

Achieving World-Class Education in Adverse Socioeconomic Conditions: The Case of Sobral in Brazil

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Abstract

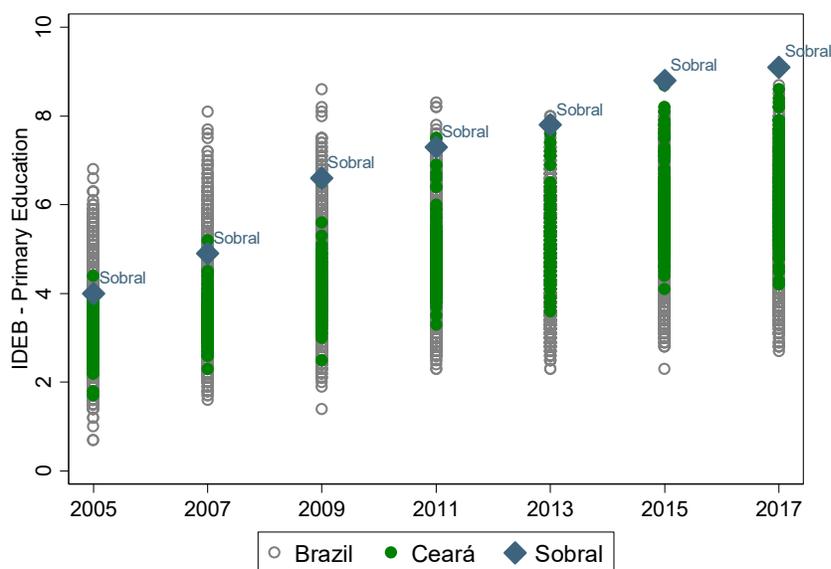
This report presents the case of the municipality of Sobral in the state of Ceará, Brazil. This municipality overcame adverse socioeconomic conditions and now has the best primary and lower secondary education system in Brazil. Sobral is home to 200,000 inhabitants and in 2005 was ranked 1,366 in the national index that measures quality of education in Brazil. Twelve years later, it was ranked first among the 5,570 municipalities in both primary and lower secondary education rankings. Public education in Sobral has one goal: every student must complete lower secondary education at the right age and with appropriate learning. The municipality placed education at the top of the political agenda and kept it out of politics. It prioritized learning by establishing a clear intermediate target—ensuring all students are literate by the end of the second grade. It organized the education policy under four pillars: 1. Effective use of student assessment; 2. Focused curriculum with a clear learning sequence and prioritization of foundational skills; 3. Prepared and motivated teachers; 4. Autonomous and accountable school management with school principals appointed through a meritocratic and technical selection process. The main aspects of the reforms are presented and discussed in this report.

¹ This version of the report benefited from comments made during a workshop with Sobral municipal government and World Bank colleagues in Sobral in February 2020, including the Mayor Ivo Gomes. We also would like to thank Lars Sondergaard, Halsey Rogers, David Evans, Reema Nayar, Emanuela di Gropello, Jaime Saavedra, Omar Arias, Michael Crawford, and several other World Bank colleagues for detailed comments.

1. Why are the education reforms in Sobral relevant to other education systems?

The municipality of Sobral in the state of Ceará has the best primary and lower secondary education in Brazil, despite adverse socioeconomic conditions. Sobral is home to 200,000 inhabitants and is located in Ceará,² a state with the fifth lowest GDP per capita in Brazil. This corresponds to one-third of the income per capita of the wealthiest state of São Paulo.³ Nevertheless, in the latest round of the national index that measures quality of education in Brazil, the Index of Basic Education Development (*Índice de Desenvolvimento da Educação Básica*, IDEB⁴), Sobral is ranked number 1 among the 5,570 municipalities in both primary (grades 1 to 5) and lower secondary education (grades 6 to 9) rankings (Figures 1 and 2). It represents a substantial improvement from 2005, the first year that IDEB was measured; Sobral was ranked 1,366 in primary education back then. In lower secondary, Sobral increased its IDEB from 5.8 to 7.2 between 2013 and 2017. IDEB scores for Sobral are even higher than the average of private schools in São Paulo (Figure 3). As measured by IDEB, the success of Sobral is both in language and mathematics.

Figure 1: Distribution of Education Quality in Primary Education (Grades 1 to 5) Measured by IDEB - Municipal School Networks, 2005-2017



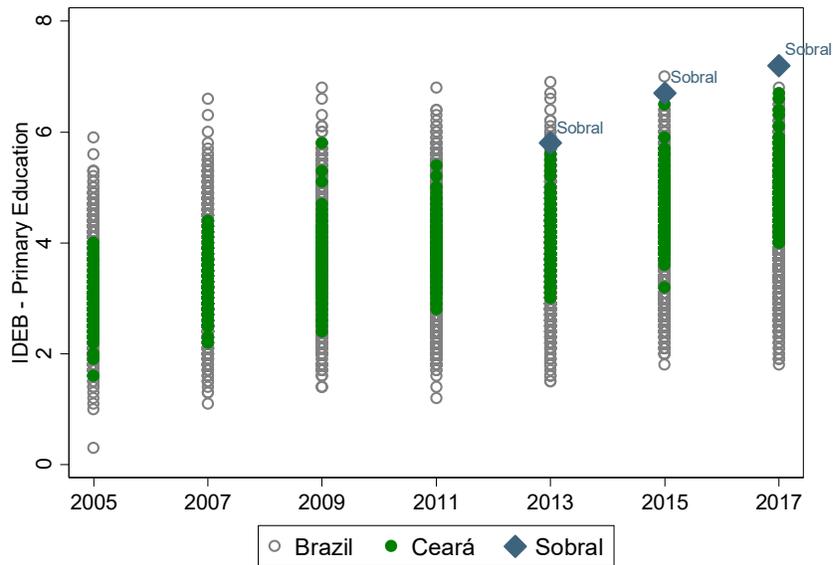
Source: World Bank with *Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira* (INEP)/ Ministry of Education (MEC) data.

² For comparison, Sobral has a population size similar to São Tomé and Príncipe and bigger than many Caribbean islands such as St. Lucia and Curaçao. Ceará, in turn, is equivalent to Austria and Hungary in population, bigger than Paraguay, and almost twice the size of Finland and Congo.

³ A map of Brazil showing Sobral's location is presented in Annex 1.

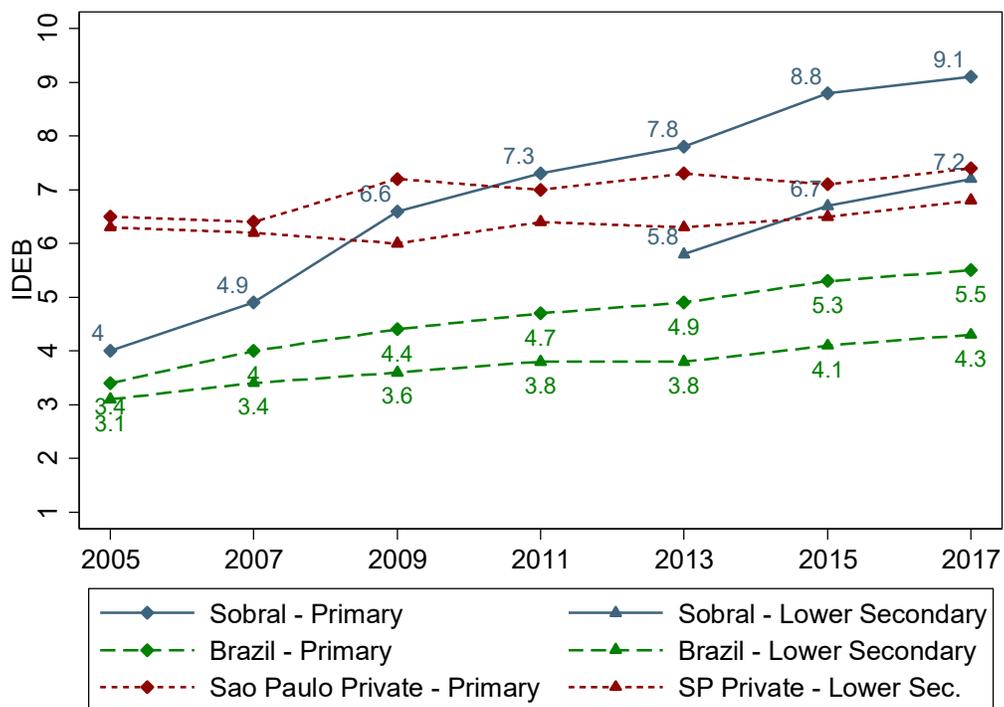
⁴ The Index of Basic Education Development (*Índice de Desenvolvimento da Educação Básica*, IDEB) ranges from 0 to 10 and considers passing rates and learning outcomes in Portuguese and mathematics assessed by the National Evaluation System of Basic Education (*Sistema Nacional de Avaliação da Educação Básica*, SAEB). It is computed every two years by the National Institute of Education Statistics (INEP) that assesses the final years of each educational level (grade 5 in primary education, grade 9 in lower secondary, and the grade 12 in upper secondary education). Further details are provided in Annex 2.

Figure 2: Distribution of Education Quality in Lower Secondary Education (Grades 6 to 9) Measured by IDEB - Municipal School Networks, 2005–2017



Source: World Bank with INEP/MEC data.

Figure 3: Education Quality Measured by IDEB, Sobral and Brazil (Average of All Municipal School Networks), 2005–2017



Source: World Bank with INEP/MEC data.

The municipal network in Sobral is responsible for early childhood education (ECE) and primary and lower secondary education of 33,000 children. Public education in Sobral from ECE and primary and lower secondary education is solely provided by the municipal government. There were about 33,000 children enrolled in the 62 municipal schools and/or ECE centers. Of these centers, 15 buildings provide only ECE, 14 only primary education, and 13 only lower secondary with 7 full-time schools; the other 20 facilities offer a combination of education levels. Unlike in many places in Brazil, lower secondary in Ceará state is fully provided by municipal governments. So all students at this level of education in Sobral are enrolled in the municipal network.⁵ With 1,162 teachers, Sobral has a student-teacher ratio higher than Ceará and Brazil (Table 1), indicating a high level of efficiency in its education system.

Table 1: School Systems Characteristics, Sobral, Ceará, Brazil (2019)⁶

	Number of Students	Number of Teachers	Student-Teacher Ratio	Number of Schools	GDP per Capita (US\$ PPP)	Inhabitants
Sobral (Municipal Schools)	33,591	1162	28.9	62	10,666 ⁷	208,935
Ceará (Municipal Schools)	1,314,605	62694	21.0	5,156	8,068	9,132,078
Brazil (ECE, Primary and Lower Secondary in Public Schools)⁸	28,673,565	1409868	20.3	129,814	15,662	210,147,125

Source: World Bank calculation with data from the education census (MEC), the Brazilian Statistics and Geography Institute (*Instituto Brasileiro de Geografia e Estatística*, IBGE) (2019) and the World Bank PPP calculator (2017)

Note: PPP = Purchasing power parity.

⁵ Public education in Brazil is a shared responsibility of municipalities, states, and the federal government. Municipal governments are responsible for provision of ECE (ages 0 to 5) and primary education (grades 1 to 5). Lower secondary education (grades 6 to 9) is offered by municipalities and states, with an overlapping of responsibilities mainly due to the teaching complexity at this level. Due to the requirement of more teachers and resources, not all municipalities can afford the provision of lower secondary. The establishment in 1997 of an intergovernmental transfer mechanism to finance education based on student enrollment (*Fundo de Manutenção e Desenvolvimento do Ensino Fundamental e de Valorização do magistério*, FUNDEF, which in 2007 was replaced by *Fundo de Manutenção e Desenvolvimento da Educação Básica*, FUNDEB) rose education resources in small towns, contributing to a long and continuing process of returning this level from states to municipal governments. Ceará was a pioneer state in this movement. Upper secondary education (grades 10 to 12) is mostly provided by state governments; the federal government focuses on tertiary education in addition to defining the national policy for all levels of education.

⁶ Details of each educational level are provided in Annex 3.

⁷ This estimate considers the share of Sobral's GDP per capita in relation to the Brazilian GDP per capita (released by IBGE in current 2017 BRL) and multiplying this by the Brazilian GDP per capita in PPP released by the World Bank.

⁸ In contrast with Ceará, where there is a clear division between the levels of education provided by the state and municipalities, in most places in Brazil both the state and municipalities provide ECE, primary, and lower secondary education.

