UNIVERSITY OF CAPE COAST

PREDICTORS OF HOUSEHOLD SPENDING AND CHOICE OF PRE-TERTIARY EDUCATION IN GHANA UNDER THE FREE EDUCATION POLICY

ABENA YEBOAH ABRAHAM

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BY

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: …… Date: …….……

Name: Abena Yeboah Abraham

Supervisor's Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature: …… Date: ……

Name: Dr. Isaac Dasmani

Co-supervisor's Signature: …….. Date:.....

Name: Dr. Bernard Sekyi Acquah

ABSTRACT

This study examined the predictive variables of households' choice and spending on pre-tertiary education in Ghana, irrespective of the free pre-tertiary education policy in Ghana in general and specifically in Accra Metropolis. Explanatory research design with a mixed method approach was used. Primary data from 832 household heads in the Accra Metropolis and 14009 households from the GLSS 7 secondary data source were used for the study. Descriptive and inferential analysis such as mean, ANOVA and regression were used for the quantitative analysis; and thematic content analyses were used for the qualitative analysis of the study. The study revealed that household characteristics such as sex, age, marital status, location and financial inclusion are significant drivers of frequency of pre-tertiary expenditure while only financial inclusion, level of education, location of household, household size and age of household head significantly predict the depth of household pre-tertiary expenditure in Ghana. The pull factors identified for private schools to attract more pre-tertiary enrolments are improved infrastructure, perceived quality and security of school environments; while the major pull factor of more parents to choose public schools over private school are the proximity and reduced charges. Significant extra costs were found to be hidden in the pre-tertiary education despite the fact that the level is considered to be free. The study recommended that the Ministry of Education through the Ghana Education Service needs to provide infrastructure in public schools to increase parents' perception of security and quality for their wards. Parent also needs to make provision to absorb the hidden/extra cost associated with free pre-tertiary education.

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DEDICATION

To my lovely family

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LIST OF ABBREVIATIONS

AMA	-	Accra Metropolitan Assembly
BECE	-	Basic Education Certificate Examination
CFA	-	Confirmatory Factors Analysis
FSHS	-	Free Senior High School
FCUBE	-	Free Compulsory Basic Education
GES	-	Ghana Education Service
GLSS	-	Ghana Living Standards Surveys
GSS	-	Ghana Statistical Service
MDGs	-	Millennium Development Goals
MOE	-	Ministry of Education
OLS	-	Ordinary Least Square
PTEE	-	Pre-Tertiary Educational Expenses
SDGs	-	Sustainable Development Goals
SHS	-	Senior High School
TVET	-	Technical Vocational Education and Training

CHAPTER ONE

INTRODUCTION

Pre-tertiary education serves as the foundation to the entire educational system of every country. Hence, a good pre-tertiary education implies easy transition and progression to higher level; which explains the rationale behind the significant continuous state investment in terms of infrastructure and manpower development. The decision to introduce the Free Compulsory Basic Education (FCUBE) and the Free Senior High School (FSHS) are all evidence of state commitment to pre-tertiary education. Irrespective of the level of state intervention, the investment of parents and guardians is a complementary measure needed to ensure successful pre-tertiary education. The duopoly nature of the educational system implies that even if the public sector is free, the private schools need significant investment from stakeholders for smooth pre-tertiary education. The current study sought to examine drivers of household pre-tertiary education in Ghana as well as what factors drive parents' or guardians' choice between public and private schools despite the relatively free public schools. The study also examines the hidden cost associated with free education in public schools that parents and guardians need to prepare for, even as they hope to enjoy free education.

Background to the Study

In the current era of globalisation and technology, education is essential for the development of human capital and for opening doors to chances for better living (Farooq, Chaudhry, Shafiq & Berhanu, 2011; Donkoh & Amikuzono, 2011). It is said to be a lifelong process by which the innate talents

and abilities of both young and old are identified and developed. Ultimately, education determines and influences one's knowledge, skills, attitudes, world perception and personality. In the long run, this shapes and gives each society its unique identity. Education seeks to prepare or train young ones to carry out responsible adult social working life (Magulod 2017; Epke, 2021). It has been perceived over time as a key element in promoting economic development and progress as well as reducing or eliminating poverty in emerging nations.

