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Lucienne Talba  
Erwin-Sékolène Eyebiyi  
Mireille Dagniho

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## Abstract

The focus of this study is twofold: the first objective is to investigate the extent of educational inequality—defined as disparity in educational attainment by students from different socio-economic groups. It draws upon the Living Standards Measurement Study (LSMS) data source in Benin. The analysis shows a considerable disparity in educational attainment, with students from rural areas and northern regions of the country experiencing the lowest educational attainment. The second objective is to explore the impacts of COVID-19 on learning performance, measured through dropout and success rates. Using unique Beninese administrative data, it shows that the dropout rates increased during the year of the pandemic, with schools located inside the poor regions and outside the sanitary cordon witnessing the steepest increases. However, the success rate did not decrease in 2020. Tutoring organised by parents' associations to ensure the continuity of educational activities contributes to this performance.

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## Acronyms and abbreviations

<b>AFDB</b>	African Development Bank
<b>CONFEMEN</b>	Conference of the Ministers of Education of French speaking countries
<b>CPE</b>	Certificate of Primary Education
<b>FGD</b>	Focus Group Discussion
<b>KII</b>	Key Informant Interviews
<b>ICT</b>	Information and Communication Technology
<b>MEMP</b>	Ministry of Nursery and Primary Education
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization
<b>UNICEF</b>	United Nations International Children's Emergency Fund

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# COVID-19 and educational inequality in Benin


Lucienne Talba  
Erwin-Sékolène Eyebiyi  
Mireille Dagniho

## Introduction

In 2006, Benin eliminated all tuition fees for pre-school and primary public-school students through the Free Primary Education (FPE) policy (Degbe, 2022). The government also pledged to intensify efforts to support both pre-school and primary education with the provision of more resources to schools, teachers, parents, and students to achieve higher enrolment levels (Somasse, 2020). The aim of these measures was to reduce disparities in access to, and the quality of, education created by location, wealth, and gender differences. This policy shift spurred a significant

surge in primary school enrolment over the subsequent years. Prior to the enactment of the FPE, in 2005, the net enrolment rate was 77%, but by 2011, it had jumped to 91% (African Development Bank [AFDB], 2014). From 2005 to 2011, the portion of government education funding allocated to primary education grew from 52% to 56%, which coincided with a 49% increase in the number of schools (Somasse, 2020). In the same period, notable advancements were made in terms of gender equality, especially among girls from economically disadvantaged backgrounds, with girls' non-enrolment rates decreasing to 39%, edging closer to the 22% seen among the top income brackets (Somasse, 2014).

However, progress on education has stalled and even reversed since 2015, and was further compounded by the unprecedented challenge of the COVID-19 pandemic. To curb the virus's spread, the Benin government enacted a nationwide shutdown of all educational facilities from March 27, 2020 to May 10, 2020 (World Bank, 2020). This public health measure, necessary as it was, resulted in the temporary closure of



**Progress on education has stalled and even reversed since 2015, and was further compounded by the unprecedented challenge of the COVID-19 pandemic.**

approximately 16,000 schools at all levels of education (World Bank, 2020). The immediate impact was profound, disrupting the education of over 3.3 million students and affecting about 88,000 educators (World Bank, 2020). The pandemic's ripple effects threatened to reverse the gains made in educational access and gender parity, underlining the fragility of such advancements in the face of global crises.

Despite attempts to maintain learning continuity by the Beninese government,<sup>1</sup> a considerable number of students, mostly from low-income backgrounds and from the rural Northeast, disengaged from school (UNESCO, 2023). Girls and young women were disproportionately affected, as there were many instances of girls discontinuing education due to enforced marriages and pregnancies (Bodo, 2022). During the 2021-2022 academic year, over 1,120 cases of early and unplanned pregnancies were reported in the region's secondary schools (UNESCO, 2023).

As such, this study investigates the impact of COVID-19 on educational inequalities in Benin, with a particular emphasis on primary education. The choice of Benin as a case study is twofold; firstly, the country demonstrated subpar performance against Sustainable Development Goal 4 in 2021, scoring 36.5 out of a possible 100 points (De la Mothe Karoubi & Toure, 2022). This underperformance is largely attributed to high dropout rates among primary and lower secondary school students during the pandemic (De la Mothe Karoubi & Toure, 2022). In addition, this trend raises the question of whether this is the result of government policies implemented to mitigate the spread of COVID-19. Secondly, Benin's pandemic management strategy warrants closer scrutiny. Instead of imposing a blanket lockdown, the country established a selective sanitary cordon that covered only 12 to 15 departments identified as high-risk areas for virus transmission. This strategy resulted in varying social and business restrictions across the nation, with only those within the sanitary cordon experiencing the most stringent measures. Hence, the situation in Benin provides a useful context to explore the impact of selective COVID-19 responses on educational performance.

This study of pre-existing educational inequalities in Benin utilises data from the World Bank's Living Standards Measurement Study (LSMS) for 2018-2019, focusing on students aged 6 to 13, and examines disparities across regional, wealth, and gender divisions using the Gini index method. Additionally, the study explores the effects of school closures on educational inequality by leveraging data from the Beninese Primary

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<sup>1</sup> In response, the government of Benin implemented a set of solutions to adapt, such as (i) supporting continuity of learning, (ii) anticipating the need to reopen schools and support safe school practices, and (iii) building system resilience. More importantly, to minimise the negative effects of school closures on student learning outcomes, the Beninese government established distance learning systems through radio and television, particularly for students in exam classes.

Education Certificate (2019-2021), which includes details about school success rates, dropout rates, enrolment rates, and geographical variables. The focus is on two key outcomes: dropout rates and academic performance as measured by the Beninese CPE exam pass rate. The study also incorporates qualitative analysis through focus group discussions (FGDs) with teachers and parents to further understand the relationship between school closures and educational inequalities. The combination of these methods and data sources presents a multifaceted view of the educational landscape, providing insights that can guide policy and decision-making.

As such, this research builds upon and contributes to the existing body of literature investigating the COVID-19 pandemic's impact on education in low-income countries. Previous studies have addressed aspects such as its effects on the educational system (Tarkar, 2020), student dropouts and affordable private education (Datzberger & Parkes, 2021), learning loss (Angrist et al., 2021), and the overall lives of adolescents (Datzberger et al., 2023). Our work adds to this body of research by examining the implications not just for learning performance but also for dropout rates.

The rest of this paper is organised as follows. The following section 2 explores the pre-existing inequalities in Benin's primary education system, in order to contextualise the further impacts of COVID-19 and pandemic response measures on educational quality and achievement. Section 3 then considers the impacts of policy response such as school closures on dropout rates and learning outcomes. Section 4 outlines the methodology and data utilised to assess the specific impact of COVID-19 responses on primary education in Benin. Section 5 identifies this paper's findings on the impacts of COVID-19 responses on educational outcomes in Beninese primary schools, looking specifically at school dropout rates and performance on the CPE exams. Section 6 concludes the analysis and offers implications for this paper's findings, and section 7 offers recommendations to policymakers to address the issues identified.

## **Literature Review**

### *Already declining educational indicators before COVID-19*

Like other sub-Saharan African nations, Benin has made substantial efforts to enhance educational accessibility, particularly for disadvantaged groups (Adekou, 2019). These efforts encompass abolishing school fees, establishing school canteens, distributing school kits including items such as textbooks, pencils and notebooks in regions with low attendance, constructing and furnishing numerous classrooms, providing grants to public and secondary schools, and hiring and retaining many more teachers (Adekou, 2019). While these initiatives have significantly improved access to

education, as evidenced by the surge in child enrolment over the years, progress made in improving educational access appears to have reversed since 2015, with both gross enrolment and completion rates in public primary education markedly deteriorating (Somasse, 2020).