The vast majority of students in Sobral reach an adequate level in reading and mathematics by the end of grade 3. As evidenced by the National Literacy Evaluation⁹ (*Avaliação Nacional de Alfabetização, ANA*), about 84 percent of students in Sobral at grade 3 have adequate reading skills. They are able to locate information situated in the middle or at the end of the text; infer cause-and-consequence from fables, comics, and infant literature; and recognize expressions from figurative language. In the rest of Brazil, this figure is 55 percent. In relative terms, Sobral does even better in mathematics; 84 percent of the students have an adequate knowledge compared to 45 percent at the national level. This is likely due to the structured learning sequence established and the subsequent mathematics curriculum implemented in Sobral, as well as the close monitoring of student learning since ECE.

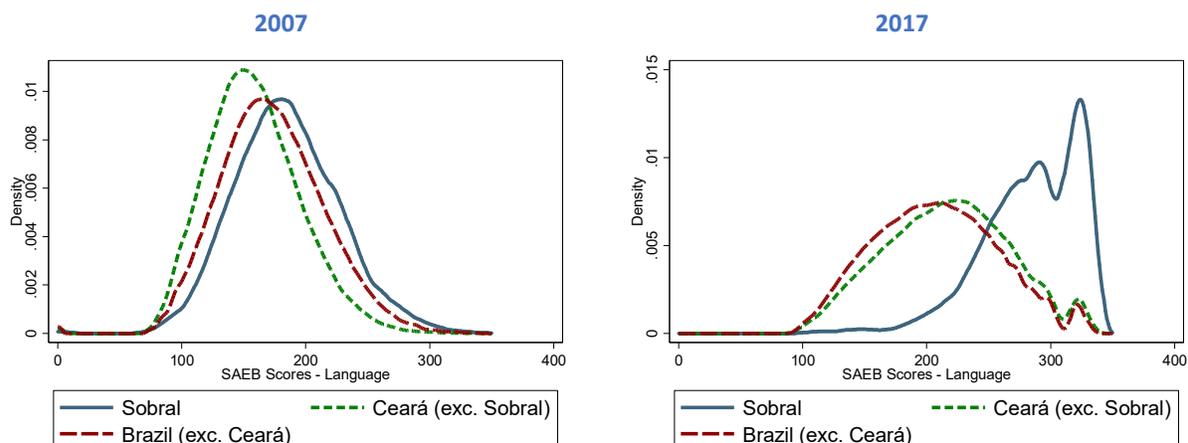
The high IDEB score in primary education in Sobral indicates that the majority of students in grade 5 are well-prepared to pursue lower secondary education. IDEB was designed to measure education quality and capture enhancements in learning outcomes and passing rates. The 9.1 score in IDEB obtained by Sobral refers to a 100 percent passing rate and an average of 9.12 in learning scores in SAEB (considering Portuguese and mathematics). In Portuguese (language), 64 percent of students in grade 5 in Sobral are at level 7, 8, or 9 (highest level), which are considered adequate levels of learning.¹⁰ Among other abilities, a student at level 7 in reading is able to at least identify the main topic and explicit information on poems, fables and lyrics; identify opinion in poems; recognize cause-consequence and the relationship among pronouns in fables and chronic; interpret humor in tales; and verbal and non-verbal languages in comics.

Sobral substantially increased the proportion of students in primary education with high outcomes and reduced the share of insufficient learning to less than 3 percent. Between 2007 and 2017, student learning improved throughout the distribution in Brazil; Sobral stood out increasing in 60 percentage points the share of students with adequate learning, including a large proportion of pupils with very high scores (Figure 4). Moreover, the share of students with insufficient performance in the municipality is very low (2.7 percent in Portuguese and 1.6 in mathematics).

⁹ Sobral has not yet participated in international assessments covering primary education, such as the Progress in International Reading Literacy Study (PIRLS) or the Trends in International Mathematics and Science Study (TIMSS) that assess students' competencies at grade 4. Brazil will join those exams for the first time in 2020.

¹⁰ Students' learning scores in SAEB, the national learning assessment that subsidizes IDEB, are divided into 9 performance levels. Details about the distribution of Sobral's learning outcomes are presented in the next section that discusses equity.

Figure 4: Distribution of Learning Scores in Language, Students in Primary Education, SAEB, 2007–2017¹¹



Source: World Bank with INEP/MEC data.

Sobral also has the highest score in IDEB for lower secondary among all Brazilian school networks. Still, there is room for improvement. Until 2011, lower secondary students in Sobral were in schools managed by the state government. In 2013, in the first assessment of lower secondary of the municipal network, Sobral scored 5.8, which already placed the municipality among the top scorers in the country. Five years later, in 2017, Sobral achieved the first place at the national rank, with a score of 7.2. While it represents a large improvement in a relatively short period, the absolute score shows that students at grade 9 can perform better. At PISA for Schools,¹² the average performance from Sobral is similar to the Brazilian average, except in reading, where Sobral is 20 points above the country mean (Table 2). Since in lower secondary students are entering adolescence, generating a more complex learning environment, the municipality is implementing specific strategies for this education level. It involves the expansion of full-time schools, the development of students’ life-project, and the implementation of a Sciences curriculum. The expectation is that the improvement will be noticed in the upcoming exams.

Table 2: Performance in PISA, Sobral, Brazil and OECD, 2017

		Reading	Math	Science
Sobral	Average	427	375	411
Brazil	Average	407	377	401
OECD	Average	493	490	493

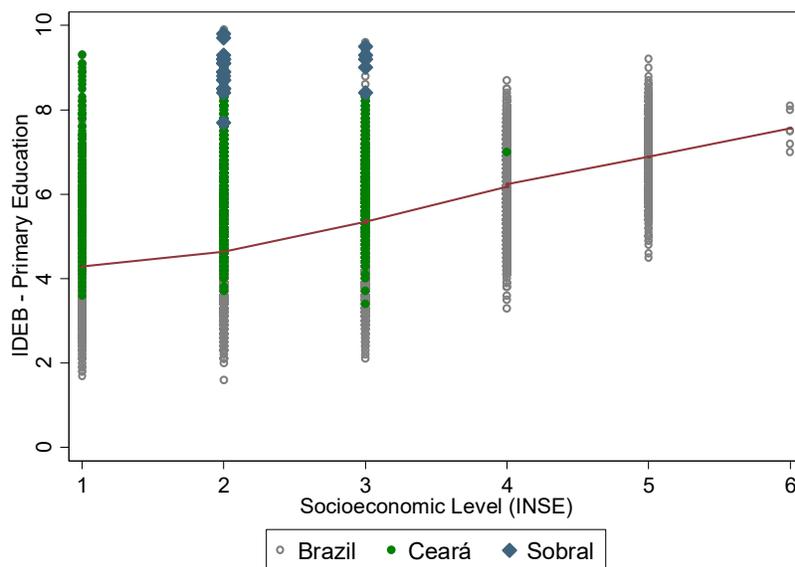
Source: Organisation for Economic Co-operation and Development (OECD).

¹¹ Maximum score in language in SAEB for grade 5 is 325. The absence of students scoring below 80 is indicative of Brazil’s improvement in education quality. SAEB is a census-based exam.

¹² The Programme for International Student Assessment (PISA) for Schools is an exam applied in specific schools with the goal to assess and compare students’ proficiency levels with those in OECD countries. In 2017, 16 out of the 18 public high-schools in Sobral took the exam. Although upper secondary is the state’s responsibility, the municipality partnered with the state government to conduct the exam.

For both primary and lower secondary, education outcomes in Sobral are substantially higher than expected when considering its socioeconomic context. Sobral achieves substantially higher levels of student learning for its level of socioeconomic status. The distributions of IDEB scores for municipal schools according to their socioeconomic level measured by the national socioeconomic index (*Indicador de Nível Socioeconômico das Escolas, INSE*) are presented in Figure 5.¹³ Despite the fact that all schools in Sobral are at levels 2 and 3 of socioeconomic development, they are at the top of the distribution in those levels and surpass many schools with higher socioeconomic characteristics.

Figure 5: Education Quality in Primary Education Measured by IDEB (2017) vs. Socioeconomic Conditions (INSE, 2015) - Sobral, Ceará and Brazil Schools



Note: The red line is a non-parametric regression line.

Source: World Bank with INEP/MEC data.

¹³ Very similar picture for lower secondary education. For further details about Sobral’s performance in relation to other municipalities in Brazil, see Annex 4.

2. How did Sobral transform a low performing education system in 2001 into the best school network in Brazil by 2017?

Sobral's educational transformation began almost 20 years ago after a diagnostic revealed a system that was performing poorly. An assessment in 2001¹⁴ about education in Sobral revealed that 40 percent of the students at grade 3 could not read a simple word, and 32 and 74 percent of pupils in primary education and lower secondary, respectively, were over age. Also, 21 percent of children in lower secondary dropped out of school.

Two key reforms in the Sobral education system were made before the focus on literacy: the reorganization of the school network and the establishment of a teacher career plan. Although Sobral's education policy has 2001 as a landmark, two difficult political decisions were made before 2001: 1. The reorganization of the school network, which reduced the number of schools and provided more student transportation; 2. The establishment of a teacher career plan, which also involved laying off 1,000 teachers (one-third of the teachers).¹⁵ The second reform was made with little opposition from the teachers' union since the municipal government proved the teachers were hired illegally. In the first term of the Cid Gomes administration,¹⁶ in 1997, Sobral's education network was fragmented with many tiny schools in poor physical condition, most of them in rural areas and with multi-grade classes. School principals were politically nominated and acted as community leaders besides selecting teachers according to their own criteria. The first step to remedy this situation was grouping schools into bigger ones to eliminate multi-grade classes and reducing the number of schools by nearly one-third, from 96 to 57.¹⁷ Then the municipality improved the infrastructure of schools and meals. It also provided transportation to students to promote attendance. Sobral defined the technical criteria to hire teachers and school principals (Sobral Municipal Law 123, 1997) and a teacher career plan was passed in 2000 (Sobral Municipal Law 256, 2000).

Two external factors also contributed to the first reforms in Sobral: (1) the devolution of primary and lower secondary education provision from the state government to the municipalities and (2) a new national education financing framework that increased education resources for poorer municipalities. In 1995, the state government of Ceará started a process of devolving to municipalities the provision of primary and lower secondary education as a strategy to set clear responsibilities and optimize the usage

¹⁴ It was an independent assessment designed by the consultant Edgar Linhares, which later structured the literacy policy in Sobral, including the structured learning materials, teachers' professional development, and student assessment in reading fluency. It cannot be confused with SAEB, the exam that subsidizes IDEB, as this was created only in 2005.

¹⁵ The decree cancelled all civil servants' contracts since 1988 that were not based on technical process. It was backed on the 1988 Brazilian Constitution that guarantees work stability to civil servants admitted through meritocratic process. This resulted in a decrease from 4,200 to 2,500 municipal employees (1,700 removals, 1,000 of teachers).

¹⁶ The political group that conducted education reforms in Sobral belongs to a traditional family in municipality's politics, the Ferreira Gomes. Cid was Sobral's mayor for two terms, between 1997 and 2004.

¹⁷ The municipality did not close down the school building entirely. Rather, it decided to stop providing primary education in certain places (focusing only on providing this in slightly larger schools), while the smaller buildings would only focus on early-childhood and adulthood education.

of resources. For municipalities, enlarging the network was financially challenging, and Sobral agreed with the state government to prioritize the provision of primary education and progressively expand lower secondary coverage. In this context, the federal government established a national framework to redistribute education resources for all municipalities (Fundo de Manutenção e Desenvolvimento do Ensino Fundamental e de Valorização do Magistério, FUNDEF). FUNDEF aimed at reducing the inequality in education financing by redistributing resources on a student-basis, which increased the expenditure per pupil, particularly in poorer municipalities. By pooling resources from the federal, state, and municipal governments and redistributing them according to student enrollment, FUNDEF provided incentives to increase the coverage of primary and lower secondary education. Between 1996 and 1999, student registration at the municipal network grew from 9,000 to 17,000. FUNDEF also required subnational governments to create a teacher career plan and spend 60 percent of the fund's transfer to teacher salaries. The first transfers occurred in 1998 and provided Sobral the money and legitimacy to reorganize the school network and change the hiring process of teachers.