According to the human capital theory, education helps people acquire the skills and knowledge needed to obtain employment, boost productivity, and promote economic growth and development. All of these factors contribute to the reduction of extreme poverty and hunger (Bryant, 1990; Becker, 2009; Mincer, 1970 and Schultz, 1961). Thus, a person can improve their quality of life and productivity by acquiring knowledge and skills through education. Over an extended period, this enhances a country's economic expansion by generating profits for the products and services they generate (Adu-Gyamfi, Donkoh, & Addo, 2016). All things being equal, a nation that makes significant investments in the advancement of education might anticipate numerous benefits. Along with overall economic growth and development, the nation will also receive a sufficient supply of highly qualified labourers. In addition to supporting this claim, other academics argue that a nation will also see favourable developments such as low crime, long life expectancy, political stability, and national peace. Investment in education produces significant economic benefits (Abuya et al, 2013; Brion, 2020; Doss & Quisumbing, 2020).

There is enough evidence that backs the proposition that education plays an important role in socio-economic progress in every country. Studies

conducted by authors (Boatman & Long, 2016; Meneses & Blanco, 2010; Donkoh & Amikuzono, 2011; Dynarski & Scott-Clayton, 2013; Garlick, 2013; Melguizo, 2011, Taryn & Claudia, 2012) has shown that investing in education typically yields higher economic returns than other forms of investment and that education advances knowledge across a wide range of pure and practical fields of study. Afzal, Malik, Begum, Sarwar and Fatima (2016) also found negative relationship between poverty levels and education. Similarly, Martey, Dogbe, Etwire and Wiredu (2015) established a positive relationship between education and efficient agricultural productivity.

Microeconomics empirical research has reshaped and strengthened the body of data showing that educated individuals are more efficient than their illiterate peers in a variety of domains (Abbott & Gallipoli, 2020; Ebaidalla, 2018; Doss et al., 2020). Access to other fundamental requirements like sufficient food, clean water to drink, health, shelter, and other necessities influences education, which in turn influences these other wants (Djurfeldt, 2020).

Education is the key to modernization; without it, African countries would not be able to enter the modern technological world, according to other scholars (Marginson, 2019; Magulod 2017; Epke, 2021; Chijioke et al., 2019). These scholars have stated explicitly that countries with high rates of illiteracy are technologically deficient. Given the importance of education as previously indicated, it is indisputable that every sovereign nation's future depends more on how quickly and well its educational system develops. Therefore, education is crucial to national development planning in Ghana, as it is in many other nations, if not all of them, and accounts for a comparatively higher portion of

national annual budgets worldwide. Being a signatory to the majority of the global declarations on education, Ghana is especially aware of the value of education. The current Sustainable Development Goals have established a number of policy interventions to uphold positive environments for families and children who have reached the school-attending age, from basic to pre-tertiary education. The fourth Sustainable Development Goal (SDG) commits to ensuring that no one is left behind and highlights the significance of all students receiving a basic education by 2030. According to UNESCO (2017), education is essential to attaining the Sustainable Development Goals (SDGs).

The SDGs acknowledge education as an essential human privilege and a means of empowerment that is essential to achieving Agenda 2030 as a whole. Although it is stated as a major enabler under several other objectives, the Education Goal is centred on SDG4, which aims to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." SDG 4 addresses education from birth to maturity and emphasises the importance of learning, inclusiveness, quality of education, and equity. Unlike the Millennium Development Goals (MDGs) which centres on children and access to primary education, Sustainable Development Goal 4 has a broader scope underpinned by lifelong learning, quality education, equity and inclusion. The target shows the inter-linkage between quality education, skills development, productivity, inequality, decent jobs, entrepreneurship and poverty reduction. The following examples show how the goals at hand are related: Sustainable Development Goal 3, which is concerned with improving health and overall well-being; Sustainable Development Goal 5 is concerned with promoting gender equality; Sustainable Development Goal 8 is concerned

with creating decent work opportunities and economic growth; and Sustainable Development Goal 12, which is concerned with responsible patterns of consumption and production. In addition, among the many goals that have clear connections to the main targets being discussed is Sustainable Development Goal 13, which focuses on reducing the effects of climate change. Education, therefore serves as a means of tackling many of the critical development issues, hence achieving the goal of SDG 4 will significantly contribute to achieving many of the other SDGs.

