Mahounan Yedomiffi
Department of Economics, Dartmouth College
My website
pyedomiffi@gmail.com

April 16, 2024

Dear Members of the Selection Committee:

I am applying for the Restat Fellowship for NBER Summer Institute. I am an upcoming postdoc and Assistant professor at Dartmouth College. I completed my Ph.D. from the University of Illinois at Urbana-Champaign and will graduate in May 2024.

As a first-generation literate from Benin Republic, I am deeply committed to addressing the challenges faced by low-income families in developing countries through rigorous economic research.

My research addresses the challenges of low school completion rates in developing countries. In my job market paper titled "Does Parental Involvement Improve Student Learning? The Role of Monitoring", I conducted a rigorous randomized field experiment in Benin to improve secondary school completion by targeting parents with an information intervention. My intervention clarified parents' non-financial roles in their child's education and provided actionable recommendations to improve parents' management of their children's time and effort on educational production.

Furthermore, I am currently engaged in two new projects. The first is on gender norms, particularly chores distribution within the household and its interaction with girls' aspirations and performance. The second project looks at digitizing school fee payment and its impact on school finance and parents' ability to fund their children's education.

My unique background, having been born in rural area with no access to basic services such as hospital, electricity, or running water, grants me a distinctive perspective on the challenges faced by low-income families in Africa. I believe that my participation in the NBER Summer Institute will not only provide me with invaluable exposure to seasoned researchers but also offer an opportunity to share insights from my journey and experiences, contributing to a more diverse and inclusive dialogue within the economics profession. Additionally, I am currently serving as a mentor to several African students who regard me as a role model. Participating in this esteemed and enlightening event will not only broaden my own experience but also inspire and motivate these students by demonstrating the possibilities and opportunities within the field of economics.

I am interested in the development economics and the economics of education sessions of the NBER Summer Institute.

Thank you for considering my application. I am eager to contribute to the diversity of economic research and participate in the vibrant scholarly discussions at the NBER Summer Institute.

Sincerely,

Mahounan Yedomiffi

MAHOUNAN YEDOMIFFI
Email: pyedomiffi@gmail.com
Cell Phone: 217-419-8217
Website: https://sites.google.com/view/mahounanyedomiffi/

Current Positions
Postdoctoral Fellow, Department of Economics, Dartmouth College, 2024-2026
Visiting Postdoctoral Fellow, Kellogg School of Management, Northwestern University, July-December 2024
Assistant Professor, Department of Economics, Dartmouth College, 2026--

Education
Ph.D. Economics, University of Illinois at Urbana-Champaign, 2024
MSc, Economics, African School of Economics, Benin, 2016
BSc, Economics, University of Abomey-Calavi, Benin, 2012

Fields
Development, Education, Labor

Research Grants
Ferber & Sudman Dissertation Award for Survey Research, University of Illinois Graduate College, 2023
Dissertation Research Travel Grant, University of Illinois Graduate College, 2022
Nelle M. Signor Research Grant, University of Illinois Graduate College, 2021
Applied Micro Research Grant, University of Illinois, Economics Department, 2022
Boltz Grant, University of Illinois, Economics Department, 2022

Job Market Paper

Does Parental Involvement Improve Student Learning? The Role of Monitoring

Primary education enrollment rates in developing countries have increased significantly over the past few decades, but secondary school completion rates have remained low and unequal. This study presents the findings of a randomized controlled trial I conducted in Benin investigating the effects of providing parents with information about their non-financial role in their child's education through weekly phone calls. Across 2,094 8th-grade students in 20 secondary schools, the intervention led to a substantial 6 percent increase in grade completion. This stems from a statistically significant 0.11 standard deviation increase in year-end GPA, driven by STEM subjects. The intervention benefits academically weaker students, elevating their likelihood of progression by 37 percent. Educational improvements are due to parents improving their management of the household, reducing children's chores, and becoming more involved and informed about what is going on at school. These results offer a promising and extremely cost-effective strategy for sub-Saharan Africa to improve educational outcomes and highlight the importance of parental management in the education production function.

Working Papers

Covid-19 Learning Losses, Parental Investment and Recovery: Evidence from Low-Cost Private Schools in Nigeria (with Adedji Adeniran, Dozie Okoye, Leonard Wantchekon)
RISE Working Paper Series 22/120
About 2 billion children were affected by school closures globally at the peak of the COVID-19 pandemic. This has led to documented learning losses, and an especially precarious future academic path for pupils in developing countries where learning and continued enrolment remain important issues. This paper studies the extent of learning losses and recovery in Africa's most populous country, Nigeria, and provides some evidence that a full recovery is possible. Using data from a random sample of schools, we find significant learning losses of about .6 standard deviations in English and Math. However, a

program designed to slow down the curriculum and cover what was missed during school closures led to a rebound within 2 months, and a recovery of all learning losses. Students who were a part of the program do not lag behind one year later and remain in school.

Papers in Progress

Spillover Effect of an Information Intervention: Evidence from Friends and Siblings
Report Cards in Developing Countries (with Rebecca Thornton)
Girls in STEM: Evidence from a Supplemental Math Lesson Program(with Horace Gninafon and Leonard Wantchekon)
Terrorism Activities and Children Outcomes (with Togbedji Gansey and Vinicius Okada da Silva)

Teaching

African School of Economics, Lecturer
- Introduction to Causal Inference, 2022-2023
- Impact Evaluation and Causal Inference Certificate, 2016-2017

University of Illinois, Economics Department and Business School, Teaching Assistant
- List of Teachers Ranked as Excellent by Their Students: Fall 2018, Spring 2019, and Fall 2019
- Microeconomics (Undergraduate), Fall 2023
- Macroeconomics for MBA Program, Summer 2021
- Macroeconomics (Undergraduate), 2019-2022
- Winter break Study Abroad to Benin, January 2020

Employment

Amazon, Economist Intern, 2022

Research

Plan International Canada, Short-Term Consultant, 2021
Research Assistant, University of Illinois, Prof Richard Akresh, 2018-2020
Research Coordinator, African School of Economics, 2016-2017
Assistant Research Coordinator, African School of Economics, 2016

Seminars & Conferences

African Meeting for the Econometric Society, 2024
Center for the Study of African Economies (CSAE) Conference, Oxford, 2024
Northwestern University, Development Lunch Seminar, 2023
Michigan State University, Development Economics Day, 2023
University of Illinois, Agricultural & Consumer Economics Department IPAD, 2023
University of Illinois, Economics Department, Applied Micro Seminars, 2020-2023
2018 Africa Meeting of the Econometric Society, African School of Economics, 2018
Summer Institute for Economic Research, African School of Economics, 2017

Fellowships

University of Illinois, Graduate Student Fellowship, 2017-2018
University of Illinois, Summer Fellowship, 2021
African School of Economics, Pre-Doctoral Fellowship, 2016-2017
World Bank, African Fellowship, 2015
Benin Government, Academic Fellowship, 2011-2012

Academic Service

Referee for *Quarterly Review of Economics and Finance*
Referee for *Journal of African Economies*

Does Parental Involvement Improve Student Learning? The Role of Monitoring [1]

Mahounan Yedomiffi

Dartmouth College

Version 2024-04-15

Please click here for the most recent version!

Abstract

Primary education enrollment rates in developing countries have increased significantly over the past few decades, but secondary school completion rates have remained low and unequal. This study presents the findings of a randomized controlled trial I conducted in Benin investigating the effects of providing parents with information on how to manage their child's time and effort on educational production through weekly phone calls. Across 2,094 8th-grade students in 20 secondary schools, the intervention led to a substantial 6 percent increase in grade completion. This stems from a statistically significant 0.11 standard deviation increase in year-end GPA, driven by STEM subjects. The intervention benefits academically weaker students, elevating their likelihood of progression by 37 percent. Educational improvements are due to parents improving their management of the household, reducing children's chores, and becoming more involved and informed about what is going on at school. These results offer a promising and extremely cost-effective strategy for sub-Saharan Africa to improve educational outcomes and highlight the importance of parental management in the education production function. These results also highlight the crucial role parents with little to no education can play in improving their child's performance if given the appropriate information.

JEL Codes: I20, I25, D80, O15

Keywords: Education, field experiment, parent, secondary school, Africa.

1. I thank Richard Akresh, Adam Osman, Rebecca Thornton, Leonard Wantchekon, Dean Karlan, Dan Bernhardt, and Chris Udry for their comments and suggestions. I also thank the Applied Micro faculty, Applied Micro Research Lunch participants, Job Market Research seminar participants, IPAD seminar participants at the University of Illinois at Urbana-Champaign (UIUC) for their different feedbacks. I thank the Institute of Empirical Research in Political Economy for their logistical support during fieldwork. I thank Andre Gueguehoun, Togbedji Gansey, Iranlowo Abakpin Lawin, and Clement Litchegbe for their assistance during fieldwork. I also thank Mustapha Seidou and Sosthen Agbodji-Allah for their outstanding data collection work during baseline and endline surveys. I gratefully acknowledge financial support from Rebecca Thornton, UIUC graduate college dissertation travel grant, UIUC Nelle M Signor Fellowship, UIUC Boltz Fellowship, UIUC Applied Micro Small grant, and UIUC Ferber & Sudman Award for survey research. This study receives authorization from the Ministry of Secondary Education under Authorization Number 145/MESTFP/DC/SGM/DESG/SA and UIUC IRB approval number 23204. Contact Information: pmy2@illinois.edu

1 Introduction

Developing countries have experienced large increases in school enrollment over the past few decades, yet school completion rates have remained low and unequal (Inoue et al. 2015).[2] Children from poor families are most likely not to graduate from school and often must repeat grades (UNESCO 2017; Watkins and Ashforth 2019; Alesina et al. 2021).[3][4] When thinking about how to help poor parents support their children's education, the general approach focuses on interventions that will help loosen up the budget constraint these parents face and less so on non-financial actions these parents can take to improve their child's performance.[5]

Previous work acknowledges the importance of parental involvement but mostly focuses on parents not having enough information about the schools and what is going on in them.[6] But parenting does not come with a handbook, and it is possible that many parents do not know the different kinds of actions they can take to support their children's education. Parents' non-financial involvement through management of their children's time and effort may be crucial to their children's success (Hoover-Dempsey and Sandler 1997; Hoover-Dempsey and Sandler 1995), especially in settings where students spend way more time on chores than on reviewing school materials, as shown in Figure 1.[7] However, there is evidence suggesting that many parents, especially those with lower socio-economic status, view their role primarily as providing financial support and are

2. In sub-Saharan African countries, the primary school completion rate is 78%. The completion rate for the poorest children is 32% and 83% for the wealthiest children. In lower secondary, it gets worse, with only 13% for the poorest children compared to 66% for the wealthiest children. These statistics are based on UNESCO data.

3. Poor parents tend to live in rural areas and have little to no education.

4. Akresh, Halim, and Kleemans 2023 suggest that additional education has a long-term effect on adult outcomes. Gertler et al. 2014 find higher earnings 20 years after an early child development program in Jamaica. There is also evidence that preschool and kindergarten programs lead to improved adult outcomes (Garces, Thomas, and Currie 2002; Heckman et al. 2010; Chetty et al. 2011.

5. See Glewwe and Muralidharan 2016 for a review of different education interventions in developing countries

6. For instance A. V. Banerjee et al. 2010; Hastings and Weinstein 2008; Jensen 2010; Nguyen 2008 have provided parents with information about quality of schools and return to education. A second group has provided parents with information related to the students (e.g: such as student's performance, behavior, and attendance) or provided parents with information on resources available to help their child: Andrabi, Das, and Khwaja 2017; York, Loeb, and Doss 2019; Dizon-Ross 2019; De Walque and Valente 2023; Barrera-Osorio et al. 2020; Bergman 2021; Cunha et al. 2017; Rogers and Feller 2018; Berlinski et al. 2021

7. Students spend on average 8 hours every week reviewing their lessons and doing home-assignments and 17 hours on household chores. This comes as no surprise given that there is laissez-faire from parents when it comes to their child's education. For example, only 19% of households have a specific timetable for when their child should be seated and reviewing lessons.

less likely to actively participate in managing their child's time and effort on educational production (Wolf 2020).

This study aims to evaluate the impact of an information intervention about parental involvement in southern Benin. I randomly selected 20 secondary schools and invited parents of 8th-grade students to participate in the study. A total of 2,094 students' parents participated, with 1,038 randomly assigned to treatment and 1,056 to control. The intervention involved weekly phone calls, initiated at the end of the first semester and continued for approximately four months, from mid-January to the end of May, resulting in ten successful phone calls for parents on average.

In the initial phone call, I explained to parents their managerial role and its significance in their child's educational success. Following this, I provided practical recommendations derived from the psychological literature on parental involvement (Hoover-Dempsey and Sandler 1995) and insights from focus groups that I conducted with school officials, teachers, parents, and students in the summer of 2021. These recommendations encompassed both school and home involvement and aimed at helping parents get more involved in their children's education by managing their children's time and effort.[8] In subsequent calls, I reminded parents about some of the recommendations, linked the recommendations to upcoming tests, if any, and discussed with them any challenges they are facing.[9]

I focus on three main findings. First, information provided to parents significantly increases grade completion rates by 4 percentage points, equivalent to a 6% increase compared to the control group mean. This comes from an increase in students' year-end GPA of 0.11 standard deviations (SD). When examining subject-specific test scores, the largest effects are observed in Physics (0.12 SD), followed by Biology (0.09 SD) and History-Geography (0.06 SD), but there are no statistically significant effects observed in Language or Math. Second, students at risk of grade repetition derive the greatest benefit

8. The recommendations provided to parents are very simple and can be implemented regardless of parents' education. For instance, regarding involvement at school, I encouraged parents to visit the school to enquire about their child's progress, and regarding involvement at home, I encouraged parents to set up a schedule for when the child should study and check on the child to make sure she is indeed studying. Section 2.3.2 provides full details about the treatment and the full list of recommendations. These recommendations come from the psychology literature on parental involvement, discussion with education experts in Benin as well as discussions with sociologists regarding cultural aspects that should be considered in our regular interactions with parents.

9. For most parents, the recommendations provided to them were new. As a result, they faced many challenges. We gave them the opportunity to speak about the challenges and receive feedback on ways to move forward. This unique feature would not be available to parents if the treatment was being provided through automated text messages or automated voice notes.

from this intervention. Specifically, the intervention leads to a remarkable 11 percentage-point increase in the probability of passing to ninth grade for students in the bottom quartile of baseline performance. This increase represents a substantial 37% improvement compared to the control group's mean.[10]

Finally, I use careful data collection to map out the mechanisms through which these improvements occur. I show that parental involvement increases both at school and at home. Parents' school visits increased by 19%, their communication with teachers rose by 25%, and checking their child's attendance at school increased by 33%. The parental involvement at school index, created using these outcomes, reflects a 0.2 SD increase in parental engagement at school. In terms of parental involvement at home, I observed a 7% increase in parents engaging in conversations with their children, an 18% rise in parents overseeing homework, a 14% increase in parents inquiring about their children's test scores, a 27% increase in parents asking about test dates, and a 13% increase in parents checking on their children during lesson reviews. The index measuring parental involvement at home, formulated from these factors, indicates a significant 0.38 SD increase in overall parental engagement within the home environment. Parents decrease the number of household chores students need to do. Students doing fewer chores increase by 31%. These results are confirmed through both parent and student surveys. I also find that parents are much better informed about their student's performance, even though the intervention did not provide parents with performance information. This highlights how a lack of understanding of their managerial role may contribute to a lack of parent's awareness of their children's education.

I contribute to several strands of the literature. Prior work has noted that one reason for the differences in high- and low-income countries is through differences in productivity and management practices among firms (Bloom and Van Reenen 2007, Bloom and Van Reenen 2010). I show that these differences in management practices extend to the household, where parents must learn how to best manage their children's time and effort on educational production. Equipping parents with information for effective education management emphasizes the transformative potential of enhanced household management.

10. The intervention exerts a larger effect on students whose parents are illiterate, but the difference is not statistically significant. The impact on grade completion for students with illiterate parents is twice as large as that for students with literate parents. Moreover, within the bottom quartile of baseline performance, 58% of students have parents who are illiterate. When looking at heterogeneity by students' gender, the intervention benefits both female and male students equally.

This perspective on household management's effects on educational outcomes offers far-reaching implications for future generations' competitiveness and productivity, prompting broader discussions on parenting, economic development, and global equity.

This paper also contributes to the literature on information frictions in education. Prior studies often assumed that parents comprehend their managerial roles in their child's education but may need more specific information about what is going on at school. My research begins with the premise that parents may need help in fully understanding their roles beyond their financial contributions.[11] By clarifying these roles and emphasizing their importance, my research shows that parents significantly enhance their non-financial investments in their children's education. This insight could help address the ongoing educational inequalities between poor and wealthy households. Moreover, the impact of parents' limited understanding of their managerial roles extends to their awareness of their children's academic performance and absenteeism. This paper calls into question the conventional approach of providing performance information to parents. Instead, my findings suggest that ensuring parents clearly grasp their managerial roles and educating them about them may be a more effective and sustainable policy perspective as it will induce the parents to seek out the performance information on their own.

My study is closely related to Avvisati et al. 2014. I differ in a couple of ways. My intervention in rural Benin addresses a different facet of parental involvement. Recognizing the need for explicit guidance beyond financial contributions, my approach involves regular phone calls to elucidate parents' non-financial roles in their children's education. Through these calls, I offer specific and universal recommendations on how parents, regardless of their educational background, can effectively support their children's learning by managing their time and effort toward education. Unlike the prior study's extensive use of in-person meetings, video excerpts, leaflets, and shared performance information, my approach aims for simplicity and accessibility, accommodating the realities of illiteracy or low parental education levels prevalent in the context of rural sub-Saharan Africa.

11. There is a growing literature on parental involvement. The literature has focused on providing parents with information on educational institutions, such as quality or return to education (Andrabi, Das, and Khwaja 2017; A. V. Banerjee et al. 2010; Cerdan-Infantes and Filmer 2015; Jensen 2010), information about students performance, behavior, attendance or resources available for the child's education (York, Loeb, and Doss 2019; Dizon-Ross 2019; De Walque and Valente 2023; Barrera-Osorio et al. 2020; Bergman 2021; Cunha et al. 2017; Rogers and Feller 2018; Andrabi, Das, and Khwaja 2017; Berlinski et al. 2021 York, Loeb, and Doss 2019; Dizon-Ross 2019; Lieberman, Posner, and Tsai 2014; Fryer, Levitt, List, et al. 2015)

Moreover, I view parents as managers of their household, especially when it comes to managing their children's time and effort. This approach is unique and very key in an environment where students are highly time-constrained and where students' success highly depends on what happens outside the classroom.