A diagnostic showed that education in Sobral was performing poorly, and a large fraction of children in schools were not able to read. In 1996, Sobral started a project with the Ayrton Senna Institute seeking to reduce age-grade distortion, since 83 percent of students enrolled at the municipal network had two years or more of school delay. Three years later, an evaluation showed that the situation had not improved. To further investigate the issue, the municipality conducted an external learning assessment between 2000 and 2001, and identified that 40 percent of primary education students were not able to read. The municipal government realized that, despite the investments in school inputs between 1997 and 2000, there needed to be a focus on learning to improve education quality.

At the beginning of 2001, the municipal government of Sobral established seven educational targets, prioritizing literacy. Based on the literacy diagnostic, policy makers in Sobral put learning at the top of the political agenda and set seven learning targets for the education network:

1. Promote literacy at grade 1;
2. Ensure children at grades 2–4 were able to read through remedial education¹⁸;
3. Eliminate age-grade distortion;
4. Reduce school dropout to less than 5 percent of enrollments;
5. Expand ECE;
6. Restructure lower secondary education;
7. Provide adult and youth education.

To achieve the established learning targets, Sobral implemented three groups of actions:

- **Enhance the pedagogical action.** Assure the prerequisites for learning—that is student and teacher attendance and the effective use of pedagogical time—and a clear focus on literacy,

¹⁸ At that time, primary education consisted of 4 grades, starting at age 7. Sobral pioneered in expanding primary education to 5 grades, starting at age 6 with a 'literacy grade' (Municipal Law 294, 2001), which later became a federal legislation (Federal Law 11.114, 2005).

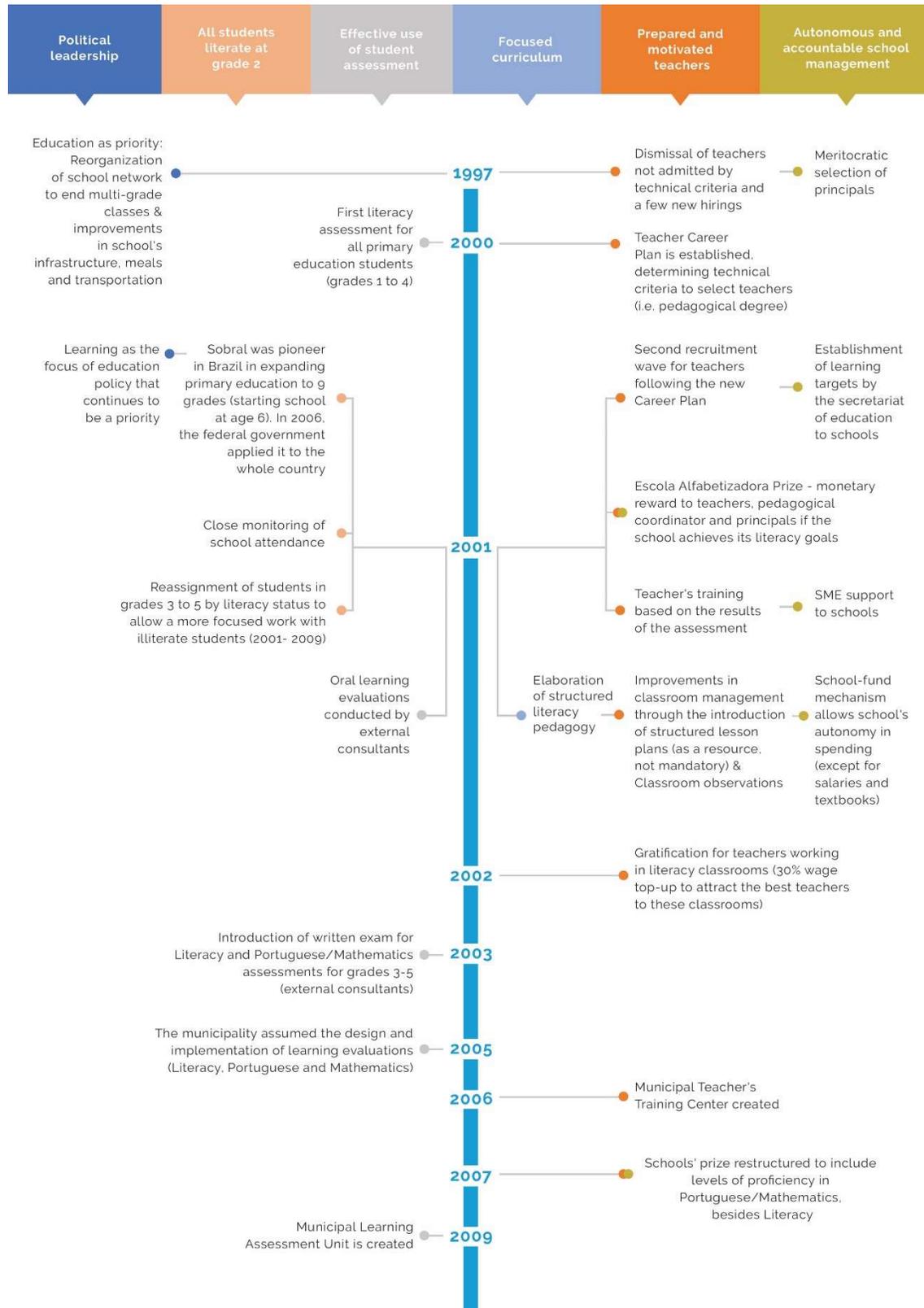
supported by a monitoring and evaluation system in which student outcomes in learning assessments shape the pedagogical interventions.

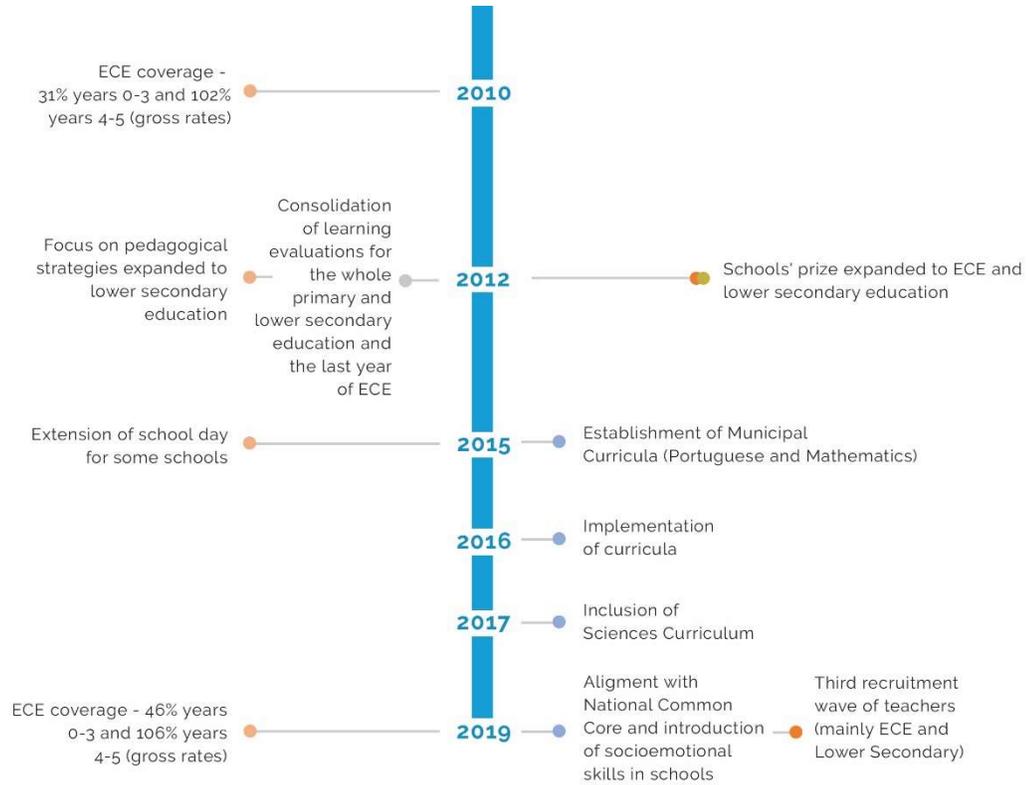
- **Strengthen school management.** Select school principals on a meritocratic basis and foster their leadership skills. Give schools administrative, financial, and pedagogical autonomy with the corresponding accountability and recall the responsibility of families in the education of their children.
- **Raise teachers' prestige and practice.** Increase teacher salaries based on merit, providing financial incentives to achieve learning goals, placing the best teachers in literacy classes, and providing structured instruction material together with adequate training.

In four years, Sobral had achieved in primary education targets 1 and 4 (literacy and dropout rates) and in eight years, targets 2 and 3 (literacy gaps and school delay). By 2005, Sobral was able to ensure all students were literate at grade 2 and school dropout in primary education was below 5 percent. In 2009, targets 2 and 3, regarding literacy gaps and overage students, were achieved as well. The development of IDEB for primary education in 2005 allowed Sobral to compare its performance with Brazilian municipalities. Between 2005 and 2009, Sobral rose from a ranking of 1,366 to 55 and stood 1st in the Brazilian ranking in 2015.

The timeline of the education policy in Sobral is presented in Figure 6 based on six key elements of the reform. The evolution of the education policy in Sobral can be analyzed through the lens of six key elements: 1. Political leadership committed to learning; 2. A clear intermediate goal of ensuring students are literate at grade 2 so they can successfully continue their studies; 3. Effective use of learning assessments; 4. A structured learning sequence that evolved into a focused curriculum; 5. Prepared and motivated teachers; 6. Autonomous and accountable school management. Each of these elements are presented in detail in the next section.

Figure 6: Timeline of Education Reforms in Sobral



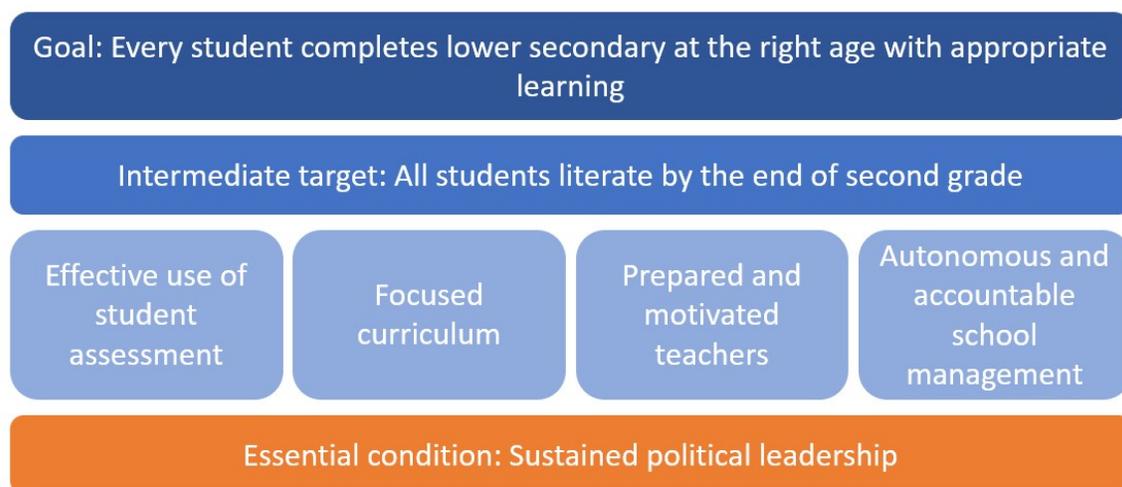


Source: World Bank, based on the collected information and discussion with Sobral policy makers.

3. What are the drivers of the education outcomes of Sobral?

The education results in Sobral derive from its ability to converge the whole education system toward learning and a political decision to keep politics out of the education policies. There was no silver bullet in the education reform in Sobral. There was, instead, a set of structured actions that reinforce each other in the goal of ensuring every student in the municipal network completes lower secondary education at the right age and with appropriate learning. The political leadership in the municipality was able to place education at the top of the public agenda and to establish a learning policy with a clear intermediate target: ensure all students are literate at grade 2. The target oriented the education system to establish a structured pedagogy based on the effective use of student assessment, a focused curriculum, prepared and motivated teachers, and autonomous and accountable school management (Figure 7).

Figure 7: Pillars of Education Policy in Sobral



Source: World Bank, based on the collected information and discussion with Sobral policy makers.