According to Kidd (2013), developmental economists have supported the effort to improve education in underdeveloped nations through collaboration with development partners. One example of this is the 2000 Dakar Framework for Action, which included quality education and was backed by the World Bank. The goal was to guarantee that by 2015, all children living in low-income communities would have access to and finish free, compulsory education of high quality (Unterhalter, 2014). According to Yang and McCall (2014), free education is offered to people of countries like Argentina, Brazil, Cuba, Czech Republic, Greece, Hungary, and Turkey at all educational levels, including college and university. It is significant from an African perspective as Kenyan public schools offer free elementary and secondary education from the time of a student's first day of enrolment to the end of their high school education (Oketch & Somerset, 2010). But it's crucial to emphasise that, in the event of boarding school attendance, students are in charge of paying for their own living expenses (Oketch & Somerset, 2010). The introduction of tuition-free basic education in 2004 marked a significant development in South Africa (Fiske & Ladd, 2004). Additionally, for students whose parents' annual income is less

than R350,000, this policy was expanded to include both public institutions and Technical Vocational Education and Training (TVET) colleges (Ayuk & Koma, 2019).

Acknowledging the critical role that education plays in promoting economic growth and development, developing countries—like Ghana—have implemented economic reforms into their educational systems. The goal of these reforms is to reduce poverty by enabling everyone to have access to free education (Ampiah & Adu-Yeboah, 2011; Eisemon, 2014). Ghana has demonstrated its commitment to the value of education by endorsing multiple international declarations on the subject and by putting a number of legislative initiatives into action. These programmes are designed to establish a supportive atmosphere for families and school-age children, starting from the foundational phases of education and continuing through different pre-tertiary educational levels.

The Ghanaian government has also carried out a number of interventions in addition to these measures, such as the 1995 introduction of the "Free Compulsory Universal Basic Education (FCUBE)" policy, the October 2002 Education Sector Review (ESR), and the 2004 publication of the "White Paper on the Report." Education for All Policy (UNESCO, 2000). Moreover, Ghana has allied itself with global education campaigns like UNESCO's "Education for All Policy" from 2000. Along with implementing programmes like the "Capitation Grant (CP)," "Free School Uniform and Exercise Books" distribution, and the "Computers Distribution Programme" from 2010 to 2016, the nation has also produced a comprehensive "Education Strategic Plan (ESP)." The nation's educational system has implemented these initiatives at every level.

The primary goal of these policy actions was to lower the cost of education, improve quality and increase its accessibility, especially for school-age children and those from lower-income households in the country. "Free Senior High School Programme," which was started in September 2017, is a notable programme presented at the secondary or senior high school level to further realise this national need. The "Free SHS Programme" is in line with the government's overarching goal of creating a system of free and easily accessible education for all of its citizens, as stipulated by Ghana's 1992 Constitution, and it also corresponds with the Sustainable Development Goal 4 (SDG 4) of the UN. Chapter 6 of the 1992 Constitution, "Directive Principles of State Policy," Article 38, "Educational Objectives" (Sections 1-3), states that the state will provide educational resources at all levels of the educational hierarchy and develop plans for the implementation of universal, free, and compulsory basic education along with the necessary resources. Ensuring fair and equal access to pre-tertiary education is the ultimate goal (p. 30). In addition to governmental efforts in the realm of education, numerous families engage in personal financial contributions to support the education of their children, viewing this avenue as a primary means of escaping economic hardship. Consequently, private investments in education hold significant relevance in the context of human capital development, emphasizing the imperative of investigating the intricate relationship between household income levels and outlays associated with education.

The need to provide access to high-quality education which is accomplished by building more infrastructure and reducing parental financial burdens has been the driving force for a great deal of initiatives to reshape the

educational environment. However, in the current political debate, there has been a revival of conversations about the crucial aspects of affordability, security, accessibility, and educational quality with reference to Ghanaian students' educational experiences. The main argument makes the claim that there are more problems with the educational system than just those that have to do with cost, accessibility, or forcing students to attend class. Instead, they include each of these aspects. It is acknowledged that true quality education cannot be achieved without sufficient availability, affordability, or the imposition of mandatory attendance for all children until they reach an eighteen (18) years at which they are free to make other arrangements. The notion of quality education includes all the components required to ensure that every student has a happy educational experience. Thus, while political dedication is praiseworthy, the problem at hand is not well-suited to the disjointed strategy that is being discussed. Instead, it calls for a thorough and impartial effort to be made by all pertinent parties in the creation of a logical framework for national educational policy. Notably, there has never been a lack of thoughtful policy documents in Ghana intended to further high-quality education; rather, the main problem has always been getting these policies implemented effectively.