My intervention is highly cost-effective as it increases both year-end GPAs and grade completion rates. I conduct a cost-benefit analysis in which I create an accounting model to calculate the discounted benefits for the government in terms of increased tax revenues. Under a range of assumptions, I find that my intervention leads to increased government tax revenues that directly offset the costs of the intervention within a year in my least conservative approach and within 40 years in my most conservative approach. Similarly, the least conservative approach yields a high internal rate of return of about 2646% and 8% for the most conservative. These results offer strong support for governments to undertake such interventions.[12] The remainder of the paper is as follows. Section 2 describes the context and experimental design. Section 3 describes the survey and administrative data I collected. Section 4 presents the empirical strategy, while Section 5 examines the empirical results. Section 6 explores potential mechanisms explaining the results. Section 7 presents a cost-benefit analysis, and Section 8 concludes the paper.

2 Education in Benin and Experimental Design

2.1 Education in Benin

Benin is a French-speaking country in West Africa. The country is divided into 12 regions. In 2019, Benin had 1791 secondary schools (873 public and 918 private) (Ministry of Secondary Education, 2019). The education system in Benin is similar to that of most French-speaking countries in Africa. Primary education takes 6 years to complete after kindergarten. At the end of primary education, students take a national exam called "Certificat d'Étude Primair (CEP)". To be enrolled in secondary school, students need to pass the CEP. Secondary education is divided into lower and upper secondary. The lower secondary (middle school) has four grades, and the upper secondary has three

12. I also conduct two additional cost-benefits analyses. The first compares the direct cost of grade repetition to the government and contrast that with the cost of my intervention. The second measures improvement in year-end GPA for $100 spent. In both cases, my intervention appears to be very cost-effective.

grades. In the first two grades of lower secondary, students take 6 subjects (Math, Physics, Biology, Language (French and English), and History-Geography). Each of these subjects has equal weight in computing each semester's GPA. In the third and fourth grades of lower secondary, students take an additional subject (Spanish or German) on top of these six. At the end of the fourth grade of lower secondary, students take a national exam called "Brevet d'Études du Premier Cycle (BEPC)". Admission to upper secondary (high school) is conditioned on passing that exam. In upper secondary, students are put into five tracks (A1, A2, B, C, D). These tracks can be grouped into two categories: STEM, and Humanities. Students are assigned to these tracks based on their performance in STEM subjects (math, Physics, Biology) versus humanities subjects (French, English, and Geography).

This study took place in the Atlantique region. This region had 95 public secondary schools and 280 private secondary schools in 2019, making it the province with the biggest number of secondary schools (Ministere de l'Enseignement Secondaire, 2019). This study focuses on 8th-grade students. In 2019, there were 146025 8th-grade students in Benin. Out of them, there were 79086 boys and 66939 girls (Ministere de l'Enseignement Secondaire, 2019). In the department of Atlantique, this corresponds to 28332 students (14848 boys and 13484 girls), making it the second department with the highest number of students enrolled in 8th grade. In total, 2094 households were enrolled in this Study. Table 1 shows some descriptive statistics about these households. On average, there are 6 members in each household. The average years of schooling are 2.29 years for mothers and 4.9 for Fathers. 98.4% of the households speak their local language at home. 75.9% have access to electricity (including solar), 97.7% have a mobile phone, 75.5% have a television or radio, and only 54.8% have a table where their schooling children can sit and review their lesson.

2.2 Low Parent-School Communication

The secondary education in Benin offers an interesting setting to investigate the effects of an information intervention to parents on students' performance and grade completion. One of the main differences between primary and secondary education is the number of teachers assigned to a class for an academic year. In primary education, only one teacher is assigned to a given class. The teacher teaches every subject for the whole academic

year. In secondary education, there are as many teachers assigned to a class as there are subjects. These teachers work independently of each other. All six can give many home-assignment due roughly around the same time. Also, secondary schools are more sparsely located as opposed to primary schools, leading to a higher commuting time for students. Because of this design, in primary schools, anecdotal evidence suggests that parents tend to know their primary school child's teacher either through formal or informal meetings. Thus, parents of primary school children get informed of any behavioral or performance issues related to their children through informal discussions with teachers. However, in secondary school, parents–mostly illiterate–are completely disconnected from their child's teachers and their child's school. On the student side, going to secondary school comes with more responsibilities within the household in terms of chores. In summary, parents not only lose the informal interactions with teachers, but students also transition from less demanding primary education to the more time-consuming chores and academics of secondary education. This transition requires parents to assist their children in managing their time and effort effectively for their education. Less educated parents or parents with no education might not understand all the implications of being in secondary school. Besides, there is very little communication between schools and parents.

The secondary education system in Benin keeps parents informed about their children's performance by providing them with two report cards per year. Report cards can either be picked up by parents or by the students themselves. The first is sent at the end of the first semester, and the second at the beginning of the next school year. In my sample (Table 2), only 46.2% of parents declared having received both last year's report cards, 20% received only one, and the remaining 33% received no report cards last year. Among parents who received at least one report card last year, 82% received it from the child. Anecdotal evidence suggests that not all the report cards picked up by students make it home. Having only 46% of parents receiving both last year's report cards is very detrimental to their children's education as it suggests that parents do not keep track of their children's progress.[13] Besides report cards, schools reach out to parents only in case of emergency, such as the child falling sick or being involved in fights at school. In those cases, schools request that a parent come to the school. Outside these circumstances,

13. For instance, during the baseline data collection, some parents raised the fact that their children failed, but the children told them they passed. Parents only discovered the truth two months after the next academic year had started.

schools do not reach out to parents. If, for instance, a student is performing very well and the grades suddenly drop, schools do not reach out to parents to investigate or inform them. If a student is on track for grade repetition, schools do not reach out to parents. Schools do not reach out to parents even when a student lacks some basic school supplies that are key to the success of the student. Discussions with school officials and teachers suggest that two factors can explain this total lack of communication. First, schools do not have the logistics and human resources needed to communicate more regularly with parents. Second, school officials and teachers believe it is the parent's role to seek that information and exploit it. Although many parents–well-educated ones–might be aware of this responsibility, this might not necessarily be true for other parents, such as less educated or illiterate ones.

In a series of in-depth interviews conducted during the summer of 2021 in Benin, [14] I uncovered that less-educated and well-educated parents differ in their understanding of their non-financial role in their children's education and the functioning of the education system. Well-educated parents can get progress information directly from their children by requesting quizzes and test report sheets. They can also visit the school to enquire about their child's performance, or they sometimes have contact with some teachers they call to get an update about their child's progress. Children from these households are more likely to provide accurate information to their parents when asked. On the other side, less-educated parents only rely on what their children tell them. They rarely visit schools, and most of them did not even know they could visit the school to enquire about their child's progress. In my sample, there are 51% illiterate parents and 49% literate. At the baseline–three months into the school year–only 36.6% of parents had visited the school at least once since the start of the school year. Conditional on visiting, 48% talked to a teacher. These visits were mainly for administrative purposes, such as registration and tuition fee payments. It's often the case that students leave home but do not go to school or go to school and do not go to class but rather play while their friends are in class.

14. From May to June 2021, I was in Benin to collect qualitative data through several focus groups with 26 teachers, 45 parents (men, women, literate and illiterate), 4 school principals, and 90 students (boys, girls, lower and upper secondary). This preliminary data collection had two goals. First, understand what are some reasons why students are not learning and what are some information bottlenecks in this setting. Second, I derive useful insights from these focus groups regarding the design of an information intervention and the design of survey instruments. For instance, I learned that information needs to be provided through phone calls and not text messages because many parents are illiterate. The education system implicitly puts a huge responsibility on parents for the success of their children's education while many parents expect schools to do everything needed for the success of students.

Only 10.3% of parents ever visited the school to check whether the child did go to school or not. When it comes to parents' knowledge about the education system, overall, a good portion of parents still lack some key information about the education system (Table 2). For instance, 66% of parents do not know the number of subjects their child is taking, and 51.3% do not know the number of tests their child takes every semester. 30% do not know the passing grade, i.e., they do not know the minimum score a child needs to pass to the next grade. Given that the first report card is made available to parents at the end of the first semester, it is important for parents to know when the first semester ends in order to have an idea of when to expect a report card or when to visit the school to withdraw it. 66% of parents in my sample do not have an approximate idea of when the first semester ends. Schools in Sub-Saharan African countries are overcrowded, with teachers teaching the top performers. After school, students are expected to spend most of their time reviewing their lessons and practicing. This requires parents to manage their children's time and efforts. Also, given that schools do not monitor each child's progress in order to take early remedying actions when needed, it is on parents to do such monitoring as well as provide support to their children. Table 2 also provides some statistics on parental involvement at home. 79% of parents have talked to their child about school days at least once in the first three months of the school year, 49% said they have either supervised or found someone to supervise the child's homework at least once, 62% have once asked the child about his/her test scores. 45% have asked their child about the upcoming test date at least once. 51% of parents have checked at least once to see if the child is reviewing his/her lessons. Overall, besides talking to the children about their education or asking how they are performing, parents' involvement is low on the other dimensions. These are precisely the different indicators I am tackling with my intervention. The intervention, as described in the next section, aims to explain to parents their managerial role in the education of their children by providing them with recommendations to better manage their children's time and effort and to get more involved in their children's education both at home and at school regardless of parents' education level. This intervention took place in 20 randomly selected public secondary schools and only focused on 8^{th} grade students. I received permission from the Ministry of Secondary Education of Benin as well as the regional office of secondary education[15]–the highest authority in charge of education–to

15. Authorization Number 145/MESTFP/DC/SGM/DESG/SA

conduct this study. I also received permission from each school to conduct the study.

2.3 Experimental Design

In this section, I outline the different elements of my experiment: the recruitment of schools and parents, the randomization of students, and the intervention.

2.3.1 Enrollment of Schools

I randomly selected 20 schools out of the 95 eligible schools. After the random selection, I visited each of the schools to meet with school officials and explained the study. All the schools agreed to participate. Using students' lists and their parents' contacts from these schools, I invited parents to a meeting at the school. These schools have, on average, four eighth-grade classes. As shown in Figure 2, parents were invited to the schools, and baseline data collection took place from November 22nd to December 17th, 2022. Using parents' literacy information from the baseline data, I randomly assigned parents to treatment and control groups. The treatment group receives the intervention, and the control receives nothing.

2.3.2 Treatment

I randomly assigned parents who responded to my invitation and who agreed to participate in this study to the treatment or the control group.

In the treatment group, I provide parents with comprehensive information about managing their child's time and effort on educational production and its crucial importance in their child's education. As detailed in Figure 1, In Benin, 8^{th} grade students spend 32 hours in class. Also, on average, it takes students 26 minutes to commute to the school by motorcycle. Given that most students walk to school, we can assume that students spend, on average, 80 minutes per day commuting. This is equivalent to almost 7 hours of commuting time per week. It is also well-documented that teachers only teach top performers. As a result, students need to devote enough time outside classrooms to reviewing the materials. Discussion with teachers reveal that for every hour spent in class, students should spend the same time reviewing lessons and doing homework at home. So, students need to spend 32 hours reviewing materials. Putting all these together, students spend 65 hours weekly on school-related activities. The 65 hours do not account for hours

spent on chores which amount to 17 hours on average per week. Consequently, parents' management of their children's time and effort in educational production becomes crucial for their children's success. It will determine how much time students devote to their education and the efforts students put in for every hour spent on school-related activities.

Schools notify students in advance about upcoming tests. Students are also informed about their test scores. The assumption is that students will pass all this information on to their parents. However, anecdotal and focus group evidence suggests that many students do not share this information with their parents unless there is a certain level of monitoring from parents. This study addresses this information asymmetry and provides parents with recommendations for supporting and monitoring their child's education. The recommendations also help parents better manage their children's time and efforts. The information is delivered through weekly phone calls. The intervention lasted approximately four months–January 11^{th} 2023 to May 31^{st} 2023 as shown in Figure 2. During the first phone call, I explain to parents the role of each stakeholder (government, school official/teachers) in the education system. Then, I explained to parents their own role and how time-constrained students are and how crucial is parents managerial role in helping students better manage their time and effort on educational production. During that call, I also provided parents with a list of recommendations and informed them I will be making weekly calls to remind them of some of the recommendations and discuss any challenges they face. In other words, the first phone call is aimed at updating and/or reinforcing parents' understanding of their managerial role in their child's education. Subsequent calls included nudging parents about the recommendations and linking the recommendations to upcoming tests to show parents how their actions affect the time and effort their child might put in to prepare for those forthcoming tests. During these calls, I answered parents' questions, and guided them to the school's appropriate people (teachers, school principal...). The recommendations can be put into two groups.[16]

Recommendations on parental involvement at school include visiting schools to enquire

16. Seminal work in the psychology literature by Hoover-Dempsey and Sandler 1995 explains why and how parental involvement make a difference. In a subsequent work, Hoover-Dempsey and Sandler 1997 reviews psychology theory to understanding why parents become involved in their children's education. Several works laid out potential actions that parents can take to get more involved and measured the association between those actions and students outcomes(Singh et al. 1995; Potvin et al. 1999; Henderson and Mapp 2002. I designed my intervention based on this literature and based on insights from qualitative data I collected a year before this intervention. During my qualitative data collection, I interviewed teachers, school officials, representative of the ministry, parents, and students.

about a child's performance, meeting with teachers, and visiting the school to make sure the child did go to school. Recommendations about how parents can be involved at home include having a conversation with the child about his education, asking about his/her test scores, helping the child with home assignments or finding someone that can help, checking his/her notebook to see if they are up to date, have a well-defined timetable that the child must follow to review his/her lessons, checking on the child each evening and make sure the child review lessons, adjusting the time spent on household chores to allow the child to have enough time to study, especially during test periods.[17]

Recommendations are very crucial to this intervention. I designed the treatment around recommendations for two reasons. First, in Benin, adult illiteracy is very high (57.64%). Results from focus groups I conducted with parents, students, school officials, and teachers 18 months before the intervention show that less-educated parents do not understand their role in their child's education beyond the financial aspect and hence fail to support their children's education. Hence, it was crucial to design recommendations in a way that empowers less-educated parents to get involved in their children's education and better manage their children's time and effort. Second, recent studies suggest that information should be bundled with recommendations to be effective (Barrera-Osorio et al. 2020; Cortes et al. 2021; Kraft and Rogers 2015). My recommendations are not subject-specific or student-specific. Parents in my study do not guide their children regarding how to allocate time between different subjects nor which subjects to study. 96.94% of students in my sample decide themselves which subjects to study. Parents, through their different actions, ensure the child has enough time and put in as much effort as possible toward their education. So, I expect to see improvement in any of the subjects taken by students. It could also be the case that students would substitute the time spent between subjects to increase their GPA and avoid repeating the grade, given that each subject is equally important in year-end passing decision. This could lead to positive effects on

17. These recommendations were very new to most parents in my sample. 72.67% of them said most of the recommendations were new to them. When I dis-aggregate by literacy, I find that these were new to 81% of the illiterate and 64% of the literate parents. Parents often told the research team "*I was in a deep sleep, and you just woke me up.*" Some of them would explain how some of their actions were potentially hurting their child's education without them knowing. A typical example that often came up was about household chores. In this setting, students usually finish classes around 7 pm. By the time they walk and get home, it can be 8 pm. Then, once they get home, their parents would assign a list of chores to be completed. By the time they complete these chores, it might be 10 pm, and the child is tired and cannot study much. This intervention helped parents understand that their child needs time to learn. Also, we discussed with parents how to better manage their child's time.

some subjects and adverse effects on others, but an overall increase in GPA and passing rate. Parents received, on average, ten successful phone calls, representing an average success rate of 88%. Moreover, parents could also apply these recommendations to all their school-aged children. This could lead to substantial positive spillovers within the household.[18]

How do these recommendations potentially affect students' performance? Assume students' grades depend on their ability, time spent studying (quantity), and effort (quality). I view effort as how focused students are when reviewing the materials. Parents' actions operate through two main channels. First, it increases the time students devote to study. For instance, by reducing children's chores or having a schedule for when the child should study, parents increase students' time for school-related activities. Second, it boosts students' efforts in school-related activities through actions such as checking on the child when she is studying, supervising the homework, checking whether students' notebooks are up-to-date, or making random visits to the school to check on the child and enquire about the child's progress. In other words, through persuasion, parents will improve their child's effort, and through engagement, parents will increase the time spent on education.

2.3.3 Sampling

I randomly selected 20 schools. In each of these schools, I invited all the parents with a child in 8^{th} grade. 55% of parents showed up to the school.[19] These schools have, on average, four 8^{th} grade classes. Each class has, on average, 50 students. Once parents came and agreed to participate in the study, we collected baseline data, allowing me to randomly assign parents to treatment or control.

Randomization is at the individual level after stratifying by literacy within each class. In Benin, students are assigned to classes at the beginning of the school year. A class is a fixed number of students who take every subject together and stay together from the first day of class to the last. Students in a class are exposed to the same teachers and the same peers. I divide students' parents within a class into two strata, illiterate parents

18. In a separate project, I am investigating the spillover effects of my intervention. I look at spillovers within students' networks at school and within households.

19. In Section 5.3, I explore the external validity of my sample by examining how outcomes for the 45% of parents who did not show up to the school meeting and were not included in the sampling frame differ from my control group. I find the 45% of parents who did not show up have children that look similar in terms of baseline test scores and year-end grade completion rate with the children in my control group.

and literate ones. By literate, I mean whether the parent can read a set of sentences shown during the baseline survey. Then, I randomly assigned half of the parents from each literacy stratum to either the treatment or control group. In total, 2094 students from 20 schools were enrolled in this study, of which 1038 were assigned to the treatment group and 1056 in the control group as shown in Figure 3.

3 Data and Outcomes

The analysis uses survey data and administrative data. I use five rounds of administrative data from schools, data from two rounds of surveys with parents, and one round of survey data from children. This section discusses all data sources and variations across data collection rounds.