3.1. Sustained Political Leadership

The political leadership was committed to education since the beginning of the municipal administration, but a literacy diagnostic was decisive in placing learning at the center of the education policy. Between 1997 and 2000 policy makers conducted important restructuring reforms in Sobral that raised awareness about the importance of education. A reorganization of the school network required some children to take buses provided by the municipality. As some parents were reluctant to change, the mayor talked to them personally, explaining why that reorganization was necessary. This already gave a signal of the political commitment to education, but it was the diagnostic in 2001 that revealed the need for a structured literacy policy. The municipality established a set of learning goals and had a constant dialogue with schools and parents to make them accountable also for student learning, which increased the legitimacy of the education reforms.

The Secretariat of Education was able to establish sequenced and focused learning policies that structured the education system. Before 1997, like most Brazilian municipalities, Sobral had no internal capacity to assess literacy skills, no capacity to identify what pedagogical practices needed change, and no capacity to train teachers. Yet, reforms were launched to place the municipality at the center of a push to (a) rigorously and regularly measure students' literacy skills and (b) change pedagogical practices through teacher training. This effort was initially conducted by an external consultant, Edgar Linhares, who showed municipal administrators, teachers, and principals what needed to be done. He supported the Secretariat of Education to steer the focus on literacy, designed the early assessments, and trained the first 100 teachers.

The educational reforms in Sobral were met with different types of resistance, but a transparent dialogue with counterparts helped acquire legitimacy to change the education system. The most controversial procedures were the reorganization of the school network as families did not want to send their children to distant schools, the meritocratic selection of school teachers and principals that bothered municipal councilors and former principals, and the monitoring of learning goals that were considered an audit by some schools.¹⁹ The response to the resistance from all sides was the same: open dialogue, equal treatment, and transparency. The mayor visited schools and talked to parents about the importance of children's learning and organizing more homogeneous classrooms. City councilors and former principals, who previously considered schools as part of their political agenda, were received by the Secretariat of Education and treated equally, irrespective of their political affiliations, and explained the benefits of the process, stressing that the good professionals would remain in the system. The resistances to learning goals were minimized by highlighting the importance of teachers in the learning process and offering technical support to schools to achieve their targets. The transparency of indicators, together with the technical assistance provided by the municipality, legitimized the accountability process, and educators understood that monitoring was not the same as an inspection.

Providing schools with financial autonomy released time from the secretariat of education to design and implement the education policy, in addition to providing systematic pedagogical assistance to schools. The municipality has transformed the role played by the secretariat. Instead of being responsible for school maintenance and administrative tasks, it became entirely focused on the education policy. The secretariat since then concentrates the effort to

- (a) Lead structural actions, such as hiring principals, revising curricula, and planning expansion of the school network;
- (b) Institutionalize the main pillars of the education policy to guarantee its sustainability; and
- (c) Conduct extensive work on learning assessment and pedagogical management.

¹⁹ Financial rewards for teachers and schools were sharply criticized by academics but did not find resistance from teachers. Sobral considered the awards a signal of the importance given by the municipality to literacy and teachers. The bonus for teachers working at literacy grades corresponded to 30 percent of their wages. The criteria for receiving the prize *Escola Alfabetizadora* were gradually adjusted to the evolution of learning indicators, which promoted a positive competition among schools.

There is a dedicated team that visits schools on a monthly basis, doing pedagogical tutoring with school coordinators. The coordinators, in turn, observe teachers during their classes and support them in monitoring student learning. The work performed by the secretariat reinforces the culture of feedback, evidence, cooperation, and accountability, which allows sustainability of the education policy in Sobral.

To generate sustainability and protect education from politics, many aspects of the education reform were institutionalized. In 2001, to pursue the goal of literacy at the right age, Sobral was one of the first municipalities in Brazil to expand primary education to 5 grades,²⁰ starting at age 6 (Municipal Law 294, 2001).²¹ In the same year, the municipality strengthened the school autonomy and established a fund to redistribute resources (the Municipal Fund for Schools' Autonomy and Development, FUNDAE, Sobral Municipal Law 315, 2001). In 2002, the municipal government introduced financial rewards to teachers and schools according to the achievement of learning goals (*Escola Alfabetizadora Prize* - Municipal Decree 309/ 2001) and a bonus for teachers working at literacy classes (Sobral Municipal Law 342, 2002). Since 2001, teacher training is designed upon students learning gaps, classroom observation, and scripted material. Initially, training was provided by education consultants; in 2006, experienced teachers from the municipal network took over the training and created the Municipal Teacher's School (*Escola de Formação Permanente do Magistério e Gestão Educacional*, ESFAPEGE).

3.2. Literacy Target: All Students Literate at Grade 2

Literacy is fundamental to students' success and became the first learning target in Sobral. The 2001 diagnostic showed the need to ensure literacy first and foremost. In 2001, if most of the children could not read, how would they learn mathematics or develop any high order skills? Sobral established a set of learning strategies to ensure all students should be able to read by the end of grade 2 and the existing illiterate students in grades 3–5 could have additional support to become literate. The literacy program in Sobral became the cornerstone of the education policy in the municipality, which made all students who finished grade 2 being able to read and write and provided students the basis for completing basic education with the appropriate learning.

The literacy target was clear and easy to communicate, aligning people and efforts in the education system. With the results of the 2001 diagnostic, the mayor in Sobral went on radio stations to communicate the results to all citizens. The message was clear: even though the school buildings were renovated, students were not learning. Everyone should know about this failure and should take responsibility for learning. Parents were reminded about the importance of student attendance. Literacy targets were established for all schools, with each principal and pedagogical coordinator responsible for

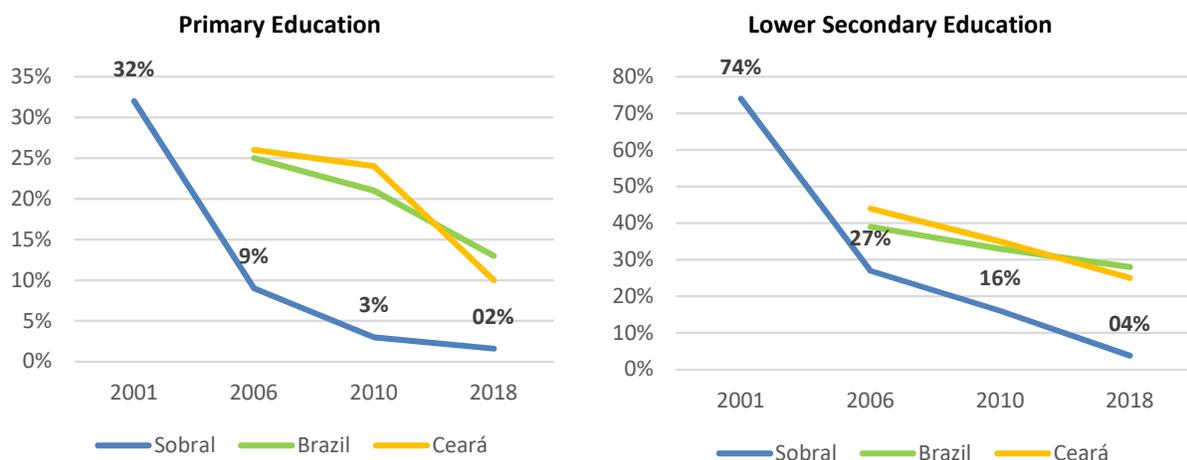
²⁰ Before the change, there were 4 grades in primary education plus a 'literacy grade' that was considered preschool. But as public ECE provision was limited, most children did not have this literacy grade before primary education, only those studying in private schools.

²¹ The success in Sobral's literacy policy influenced Ceará and later the Brazilian government to launch a 'literacy at the right age' initiative, which contributed to expanding primary education coverage to 5 grades, starting at age 6. In 2005, the same year that MEC published a case study about Sobral (INEP, 2005), a federal law was approved, determining the expansion of primary education to 5 grades by 2010 (Federal Law 11.114, 2005).

them. The literacy target aligned education actors and systems’ strategies, which ranged from teacher training and school management to curriculum and student assessment.

Students from grades 3–5 with insufficient literacy skills were reassigned to small groups according to their literacy status. The literacy strategy involved not only children at grades 1 and 2 but also those who concluded the literacy cycle without acquiring proficiency. In eight years, Sobral gave special attention to these children, identifying their literacy levels and grouping them accordingly to allow focused interventions. Teachers also provided extra classes and individual assistance to those who needed it the most. In 2001, 32 percent of primary education students in Sobral were at least two years behind their right grade as were 74 percent of lower secondary education students. In 2018, these percentages were reduced, respectively, to 2 percent and 3.8 percent (Figure 8).

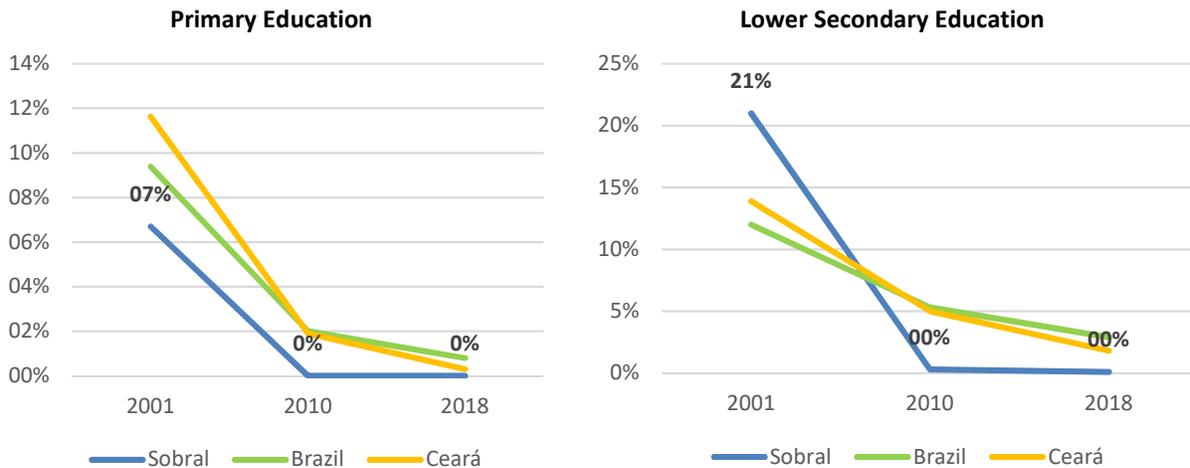
Figure 8: Age-grade Distortion in Sobral, Ceará and Brazil, Selected Years between 2001 and 2018



Source: World Bank with INEP/MEC data.

To learn, children should be in school. Sobral has established a strong policy to monitor student attendance and eliminate school dropout. Schools in Sobral have an attendance dashboard hanging on the wall and school staff check attendance of students on a daily basis. When a child is absent, the school management calls parents the same day to know the reason. A team of the Secretariat of Education, together with the school management team, visits schools twice a month and analyzes attendance data and establishes action plans for absent students. Through this system, the municipality was able to virtually eliminate school dropout, which was up to 21 percent for early secondary in 2001 (Figure 9).

Figure 9: School Dropout Rates in Sobral, Ceará and Brazil, Selected Years between 2001 and 2018

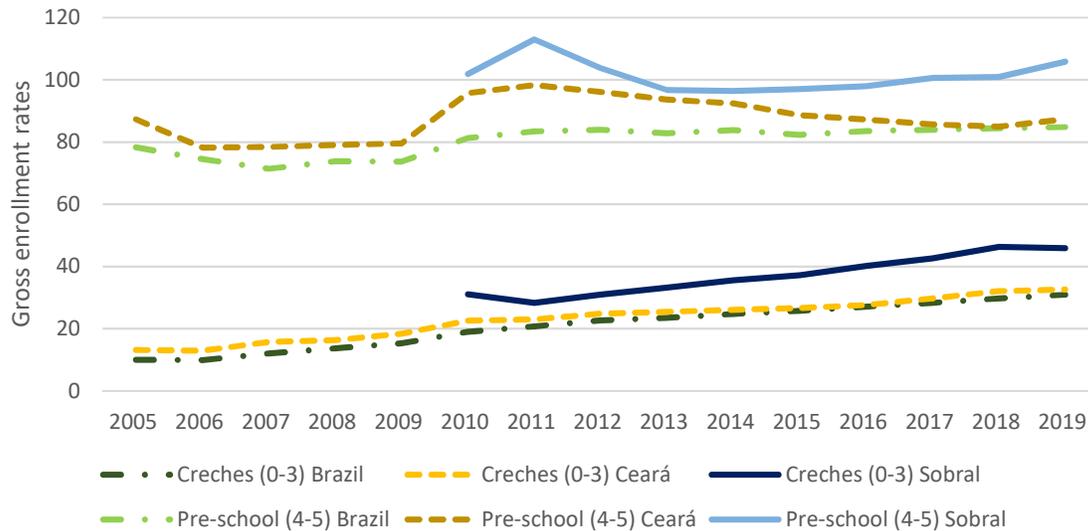


Source: World Bank with INEP/MEC data.

