

**IMPACT OF CHILDFUND'S BASIC EDUCATION PROGRAMME
ON ACADEMIC PERFORMANCE OF GRADE NINE STUDENTS
IN BUEE SECONDARY AND PREPARATORY SCHOOL, BUEE
TOWN, SODO WOREDA**

**A PROJECT WORK THESIS SUBMITTED TO THE SCHOOL OF
SOCIAL SCIENCE FACULTY OF ECONOMICS**

**INDIRA GANDHI NATIONAL OPEN UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE AWARD OF THE DEGREE – MASTER OF ARTS IN
ECONOMICS.**

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MAY, 2018

ADDIS ABABA, ETHIOPIA

Programme Code

MEC

Course Code

MECP-001

Enrollment No.

I	D	1	3	6	2	2	5	2
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Study Centre Code

8	1	0	5
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Regional Centre

8	1
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TOPIC OF THE PROJECT WORK

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IMPACT OF ChildFund's BASIC EDUCATION PROGRAMME ON ACADEMIC PERFORMANCE OF GRADE NINE STUDENTS IN BUEE SECONDARY AND PREPARATORY SCHOOL, BUEE TOWN, SODO WOREDA.
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ABBREVIATIONS

ANOVA	Analysis of Variance
ATE	Average Treatment Effect
ATET	Average Treatment Effect on Treated
CIA	Conditional Independent Assumption
COPWE	Commission for Organizing the Party of the Working People of Ethiopia
DEV	Deprived Excluded and Vulnerable
ECCE	Early Childhood Care and education
EFA	Education For All
EGMA	Early Grade Mathematics Assessment
EGMC	Early Grade Mathematics Competency
EGRA	Early Grade Reading Assessment
ELQIP	English Language Quality Improvement Program
EMIS	Education Management Information Systems
ERGESE	Evaluative Research on the General Education System of Ethiopia
ESDP	Education Sector Development Program
FDRE	Federal Democratic Republic of Ethiopia
FiNLA	First National Learning Assessment
FNLA	Fourth National Learning Assessment
GEQIP	General Education Quality Improvement Package
GER	Gross Enrolment Rate
GRM	Global Monitoring Report
GTPI	Growth and transformation plan one
JICA	Japan International Cooperation Agency
KG	Kindergarten
MDG	Millennium Development Goal
MoE	Ministry of Education
OECD	Organization for Economic Cooperation and Development
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
PISA	Programme for International Student Assessment
PSM	Propensity score matching
RTI	Research Technology Institution
SIP	School Improvement Program
SMASEE	Strengthening Mathematics and Science Education in Ethiopia
SNLA	Second National Learning Assessment
SNNPR	Southern Nations, Nationalities and Peoples Region
SPSS	Statistical Package for the Social Sciences
TNLA	Third National Learning Assessment
TTI	Teacher Training Institute
UN-ECA	United Nations Economic Commission for Africa
UNESCO	United Nations Educational, Scientific and Cultural Organization
UICEF	United Nations Children's Fund

ACKNOWLEDGEMENTS

The process of developing this research and the nature of the study itself helped me to realize that this final outcome is a result of accumulated experiences, and not necessarily an impact of the MEC program only. Without the support of many people in the process of my education from early age to this level, the present achievement could have been difficult to imagine. I am thankful to all.

I enjoyed the support, guidance and professional critique of my advisor, Nigatu Legesse, since the inception of the study to its current status; he pushed me to the depth of the conceptualization and technicalities, and extended his unreserved support during difficult transitions. Many colleagues encouraged and extended their support throughout the study. Biruk Belay was always on my side, I am indebted to thank him for his encouragement, constructive comments and sharing my academic load to give me time for the research work. The comments from Chege Negue ChildFund Ethiopia country director and Martha Alemayehu ChildFund Ethiopia program director I extend my thanks to both of them who shared my ambition and their support was helpful. The data collection was so expensive and money intensive. I really appreciate the generous support of Ato Andargachew Feleke helped in the coordination of the training of assessors and data collection process. This study was time taking. I have to extend my gratitude to my beloved wife W/ro Nitsuh Ayana for her care, support, and courage to shoulder the family responsibilities throughout my study time. My kids (Eva and Bezawit) were so patient and loving despite my focus on my study for so long. Please know that you are my vision and inspiration.

I recognize that my parents invested a lot on my education. My father and mother worked hard to push me up the education ladder since early ages. My mother, W/ro Enanu Reta, spent sleepless nights during my whole school years to make sure I have everything in time; my father, Ato Aragaw Ali, laid my foundation. He was a self-literate, and used to surprise me in his fond of knowledge and critical arguments to continuously shape my thinking and make sure I am growing. Unfortunately, even today (at this level) I run short of adequate words to express my indebtedness to his lifelong efforts to ensure my success in the academic arena. Anyway, I say thank you to both of you and I pray to rest the soul of my father in peace! There were difficult times where I have to think of dropping out of school had it not been for the unparalleled sacrifice of my parents, my Sister (Maritu Aragaw). Please know that your strength, smile and patience played a lion's share in this work and I thank you all for what you have done to me!

ABSTRACT

The overall objective this research was to measure impact of ChildFund-Ethiopia's education program on academic performance of grade nine students in Buee secondary and preparatory school, Buee Town, Sodo Woreda of Guraghe Zone, SNNPR. The sampling strategy employed in this study was both random and purposive sampling. One school out of four secondary schools in the Woreda selected randomly and then a purposive sampling technique was employed to select sample students from the selected school in the program area. The sample students were purposively selected from a population of 589 secondary school students in Buee secondary school that were enrolled in the ninth grade during the 2017–2018 academic years. In total, the size of the sample includes 120 students (57 Program participants and 63 non program participants) and their families which is around 20% of the sample population. The study focused on grade nine students' first semester scores; the scores for this class are based on a single school that is standardized across the students. Besides; other questions were prepared and asked to create variables to control for other observed factors that might be expected to affect academic performance of each student. The first includes the following student-level characteristics: gender, age, whether or not they were student cadres (club leaders) etc. The second include characteristics on students' parents and family: the total number of household members, the educational attainment of each parent, and the household's income level

Based on the analysis of both descriptive statistic and inferential statistics, there are evidences supporting the significant positive impact of ChildFund support in improving the academic performance of grade nine students in the study area.

- The performance of grade nine students is better in ChildFund supported schools than in the comparison non-support schools as observed in the previous academic mean performance (Grade five to Eight) 65.41 with SD 13.14 and 60.32 with SD 12.33 respectively. In other words, a typical student from a ChildFund support school does have a better academic performance compared to a typical student in a control nonsupport school in general.
- The mean scores of the first semester grade nine students under study are 62.14 with SD 11.74 and 57.75 with SD 11.98 for program participants and non-program participants

respectively, which are by and large greater than the expected minimum of 50% for the sample students participated in the study.

- The PSM estimation result shows that participation in ChildFund basic education program had brought a significant impact on students' academic performance in the study area on both the general sample students and on the treated students. The estimated ATE of participation on the average score of grade nine students was 5.4. Thus, the average score if all students were to participate in ChildFund basic education program would be 5.4 more scores than the average that would occur if none of the students had participated.
- On the other hand the estimated ATET of participation on the average score of grade nine students was 6.98. Thus the average students in the treated group will take 6.98 more score than it would if it did not participate in ChildFund basic education program.

1. INTRODUCTION

1.1. Background of the Study

Geographical context: The study area is located in Sodo Woreda of Garage Zone, SNNPR (South Nation and Nationalities Peoples Region) with a projected population of 168,867 (Sodo Woreda Finance and Economic Development Office Data April 2013). Buee is SodoWoreda Town located 103 km South -West of Addis Ababa on the high way of Alemgena - Butajira. The Woreda is situated between 1,500 meters and 3,300 meters above sea level with annual rainfall ranges from 900 mm to 1,400 mm.

Program context: ChildFund is the world's child development organizations over 75 years of history of serving deprived, excluded and vulnerable children works on programs that support children to be healthy, educated, skilled and involved to change their world. ChildFund started operating in Ethiopia in 1971 and currently operates with 13 local partners in SNNPR, Oromia, Amhara Regions and Addis Ababa city administration reaching over 40,000 children and 30,000 families directly and over 1 million community members indirectly. ChildFund Ethiopia supports the target group with its programs from infancy, toddlerhood and adolescence to young adults. The different phases of the growing up child's life are reached through three core program focus areas as described below:

1. **Early Childhood Development Program (0-5 years old- life stage I)** In order to promote healthy and protected infants, the program focuses on promoting safe pregnancy and newborn health, integrated community management to prevent childhood diseases and malnutrition, and early childhood support.
2. **Basic Education Program (6-14 years-life stage II).** In this phase, special attention is paid to a good education in a protected environment. ChildFund's goal of basic education program

is to support children to develop their potential, enjoy good health, access quality educational opportunities, have positive relationships with peers and adults, grow up in families who care for and protect them, and to be encouraged by their communities to engage meaningfully in changes that affect them. The program has three domains¹ of change. Of the direct beneficiary children more than 67% fall under the Core Program 2 (Basic Education). In this Core Program, ChildFund Ethiopia has been working in selected districts of Oromia, SNNP and Amhara Regions as well as in Addis Ababa, to increase the enrollment of children, particularly those deprived, excluded and vulnerable (DEV) children through expansion of schools and construction of classrooms. It has also been contributing to the quality of education through introduction of new learning approaches and building the instructional capacity of teachers.

Some of the efforts of ChildFund Ethiopia interventions under this core program include expansion of schools, construction of classrooms, capacity building of teachers, introduction of new instructional process and learning approaches and community awareness on child rights. All these have made significant contribution to the following in schools particularly that of children experiencing deprivation, exclusion and vulnerability:

- increment of participation of children, and their academic performance,
- enhanced community/parents participation in children's education,
- improved teachers' practices in child-centered teaching methodology,
- augmented school facilities to improve and activate the teaching-learning process

3. **Youth Development Program (15-24 Years – Life stage III).** The young people aged between 15 and 24 are to be further qualified in such a way that they will soon be able to provide for their own livelihood and lead their own lives independently. Particular attention is

also paid to sexual awareness and reproductive health, as well as to promoting the social commitment of young people in their village communities.

This study is therefore; aimed to measure impact of ChildFund's basic education program on the academic performance of grade nine students in Buee Secondary and Preparatory school enrolled and attending their education in the academic years 2017/2018.

1.2. Statement of the Problem

Education is a sound investment that is expected to enhance economic growth of individuals and the society. However; disappointingly, this important sector is faced with myriad of problems. Prominent problem area that brings to light the poor show of the sector is the abysmal performance of students in secondary school. The woeful performance in secondary school has been a source of worry to parents and other stakeholders in the sector considering the resources parents and government invest in educating the learners.

Ethiopia including SNNP Regional state shares in this predicament of the education sector. The identified causes of the problem in SNNP were low family income, poor awareness of families for education, early marriage, inadequacy of instructional skills, poor commitment, and motivation of teachers, poor school management, weak parental follow up, school distance and poor attention to basic education programs (ChildFund Area Strategic Document, 2014).

In response to the above problem and the unhidden evidence that basic education programs influenced academic achievement has motivated the development of a number of basic education programs by development practitioners and the government in the country. More recently, ChildFund has been designed and implemented age appropriate supports in basic education programs to support children develop their potential, enjoy good health, access quality educational opportunities, have positive relationships with peers and adults, grow up in families who care for

and protect them, and to be encouraged by their communities to engage meaningfully in changes that affect them. ChildFund works to contribute to prevent poor show of student's educational outcomes and low levels of intellectual functioning that are found in disadvantaged children between the ages of 6-14 from 2010 to 2017 in the study area.

Though many writers have argued for the multifaceted advantages of basic education programs, there are few studies in Ethiopia and the argument in Ethiopia is not sufficiently supported with empirical evidences. Evidence based research provides information for policy makers and practitioners so as to give due emphasis to improve educational outcomes. The purpose of this study, therefore, is to critically look at the impact of attending in ChildFund's basic education programs on the academic performance of grade 9 students in Buee Town, SodoWoreda, Gurage Zone of SNNP Region. In clear terms, the study intends to find out whether there would be a difference between the performance of students with ChildFund's basic education programs experience and those without it. Moreover; this study will help to provide insight to further research works.