3.1 Baseline Survey Data

Baseline surveys were conducted from November 22^{nd}, 2022 to December 17^{th}, 2022 as shown in Figure 2. For the baseline, I surveyed all the parents/guardians whose children were in 8^{th} grade and agreed to participate in this study and answer the baseline survey. In total, I collected baseline data from 2094 parents/guardians. The survey included modules about socio-demographic characteristics of the household and the respondent, parents-home involvement in their child's education, parents general knowledge regarding child's education, parents-school involvement in their child's education, parents general knowledge about education system, parent's belief about child performance, parents aspiration, student learning environment at home.

3.2 Endline Survey Data

End-line data were collected at the end of the second semester from June 1^{st} to June 30^{rd}. Unlike baseline surveys, I collected data from students and parents during the end-line. For the endline, I added a couple of new modules to the parents' baseline questionnaire. The new modules are on parents' willingness to pay for the intervention, distribution of household chores in the household, and gender norms within the household. One concern that might arise when using parents' endline data to investigate mechanisms is that the treated parents might provide socially desirable answers about their involvement in their

children's education at home and school and the distribution of household chores within the household. To deal with that, I included these same modules in the students' survey questionnaire. I interviewed 1921 parents.

Students' surveys included modules on their network of friends within their class, their perception of parental involvement in their education at home and school, their learning strategy, household chores distribution, and gender norms. In total, 1902 students were interviewed.

3.3 Administrative Data

I collected secondary data from school records.[20] Schools keep a detailed record of students' performance in each subject. This includes their grades on each test and their GPA. I conducted five rounds of administrative data collection. The first was to collect baseline test score data; the second was to collect first-semester test score data; the third was to collect first-semester GPA data; the fourth was about second-semester test scores data, and the last was to collect second-semester GPA data as well as year-end GPA. So, I have repeated measures for test scores.

The secondary data is used to evaluate the effect of the intervention on test scores and grade completion. Given that the intervention can affect any of the subjects taken by students, I measure the impact of the intervention on each subject separately (Biology, Physics, Math, Language, History-Geography). I also pull together STEM subjects (Biology, Physics, and Math) and Humanities subjects (Language and History-Geography) together. Survey data is used to investigate how this intervention might change test scores, mainly how the intervention affects parents' involvement, parents' knowledge of their children's performance, and household chores distribution within the household.

20. These administrative data are ledger books, with each page referring to a specific student. There is one book per class. I took pictures of every page of these books and then hired a team to digitize them. I had another team checking a random sample of the digitized data. Moreover, the pay structure was such that the more inaccurate data you enter, the less money you get. Overall, error rate was less than 0.005%.

4 Empirical Strategy

4.1 Identification

The main question I want to answer is whether the information intervention affects students' and parents' outcomes. Students' outcomes are test scores and grade completion. Parents' outcomes are parental involvement, their knowledge about their child's performance, and the distribution of household chores within the household.

The randomized experimental design provides a strong identification strategy and allows me to attribute any differences in outcome indicators between the treatment and control groups to the information intervention. The effect I measure here is the intention to treat effect, and I measure it by estimating equation 1.

$$Y_{it} = \alpha + \beta_0 Y_{i0} + \beta_1 Treat_i + \beta_2 X_i + \epsilon_{it} \tag{1}$$

In equation 1, Y_{it} measures the outcome of interest for individual i at time t, Y_{i0} is the baseline value of the outcome of interest for individual i, $Treat_i$ is a dummy variable equal one if the individual i is treated and 0 otherwise. Standard errors are clustered at the individual level. I include strata fixed effect. I utilize the double-post LASSO procedure outlined in Belloni, Chernozhukov, and Hansen 2014 to select baseline covariates X_i. These covariates vary slightly from one outcome to the next. However, they include a combination of the following covariates: a dummy for whether the student has ever repeated, the parents' years of schooling, the student's gender, a dummy for whether parents know the end of the semester, and the number of household members who have attended secondary school. My coefficient of interest is β_1. β_1 measures the effect of being assigned to the treatment group on Y. I also perform heterogeneity analyses using a fully interacted version of equation 1 as in equation 2.

$$Y_{it} = \alpha + \beta_0 Y_{i0} + \beta_1 Treat_i + \beta_2 Heterogeneity_i + \beta_3 Treat_i \times Heterogeneity_i + \beta_4 X_i + \epsilon_{it} \tag{2}$$

In Equation 2, $Heterogeneity_i$ is a binary variable with values 0 or 1. For example, it equals one if the parent is literate and 0 otherwise when examining heterogeneity based on parental literacy. I employ Equations 1 and 2 in situations with a single observation per student (such as grade completion and GPA) as well as in cases with multiple observations

per student (where all the student's test scores are pooled into one regression).

4.2 Groups of Outcomes

Some of my outcomes, mainly outcomes measuring the mechanisms, are measured through a series of questions. For instance, parental involvement in their child's education at home is measured through a series of five questions. Similarly, parental involvement at school is measured through three questions. For these outcomes, I construct an index. This helps me avoid overemphasizing any single significant result. I build the indexes by following Kling, Liebman, and Katz 2007. The indexes combine all of the outcomes in each family of outcomes. There is an index for parental involvement at home and another for parental involvement at school. The process of creating these indexes is as follows. I define each outcome to construct the indexes so that higher values correspond with better outcomes. Then, I standardize each outcome into a Z-score by subtracting the mean and dividing it by the standard deviation of the control group within the class. The last step consists of taking the average of all Z-scores. Following A. Banerjee et al. 2015, I standardized the Kling index relative to the control group. I then estimate the effect of the intervention on these standardized outcome indexes [21].

5 Empirical Results

In this section, I present baseline balance results and the results of the impact of my intervention on students' outcomes.

5.1 Baseline Balance

Using baseline survey and secondary data, I compare the treated and control groups on a set of characteristics and baseline outcomes. Table 2 shows the results. In Table 2, I present the control group means, the treated group means, the difference in means between treated and control, and the p-value of the equality test between treatment and control. I can reject the null hypothesis that the treatment arm is equal to the control for only two variables out of 29. I also run a regression where I regress all 29 variables on treatment status, including strata fixed effects and cluster standard errors at the individual

21. This strategy has been used by previous researchers such as Akresh, Halim, and Kleemans 2023.

level. The p-value of global significance is 0.32, showing that the model is not globally significant. These results confirm that the randomization successfully created two groups that are similar in their characteristics; hence, any difference can be attributed to the information intervention. The subsequent subsections present the results of the impact evaluation of my intervention.

5.2 Students' Outcomes Improve

I focus on two main student performance outcomes. The first is a binary variable indicating whether the student successfully passed from grade 8 to 9 (coded as 1 for passing and 0 for not passing). The passing decision is based on your performance throughout the academic year in every subject. The passing threshold is to have an overall year-end GPA of at least 10 out of a total of 20. The second outcome is the year-end GPA, which reflects a student's overall performance across all subjects. This GPA is computed for the entire academic year and also for each semester. For each semester, it is calculated as the average of a student's performance in each subject based on test and quiz scores. Each semester includes two tests and at least two quizzes. To calculate the subject's average performance, schools sum up quiz and test scores, then take the average. Tests are not teacher-specific and are considered more reliable.

The year-end GPA is a weighted average of the first semester (weight of one-third) and the second semester (weight of two-thirds) GPAs.[22] The year-end GPA determines whether a student repeats the grade; a student must achieve at least 10 out of 20 to avoid grade repetition.

In addition to these primary outcomes, I examine the impact on test scores as secondary outcomes. First, I group all six subjects into STEM (physics, biology, mathematics) and Humanities (language, history-geography) to understand the contributions of each subject group to the year-end GPA and passing rates. Next, I explore the effects on each of the subjects.

In the analysis, I use standardized GPAs and test scores. Standardization involves subtracting the mean of the control group in the same class from each student's outcome and dividing it by the standard deviation of the control group in that class.

Table 3, Column 1 (Figure 4), reveals a statistically significant 4-percentage-point

22. This is a standard practice in the education system in Benin

increase in grade completion due to the information provided to parents. This translates to a 6 percent improvement compared to the control group's mean of 0.68. In Column 2, I examine the impact on students' GPAs (Figure 5). Panel A indicates a significant 0.11 standard deviation (SD) increase in year-end performance. Panels B and C show that the intervention also positively affects second-semester GPA (0.12 SD) but has a more negligible impact on the first semester (0.07 SD, not statistically significant). The lack of a substantial effect on the first-semester GPA can be attributed to the intervention starting just a week before the last test of the semester. The increase in GPAs is primarily driven by improvements in STEM subjects, as demonstrated in Columns 3 and 4.

In Table 4 (Figure 6), I present the results for each of the five subjects, beginning with the three STEM subjects—Physics, Biology, and Mathematics—followed by the two humanities subjects—Languages and History-Geography. Panels B and C display the results for each semester separately, while in Panel A, I aggregate the test score data from both semesters to enhance statistical power. Students take two tests per semester in each subject. The first test of the first semester happened before my intervention. As a result, Panel C consists of one observation per student, Panel B has two observations per student, and Panel A includes three observations per student. From Panel A, we observe a significant improvement in three of the five subjects. The most substantial impact is seen in Physics (0.11 SD), followed by Biology (0.09 SD) and History-Geography (0.05 SD). Panels B and C reveal that the positive effect in Physics is present in the first semester (0.12 SD) and the second semester (0.10 SD). Furthermore, in the second semester, significant improvements are evident in Biology (0.09 SD) and History-Geography (0.08 SD).[23]

Overall, the above results suggest that this simple intervention has substantial impact on students' performance and likelihood of grade competition. However, given that the goal of the intervention is to help low educated parents support their children through a set of simple actions and given their children are more likely to be low performers, we should investigate the impact of the intervention on students who are prone to grade repetition in the first place. If indeed my intervention is helpful to poor illiterate parents, then we expect to see a higher impact on the subgroup of poor-performing students.

23. The observed results underestimate the true impact if the intervention influences which students decide to take the tests. In other words, the intervention might encourage students who, without the intervention, would have been less inclined to take the tests. These students are typically those with lower academic performance. To address this concern, I examined whether the intervention had any effect on students' likelihood to take the tests. The findings indicate that the intervention does not alter the likelihood of students taking the tests.

In the following section, I investigate how the overall impact discussed above varies based on students' baseline performance, parental literacy, students' gender, and the gender of the recipient of the calls (mothers versus fathers).

5.2.1 Low-Performers Benefit the Most

In this section, I examine the variation in effects based on students' baseline performance. I divide students into three groups based on the number of subjects, with a score of at least ten on the first test of the first semester. The three groups are the bottom quartile, the middle fifty percentile, and the top quartile. Students with test scores below 10 in at least four of the six subjects are in the bottom quartile of baseline performance. Results are presented in Table 5. In Panel A, there is a statistically significant 11-percentage-point increase in the probability of advancing to grade nine for students in the bottom quartile. This improvement in their completion rate is attributable to an improvement of 0.16 SD in their year-end GPA.

In contrast, the middle fifty percentile and the top quartile experienced a 2-percentage-point and 1 percentage-point increase respectively , and it is not statistically significant. Comparatively, this 11-percentage-point increase for the bottom quartile, when compared to the control group's mean of 0.3, represents a substantial 37% increase. This suggests that the intervention effectively helped many at-risk students avoid grade repetition.[24]

58% of students in the bottom quartile have illiterate parents. This higher proportion of illiterate parents in this subgroup indicates that the intervention might have a slightly more substantial positive effect on student outcomes among those with illiterate parents than those with literate parents. Next, I compare the effect of the intervention based on parental literacy.

5.2.2 Heterogeneity by Parental Literacy

In Table 6, I present heterogeneity based on parental literacy. Overall, education level in my sample is very low–2 years for mothers and 5 years for fathers. It's uncertain how literate and illiterate parents might respond to this intervention. There are two potential scenarios to consider. First, it's possible that children whose parents are literate benefit more due to literate parents' enhanced ability to monitor and support their children

24. The results remain consistent when, instead of using quartiles, I divide my sample into three groups based on deciles. In this approach, each group represents approximately 33% of the total sample.

beyond the provided assistance. For instance, they may be better equipped to assist with homework and engage with the education system. On the other hand, it's also plausible that illiterate parents' children benefit the most because support and monitoring may be particularly crucial at the extensive margin for their children.

In Panel A, I examine the results for students whose parents are illiterate, while Panel B focuses on literate parents. In Column 1, I observe a significant improvement in the probability of passing for illiterate parents, with an increase of 6 percentage points. However, for literate parents, the effect is smaller, at two percentage points, and not statistically significant.

When considering the impact on GPA, we find an increase of 0.13 standard deviations (SD) for illiterate parents and 0.10 SD for literate parents. A test comparing the point estimates between these two groups suggests that the coefficients are not statistically different, although the effects on illiterate parents tend to be larger. This indicates that the results are not primarily influenced by parental literacy. More interestingly, this result suggests that illiterate parents can indeed take actions that will improve their children's performance. Usually, when thinking about parents ability to help their child's education, we assume that parents should be themselves educated before being able to support their child's education beyond the financial support. My results suggests that parents can play a very crucial role in their child's education regardless of parents' education level.

Next, I explore heterogeneity by student gender to examine potential variations in parental responses to the intervention based on their child's gender.

5.2.3 Heterogeneity by Student Gender

In Appendix Table A1, I present intervention results separately for girls (Panel A) and boys (Panel B). In column 1, both female and male students show a 5-percentage-point increase in the probability of passing, equating to a 7.1% and 7.6% increase relative to the control groups for girls and boys, respectively. Column 2 reveals a significant GPA increase of 0.19 standard deviations for females but not statistically significant effect for males. Importantly, these distinct estimates do not exhibit statistical differences, indicating the absence of gender preference among parents in their response to the intervention. It is worth noting that despite our inability to reject equality between boys and girls estimates, girls (0.19 SD) increase in year-end GPA is twice as large as that of boys (0.10 SD). We

also see a similar pattern in Humanities test scores. Why do girls seem to benefit more? A deep dive into the potential mechanism might shed lights on this differential impact. Next, I explore how the effects vary when we interact parental literacy with students' gender.

5.2.4 Heterogeneity by Parental Literacy and Student Gender

While there's no statistical differential impact by students' gender and parental literacy, I explore potential differences within gender based on parental literacy status. Table 7 presents results for four groups: illiterate parents with female students (Panel A), literate parents with female students (Panel B), illiterate parents with male students (Panel C), and literate parents with male students (Panel D). I also provide p-values for comparing illiterate parents and female students to literate parents and female students, as well as for comparing illiterate parents and male students to literate parents and male students.

In Panels A and B (Column 1), the intervention increases the probability of passing for female students whose parents are illiterate by 9 percentage points, compared to 1 percentage point for female students with literate parents. Although the effect on illiterate parents' female students is NINE TIMES larger, these two coefficients are not statistically different. Panels C and D demonstrate that both illiterate parents' male students and literate parents' male students tend to benefit similarly from the intervention.

5.2.5 Larger Effects when Mothers Receive the Calls

In Appendix Table A2, I examine the impact of the intervention based on whether mothers or fathers receive the calls. These results should be interpreted with caution as the choice of who receives the calls is endogenous. These are just correlations and cannot be interpreted as causal. Across all four outcomes the point estimates are consistently larger when mothers receive the calls compared to when fathers do. For example, in column 1, the effect on grade completion is three times larger when mothers receive the calls. The year-end GPA shows a sevenfold increase when mothers receive the calls, with this difference being statistically significant. This pattern aligns with findings from other interventions, such as cash transfers to mothers versus fathers. However, further research is needed to draw definitive conclusions.

5.3 Robustness Analysis

In this section, I present the results of the different robustness analyses. I consider four main types of robustness tests: survey response rate or student drop-out, strata size, sample composition, and, finally, sensitivity to controls.

Survey response rate or student drop-out: There are two types of attrition in my study, depending on the type of outcomes. First, there is attrition with test scores data. Some students were enrolled during the first semester but dropped out in the second semester. In the first semester, there were 2094 students, out of which 47 dropped out or changed schools in the second semester. That represents an attrition rate of 2.24%. Second, there is attrition with parents' surveys. In total, 1921 parents/guardians interviews were conducted in the endline survey out of 2094 at baseline. This is equivalent to 8.26% attrition. These parents were unreachable by phone, and our attempts to track them in their village were unsuccessful. I conduct two sets of analyses to investigate whether the results are affected by these changes in my sample. First, I regress attrition status on treatment status, and I include strata fixed effect and also cluster my standard errors at the individual level. The p-value on my treatment variable is 0.13. This suggests that I cannot reject the null hypothesis of no differential attrition between treatment and control. Next, I run a fully interacted model where I regress attrition on treatment status and include all the covariates from Table 2 as well as their interactions with the treatment variable. Then, I perform a joint test where I test the joint significance of these interaction terms. The P-value of the F-stat of this test is 0.85, suggesting that we cannot reject the null hypothesis of these interactions being jointly equal to zero. These two tests above suggest that there is no differential attrition between treatment and control and also no differential attrition in the covariates. Next, I also estimate Lee bounds for my main results. This provides lower and upper bound for my estimates. Lee Bounds for Table 3 are in Appendix Table A4. Lee Bounds for Table 4 are in Appendix Table A5. Lee Bounds for parental involvement indexes are in Appendix Table A6. Appendix Table A7 contains the results for Lee bounds on the following outcomes: student doing fewer chores, parental error about student performance, and parent is correct about student's passing/failing. Overall, the results are similar in magnitude, suggesting that change in my sample is not what is driving my results.

Potential sample selection: In each of the 20 schools included in my study, I extended

invitations to all parents with children in 8^{th} grade. Of these invitations, 55% of parents attended the school meeting, while 45% did not. A potential concern is whether these two groups differ, specifically whether parents who participated in the meeting were more invested in their children's education. To address this concern, I conducted several analyses. First, I compared the baseline test scores of students whose parents attended the meeting to those whose parents did not (55% vs. 45%). The results revealed differences in math and history-geography scores between these two groups. To assess the overall significance of these differences, I performed a global significance test, resulting in a p-value of 0.14. These findings suggest that, based on baseline test scores, my sample of students is similar to those whose parents did not attend. Next, I compared the 45% sample (parents who did not attend) to my control group. The idea behind this comparison is that if they were similar at baseline, I could compare their endline outcomes, expecting no significant differences. Comparing these two groups at baseline, I find they are similar across all subjects except history-geography. A global significance test confirmed that these groups are indeed similar (p-value for F-statistic = 0.54). If they are indeed similar at the baseline, then at the endline, they should also look similar. I compare the grade completion rates between my control group and the 45% sample and find no significant difference (Column 3 of Table A12). Moreover, as I discussed in Section 5.4 these two groups show similar spillovers effects (Column 4 and 5 of Table A12). In summary, these results collectively suggest that the positive outcomes of my intervention apply to the entire population of 8th-grade students in my research setting and are not specific to a subgroup of parents.