Nurtured children learn better. School meals are available to all students, but those who need it the most have an extra meal before classes start. A federal program (*Programa Nacional de Alimentação Escolar*, PNAE) finances school meals in Brazil, transferring a certain amount to schools based on student enrollment. School management teams oversee food pantries so they are well-managed. This allows schools to provide not only the regular meal between classes but also an extra meal before classes to students who need it the most.

To raise equity in the literacy process, Sobral expanded ECE coverage, especially in the poorest neighborhoods, and increased one grade in primary education. As the literacy process in Brazil traditionally started in the last year of ECE, children who did not attend ECE started primary education at a disadvantage compared to those who had done the ‘literacy year’. To overcome this imbalance, the municipal government of Sobral accelerated the implementation of the new federal regulation to expand primary education from four to five years, with ‘literacy year’ being the first grade of primary education (Sobral Municipal Law 294, 2001). Additionally, with the municipal government aware of the importance of ECE to children’s socioemotional development, especially for those from a low socioeconomic context, Sobral has set among its first learning goals the expansion of ECE coverage and has prioritized poor communities, as a way to promote school readiness. Its enrollment rates are consistently higher than the state and the Brazilian average (Figure 10).

Figure 10: Early Childhood Enrollment, Gross Rates, Private and Public Networks, 2005–2019



Source: World Bank with INEP/MEC and IBGE data.

3.3. Effective Use of Student Assessment

Continuous assessments of student learning, through written and oral evaluations, supported the pedagogical strategy to make students acquire reading fluency. Standardized student learning assessments support the education policy at the municipal, school, and students’ level. Approximately, one-third of time and efforts from the Secretariat of Education in Sobral is dedicated to student assessment and closely related activities. It involves not only the design and the implementation but, more importantly, the analysis and feedback given to schools. This feedback helps schools map the progression of student learning and have a well-informed and proactive approach to address learning gaps. In addition to the standardized evaluations, teachers apply monthly assessments to closely monitor the academic progression of the students.

There are four levels of learning assessment in Sobral, and information about learning outcomes are extensively used to guide the education strategy at the municipal, school, and classroom levels. Since 2001, literacy assessments in Sobral have never been interrupted. From 2005 onwards, the municipality assumed the design and implementation of assessments and in 2009 it established an external unit (*Casa da Avaliação*) to manage all municipal evaluations. Learning evaluations²² are conducted twice a year; results from the end of the school year are used to set the next year’s learning goals and strategies. Mid-term evaluations help identify weaknesses and propose corrective actions at the municipal, school, and classroom levels. The system has evolved along the years, as it firstly assessed only the literacy grades, then included learning outcomes in Portuguese and mathematics for grades 3–5, and currently assesses all grades from primary and lower secondary education as well as ECE’s last grade. Excepted from the first

²² Sobral is currently preparing its first evaluation in sciences, aligned with the new curricula published in 2017.

grade that has an oral evaluation focusing on reading fluency, all other students are assessed both in Portuguese and mathematics (Table 3). In addition, every two years students from grades 3, 5, and 9 take the federal government exam (SAEB) and every year grades 2, 5, and 9 take the state’s assessment (*Sistema Permanente de Avaliação da Educação Básica do Ceará*, SPAECE), that subsidizes Ceará’s results-based financing mechanism.

Table 3: Standardized Student Learning Assessments Produced by Sobral

Grade and School Level	Subject	Number of Items	Structure	Frequency
ECE Level V	Language, mathematics, and arts	18	Individual evaluation based on ECE curriculum	Annual
Grades 1 and 2	Reading fluency	Words chart, phrases, and texts	Oral evaluation that assess reading fluency (speed, precision, and prosody)	Twice a year
Grades 2 to 9	Portuguese	24	State’s and national reference matrices (SPAECE and SAEB)	Twice a year
Grades 2 to 9	Mathematics	24	State’s and national reference matrices (SPAECE and SAEB)	Twice a year

Source: Sobral’s Student Learning Assessment Unit (2020).

Measuring learning is critical for results-based accountability. Similar to the state, municipal learning assessments support a series of accountability mechanisms and incentives. They are the basis for annual learning goals established at the municipal and school levels and are also the basis for bonuses offered to teachers and principals who achieve their targets. A school also receives a prize (*Escola Alfabetizadora*) when it reaches its target. Students’ performance is also tracked by the school community that frequently asks school managers to publish performance data on the school’s walls so they can better follow up on children’s development.

Teacher professional development reinforces the pedagogical use of assessments. The results of the learning assessments are analyzed with teachers so that they are able to identify which descriptors the exam covers and how students perform in each of them. Teachers can map which skills their pupils still do not master and develop strategies to strengthen them. When low performance in the same descriptor is identified in different schools, the Secretariat of Education prepares specific training for teachers to raise their capacity in developing a certain ability with students.

3.4. Focused Curriculum

Since the beginning of the key reforms, the literacy policy in Sobral had a clear learning sequence that was instructionally coherent and only later the municipality designed a curriculum. The positive results from Sobral are sustained by a curriculum, but the municipality did not wait to have it written to start its education reform. In 2002, Sobral established a clear learning sequence for literacy, stating what is

expected from a student in each level and grade. As the education policy evolved, the municipality organized the Portuguese and mathematics curricula in 2015, prioritizing foundational skills, with literacy as the first step in the learning ladder. The curricula were built with contributions from municipal teachers and each subject defined entry and outbound profiles for each grade, indicating how students evolve over the years.

The curricula are fully aligned with learning assessments and scripted materials. The learning sequence and later the curricula are fully aligned with student assessments, teacher professional development, structured materials, and support to school and middle level management, with tutoring and feedback based on learning expectations. It is not only about having the right instruments but aligning them so one reinforces the other. This instructional coherence is desired for many education systems worldwide and it is a reality in Sobral, representing a critical element to allow a well-orchestrated strategy to improve learning in an equitable manner.

3.5. Prepared and Motivated Teachers

Teacher training in Sobral promotes a solid understanding of curricula and learning objectives and the use of structured materials with students. Strengthening the pedagogical action involves providing teachers adequate professional development. An external consultant was hired in 2001 and trained the first 100 teachers from Sobral to support the achievement of the literacy target. He prepared structured materials and lesson plans, discussing its implementation with teachers help them prepare classes with clear learning objectives to be measured at the end of the class. Trainings were aimed at strengthening teacher practice inside classrooms and closely monitoring student learning. Since then, every month teachers in Sobral participate in in-service training to better understand the learning objectives from curricular components, as well as to prepare and discuss scripted teaching material, homework books, and exams' items. New teachers in Sobral receive extra support during their probationary period to ensure adequate performance and their continuity in the municipal network. Consequently, all teachers know what is expected from students in each grade and how to employ textbooks, evaluations, and other tools to achieve learning objectives.

Professional development of teachers also has a strong emphasis on improving classroom management and pedagogical planning and counts with frequent feedback. Classroom management is a central aspect in teacher training because every minute in the classroom counts for student learning. The municipality offers structured lesson plans to help teachers acquiring classroom routine.²³ The pedagogical coordinator and staff from the Secretariat of Education also conduct classroom observation to strengthen teachers' practice. Pedagogical planning involves teachers analyzing the performance of student on learning assessments, identifying weaknesses of pupils, and structuring an action plan with clear targets to be implemented during classes. Feedback sessions occur regularly between the Secretariat of Education and pedagogical coordinators and between coordinators and teachers, tailoring learning interventions to

²³ An example of a classroom routine is provided in Annex 5.

students' needs. The ultimate objective is to ensure that each student masters the contents of their grade, as indicated by the municipal curriculum.

Financial incentives were established to attract the best teachers to literacy classrooms and foster learning. In 2001, Sobral created the *Escola Alfabetizadora Prize*, a monetary incentive for teachers, pedagogical coordinators, and school principals if the school achieves its learning goals.²⁴ The award criteria evolved over the years, following the development of the education system. Between 2001 and 2006, it focused on ensuring all students at grades 1–5 were literate. In 2007, the prize was named *Escolas de Sucesso*²⁵ and included in its criteria not only literacy but also learning proficiency in Portuguese and mathematics for literate students in grades 3–5. In 2012, it included schools that provided ECE and lower secondary education, rewarding the top performers in five categories.²⁶ Currently, the prize is called *Escola Aprender Melhor* and rewards all schools that meet the criteria stipulated for its category, including achieving its learning goals (reaching the average score but guaranteeing a minimum performance in all classrooms) and ensuring student's participation in external evaluations.²⁷ Additionally, in 2002, a wage bonus was established for teachers working in literacy classrooms, as an incentive to attract the best professionals in the literacy process.

Monetary and non-pecuniary rewards help acknowledge the importance of teachers to education. All teachers in Sobral earn salaries above the national minimum wage for teachers and receive a monthly bonus for the extra time they spend teaching.²⁸ Additionally, they receive an individual bonus if their class performs above the average and the school level award, the *Escola Aprender Melhor*²⁹ prize. In 2019, the average wage of teachers was US\$1,100 and the performance bonus consisted of six installments of US\$55 each.³⁰ In addition to recognizing teachers' importance, monetary incentives help target efforts toward learning. Likewise, the municipality provides non-financial rewards, such as honors and celebrations to boost teacher's prestige. Perhaps the greatest non-pecuniary recognition is the Municipal Teachers' School created in 2006. The school is not only responsible for training, but it also conducts the interviews in the selection process of teachers, pedagogical coordinators, and principals; provides tutoring for new teachers who are in the probationary period; trains pedagogical coordinators; and produces teaching

²⁴ Decrees 309/2001 and 572/2003.

²⁵ Decree 983/2007.

²⁶ Portaria 127/2012.

²⁷ Sobral Municipal Law 1693, 2017.

²⁸ The Brazilian law determines that teachers should set one-third of their working hours to lesson planning and training. How and where teachers use this time varies with education networks. In Sobral, teachers are expected to perform these activities either at their schools or at the Teachers' Training school allowing the pedagogical coordinator and the Secretary of Education to monitor and support them. As a result, teachers in Sobral use their time more efficiently and spend 20, not 33 percent with planning and training. In the remaining time, they are teaching and the municipality pays the 13.33 percent extra time they spend in classroom.

²⁹ Those bonuses were established between 2001 and 2002. There is evidence about the impact of bonus policies both nationally and internationally (Bruns, Filmer, and Patrinos 2011). In Brazil, studies identified positive impact of bonus on students' performance in Pernambuco (Bruns and Ferraz 2011) and São Paulo (Oshiro and Scorzafave 2015).

³⁰ Exchange rate US\$1 = R\$3.65.

materials.³¹ Whereas in most places in Brazil those activities are performed by academics, in Sobral they are conducted by experienced teachers from the municipal network and with classroom experience.

3.6. Autonomous and Accountable School Management

Managing a school is a matter of learning and not politics. Sobral has decided to select principals and pedagogical coordinators through a structured and technical process. School principals in Brazil have been typically politically appointed or elected by the school community. In 1997, Sobral established a meritocratic process in which principal and pedagogical coordinator candidates are chosen based on their technical knowledge and pedagogical experience.³² A municipal law regulates the selection that consists of five stages—written exam, leadership training, group dynamic presenting distinct situations at the school, interview, and resume assessment—that takes four months. Principals are appointed for three years but can either be dismissed in case of poor performance or continue in the position if their work is satisfactory.³³ The technical criteria gained teachers’ support and empowered school leadership. The benefits of this process to the learning outcomes are widely recognized among educators and the school community in Sobral.