Ghana has adopted a free pre-tertiary education policy to allow less endowed families or households also to have equal chances of accessing pre-tertiary education (Sulemana, 2017). This free pre-tertiary education policy is implemented in public pre-tertiary schools. The policy has been extended to the Senior High Schools, under the Free Senior High School (SHS) Policy. Although this chance has been created for households to access free pre-tertiary education for their wards, many parents do spend extra monies on their wards

or send them to private schools irrespective of the exorbitant fees charged by the private schools (Sulemana, 2017). At the same time, despite Ghana's free pre-tertiary education policy, the fundamental justification for parents' investments in their children's pre-tertiary education or their preference for private educational institutions is still unsupported by empirical data (Adjei, 2021). Therefore, in the context of Ghana's Free Education Policy, it is essential to do research on the factors that predict households' financial commitments and their choice of pre-tertiary educational institutions. The importance of this study inquiry is highlighted by the fact that families and educators have similar high standards for the calibre of academic performance that students demonstrate.

Statement of the Problem

The market of pre-tertiary education in Ghana and many other African country is a duopoly of public and private schools. Hence, irrespective of the level of government expenditure into education and the introduction of free public education; significant pre-tertiary educational expenditure still exists at the household level (UNESCO, 2016). The landscape of pre-tertiary education significantly shifted after the introduction of Free Senior High School (FSHS) education in public schools. That is, prior to the introduction of the FSHS, part of the pre-tertiary education in Ghana was free (FCUBE) while part was fee paying (in terms of utility) (Adjei, 2021). Hence, the pre-tertiary education public schools in Ghana can be thought of now free or heavily subsidies whilst the private schools are fee paying in terms of both tuition and utility.

The question that remain unanswered is why Free SHS saw the drastic shift of enrolment from private to public schools but that of Free Compulsory Basic School Education (FCUBE) did not despite several years of its

introduction? Clearly the rational for the state to heavily subsidies the public schools are to provide an affordable alternative to household to be able to access affordable and quality education without draining the household budget (Adjei, 2021). Thus, if parent still demand private schools, especially at the basic level (primary and JHS levels), then the state objective of investing in public schools to ease households' pre-tertiary education expenses burden could be defeated. Thus, aside the heavy financial investment into public schools; efforts must also be made to trace the factors that could ensure that more households utilize these educational offers. Studies elsewhere have identified choice factors in the area of proximity, educational infrastructure, economic status, perceived quality of academic staff, grades (especially JHS level) and security among others (Rotanova et al., 2021; Subedi, 2021); which are yet to be validated in the Ghanaian context.

The extant literature in Ghana has mostly focused on the entire educational expenditure and its determinants mostly using survey datasets (Donkor & Amikuzuno, 2011; Iddrisu, Danquah & Quartey, 2017; Kutortse, 2018; Yeboah, 2018;). However, the dichotomy between public and private schools seems to be more pronounced at the pre-tertiary level than at higher levels of education in Ghana (Yeboah, 2018). That is, as one climbs the educational ladder in Ghana; educational choice diminishes as the sector becomes more and more public. Hence, parents or guardians have more option to choose at the pre-tertiary level than at any other level on the educational ladder. The factors that drives the choice between public and private remains very important to policy makers in Ghana because a sudden shift from private schools to public schools could create infrastructure difficulties similar to that

of the double track at Senior Higher Schools following the free SHS policy (Iddrisu et al., 2017). Similarly, households' decision to utilize relatively expensive private schools also undermines the cost saving advantages that the state seeks to extend to parents by providing free education to households (Kutortse, 2018).