The gross enrolment rate in primary education has declined over the 2014-2019 period, slipping from 124.82% in 2015 to 117% in 2019. This downward trajectory contrasts sharply with the growth observed during the 2011-2015 period (World Bank, 2019). The decrease in the gross enrolment rate is partly attributed to the reduced number of children above the age of 11 attending primary school (MEMP, 2018). A closer look at enrolment data indicates that while many children start primary education, a significant portion fail to complete the primary schooling cycle. This is evidenced by the continuous drop in the primary school completion rate, from 81% in 2015 to 64% in 2019 (World Bank, 2019).

A 2020 report by the Ministère D'etat Chargé Du Plan Et Du Développement (MPD) and United Nations International Children's Emergency Fund (UNICEF) proposes that this declining trend might stem from the increasingly selective approach adopted by school principals when promoting students to the final grade of primary school. This has been triggered by the state's new regulations that entail the dismissal of principals based on their students' poor performance in the Certificate of Primary Studies. Consequently, transition to the final primary school grade has become more stringent. The result is a decreased primary completion rate as the number of students allowed to advance to this grade is capped.

### *Education performance before the COVID-19 pandemic*

Regarding performance in school, the national primary school completion exam results highlight that a significant percentage of children fail to meet the requisite knowledge standards for their level. In 2015, the overall success rate for the school completion exam stood at 86%. The success rate for the Certificate of Primary Education (CPE) observed a dip in 2019 (84.4%) compared to 2015.

The 2019 report by the Program for the Analysis of Education Systems (PASEC), which assessed French-speaking sub-Saharan African students at the beginning and end of primary school, also painted a mixed picture of Beninese primary students' proficiency in essential skills like reading and mathematics. A concerning 62.4% of students were found to be below the minimum proficiency level in the language of instruction at the start of primary education. However, by the end of primary school, 75% were above the required language proficiency level.

Furthermore, the 2019 report shows that in mathematics, 62% of students in early-stage primary school met the standards, but this figure decreased to 51.6% by the end of primary school. The proficiency improvement in language performance observed from early to late stages of the primary cycle suggests that the Beninese education system successfully bridges the knowledge gaps in reading over the course of a student's schooling.

Despite these mixed outcomes, the 2019 PASEC assessment report showed marked improvement from its 2014 assessment regarding student proficiency in language/reading and mathematics. In fact, Benin demonstrated the second-most substantial improvement in average performance in reading (+66.5pp) and mathematics (+70.4pp) for students at the beginning of primary education, and likewise in reading (+62.3pp) and mathematics (+36.9pp) for students finishing primary education. This progress is particularly notable considering that Benin ranked second-lowest out of the ten assessed countries in 2014.<sup>2</sup>

### *Group disparities before COVID-19*

In Benin, several factors have been identified as contributing to educational inequality. According to recent studies (Somasse, 2020; PASEC, 2019), these factors encompass location, household wealth, parental literacy levels, the type of school attended, and the overall quality of school infrastructure.

Interestingly, gender disparities in Benin are virtually non-existent in pre-school, minimal in primary education, but start to widen significantly from secondary school onward. For instance, in 2015, the girls/boys' parity index on the gross enrolment rate was 1.02 in pre-school, 0.93 in primary education, and the primary school completion rate was 0.91 (MEMP, 2018). Across all primary education grades, access to education remains almost equally distributed between girls and boys. While the Gross Enrolment Ratio (GER) for boys in primary school consistently remained higher than that for girls from 2015 to 2019, the gap was relatively narrow. This is indicated by the gender parity index for primary school GER, which varied from 0.98 to 0.92 during this period. Though primary school completion rates are consistently higher for boys than girls, the difference is not considerable as compared to the GER.

In certain regions of Benin such as Alibori, Borgou, Zou, and Littoral, gender inequalities are minimal within schools and girls register a higher net enrolment rate

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<sup>2</sup> These statistics should be taken with caution given the numerous works on the limitation of PASEC data (Naumann & Wolf, 2001; Michaelowa, 2001).

in primary school than boys (De la Mothe Karoubi & Toure, 2022). For instance, Alibori recorded a lower net primary school enrolment rate for girls of 41.2% in 2019, as opposed to 75.4% in Littoral and 83.2% in Mono (De la Mothe Karoubi & Toure, 2022), highlighting regional disparities in this regard.

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## Data and Methodology

### Data

This study has two objectives. The first objective is to analyse the state of educational inequalities in Benin. The second objective of the study examines the effects of COVID-19 on learning performance in Benin for students in primary education.

To examine the state of educational inequality in Benin, we use the most recently available LSMS data for Benin (2018) and analyse students aged between 6 and 13 years old. The final sample consists of about 9,512 students. The study focuses on three academic years and covers 6,536 primary schools in Benin. The study covers the academic year before the pandemic (2018/2019); the academic year of the pandemic (2019/2020); and the academic year after the pandemic (2020/2021). This data represents a comprehensive dataset of the Harmonized Survey on Household Living Conditions conducted by the National Institute of Statistics and Economic Analysis (INSAE) in Benin during the period 2018-2019.

The main variable for this dataset is "years of schooling", which ranges from 0 to 6, capturing the number of years of primary education which can be completed by students, as Benin has 6 years of primary schooling. The dataset also provides several socioeconomic variables including sex (male vs female), geographical location (rural vs urban), and household economic status (wealth index). The wealth index is calculated using the principal component analysis (PCA) approach. The PCA is estimated based on a certain number of household characteristics including household ownership of certain assets, the type of materials used for housing construction (roof, floor, walls), types of sanitation facilities, and source of drinking water. The wealth index is generated into a categorical variable of 5 strata called wealth quintiles.

Table A1 in the appendices presents the characteristics of the study population according to the six groups of years of schooling. About 51.9% of our sample are boys and 48.1% are girls. In terms of location characteristics, 55.8% of students live in rural

areas, while 44.2% live in urban areas. Regarding the years of schooling, 25.7% have no education, while 7% have 6 years of schooling. Moreover, students with the highest levels of education (4, 5, and 6 years) live in urban areas, while those with lowest levels of education (0, 1, 2, and 3) are in rural areas.

To examine effects of COVID-19 on educational inequalities in Benin, we use a mixed method approach combining both quantitative and qualitative analysis. The quantitative analysis uses information on learning outcomes from the Primary School Certificate Examination data from the Ministry of Preschool and Primary Education of Benin. This is school-level panel data on primary school certificate examination results of all primary schools (private or public) in Benin for the years 2018 to 2021. The data includes variables at the school level such as the success and dropout rates, as well as the schools' district name. For our analysis, we use data from the years 2019 to 2021. The final data consists of 6142 schools observed from 2019 to 2021. Our variables of interest are the "success rate" and "dropout rate" which are between 0 and 1 capturing the percentage of students who succeed to the primary school certificate examination, and the annual school dropout rate.