Skilled leadership allows a high level of school autonomy associated with results-based accountability. Appointing qualified professionals to lead schools is the basis for providing them pedagogical, administrative, and financial independence with a corresponding responsibility. Principals administer daily expenses at school,³⁴ which raises efficiency in solving maintenance problems and releases time of the secretariat team to focus on pedagogical supervision.³⁵ In 2001, Sobral created the FUNDAE,³⁶ which provides schools the means to pay for utilities such as electricity and water, maintenance, and small repairs. The distribution of fund’s resources is made according to student enrollment (70 percent) and the fulfillment of specific criteria established by the Secretariat of Education (30 percent). Those relate to

³¹ ESFAPEGE is a nonprofit organization created in 2006, which has signed a management contract with the Sobral municipal government to deliver teacher training, prepare structured materials, and others. It is considered part of Sobral’s education policy and directly trains teachers and pedagogical coordinators. Its employees (those who train teachers) are selected by a technical process, which assesses a candidate’s resume and training abilities. Candidates are asked to prepare a class, which is evaluated based on (a) elaboration and usage of lesson plans, (b) how the candidate conducts the class, (c) content domain/technical skills, (d) methodological procedures, and (e) class duration.

³² The implementation of a merit-based process for selecting school directors and pedagogical coordinators, free from any political influence, is considered a key factor for the effectiveness of the reform. From 2011 to 2016, three selection processes were carried out to change all the principals and pedagogical coordinators.

³³ The Secretary of Education appoints principals to schools, who in turn choose their pedagogical coordinators, among the list of approved candidates.

³⁴ The creation of the national Fund for the Development and Autonomy of School (FUNDAE) supported this action. The fund transfers directly to the school bank account a per-student grant to defray maintenance costs, such as water, energy, gas and telephone bills, and pay for small repair and maintenance services; electric, plumbing, and electronic materials; and literature books, videos, games, and educational toys.

³⁵ For details on this link, see Bruns, Filmer, and Patrinos (2011) and Hanushek and Woessmann (2007).

³⁶ For details, see the Municipal Law 318 from 2001.

process indicators to prevent bad management practices, as well as learning targets.³⁷ Thus, the increase in autonomy is accompanied by higher accountability for students' performance. The school was held responsible for achieving clear learning goals established in partnership with the Secretariat of Education. Principals receive an annual performance bonus together with all educators from schools that achieve learning targets, the *Escola Aprender Melhor* prize.

School autonomy is accompanied by substantial support from the Secretariat of Education to strengthen the role of pedagogical coordinators. The Secretariat of Education has a specific pedagogical unit to support schools in school management and pedagogical practices. Pedagogical unit professionals regularly visit schools and meet the principal and the pedagogical coordinator to discuss students' learning improvement and teacher professional development. They work together with the coordinator to develop a routine of pedagogical support for teachers, including planning, classroom observation, feedback, and analysis of learning evaluations. In addition, they monitor time management including checking whether classes start punctually and teachers make an effective use of their classroom time, observe school climate, and verify schools' strategies to assure student attendance. Ultimately, the Secretariat of Education aims to support the pedagogical coordinators who are primarily responsible for student learning and teacher professional development.

Parents are held accountable for their responsibilities with student learning and the community is involved in school life. Parents' contribution to children's education was promoted since 1997 with the reorganization of primary education into bigger schools. At that moment, the mayor and the Secretariat of Education were in constant dialogue with the communities. After that, this relationship started to be led by schools, especially by monitoring student attendance. When a child is absent, the school leadership calls the family and may visit them to understand the reason for the child missing school. The results of learning assessments are presented to parents since 2001. Parents are aware of the school's learning goals that are discussed in regular meetings with the community. Schools are seen as a safe environment that is promoting children's development and so are respected by the community.

³⁷ There are five process indicators and some learning goals. The indicators are the following: (a) follow the school meal menu, (b) pay consumption bills on time, (c) send data to the Secretary of Education on time, (d) organize meetings with parents, and (e) send attendance report. The learning goals refer to students' attendance, school-delay, and literacy rates.

4. Which of the factors were more important to the success in education in Sobral?

The education policies in Sobral drove down school dropout rates and dramatically improved learning outcomes. Rigorous research has confirmed that it was the policies that drove improvements, not other factors. A quasi-experimental study³⁸ analyzes the performance of schools in Sobral on reading and mathematics in the national learning assessment (Prova Brasil) and finds positive and significant results in the short and long term for reading and long-term effects for mathematics in primary education. The impact is higher for mathematics than reading. For early secondary education, the results on learning are positive but not significant (Rocha, Menezes-Filho, and Komatsu 2018). Nevertheless, the reform produced a positive and significant impact on school dropouts for both primary and early secondary education (Bezerra et al. 2018).

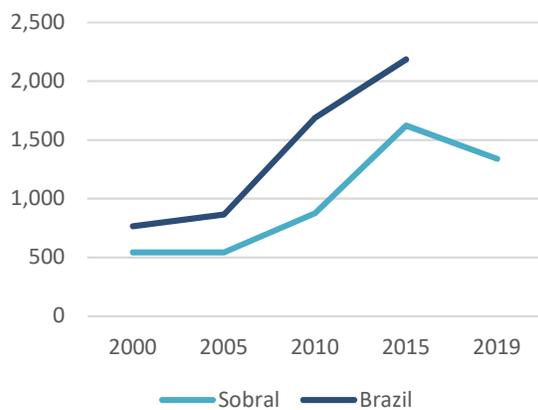
The existing research indicates that the success of Sobral in education is related to a set of measures that reinforce each other, suggesting they are more likely to succeed together than if implemented separately. The Ministry of Education recognized Sobral as a best practice and compiled the main elements of the reform under a preparatory stage with the reorganization of schools, the learning diagnostic, and the establishment of targets; pedagogical practices; monitoring student learning; and enhanced school management (INEP, 2005). Other publications also highlight the initial diagnostic, the learning targets, and the first pedagogical changes (Maia 2006; Oliveira 2013). There are a few qualitative and quantitative comparisons of a group of successful schools and municipalities in which Sobral is included that emphasizes the importance of pedagogical and classroom management, learning monitoring (Lemann and Itaú BBA 2012; Lemann, Itaú BBA, and Instituto Credit Suisse Hedging-Griffo 2015) and political coalition (Pontes 2016). Becskeházy (2018) attributes Sobral's success to political leadership, structured literacy policy, and effective school and pedagogical management. Analyzed together, these papers suggest that the complementarities among the key elements in Sobral seem more likely to succeed together than if they were tried individually.

³⁸ It considers students of grades 5 and 9 between 2005 and 2011. It applies a propensity-score matching technique to form a control group of Brazilian public schools with similar characteristics and uses a differences-in-differences approach to assess the impact.

5. How does Sobral afford education policies to lead it to the top of education quality in Brazil?

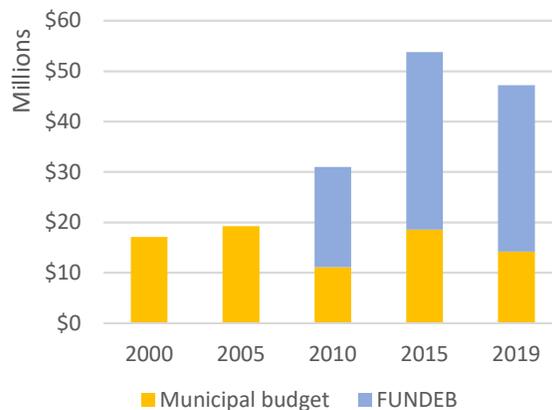
The education expenditure in Sobral is very efficient, with per-student spending being below the Brazilian average and learning outcomes being substantially higher. Since the creation of state funds to education financing (FUNDEF and FUNDEB) and considering the decrease in fertility rates, the public investment per student in Brazil significantly rose (Figure 11).³⁹ Between 2001 and 2015, the education budget and the expenditure per student almost tripled in Sobral, the latter going from US\$543 to US\$1,340 (Figures 12 and 13). Still, this amount is significantly below the Brazilian average of US\$2,184. Between 2002 and 2014 the education expenditure per capita in the country increased by 83 percent, but education outcomes did not follow the same rate. And as shown in Figure 13, for the same level of expenditure per student, there is a wide variety of education results. Municipalities in Ceará stand out as being high efficiency, and Sobral, represented in the green dot, has a much lower expenditure in comparison to other municipalities with similar education results. Spending an average of US\$1,340 per student in 2019, Sobral afforded its own teachers’ training school, an independent evaluation office, monetary incentives to teachers and principals, and expanded coverage of ECE centers and full-time schools.

Figure 11: Average Expenditure per Student (ECE, Primary and Lower Secondary Education), Sobral and Brazil, US\$ 2019 Prices



Source: World Bank with data from INEP/MEC (Education Financing Indicators) and Sobral’s Budgetary Expenditure Report (QDD) from the Budgetary Annual Law

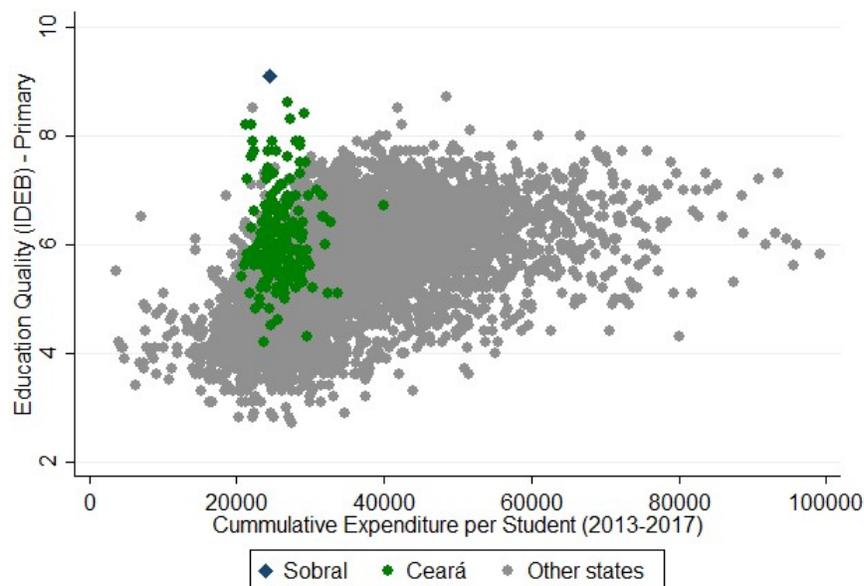
Figure 12: Education Budget in Sobral, 2000–2019, US\$ 2019 Prices



Source: World Bank with data from Sobral’s Budgetary Expenditure Report (QDD)

³⁹ FUNDEB was created in 2007, substituting FUNDEF. The former greatly increased investment in education, as it included student enrollment in ECE and secondary education in the amount transferred to subnational units. With FUNDEB, municipalities were asked to indicate in their budget the share of expenditures financed by the fund.

Figure 13: Education Quality Results (IDEB) in Primary Education vs. Cumulative Expenditure per Student, Municipal School Networks, 2013–2017



Source: World Bank with INEP/MEC data.

The reorganization of the school system allowed the municipality to better target resources, increasing efficiency. By grouping students in larger schools to eliminate multi-grade classrooms in primary and lower secondary education, Sobral concentrated efforts on improving schools’ infrastructure, providing public transportation to students and better training for teachers. For instance, in 2019, the annual spending on transportation was US\$3.5 million, teachers’ training accounted for US\$770,000, or US\$660 per teacher and the student learning assessments that take place twice a year cost US\$650,000 or around US\$3 per student per test (US\$1 = R\$3.65). The efficiency of Sobral, in comparison to Ceará and Brazil, can be expressed through the average class size and student per teacher ratio (Figures 14 and 15).⁴⁰

⁴⁰ Between 2007 and 2018, student enrollment in municipal public networks increased 8.7 percent in Sobral, while in Ceará and Brazil it decreased 18 percent and 3.5 percent, respectively. Population size, in turn, increased 13 percent in Sobral, 9 percent in Ceará, and 13 percent in Brazil. Despite the increase in student enrollment along the years, average class size reduced in Sobral.