1.3. Objective of the Study

1.3.1. General Objective

The general objective of this study is to investigate the effects of ChildFund's basic education program on the academic achievement of students in Buee Town, Sodo Woreda Gurage Zone of SNNPR.

1.3.2. Specific Objectives

Specifically this study will provide knowledge on the following specific objectives:

1. To analyze the effect of basic education program on students' academic performance.
2. To identify students' based factors influencing academic performance

3. To assess home based factors influencing academic performance of students.
4. To evaluate school environment based factors influencing academic performance.

1.4. Research Questions

- i. To what extent does basic education have effect on student's academic performance?
- ii. What factors hampers students' academic performance in Buee Town?
- iii. How does the environment in the homes influence students' academic performance?
- iv. How does the school environment influence students' academic performance?

1.5. Research Hypotheses

1. There is no significant difference between the academic performance of students with and those without ChildFund basic education program experience.
2. There is no significant difference between academic performance and student based factors.
3. There is no significant difference between academic performance and home based factors.
4. There is no significant difference between academic performance and school based factors.

1.6. Expected Outcome

The expected result will reveal a statistically significant mean difference between students with and without ChildFund's basic education experience favoring the former. ChildFund's basic education program has statistically significant association with students' academic performance.

1.7. Scope of the Study

This study will be conducted on the impact of ChildFund basic education program on academic performance of grade nine students in one of the 13 districts that ChildFund operates. The study will not address the effect of early childhood development program and youth development programs due to the time and budget constraints.

1.8. Limitation of the Study

To come up with unbiased findings and conclusion some factors may be expected to affect the research such as shortage of research materials conducted on the area under study, perception of government stakeholders, implementers, parents, teachers and students in the study area.

1.9. Organization/Structure of the Report

This report consists of the following major parts. The first part of the report introduce the project work, its approach, rationale of the selection of the project theme, objectives, research methodology with brief description of methods adopted for data collection and analysis. The second part presents related literature review on basic education programme, students' academic performance and economic models of impact analysis enriched the text of the literature under the title "Literature Review". In the third part and onwards the main body of the project work is included. The report concluded the major texts in the report and forwards its policy recommendation in the last section. Front and back matters of the report is also included in introductory linkages and supplementary items to complement the main section of the report.

2. LITERATURE REVIEW

2.1. Definition of Concepts

2.1.1. Education

The Education and Training Policy (1994) of Ethiopia defines Education as a process by which man transmits his experiences, new findings, and values accumulated over the years, in his struggle for survival and development, through generations. Education enables individuals and society to make all-rounded participation in the development process by acquiring knowledge, ability, skills and attitudes. One of the aims of education is to strengthen the individuals and society's problem-solving capacity, ability and culture starting from basic education and at all levels. Education enables man to identify harmful traditions and replace them by useful ones. It helps man to improve, change, as well as develop and conserve his environment for the purpose of an all-rounded development by diffusing science and technology into the society. Education also plays a role in the promotion of respect for human rights and democratic values, creating the condition for equality, mutual understanding and cooperation among people Education does not operate in isolation, and rather it has to be integrated with research, practice and development to contribute towards an all rounded development of society.

2.1.2. Education in Africa

In Sub Saharan Africa Governments in particular, spend only 2.4% of the World public education resources, while, the education budget of a single country like France, Italy or the UK outweighs educational spending across the entire Sub Sahara African region (UNESCO, 2005). Education should be used as a weapon to fight against various enemies like ignorance, disease; and poverty and hence bring liberation to the society. In Africa especially Sub Saharan Africa, the large part of the population is living under hostile situations of exceeded poverty, vulnerability with various

infections including HIV/AIDS. Infrastructures of education in Africa are still facing many challenges and so development process is still stagnating.

Having qualified primary school graduates in all areas, will enable secondary schools to enroll the best students to join them. However, the level of investing in education to the majority of African countries does not support the attainment of producing enough qualified students to join secondary school education. This is contributed much by various factors including economic problems. Even as access to education has improved in sub-Saharan Africa, learning achievement remains alarmingly low. Regional assessments show that 28 percent of Tanzanian sixth grade pupils are reading at grade level, only 19 percent in Kenya and less than 10 percent in Uganda. This low and uneven level of knowledge acquisition during the foundational years of primary school has adverse implications for knowledge and skills acquisition in later grades and for the long-term development and economic growth of the region.

The Africa Learning Barometer illustrates the urgent need to accelerate education progress and improve equity in learning outcomes. Disparities in achievement exist: between boys and girls – in Malawi, 52 percent of girls are not learning basic competencies at the end of primary school compared to 44 percent of boys; between urban and rural communities—in Tanzania, 10 percent of rural children are not learning compared to only 4 percent of urban children; and between the wealthy and the poor, which is the most divisive of disparities – in Botswana, 7 percent of the wealthy are not learning compared to 30 percent of the poor.

2.1.3. Education in Ethiopia (the past and current)

This section reviews developments and challenges in the Ethiopian education system. It doesn't as such intend to provide a complete historical review of the education as a whole. It is rather guided by relevance to substantiate the research problem in the context of Ethiopian education, and in the

perspective of the situation in the state of SNNP with emphasis on students' academic achievements. In doing so, the four pillars of the Ethiopian Education and Training Policy (FDRE, 1994) - access, equity, relevance and quality -are used as guiding themes in the analysis of policy documents, reports and pertinent empirical literature to clarify the context of the study.

2.1.4. History of Primary Education in Ethiopia

Though it is asserted that indigenous education in Ethiopia started in the 16th C. in Sabaan alphabets, the Orthodox Church introduced religious education in the 4th century and served the Ethiopian community in preparing literate citizens for spiritual purposes and for government systems (MoE, 1984: 1-2). Since the late 17th century Quaranic education also started its operation and expanded the scope of educational opportunity in the country (MoE, 1972:1). After the end of the 19th century, however, the need for the establishment of dependable centralized government system and diplomatic relations necessitated the establishment of a new system of education called secular education, which was different from the religious and indigenous systems of education in many ways including organizational structure, objectives and contents of education. —The need for this [secular education] had been amply demonstrated as far back as 1889, when the dispute over the interpretation of the Treaty of Wuchale set the scene for the battle of Adwa in 1896|| (MoE, 1984: 5).

Notwithstanding the efforts by different missionaries, the introduction of secular system of education was officially recognized in 1908, with the opening of Minilik II School in Addis Ababa. Basically, the system was imported from France and was French oriented in nature. The headmasters and teachers were French speaking, medium of instruction was French, and students set for competence examinations at the French legation(Richard Pankhurst, 1976). The expansion

of educational opportunity was also limited and —by 1935 there were only 4,200 students in 21 so-called government schools of which nine were in Addis Ababa (MoE, 1984:6).

The influence of France ended up in 1935 because of the Italian invasion, which destroyed the emergent education system – some were closed, others emptied and still others misused. (Pankhurst, 1955). After the expulsion of the Italians, education was the priority for all purposes but difficult to reconstruct because of resource implications. Thus, measures were taken to make schools functional starting 1942. In August 1944, the government published a memorandum on educational policy which emphasized on mass education, use of Amharic language as a school subject and official language in the country, substitution of foreign teachers by Ethiopians, and development of complete structure of the education system (MoE, 1944). Practically, however, teaching materials written in English for the European children and teachers prepared for the same purpose were obtained from abroad. Medium of instruction, at all levels, became English (Teshome, 1979). Consequently, there was no uniform curriculum until the end of 1940's (MoE, 1948).

Quantitative increases were encouraging during this establishment period, 1941 - 1950. For example, enrolment of students grew from 19,000 in 80 government schools in 1943/44 to over 52,000 in 540 schools in 1949/50. It was unfortunate, however, that this development was halted by the introduction of the 2% land tax on all arable lands in the country (Proclamation No. 94 of 1947). The Orthodox Church, that was using the church land income for its educational expenses, was not able to comply with this rule on the ground (Teshome, 1979; Maaza, 1966). Hence, the education system faced another crisis - about 158 government schools 12 (without formal handover) were assumed to be operational by the church and ultimately closed in between. As a result, expansion decreased from 540 schools in 1950 to 422 in 1952 (MoE, 1949, 1952, 1954).

Those lost schools were found none functional by the 'Ten-Year Plan for the Controlled Expansion of Ethiopian Education' study reported in 1955 (MoE, 1955). For a variety of reasons, including the closing of so many schools, Ethiopia ranked second from the last (exceeding only to Niger) in educational expansion in the Addis Ababa Conference of African Ministries of Education in 1961. At the time, the country had only 3.3 per cent enrolment at primary and 0.5 per cent at secondary (Bjerkan, 1970). The dissatisfaction with the imperial administration, coupled with limited expansion of education and increasing state of unemployment of school leavers resulted continuous student demonstration demanding for a regime change and reform in the education system. From 1970 to 1972, a study called Education Sector Review was initiated and completed with, among others, five major findings: problems of responsiveness to the local situation, elitist in nature, high wastage, widely inequitable, and with highly centralized system of administration (MoE, 1972, 1984; Tekeste, 2010).

During the government change in 1974, the number of primary school children in the whole nation did not exceed 860,000, about a quarter of them from private, mission and church schools (MoE, 1984). The motto of education became mainly re-orientation of the young in socialist ideology, quest for scientific knowledge and integrating research with production in which the favored strategy was mass education (Tekeste, 2010; Destefano & Wilder, 1992, cited by Taddele, 2008). In terms of enrolment during the Derg time, Tekeste (2010) stated an increase rate of 12 per cent from 1975 to 1989 and put the total coverage at about 35 per cent of the total school age population.

It could be because of the wide spread internal conflict (especially in the North), the country was able to create educational access (grades 1-6) in 1994 to only 1.9 million or 20% of the then school

age children, with considerable gap in enrolment from region to region, between the sexes, and urban-rural dwellers (MoE, 2002).

2.1.5. The Current Education and Training Policy (ETP)

Under the EPRDF interim government established in 1991, the Education and Training Policy (ETP) was enacted in 1994. The education structure was changed from the 6-2-4 structure to the 4-4-2-2 structure, and the policy also included features like the teaching of primary students in their mother tongue and self-contained classes in grades 1-4 (i.e., one teacher for all the core subjects) (WB, 2005). The interim government set the following three general objectives of education: (1) develop the physical and mental potential and the problem-solving capacity of individuals by expanding education and in particular by providing basic education for all, (2) bring up citizens who respect human rights, stand for the well-being of people, as well as for equality, justice and peace, endowed with democratic culture and discipline, (3) bring up citizens who differentiate harmful practices from useful ones, who seek and stand for truth, appreciate aesthetics and show positive attitude towards the development and dissemination of science and technology in society (MOE, 1994). As an overall educational strategy, the basic policy on each of the following was stipulated: curriculum, educational structure, educational measurement and examination, teachers, languages and education, nexus between education, training, research and development, educational support inputs, educational organization and management, and educational finance (MOE, 1994). All of the ongoing education sector reforms have been formulated in accordance with this policy (MOE, 2010).

Science, Technology and Innovation Policy (STI)

The Science, Technology and Innovation (hereinafter, STI) policy was established in 1993 by the interim government and subsequently revised in 2007 in response to the rapid expansion of

education. This policy recognized STI as the cornerstones of progress upon which a nation depends to attain its economic growth and to build vibrant, integrated and self-sustaining economy. The national science and technology vision of Ethiopia was defined as "to see science and technology developed to the level of scientific knowledge and technology-based middle income countries and contribute to rapid and sustainable socio-economic development." The policy referred to policy objectives, policy statements, areas of focus, governance structure of the national STI system, and implementation of the national STI policy. "Education and human resource development" was listed as one of the areas of focus, and it was stated that the success of the national effort for rapid and sustainable socio-economic development critically depended on the quality and quantity of the available trained manpower and the awareness of the general public (Ethiopian Science and Technology Agency, 2007).

Education System

The education structure of Ethiopia is composed of 3 years of pre-primary education, 8 years of primary education (1st cycle: grades 1-4, 2nd cycle: grades 5-8), 2 years of general secondary education (grade 9-10), 2 years of preparatory secondary education, and higher education (college or university). 6

Structure of the Ethiopian Education System

School year starts on the 13th of September and ends in the first week of July. The school year is divided into 2 terms with September to January as Term I and February to July as Term II. Schools are in vacation in January (2 weeks) and in July and August (2 months) (JICA Ethiopia office). Upon completion of grades 8, 10, and 12, students take the education completion certificate examinations and are allowed to proceed to the next stage based on performance in the examinations (WB, 2008).

