese. This finding suggests that, conditional on observed characteristics, female students do not benefit equally from the full-time schooling model. One possible interpretation is that extended school hours may interact with gender-specific constraints, including unequal domestic responsibilities or differential engagement with school activities, which have been shown to affect educational outcomes in developing country contexts. Nevertheless, given the lack of direct measures of these mechanisms in the Saeb data, this interpretation remains speculative.

The territorial dimension of the results also raises important policy concerns. In 2013, full-time schools are almost exclusively located in urban areas, and although coverage expands by 2021, rural students remain underrepresented in both school modalities. This persistent urban concentration suggests that infrastructure constraints, staffing challenges, and higher implementation costs may limit the scalability of the full-time model in rural contexts. Similar challenges are documented in large-scale full-time schooling reforms in Latin America, such as Chile's Jornada Escolar Completa and Mexico's Escuelas de Tiempo Completo, where expansion often precedes improvements in pedagogical quality and equity (OECD, 2015).

The interpretation of the 2021 results must also consider the disruptions caused by the COVID-19 pandemic. School closures, remote instruction, and unequal access to digital resources likely intensify learning inequalities and may affect both the explained and unexplained components of the performance gap. International evidence suggests that pandemic-related learning losses are highly heterogeneous, reinforcing pre-existing socioeconomic disparities and complicating comparisons with pre-pandemic assessments (OECD, 2021).

From a policy perspective, gains in Saeb performance should not be viewed as an end in themselves. Achievement in upper secondary education is a critical upstream determinant of

students' readiness for the Exame Nacional do Ensino Médio (ENEM) and subsequent access to higher education, particularly for graduates of public schools. In this sense, the full-time school model can be interpreted as a potentially equity-enhancing strategy, provided that expanded instructional time is accompanied by effective governance, pedagogical support, and accountability mechanisms. Evidence from both Brazil and other middle-income countries suggests that increases in time on task alone are insufficient to generate sustained learning gains without complementary institutional reforms (Hanushek & Woessmann, 2011).

Final Considerations

This article examined performance differentials between full-time and traditional secondary schools in Ceará using the Oaxaca–Blinder decomposition applied to Saeb data from 2013 and 2021. By adopting a diagnostic rather than causal perspective, the study contributes to the literature on education policy evaluation by identifying how differences in student composition and differential returns to characteristics are associated with observed achievement gaps in a large-scale policy context.

The findings underscore that expanding instructional time alone is insufficient to guarantee improved learning outcomes. Although full-time schools are associated with distinct performance profiles, a substantial share of the observed gaps is linked to students' socioeconomic background and other observable characteristics. The presence of a sizeable unexplained component further suggests that unobserved factors—such as institutional practices, governance arrangements, and student selection—play an important role in shaping educational outcomes. These results highlight the importance of interpreting performance differentials with caution and avoiding causal claims in the absence of experimental or quasi-experimental identification strategies.

From a policy standpoint, the Ceará experience illustrates both the potential and the limitations of full-time schooling as an equity-oriented reform. While the model may contribute to improving academic readiness at the upper secondary level, its effectiveness depends critically on complementary institutional conditions, including pedagogical support, school leadership, and accountability mechanisms. Moreover, the persistent urban concentration of full-time schools points to significant challenges in ensuring equitable access, particularly for rural students, and calls for targeted investments and differentiated implementation strategies.

Importantly, improvements in secondary school performance should be viewed as part of a broader educational trajectory. Achievement gains measured by Saeb constitute an upstream determinant of students' performance in the Exame Nacional do Ensino Médio (ENEM) and, consequently, their access to higher education. In this sense, full-time schooling policies should be embedded within a coherent strategy aimed at reducing long-standing socioeconomic disparities in educational opportunities rather than treated as isolated interventionThis study also offers methodological contributions by demonstrating how the Oaxaca–Blinder decomposition can complement causal impact evaluations. While quasi-experimental methods estimate average treatment effects, decomposition techniques provide additional insights into the sources of observed gaps and help identify where policy efforts may be most effectively directed. Future research could combine these approaches by integrating decomposition methods with longitudinal designs, exploiting policy rollouts, or linking administrative data across educational stages.

Finally, several limitations warrant attention. The analysis relies on observational data and is subject to unobserved selection and measurement constraints, particularly in the post-pandemic context of the 2021 Saeb. Future studies would benefit from richer data on school practices, teacher characteristics, and student time use, as well as from explicit consideration of gender and territorial heterogeneity. Addressing these gaps is essential for advancing evidence-

based policy design and for understanding the conditions under which full-time schooling can effectively promote educational equity.

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