Strata size: Treatment assignment was performed within each literacy stratum within each class. Some classes have a very small number of students in some strata. Also, many strata have an odd number of students making it impossible to have an even split between treatment and control. Randomization inference investigates what would have occurred under not only the random assignment that happened to be selected for the experiment but also under all possible random assignments and checks if the results hold. In other words, it assesses whether observed outcomes in my sample are likely to have been observed by chance even if treatment had no effect.[25] This was introduced by Fisher

25. Young 2019 revisited results of approximately 2,000 regressions from more than 50 articles published in leading journals, repeating their analyses using randomization inference. After accounting for multiple hypotheses testing, he finds that less than half the experimental articles can maintain the hypothesis that any treatment effect exists.

et al. 1960 and further developed by Rosenbaum and Rosenbaum 2002[26]. I perform randomization inference for Table 3 and the results are in Appendix Table A8. Results suggest that my results are not merely by chance.

Sample composition: The composition of students in the different tables that look at students' outcomes varies slightly from one outcome to the other. This is due to the fact that some students might miss some tests because of various reasons. To see how sensitive my results are to that composition change, I restrict my sample to students who took all the tests in every subject. Results are in Appendix Table A9. The results are consistent with my main results. This suggests that my results are not driven by a selection to take the tests.

Sensitivity to controls: My main results control for baseline outcome whenever possible and utilize the double-post LASSO procedure outline in Belloni, Chernozhukov, and Hansen 2014 to select additional covariates. The procedure allows me to maximize statistical power while remaining agnostic regarding which controls to include in my regressions. In Appendix Table A13, I redo my main tables (Table 3 and 4) using the ANCOVA specifications that were previously standard in the experimental literature. This consists of excluding all the additional covariates from my regression. Results do not meaningfully change.

In summary, I find no meaningful differences between all these different robustness tests and my main results.

5.4 Spillovers Analysis

There are two potential sources of spillover effects in my study. Firstly, the information provided to parents in this intervention is not child-specific. Consequently, parents might share this information with their peers. At the baseline, 21% of parents reported talking to other parents. By the endline, this number increased to 37%, indicating that parents engaged more in conversations with one another during the intervention period. Given that the information is not child-specific, control group parents could indirectly receive information from treated parents through these informal discussions. This is likely to happen given that my randomization is at the individual level in each class. Positive

26. This was used in economics and political science (Fujiwara and Wantchekon 2013, Ichino and Schündeln 2012, Cohen and Dupas 2010, Bloom et al. 2006)

spillovers occur when control parents, after learning about the recommendations to improve their child's performance, choose to implement these recommendations in their own households. This leads to an improvement in their children's performance. The extent of this effect increases with the number of treated parents a control parent is exposed to. On the other hand, negative spillovers would involve control parents deciding not to apply any recommendations after learning that other parents are receiving guidance on being more involved in their child's education. However, in our context, such negative spillovers are unlikely, given the expressed interest by both treated and control parents during the endline data collection. Even if they were to occur, they would have no adverse impact on their children's performance. At most, they would have a null effect because control parents would just maintain their behavior and not make any adjustment in response to this intervention.

Spillover effects could also occur among students. Randomization is done at the individual level within classes. Since both treated and control students share the same classroom, it's possible for control students to be influenced by their treated peers. One could make a case of how these spillover effects could negatively or positively affect control students. A negative spillover would be a situation where improved performance from treated students would discourage control students from putting in any efforts.

Student-level spillovers can occur through various channels. Positive spillovers may arise from changes in the behavior of treated students, both within and outside of school. For example, treated students may inform their peers in the control group that their parents have been receiving calls and are now informed about their school behavior. This awareness might lead control students to improve their behavior, assuming a similar level of parental awareness. Additionally, improvements in the academic performance of control students' friends can also benefit them, particularly if they study together. A negative spillover could occur if control students, upon observing improvements in their treated counterparts, become discouraged and reduce their efforts. Discussions with school officials and teachers suggest that this is very unlikely to be the case. In fact, students have their networks of friends. Most students in a network tend to have the same behavior regarding study habits, attention in class, absenteeism... As a result, when some members of the group improve, it tends to positively affect other members of the group. For instance, when those you usually miss class with are not attending class, you

will be more likely to do so. In this setting, based on these anecdotal evidences from school officials, I believe my intervention only yields positive spillovers among students.

Given data limitation, to investigate the presence of spillovers, I compare students in classes with varying proportions of treated students, ranging from 10% to 50% of students being treated.[27] I divide classes into high intensity and low intensity classes. I categorized classes as either low exposure (below the median, less than 30% treated students) or high exposure (above the median, more than 30% treated students). Out of the 20 schools, 9 had both low and high-exposure classes, while the remaining 11 classes were divided between high and low exposure. A balancedness test between low-intensity class and high-intensity show that these two sample are not balanced. However, if I take school officials information at face value and assume that students are indeed randomly assigned into classes then I can compare control students from high-intensity to those from low-intensity. Any difference, would suggest the presence of spillovers. A similar exercise is also conducted for treated students.

Appendix Table A10 and A11 present the results of spillover analysis. I compared treated students in high-intensity classes to treated students in low-intensity classes (Panel B in Appendix Table A10 and A11). In Panel C of Appendix Table A10 and A11, I compared control students from high-intensity classes to control students from low-intensity classes. In Panel A of both tables, I examined whether there is differential treatment effects based on exposure level.

Appendix Table A10 suggest a positive spillover associated with the intervention. Treated and control students in high-intensity classes experienced an 8-percentage-point increase in their probability of grade completion compared to their low-intensity counterparts. This suggests that the actual impact of this intervention is 12 percentage-point instead of the 4 percentage-point from Table 3. Additionally, there is no differential treatment effects based on exposure level (Panel A in Appendix Table A10). I do the same analysis among students whose parents did not participate in the study. As discussed in Section 5.3, my control group and the students whose parents did not participate in my intervention look similar across baseline test scores. Given their similarity, we should expect similar spillover effects across those two groups. In Column 5 of Appendix Table

27. A cleaner alternative to this is to collect data from schools that were not part of my study. Those schools can serve as pure control given the random selection of the 20 schools that are part of my study. I am currently working toward getting data from those schools. Future versions of the paper will include analysis from a pure control group.

A12, I compare students whose parents did not participate in my study across intensity classrooms. Results suggest that a high-intensity classroom increases the probability of grade completion by seven percentage points. This result provides more support for the existence of positive spillovers.

Appendix Table A11 investigates changes in parental behavior based on whether their child is in a high or low-intensity class. The assumption is that students from the same class are more likely to come from the same neighborhood, increasing the chance for their parents to interact. Results indicate no differential treatment impact based on a child's class proportion of treated students (Panel A). Panels B and C do not show a clear trend of differential parental involvement among both treated and control groups based on their child's class proportion of treated students. This suggests that parents of children in high or low-intensity classes behave similarly regarding their involvement in their children's education.

6 Potential Mechanisms

My information intervention aimed to encourage parents to become more involved in their children's education, both at school and at home. In this section, I assess the impact of the intervention on each of these actions. To mitigate potential social desirability biases, I conducted separate analyses using data collected from the students. The interviews were conducted independently, minimizing the possibility of parents coaching their children's responses in advance. Additionally, anecdotal evidence from school officials and our research team supports the following results. For instance, school officials observed changes in parents' behavior, such as increased visits to inquire about their children's progress. Similarly, some parents often contacted us when visiting the school to demonstrate their commitment to following our recommendations .

6.1 Parents Improve their Knowledge about their Child's Performance

I employ two strategies to assess parents' knowledge of their children's performance. First, I examine deviation between parents' perceptions and their child's actual performance. Second, I consider whether parents believe their child's performance falls above or below

the passing threshold of 10 out of 20. These two measures capture different aspects: the former assesses precision, while the latter focuses on classification, regardless of parents' accuracy in estimating their child's GPA. For example, parents may score poorly on the first indicator but demonstrate accuracy with the second, suggesting their primary concern is whether their child meets the passing threshold. Parents in my sample are more likely to enquire about the second measure as opposed to the first. As a result, I have many missing data for the first measure. I investigate whether the probability of answering to the first differs between treatment and control and find no statistically significant difference.

Table 8 contains the results. In the first column, I show that the information intervention reduces parents' deviation from their actual child's GPA by 0.09. This reduction, when compared to the control group's mean deviation of 0.61, amounts to a 15% reduction in the gap between parents' response and their child's actual GPA. Column 2 presents the findings on parents' ability to correctly know whether their child's GPA is above or below the passing threshold. The intervention increased the likelihood of parents making accurate classifications by 6 percentage points. Compared to the control group's mean of 0.80, this represents a 7.5% increase. These results are particularly noteworthy since the information intervention did not provide specific performance data to parents[28]. This underscores that when parents have a clear understanding of their non-financial role in their child's education and how to fulfill it, they are better equipped to accurately assess their children's daily performance.

6.2 Parents Improve their Involvement at School

I assess parental involvement at school using three specific actions recommended to parents as part of the information intervention. These actions encompass visiting the school for discussions with school officials or teachers, making school visits and engaging with teachers, and ensuring the child's attendance at school. Importantly, these actions are accessible to parents regardless of their education level and can be undertaken by any family member. In Table 9, columns 1 to 3 present the intervention's impact on each of these actions. Panel A displays results at the extensive margin, while Panel B presents

28. In other similar works such as Dizon-Ross 2019, they do provide parents with information about their children's performance

results at the intensive margin. In Panel A, all results are statistically significant at a 1 percent significance level. The intervention leads to significant increases in the probability of parents visiting the school (by 8 percentage points), engaging with teachers (by 5 percentage points), and monitoring their child's attendance (by 6 percentage points). Relative to the control group mean, these increases represent substantial improvements of 19%, 25%, and 33%, respectively. Additionally, I construct a parental involvement at school Kling index using these three actions (column 4). The intervention results in 0.20 standard deviation increase in the parental involvement at school index at the extensive margin. Regarding the intensive margin, of the three actions, a significant increase is observed only in visiting the school to talk to teachers, with an increase of 0.16. Parental involvement at the school index also shows a substantial increase at the intensive margin, with an increase of 1.24 standard deviations.

6.3 Parents Improve their Involvement at Home

I measure parental involvement at home through five specific actions: discussing education with their children, supervising homework or finding someone to do so, inquiring about test scores, asking about upcoming test dates, and checking on their children during lesson reviews. These actions can be undertaken by parents regardless of their education level. Home-based parental involvement questions were also included in the student surveys to assess potential social desirability bias in parents' interview responses.

In Table 10, I examine the intervention's impact on these five actions. Panels A and B present the extensive margin results from parent and student surveys, while panels C and D show the intensive margin results from the same surveys. The first five columns display the effects on specific actions, and column 6 presents a standardized Kling index based on all five actions. All results are statistically significant at the 1 percent level of significance.

At the extensive margin, the home involvement Kling index indicates a positive impact of 0.38 standard deviations when using parent survey responses and 0.45 standard deviations based on students' responses. At the intensive margin, there is a 0.74 standard deviation increase using parent survey data and a 0.64 standard deviation increase with students' responses. These findings suggest that parents' responses are not merely a product of social desirability. They indicate a significant increase in parental involvement

in their children's education at home.

I also encouraged parents to be mindful of the time their children spend on household chores, especially as tests approached. Parents were advised to ensure that their children had adequate time for reviewing lessons. Table 11 illustrates the impact of this intervention on the distribution of household chores within the family. In Panel A, the results are based on parents' survey responses, while for robustness, the same questions were included in the students' survey, as shown in Panel B. According to Column 1, the intervention led to an 11-percentage-point increase in the likelihood of children doing less chores, based on parents' responses. When considering students' survey responses, this reduction was even larger at 14 percentage points. To put this into context, compared to the control group's mean of 0.35, the impact measured from parents' responses represents a substantial 31% increase. These findings suggest that parents recognize the importance of allowing their children more time for school-related activities. In conjunction with the results regarding increased parental involvement at home, it is evident that parents not only became more engaged in their child's education but also allocated more time for their children to focus on learning. This means that students not only have more time but also higher quality time for their education.

6.4 Mediation Analysis

In this section, I explore the impact of various mechanisms (school involvement, home involvement, reduction in household chores, and parents' ability to accurately assess their child's grades) on the observed impact on year-end GPA. To achieve this, I incorporate each of these four mechanisms as control variables in the main regression model. Then, I measure the change in treatment effect on year-end GPA due to the inclusion of these outcomes as controls.

Results are summarized in Table 12. Column 1 replicates the impact of the information intervention on year-end GPA as shown in Panel A of Table 3. Subsequent columns introduce each mechanism as a potential mediator through which parental information affects year-end GPA. Column 2 demonstrates that including the parental involvement index at school reduces the intervention's effect on year-end GPA by 19%, though a substantial impact remains with a 0.09 SD increase. Column 3 reveals that adding the index of parental involvement at home leads to a 55% reduction in the intervention's impact,

rendering it statistically insignificant. Column 4 indicates that the reduction in household chores has limited explanatory power. Column 5 includes parents' knowledge about their children's performance as a mediator, resulting in a 36% reduction in the intervention's impact, though statistical significance is lost. These findings align with those in Tables 8, 9, 10, and 11, where significant changes in these variables were observed in response to the information intervention. Finally, in Column 6, all mediators are included simultaneously. The results show a 45% reduction in the year-end GPA effect, which is no longer statistically significant. These outcomes suggest that parental involvement at home and parents knowledge of their children's performance are the primary drivers behind the observed effect on year-end GPA.

7 Cost-Effective Analysis

Regressions results highlight the beneficial impacts of providing information to parents on their children's education. I conduct a cost-benefit analysis to evaluate whether this intervention would be cost-efficient for developing countries. To do this, I take three approaches.

In the first approach, I developed an accounting model that takes into consideration all the costs associated with this intervention and benefits measured in terms of tax revenues for the government. It takes four years to graduate from middle without repeating any grade. By improving grade completion, my intervention will help students graduate from middle school after approximately four years. In the absence of my intervention, some students would have repeated eighth grade and potentially repeated ninth grade, then dropped out, hence spending at least four years without completing middle school. This shows that by improving grade completion, my intervention does not necessarily increase government expenses or expenses for families, but instead, for the same or less government spending on education, my intervention improves school completion rates. In other words, I assume there will be no additional costs to the government or students' families. Under these assumptions, the costs associated with my intervention can be only the implementation costs. The intervention costs in total $9,861.[29]

29. I could also assume that students who completed grade 8 due to my intervention would spend more years of schooling by going beyond middle school. Under this assumption, the government and their families will incur additional costs that they would not have incurred in the absence of my intervention. Similarly, these students will have higher wages compared to what I am assuming in Table 13. This

Regarding the benefits, I assume these students will complete middle school and enter the labor market. They will start paying taxes two years after entering the labor market– when they turn 18. They will pay taxes for 40 years. I make several assumptions regarding their potential wage, assuming they will make the current minimum wage in Benin in 2023 or make the average wage of recent middle school graduates' wage collected from the 2018 EHCVM survey.[30] I take a very conservative stance and assume these wages will be fixed over the career of these workers. For each potential wage, I calculate the tax benefits for governments after 40 years, the net benefits, the break-even year, which is the year when benefits surpass costs, and the internal rate of return (IRR). The IRR measures the discount rate at which the tax revenues offset the current cost of the intervention. All the benefits are discounted back to 2023. Results are in Table 13. Panel A focus on the effect of my intervention in my sample while panel B focuses on the impact of my intervention on marginal students. From a policy perspective, the focus should be on marginal students. The first two columns of each panel assume that all the students who completes middle school will work in the formal sector while the last two columns assume that only 15% will end up working in the formal sector. Results suggest that it will take the government between 1 and 40 years to break even. The net benefit range from $241914 to $754. The IRR ranges from 2546% to 8%. Overall, these results suggest that my intervention is highly cost-effective. Akresh, Halim, and Kleemans 2023 performed similar cost-benefit analysis for the Indonesian school construction. They find an IRR between 6% and 10%, and break-even years between 17 to 30 years.

In the second approach, I simply compare the cost of grade repetition in the control group of marginal students to that of the cost of the intervention in the treatment group of marginal students. Each repeater cost $149 to the government (World Bank 2015). For 1000 marginal students, my intervention will lead to 11pp increase in grade completion. In absence of my intervention, this represents 110 additional repeaters that will cost $16390 to the government. These expenses could be avoided by my intervention which cost $9.5 per student, so a total of $9.500 for 1000 students. This leads to a net saving for the government. This very simplistic approach shows cost saving is my intervention on a year

scenario does not qualitatively change my cost-benefit results.

30. The Harmonized Survey on Households Living Standards (EHCVM) is a nationally representative household survey conducted within the West Africa Economic Monetary Union (WAEMU), a joint program by the World Bank and the WAEMU Commission that aims at producing household survey data in member countries

to year basis.

The third approach consists of measuring the improvement in students' performance for every $100 spent. My intervention costs $9.5 per treated student and improves year-end GPA by 0.11 SD. For comparison purposes, I convert all my cost to 2011 US dollars. Results from that analysis suggest that for every $100 spent, my intervention yields 1.57 SD (2011 US dollars). Results are in Table A13. Some of the most cost-effective education interventions in Africa include Duflo, Dupas, and Kremer 2011—16 SD per $100; Glewwe, Ilias, and Kremer 2010—3 SD per $100. For comparison purposes, all these cost-effectiveness results are expressed in 2011 values, adjusting for inflation. Results suggest that my intervention is among some of the most cost-effective education interventions in this region if we only focus on standard deviation improvement in test scores per $100 spent. However, this first scenario does not take into account the most crucial result of this paper: improvement in grade completion. Accounting for change in grade completion is very important for two reasons. First, improvement in test scores does not necessarily translate into improvement in grade completion if these test scores improvements are primarily driven by students who are already above the passing threshold. Second, grade repetition is very costly for government around the world. Not accounting for cost saving from the government due to improvement in grade completion would lead to the benefits of the intervention being underestimated.