## Methodology

To investigate the state of educational inequalities among primary school-aged children, we use the Gini index of educational attainment to measure the educational inequality across gender (male vs female), geographical location (rural vs urban), region, and household economic status (rich vs poor). Specifically, we use the educational inequality framework developed by Thomas et al., (2001). This method was used for different settings including Mongolia (Banzragch et al., 2019) and China (Yang et al., 2014). The Gini coefficient is computed as follows:

$$Gini = \frac{1}{\mu} \sum_{i=2}^n \sum_{j=1}^{i-1} p_i |y_i - y_j| p_j \quad (1)$$

Where  $\mu$  is the average years of schooling for primary school aged students;  $p_i$  and  $p_j$  stand for the proportions of population with certain levels of schooling;  $y_i$  and  $y_j$  are the years of schooling at different educational attainment levels. Lastly,  $n$  is the number of categories in years of schooling, and  $n=7$ .

The Gini coefficient ranges between 0 and 1, a lower value would indicate a low prevalence of educational inequality, whereas a value closer to 1 suggests a high prevalence of educational inequality. As a result, the findings help to describe the state and dimensions of educational inequality in Benin.



This study also utilises the 'difference-in-difference' method to analyse the impact of the COVID-19 pandemic on students' learning performance. This method compares learning performance before and after the pandemic across different socio-economic characteristics of location of schools. More specifically, we are estimating the following equation:

$$y_{st} = \alpha + \beta_1 COVID_t + \delta_s + \gamma_t + \epsilon_{st} \quad (2)$$

Where  $y_{st}$  is the pass rate on CPE for school ( $s$ ), in year ( $t$ ). One advantage of using this measure is that the exam questions are standardised and nationally coordinated by the ministry of primary education of Benin. The independent variable  $COVID_t$  is an indicator variable for the post-pandemic years. The term  $\beta_1$  is the primary parameter of interest, and measures the differences in school's pass rates on the CPE before and after the pandemic. A positive coefficient would indicate that students perform better on the CPE after school closures. The parameter  $\delta_s$  is school fixed effects which correct for all invariant school characteristics. The term  $\gamma_t$  represents year fixed, correcting for invariant year events.<sup>3</sup> Lastly, the term  $\epsilon_{st}$  is the error term.

We conducted representative primary data collection using focus group discussions (FGDs) and key informant interviews (KIIs) to complement evidence emanating from the quantitative analysis<sup>4</sup>. The FGDs involved parents and teachers while the KIIs involved representatives from government and EduTech institutions. The goal was to collect information from these key education stakeholders to better understand how the pandemic has affected student learning performance and educational inequalities. Data collection covers six regions of Benin, namely Littoral, Oueme, Mono, Collines, Alibori, and Atacora, and took place over the period from November 07, 2021, to November 15, 2021.

Within each region, two schools were selected: one private and one public, and with one located in a rural area and the other in an urban area. In each of the selected schools, two FGDs were conducted, one FGD of six parents and one FGD of six teachers. The parents' FGD were assembled with the help of school parent associations and took special attention to ensure gender and socio-economic diversity among parents. The teachers' FGD was formed with the approval of school district authorities and in collaboration with the school principal or another school administrative leader and the teachers themselves. There were also two complementary individual interviews at the end of each FGD involving a participant from the FGD who exhibited positive or negative interest identified by the interviewer. The purpose was to obtain more information from

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<sup>3</sup> Fixed effects allow removing all the variation in the data explained by schools or years.

people who did not speak freely or sufficiently during the FGD. In addition to the two FGDs and the two associated individual interviews, there are two other individual interviews within the district of the school. There was one interview with a community leader (the local chief in most cases) who takes the parents' questionnaire, and the other one with the head of the school district or a pedagogical advisor who takes the teachers' questionnaire. The objective of these additional individual interviews was to collect as much data as possible to provide a broad base for analysis. The diversity of participants allowed effective triangulations for cross-sectional readings of the body of knowledge resulting from each instrument (FGD parents/ FGD teachers).

 **Gender disparities in Benin are virtually non-existent in pre-school, minimal in primary education, but start to widen significantly from secondary school onward.**

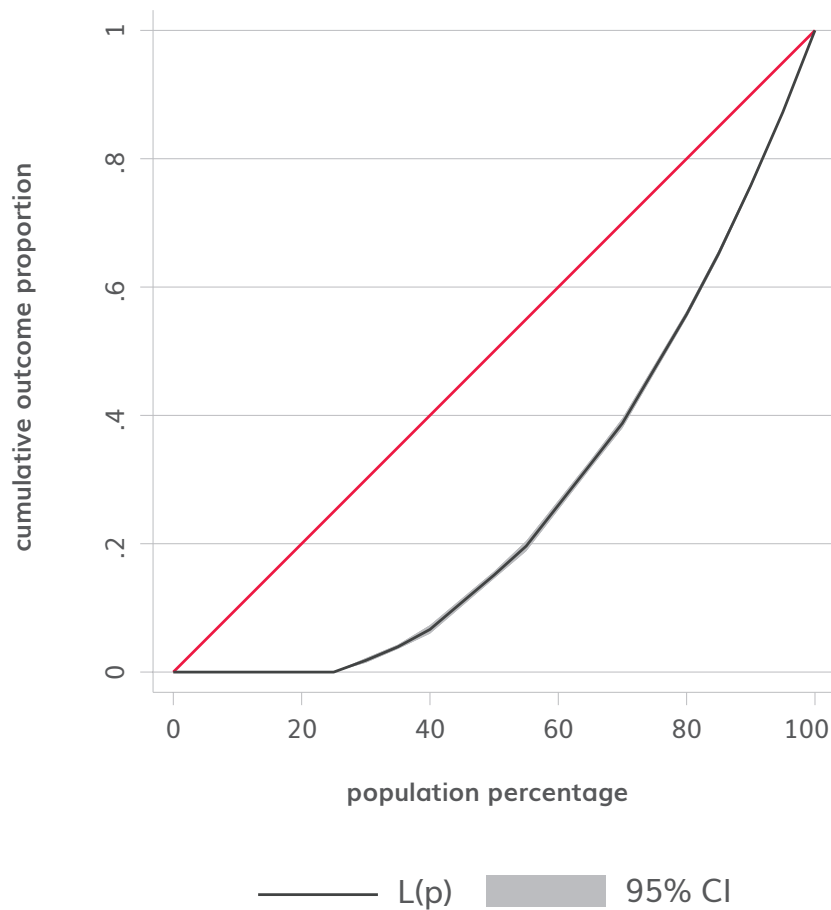
Besides the FGDs, there were key informant interviews (KIIs) with representatives from the government and education technology institutions. There were eight interviews for the government instrument that involved each Departmental Director of Primary and Pre-school Education (DDEMP) of the six regions covered, the Secretary General of the Ministry, and the Director of Primary Education (DEP) of the MEMP. For the EduTech instrument, four institutions were selected: the Non Governmental Organization called EDUCO, UNICEF, the National Institute for Training and Research in Education (INFRE), and the Bibliothèque Bénin-Excellence. Overall, there were 78 interviews conducted in this study, with 13 in each region.

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## Findings

We start by constructing the primary education Lorenz curve to represent the level of educational inequality in Benin. The education Lorenz curve is a graphical representation of the distribution of years of schooling. It is used to capture the extent of educational inequality. Complete educational equality would be a straight diagonal line with a slope of 1 and a Gini coefficient of 0. As shown in Figure 1, the education Lorenz curve is located far away from the diagonal line and the Gini coefficient is 0.46, evidencing significant educational inequality in Benin primary education. Moreover, the national education Gini coefficient is also among the highest in Western Africa, being 0.46 in 2018, compared to 0.393 in Nigeria.