Figure 14: Average Class Size, Municipal School Networks, Sobral, Ceará, Brazil, 2007–2018

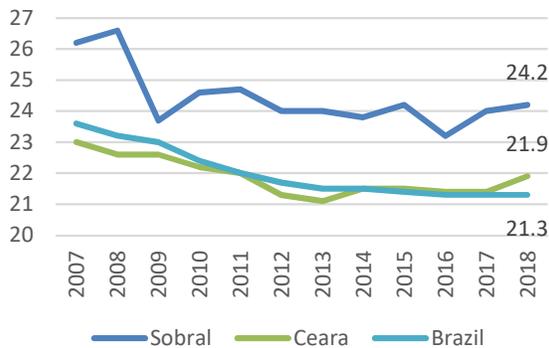
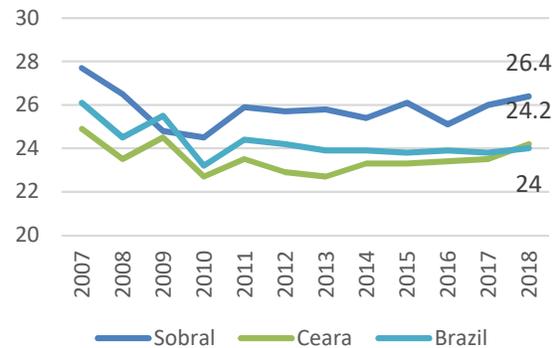


Figure 15: Pupil-Teacher Ratio (Full-time Equivalent), Municipal School Networks, Sobral, Ceará, Brazil, 2007–2018



Source: World Bank with INEP/MEC data.

Education budget in Sobral increased along the years and currently represents one-quarter of the municipal budget. Like many places in Brazil, education spending is allocated in current expenses. In 2000, education accounted for 14 percent of the municipal budget. The development of the education policy and the subsequent positive outcomes made education gain more space in municipal budget, rising to 18 percent in 2010, 27 percent in 2015, and currently representing 24 percent of the total budget (Figure 16).⁴¹ Quite similar to many municipalities in Brazil, the education budget is mostly allocated in current expenses. Human resources take up a great part of the budget, at 53 percent, but there are also other current expenses that relate to the maintenance of the education system.⁴²

Figure 16: Education Budget as a Share of Municipal Budget in Sobral, 2000-2019, USD 2019 prices

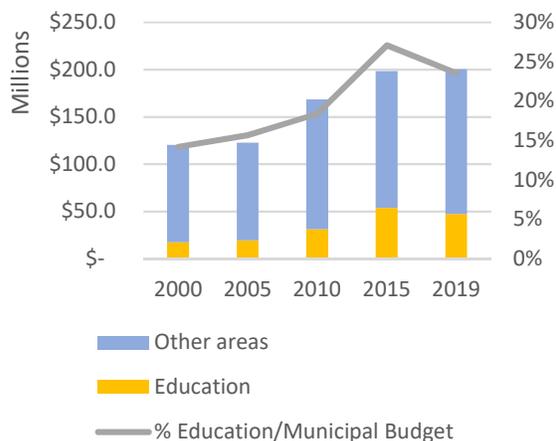
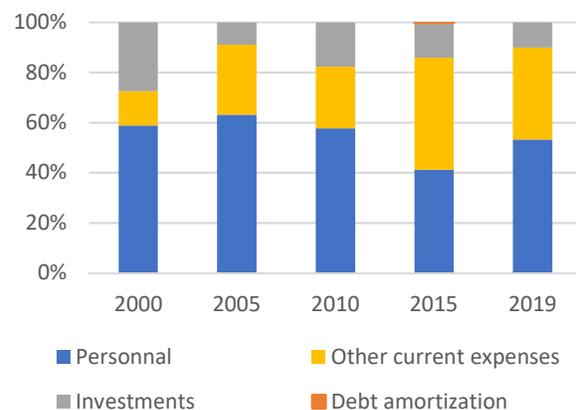


Figure 17: Education Budget in Sobral by Nature of Expense, 2000–2019



Source: Budgetary Expenditure Report (QDD).

⁴¹ The data presented in figure 16 should not be confused with the constitutional obligation to spend 25 percent of municipal revenues and transfers in education. Additionally, it is worth-mentioning that in 2000, Education and Culture belonged to a single secretariat in Sobral and their budget represented 19 percent of municipal budget.

⁴² Details about the cost of some projects and expenditure per education level are presented in Annex 6.

6. Can Sobral's success in education be replicated elsewhere?

Many school systems have already implemented some elements of Sobral's education policy but the challenge is carrying out all pillars in a well-sequenced manner. For any program or activity under the pillars of the education policy in Sobral, one can find another school system in Brazil and around the globe that have already implemented a similar strategy. However, few school networks in developing countries have implemented most activities and programs as comprehensive and well-connected as the education policy in Sobral. Governments that already have similar programs can benefit from the experience of Sobral by fostering the coordination and comprehensiveness of their activities. At the same time, the case of Sobral shows that it is possible to implement such a reform even departing from a context of low technical capacity and very poor education outcomes.

The first step consists of identifying a high level of political commitment to education reforms, followed by a learning diagnostic, the establishment of learning goals, and the provision of teacher training. The most important step is to ensure that the head of the government is willing to commit to Sobral-like education reforms and has the ability to dialogue with stakeholders. Then, a learning assessment of students at grades 1 and 2 sheds light on the problem and establishes a baseline to learning targets. Baseline results are communicated to society and teachers to raise awareness about the issue and are covered in detail in the teacher in-service training. The learning targets guide the system toward student learning monitoring and strengthening of teachers' practice, shaping the pedagogical planning and managerial practices at the school and the Secretariat levels.

The focus on literacy is a logical step from a pedagogical, policy making, and political standpoints. Strong literacy skills are the basis for the success of students in the next stages of the education ladder. For policy making, it is a concrete step in education policy that strengthens middle management, promotes meritocracy, sets incentives, and structures student learning assessments, which ultimately enables other grades and subjects to build upon them. Politically, literacy targets provide short-term outcomes that can be achieved in one term of administration. In four years, Sobral was able to ensure that all students at grade 2 were literate. In four years, it achieved a clear and decisive learning goal, while it prepared its system to support further educational challenges.

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Annex 1: Sobral's Location in Brazil



Source: World Bank elaboration with IBGE data

Annex 2: How Is IDEB Calculated?

The Portuguese acronym IDEB stands for the Index of Basic Education Development (*Índice de Desenvolvimento da Educação Básica*) and it assesses the final years of each educational level (grade 5, the end of primary education; grade 9, the end of lower secondary education; and grade 15, the end of upper secondary education). IDEB is calculated every two years by the National Institute of Education Statistics (INEP), part of the Federal Ministry of Education (MEC), and follows the formula

$$IDEB_{ji} = N_{ji} P_{ji},$$

where $0 \leq N_j \leq 10$; $0 \leq P_j \leq 1$; and $0 \leq IDEB \leq 10$

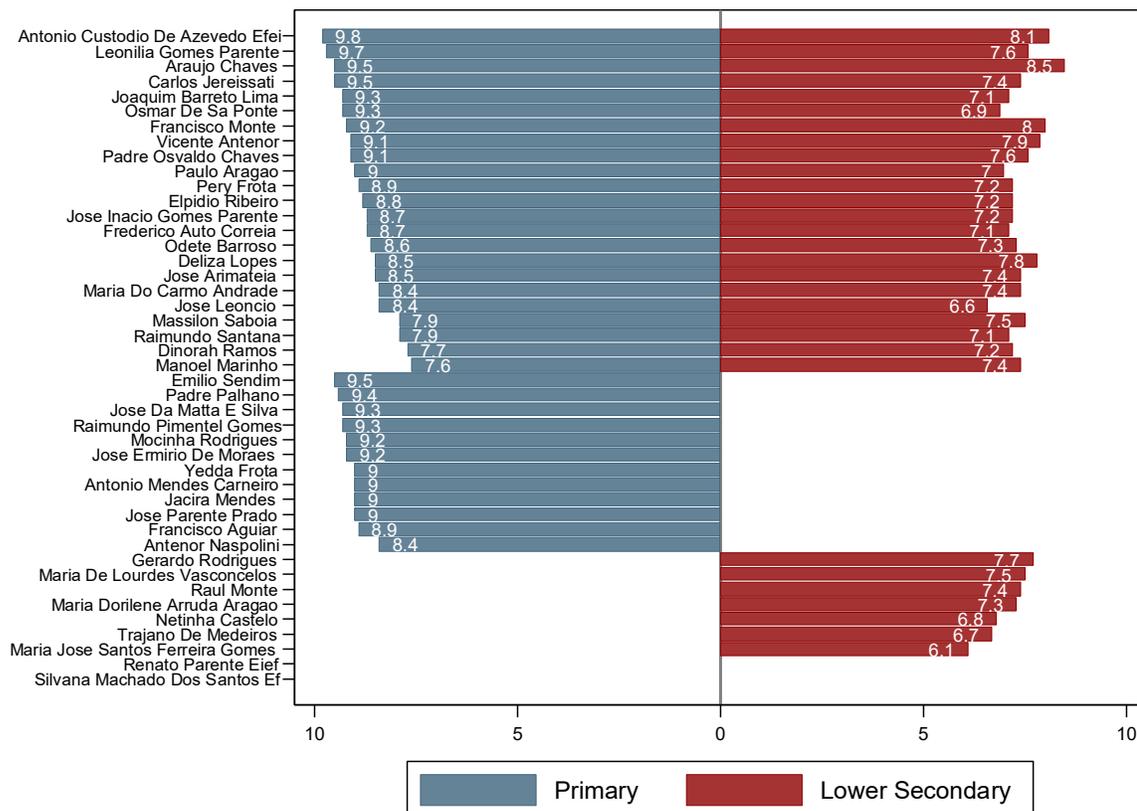
N = Students' average proficiency in Portuguese and mathematics (SAEB) standardized to a 0–10 scale;
 P = Average approval rate of all grades that comprise the education level (grades 1–5 for primary education and grades 6–9 for lower secondary);

i = Year;

j = Level of analysis (school, municipalities, states, federal level);

Therefore, the index incentivizes education networks to reduce dropouts and repetition rates without jeopardizing education quality and vice versa. This report focuses on IDEB's results for primary and lower secondary education.

Figure 2.1: Municipal Schools in Sobral IDEB, Primary and Lower Secondary Education, 2017



Source: World Bank with INEP/MEC data

Note: As it happens in most school networks in Brazil, most schools offer more than one level of education.

Annex 3: Characteristics of Educational System by Level of Education

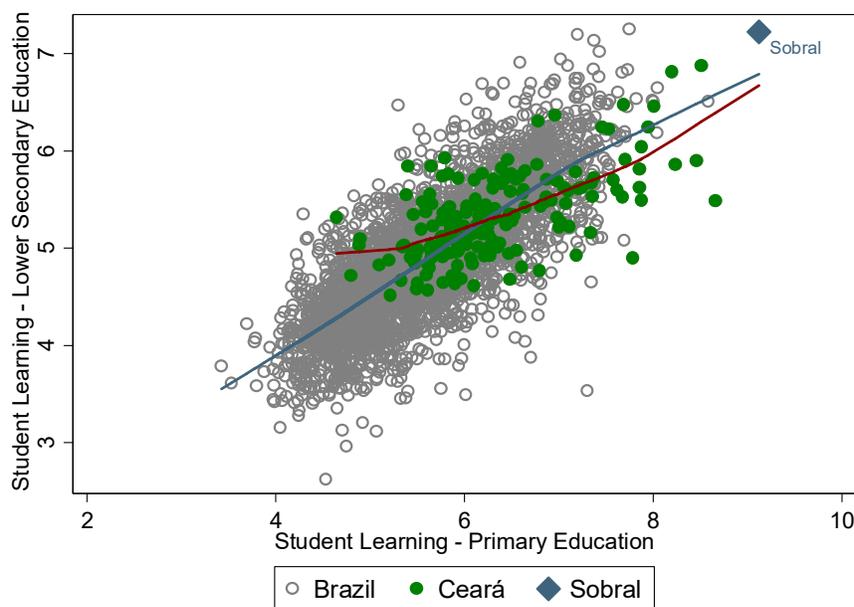
	ECE				Primary Education			
	Number of students	Number of teachers	Student-teacher ratio	Number of schools	Number of students	Number of teachers	Student-teacher ratio	Number of schools
Sobral (municipal schools)	9,827	375	26.2	82	11,483	355	32.3	34
Ceará (municipal schools)	314,151	22,805	13.8	6,914	4,84,642	23,633	20.5	3,558
Ceará (state schools)	1,103	199	5.5	56	3,264	280	11.7	43
Ceará (municipal, state and federal schools)	315,308	23,005	13.7	6,972	4,87,906	23,903	20.4	3,601
Brazil (municipal schools)	6,405,337	435,247	14.7	114,271	10,159,653	4,77,149	21.3	74,832
Brazil (state schools)	58,907	3,979	14.8	971	1,972,420	99,223	19.9	10,896
Brazil (municipal, state and federal schools)	6,466,941	439,519	14.7	115,283	12,139,338	5,67,897	21.4	85,755
	Lower secondary				Upper secondary			
	Number of students	Number of teachers	Student-teacher ratio	Number of schools	Number of students	Number of teachers	Student-teacher ratio	Number of schools
Sobral (municipal schools)	9,798	421	23.3	30	0	0	0	0
Ceará (municipal schools)	427,603	23,237	18.4	2,398	0	0	0	0
Ceará (state schools)	14,891	1,427	10.4	98	323,222	15,957	20.3	662
Ceará (municipal, state and federal schools)	442,919	24,597	18.0	2,497	328,226	16,706	19.6	680
Brazil (municipal schools)	5,102,012	333,533	15.3	28,797	40,565	3,255	12.5	188
Brazil (state schools)	4,949,437	308,049	16.1	18,922	6,266,820	391,008	16.0	1,9678
Brazil (municipal, state and federal schools)	10,067,286	618,751	16.3	47,758	6,531,498	421,504	15.5	20,452

Note: Regarding number of schools and number of teachers, consider that the same teacher can work in more than one educational level, and schools can provide more than one level.