Education Sector Development Program (ESDP)

In 1997, the Education Sector Development Program I (1997/98-2001/02) was developed as the first five year education development program for Ethiopia. This was the outset of a series of the ESDPs which has continued to be updated for the subsequent 20 years. The objectives of the ESDP I were to improve the quality, relevance, efficiency and equity of education and to expand educational opportunities, and mechanisms of sector-wide approach dialogue and joint review were established (WB, 2008a, Cambridge Education, Mokoro& OPM, 2010).The current ESDP-IV (2010/11-2014/2015) was developed in 2010 as a five year plan following the ESDP-III (MOE, 2010a). In the same way as the preceding ESDPs, the emphasis is placed on the quality of education, and in particular, the ESDP-IV covers the contents of the GEQIP which started in 2008 (MOE, 2010a). Strategies, component activities and objective indicators of the quality and access to primary and secondary education are shown in Annex 3-1. The main indicators are (1) to improve quality and internal efficiency (the dropout and repetition rates of grades 1-8 will decrease to 1.0%, and at least 70% of students in all grade levels in all subjects in all types of assessments and exams will score at least 50% and at least 20% of the students will score 75%), and (2) to ensure equitable access (the net intake rate (NER) will reach 100% in 2014/15, the dropout and repetition rates throughout primary education will achieve 1% by 2014/15, the NER for grades 1-4 will reach 95%, the NER for grades 5-8 will reach 80%, and Gender Parity Index (GPI) for gross enrollment rate (GER) will become 1.0 in 2014/15) (MOE, 2010).

2.2. Empirical evidence on quality of primary education in Ethiopia

It appears that though quality concern has been there for a long time, systematic and systemic data generation is a recent experience in Ethiopia. As a result, the local literature on the state of learning in general and on school student's academic performance in particular is so thin.

Even though the focus of research so far appears to be on the determinants of access or inequality issues of schooling. Examples in this regard include studies by Rose and Al-140 Samarrai (2001), Poluha (2004) and Camfield (2011) on factors affecting girls' education in Ethiopia with particular emphasis on household income, parental education and role model availability. Tatek (2007, 2008) also investigated the interactive effects of livelihood, socialization and school context on children's education. Studies by Tamirie (2009) further reported on the differential treatment of boys and girls or stereotypical reflections in textbooks. In fact, Tamirie (2006, 2009) included in his report a comparison of academic achievements by gender in selected schools of Addis Ababa and Enjibara, and concluded that boys outperform girls in school mathematics and the gap widens as we go up in the education ladder. Tilaye and Bedru (2006) too conducted a study on a sample of 2611 (309 boys and 302 girls) upper primary students selected from ten government and non-government schools of Addis Ababa. Results showed prevalent lower girls' performance in mathematics in both types of schools. Teshome's (2001) study too reached on the same conclusion after a detailed analysis of mathematics achievements of grades 3, 5, and 7 students from Addis Ababa primary schools.

The First National Learning Assessment (FiNLA) conducted in 2000 had a national sample size of about 10,500 grade 4 and about 5,099 grade 8 students from 256 and 134 schools respectively. Findings showed that, out of the ten regional states participated, neither of them scored above 50% mean in any of the subjects¹⁷ included in the study. Specifically, achievements in mathematics for each of the grades remained below 40 percent (MoE, 2000). The report of the Second National Learning Assessment (SNLA) was published in 2004. The national sample size at this time included over 13,000 grade 4 and about 8,059 grade 8 students from 376 and 213 schools respectively. Unfortunately, the results in English, and mathematics were the same as that of the

FNLA for both grade 4 and 8 students (MoE, 2004). Similar procedures and comparable sample sizes were used in the subsequent Third and Fourth National Learning Assessments (TNLA & FNLA) studies reported in 2008 and 2013 respectively. Findings, however, proved the prevalence of low performances of students in English and mathematics in grades 4 and 8 and decreasing trend of performances over the years (MoE, 2008, 2013).

The Ethiopian 1st, 2nd, 3rd, & 4th National Learning assessment reports used 50 per cent average as a minimum standard each student should surpass. However, performances of students at grade 4 and 8 were far below the policy expectation. In fact, the indication of the results is found to be consistent over the years in conveying the message that by the end of four or eight years of education an average student is able to answer about or less than 40% of the items correctly. In the latest fourth national learning assessment study, the variables found to have significant contribution on the overall achievements scores were: Individual variables mainly gender, language used at home, and availability of additional reference materials; Home variables such as family size, education of fathers, number of meals per day, and home tutorial; and School variables represented by absenteeism within a semester and school distance found to be better predictors of overall academic performances (MoE, 2013).

2.3. ChildFund Ethiopia Basic Education Program (Children age 6-14)

ChildFund and its local partners work in multiple areas of intervention across three domains of change to improve the skills and self-efficacy of individual children and the adults responsible for their care, foster positive relationships that support children's progress, and make systems and structures more responsive and accessible to achieve the basic education outcome known as educated and confident children. The age range encompassed here—from 6 to 14 years—is universally linked to children's primary school attendance and the acquisition of numeracy,

literacy and other foundational skills. As they enlarge their sphere beyond home and family, children also strengthen essential competencies such as identity and voice, participation and confidence. ChildFund and its local partners work with parents, teachers, other adults and children themselves as active participants in the interventions areas. 48 percent of the children whom ChildFund serves are 6 to 14 years old, projects help them achieve the critical developmental milestones of childhood and early adolescence (ChildFund International Impact Report,2013).

ChildFund build upon the foundations for lifelong learning laid in earlier years by promoting children’s learning in safe, accessible schools that provide a quality education, and their socio-emotional development in supportive homes and child-friendly communities. ChildFund and its partners work with deprived, excluded and vulnerable children, and strive to ensure that these children have equal chances to develop and grow, not only in the academic realm but in their aspirations, creativity, communication, self-confidence and leadership skills. ChildFund work equalizes marginalized children’s opportunities to gain fundamental skills.

2.3.1. Primary School Completion and Learning Acquisition

A quality, primary education is every person’s right. Globally, the primary school enrollment rate reached 90 percent in 2011 (up from 83 percent in 2000), but completion held steady at just 75 percent. The United Nations cite poverty, gender and rural residence as key determinants of being out of school (United Nations. (2013).

A survey of more than 300 children in Ethiopia revealed that household poverty, childhood illness, and caring for younger siblings keep primary school-aged children from completing school in our program areas (ChildFund International, Midline Assessment of ChildFund Core Outcomes at Sodo-Buee and Silti-Aynagie Program Areas, 2012).

In India, where the same surveys reached almost 800 children, many girls in program areas are already married by the age of 14, stay out of school when menstruating, or are overtly denied an

education because of gender discrimination. When a child misses this window of opportunity—when she does not attend or complete primary school in the expected age range—she is unlikely to make up the loss and her chances for a productive and satisfying future are compromised. She will not have the important credentials conferred by a primary school diploma, and in many cases will not have gained the vital skills of literacy and numeracy. Perhaps as devastating are her missed opportunities to build the life skills she needs to make healthy decisions. For this reason, ChildFund puts a premium on children’s attendance and completion of primary school. In 2013, more than 99 percent of all school-age children enrolled in ChildFund’s programs were also enrolled in an educational institution. But household surveys show mixed results when it comes to children’s completion of a primary education.

ChildFund programming areas in two of the countries—India and Mexico—show statistically significant change in a positive direction. While the Sri Lanka surveys registered a slight increase in school completion rates, and Ethiopia and Philippines slight decreases, ChildFund did not find statistical significance in these cases. ChildFund does know that changing school completion rates requires great social change, by many actors at many levels, and ChildFund learnt even from these inconclusive results how ChildFund could better detect and measure change over time. Meanwhile, the significant differences in India and in Mexico do have something to teach ChildFund Programming. The Indian government places a priority on children’s education, and makes significant investments in primary schooling. The national primary school completion rate was about 97 percent (World Bank. (2013) in 2010, yet more than 2.3 million Indian children are out of school. ChildFund works in deeply marginalized communities where multiple obstacles stand between children and a quality, primary education: inadequate infrastructure and resources (the student/teacher ratio can be as high as 62:1), child labor and gender discrimination are often

insurmountable obstacles, especially for girls. In light of these realities, ChildFund encouraged by the narrowing gap between the local completion rates that measured (60.8 percent in 2010 and 78.8 percent when ChildFund re-surveyed in 2013) and the national completion rate of 97 percent in 2010. It would appear that ChildFund's multi-faceted work is indeed helping marginalized children to catch up to their peers nationwide.

ChildFund had the most success measuring reading skills in its programming areas in India. There, ChildFund detected a significant increase, from 25.1 percent (2009) to 34.5 percent (2013), in the proportion of 6- to 14-year-old boys and girls who performed at or above their current grade level in reading tests. While this is an encouraging development, the relatively low numbers of children reading at grade level—only about one-third after a significant increase—confirm the importance of educational quality and making sure that children truly gain the skills they will need for a productive and satisfying life ChildFund International Impact Evaluation report (2103).

In Rural Zambia, to systematically increase the use of active, participatory, child-centered and research-based classroom practices. ChildFund and its local partner engaged parents and teachers as champions of children's roles, rights and responsibilities in school and, ultimately, their retention and academic performance. ChildFund sought to determine the cumulative effects of these interventions. In 28 participating schools, evaluators found ample qualitative evidence of improvements: student participation in school governance was up, and child representatives were actively training peers in leadership, rights and responsibilities. Children were aware of their rights, and reported concerns to appropriate adults. Students had opportunities to practice the democratic process, and their voices were heard. Inclusiveness of girls and disabled children rose, while corporal punishment decreased. Evaluators linked these many improvements to students' greater confidence, to greater parental and teacher support of students, and to reduced absenteeism

and dropout rates. Average enrollment in the primary schools rose by 15 percent between 2007 and 2013. In the same period, the proportion of children who passed the seventh-grade leaving examinations showed an overall rise, from about 59 to 71 percent. In sum, more children in project area were attending primary school, more children were successfully completing primary school, and the quality of their classroom experience was better, than at the onset of ChildFund's interventions than in the non-project areas.

3. RESEARCH METHODOLOGY

3.1. Research Design and Approach

This study tries to investigate the impact of ChildFund basic education program on academic performance of grade nine students, within the study area. To obtain appropriate information the investigator used cross-sectional research design. Further, a quantitative approach was used to assess the data at hand. The study was carried out between February and April 2018.

3.2. Data Sources and Methods of Data Collection

3.2.1. Types and sources of data

Both primary and secondary data were collected from the study area. Primary data were collected from sample of 120 students (57 ChildFund's basic education program participants and 63 non participants) while secondary data were collected from Buee secondary and preparatory school.

The primary data were gathered from sample students using structured questionnaire that was carried out in 2018. The survey focused on student characteristics (family size, education, sex and age category, etc.), household characteristics (family size, education of household head, sex of the household head, etc.), and school and teacher characteristics (students' attitude towards teachers and school environment). Checklist and structured questionnaire was used to collect the primary data. The questionnaire was pre-tested before the actual conduct of the interview using students identified for the purpose. Experienced enumerators were recruited based on their proficiency in the local language and then trained on data collection techniques and on the content of the questionnaire.

While the secondary data in part relied on student grade cards/school rosters; the study also rely on multiple sources of information for the two key variables—the grades of the students (the measure

of academic performance) and the participation status of the students that they attended in from grade five to eight

3.2.2. Sampling design and techniques

The sampling strategy employed in this study was both random and purposive sampling. One school out of four secondary schools in the Woreda selected randomly and then a purposive sampling technique was employed to select sample students from the selected school in the program area. The sample students were purposively selected from a population of 589 secondary school students in Buee secondary school that were enrolled in the ninth grade during the 2017–2018 academic years. In total, the size of the sample includes 120 students and their families which is around 20% of the sample population.

3.2.3. Data collection method

To evaluate whether the basic education program is improving the education quality, as it is intended to, this study measured education quality by student performance on academic tests, as do many other empirical studies about the effect of policies on educational outcomes. In this paper, the study focused on grade nine students' first semester scores; the scores for this class are based on a single school that is standardized across the students.