Figure 1. The Education Lorenz Curve of Benin



Note. Elaborated by the authors.

After constructing the primary education Lorenz curve, the calculation of the education Gini coefficient by socio-economic categories is completed based on equation (1). The method follows the approach developed by Thomas et al., (2001). The Gini index ranges between 0 and 1, where 0 represents equality in education between groups and 1 represents a high degree of educational inequality. The results of the calculation are depicted in Table 3.

The results in Table 1 indicate that inequality in educational attainment among school-aged children is driven by differences in location and wealth, but not gender. The Gini index of educational attainment for males is 0.461, while it is 0.467 for females. This suggests that there is no significant difference between male and female children in the probability of being educated, implying that gender had little impact in explaining inequality in educational attainment in Benin.

Regarding regional differences, Benin is divided into 12 departments, and subdivided into 77 communes. As shown in Table 1, departments located in the North had a Gini index greater than 0.5, while the departments in the South have lower coefficients. The highest index was located in Alibori, with a score of 0.709, followed by Borgou with 0.649, and Atacora with 0.582. Furthermore, the Gini index for urban areas is 0.409, while it is 0.508 in rural areas. The index in rural areas is higher than those in urban areas, indicating that students in rural areas on average had a lower probability of being educated than those in urban areas. These findings suggest that the educational inequalities exist in Benin not only in the rural areas, but there are also high educational inequalities in the Northern part of the country.

Finally, we examine the Gini index of educational inequalities between school-aged children from poor and non-poor households. We use households' expenditure to measure wealth, this measure allows us to classify households into poor and non-poor. The education inequalities are higher among poor households with a Gini index of 0.558, compared to the index for non-poor households of 0.396.

To investigate the effect of school closures on learning performance, we used data on CPE success rates before and after the pandemic. To our knowledge, this is the only available data in Benin on educational outcomes before and after the COVID-19 pandemic. The data comes from the Ministry of Primary Education of Benin and reports information on schools' success rates on the CPE national exam.

*Figure 2* reports information about CPE's dropout rates before, during, and after COVID-19. The analysis shows that not all students enrolled to take the CPE exam had taken it. The extent to which students took the CPE exam depends largely on income status, the applicability of the sanitary cordon,<sup>5</sup> and geographical location.

Before the pandemic, 2.76% of students who were enrolled did not take the CPE exam.<sup>6</sup> This rate increased slightly to 2.9% in 2020 and came back to its initial rate in 2021. The dropout rate for poor students was higher than for non-poor students in general. Before the pandemic, 4% of poor students did not take the CPE exam, the rate increased to about 5% the year of the pandemic. However, for non-poor students, the dropout rate was lower and stayed the same before and after the pandemic, 2.3% among the non-poor did not take the CPE exam before the pandemic, this rate did not change after the pandemic.

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5 The government put in place a sanitary cordon as of March 30, 2020 to slow the spread of the virus. These departments are mostly in the southern region.

6 This rate represents about 9,000 students.

Table 1. Educational inequalities in Benin

	Indicators	Gini index	Average years of schooling	observations
<b>National</b>		0.464	2.523	9532
<b>Gender</b>	Male	0.461	2.383	4941
	Female	0.467	2.330	4571
<b>Location</b>	Urban	0.408	2.639	4205
	Rural	0.508	2.133	5307
<b>Administrative Region</b>	Alibori	0.709	1.087	826
	Atacora	0.582	1.631	829
	Atlantique	0.338	3.007	962
	Borgou	0.649	1.523	1,028
	Collines	0.408	2.714	760
	Couffo	0.445	2.368	700
	Donga	0.491	2.190	929
	Littoral	0.319	3.219	551
	Mono	0.367	2.663	727
	Oueme	0.325	3.052	876
	Plateau	0.415	2.537	802
	Zou	0.372	2.954	522
<b>Wealth</b>	Poor	0.558	1.829	3,931
	Non-Poor	0.396	2.729	5,581

Note. Elaborated by the authors based on the LSMS data for the year 2018 (World Bank, 2022).


The percentage of students who took the CPE exam was mostly determined by whether they were subject to the sanitary cordon. Before the pandemic, the rate for students who did not take the CPE exam inside the sanitary cordon was 2% while it dropped to 1.7% the year of the pandemic.

The dropout rate also varies across locations. It was particularly higher in the poorest regions such as Atacora, Donga, Alibori, and Borgou. The dropout rate before the pandemic was 5.4 in Atacora, 4.9 in Donga, 3.3% in Alibori, and 3.2% in Borgou. However, these rates increased in 2020 to 7 percent in Atacora, 5.6% in Donga, 4.2% in Alibori, and 3.6% in Borgou.

The dropout rate for males was higher than for females. Moreover these rates increased the year of the pandemic. Before COVID-19, the male dropout rate was estimated at 3%, and then rose slightly to 3.2% the year of the pandemic. We observed a similar pattern for females; the dropout rate was 2.5% pre-pandemic and 2.6% during the pandemic. Importantly, a year after the pandemic (2021), the dropout rate for males increased to 3.3%, while it decreased for females at 2.4%.

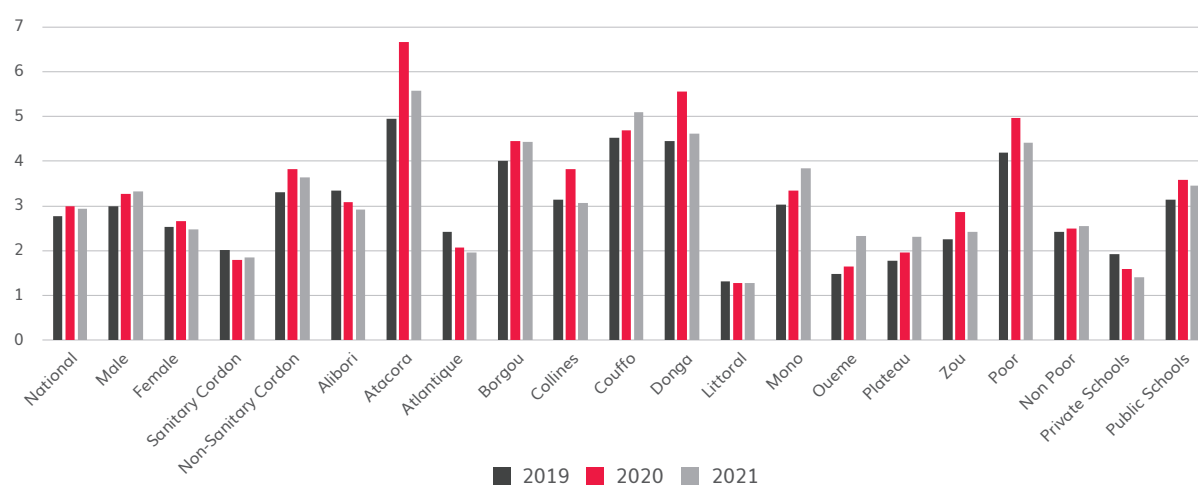
Students from poor locations have a higher dropout rate in general compared to their counterparts in the non-poor locations. Before the pandemic, the dropout rate across poor locations was 4.2%, rising to about 5% in 2020, then decreasing to 4.4% in 2021. In non-poor locations, we observe a different pattern. The dropout rate was 2.4% in 2019, it increased slightly in 2020 to 2.5% and remained the same a year after the pandemic.