8 Conclusion

In Africa, inter-generational education mobility is low for children living in rural areas or whose parents have very little to no education (Alesina et al. 2021). In this paper, I designed a randomized field experiment in rural Benin to investigate the effect of providing parents with information about their non-financial role in their child's education through weekly phone calls. During these weekly calls, I explained to parents the role of each stakeholder in the education system and stressed the importance of parents' non-financial role in the success of their child. Then, I provided parents with a set of simple actions they can take to get more involved in their children's education on a daily basis and better manage their children's time and effort. These actions do not require any education level. I designed the intervention based on the psychology literature on parental involvement

and qualitative data I spent a month collecting in Benin a year before the intervention.

I spent nine months in the Atlantique province of Benin implementing this intervention. I worked with 20 randomly selected schools, predominantly in rural areas. I hired, trained, and supervised 94 enumerators who helped collect survey data from parents and students and helped me implement the intervention.

Results show that my intervention increases grade completion by 6 percent. This improvement is more pronounced for low-performing students, with an improvement of 37 percent—these improvements in grade completion result from an improvement in students' year-end GPA by 0.11 SD. Improvement in GPA is predominantly driven by low-performing students (0.16 SD). When looking at specific subjects, results show that improvement in year-end GPA is driven by STEM subjects, mainly Physics (0.11 SD) and Biology (0.09 SD).

My data allows me to explore some potential mechanisms. I find that parents improve their involvement in their children's education at home by 0.38 SD and at school by 0.2 SD. Moreover, parents strengthen their knowledge about their child's performance and reduce the number of household chores their child performs.

My intervention is very cost-effective as it increases not only students' GPAs but also grade completion rates. Assuming that students who completed grade 8 due to my intervention will finish middle school and then enter the labor market, under a range of assumptions, my least conservative estimates suggest that governments will break even within a year and make a net benefit (tax receipts) of $241,914 over the career of these students. In my most conservative approach, governments will break even in year 40 after these students join the labor market, and the government will make a net benefit (tax receipts) of $754 over the career of these students.

The monetary cost of repeaters to education systems in Sub-Saharan Africa and the non-monetary cost to society are high. My results suggest that a simple, less expensive, scalable, and more self-sustainable intervention such as the one in this paper can potentially improve grade completion, primarily for low-performing students. In many educational settings, school officials and teachers are not accustomed to high parental involvement. A sudden and substantial increase in parental engagement can bring about several challenges. It not only alters the dynamics within the school environment but also increases the workload of school officials and teachers due to the added interactions

with parents. Therefore, future research could explore supply-side interventions focused on training teachers/school officials on how to engage with parents, particularly disadvantaged ones, coupled with parents' intervention.

References

Akresh, Richard, Daniel Halim, and Marieke Kleemans. 2023. "Long-term and intergenerational effects of education: Evidence from school construction in Indonesia." *The Economic Journal* 133 (650): 582–612.

Alesina, Alberto, Sebastian Hohmann, Stelios Michalopoulos, and Elias Papaioannou. 2021. "Intergenerational mobility in Africa." *Econometrica* 89 (1): 1–35.

Andrabi, Tahir, Jishnu Das, and Asim Ijaz Khwaja. 2017. "Report cards: The impact of providing school and child test scores on educational markets." *American Economic Review* 107 (6): 1535–1563.

Avvisati, Francesco, Marc Gurgand, Nina Guyon, and Eric Maurin. 2014. "Getting parents involved: A field experiment in deprived schools." *Review of Economic Studies* 81 (1): 57–83.

Banerjee, Abhijit, Esther Duflo, Nathanael Goldberg, Dean Karlan, Robert Osei, William Parienté, Jeremy Shapiro, Bram Thuysbaert, and Christopher Udry. 2015. "A multifaceted program causes lasting progress for the very poor: Evidence from six countries." *Science* 348 (6236): 1260799.

Banerjee, Abhijit V, Rukmini Banerji, Esther Duflo, Rachel Glennerster, and Stuti Khemani. 2010. "Pitfalls of participatory programs: Evidence from a randomized evaluation in education in India." *American Economic Journal: Economic Policy* 2 (1): 1–30.

Barrera-Osorio, Felipe, Kathryn Gonzalez, Francisco Lagos, and David J Deming. 2020. "Providing performance information in education: An experimental evaluation in Colombia." *Journal of Public Economics* 186:104185.

Belloni, Alexandre, Victor Chernozhukov, and Christian Hansen. 2014. "Inference on treatment effects after selection among high-dimensional controls." *Review of Economic Studies* 81 (2): 608–650.

Bergman, Peter. 2021. "Parent-child information frictions and human capital investment: Evidence from a field experiment." *Journal of political economy* 129 (1): 286–322.

Berlinski, Samuel, Matias Busso, Taryn Dinkelman, and Claudia Martınez. 2021. *Reducing parent-school information gaps and improving education outcomes: Evidence from high-frequency text messages.* Technical report. National Bureau of Economic Research.

Bloom, Erik, Indu Bhushan, David Clingingsmith, Rathavuth Hong, Elizabeth King, Michael Kremer, Benjamin Loevinsohn, and J Brad Schwartz. 2006. "Contracting for health: evidence from Cambodia." *Brookings Institution.*

Bloom, Nicholas, and John Van Reenen. 2007. "Measuring and explaining management practices across firms and countries." *The quarterly journal of Economics* 122 (4): 1351–1408.

———. 2010. "Why do management practices differ across firms and countries?" *Journal of economic perspectives* 24 (1): 203–224.

Cerdan-Infantes, Pedro, and Deon Filmer. 2015. "Information, knowledge and behavior: Evaluating alternative methods of delivering school information to parents." *World Bank Policy Research Working Paper,* no. 7233.

Chetty, Raj, John N Friedman, Nathaniel Hilger, Emmanuel Saez, Diane Whitmore Schanzenbach, and Danny Yagan. 2011. "How does your kindergarten classroom affect your earnings? Evidence from Project STAR." *The Quarterly journal of economics* 126 (4): 1593–1660.

Cohen, Jessica, and Pascaline Dupas. 2010. "Free distribution or cost-sharing? Evidence from a randomized malaria prevention experiment." *The Quarterly Journal of Economics* 125 (1): 1–45.

Cortes, Kalena E, Hans Fricke, Susanna Loeb, David S Song, and Benjamin N York. 2021. *Too little or too much? Actionable advice in an early-childhood text messaging experiment.*

Cunha, Nina, Guilherme Lichand, Ricardo Madeira, and Eric Bettinger. 2017. "What is it about communicating with parents." *Unpublished manuscript]. Stanford University.*

De Walque, Damien, and Christine Valente. 2023. "Incentivizing school attendance in the presence of parent-child information frictions." *American Economic Journal: Economic Policy* 15 (3): 256–285.

Dizon-Ross, Rebecca. 2019. "Parents' beliefs about their children's academic ability: Implications for educational investments." *American Economic Review* 109 (8): 2728–2765.

Duflo, Esther, Pascaline Dupas, and Michael Kremer. 2011. "Peer effects, teacher incentives, and the impact of tracking: Evidence from a randomized evaluation in Kenya." *American economic review* 101 (5): 1739–1774.

Fisher, Ronald Aylmer, et al. 1960. "The design of experiments." *The design of experiments.,* no. 7th Ed.

Fryer, Roland G, Steven D Levitt, John A List, et al. 2015. *Parental incentives and early childhood achievement: A field experiment in Chicago heights.* Technical report. National Bureau of Economic Research.

Fujiwara, Thomas, and Leonard Wantchekon. 2013. "Can informed public deliberation overcome clientelism? Experimental evidence from Benin." *American Economic Journal: Applied Economics* 5 (4): 241–255.

Garces, Eliana, Duncan Thomas, and Janet Currie. 2002. "Longer-term effects of Head Start." *American economic review* 92 (4): 999–1012.

Gertler, Paul, James Heckman, Rodrigo Pinto, Arianna Zanolini, Christel Vermeersch, Susan Walker, Susan M Chang, and Sally Grantham-McGregor. 2014. "Labor market returns to an early childhood stimulation intervention in Jamaica." *Science* 344 (6187): 998–1001.

Glewwe, Paul, Nauman Ilias, and Michael Kremer. 2010. "Teacher incentives." *American Economic Journal: Applied Economics* 2 (3): 205–227.

Glewwe, Paul, and Karthik Muralidharan. 2016. "Improving education outcomes in developing countries: Evidence, knowledge gaps, and policy implications." In *Handbook of the Economics of Education,* 5:653–743. Elsevier.

Hastings, Justine S, and Jeffrey M Weinstein. 2008. "Information, school choice, and academic achievement: Evidence from two experiments." *The Quarterly journal of economics* 123 (4): 1373–1414.

Heckman, James J, Seong Hyeok Moon, Rodrigo Pinto, Peter A Savelyev, and Adam Yavitz. 2010. "The rate of return to the HighScope Perry Preschool Program." *Journal of public Economics* 94 (1-2): 114–128.

Henderson, Anne T, and Karen L Mapp. 2002. "A New Wave of Evidence: The Impact of School, Family, and Community Connections on Student Achievement. Annual Synthesis, 2002."

Hoover-Dempsey, Kathleen V, and Howard M Sandler. 1995. "Parental involvement in children's education: Why does it make a difference?" *Teachers college record* 97 (2): 310–331.

———. 1997. "Why do parents become involved in their children's education?" *Review of educational research* 67 (1): 3–42.

Ichino, Nahomi, and Matthias Schündeln. 2012. "Deterring or displacing electoral irregularities? Spillover effects of observers in a randomized field experiment in Ghana." *The Journal of Politics* 74 (1): 292–307.

Inoue, Keiko, Emanuela Di Gropello, Yesim Sayin Taylor, and James Gresham. 2015. *Out-of-school youth in sub-Saharan Africa: A policy perspective.* World Bank Publications.

Jensen, Robert. 2010. "The (perceived) returns to education and the demand for schooling." *The Quarterly Journal of Economics* 125 (2): 515–548.

Kling, Jeffrey R, Jeffrey B Liebman, and Lawrence F Katz. 2007. "Experimental analysis of neighborhood effects." *Econometrica* 75 (1): 83–119.

Kraft, Matthew A, and Todd Rogers. 2015. "The underutilized potential of teacher-to-parent communication: Evidence from a field experiment." *Economics of Education Review* 47:49–63.

Lieberman, Evan S, Daniel N Posner, and Lily L Tsai. 2014. "Does information lead to more active citizenship? Evidence from an education intervention in rural Kenya." *World Development* 60:69–83.

Miguel, Edward, and Michael Kremer. 2004. "Worms: identifying impacts on education and health in the presence of treatment externalities." *Econometrica* 72 (1): 159–217.

Nguyen, Trang. 2008. "Information, role models and perceived returns to education: Experimental evidence from Madagascar." *Unpublished manuscript* 6.

Potvin, Pierre, Rollande Deslandes, Paula Beaulieu, Diane Marcotte, Laurier Fortin, Égide Royer, and Danielle Leclerc. 1999. "Risque d'abandon scolaire, style parental et participation parentale au suivi scolaire." *Canadian Journal of Education/Revue canadienne de l'education,* 441–453.

Rogers, Todd, and Avi Feller. 2018. "Reducing student absences at scale by targeting parents' misbeliefs." *Nature Human Behaviour* 2 (5): 335–342.

Rosenbaum, Paul R, and Paul R Rosenbaum. 2002. *Overt bias in observational studies.* Springer.

Singh, Kusum, Patricia G Bickley, Timothy Z Keith, Patricia B Keith, Paul Trivette, and Eileen Anderson. 1995. "The effects of four components of parental involvement on eighth-grade student achievement: Structural analysis of NELS-88 data." *School psychology review* 24 (2): 299–317.

UNESCO. 2017. "More than one-half of children and adolescents are not learning worldwide." *UIS Fact Sheet* 46.

Watkins, Susan, and Adam Ashforth. 2019. "An analysis of the political economy of schooling in rural Malawi: Interactions among parents, teachers, students, chiefs and primary education advisors." *Research on Improving Systems of Education (RISE), Working Paper* 19:031.

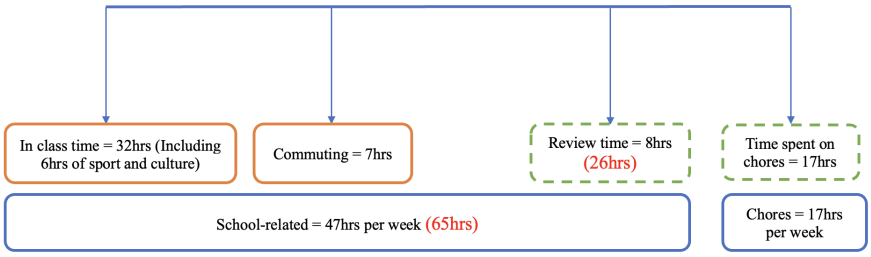
Wolf, Sharon. 2020. ""Me I don't really discuss anything with them": Parent and teacher perceptions of early childhood education and parent-teacher relationships in Ghana." *International Journal of Educational Research* 99:101525.

York, Benjamin N, Susanna Loeb, and Christopher Doss. 2019. "One step at a time: The effects of an early literacy text-messaging program for parents of preschoolers." *Journal of Human Resources* 54 (3): 537–566.

Young, Alwyn. 2019. "Channeling fisher: Randomization tests and the statistical insignificance of seemingly significant experimental results." *The quarterly journal of economics* 134 (2): 557–598.

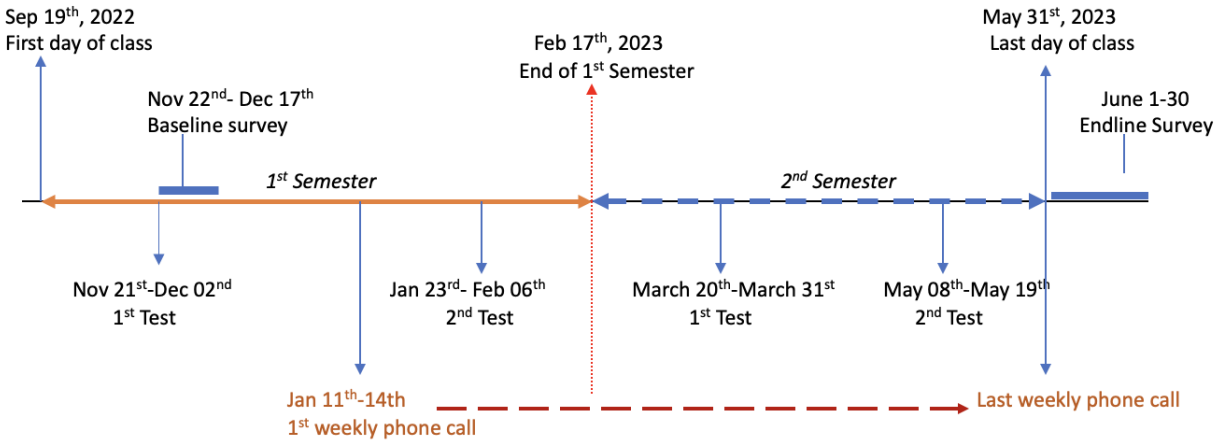
9 Figures

Figure 1: Students Weekly Time Use



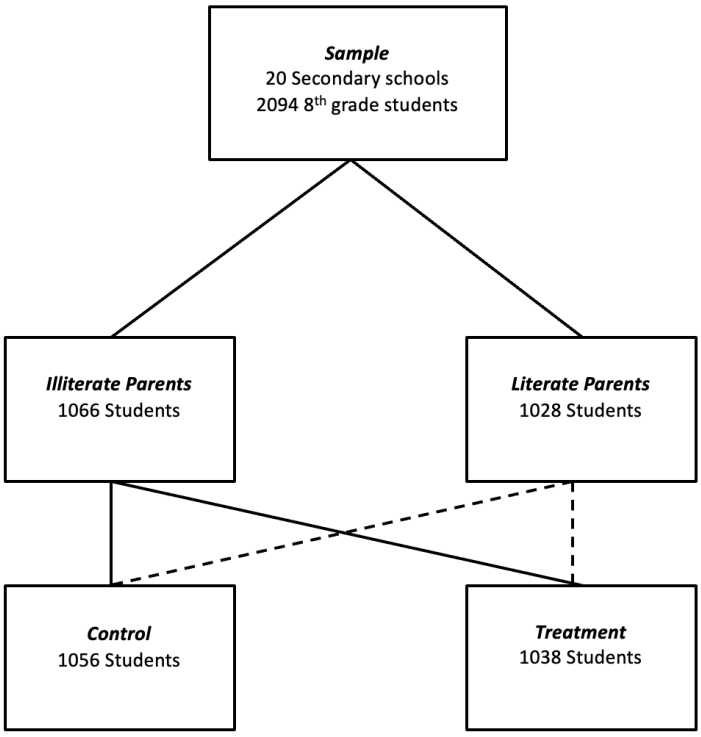
Notes: Data on commuting time comes from baseline data collection. Data on time spent reviewing school materials comes from data collection from another project the author is working on. Data on time spent in class comes from discussions with school officials.