Another issues of great concern even in the free education setting is the aspect of extra cost which could be referred to as hidden cost because they are not part of the mainstream educational expenditure (Davies, 2018; Locatelli & Locatelli, 2019). These costs are worth investigating because the notion of free education implies that parent pay very little or nothing. If, however, these hidden costs are substantial then they could create dropouts and affect the overall educational outcomes (Adam, Adom & Bediako, 2016). Examining the size, source and frequencies of such hidden cost as extra classes fees during long breaks associated with double track system and basic school vacation, the accommodation for the increasing day student population and transport cost for commuted students were considered as grey area in the pre-tertiary educational expenses and a gap in the literature to be field along other issues such as choice factors and overall pre-tertiary educational expenses.

Finally, the current study addressed a methodological challenge of data limitation since the secondary data sources used for studies on educational expenses (Ghana Living Standard Surveys-GLSS) lack information on school factors that affect parent choice of pre-tertiary school. This study addressed the data challenges by using the GLSS 7 data at the national level to discuss and zeroing in on the Accra Metropolitan Assembly (AMA) for micro level analysis of the choice factors and hidden cost at pre-tertiary level.

Purpose of the Research

The purpose of this study was to determine the predictive factor of household pre-tertiary expenditure, school choice as well as the hidden cost that parent incurred despite the free pre-tertiary education in Ghana.

Objectives of the Study

In specifics, this study sought to achieve the following:

1. Examine the determinants of households' spending on pre-tertiary education
2. Explore the determinants of household choice of pre-tertiary education
3. Examine the hidden cost parents incur as a result of the implementation of free pre-tertiary education policy.

Research Questions

1. What are the predictive variables of household spending on pre-tertiary education?
2. What are the determinants of household choice of pre-tertiary education?
3. What hidden cost do parents incur as a result of the implementation of free pre-tertiary education policy.

Research Hypotheses

i. H_1: Perceived Quality does not predict household choice of pre-tertiary educational mode.

ii. H_2: Accessibility does not predict household choice of pre-tertiary educational mode.

iii. H_3: Child's security does not predict household choice of pre-tertiary educational mode.

iv. H_4: Economic status of parents does not predict household choice of pre-tertiary educational mode.

v. H_5: Socio-demographic characteristics of household head do not influence spending on pre-tertiary education.

Significance of the Study

The empirical investigation carried out as part of this study is important in terms of its policy implications for a number of strong reasons. Primarily, the study of household preferences and financial contributions to pre-tertiary education, even in the context of the Free Pre-Tertiary Education Policy, is an essential undertaking to lay the groundwork for establishing factual bases that can guide the development of relevant policies intended to improve and overhaul Ghana's educational system. The success of this project depends on the examination of data from the seventh round of the Ghana Living Standards Surveys (7). It is anticipated that the analysis's conclusions would provide light on current trends, problem areas, and viable solutions that can successfully support low-income or vulnerable households in their quest of high-quality education.

Furthermore, understanding the determinants influencing Ghanaian households' financial commitments to pre-tertiary education could provide important information to policymakers and important stakeholders, such as domestic and international non-governmental organisations (NGOs). These observations can guide the creation of effective policies that promote employment possibilities, improve educational accessibility, and lessen

poverty. Through the production of benchmark data, the research is in a position to provide policymakers with a fundamental tool that will enable them to formulate strong economic, social, and especially educational policies aimed at improving the quality and accessibility of pre-tertiary education in Ghana.

Moreover, this study will aid learners, teachers, educators and policy makers in identifying the main factors that significantly influence household choice and spending on pre-tertiary education in Ghana. This will assist them to put measures and policies in place to improve the educational sector.

Finally, by outlining the factors that impact financial expenditures on post-secondary education in a variety of settings—both urban and rural—this study aims to create a solid foundation for the development of successful post-secondary educational programmes that are suited to the requirements of disadvantaged population groups. It is envisaged that the insights that are generated would aid policymakers and the government in developing and putting into practise strategic initiatives and policies meant to improve the state of education. Also, this study contributes to the literature surrounding much-contested issues such as affordability by examining traditional indicators like household pre-tertiary education expenditures, along with detailed data regarding the rationale for school choice.

Delimitation of the Study

The current study is delimited to the predictive variables of households' choice and spending on pre-tertiary education in Ghana irrespective of the Free Pre-Tertiary Education Policy. This study covers the periods between 2017 and 2019. The dependent variables are households' choice and spending on pre-tertiary education in Ghana. In contrast, the independent variables are the

predictive variables such as perceived quality, accessibility, wards' security, parents' economic status, demographic variables, household characteristics and social status.