In addition to questions about academic performance and basic education participation, other questions was prepared and asked to create variables to control for other observed factors that might be expected to affect academic performance of each student. The first includes the following student-level characteristics: gender, age, whether or not they were student cadres (club leaders) etc. The second include characteristics on students' parents and family: the total number of household members, the educational attainment of each parent, and the household's income level. Finally, a set of questions was asked to collect information about school and teachers characteristics according to each student's stated attitude.

3.3. Method of Data Analysis

3.3.1. Descriptive statistics

Descriptive statistics is important to have clear picture of the characteristics of the sample units. By applying descriptive statistics, one can compare and contrast different categories of the sample units with respect to the desired characteristics. The descriptive statistics used in this study include mean, standard deviation, percentages and frequency of occurrence. Chi-square and t-tests were used to test for the significance of the discrete and continuous variables, respectively.

3.3.2. Inferential statistics

The purpose of this paper is to investigate the impact of ChildFund's basic education program on grade nine students' academic performance using the propensity score matching estimation technique.

3.3.2.1. *The evaluation problem*

In order to estimate the impact of basic education program on an outcome 'Y' such as test scores for the student who attended ChildFund's basic education program, one would ideally need to compare the average test score of these students to the average test score that these same students would have achieved had they not attended ChildFund's basic education program. However, since a given student either attends basic education program or does not, the average test score that basic education program participant students would have achieved had they not attended basic education program remains an unobserved counterfactual. The evaluation problem consists in providing unbiased estimates of this average counterfactual through the use of appropriate methods. A well-known methodology for conducting this type of analysis that is used extensively in impact evaluations is the propensity score matching technique of Rosembaum and Rubin (1983), in which a match is artificially constructed for each one of the individuals studied who have identical

characteristics but one difference: participation or non-participation in the basic education program. Hence, this paper will employ propensity score matching technique in data analysis.

3.3.2.2. *Propensity Score Matching (PSM)*

One can use the propensity score matching (PSM) model to address the data with sample selection problem associated with participation in basic education programmes. In this section, an explanation is given for this methodology. The sample selection problem may crop up from (1) self-selection where the students' parents themselves decide whether or not to participate in basic education programmes, which depends on observable and unobservable students and household characteristics, and/or (2) endogenous program placement where those who implement basic education programmes select (a group of) students and households with specific characteristics (e.g. high poverty rates).

Statistical matching, such as PSM and the instrumental variable (IV) model could be used to compensate for sample selection bias or the endogeneity associated with students access to basic education programmes. Statistical matching has been widely used in social science studies. This involves first specifying a function matching the proximity of one student to another in terms of students and household characteristics and then grouping students so as to minimize the distance between matched cases. The merits of using statistical matching over instrumental variable (IV) estimation include; the former does not assume linearity: it is valid even though distributions of explanatory variables of treatment and control groups overlap relatively little, and it does not require a valid instrument.

Rosenbaum and Rubin (1983) proposed statistical matching using the propensity score, the predicted probability that an individual receives the treatment of interest (e.g. basic education services in our case) to make comparisons between individuals with the treatment and those without.

3.3.2.3. *The evaluation procedure*

To examine the effect of ChildFund’s basic education program on the academic performance of students, the evaluation exploits cross-sectional dimension of variation that comes from comparing students from program and non-program schools. Thus, the sample students need to be divided into treatment group and a comparison (control) group. Students from ChildFund’s program can be considered as the treatment and the students from non-basic education program as the comparison group. With this setup, the study was employed a propensity score matching technique to examine the impact of ChildFund program on the outcome (i.e., academic performance) of students whose primary schools were under ChildFund program (participant students) to students whose primary schools were not under ChildFund program during the same period (non-participant students). Use of the matching methodology is justified by the fact that there is no way to track the academic achievement of an individual student in both scenarios (with ChildFund’s basic education programme and without it) over the same period of time. Therefore; matching provides a way to artificially compare achievement in both scenarios using the following model:

$$Y_i = \alpha + dED_i + bX_i + e_i, \quad (1)$$

Where, α is any constant, i is an index for the student i , Y_i is the first semester average result of student i in 2018; ED_i are the treatment variable (which make d the parameter of interest). Finally, X_i is a vector of covariates that are included to capture the characteristics of students, parents and schools while e_i -is the error terms. The estimation methods for propensity score matching is summarized below.

The propensity score is the conditional probability of receiving a treatment (or of having access to ChildFund programme) given student and household characteristics, X .

$$P(X) = Pr \{D = 1 / X\} = E \{D / X\} \quad (2)$$

Where $D = \{0, 1\}$ is the binary variable indicating whether a student had participated to ChildFund basic education programme (1) or not (0) and X is the multidimensional vector of student and household characteristics or time-invariant or relatively stable characteristics in this context. It was shown by Rosenbaun and Rubin (1983) that if exposure to ChildFund's basic education programme is random within cells defined by X , it is also random within cells defined by $p(X)$ or the propensity score. The policy effect of basic education programme can be estimated in the same way as:

$$\begin{aligned}
 \tau &= E Y_{1i} - Y_{i0} / D_i = \mathbf{1} \\
 &= E Y_{1i} - Y_{i0} / D = \mathbf{1}, P(X_i) \quad (3) \\
 &= E E Y_{1i} / D_i = \mathbf{1}, P(X_i) - E Y_{0i} / D_i = \mathbf{0}, P(X_i) / D_i = \mathbf{1}
 \end{aligned}$$

Where i denote the i -th student, Y_{1i} is the potential outcome (academic performance captured by 1st semester grade nine average score) in the two situations with access to ChildFund basic education programme and without. So the first line of the equation states that the program effect is defined as the expectation of the difference between the academic performance of the i^{th} student with access to ChildFund basic education programme and that of similar student without access to ChildFund basic education programme. The second line is the same as the first except that the expected program effect is defined over the distribution of the propensity score. The last line is the program effect as the expected difference of the expected academic performance score for the i^{th} student with access to basic education programme given the distribution of the probability of accessing basic education programme and that for the student without basic education programme given the same distribution. Formally, the following two hypotheses are needed to derive (3) given (2).

Lemma 1: Balancing Hypothesis (Balancing of student, school and household variables given the propensity score).

If $p(X)$ is the propensity score, then $D \perp X / p(X)$. This implies that, given a specific probability of having access to ChildFund basic education programme, a vector of student and household characteristics, X , is orthogonal to (or uncorrelated to) access to ChildFund basic education programme. In other words, for a specific propensity score, ChildFund's basic education programme is randomly distributed and thus on average students with ChildFund basic education programme access and those without are observationally identical (given a propensity score). Otherwise, one cannot statistically match students of different categories. In other words this is called Common support or overlap condition. Imposing a common support condition ensures that any combination of characteristics observed in the treatment group can also be observed among the control group (Bryson et al., 2002).

Region of common support and overlap condition: The common support region is the area within the minimum and maximum propensity scores of treated and comparison groups, respectively and it is done by cutting off those observations whose propensity scores are smaller than the minimum and greater than the maximum of treated and comparison groups, respectively (Caliendo and Kopeinig, 2005).

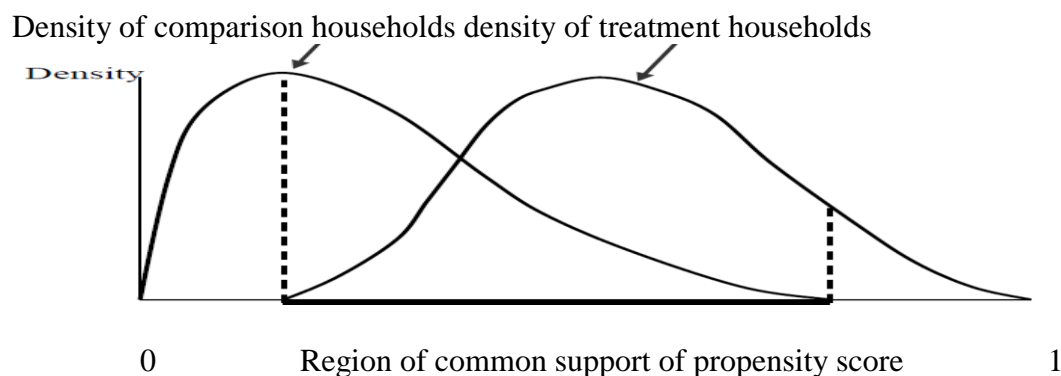


Figure 1. Region of common support condition. Source: Ravallion, 2005

Lemma 2: Unconfoundedness given the propensity score or conditional independence assumption (CIA)

If treatment (or whether a student had access to basic education programme) is unconfounded, i.e.,

$$Y_1, Y_2 \perp D | X$$

Then, assignment to treatment is unconfounded given the propensity score, *i.e.*

$$Y_1, Y_2 \perp D | P, X$$

The latter implies that, given a propensity score, the academic performance are uncorrelated to access to ChildFund basic education programme. If the above lemmas are satisfied, the program effect can be estimated by the procedures described in Becker and Ichino (2002) and Smith and Todd (2005). Each procedure involves estimating a probit or logit model:

$$Pr D_i = 1 | X_i = \Phi(h(X_i)) \quad (4)$$

Where Φ denotes the logistic (or normal) cumulative distribution function (cdf) and $h(X_i)$ is a starting specification. The study used the logistic model whereby whether a student had access to ChildFund basic education programme is estimated by student and household characteristics. One possible procedure for statistical matching is Stratification Matching whereby the sample is split into k equally spaced intervals of the propensity score to ensure that within each interval the average propensity scores of treated and control students do not differ. Stratification Matching requires observations to be discarded when either treated or control units are absent. There are also other matching variants in matching estimators of the average effect of treatment on the treated, namely, Nearest Neighbor matching and Kernel Matching. Nearest Neighbor Matching involves taking each treated unit and searching for the control unit with the closest propensity score, while with Kernel Matching all those treated are matched with a weighted average of all controls with weights that are inversely proportional to the distance between the propensity scores of treated and

controls. According to Rosenbaum and Rubin, 1985; and Jalan and Ravallion, 1998, in recent years there have been substantial advances in propensity score matching techniques (cited in World Bank (1999): This method is very appealing to evaluators with time constraints and working without the benefit of baseline data given that it can be used with a single cross-section of data(Ibid).

3.3.2.4. *Testing the matching quality (effect analysis)*

The important step in PSM is checking for matching quality whether the matching procedure can balance the distribution of different variables or not since our conditioning is on propensity score rather than on all variables in both treated and comparison groups (Caliendo and Kopeinig, 2005). While there are different procedures available to check, the basic aim of all of them is to compare before and after matching and if there still exists any difference after conditioning on propensity score. If the differences exist, there is an indication of incomplete (unsuccessful) matching and suggests remedial for actions (Caliendo and Kopeinig, 2005). There are several indicators to check for matching quality. These are: t-Test, joint significance and Pseudo-R2, and stratification test.

T-test: it is an approach preferred when there is a concern with significance of results. Two-sample t-test is employed to check if there is significant difference between the covariate means of treated and control group and suggested by Rosenbaum and Rubin (1985) as the covariates must be balanced after matching and there should be no significant difference between the two groups.

Joint significance and pseudo-R2: The Pseudo-R2 shows how best the regressors explain the probability of participation and it should be fairly low since there should not be significant difference in the distribution of both groups after matching (Caliendo and Kopeinig, 2005).

Stratification test: this approach is dividing observations into strata based on the estimated propensity score to show that there is no statistically significant difference in the mean of the estimated propensity score of both treated and comparison groups as used by (Dehejia and Wahba, 1999, 2002)

3.3.2.5. *Sensitivity analysis*

The final step in the implementation of PSM is checking the sensitivity of the estimated results (Caliendo and Kopeining, 2005). Matching method is based on the CIA, which states that the evaluator should observe all variables that are simultaneously influencing the participation decision and outcome variables. However, this assumption is basically non-testable since the data are uninformative about the distribution of the untreated outcome for treated groups and vice versa (Becker and Caliendo, 2007). The estimation of treatment effects with matching estimators is based on the selection on observables assumption. However, a hidden bias might arise if there are unobserved variables which affect assignment into treatment and the outcome variable simultaneously which nullify the conditional independent assumption (CIA). This results in biased estimates of ATETs (Rosenbaum, 2002). Since matching estimators are not robust against hidden biases, it is important to test the robustness of results to departures from the identifying assumption. However, it is impossible to estimate the magnitude of selection bias with non-experimental data. Therefore, this problem can be addressed by sensitivity analysis (Caliendo and Kopening, 2005). To check the sensitivity of the estimated ATET with respect to deviation from the CIA, it is suggested that the use of Rosenbaum bounding approach is appropriate (Rosenbaum, 2002).