Figure 2: Timeline of Activities



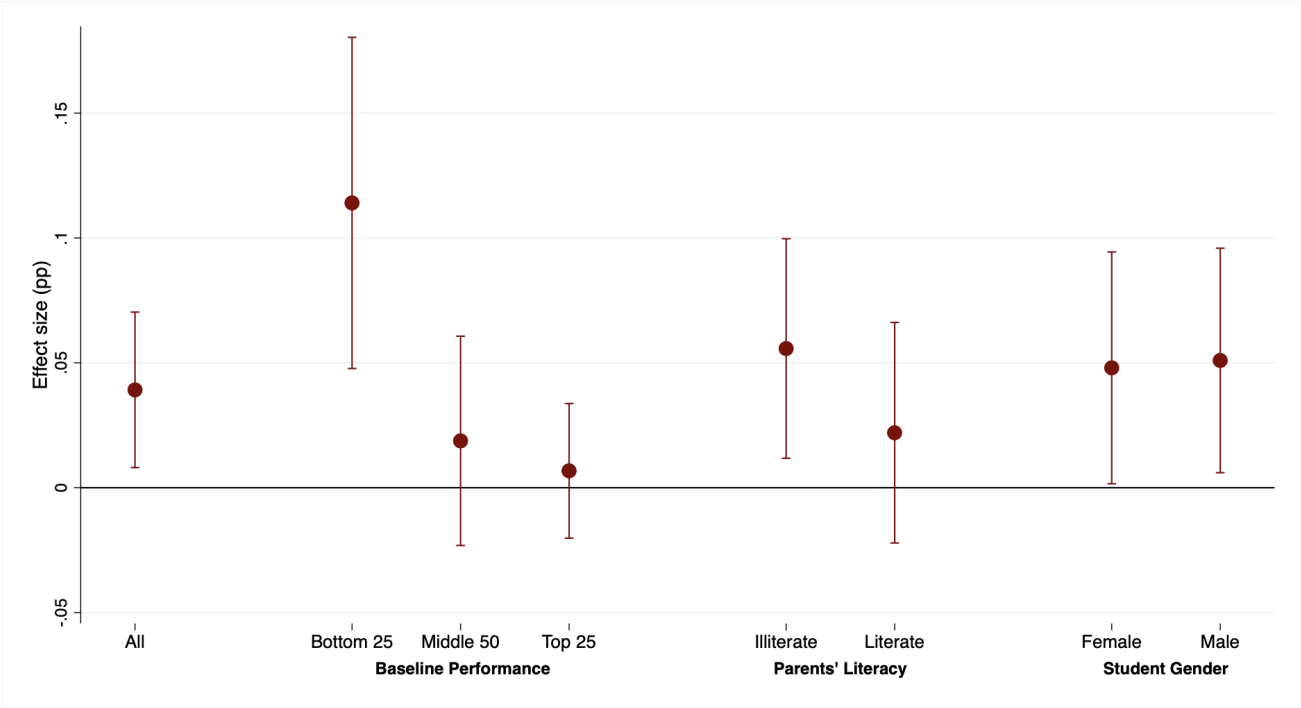
Notes: This figure shows the timeline of activities. At each test date, students take a test in all six subjects. Weekly phone calls started on January 11^{th} and ended on May 31^{st}. Parents received on average 10 phone calls.

Figure 3: Sampling



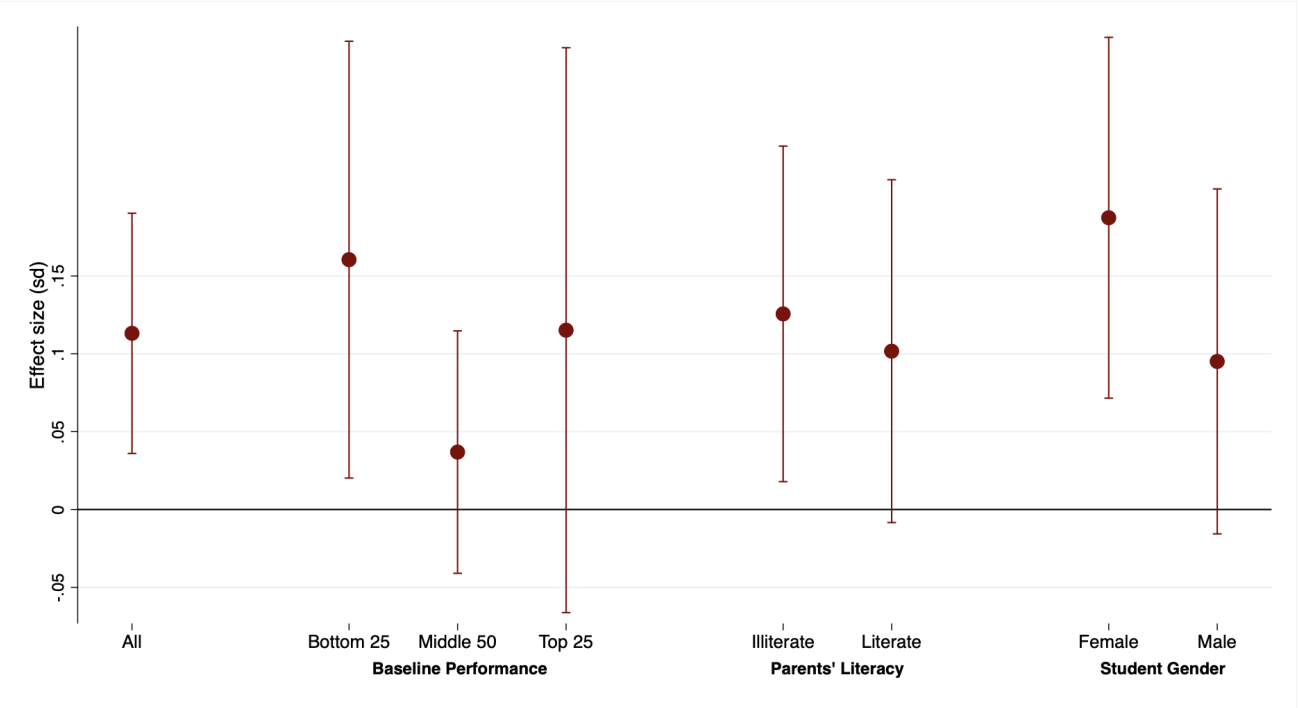
Notes: This figure depicts the sampling procedure. In each of the 20 randomly selected schools, there are, on average, four 8^{th} grade classes. In each class, I create literacy strata. Within each stratum, I randomly assign half of the students into treatment and the other half into control.

Figure 4: Effect on Grade Completion



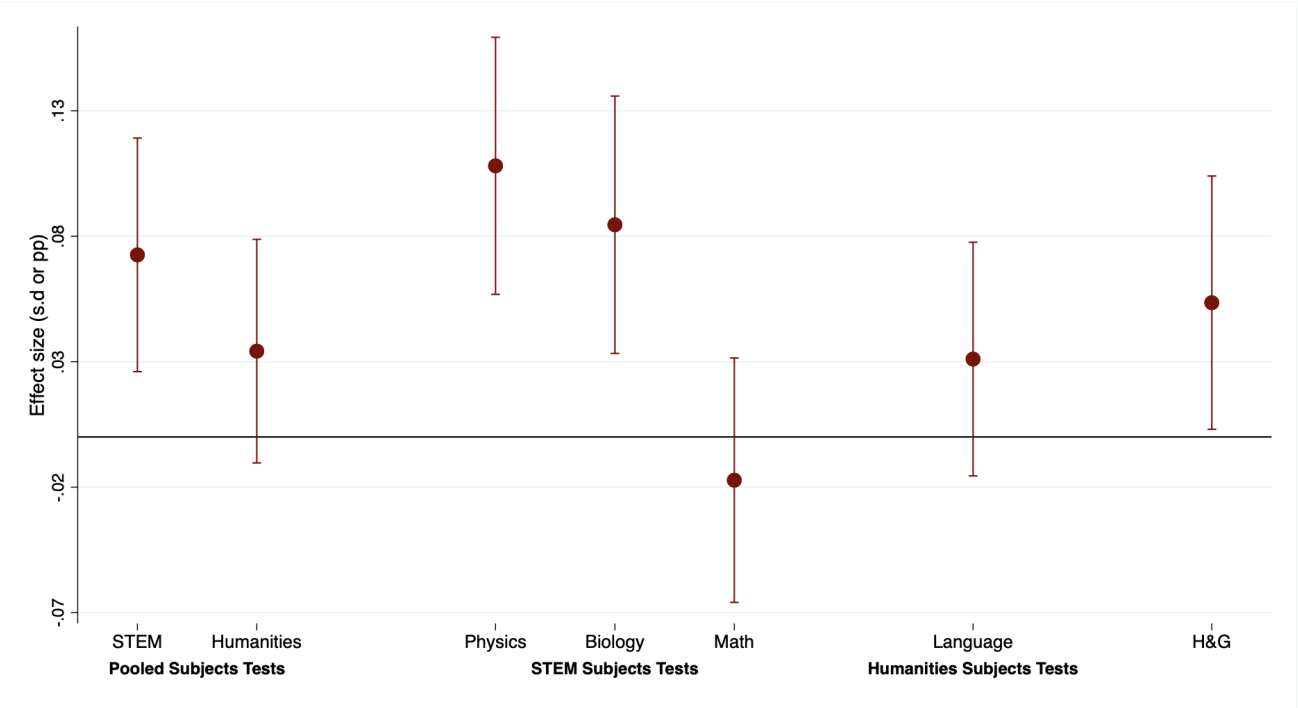
Notes: This graph displays point estimates and 90% confidence intervals of the effect of the intervention on grade completion (passing from grade 8 to grade 9). A grade is completed if the year-end GPA is at least 10 out of 20. I measure the effect on the full sample and then investigate heterogeneity across baseline performance, parents' literacy, and student gender.

Figure 5: Effect on year-end GPA



Notes: This graph displays point estimates and 90% confidence intervals of the effect of the intervention on students' standardized year-end GPA. I measure the effect on the full sample and then investigate heterogeneity across baseline performance, parents' literacy, and student gender.

Figure 6: Effect on Student Test Scores



Notes: This graph displays point estimates and 90% confidence intervals of the effect of the intervention on students' standardized test scores. H&G refers to History and Geography. Language is composed of French and English. STEM score is computed by taking a simple average of all three STEM subjects (Physics, Biology, and Math) for each test. The humanities score is computed by taking a simple average of Language and History-Geography for each test. In total, there are three test scores for each subject. I pool all three test scores together in each regression to increase power. Each regression controls for the baseline value of the outcome. On top of that, for each regression, I run a lasso to select some covariates out of all the variables shown in Table 2. Each regression controls for some combinations of these variables: number of household members who have attended secondary education, whether or not the student has ever repeated a class, whether or not the parent knows when the first semester ends, survey respondent's years of schooling, and student gender. All test scores are standardized. Standard errors are clustered at the individual level.

10 Tables

Table 1: Household Characteristics

Variables	Mean	Standard Deviation
Household head is father	0.73	0.44
Household size	6.02	2.24
Mother years of schooling	2.29	3.57
Father years of schooling	4.9	4.75
Survey respondent is literate	0.49	0.5
Number of household members with some secondary education	1.56	1.36
Local language is spoken at home	0.98	0.13
Household has electricity(including solar)	0.76	0.43
Household has a mobile phone	0.97	0.16
Household has a television or radio	0.75	0.43
Household has a study table	0.55	0.5
Number of students		2094

Notes: Data source is the baseline survey. I measured literacy by administering a literacy test to respondents during the baseline survey. The test was similar to that of DHS.

Table 2: Baseline Summary Statistics

	Control	Treatment	Control-Treatment	
	Mean	Mean	Mean	p-val T=C
Panel A: Respondent Background				
Father or Mother	0.81	0.82	-0.01	0.41
Age	42.38	43.04	-0.65	0.13
Literate	0.49	0.49	0.00	0.89
Understand report cards	0.56	0.56	0.00	0.90
Panel B: Student Information				
Age	14.15	14.07	0.08	0.29
Male	0.55	0.52	0.03	0.25
Attended kindergarten	0.29	0.30	-0.01	0.73
Panel C: Student Performance				
Physics	10.49	10.33	0.16	0.34
Biology	10.06	10.16	-0.10	0.60
Math	8.00	8.35	-0.35	0.03**
Language	10.34	10.44	-0.09	0.42
History-Geography	12.14	12.05	0.08	0.59
Panel D: Parents Knowledge & Involvement at School				
Parents know number of subjects	0.34	0.32	0.02	0.24
Parents know number of tests	0.49	0.48	0.02	0.38
Parents know when 1st semester ends	0.33	0.32	0.01	0.74
Parents know passing grade	0.70	0.68	0.02	0.41
Parents received two report cards	0.47	0.46	0.01	0.64
Parents visited school	0.37	0.36	0.00	0.91
Parents checked attendance	0.11	0.10	0.01	0.57
Parents talked to teachers	0.18	0.17	0.01	0.74
Panel E: Parents Involvement at Home				
Parents talked to child	0.79	0.79	0.00	0.88
Parents supervised homework	0.49	0.50	-0.01	0.70
Parents asked test scores	0.64	0.61	0.03	0.17
Parents asked test dates	0.46	0.45	0.01	0.67
Parents checked on child during reviews	0.53	0.52	0.01	0.71
Panel F: Parents' Baseline Belief				
Parent is correct about student's passing/failing	0.73	0.71	0.03	0.21
Parental error about student performance in 2021-2022	0.76	0.87	-0.10	0.02**
Joint F-test test p-value				0.34
Students	1056	1038		

Notes: Data source is a baseline survey and administrative data from schools. Language is a composite subject in which there are French and English. "Parental Error about Student Performance in 2021-2022" is the absolute value of the difference between the true first-semester performance (GPA) and parents' beliefs. This difference gives me a parental error. "Parent Is Correct about Student's Passing/Failing" is a dummy variable that takes 1 if the parent was able to accurately tell whether the child is below or above the passing threshold of 10.

Table 3: Effect of the Intervention on Student Performance

	(1)	(2)	(3)	(4)
	Grade Completion	GPA	STEM	Humanities
Panel A: Pooled				
Treatment	0.04**	0.11**	0.07**	0.03
	(0.02)	(0.05)	(0.03)	(0.03)
Control Mean	0.68	0.00	0.01	0.00
Observations	2047	2047	6174	6180
Panel B: 2nd Semester				
Treatment	-	0.12***	0.06**	0.05*
	-	(0.05)	(0.03)	(0.03)
Control Mean	-	0.00	0.00	0.00
Observations	-	2047	4091	4094
Panel C: 1st Semester				
Treatment	-	0.07	0.09**	0.00
	-	(0.05)	(0.04)	(0.03)
Control Mean	-	0.01	0.01	0.01
Observations	-	2094	2083	2086

Notes: This table shows the effect of the intervention on students' outcomes. Grade Completion (Column 1) is a dummy variable that takes 1 if the student has completed grade 8 (passing to grade 9) and 0 otherwise. A grade is completed if the year-end GPA is at least 10 out of 20. GPA (Column 2) measures the year-end performance (Panel A) and also the performance in each semester (Panel B and C). Column 3 (STEM) is the average STEM score. The average STEM score is computed by taking a simple average of all three STEM subjects (Physics, Biology, and Math). Column 4 (Humanities) is the average Humanities score. The average Humanities score is computed by taking a simple average of Language and History-Geography. Language includes French and English. Panel A pools 1st and 2nd-semester test scores together to get more power. Panel B looks at the second semester only, where students took two tests per subject. Panel C focuses only on the first semester, where students took one test per subject. The first test of the first semester happened before the intervention started. Each regression, except column 1, controls for the baseline value of the outcome. On top of that, for each regression, I run a LASSO regression to select some covariates out of all the variables shown in Table 2. For column 1, no covariate was selected. Columns 2 to 4 control for some combinations of these variables: number of household members who have attended secondary education, whether or not the student has ever repeated a class, whether or not the parent knows when the first semester ends, survey respondent's years of schooling, and student gender. All test scores are standardized. Standard errors are in parentheses and are clustered at the individual level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 4: Effect of the Intervention on Specific Subjects

	(1)	(2)	(3)	(4)	(5)
	Physics	Biology	Math	Language	H&G
Panel A: Pooled					
Treatment	0.11***	0.09***	-0.02	0.03	0.05*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Control Mean	0.00	0.00	-0.00	0.00	0.00
Observations	6047	6107	6144	6177	6090
Panel B: 2nd Semester					
Treatment	0.10***	0.09***	-0.04	0.03	0.08**
	(0.04)	(0.04)	(0.03)	(0.03)	(0.04)
Control Mean	0.00	0.00	-0.00	0.00	0.00
Observations	4011	4040	4073	4092	4040
Panel C: 1st Semester					
Treatment	0.12***	0.07	0.02	0.03	-0.01
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Control Mean	0.00	0.01	0.00	0.01	0.01
Observations	2036	2067	2071	2085	2050

Notes: This table shows the intervention's effect on student performance in specific subjects. H&G refers to History and Geography. Language is composed of French and English. Panel A pools 1st and 2nd semesters test scores together to get more power. Panel B looks at the second semester only, where students took two tests per subject. Panel C focuses only on the first semester, where students took one test per subject. The second test of the first semester took place before the intervention started. Each regression controls for the baseline value of the outcome. On top of that, for each regression, I run a LASSO regression to select some covariates out of all the variables shown in Table 2. Columns 1 to 5 control for some combinations of these variables: number of household members who have attended secondary education, whether or not the student has ever repeated a class, whether or not the parent knows when the first semester ends, survey respondent's years of schooling, and student gender. All test scores are standardized. Standard errors are in parentheses and are clustered at the individual level. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 5: Effect on Different Quartiles of Baseline Performance

	(1)	(2)	(3)	(4)
	Grade Completion	GPA	STEM	Humanities
Panel A: Bottom Quartile				
Treatment	0.11**	0.16*	0.09	0.11**
	(0.04)	(0.09)	(0.06)	(0.06)
Control Mean	0.3	-0.74	-0.80	-0.85
Observations	536	536	1608	1614
Panel B: 2nd and 3rd Quartile				
Treatment	0.02	0.04	0.07**	0.01
	(0.03)	(0.05)	(0.04)	(0.04)
Control Mean	0.76	-0.02	0.01	0.04
Observations	1098	1098	3317	3317
Panel C: Top Quartile				
Treatment	0.01	0.11	0.08	0.04
	(0.002)	(0.11)	(0.07)	(0.07)
Control Mean	0.98	1.04	1.10	1.06
Observations	413	413	1249	1249
P-value Bottom = Middle	0.039	0.229	0.766	0.181
P-value Bottom = Top	0.006	0.685	0.768	0.378

Notes: This table looks at the effect of the intervention for different quartiles of baseline performance. Panel A looks at the bottom quartile. Panel B is for the middle 50 percentile, and Panel C is for the top quartile. Grade Completion (Column 1) is a dummy variable that takes 1 if the student has completed grade 8 (passing to grade 9) and 0 otherwise. A grade is completed if the year-end GPA is at least 10 out of 20. GPA (Column 2) measures the year-end performance (Panel A) and also the performance in each semester (Panel B and C). Column 3 (STEM) is the average STEM score. The average STEM score is computed by taking a simple average of all three STEM subjects (Physics, Biology, and Math). Column 4 (Humanities) is the average Humanities score. The average Humanities score is computed by taking a simple average of Language and History-Geography. Language includes French and English. Panel A pools 1st and 2nd-semester test scores together to get more power. Panel B looks at the second semester only, where students took two tests per subject. Panel C focuses only on the first semester, where students took one test per subject. The first test of the first semester happened before the intervention started. Each regression, except column 1, controls for the baseline value of the outcome. On top of that, for each regression, I run a LASSO regression to select some covariates out of all the variables shown in Table 2. For column 1, no covariate was selected. Columns 2 to 4 control for some combinations of these variables: number of household members who have attended secondary education, whether or not the student has ever repeated a class, whether or not the parent knows when the first semester ends, survey respondent's years of schooling, and student gender. All test scores are standardized. Standard errors are in parentheses and are clustered at the individual level. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