Data on CPE pass rates and dropout rates was complemented with FGDs with teachers, government officials and parents, which investigated these groups' perceptions of the factors contributing to educational achievement and quality. Focus group discussions with teachers and government officials shed light on the key factors contributing to students' dropout rates—predominantly the unfavourable economic circumstances of parents and the resignation of teachers during the pandemic. Many teachers from rural areas, who also worked in agriculture, did not resume teaching post-lockdown due to unfavourable teaching employment terms.

 **Before COVID-19, the male dropout rate was estimated at 3%, and then rose slightly to 3.2% the year of the pandemic.**

Furthermore, as noted by the FGDs, recruitment and remuneration of teachers in Benin have been a longstanding issue. Many educators frequently faced delayed or missed salary payments, a situation that the pandemic only exacerbated. The impact was especially detrimental for educators in the private sector. As they faced unemployment during school closures, their earnings were significantly reduced, all while grappling with limited social protection.

Figure 2. Dropout rate (%) at the CPE national exam



Note. Elaborated by the authors.

## Effects of COVID-19 on students' performance in National Exams

This section examines the impact of COVID-19 on students' performance on the Certificate of Primary Education National Exam for the years 2019 to 2021. We compare the success rate on the CPE exam in academic year 2018/2019 to 2019/2020, which is the year of COVID-19, and to 2020/2021, a year after schools reopened. The results are reported in Table 3. The analysis showed no statistically significant change in the success rate during the year of the COVID-19 compared to the year 2018/2019.

FGDs with parents and teachers were undertaken to gain more insight into factors behind the success or failure of students before, during, and after school lockdowns. Our conversations with parents and teachers show that in rural areas, parents' associations organised tutoring when schools closed to ensure the continuity of school activities. In urban areas that had limited access to digital technologies, teachers and parents put in place a follow-up of programs broadcasted through traditional media. For those with access to digital learning tools, they were able to continue learning online through online learning platforms on social networks.

Furthermore, this study investigated possible gendered effects of COVID-19 and responses on learning outcomes. The results in column 2 of Table 2 show that the pandemic did not affect males and females differently. Furthermore, the coefficient estimates on female rate is negative and statistically significant, suggesting that girls were already less likely than boys to succeed in the CPE exam in general. Our conversations

with parents show that there were no gender differences in access to online learning, and both boys and girls had similar experiences when schools closed.

We also examined how the pandemic impacted students' performance inside the sanitary cordon. These sanitary cordons include the municipalities of Cotonou, Abomey-Calavi, Allada, Ouidah, Tori-Bossito, Zè, Sèmè-Podji, Porto-Novo, Akpro-Missérété et Adjarra. People inside the sanitary cordon faced more restrictions including a ban on entering and leaving the sanitary cordon area except by derogation from the prefects; and the prohibition of groupings of more than ten people.

To examine how school closures impacted students inside the sanitary cordon, we included the sanitary cordon in the analysis as a dummy variable equalling one if a school was located inside the sanitary cordon. Column 3 of Table 2 reports the results. Interestingly, we found that the pandemic improved students' performance inside the sanitary cordon. Students inside the sanitary cordon were 0.7 percent more likely to succeed in the CPE national exam compared to their counterparts outside the sanitary cordon. These results are consistent with our FGDs analysis. Parents living inside the sanitary cordon were forced to stay at home, they had more time to look after their children and to help them with their studies, thereby helping them raise their performance and success rate in exams.

Furthermore, this study investigated how COVID-19 impacted students' performance in poor versus non-poor regions of Benin. According to the World Bank (2018), the poorest regions include Alibori, Atacora, Borgou, and Donga. We found that the pandemic marginally improved students' performance in poor locations compared to those in non-poor regions. Students from poor regions were 1 percent more likely to succeed in CPE nationally in 2019/2020 compared to the academic year 2018/2019. Even though the coefficient is positive, it is also relatively small, and consistent with the results from our qualitative analysis. In the FGDs, it was noted that parents and teachers in both poor and non-poor regions put in place alternative support to help students continue learning when schools closed. For example, in rural regions, parents hired teachers to provide collective tutoring when they could not get access to online courses or through traditional media such as radio and television. Students in non-poor regions, on the other hand, mainly used smartphones, computers, and other digital devices and platforms to continue learning online.

Finally, we investigated how COVID-19 impacted students' performance in public versus private schools. Based on available data, we were not able to separate low-fee private schools from expensive international private schools. Thus, private schools here refer to those with both low and expensive fees. We found that there was a significant difference in students' performance between public and private schools in general.



The results show that the pandemic improved students' performance in public schools by 0.8 percent. However, this coefficient is small and not statistically significant. FGDs undertaken with teachers help to understand these results. Participants indicated that teachers from private schools were more likely to lose their jobs when schools closed. In general, the status of teachers in private schools is precarious and unstable. They experienced mass temporary layoffs and were not paid when schools closed. In some private schools, there was permanent layoff at the end of the pandemic.

Table 2. The Impacts of COVID-19 on Students' Learning Performance

Dependent variable: Success rate					
	(1)	(2)	(3)	(4)	(5)
COVIDyr	-0.314	-0.915	-0.567*	-0.540**	-0.908***
	(0.226)	(0.926)	(0.298)	(0.240)	(0.260)
Female rate		-0.027**			
		(0.013)			
COVIDyr X		0.013			
		(0.019)			
Sanitary Cordon			-11.30***		
		(2.043)			
COVIDyr X Sanitary Cordon			0.715*		
		(0.366)			
Poor			-8.698***		
			(3.061)		
COVIDyr X Poor				1.125**	
			(0.522)		
Public School					-1.971
				(2.798)	
COVIDyr X Public School					0.851**
				(0.347)	
Observations	12,284	12,284	12,284	12,284	12,284
School Fixed Effect	Yes	Yes	No	No	Yes

Year Fixed Effect	Yes	Yes	No	No	Yes
District Fixed Effect	Yes	Yes	Yes	Yes	Yes

Note. This table reports OLS estimates from a regression of success rate on an indicator for the year of pandemic 2020. The sample used consist of 6142 schools. Success Rate is the success rate of a school for the CPE national exam. COVID is a dummy variable equals 1 if the academic year is 2019/2020. Female Rate is the proportion of enrolled girls for the CPE exam. Sanitary Cordon is an indicator for a school being located inside the sanitary cordon. Poor is a dummy variable for a school being located inside a poor district. Public School is a dummy variable for a school being a public one. Robust standard errors in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% level, respectively.

Table 3 notes the impact of the pandemic after schools reopened. In this table, it was found that the pandemic's effects on student learning performance became evident only a year later. An examination of the differential impacts based on gender reveal a continued absence of disparity between boys and girls, even one year following the reopening of schools. We further explored the pandemic's effects by considering the sanitary cordon, income level, and school status post-reopening. The findings suggest that student performance within the sanitary cordon dipped a year following the pandemic. Similarly, performance in public schools also returned to its usual pattern, despite these institutions recording a lower success rate one year after reopening.

Table 3. The impact of COVID-19 on students' learning a year after schools reopened.