3.4. Definitions, Choices and Descriptions of Variables Included in PSM Models

This sub section describes explanatory variables and outcome variables included in the propensity score matching model based on theories, and empirical evidences. Accordingly, several variables including household characteristics, student and socio-economic factors are hypothesized to determine participation in ChildFund's basic education program and its impact on students' academic performance were identified and presented below.

Table 1. Variables related to academic performance that included in propensity score matching model

Variable name	Description	Variable Type
Dependent		
CHILDPAR	Participation in ChildFund program (1=Yes; 0=No)	Dummy
G9SCOR	Grade nine students' first semester average scores	Continuous
Covariates		
SEX	Sex of the student (1=male;0=Female)	Dummy
AGE	Age of the student in years	Continuous
PARENT	Family composition (1=two parent;0=single parent)	Dummy
HHEDUC	Education status of household head: 1 if 8 and above grade 8; 0 if below grade 8	Dummy
INCOME	Household income in Ethiopian birr/month	Continuous
FAMILYSZ	Number of family members (number)	Continuous
FODSHPR	Events that lead to household food shortages: 1 if the household has faced food shortages and 0 otherwise	Dummy
DISTNCE	Time takes to school from your home in minutes	Continuous
ADQSCFA	Parents provide adequate school facilities: 1if yes, 0 otherwise	Dummy
HELPHM	Person at home who assists with schoolwork:1 if yes, 0 otherwise	Dummy
TEACRMT	Teaching methodology appropriate for students: 1 if yes, 0 otherwise	Dummy
SCHENVT	Attractive school environment: 1 if yes, 0 otherwise	Dummy
WOUTBRK	School days without breakfast and meal after school: 1 if yes, 0 otherwise	Dummy
SICK	Has child ever had a serious illness: 1 if yes, 0 otherwise	Dummy
TUTORIAL	Attend tutorial classes: 1 if attend, 0 otherwise	Dummy
LIBRARY	Access to library if needed: 1 if had access, 0 otherwise	Dummy
ABSENT	Ever absent for more than a week in a this term: 1=yes; 0=No	Dummy
REPEAT	Ever repeated: 1=if yes; 0=otherwise	Dummy
HRSTUDY	Hours spent studying at home	Continuous

Source: Own definition

4. RESULTS AND DISCUSSION

This chapter presents the main results and discussions. It is divided into two sub-sections. The first sub section provides the characteristics of sample students while the second subsection discusses econometric estimation results.

4.1. Descriptions of Sample Students' Characteristics

4.1.1. Students' socioeconomic and demographic background

Table 2 presents the result of the demographic and socio-economic characteristics of participant and non-participant students'. The result shows that statistically there was a significant difference between the two groups in terms of family composition, Education of the household head and presence of food shortage in the household. ChildFund program participant students had higher percentage of living in a single family household compared to non-participating students. Similarly, compared to non-participants, ChildFund participating students live in a household encountered food security problem.

Table 3, presents the result of the demographic and socio-economic characteristics of participant and non-participant students' for the continuous variables. The result shows that statistically there was no significant difference between the two groups in the four variables presented in table 3. However, there are slightly longer time takes to school from home and higher monthly income earnings in non-participating students' household compared to ChildFund participating students though almost there was no difference in the average age of the students in both groups. In terms of family size of the students' household, both groups showed slight difference.

Table 2. Descriptive statistics of sample students and their households (Dummy variables)

Characteristics	Category	Participant (N=57)		Non-participant (N=63)		Total sample (N=120)		χ^2 -value
		N	%	N	%	N	%	
<i>Student Characteristics (S)</i>								
Sex of the student	Male	27	47.37	34	53.97	61	50.83	0.5215
	Female	30	52.63	29	46.03	59	49.17	
<i>Household Characteristics(H)</i>								
Family Composition	One-parent	17	29.82	6	9.52	23	19.17	7.9602** *
	Two-parent	40	70.18	57	90.48	97	80.83	
sex of household head	Male	46	80.70	51	80.95	97	80.83	0.0012
	Female	11	19.30	12	19.05	23	19.17	
Education of HH head	Below grade 8	30	52.63	49	77.78	79	65.83	8.4126** *
	Grade 8 & above	27	47.37	14	22.22	41	34.17	
HH main source of income	Farm	37	64.91	32	50.79	69	57.50	2.4410
	Non-farm	20	35.09	31	49.21	51	42.50	
Events HH food shortages	No	23	40.35	43	68.25	66	55.00	9.4138** *
	Yes	34	59.65	20	31.75	54	45.00	

*** indicates Significant at less than 1% level

Source: own Survey data

Table 3 Socio-economic characteristics of students and their households for continuous variables

Characteristics	Participant (N=57)		Non-participant (N=63)		T-value	Total sample (N=120)	
	Mean	SD	Mean	SD		Mean	SD
<i>Student Characteristics (S)</i>							
Age	15.35	.876	15.38	.771	0.2000	15.367	.819
<i>Household Characteristics(H)</i>							
Income	846.15	376.15	978.25	439.44	1.7598**	915.50	414.22
Family size	7.54	2.079	7.68	3.042	0.2885	7.61	2.619
Distance to school	16.54	7.233	18.46	7.496	1.4285*	17.55	7.405

** & * indicates Significant at less than 1%, 5% & 10% level respectively

Source: own Survey data

4.1.2. Students' access to educational support

Educational Support factors such as parent's provision of adequate school facilities, family assistance with schoolwork, parents checking of their child's school work, and parents' concern with their children exercises and assignments are important determinants of students' academic performance. Table 4 shows that statistically there was a significant difference between the two groups in terms of access to adequate school facilities. ChildFund program participant students had lower percentage of adequate school facilities provided by their parents compared to non-participating students. The result shows that almost equal percentage 57.89% of ChildFund participant and 57.14% of non- participant sample students were got assistance with schoolwork by family members. The school work of the majority of both sample students were not checked by their parents.

Parents concern with their children exercises and assignments is slightly low in non-participating students compared to participant students in the study area. About 51% of ChildFund participants and 43% of non-participants' student parents were concerned with their children exercises and assignments. This may be the result of the program focus on parenting education on child development and education.

Table 4. Access to educational support of sample students

Characteristics	Category	Participant (N=57)		Non-participant (N=63)		Total sample (N=120)		χ^2 -value
		N	%	N	%	N	%	
Parents provide child with adequate school facilities	No	38	66.67	27	42.86	65	54.17	6.8332***
	Yes	19	33.33	36	57.14	55	45.83	
Person at home who assists with schoolwork	No	24	42.11	27	42.86	51	42.50	0.0069
	Yes	33	57.89	36	57.14	69	57.50	
Do you check your child's school work	No	40	70.18	42	66.67	82	68.33	0.1703
	Yes	17	29.82	21	33.33	38	31.67	
Parents concerned with exercises and assignments	No	28	49.12	36	57.14	64	53.33	0.7734
	Yes	29	50.88	27	42.86	56	46.67	
Attend tuition classes	No	21	36.84	30	47.62	51	42.50	1.4222
	Yes	36	63.16	33	52.38	69	57.50	
Access to library	No	24	42.11	28	44.44	62	51.66	2.1661
	Yes	33	57.89	35	55.56	59	49.17	

*** indicates Significant at less than 1% level

Source: own Survey data

4.1.3. Students' attitude towards teachers and school environment

In addition to educational support, socioeconomic and demographic characteristics described earlier, students' perceptions to their teachers and school environment is playing a crucial role in students' academic performance. Students' perceptions regarding teachers' skill, appropriateness of teaching methodology, quality of education along with their perception to attractiveness of school environment are influential factors in the academic performance.

As shown in Table 5, the perception of students' to the adequacy of teachers' skill is moderately high since more than 67% of them perceived teachers' had adequate skill. In terms of students' perception to teachers use properly their teaching periods, almost 60% ChildFund participants and 59% of non-participants perceived that their teachers use teaching periods properly.

The perception of sample students' to appropriateness of teaching methodology revealed that more than 68% of ChildFund and 63% of non ChildFund sample students perceived that the teaching methodology is appropriate for students. Table 5 also presents the quality of education and the attractiveness of school environment perceived by the students. From the total of 120 sample students in both groups, 54.43% of program participants and 50.79% non-program participants of them state the education in the school has quality while 66.67% of sample students in both cases state that the school environment is attractive for teaching and learning processes.

Table 5. Students' perceptions to School and Teacher Characteristics

Characteristics	Category	Participant (N=57)		Non- participant (N=63)		Total sample (N=120)		χ^2 -value
		N	%	N	%	N	%	
Teachers have Adequate skill	No	15	26.32	24	38.10	39	32.50	1.8928
	Yes	42	73.68	39	61.90	81	67.50	
Teachers use properly their teaching periods	No	23	40.35	26	41.27	39	40.83	0.0105
	Yes	34	59.65	37	58.73	71	59.17	
Teaching methodology appropriate for students	No	18	31.58	23	36.51	41	34.17	0.3232
	Yes	39	68.42	40	63.49	83	65.83	
State the quality of education in your school	Poor	26	45.61	31	49.21	57	47.50	0.1549
	Good	31	54.39	32	50.79	63	52.50	
school environment is attractive	No	19	33.33	21	33.33	40	33.33	0.0000
	Yes	38	66.67	42	66.67	80	66.67	

Source: own Survey data

4.1.4. Students' health status and academic background

The findings in the study area show that about 26.67% of students said that there had a day without breakfast and lunch. the survey result of chi-square test ($\chi^2=3.9371$) revealed that there is significant difference at 5% level between the participation status and day without breakfast and lunch with ChildFund participant more likely become without breakfast and lunch compared to non-participant. There is a statistical significant difference between participant and non-participant in terms of domestic chores after school. ChildFund program participant students had higher percentage of assigning domestic chores after school by their parents compared to non-participating students.

Regarding the health status of the sample students 42% of the participant and more than 47% of non-participant reported that they were experienced serious illness in the past. Out of the total respondents, only 15% reported disability problem. There was no a dichotomy between the participating and non-participating respondents. About 19% of the participating students reported that they had some form of disability problems; whereas 11% of the non-participating reported that they had some form of disability problems (Table 6).

Table 6. Students' health and academic background for dummy variables

Characteristics	Category	Participant (N=57)		Non-participant (N=63)		Total sample (N=120)		χ^2 -value
		N	%	N	%	N	%	
<i>Student health (H)</i>								
Days without breakfast & without meal after school	No	37	64.91	51	80.95	88	73.33	3.9371**
	Yes	20	35.09	12	19.05	32	26.67	
Assign you domestic chores after school	No	16	28.07	34	53.97	50	41.67	8.2578***
	Yes	41	71.93	29	46.03	70	58.33	
Ever had a serious illness	No	33	57.89	33	52.38	66	55.00	0.3676
	Yes	24	42.11	30	47.62	54	45.00	
Whether child has disability/problem	No	46	80.70	56	88.89	102	85.00	1.5732
	Yes	11	19.30	7	11.11	18	15.00	

Characteristics	Category	Participant (N=57)		Non-participant (N=63)		Total sample (N=120)		χ^2 -value
		N	%	N	%	N	%	
Students' academic background								
Are you given homework and fail to complete	No	38	66.67	37	58.73	75	62.50	0.8042
	Yes	19	33.33	26	41.27	45	37.50	
Ever absent more than a week in this term	No	32	56.14	43	68.25	75	62.50	1.8736
	Yes	25	43.86	20	31.75	45	37.50	
Ever repeated	No	39	68.42	51	80.95	90	75.00	2.5063
	Yes	18	31.58	12	19.05	30	25.00	
Ever dropped out	No	49	85.96	54	85.71	103	85.83	0.0015
	Yes	8	14.04	9	14.29	17	14.17	
Friends who dropped out of school	No	32	56.50	31	48.21	63	52.50	0.5770
	Yes	25	43.86	32	50.79	57	47.50	

4.1.5. Students use of time and academic performance

The following table depicts time spent on studying, homework and household chores by program participants and non-program participants. As can be seen from the table those sample students from the ChildFund program had to spend lesser time to study and a bit more time to household chores as compared to the non-program participants program participants spent their time 3.81, 8.44 and 2.13 per day for study, domestic work and extracurricular activities respectively while non-program participants spent 4.25, 5.45, and 1.89 for study, domestic work and extracurricular activities respectively (Table 7).