Table 6: Heterogeneity by Parents' Literacy

	(1)	(2)	(3)	(4)
	Grade Completion	GPA	STEM	Humanities
Panel A: Illiterate Parents				
Treatment	0.06**	0.13*	0.07*	0.01
	(0.03)	(0.07)	(0.04)	(0.04)
Control Mean	0.66	-0.10	-0.09	-0.08
Observations	1042	1042	3133	3143
Panel B: Literate Parents				
Treatment	0.02	0.10	0.08*	0.06
	(0.03)	(0.07)	(0.04)	(0.04)
Control Mean	0.70	0.10	0.10	0.09
Observations	1005	1005	3041	3037
p-value	0.373	0.674	0.875	0.387

Notes: This table looks at the effect of the intervention by Parents' Literacy. Panel A shows the results for students whose parents are illiterate, and Panel B is for literate parents. Grade Completion (Column 1) is a dummy variable that takes 1 if the student has completed grade 8 (passing to grade 9) and 0 otherwise. A grade is completed if the year-end GPA is at least 10 out of 20. GPA (Column 2) measures the year-end performance (Panel A) and also the performance in each semester (Panel B and C). Column 3 (STEM) is the average STEM score. The average STEM score is computed by taking a simple average of all three STEM subjects (Physics, Biology, and Math). Column 4 (Humanities) is the average Humanities score. The average Humanities score is computed by taking a simple average of Language and History-Geography. Language includes French and English. Panel A pools 1st and 2nd-semester test scores together to get more power. Panel B looks at the second semester only, where students took two tests per subject. Panel C focuses only on the first semester, where students took one test per subject. The first test of the first semester happened before the intervention started. Each regression, except column 1, controls for the baseline value of the outcome. On top of that, for each regression, I run a LASSO regression to select some covariates out of all the variables shown in Table 2. For column 1, no covariate was selected. Columns 2 to 4 control for some combinations of these variables: number of household members who have attended secondary education, whether or not the student has ever repeated a class, whether or not the parent knows when the first semester ends, survey respondent's years of schooling, and student gender. All test scores are standardized. Standard errors are in parentheses and are clustered at the individual level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 7: Heterogeneity by Parent Literacy and Student Gender

	(1)	(2)	(3)	(4)
	Grade Completion	GPA	STEM	Humanities
Panel A: Illiterate Parents, Female Students				
Treatment	0.09**	0.23**	0.04	0.07
	(0.04)	(0.10)	(0.06)	(0.05)
Control Mean	0.67	-0.10	-0.10	-0.05
Observations	480	480	1439	1441
Panel B: Literate Parents, Female Students				
Treatment	0.01	0.14	0.09	0.10*
	(0.04)	(0.10)	(0.06)	(0.06)
Control Mean	0.72	0.12	0.02	0.14
Observations	485	485	1460	1456
p-value	0.127	0.399	0.66	0.787
Panel C: Illiterate Parents, Male Students				
Treatment	0.05	0.09	0.11**	-0.01
	(0.04)	(0.09)	(0.05)	(0.05)
Control Mean	0.65	-0.09	-0.08	-0.11
Observations	562	562	1694	1701
Panel D: Literate Parents, Male Students				
Treatment	0.05	0.10	0.07	0.05
	(0.04)	(0.10)	(0.06)	(0.05)
Control Mean	0.68	0.08	0.18	0.05
Observations	519	519	1578	1578
p-value	0.999	0.972	0.615	0.414

Notes: This table looks at the effect of the intervention by Parents' Literacy for each Students' Gender. Panel A shows the results for female students whose parents are illiterate. Panel B displays the results for female students whose parents are literate. Panel C presents the results for male students whose parents are illiterate, and panel D for male students whose parents are literate. Grade Completion (Column 1) is a dummy variable that takes 1 if the student has completed grade 8 (passing to grade 9) and 0 otherwise. A grade is completed if the year-end GPA is at least 10 out of 20. GPA (Column 2) measures the year-end performance (Panel A) and also the performance in each semester (Panel B and C). Column 3 (STEM) is the average STEM score. The average STEM score is computed by taking a simple average of all three STEM subjects (Physics, Biology, and Math). Column 4 (Humanities) is the average Humanities score. The average Humanities score is computed by taking a simple average of Language and History-Geography. Language includes French and English. Panel A pools 1st and 2nd-semester test scores together to get more power. Panel B looks at the second semester only, where students took two tests per subject. Panel C focuses only on the first semester, where students took one test per subject. The first test of the first semester happened before the intervention started. Each regression, except column 1, controls for the baseline value of the outcome. On top of that, for each regression, I run a LASSO regression to select some covariates out of all the variables shown in Table 2. For column 1, no covariate was selected. Columns 2 to 4 control for some combinations of these variables: number of household members who have attended secondary education, whether or not the student has ever repeated a class, whether or not the parent knows when the first semester ends, survey respondent's years of schooling, and student gender. All test scores are standardized. Standard errors are in parentheses and are clustered at the individual level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 8: Parents' Knowledge about their Children's Performance

	(1)	(2)
	Parental Error about Student Performance	Parent Is Correct about Student's Passing/Failing
Treatment	-0.09**	0.06***
	(0.04)	(0.02)
Control Mean	0.61	0.80
Observation	903	1921

Notes: This table shows the effect of the intervention on parents' knowledge about their children's performance for the first semester of the 2022-2023 academic year. "Parental Error about Student Performance in 2021-2022" (Column 1) is the absolute value of the difference between the true first-semester performance (GPA) and parents' beliefs. This difference gives me a parental error. "Parent Is Correct about Student's Passing/Failing" (Column 2) is a dummy variable that takes 1 if the parent was able to accurately tell whether the child is below or above the passing threshold of 10. Standard errors are in parenthesis and are clustered at the individual level. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

Table 9: Parental Involvement at School

	(1)	(2)	(3)	(4)
	Visited School	Talked to Teacher	Checked Attendance at School	Involvement at School Index
Panel A: Extensive Margin				
Treatment	0.08***	0.05***	0.06***	0.20***
	(0.02)	(0.02)	(0.02)	(0.05)
Control Mean	0.43	0.20	0.18	0.00
Observation	1921	1921	1921	1921
Panel B: Intensive Margin				
Treatment	0.20	0.16**	-0.10	1.24***
	(0.13)	(0.08)	(0.14)	(0.26)
Control Mean	0.85	0.44	0.79	0.00
Observation	1921	1921	1921	1921

Notes: This table presents the effects of the intervention on parental involvement at school through a set of three actions (Columns 1, 2, and 3). Panel A looks at the extensive margin of these actions– Have parents taken these actions at least once or not? Panel B looks at the intensive margin–the number of times parents have taken these actions. In column 4, I create a Kling (Kling, Liebman, and Katz (2007)) index of all three actions after standardizing each of them using the control group in each classroom as the reference group. Following Banerjee et al. (2015) to get standardized treatment effects, I then standardized the Kling index relative to the mean and standard deviation of the control group. Column 1 is about parents visiting the school irrespective of the reason. Column 2 is about visiting the school and talking to teachers, while column 3 is about visiting the school and checking the presence of one's child at school. Standard errors are in parenthesis and are clustered at the individual level. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

Table 10: Parental Involvement at Home

	(1)	(2)	(3)	(4)	(5)	(6)
	Talked to Child	Supervised Homework	Asked Test Scores	Asked Test Dates	Checked on the child during Lesson' Review	Involvement at Home Index
Panel A: Extensive Margin, Parents Survey						
Treatment	0.06***	0.11***	0.11***	0.17***	0.09***	0.38***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)
Control Mean	0.88	0.60	0.77	0.63	0.70	0.00
Observation	1921	1921	1921	1921	1921	1921
Panel B: Extensive Margin, Students Survey						
Treatment	0.11***	0.13***	0.10***	0.18***	0.05***	0.45***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.04)
Control Mean	0.85	0.59	0.83	0.73	0.91	0.04
Observation	1902	1902	1902	1902	1902	1902
Panel C: Intensive Margin, Parents Survey						
Treatment	2.24***	1.94***	2.55***	2.79***	1.68***	0.74***
	(0.33)	(0.32)	(0.30)	(0.27)	(0.35)	(0.06)
Control Mean	11.05	5.78	6.06	3.66	7.83	0.00
Observation	1921	1921	1921	1921	1921	1921
Panel D: Intensive Margin, Students Survey						
Treatment	3.75***	2.35***	3.38***	3.90***	2.26***	0.64***
	(0.32)	(0.30)	(0.30)	(0.29)	(0.30)	(0.04)
Control Mean	10.33	5.36	6.77	5.27	13.56	0.00
Observation	1902	1902	1902	1902	1902	1902

Notes: This table looks at the effects of the intervention on parental involvement at home through a set of five actions (Columns 1, 2, 3, 4, and 5). In column 6, I create a Kling (Kling, Liebman, and Katz (2007)) index of all five actions after standardizing each of them using the control group in each classroom as the reference group. Following Banerjee et al. (2015) to get standardized treatment effects, I then standardized the Kling index relative to the mean and standard deviation of the control group. Panel A looks at the extensive margin of these actions–Have parents taken these actions at least once or not, using a parents survey. Panel B looks at the same thing but uses students' survey data. Panel C looks at the intensive margin–the number of times parents have taken these actions, using parents' survey data, and panel D looks at the same thing using data from student surveys. Column 1 is about parents having discussions with their child about his/her education. Column 2 is about supervising or finding someone to supervise/help with homework. Column 3 is about asking about test scores information, column 4 is about asking about upcoming test dates, and column 5 is about checking on the child during lesson review. Standard errors are in parenthesis and are clustered at the individual level. Randomization Inference p-values are in brackets. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 11: Allocation of Household Chores

	(1)	(2)	(3)
	Students doing Fewer Chores	Parents doing More Chores	Siblings doing More Chores
Panel A: Parents Survey			
Treatment	0.11***	0.08***	0.04**
	(0.02)	(0.02)	(0.02)
Control Mean	0.35	0.26	0.14
Observation	1940	1940	1940
Panel B: Students Survey			
Treatment	0.14***	0.07***	0.08***
	(0.02)	(0.02)	(0.02)
Control Mean	0.37	0.21	0.19
Observation	1902	1902	1902

Notes: This table looks at the effect of the intervention on household chores allocation within the household. Column 1 is a dummy that takes one if parents have ever asked the child not to perform some household chores that the child used to perform to allow the child to have more time to study and 0 otherwise. Column 2 is a dummy variable that takes one if parents are doing more chores and 0 otherwise. Column 3 is a dummy variable that takes one if the student's siblings now doing more chores as a consequence of the reduction in chores for the student and 0 otherwise. Panel A looks at these outcomes from parents' survey data, while the panel uses students' survey data. Using data from parent and student surveys allowed me to see whether parents were giving me socially desirable answers. Standard errors are in parenthesis and are clustered at the individual level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 12: Mediators of the Effects of Information on Year-end GPA

	(1)	(2)	(3)	(4)	(5)	(6)
Mediator:	None	Involvement at School Index	Involvement at Home Index	Students doing Fewer Chores	Parent Is Correct about Student's Passing/Failing	All
Treatment	0.11**	0.09*	0.05	0.10*	0.07	0.06
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Mediator	-	-0.03	0.13***	-0.10*	0.23***	-
	-	(0.03)	(0.04)	(0.06)	(0.06)	-
Control Mean	0.00	0.00	0.00	0.00	0.00	0.00
Observations	2047	1884	1884	1884	1884	1884

Notes: This table shows the mediation analysis results performed on the standardized year-end GPA. In each column, I show the impact of the intervention on the year-end GPA but include mediator variables. Column 2 includes parental involvement at school index as a mediator. Column 3 includes the parental involvement at home index. Column 4 includes a dummy variable that takes one if the student experienced a reduction in household chores. Column 5 includes a dummy variable equal to 1 if parents have an accurate belief about whether the child's 1st semester GPA is below or above the passing threshold. In column 6, I include all four mediators. Standard errors are in parenthesis and are clustered at the individual level. $*p < 0.10$, $**p < 0.05$, $***p < 0.01$.

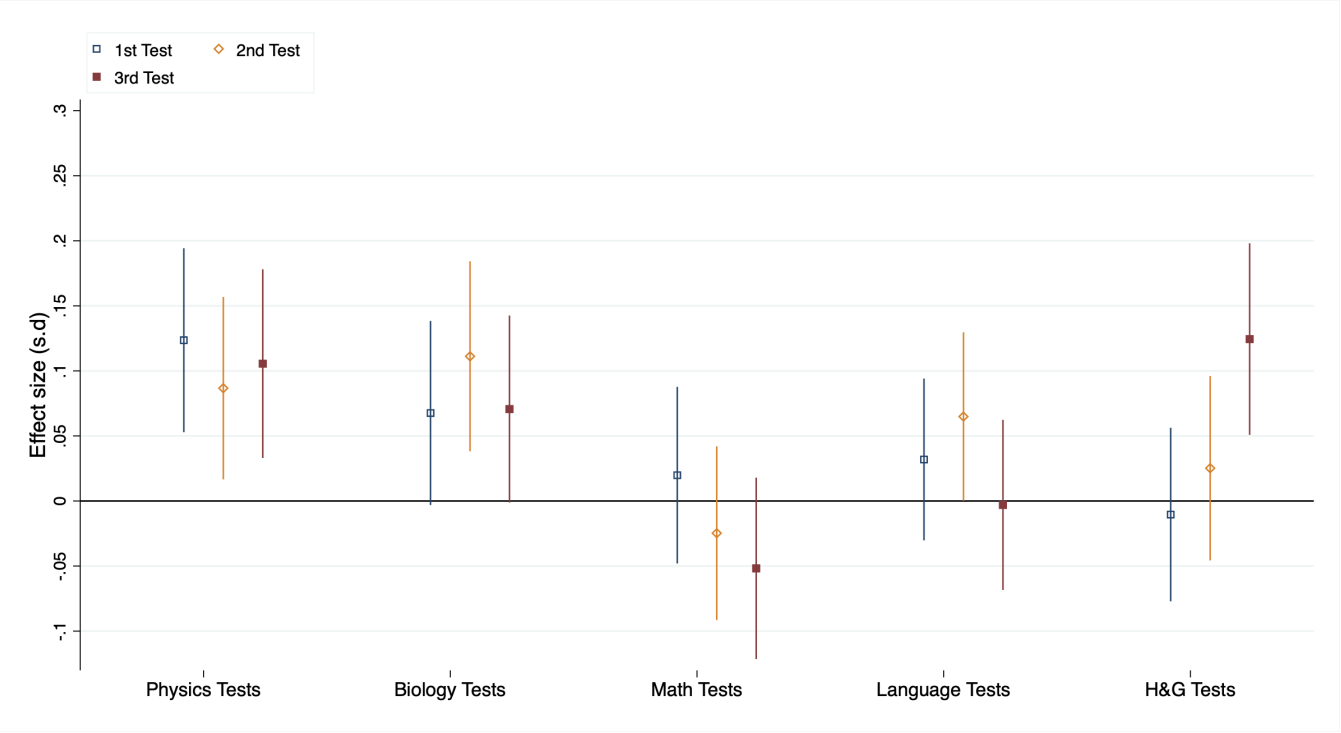
Table 13: Cost Benefit Analysis Accounting for Tax Revenues

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: All (4 percentage points)				**Panel B: Marginal Students (11 percentage points)**			
	100% Formal Sector		15% Formal Sector		100% Formal Sector		15% Formal Sector	
Parameters								
Monthly Salary	minimum wage	average	minimum wage	average	minimum wage	average	minimum wage	average
Amount (USD)	83	111	83	111	83	111	83	111
Discount rate (%)	5	5	5	5	5	5	5	5
Start paying taxes after age	18	18	18	18	18	18	18	18
Life expectancy	60	60	60	60	60	60	60	60
Income tax rate (%)	10	10	10	10	10	10	10	10
Costs								
Intervention costs	9500	9500	9500	9500	9500	9500	9500	9500
Teachers salaries	N	N	N	N	N	N	N	N
Tuition fees expenses for parents	N	N	N	N	N	N	N	N
Benefits								
Collected between years	2027-2069				2027-2069			
Tax receipts	68361	91423	10254	13713	187994	251414	28199	37712
Net Benefit (Benefits-Costs)	58861	81923	754	4213	178494	241914	18699	28212
Breakeven year	3	2	40	23	1	1	7	5
Internal Rate of Return (%)	620	862	8	44	1878	2546	196	297

Notes: All values are in US dollars in 2023. The assumption of discount rate follows Akresh, Halim, and Kleemans 2023. I assume that students who completed grade 8 due to my intervention will also complete middle school before entering the labor market. Panel A (Columns 1 through 4) considers the overall impact of 4 percentage points on grade completion. Panel B (Columns 5 through 8) considers the impact of 11 percentage points on grade completion for marginal students. Within each panel, I consider two scenarios. In the first scenario, I assume that all the students will work in the private sector, and in the second scenario, I follow Miguel and Kremer 2004 and assume that only 15% of the students will end up working in the formal sector. I assume students will either make the minimum wage in Benin or make the current average of middle school graduates based on 2018-2019 EHCVM data. The breakeven year is the first year when the present discounted value of benefits exceeds that of costs. Tax receipts consist of 10% income tax. This can also be considered total expenditures tax if these students work in the informal sector. The internal rate of return is the discount rate that equates to the present discounted value of benefits and costs.

A Appendix Figures

Figure A1: Effect of the Intervention on each of the three Tests



Notes: This graph displays point estimates and 90% confidence intervals of the intervention's effect on each of the three test scores for each subject. The 1st test was the second test of the first semester. This test took place ten days after the intervention started. The 2nd and 3rd tests took place during the second semester. H&G refers to History and Geography. Language is composed of French and English. STEM score is computed by taking a simple average of all three STEM subjects (Physics, Biology, and Math) for each test. The humanities score is computed by taking a simple average of Language and History-Geography for each test. In total, there are three test scores for each subject. I pool all three test scores together in each regression to increase power. Each regression controls for the baseline value of the outcome except for grade completion and GPA. On top of that, for each regression, I run a LASSO to select some covariates out of all the variables shown in Table 2. Except for grade completion, all the other regressions control for some combinations of these variables: number of household member who has attended secondary education, whether or not the student has ever repeated a class, whether or not the parent knows when the first semester ends, survey respondent's years of schooling, and student gender. All test scores are standardized. Standard errors are in parenthesis and are clustered at the individual level.