Dependent variable: Success rate						
	(1)	(2)	(3)	(4)	(5)	
COVIDyr (=1 if year=2020)	-0.314 (0.226)	(1.064)	-0.874 (0.320)	-0.276 (0.243)	-0.745*** (0.272)	-0.172
Post COVIDyr1 (=1 if year=2021)	-1.220*** (0.232)	(1.166)	-1.132 (0.318)	-0.646** (0.294)		0.243
Female Rate			-0.026 (0.017)			
COVIDyr X Female Rate			0.012 (0.022)			
PostCOVIDyr1 X Female Rate			-0.0018 (0.024)			

Sanitary Cordon (=1)				-10.50***	
				(2.051)	
COVIDyr X Sanitary Cordon				-0.082	
				(0.422)	
PostCOVIDyr1 X Sanitary Cordon				-1.595***	
				(0.448)	
Poor (=1)				-9.683***	
				(3.065)	
COVIDyr X Poor				2.110***	
				(0.624)	
PostCOVIDyr1 X Poor				1.970***	
				(0.671)	
Public Schools (0/1)				-0.898	
COVIDyr X Public Schools					-0.191
					(0.405)
PostCOVIDyr1 X Public Schools					-2.084***
					(0.424)
Observations	18,426	18,426	18,426	18,426	18,426
School Fixed Effect	Yes	Yes	No	No	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes
District Fixed Effect	No	Yes	Yes	Yes	Yes

Note. This table reports OLS estimates from a regression of success rate on an indicator for the year of pandemic 2020. The sample used consist of 6142 schools. Success Rate is the success rate of a school for the CPE national exam. COVID is a dummy variable equals 1 if the academic year is 2019/2020. PostCOVID is a dummy variable equals 1 if the academic year is 2020/2021. Female Rate is the proportion of enrolled girls for the CPE exam. Sanitary Cordon is an indicator for a school being located inside the sanitary cordon. Poor is a dummy variable for a school being located inside a poor district. Public School is a dummy variable for a school being a public one. Robust standard errors in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% level, respectively.

## COVID-19 and educational inequality: related policy responses and their consequences

As previously mentioned, the Beninese government's response to the pandemic was twofold. Schools were initially closed in March 2020, and students were encouraged to continue their education through remote learning methods such as television, radio, and the internet. In order to gauge the impact on educational inequality, we organised focus group discussions comprising primary stakeholders including government representatives, teachers, and parents.

Our conversations with participants revealed that a significant communication gap existed around the government's initiatives for remote education via television and radio. A majority of parents and teachers interviewed were not informed that students could continue their studies at home through these media platforms. As a result, few students accessed learning materials during this period. A parent from the Boukombé region voiced this concern, saying:

*We weren't informed about any measures. Maybe they were implemented in other cities, but here, we saw nothing. Our children stayed at home, and we couldn't do anything about it.*

A teacher from the Malanville region expressed similar sentiments:

*As a teacher, I came to know of this initiative only later. We didn't have the means to support the children in what the government initiated, and more importantly, we weren't aware of it in the first place.*

In addition to difficulties in accessing information, it was discovered that many parents in rural areas lacked the necessary technological tools, such as mobile phones, televisions, internet access, or radios. A parent from Alibori emphasised this issue, stating:

*We have not reached the level of development where we can access these resources, especially since we live in a rural environment. Even the classes broadcast by national television weren't available to everyone due to lack of means, and national radio doesn't cover our area very well.*

The combination of school closures, insufficient information, and limited access to technology all contributed to increased learning loss in Benin. Upon schools reopening, teachers were asked to provide feedback on this learning loss. It was overwhelmingly reported that students had largely forgotten their prior learning. As a teacher from Athieme attested:

*When schools reopened, we were tasked by the government to analyse the impact on children's skills. The examination we conducted showed a substantial loss in knowledge. It was as if they hadn't been in class for years. They had forgotten almost everything. The lockdown had erased their learning.*

Moreover, some parents reported that they were advised against hiring tutors for their children due to social distancing concerns. This restriction further impaired the learning progress of many students. A parent from Agbangninzoun mentioned that:

*The school closure really affected the children. During the height of the crisis, we were discouraged from hiring tutors due to fear of virus transmission. My child failed his exam during this period.*

## **Participants' opinions on effectiveness of government educational measures**

To prevent learning loss, the government put in place distance learning through traditional media such as radio and television. However, from our focus group discussion, most parents reported that they were not aware of this governmental measure. As a parent from Boukombé stated:

*We didn't see anything. Maybe measures were in place in other cities, but here we saw nothing. Our children just stayed at home, and we couldn't do anything about it.*

A teacher from Boukombé echoed similar thoughts:

*We didn't have the means to support the children with what the government initiated. We weren't even aware of the measures. By the time I learned about the initiative, it was too late to help the children who could have benefited from it.*

Among parents and teachers who were aware of the distance learning, most of them reported that they did not comply with the government educational measures. A parent from Aplahoué noted:

*To tell the truth, during the period when the government asked students to stay at home, they didn't study at all.*

A teacher from Malanville further emphasised the issue, observing that:

*Most parents were working on farms far from urban zones. They weren't aware of the government's initiatives. You could say that the children were completely*

*isolated and returned to us at a level where we had to revisit many things. It's apparent that our learners have fallen behind, especially compared to those who managed to continue studying at home.*

## **The digital and technological divide as a major factor in educational inequality**

The advent of COVID-19 revealed Benin's lack of widespread access to, and quality of, digital technologies. This was reflected in a disparity in access to educational programs disseminated to learners through broadcast media, and also to content sent on the various digital platforms available. The head of pedagogy in the Alibor region noted that:

*We have not yet reached this level of evolution in our environment especially since we are in a rural environment, even the courses broadcast on national television were not available to everyone for lack of means and similar, at the level of the national radio which does not cover very well here".*

The population were not able to access the courses broadcast on national radio and the ORTB television channel because of the limited coverage of television and the non-availability of electricity in rural areas. The findings show that local radio stations, which could have been involved to a greater degree in broadcasting educational content, limited the desired scope of this intervention. emphasising the differences felt by learners in urban and rural areas. The latter did not have access to this technology, which may have helped them make up on their already enormous delay. Parents in Ségbana and Alibori commented that:

*Here, we don't have the opportunity to watch the ORTB and listen to the radio program of our country, it's like the rest of us are in Nigeria, and even if we had the opportunity to follow these programs, we don't have full-time electricity, you see it's difficult, right? So, I can't tell you that my children benefited from distance learning while the coronavirus was raging.*

To this, we can also add the issue of access to the internet. Most parts of the country are forced to use operators from neighbouring countries if they can do so. An official from the Departmental Directorate of Nursery and Primary Education (DDNPE) from Alibori observed that:

*Myself as an education authority at the level of this department, you can imagine, to reach the director of a school in Karimama or Dougoulaye, it is a real headache, so how do you expect the children of these localities to have access to digital*

*technology in the same way as those of Calavi or Parakou for example? it is very difficult and it is a challenge for our educational system, because the future is here, but we still have a long way to go to get there.*

These difficulties were also linked to problems accessing equipment. People in rural areas, who were already struggling to equip themselves with household appliances such as radios and televisions due to financial constraints, found this more difficult during the pandemic. This put them on the margins of valuable information access which they may have had, and which would have benefited their children in school.

During the COVID-19 pandemic, education stakeholders unanimously agreed that they did not utilise technological tools for pedagogical activities. They cited the lack of financial means for parents and teachers to afford these tools as a significant obstacle to the promotion of online courses. Furthermore, areas with poor network coverage and lack of proficiency in computer tools were also factors that hindered the integration of Information and Communication Technology (ICT) in primary education.