Table 7. Students' academic background for continuous variables

Characteristics	Participant (N=57)		Non-participant (N=63)		T-value	Total sample (N=120)	
	Mean	SD	Mean	SD		Mean	SD
Hours spent studying at home/ day	3.81	2.419	4.25	2.257	1.0492	4.04	2.331
Hours spent on domestic work/day	8.44	5.45	6.21	3.23	2.7597***	7.27	4.55
Extra-curricular Activities (hours)/day	2.13	1.28	1.89	1.08	1.0700	2.02	1.19
Previous class average score(5-8)	65.41	13.14	60.32	12.33	2.1887**	62.74	12.92
Grade 9 1 st semester average score	62.14	11.74	57.75	11.98	2.0223**	59.83	12.02

*** and ** indicate significant at less than 5% and 10% probability levels, respectively

4.2. Econometric Estimation Results

This section describes the econometric analysis. The section explains the entire process to arrive at the impact of the program using propensity score matching model which includes estimation of propensity scores, matching methods used, common support region and balancing test. Propensity score matching (PSM) was applied to deal with the objective of assessing the impact of ChildFund program on academic performance of the study

4.2.1. Estimation of propensity scores

This part presents the results of the logistic regression model employed to estimate propensity scores for matching treatment students with control students. As specified earlier, the dependent variable in this model is binary indicating whether the student was a participant in the ChildFund program which takes a value of 1 and 0 otherwise. STATA 13.0 computing software using the propensity scores matching algorithm, `teffect psmatch` was used for the estimation purpose.

Table 8 shows the program participation estimation results of the logistic model. The pseudo-R² value of the estimated model result is 0.3237 which is fairly low. This low pseudo-R² value indicates that the allocation of the program has been fairly random (Pradhan and Rawlings, 2002). The result, therefore, suggests that treatment students do not have diverse characteristics overall and hence obtaining a good match between treatment and control students become easier.

As shown in Table 8, the estimated coefficient results indicate that participation in the ChildFund basic education program was significantly influenced by six explanatory variables. Education status of the household head and whether a household encountered food shortages problem were found to have positive and significant influence on participation in ChildFund basic education program at 1% and 5% level of significances, respectively. Such strong positive relationship between higher Education status of the household head and participation of students in ChildFund

program might be due to the fact that large higher education level is associated with more information and has awareness of the importance of ChildFund basic education program compared to lower education level household head. Households who are encountered by food shortages problem had higher chance of being included in the program. This might be because ChildFund basic education program may understand problems of these households and considering their children during selection as ChildFund involved in selecting program participant students together with the community. On the other hand, family composition distance of the school, whether parents provide adequate school facilities and access to library were found to have negative and significant effect on the program participation at 1%, 5%, 5% and 10% level of significances, respectively. This suggests that students with single parent have higher chance to be included in the program than students who had both parents. The possible explanation for this relationship might be because students with single parent have higher chance of being disadvantageous than students who had both parents due to several socioeconomic related factors. Distance of the school which is the travel distance of the ChildFund School from students' residence which is measured in minutes was found to be related negatively with participation of the student in the ChildFund supported School. This means that the probability of participation is high on nearer students to than those who are further away. This might be because students far away from ChildFund supported school take more time and energy to participate, thus discouraging them to participate. Similarly, the inverse relationship between adequate school facilities and access to library and participation in ChildFund supported school might be because students who have adequate school facilities are more likely comes from good household in terms of socioeconomic factors and hence advantageous. As a result, their probability of inclusion in the program is low.

Table 8. Logit results of student program participation

Variables	Coef.	Std. Err.	Z	P>z
_cons	2.114712	5.537137	0.38	0.703
SEX	-0.5634842	0.5143652	-1.10	0.273
AGE	0.0928317	0.3228749	0.29	0.774
PARENT	-2.658271	0.7971106	-3.33***	0.001
HHEDUC	1.666927	0.5960535	2.80***	0.005
INCOME	-.0009066	0.0006677	-1.36	0.175
FAMILY SZ	.101649	0.1000625	1.02	0.310
FODSHPR	1.024014	0.5128501	2.00**	0.046
WOUTBRK	0.4347043	0.5990455	0.73	0.468
SICK	-0.084934	0.5046495	-0.17	0.866
DISTNCE	-0.0994629	0.0419905	-2.37**	0.018
ADQSCFA	-1.306674	0.5348037	-2.44**	0.015
LIBRARY	-0.9271173	0.525124	-1.77*	0.077
TEACRMT	0.4618142	0.6152089	0.75	0.453
SCHENVT	0.0543663	0.5571196	0.10	0.922
TUITION	0.3125184	0.5332194	0.59	0.558
HELPHM	-0.1814129	0.5157031	-0.35	0.725
REPEAT	0.3855557	0.5635945	0.68	0.494
ABSENT	0.7189417	0.5188511	1.39	0.166
HRSTUDY	-0.0748524	0.1039085	-0.72	0.471
Number of observation		120		
Chi square		53.75***		
Log likelihood		-56.152169		
Pseudo R ²		0.3237		

Source: Own estimation result.

***, ** and * indicate significant at less than 1%, 5% and 10% probability levels, respectively

The distribution of the propensity score for each student included in the treated and control groups was computed based on the above participation model to identify the existence of a common support. Figure 2 depicts the distribution of the student with respect to the estimated propensity scores. The figure shows that most of the treatment students were found in the middle and partly in the right side near to middle while most of control students are found in the left side of the distribution. It also reveals that there is wide area in which the propensity score of both the treatment and the control groups are similar.

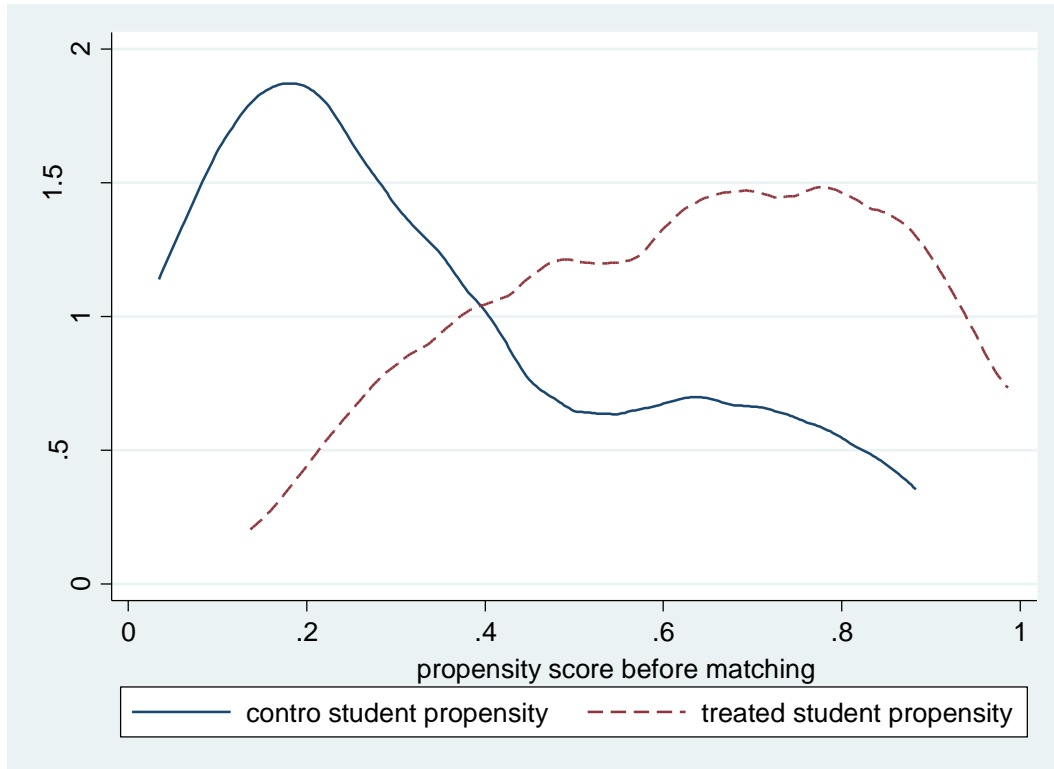


Figure 2. Kernel density of propensity score distribution

4.2.2. Matching program and non-program households

There are four important tasks that must be carried out before conducting the matching work itself. First, estimating the predicted values of program participation (propensity score) for all the sample students of both program and control groups (which was done in the previous section) is a primary activity. Second, imposing a common support condition on the propensity score distributions of student with and without the program is another important task. Third, discarding observations whose predicted propensity scores fall outside the range of the common support region is the next work. Fourth, estimation of the treatment effect on the treated is the final task.

As shown in Table 9, the estimated propensity scores vary between 0.201 and 0.996 (mean = 0.67) for ChildFund students and between 0.0121 and 0.870 (mean = 0.298) for non ChildFund participant (control) students. The common support region would therefore, lie between 0.201 and 0.870 which means students whose estimated propensity scores are less than 0.201 and larger than

0.870 are not considered for the matching purpose. As a result of this restriction, 45 students (15 ChildFund students and 30 non ChildFund) were discarded.

Table 9. Distribution of estimated propensity scores

Groups	Obs	Mean	Std. Dev.	Min	Max
Total students	120	0.475	0.3106735	0.0121366	0.9958118
ChildFund student	57	0.6700773	0.2425476	0.2010056	0.9958118
Control student	63	0.2985015	0.2558823	0.0121366	0.8702852

Source: Own estimation result.

4.2.3. Testing the balance of propensity score and covariates

Once the matching work is conducted, the next task is to check the balancing of propensity score and covariate. It should be clear that the main intention of estimating propensity score is not to get a precise prediction of selection into treatment. Rather, to balance the distributions of relevant variables in both groups.

Table 10. Propensity score and covariate balance

Variables	Sample	Mean			T-test	
		treated	Control	combined	T	P> t
Pscore	Unmatched	0.6700773	0.2985015	0.475	-8.1423***	0.000
	Matched	0.5833809	0.4960095	0.544418	-1.844	0.965
SEX	Unmatched	0.474	0.540	0.508	0.7177	0.4744
	Matched	0.439	0.515	0.472	0.6450	0.2605
AGE	Unmatched	15.35	15.38	15.367	0.2000	0.4209
	Matched	15.268	15.272	15.270	0.0236	0.4906
PARENT	Unmatched	0.70175	0.90476	0.8083	2.8954***	0.0023
	Matched	0.829	0.848	0.8378	0.2200	0.4133
HHEDUC	Unmatched	0.47368	0.22222	0.34166	-2.9826***	0.0017
	Matched	0.4146	0.3636	0.39189	-0.4412	0.6698
INCOME	Unmatched	846.1579	978.254	915.5083	1.7598**	0.0405
	Matched	879.0976	946.0606	908.9595	0.6762	0.2505
FAMILYSZ	Unmatched	7.54	7.68	7.61	0.2885	0.3867
	Matched	7.68	7.82	7.74	0.1974	0.4220
FODSHPR	Unmatched	0.5964912	0.3174603	0.45	-3.1694***	0.0010
	Matched	0.5365854	0.4848485	0.5135135	-0.4372	0.6684

Variables	Sample	Mean			T-test	
		treated	Control	combined	T	P> t
WOUTBRK	Unmatched	0.3508772	0.1904762	0.2666667	-2.0007***	0.0239
	Matched	0.3414634	0.3636364	0.3513514	0.1960	0.8452
SICK	Unmatched	0.4210526	0.4761905	0.45	0.6021	0.5482
	Matched	0.4390244	0.4545455	0.4459459	0.1317	0.8956
DISTNCE	Unmatched	16.54	18.46	17.55	1.4285*	0.0779
	Matched	16.99	16.79	16.90	-0.1276	0.8989
ADQSCFA	Unmatched	0.3333333	0.5714286	0.4583333	2.6693***	0.0043
	Matched	0.3170732	0.3636364	0.3378378	0.4157	0.3394
LIBRARY	Unmatched	0.4210526	0.5555556	0.4916667	1.4728*	0.0717
	Matched	0.4634146	0.5454545	0.50000	0.6944	0.2448
TEACRMT	Unmatched	0.6842105	0.6349206	0.6583333	-0.5645	0.7133
	Matched	0.6585366	0.6666667	0.6621622	0.0725	0.4712
SCHENVT	Unmatched	0.6666666	0.6666666	0.6666666	0.0000	1.0000
	Matched	0.6341463	0.6363636	0.6351351	0.0194	0.9846
TUITION	Unmatched	0.6315789	0.5238095	0.575	-1.1897	0.8817
	Matched	0.5609756	0.5151515	0.5405405	-0.3882	0.6505
HELPHM	Unmatched	0.5789474	0.5714286	0.575	-0.0825	0.5328
	Matched	0.5121951	0.5757576	0.5405405	0.5390	0.5915
REPEAT	Unmatched	0.3157895	0.1904762	0.25	-1.5865*	0.0576
	Matched	0.2682927	0.3030303	0.2837838	0.3252	0.7460
ABSENT	Unmatched	0.4385965	0.3174603	0.375	-1.3681*	0.0869
	Matched	0.3902439	0.3939394	0.3918919	0.0319	0.9746
HRSTUDY	Unmatched	3.807018	4.253968	4.041667	1.0492	0.1481
	Matched	3.756098	3.848485	3.797297	0.1574	0.4377

Source: Own estimation result

***and * means significant at the 1%, and 10% probability levels, respectively.

The balancing powers of the estimations are ensured by different testing methods. Equality of means using t-test and chi-square test for joint significance of the variables used are employed here. The sixth and seventh columns of Table 10 show the T-values reveal that all covariates became insignificant after matching while ten of them were significant before matching.