Annex 4: Student Learning in Sobral and other Municipalities in Brazil

Sobral is an outlier in Brazil in terms of education outcomes with a high level of equity. The average level of student learning in the Sobral municipal network is by far the highest in Brazil. The test scores of the SAEB in 2017 for the Brazilian municipal networks at both primary and lower secondary are plotted in Figure 4.1, where it is possible to observe how Sobral has an average level of learning that is a positive outlier in Brazil. The education outcomes in Sobral are also equitable, with all schools with IDEB scores above 6, which is considered an adequate level by the ministry of education.

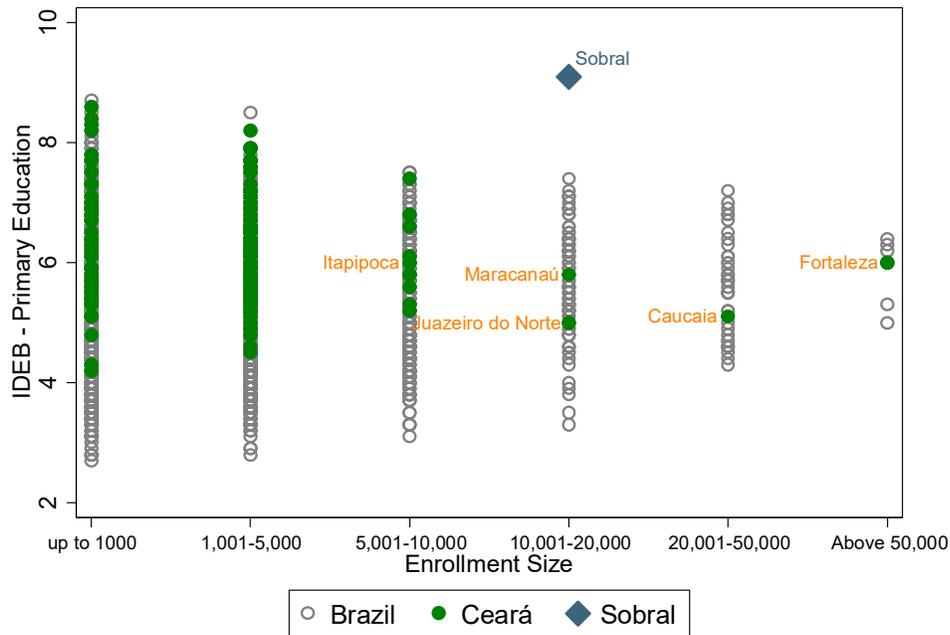
Figure 4.1: Student Learning (Measured by the National Standardized Test, SAEB): Primary Education vs. Lower Secondary, Municipal School Networks, 2017



Source: World Bank with INEP/MEC data

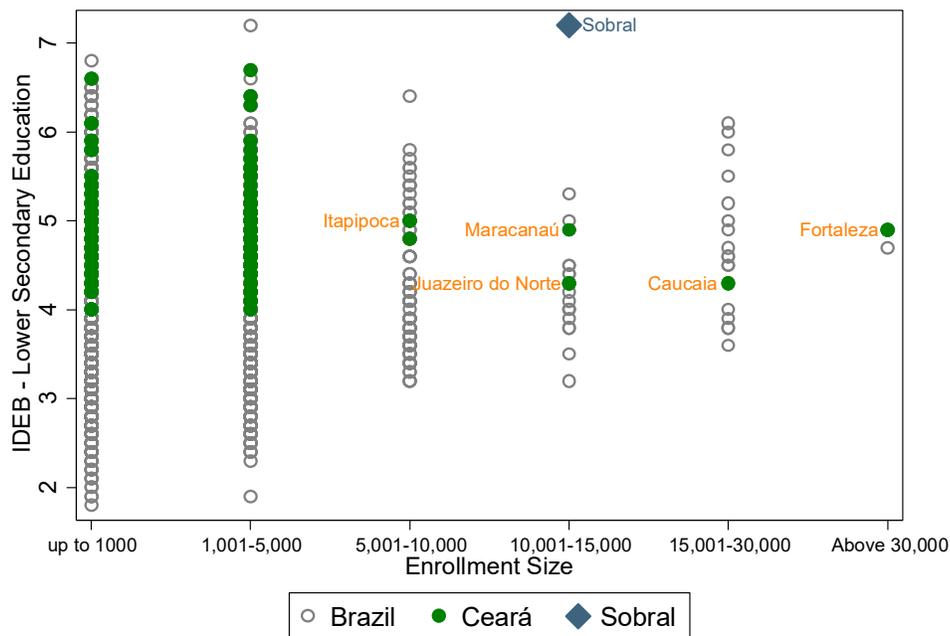
Education outcomes in Sobral are more prominent when compared with school networks with similar size. The prominence of Sobral in terms of education quality is more evident when compared with other municipal school networks of similar size in terms of enrollment. As shown in Figures 4.2 and 4.3, Sobral stands out substantially in the IDEB ranking considering only the group of peer municipalities in terms of size, and it is clear that the other municipalities that have similar levels of IDEB are significantly smaller and have a lower level of complexity.

Figure 4.2: Education Quality in Primary Education Measured by IDEB, by the Size of School Networks, 2017



Source: World Bank with INEP/MEC data

Figure 4.3: Education Quality in Lower Secondary Education Measured by IDEB, by the Size of School Networks, 2017



Source: World Bank with INEP/MEC data

Annex 5: Example of a Classroom Routine for Grade 1

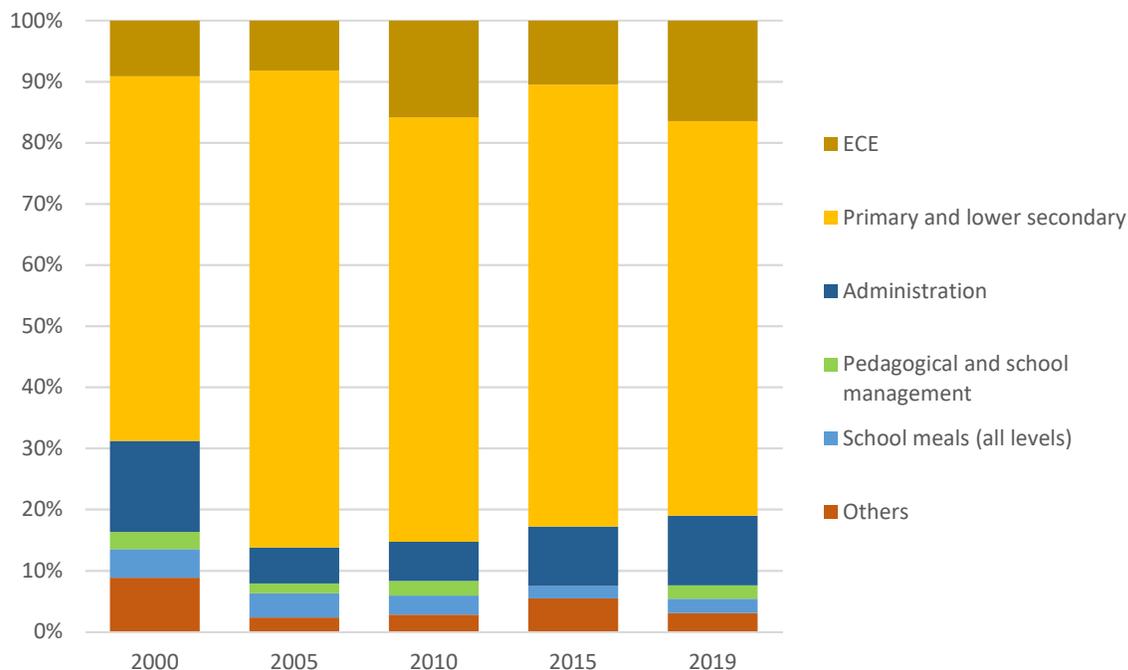
ROTINA SEMANAL – 1º ANO

HORÁRIO	SEGUNDA	TERÇA	QUARTA	QUINTA	SEXTA
05 min	Acolhida/ Frequência				
10 min	Correção da Atividade de Casa				
30 min	Consciência fonêmica e Princípio Alfabético – MCF				
25 min	Leitura / Compreensão textual - MP e Livro Aprender a Ler	Leitura / Compreensão textual - MP e Livro Aprender a Ler	Leitura / Compreensão textual - MP e Livro Aprender a Ler	Leitura / Compreensão textual - MP e Livro Aprender a Ler	Leitura / Compreensão textual - MP e Livro Aprender a Ler
20 min	Caderno de Atividade – LP Implementação do Currículo	Caderno de Atividade – LP Implementação do Currículo	Caderno de Atividade – LP Implementação do Currículo	Caderno de Atividade – LP Implementação do Currículo	Caderno de Atividade – LP Implementação do Currículo
20 min	Intervalo	Intervalo	Intervalo	Intervalo	Intervalo
25 min	Exercício de Leitura: Decodificação e fluência	Exercício de Leitura: Decodificação e fluência Artes – Novo Girassol			
40 min	Matemática - IAB	Caderno de Atividade – MAT Implementação do Currículo	Matemática - IAB	Caderno de Atividade – MAT Implementação do Currículo	Matemática - IAB
20 min	Ciências - IAB	Matemática – Coopera/Novo Girassol	Ciências - IAB	Matemática – Coopera/Novo Girassol	Ciências – Ligados.com
15 min	Coopera LP/Novo Girassol LP				
20 min	Exercício de Escrita: Ditado, Caligrafia, Produção Textual e Reescrita	Exercício de Escrita: Ditado, Caligrafia, Produção Textual e Reescrita	Exercício de Escrita: Ditado, Caligrafia, Produção Textual e Reescrita	Exercício de Escrita: Ditado, Caligrafia, Produção Textual e Reescrita	Exercício de Escrita: Ditado, Caligrafia, Produção Textual e Reescrita
10 min	Atividade de Casa	Atividade de Casa – Coopera LP/Novo Girassol LP	Atividade de Casa – Coopera LP/Novo Girassol LP	Atividade de Casa – Coopera LP/Novo Girassol LP	Atividade de Casa – Coopera LP/Novo Girassol LP

Annex 6: Education Budget Composition

Sobral has established foundational policies and builds upon them, as strengthening literacy and expanding ECE to gradually invest on full-time schools and support its former students. The priorities set by education policy makers reflect on their budget composition. Sobral evolved from non-pedagogical and multisector activities in 2000, to a special focus on reading and remedial education in 2005 and structuring school libraries and new ECE facilities in 2010. Focusing on lower secondary education and the construction of full-time schools is noted in the 2015 budget. In 2019, the Secretariat of Education started new projects to support youth in Sobral to continue its educational path by providing training on entry exams to university and scholarships for undergraduate students. The expansion of ECE is an ongoing project and in 2019 Sobral established a fund for ECE autonomy, similar to FUNDAE that applies for primary and lower secondary schools. The graph below also indicates what is exclusively spent on ECE and primary and lower secondary levels, as well as the administrative costs, the pedagogical and school management costs and, lastly, the school meal program.

Sobral Education Budget Composition, 2000–2019



Source: Sobral Budgetary Expenditure Report.