One stakeholder observed:

*Even if we owned an Android laptop, we didn't master this technology. Additionally, in rural areas where parents do not have laptops or personal computers, conducting online teaching is an impossible task. The situation begs the question to the government to assume its responsibilities.*

Despite these difficulties, the stakeholders acknowledged the critical role of technology in the educational realm. They believed that integrating technology into teaching could significantly enhance pedagogical activities. A teacher remarked:

*If technology was accessible, we would use it. It was through this channel that we could still engage the children by giving them exercises. Given the financial constraints of the parents, however, this was not feasible.*

Stakeholders put forth several recommendations to support learning in schools. These include conducting screenings of classes in local communities to benefit the children, and grouping children by neighbourhood or household to provide them with classes. There were also calls to create libraries in rural areas, which would enable children to access information readily.

Stakeholders also identified several challenges that hampered the integration of ICT into education. These ranged from a lack of proficiency in using digital tools, poor

network coverage, weak internet connections, and the high cost of acquiring digital tools. There was also the challenge of ensuring full-time availability of electricity.

In addressing educational inequalities, stakeholders also proposed several ways digital technology could be utilised. They suggested using comparative images of successful women to inspire female learners, using a projector to display course material for enhanced understanding, and viewing educational videos for a more engaging learning experience. One stakeholder noted:

*By displaying images of women executives to learners, the girls will realise that not only men can become civil servants or executives. This exposure will motivate them to take their work seriously.*

Moreover, stakeholders recommended the establishment of computer centres in schools to initiate children into ICT, training for teachers and learners on the use of digital devices, introduction of computer science into the school curriculum, and provision of digital devices to schoolchildren. A stakeholder suggested:

*We need general training for teachers and a centre in the school where learners can attend visual classes. If resources allow, there should be devices in each class.*

## **Low acquisition of knowledge**

While distance learning initiatives and numerous interventions have aimed to minimise student dropouts from the education system, these efforts have faced significant challenges. Stark disparities in technology access, coupled with hurdles in providing alternative opportunities to keep students engaged, culminated in substantial negative impacts on the academic progress of students. A teacher interviewed in Athiémé commented that:

*As I just started to say, from the return from lockdown the government allowed us to take stock of the situation upon return to see a little how the children came back. And after the evaluation we all realised that it is as if we left the class many years ago. There was practically nothing left; so we can already say that this lockdown has allowed children to forget everything.*

This adverse impact was further evident in students' behaviour upon their return to the classroom. They displayed a decrease in their academic knowledge as reported by their test exams when schools resumed. .. The lacklustre performance can be attributed to a challenging transition back to regular learning, despite the clear eagerness of all involved parties to resume their activities.



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## Conclusions and implications

Our study has found that there is a considerable disparity in educational attainment within Benin, aligning with existing research that identifies heightened educational inequality within low-income nations. Particularly noteworthy is that these disparities in Benin are primarily driven by differences in location and wealth, as opposed to gender.

Educational inequality in rural areas surpasses that in urban regions, suggesting that rural students, on average, are less likely to be educated compared to their urban counterparts. Furthermore, we discerned that this inequality extends beyond rural domains, with pronounced educational disparities also being evident in the northern regions of the country.

When assessing the impact of COVID-19 educational measures on inequality, reflected through dropout and success rates, it emerged that not all enrolled students took the CPE exam. Whether students undertook this exam was largely dependent on their income status, geographical location, and whether they resided within the sanitary cordon.

Furthermore, as a result of government measures in response to the pandemic, the 2019-2020 school year saw a surge in dropout rates, especially among schools located outside the sanitary cordon, with the poorest regions such as Atacora, Donga, Alibori, and Borgou witnessing the steepest increases. Interestingly, while the male dropout rate generally exceeded the female rate, these ratios remained unchanged during the pandemic year. We also found that students from economically disadvantaged areas consistently exhibit higher dropout rates compared to their counterparts in more affluent locations.

In contrast to these findings, the success rates in the CPE exam showed no significant difference between the pandemic year (2020) and the preceding year (2019). The pandemic did not affect males and females differently. This is mainly because both girls and boys had similar experiences when schools closed, there were no gender differences in online learning access.

However, a noticeable effect became apparent a year after the onset of the pandemic. This delayed impact may be because, during school closures, parents' associations organised tutoring to ensure the continuity of educational activities. Consequently, many parents sought private or group tutoring for their children to sustain their academic progress throughout the pandemic.

The qualitative analysis also showed that teachers' conditions worsened during the pandemic. Some teachers never went back to school when schools reopened and preferred to work in the agricultural field.

Focus group interviews with parents and teachers also highlighted a number of information, economic and infrastructural barriers to full engagement with the distance learning measures implemented by the Beninese government, which impacted the performance of students. Many students in rural areas were unable to access classes and learning materials broadcast on the national radio station and they could not get reception to it. Many parents and teachers described being unaware of the distance learning initiatives adopted by the government.

Nevertheless, further investigation is warranted to ascertain why student performance deteriorated a year after schools reopened. The current quantitative and qualitative data are insufficient to address this query satisfactorily. An area ripe for improvement lies in exploring the roles played by government, parents, students, and teachers in this phenomenon.

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## **Policy recommendations**

In view of our findings, we suggest considering the following policy recommendations to address educational inequality and enhance learning performance in Benin:

### **Focused strategies for rural student rete**

The pronounced educational inequality in rural areas leads to increased student dropout rates, posing a significant challenge to educational access in these regions. Recognising this disparity, it becomes imperative to implement targeted measures aimed at student retention in rural communities. Strategies may include financial incentives or subsidised school materials for students, thus reducing the overall cost of education. By making education more affordable, these policies could foster a culture of consistent school attendance, enabling more children to access and complete their education. Collaboration with local communities and stakeholders could further tailor these initiatives to the specific needs and conditions of rural areas.

### **Enhancing support for rural teachers**

Teachers in rural areas often face financial challenges that lead them to leave their positions for better-paying opportunities, such as agricultural work. This frequent

turnover destabilises the educational environment and can adversely impact students' learning performance. Policymakers should consider improving remuneration for teachers in these areas through increased wages, bonuses, or other incentives. By creating a more stable and attractive teaching environment, these measures could retain skilled educators in rural areas, contributing to improved education quality and student outcomes.

## **Expanding traditional media coverage for education**

Limited access to traditional media like television and radio in some rural areas can hinder the delivery and effectiveness of educational content. To address this, efforts could be made to improve and expand traditional media coverage across the country. By leveraging existing national television and radio networks and ensuring that educational content reaches even the most remote areas, these policies could enhance the reach and impact of education delivered through these platforms. Collaborations with media organisations, local authorities, and communities can ensure that the content is relevant and accessible to all.

## **Integrating ICT into school curriculum**

The lack of familiarity with Information and Communication Technology (ICT) tools may reduce the effectiveness of distance learning, particularly in areas where digital literacy is low. By including ICT subjects in school programs, students can be familiarised with digital tools, enhancing their readiness for distance learning. This integration could foster a new generation of digitally literate citizens, prepared to engage with technology both in education and in their future careers. Partnerships with technology companies and organisations specialising in digital literacy could further enhance this initiative.

## **Ensuring access to digital learning resources**

Limited access to digital learning resources can create barriers for both students and teachers in maximising the potential of modern education. Policymakers should devise strategies to increase access to digital learning resources, such as subsidising the provision of computers in schools or implementing tax reductions on educational technology like tablets. By making these tools more affordable, parents would be more able to invest in their children's education, creating a more equitable and inclusive educational landscape. Engaging with private sector technology providers might also facilitate this process, leveraging their expertise and resources.