As indicated in Table 11, the values of pseudo-R2 are very low. This low pseudo-R2 value and the insignificant likelihood ratio tests support the hypothesis that both groups have the same distribution in the covariates after matching. These results indicate that the matching procedure is able to balance the characteristics in the treated and the matched comparison groups. Hence, this

result can be used to assess the impact of ChildFund basic education program among groups of students having similar observed characteristics. This enables us to compare observed outcomes for treatments with those of a control groups sharing a common support.

Table 11. Chi-square test for the joint significance of variables

Outcome	Sample	Pseudo R2	LR chi2	p>chi2
Academic performance	Unmatched	0.3237	28.83	0.0687
	Matched	0.0436	4.15	0.9999

Source: Own estimation result

All of the above tests suggest that the matching algorithm chosen is relatively the best for the data at hand. Therefore, we can proceed to estimating the average treatment effect on the treated (ATET) for the sample students.

4.2.4. Treatment effect on the general sample and the treated

This study estimates the average treatment effect (ATE) on the entire sample and the average treatment effect on the treated (ATET). The parameter estimates from PSM can be used by margins to estimate the ATE, the average difference of the treatment and control potential outcomes. Similarly, the parameter estimates from PSM can be used by margins to estimate the ATET, the average difference of the treatment and control potential outcomes in the treated sample.

The estimation result presented in Table 12 provides a supportive evidence for the effect of the program on students' academic performance. As shown in Table 12, the PSM estimation result shows that participation in ChildFund basic education program had brought a significant impact on students' academic performance in the study area on both the general sample students and on the treated students. The estimated ATE of participation on the average score of grade nine students was 5.4. Thus, the average score if all students were to participate in ChildFund basic education

program would be 5.4 more scores than the average that would occur if none of the students had participate.

On the other hand the estimated ATET of participation on the average score of grade nine students was 6.98. Thus the average students in the treated group will take 6.98 more score than it would if it did not participate in ChildFund basic education program. This number is higher than the ATE. In this model, the ATE and ATET will only coincide when there is no correlation between the treatment errors and outcome errors and the exogenous covariates have the same distribution in the general sample and treated sample.

Table 12. Average treatment effects on the entire sample (ATE) and the treated (ATET)

G9SCOR	Coef.	Std. Err.	Z	P>z
ATE ChildFund (Yes vs No)	5.391892	1.054097	5.12***	0.000
ATET ChildFund (Yes vs No)	6.981707	1.727513	4.04***	0.000

Source: Own estimation result.

*** means significant at the 1% probability level

5. CONCLUSION AND RECOMMENDATION

5.1. Conclusion

This paper has explored impact of ChildFund's basic education program on academic performance of grade nine students in Buee town, Sodo Woreda. Specifically, it has analyzed the home/community, student, school based factors that impact on the academic performance of grade nine students.

With respect to the results, using the descriptive statistics the ChildFund program has significantly impacted positively to the academic performance of DEV children in almost all of the factors under study. Access to educational support, homework, tutorial class attendance attitude towards teacher's skills, appropriateness of teaching methodology and attractiveness of the school environment is found to have a positive result for program participants. In other words, better for program participants than the non-program participants.

However; the health condition of students in the descriptive statistics indicated that the sample program participants have a bit higher health problems and engaged more in household chores than the non-program participants. This may be due to children of the program area are more likely to live with non-biological parents and influenced to have spent longer time in engaged in household chores.

The PSM estimation result shows that participation in ChildFund basic education program had brought a significant impact on students' academic performance in the study area on both the general sample students and on the treated students. The estimated ATE of participation on the average score of grade nine students was 5.4. Thus, the average score if all students were to participate in ChildFund basic education program would be 5.4 more scores than the average that would occur if none of the students had participated. On the other hand the estimated ATET of participation on the average score of grade nine students was 6.98. Thus the average students in the

treated group will take 6.98 more score than it would if it did not participate in ChildFund basic education program.

5.2. Recommendations

Based on the findings of this study, ChildFund Ethiopia and its partners should continue to focus on the priority intervention areas identified in its long term plan. Although the impact of ChildFund basic education program is significantly positive at all levels (home/community, students and schools), the achievement differential of the beneficiary students would have been higher had some factors like health problems and household chores would have been reduced. Thus, future interventions have to investigate the related factors and proactively maintain the high achievement outcomes throughout all levels. Specifically, the DEV children guardians and parents have to be well educated, monitored and coached on how to support students in school works. Specifically, the researcher would like to recommend the following points:

Students' access to educational support

The findings in the study area show that about 26.67% of students said that there had a day without breakfast and lunch. the survey result of chi-square test ($\chi^2=3.9371$) revealed that there is significant difference at 5% level between the participation status and day without breakfast and lunch with ChildFund participant more likely become without breakfast and lunch compared to non-participant. Therefore; in the short term school feeding supports are required for many children who have inadequate resources to eat at least once a day. Although there is no argument that school feeding programs reduce hunger and attract students to school, it's useful to further study the evidence of the impact of school feeding across a range of outcome and determines whether the benefits could be achieved more cheaply with other programs. In the long term, ChildFund and its partners should support households in livelihood programs so as to access food insecure households.

ChildFund Ethiopia and its partners should scale up (cover more geographic areas) the supports they have been providing to deprived, vulnerable and excluded children designing interventions that focus on availing of materials that can hold up the improvement of student learning and academic achievement (including stationeries, uniforms, reading materials and counseling services). Life skill trainings also need to be strengthened as students have to be supported to develop the skills, habits, and mindsets that enable them to be successful academically as well as professionally and personally throughout their lives. Maintaining the type of supports given to schools which helps them establish child friendly school environment

In the short term ChildFund Ethiopia and its partners should continue with supporting schools including construction of classrooms, toilets, libraries and sport facilities. Some schools also need potable water facilities. For the long term the focus should be to improve leadership qualities of administrators and teachers to engage successfully the communities in school affairs.

Continue enhancing community awareness on children education

ChildFund Ethiopia and its partners should continue to strengthen the supports given to PTAs so that the school committees may encourage parents to sense that proper education is a part of healthy social development and they had an important role to play in the education of their children and they are motivated to play that key role. Thus, ChildFund's supports focus on raising the awareness level of parents to become more responsible to support schools to increase their children learning achievement.

Strengthening supports given to school level teachers' professional development

Since most pupils spend most of their time with teachers, supporting teachers' professional development through capacity building activities with new and variety of teaching methodologies , usage of teaching materials and assessment techniques is vital to improved children's academic performance, to the development of positive self-concept of children and to reduction of wastage.

Thus, ChildFund Ethiopia and its partners should strengthen their interventions that focus on teachers' professional development.

Integrating Parents Teachers Associations (PTA) in the administration of the schools

The more integrated PTA are in the administration of schools, then the more disposed they are to change and the more willing they are to facilitate changes which will result in appropriate education improvements. If properly integrated PTA's can have a significant impact in school improvement and make the education system more efficient and effective.

School Facilities

ChildFund Ethiopia and its partners should assist each school and PTA to develop its own school improvement plan. The consultative process and the resulting school improvement plan will be important tools to help schools to prioritize their schools' needs and identify strategies and resources to fulfill them.

Computers and the Internet

ChildFund with local stakeholders should plan to access computers and internet laboratories to students, and teachers through training programs.

Further study

ChildFund Ethiopia partners should apply the study on other programs; early childhood development program (0-5 years) and youth development program (15-24 years) for the researcher did not cover those programs due to time and budget constraint.

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APPENDIX

Appendix I

Description of the estimated propensity score in region of common support

Estimated propensity score

	Percentiles	Smallest		
1%	.2010056	.2010056		
5%	.2100817	.2054872		
10%	.2701135	.2100817	Obs	57
25%	.5050164	.2143343	Sum of Wgt.	57
50%	.7221166		Mean	.6700773
		Largest	Std.Dev.	.2425476
75%	.8715552	.9748972		
90%	.9631381	.9786196	Variance	.0588294
95%	.9786196	.980019	Skewness	-.4499697
99%	.9958118	.9958118	Kurtosis	1.990988

Summarize pr if CHILDPAR==0, detail

Pr(CHILDPAR)

	Percentiles	Smallest		
1%	.0121366	.0121366		
5%	.0224615	.018452		
10%	.0401128	.0211421	Obs	63
25%	.0782304	.0224615	Sum of Wgt.	63
50%	.2093599	Mean	.2985015	
	Largest	Std. Dev.	.2558823	
75%	.5424919	.7931566		
90%	.6958398	.8055803	Variance	.0654757
95%	.7931566	.8195178	Skewness	.6899695
99%	.8702852	.8702852	Kurtosis	2.155866

Appendix II

Part I. Student Based Factors Affecting Academic Performance

Introduction: Dear respondent, I am Abebe Aragaw, M. A Economics Student at INDRA GHANDI NATIONAL OPEN UNIVERSITY doing a research on “Impact of ChildFund’s basic education Program on Academic Performance of Grade Nine Students in Buee Secondary and Preparatory School in Sodo District, Ethiopia”. Your contribution is very important. I request you to answer the following questions. All the information will remain confidential and will be used for academic purposes of this research only. Serial Number...../Student Code

-
- A: Background Information: Kebele.....Village.....
Name of School at which the student attended Basic Education Program [Grade (5-8)] -----
----- Is it ChildFund Supported? Yes ‘1’, otherwise 0 [.....]
Sex of the respondent..... (0=male, 1= female) Age of the respondent
1. Are your parents alive? 1. Both mother and father alive, 2. Only mother alive, 3. Only father alive, 4. Both do not alive 5. Not at all
 2. Mothers educational background. 1. Non-formal education, 2. Primary education, 3. Secondary education, 4. Tertiary education
 3. Father’s educational background? 1. Non-formal education, 2. Primary education, 3. Secondary education, 4. Tertiary education 5. Not at all
 4. Occupation of father: 1. Farmer, 2. Business, 3. Civil servant, 4. Daily laborer 5. Not at all
 5. Occupation of mother: 1. Farmer, 2. Business, 3. Civil servant, 4. Daily laborer 5. Not at all
 6. Number of family members _____
 7. No of siblings age 6-14 _____
 8. No of your siblings (6-14) who did not attend class _____
 9. If anyone did not attend class why? 1. No access to school, 2. School is too far away, 3. Child has no interest 4. Family access to school, 2. School is too far away, 3. Child has no interest 4. Family is not willing to send 5. Engaged in household chores 6. Economic problem, 7. health problem
 10. No of siblings age 15-24 _____
 11. No of your siblings who dropout school _____
 12. If any on dropped out school why? 1. No access to school, 2. School is too far away, 3. Child has no interest 4. Family access to school, 2. School is too far away, 3. Child has no interest 4. Family is not willing to send 5. Engaged in household chores 6. Economic problem, 7. health problem
 13. How do you evaluate the school you/your siblings’ attended in? 1. Very Good
2. Good 3. Bad 4. Very bad
 14. If ‘3 or 4’ why? 1. School has not good facilities (library, laboratory, toilet, playground)
2. No adequate teachers 3. Teachers do not have quality and commitment 4. Poor school management 5. all applies