Limitations of the Study

The main obstacle that prevented this research from progressing was data-related problems, which included response and non-response mistakes. Due to the sensitive nature of the study, non-response errors occurred when household heads declined to take part in the research interviews. On the other hand, response errors resulted from participants giving false information, typically because the study dealt with private or delicate subjects. Reducing this difficulty required participants to understand the importance of the study and to be reassured that their answers would remain private. Moreover, a constraint resulting from data limitations negatively impacted the level of analysis that could be conducted in this study. The use of secondary data from Ghana Statistical Service (GLSS 7), although credible, suffer from the usual problem of not asking all the question that the research would have asked.

Definition of Terms

The operational definitions clarify the specific meanings of key terms used throughout the study, facilitating a clear understanding of the study's focus and objectives.

Household: In the context of this study, a household refers to a group of individuals living together under one roof and sharing common resources, expenses, and responsibilities. This term includes family members or

individuals who are closely related and contribute to the management of daily activities and expenses within the shared living space.

Pre-Tertiary: the term "pre-tertiary" refers to the educational level that precedes tertiary education (university or college level). It encompasses primary and secondary education stages, typically covering ages from early childhood to high school. In this study, it specifically pertains to the level of education that students receive before entering tertiary institutions.

Perceived Quality: Perceived quality is the subjective assessment or evaluation of the overall worth, effectiveness, and value of a particular educational institution. It involves the opinions, judgements, and impressions formed by stakeholders, such as parents or guardians, regarding the educational services, facilities, and outcomes provided by an institution.

Accessibility: Accessibility refers to the ease with which individuals can physically reach and utilize an educational institution. It encompasses factors such as geographical proximity, transportation options, and the absence of barriers that might hinder students from attending their chosen school

Child's Security: Child's security pertains to the safety, wee-being and protection of students while they are within the educational environment. It encompasses measures and conditions that ensure students are safeguarded from potential harm, violence, or dangers that might compromise their physical or emotional safety.

Economic Status of Parents: Economic status of parents refers to the financial condition or well-being of the parents or guardians responsible for the child's education. It encompasses factors such as income, employment status, wealth,

and socioeconomic background, which collectively influence the family's ability to afford educational expenses.

Socio-demographic Characteristics of Household Head: This refers to the attributes such as age, gender. Educational level, occupation, marital status, and other relevant demographic factors that provide insight into the individual who serves as the primary decision- maker within the household.

Financial Inclusion: This term refers to the availability of affordable and easily accessible financial products and services that meet the needs of both individuals and businesses. These services cover a wide range of financial operations that are provided in an ethical and sustainable way, including transactions, payments, savings, credit, and insurance.

Organization of the Study

The entire study is reported in eight chapters. Chapter one of the study is the introduction, which is made of the background of the study, statement of the problem, purpose of the study, objectives of the study, research questions and significance of the study. Other areas treated under the chapter are delimitation and limitation of the study.

Chapter two is the literature review. It outlines the overview of Ghana's education system, discusses the theoretical review related to the study and reviews related empirical literature done by previous scholars in the same field.

Chapter three of the study is the methodology. It looks at the research design used, the population and sample, the data set used for the study and how the data was analysed.

Chapter four, chapter five, chapter six and chapter seven present the findings based on the respective objectives of the study, while chapter eight

provides a summary of the thesis. It draws conclusions and makes recommendations. Suggestion are also made for further studies.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter covers literature related to this study. It focuses on the overview of the educational system in Ghana, theoretical review, empirical review and conceptual framework. The overview discusses the history behind expenditure on education by both government and parents. It also deals with the pre-colonial and current educational system. The second section of the literature review covers the Human Capital Theory, Household Production Theory and Theory of Education as a Public Good and Private Good.