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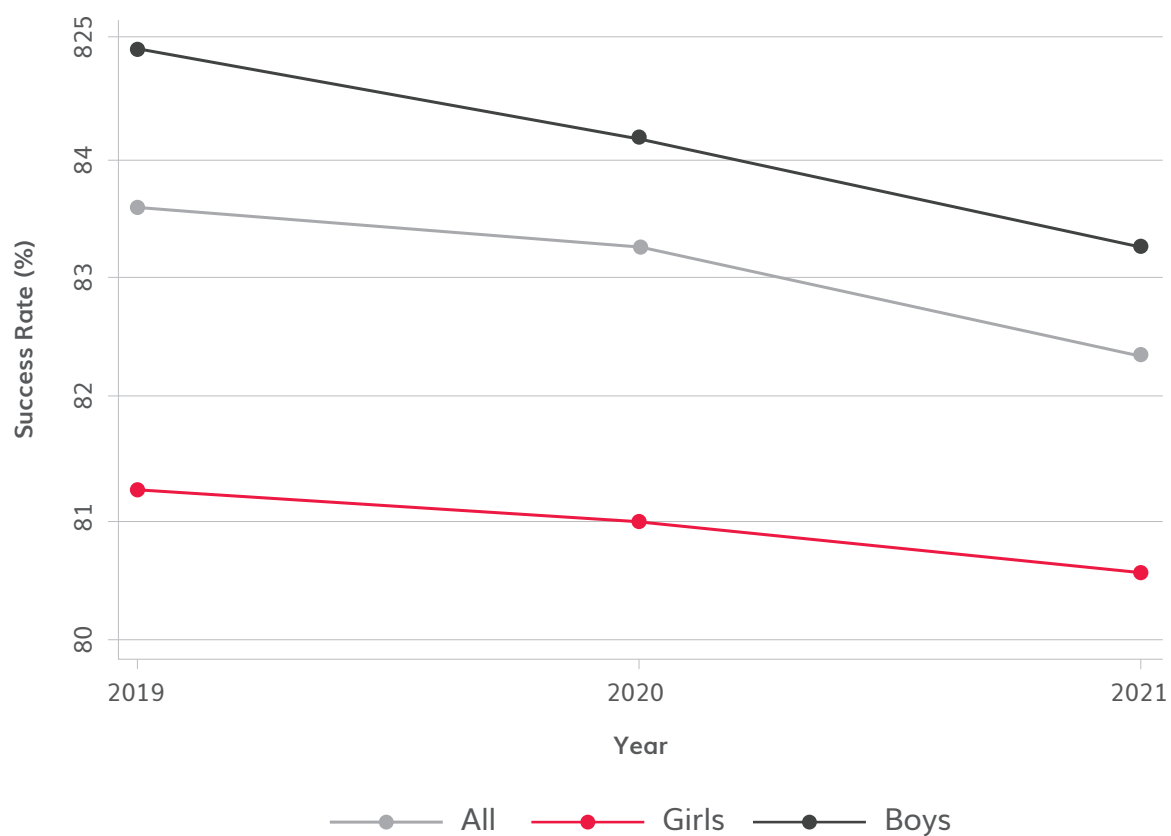
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## Appendices

### Appendix 1. Additional tables and figures

Figure A1. Evolution of Annual Success Rate at the primary school certificate exam



Note. Elaborated by the authors.

Table A1. Summary statistics

	Years of education							Total
	0	1	2	3	4	5	6	
<b>Gender</b>								
Male	13,2	6,6	8,2	7,7	6,9	5,6	3,6	51,8
Female	12,5	6,3	7,6	7,7	5,9	4,8	3,3	48,1

<b>Residence</b>								
Urban	8,3	5,7	7,3	7,6	6,5	5,3	3,6	44,3
Rural	17,4	7,2	8,5	7,9	6,3	5,1	3,4	55,8
<b>Wealth Index</b>								
Poorest	8,9	2,6	2,5	2,2	1,6	1,2	0,6	19,6
Poorer	6,8	2,7	3,7	3,1	2,4	2,1	1	21,8
Middle	4,8	2,9	3,7	3,5	2,9	2,3	1,4	21,5
Richer	4	2,9	3,2	3,5	3,2	2,3	1,9	21
Richest	1,2	1,8	2,7	3,1	2,8	2,5	2,1	16,2
<b>Total</b>	25,7	12,9	15,8	15,4	12,9	10,4	7	100

Note. Elaborated by authors

## Appendix 2. Additional information of the focus group discussion

### Description of the study area

This study covers six regions of Benin out of the 12 regions existing in the country. The six regions were selected according to a representative rationale that seeks to consider regions with different levels of performance in primary education achievement (high, middle, and low performers) that can sufficiently represent all disparities across the state.

Considering the average school success rates at the primary school completion exam (CPE) for each region as shown in Table B1, we selected the two departments with the highest school performance in the last exam, the two departments with the lowest performance, and the two departments in the intermediate position. Thus, the six regions selected are LITTORAL, OUEME, MONO, COLLINES, ALIBORI, and ATACORA. It is important to note that the Littoral and Ouémé are two regions that belonged to the cordon sanitary area. This area was considered susceptible to high exposure to the coronavirus and was in lockdown during the peak of the pandemic. It was good to have those cordon sanitary regions included in the sample to capture the intensity of COVID-19.



Table B1. Average success rate by region

Region	Average success rate (%)	Ranking
Littoral	91%	1
Oueme	84%	2
Atlantique	83%	3
Plateau	81%	4
Borgou	80%	5
Mono	78%	6
Collines	77%	7
Couffo	77%	8
Zou	76%	9
Donga	71%	10
Alibori	67%	11
Atacora	67%	12

Note. Elaborated by authors.

### Sampling technique of the Focus Group Discussion

The sampling consisted of a step-by-step selection process from regions, communes/districts, schools to FGDs, and key informants.

A commune covers different types of districts (urban or rural). Within each of the six regions, one rural and one urban district were selected. The selected district determines the commune. The following communes were selected: Natitingou and Boukoubé in Atacora, Malanville and Ségbana in Alibori, Glazoué and Savè in Collines, Comè and Athiémè in Mono, and Oganla and Bonou in Ouémé. As the Littoral region is entirely urban, only one district was drawn. In the following step, one school was randomly selected from each commune, in such a way that there was one public school and one private school for each region. Therefore, in the first place, a school was randomly selected in one of the communes of the region. The type (public or private) of school selected in this first

commune determines the type of school to be selected in the second commune of the region. The following table shows the selected schools by region, commune, and district.

Table B2. Distribution of schools interviewed

Region	Commune	District	School	Status
Alibori	Malanville	Guene	Le Creuset Du Savoir	Private
Alibori	Segbana	Libante	Bobena	Public
Atacora	Natitingou	1ere C.U. Natitingou	Sossouna	Public
Atacora	Boukoumbe	Kossoucoingou	Marie Adele Koussoucoingou	Private
Collines	Glazoue	Assante	Assante Centre/A	Public
Collines	Save	Save Plateau	Puissance Divine	Private
Oueme	Porto-Novo	2ème Arrondissement	Attake/A	Public
Oueme	Bonou	Affame	Saint Esprit	Private
Littoral	Cotonou	3ème Arrondissement	Lac/A (Ex Agbodjedo)	Public
Mono	Athieme	Athieme	Assedji/A	Public
Mono	Come	Akodeha	L'eminence	Private

Note. Elaborated by authors.



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