B Appendix Tables

Table A1: Heterogeneity by Students' Gender

	(1)	(2)	(3)	(4)
	Grade Completion	GPA	STEM	Humanities
Panel A: Female Students				
Treatment	0.05*	0.19***	0.07*	0.08**
	(0.03)	(0.07)	(0.04)	(0.04)
Control Mean	0.7	0.01	-0.04	0.05
Observations	965	965	2899	2897
Panel B: Male Students				
Treatment	0.05*	0.10	0.093**	0.02
	(0.03)	(0.07)	(0.04)	(0.04)
Control Mean	0.67	-0.01	0.04	-0.04
Observations	1082	1082	3275	3283
p-Value	0.805	0.569	0.516	0.429

Notes: This table shows the effect of the intervention by Student Gender. Panel A shows the results for female students, and Panel B is for males. Grade Completion (Column 1) is a dummy variable that takes one if the student has completed grade 8 (passing to grade 9) and 0 otherwise. A grade is completed if the year-end GPA is 10 out of 20. GPA (Column 2) measures the year-end performance (Panel A) and also the performance in each semester (Panel B and C). Column 3 (STEM) is the average STEM score. The average STEM score is computed using a simple average of all three STEM subjects (Physics, Biology, and Math). Column 4 (Humanities) is the average Humanities score. The average Humanities score is computed by taking a simple average of Language and History-Geography. Language includes French and English. Panel A pools 1st and 2nd-semester test scores together to get more power. Panel B only looks at the second semester, where students took two tests per subject. Panel C focuses only on the first semester, where students took one test per subject. The first test of the first semester happened before the intervention started. Each regression, except column 1, controls for the baseline value of the outcome. On top of that, for each regression, I run a LASSO regression to select some covariates out of all the variables shown in Table 2. For column 1, no covariate was selected. Columns 2 to 4 control for some combinations of these variables: number of household members who have attended secondary education, whether or not the student has ever repeated a class, whether or not the parent knows when the first semester ends, survey respondent's years of schooling, and student gender. All test scores are standardized. Standard errors are in parentheses and are clustered at the individual level. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

Table A2: Heterogeneity by the person receiving the calls (Mothers vs. Fathers)

	(1)	(2)	(3)	(4)
	Grade Completion	GPA	STEM	Humanities
Panel A: Mother Receives Calls				
Treatment	0.09**	0.35***	0.11*	0.08
	(0.04)	(0.10)	(0.06)	(0.06)
Control Mean	0.66	-0.05	-0.03	-0.04
Observations	613	613	1 857	1 860
Panel B: Father Receives Calls				
Treatment	0.03	0.05	0.08**	-0.02
	(0.02)	(0.06)	(0.03)	(0.03)
Control Mean	0.69	0.02	0.02	0.02
Observations	1434	1434	4 317	4 320
p-Value	0.491	0.043	0.731	0.077

Notes: This table shows the effect of the intervention based on whether mothers receive the calls or fathers receive the calls. Panel A shows the results when mothers receive the calls, and Panel B is for when fathers receive the calls. Grade Completion (Column 1) is a dummy variable that takes one if the student has completed grade 8 (passing to grade 9) and 0 otherwise. A grade is completed if the year-end GPA is 10 out of 20. GPA (Column 2) measures the year-end performance (Panel A) and also the performance in each semester (Panel B and C). Column 3 (STEM) is the average STEM score. The average STEM score is computed using a simple average of all three STEM subjects (Physics, Biology, and Math). Column 4 (Humanities) is the average Humanities score. The average Humanities score is computed by taking a simple average of Language and History-Geography. Language includes French and English. Panel A pools 1st and 2nd-semester test scores together to get more power. Panel B only looks at the second semester, where students took two tests per subject. Panel C focuses only on the first semester, where students took one test per subject. The first test of the first semester happened before the intervention started. Each regression, except column 1, controls for the baseline value of the outcome. On top of that, for each regression, I run a LASSO regression to select some covariates out of all the variables shown in Table 2. For column 1, no covariate was selected. Columns 2 to 4 control for some combinations of these variables: number of household members who have attended secondary education, whether or not the student has ever repeated a class, whether or not the parent knows when the first semester ends, survey respondent's years of schooling, and student gender. All test scores are standardized. Standard errors are in parentheses and are clustered at the individual level. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

Table A3: Table 3 ANCOVA

	(1)	(2)	(3)	(4)
	Grade Completion	GPA	STEM	Humanities
Panel A: Pooled				
Treatment	0.04**	0.09*	0.06**	0.02
	(0.02)	(0.05)	(0.03)	(0.03)
Control Mean	0.68	0.00	0.01	0.00
Observations	2 047	2047	6174	6180
Panel B: 2nd Semester				
Treatment	x	0.10**	0.05*	0.04
	x	(0.05)	(0.03)	(0.03)
Control Mean	x	0.00	0.00	0.00
Observations	x	2047	4091	4094
Panel C: 1st Semester				
Treatment	x	0.05	0.09**	-0.01
	x	(0.05)	(0.04)	(0.03)
Control Mean	x	0.01	0.01	0.01
Observations	x	2094	2083	2086

Notes: The table shows the results in Table 3 using an ANCOVA specification. Standards errors are clustered at the individual levels and are in parentheses. Significance: *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

Table A4: Lee Bounds for Grade Completion and GPA

	Grade Completion			GPA		
	(1)	(2)	(3)	(4)	(5)	(6)
	Lower	Higher	Main Estimate	Lower	Higher	Main Estimate
Panel A: Pooled						
Treatment	0.038**	0.043**	0.039**	0.08*	0.13***	0.11**
	(0.02)	(0.02)	(0.02)	(0.05)	(0.05)	(0.05)
Panel B: 2nd Semester						
Treatment	-	-	-	0.09**	0.14***	0.12***
	-	-	-	(0.05)	(0.05)	(0.05)

Notes: Columns 1, 2, 4, and 5 report the Lee Bounds (lower and upper bounds) from regression of grade completion and year-end GPA on treatment. To generate the lower (upper) bounds, I compare the proportion in treatment and control groups who respond to the survey and trim the excess respondents with the highest(lowest) values in the group with more respondents. Standards errors are clustered at the individual levels and are in parentheses. Significance: *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

Table A5: Lee Bounds for STEM and Humanities

	STEM			Humanities		
	(1)	(2)	(3)	(4)	(5)	(6)
	Lower	Higher	Main Estimate	Lower	Higher	Main Estimate
Panel A: Pooled						
Treatment	0.06**	0.08***	0.07**	0.02	0.05*	0.03
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Panel B: 2nd Semester						
Treatment	0.05	0.07**	0.06**	0.03	0.06**	0.05*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Panel C: 1st Semester						
Treatment	0.09**	0.09***	0.09**	-0.01	0.01	0.00
	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)

Notes: Columns 1, 2, 4, and 5 report the Lee Bounds (lower and upper bounds) from regression of STEM and Humanities test scores on treatment. To generate the lower (upper) bounds, I compare the proportion in treatment and control groups who respond to the survey and trim the excess respondents with the highest(lowest) values in the group with more respondents. Standards errors are clustered at the individual levels and are in parentheses. Significance: *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

Table A6: Lee Bounds for School and Home Involvement Indexes

	Involvement at School Index			Involvement at Home Index		
	(1)	(2)	(3)	(4)	(5)	(6)
	Lower	Higher	Main Estimate	Lower	Higher	Main Estimate
Panel A: Extensive Margin						
Treatment	0.13**	0.24***	0.20***	0.34***	0.43***	0.38***
	(0.06)	(0.05)	(0.04)	(0.04)	(0.05)	(0.04)
Panel B: Intensive Margin						
Treatment	0.41*	1.41***	1.24***	0.57***	0.82***	0.74***
	(0.21)	(0.27)	(0.24)	(0.08)	(0.08)	(0.06)

Notes: Columns 1, 2, 4, and 5 report the Lee Bounds (lower and upper bounds) from regression of the school involvement index, home involvement index, and reduced chores dummy on treatment. To generate the lower (upper) bounds, I compare the proportion in treatment and control groups who respond to the survey and trim the excess respondents with the highest(lowest) values in the group with more respondents. Standards errors are clustered at the individual levels and are in parentheses. Significance: *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

Table A7: Lee Bounds for Household Chores and Parents Information About their Children's Performance

	Student doing Less Chores			Parental Error about Student Performance			Parent Is Correct about Student's Passing/Failing		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Lower	Higher	Main Estimate	Lower	Higher	Main Estimate	Lower	Higher	Main Estimate
Treatment	0.10***	0.13***	0.11***	-0.13*	-0.08**	-0.09**	0.05***	0.07***	0.06***
	(0.02)	(0.02)	(0.02)	(0.08)	(0.04)	(0.04)	(0.02)	(0.02)	(0.02)

Notes: Columns 1, 2, 4, and 5 report the Lee Bounds (lower and upper bounds) from regression of reduced chores and parental information about their children's performance on treatment. To generate the lower (upper) bounds, I compare the proportion in treatment and control groups who respond to the survey and trim the excess respondents with the highest(lowest) values in the group with more respondents. Standards errors are clustered at the individual levels and are in parentheses. Significance: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A8: Randomization Inference for Table 3

	(1)	(2)	(3)	(4)
	Grade Completion	GPA	STEM	Humanities
Panel A: Pooled				
Treatment	0.04**	0.11**	0.07***	0.03
	[0.033]	[0.016]	[0.006]	[0.24]
Control Mean	0.68	0.00	0.00	0.00
Observations	2047	2047	6174	6180
Panel B: 2nd Semester				
Treatment	-	0.12**	0.06**	0.05
	-	[0.011]	[0.049]	[0.11]
Control Mean	-	0.00	0.00	0.00
Observations	-	2047	4091	4094
Panel C: 1st Semester				
Treatment	-	0.07	0.09**	0.00
	-	[0.11]	[0.008]	[0.993]
Control Mean	-	0.01	0.01	0.01
Observations	-	2094	2083	2086

Notes: This repeats Table 3 results and provides randomization inference p-values in brackets. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$ based on the randomization inference p-values.

Table A9: Effect of the Intervention on Student Performance using Restricted Sample

	(1)	(2)	(3)	(4)
	Grade Completion	GPA	STEM	Humanities
Panel A: Pooled				
Treatment	0.04**	0.11**	0.08***	0.02
	(0.02)	(0.05)	(0.03)	(0.03)
Control Mean	0.7	0.02	0.01	0.02
Observations	1 879	1 879	5 637	5 637
Panel B: 2nd Semester				
Treatment	-	0.12***	0.07**	0.02
	-	(0.05)	(0.03)	(0.03)
Control Mean	-	0.02	0.01	0.03
Observations	-	1 879	3 758	3 758
Panel C: 1st Semester				
Treatment	-	0.07	0.10***	0.01
	-	(0.05)	(0.04)	(0.04)
Control Mean	-	0.04	0.02	0.02
Observations	-	1 879	1 879	1 879

Notes: This table shows the effect of the intervention on students' outcomes but restricts the sample to only students with all their test scores available for all the tests and every subject. Grade Completion (Column 1) is a dummy variable that takes one if the student has completed grade 8 (passing to grade 9) and 0 otherwise. A grade is completed if the year-end GPA is at least 10 out of 20. GPA (Column 2) measures the year-end performance (Panel A) and also the performance in each semester (Panel B and C). Column 3 (STEM) is the average STEM score. The average STEM score is computed using a simple average of all three STEM subjects (Physics, Biology, and Math). Column 4 (Humanities) is the average Humanities score. The average Humanities score is computed by taking a simple average of Language and History-Geography. Language includes French and English. Panel A pools 1st and 2nd-semester test scores together to get more power. Panel B only looks at the second semester, where students took two tests per subject. Panel C focuses only on the first semester, where students took one test per subject. The first test of the first semester happened before the intervention started. Each regression, except column 1, controls for the baseline value of the outcome. On top of that, for each regression, I run a LASSO regression to select some covariates out of all the variables shown in Table 2. For column 1, no covariate was selected. Columns 2 to 4 control for some combinations of these variables: number of household members who have attended secondary education, whether or not the student has ever repeated a class, whether or not the parent knows when the first semester ends, survey respondent's years of schooling, and student gender. All test scores are standardized. Standard errors are in parentheses and are clustered at the individual level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A10: Spillovers Analysis of Table 3

	(1)	(2)	(3)	(4)
	Grade Completion	GPA	STEM	Humanities
Panel A: Full Sample				
Treatment	0.04	0.08	0.04	0.00
	(0.03)	(0.06)	(0.04)	(0.03)
Treatment*High intensity	-0.01	-0.02	-0.02	0.04
	(0.04)	(0.08)	(0.05)	(0.05)
Control Mean	0.68	0.06	0.01	-0.01
Observations	2047	2047	6141	6177
Panel B: Treatment Group Only				
High Intensity	0.08***	0.18***	0.10**	0.06
	(0.03)	(0.06)	(0.04)	(0.04)
Low Intensity Mean	0.68	0.00	0.00	0.00
Observations	1018	1018	3048	3071
Panel C: Control Group Only				
High Intensity	0.08***	0.16**	0.14***	0.02
	(0.03)	(0.06)	(0.04)	(0.04)
Low Intensity Mean	0.64	0.00	0.00	0.00
Observations	1029	1029	3093	3106

Notes: In this table, I compare high-intensity classrooms to low-intensity classrooms. The intensity is determined by the proportion of treated students within the classroom. I assigned classrooms that were below the median to the low-intensity group (proportion of treated students below 30.51% of the class size) and those above the median to the high-intensity group. Panel A investigates whether the treatment effect varies between high and low-intensity classrooms. Panel B compares treated students in high intensity to treatment students in low intensity. Panel C compares control students in high intensity to control students in low intensity. Columns 2, 3, and 4 are standardized test scores where the reference group is low-intensity students. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table A11: Spillovers Effect of the Mechanisms

	(1)	(2)	(3)	(4)	(5)
	School Involvement Index	Home Involvement Index	Students doing Less Chores	Parental Error about Student Performance	Parent being Correct about Student's Passing/Failing
Panel A: Full Sample					
Treatment	0.18***	0.30***	0.11***	-0.08	0.04*
	(0.05)	(0.04)	(0.03)	(0.05)	(0.02)
Treatment*High intensity	-0.07	-0.07	0.01	-0.05	0.03
	(0.07)	(0.06)	(0.05)	(0.08)	(0.03)
Control Mean	0.00	0.00	0.35	0.61	0.82
Observations	1921	1921	1921	903	1921
Panel B: Treatment Group Only					
High Intensity	-0.09*	0.07*	-0.03	0.10*	0.00
	(0.05)	(0.04)	(0.03)	(0.05)	(0.02)
Low Intensity Mean	0.00	0.00	0.48	0.49	0.87
Observations	963	963	963	449	963
Panel C: Control Group Only					
High Intensity	-0.03	0.13***	-0.04	0.15**	-0.03
	(0.05)	(0.04)	(0.03)	(0.06)	(0.03)
Low Intensity Mean	0.00	0.00	0.37	0.54	0.84
Observations	958	958	958	454	958

Notes: In this table, I compare high-intensity classrooms to low-intensity classrooms. The proportion of treated students within the classroom determines the intensity. I assigned classrooms below the median to the low-intensity group (proportion of treated students below 30.51% of the class size) and those above the median to the high-intensity group. Panel A investigates whether the treatment effect varies between high and low-intensity classrooms. Panel B compares treated students in high intensity to those in low intensity. Panel C compares control students in high intensity to those in low intensity. Column 1 looks at parental involvement at school at the extensive margin, and Column 2 looks at parental involvement at home at the extensive margin. Column 3 is a dummy equal to 1 if the students experienced reduced chores. Columns 4 and 5 are about parental knowledge about student performance. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table A12: Students endline Performance across different Samples

	(1)	(2)	(3)	(4)	(5)
	Treat & Control	Treat & 45% sample	Control & 45% sample	Control High Intensity & Control Low Intensity	45% High Intensity & 45% Low Intensity
Coefficient	0.04**	0.04**	-0.002	0.08***	0.06***
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Comparison group mean	0.68	0.68	0.68	0.63	0.66
Observations	2 047	2563	2574	1029	1545

Notes: This table provides some evidence of the similarities between students in my study and those whose parents are in the 45% of parents who did not participate in the study. The outcome in this table is grade completion. It takes one if the student is passing from grade 8 to 9 and 0 otherwise. Column 1 repeats the result in column 1 of Table 3. In column 2, I compare my treatment group to students in the 45% sample. In column 3, I compare my control group to students in the 45% sample. In column 4, I compare my control group in high-intensity classrooms to those in low-intensity classrooms. In column 5, I compare the 45% sample in high-intensity classrooms to those in low-intensity classrooms. Intensity is measured by the proportion of treated students in a given classroom. Classrooms above the median proportion of treated are in high intensity, and those below the median are in low intensity. I do the same analysis for different outcomes such as year-end GPA and results lead to the same conclusion. I do the same analysis for different outcomes such as year-end GPA and results lead to the same conclusion. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A13: Cost Benefit Results adjusting for Inflation

Authors	**Interventions**	**Cost Benefits (SD per $100)**
Yedomiffi(2023)	Parents' Managerial Role	2.7
Duflo et al. (2011)	Streaming, Kenya	16.44
Glewwe et al. (2010)	Teachers Incentive, Kenya	2.97
Kremer et al. (2009)	Scholarship Kenya	1.38
Duflo et al. (2011)	ETP and streaming, Kenya	0.93
Baird et al. (2011)	CCT Malawi	0.65
Baird et al. (2011)	UCT Malawi	0.06
Duflo et al. (2011)	Reducing class size in Kenya	0.00
Glewwe et al. (2004)	Flipcharts, Kenya	0.00
Glewwe et al. (2009)	Textbooks, Kenya	0.00

Notes: This table shows a cost-benefit analysis where I only consider improvement in students' performance for every $100 spent. Every cost is in dollars. The benefits are the improvement in year-end GPA expressed in standard deviation. Cost benefits results for the other papers are from Bhula et al. (2020) and expressed in 2011 values–adjusting for inflation. I accessed the report by Bhula et al. (2020) through this link:: https://www.povertyactionlab.org/resource/conducting-cost-effectiveness-analysis-cea