15. How do you evaluate your siblings' educational performance? 1. Very Good 2. Good 3. Bad 4. Very bad
16. If 3 or 4, why? 1. Because they do not study hard, 2. They have not access to good school facilities, 3. They have no interest, 4. They do not perform well(read, write , compute maths)
17. Do you have a family member who has visited school in the last semester to talk to the teacher or attend a meeting about you or your siblings? 1. Yes 2. No
18. If yes, does this person or other help you with your school or homework? 1. Yes 2. No
19. Does any adult in home/community take time to listen to you? 1. Yes 2. No
20. Does any adult in home/community set clear rules for you? 1. Yes 2. No
21. Is there another adult you can trust and ask for advice or help? (For example, a teacher, aunt or uncle, school nurse, imam/priest/minister, or neighbor) 1. Yes 2. No
22. Do you have a friend you can tell something important? 1. Yes 2. No
23. During the past 12 months, have you participated in meetings or other activities of the SMC, PTSA, or other school committees? 1= Yes 2= No
24. Do you feel you have opportunities to voice your opinion in decisions that concern you within your(a to c)
 - a. Family? 1= Yes 2= No
 - b. School? 1= Yes 2= No
 - c. Community? 1. Yes 2. No
25. Do you work for yourself? 1= Yes 2= No
26. Do you work for your family, chores, farming, or business? 1= Yes 2= No
27. Do you ever miss school because of this work? 1= Yes 2= No
28. Do these works expose you to risk/harm? 1= Yes 2= No
29. What is the distance from home to school?How many hours do you spend to go to school?
30. In the past 30 days, if there was ever no food to eat of any kind in your house because of lack of resources to get food (how often)? 1. NA, 2. 1-2 times, 3. 3-10 times, 4. more than 10 times
31. If you or any household member go to sleep at night hungry because there was not enough food (how often in a month)? 1. NA, 2. 1-2 times, 3. 3-10 times, 4. more than 10 times
32. Did you or any household member go a whole day and night without eating anything at all b/c there was not enough food in past 30 days? 1. NA, 2. 1-2 times, 3. 3-10 times, 4. more than 10 times
33. Number of months your households depend on their own production/ income sources_____
34. Number of month in a year your household face food gap (forced to beg, borrow or migrate)_____
35. In the last 6 months, have you/your siblings been sick enough to miss school, work, or play with friends for 3 days or more? 1. Yes 2. No
36. When that happened what did your family or person who cares for you/siblings do? 1. Cared for at home, including by a traditional healer 2=Got care from a community health worker, nurse or doctor (either in the community or at a health post/clinic/hospital) 3= Nothing
37. If nothing why didn't they take you/your siblings to a community health worker, nurse or doctor (either in the community or at a health post/clinic/hospital)? 1=We do not have one here 2=It is too far away to go there 3=it is too expensive 4=My family/parents/guardian did not think it would help. 5.NA

Remember your school (Grade 5-8)How safe and friendly do you feel your school was(latrines, water supply, ground play, class to pupil ratio, teachers to pupil ratio, library, laboratory, school management, students discipline, your peers pupils, teachers, and other aspects.

38. The school had good library services (tables, chairs, cleanness, service hours, sufficient books) 1. Yes 2. No
39. Teachers (adequate) 1. Yes 2. No
40. The school had toilet with separate rooms for girls. 1. Yes 2. No
41. The school environment is attractive (adequate teaching and learning materials)
1. Yes 2. No
42. Co-circular activities are available. 1. Yes 2. No
43. I participated in different clubs as a member. 1. Yes 2. No
44. I led school clubs. 1. Yes 2. No
45. Teachers use properly their teaching periods (do not miss or come lately) 1. Yes
2. No
46. Teachers have morale and commitment in teaching students. 1. Yes 2. No
47. The methodology of teaching was appropriate for students 1. Yes 2. No
48. Effective tutorial classes were arranged. 1. Yes 2. No
49. Functional laboratory was available (adequate) 1. Yes 2. No
50. Are you competent at reading in English language? 1. Yes, 2=No
51. Are you competent at writing in English language? 1=Yes, 2=No
52. Are you competent at speaking English language? 1=Yes, 2=No
53. Fill in your average score :
G-5= [], G-6=[],G7= [] G-8=[], G-9=[]
54. Ever repeated (5-9) 1. Yes 2. No
55. Ever dropped out(5-9) 1. Yes 2. No
56. Ever failed (5-9) 1. Yes 2. No
57. Ever punished for bad conduct (5-9). 1. Yes 2. No
58. Ever smoked? 1. Yes 2. No
59. Ever chew chat? 1. Yes 2. No
60. Have mobile phone? 1. Yes 2. No
61. Watch TV regularly? 1. Yes 2. No
62. Hope to achieve in education? 1. Yes 2. No
63. Ever abused (beaten, insulted, discriminated...) by teachers 1. Yes 2. No
64. Ever abused (beaten, insulted, discriminated...) by peers 1. Yes 2. No
65. Ever abused (beaten, insulted, discriminated...) by community members 1. Yes 2. No
66. Ever abused (beaten, insulted, discriminated...) by family members 1. Yes 2. No

II. School Based Factors Affecting Academic Performance

a. Teachers Dear respondent, I am Abebe Aragaw, M. A Economics Student at INDRA GHANDI NATIONAL OPEN UNIVERSITY doing a research on “Impact of ChildFund’s basic education Program on Academic Performance of Grade Nine Students in Buee Secondary and Preparatory School in Sodo District, Ethiopia”. Your contribution is very important. I request you to answer the following questions. All the information will remain confidential and will be used for academic purposes only.

A: Background information of the respondent

1. Kebele.....
2. Name of Primary school.....(ChildFund supported 1, otherwise 0).
3. Sex of a respondent (1 Male, 2 Female).....
4. Marital status of a respondent...(1=married, 2=Single, 3=Divorced, 4=Widow)
5. Age of a respondent (teacher) in years.....
6. What is your highest level of education? 1. Certificate 2. Diploma, 3. Degree, 4. MA degree
7. Years of experience _____ Years of experience in this school _____
8. What subject(s) do you teach? and

B: Factors affect students’ academic performance

9. How are your class sizes? 1. Very big (above 50) 2. Big (between 40-50), 3. Moderate (between 30-40) , 4. Small (below 30).
10. Comment on your students’ attendance? 1. Often absent 2. Sometimes absent 3. Never 4. I don’t know
11. What might be the causes of students’ absenteeism? 1. Health problem [], 2.Economic (Low parents’ income) 3. Unwillingness of parents 4. Community influence 5. Lack of interest from child 6 . Engaged in Household activities 7. school is too far away
12. Do DEV students get educational support (projects) at school? 1. Yes [], 2. No []
13. Give comments on students’ performance during learning process? 1. Yes, many are very competent. 2 Few are competent 3. Very few are competent
14. What are the students’ related factors (home based and community based factors) influencing academic performance (for less competent students) 1. Peer influence 2. Lack of attention/interest 3. Household chores 4. Economic 5. Limited parents follow up 6. Addictions 7. Distance to school -----

15. What are the parents related factors (home based factors) influencing academic performance 1. Household chores. 2. Parents attitude 3. Lack of family follow up 4. Income (economic problem).....
16. What are community related factors (Community based factors) influencing academic performance 1. Lack of awareness 2. HTP(traditional taboo, child labour, early mirage...) 3. other
17. School environment related factors influencing academic performance?
 - a. Availability of Teaching and learning materials 1. adequate 2. inadequate
 - b. Availability of Laboratories...1Adequate 2 inadequate
 - c. Availability of Teacher.....1. Adequate 2. inadequate
 - d. Availability of Library 1. Adequate , 2. inadequate
 - e. Availability of drinking water and separate toilet for girls and boys
1. Adequate, 2. inadequate

b. Heads of schools:

Dear respondent, I am Abebe Aragaw, M. A Economics Student at INDRA GHANDI NATIONAL OPEN UNIVERSITY doing a research on “Impact of ChildFund’s basic education Program on Academic Performance of Grade Nine Students in Buee Secondary and Preparatory School in Sodo District, Ethiopia”.. Your contribution is very important. I request you to answer the following questions. All the information will remain confidential and will be used for academic purposes of this research only.

A: Background information of the respondent

- 1. Kebele.....
- 2. Name of Primary school.....(ChildFund supported 1, otherwise 0).
- 3. Sex of a respondent (1 Male, 2 Female).....
- 4. Marital status of a respondent....(1=married, 2=Single, 3=Divorced, 4=Widow)
- 5. Age of a respondent (teacher) in years.....
- 6. What is your highest level of education? 1. Certificate 2. Diploma, 3. Degree, 4. MA degree
- 7. Years of experience _____ Years of experience in this school _____

B: Factors affect students’ academic performance

- 8. Are teachers motivated because to students’ performance? 1. Yes, 2 No.
- 9. How is the community perception towards education in the area? 1 Good 2 Poor
- 10. If poor why? 1. Lack of awareness 2. Economic 3. absence of model students 4. Lack of attention
- 11. What is the range of most students’ distances from home to school?
- 12. What is the dominant means of students’ transportation to and from school? 1. on foot, 2. By bicycle; 3. by motor vehicle
- 13. Do DEV students get educational support (projects) at school? 1. Yes, 2. No
- 14. What is the response of Parents to school issues when asked for help? 1. Positive , 2. Negative
- 15. If negative, why? 1. Lack of awareness 2. Economic 3. Absence of model students 4. Lack of attention
- 16. Do all teachers have access to trainings (learning and teaching methodologies) at the school premises? 1. Yes 2. No
- 17. If not from question (16), what proportion of teachers’ with no access to trainings at your school?
- 18. Please! State the availability of the following facilities at your school?
 - a) Does your school have a functional laboratory? i. Yes [], ii. No [];
 - Does your school have a functional library? 1. Yes [], 2. No []
 - you have enough teachers for every subject per stream? 1. Yes 2. No
 - Which subjects don’t you have enough teachers? -----
- 19. Does the school administration have a culture of providing award for best performing teachers/students? 1. Yes 2. No

Part III. Home (Community) Based Factors Affecting Academic Performance

c. Parents/Guardians

Dear respondent, I am Abebe Aragaw, M. A Economics Student at INDRA GHANDI NATIONAL OPEN UNIVERSITY doing a research on “Impact of ChildFund’s basic education Program on Academic Performance of Grade Nine Students in Buee Secondary and Preparatory School in Sodo District, Ethiopia”.. Your contribution is very important. I request you to answer the following questions. All the information will remain confidential and will be used for academic purposes of this research only.

A: Background information of the respondent

1. Name of Kebele..... Name of the school.....
2. Is ChildFund supported? 1 . Yes 2. No.
3. Sex of respondent (parents).....
4. Marital status 1. Single 2. Unmarried 3. Widowed 4. Divorced . Number of year since date of birth.....
5. Occupation of parent/guardian1 .Farmer , 2. Business , 3. Civil servant, 4. Daily laborer 5. Other

B: Factors affect students’ academic performance

6. Do you provide your child with school facilities (fees, uniforms etc.)? 1. Yes , 2. No
7. If the answer is no, Why? 1. Economic problem 2. No importance to invest 3. other
8. Do you check your child’s school work to determine his/her school progress? 1. Yes , 2. No
9. If no to above, why? 1. I have no interest 2. Do not have the skills, 3. Have no time
10. How often do you visit your child’s school for his/her attendance and general schooling (put a tick) 1. Very often (more than 2 times a month), 2. Few times (at least once in a month) 3. Not at all/ never
11. Have you attended a meeting on child education in the past one month? 1. Yes 2. No
12. How far is the school located from your home? 1. very far above 5 kilometres , 2. Very far between (3-4 km) , 3. Near (below 3 kilometres)
13. What type of transport does your child use when going to school? (put tick) 1. walks], 2. Uses bicycle 3. Uses motorcycle 4. Uses buses
14. Do you hope your child will succeed in his/her education? 1. Yes 2. No
15. If no, why? 1. he/she has no interest 2. Do not study 3. Have not access to educational facilities, 4. The teaching and learning methodology is not good enough 5. We do not afford schooling

Appendix III