Overview of Ghana's Education System

History of Ghana's Education System

Education in Ghana was informal. This means, in pre-colonial times, knowledge and skills were transferred through traineeship and orally. (Obed, 2018). The 16th century arrival of the Europeans brought formal education where there were structures for learning with books. Some of the audience of this form of education were the mulattos, sons of chiefs, and rich business people. These were called the local elites and they were restricted to the coastal forts of the colonial masters (Gutiérrez, 2018). The Portuguese expressed interest in education when they started giving imperial instructions in 1529 and so the governor to teach competencies like reading, writing and also transfer of the catholic religion to the people from the Elmina castle (Felber, 2006). The popular schools from the castles were that of the Danish at Osu Castle which was used to be called the Christianborg Castle, Dutch school in Elmina and that of the British at the Cape Coast Castle (Obed, 2018).

According to Obed (2018), the Society for the Propagation of the Gospel (SPG) missionary Reverend Thomas Thompson came in Cape Coast in 1752, marking the beginning of modern formal education. There were significant breakthroughs in education during his four years in office. One of Reverend Thompson's major achievements was to personally fund the construction of a school when the local chiefs were unable to do so. This marked the beginning of his efforts to teach the African populace. His ground-breaking work included being the first to try to introduce Christian education from the Castle to the African populace, and the school became an essential part of the church hierarchy.

Philip Quacoe gave hope to the school when he returned to the country. Reverend Thompson's school at the castle was closed down on his departure but Quacoe revived the castle school. From his house, he later set up the first elementary school in Ghana in 1765. In Cape Coast, he became a teacher catechist-schoolmaster from 1766 to 1816. Interspersed with successful periods came periods of financial constraint. The death of Philip Quacoe in 1816 was a momentous occasion that spurred local entrepreneurs to resurrect the institution. When the governor of Sierra Leone took over the institution's assets in 1821, the school was renamed "The Colonial School" and came under the leadership of Sir Charles McCarthy, who was in charge of the Gold Coast Forts. There were 200 pupils enrolled at the Cape Coast Castle School, including well-known people like George Blankson. Later, George Blankson and other pupils from the school contributed significantly to the founding of the Fanti Confederation in 1867, making him the first indigenous African to have a position on the legislative council (Obed, 2018).

The influence of missionaries increased in the 19th century as the arrival of these missionaries also give rise to numerous mission schools across the south of Ghana. Cape coast, Accra, Anomabu, Dixcove, Akropong, and other settlements along the coast saw the Basel and Wesleyan missions establishing schools in the 1830s and 50s. In 1831, two Ashanti princes were sent to the Cape Coast Castle School to acquire formal education and that was the first time the Ashanti region experienced formal education. Osei Yaw Akoto's son Owusu Kwantabisa and the son of Osei Bonsu, Owusu Ansah got their education in the expense of the governor at that time who was Captain George Maclean (Locatelli & Locatelli, 2019). Later, they continued their education in England. Wesleyan missionaries established missionary schools in Kumasi around the 1840s. Britain's control of Ghanaian territories led to the establishment of the Gold Cost Colony in 1874, which made Basel and Wesleyan missionaries the popular missions among several others who had set up schools in Ghana (Jedwab, Meier zu Selhausen & Morad., 2022).

While the Basel mission extended its mission to the main lands with vernacular, the Wesleyan mission was very much active in the coastal areas with English as the medium of persuasion. The decentralized system then left reasonable space for instructional freedom; the British helped the mission schools to flourish and became the only source of formal education until independence. Prior to that, it was an opportunity to gain formal education, which was reserved for a few (Jedwab *et al*., 2022).

In 1961 after independence in 1957, the principle of free and compulsory education was introduced by the Education Act, the number of learners shot up in the following year. This came with its problems, as there was shortage of

trained teachers (Ekundayo, 2018). After the overthrow of Nkrumah in 1966, there was disparagement over expansion instead of quality education. While school infrastructure was expanded, enrollment fell until 1973 which brought about the 1974 reforms (Akrong, 2022).

The Current Ghanaian Education System

Ghana's current educational system is the result of political and historical forces. The main goals of the colonial educational system were to support Christian missionaries' goals, give European traders' children a formal education, and uphold the administrative framework of colonial control (Akyeampong et al., 2007; Takyi et al., 2019). In order to support Ghana's socioeconomic development, significant investments in formal education were made during the pre-independence era and the early post-independence years. The 1951 Accelerated Development Plan, for example, emphasised how important education is to carrying out government programmes and policies meant to promote economic stability. The principles of creativity and insight were emphasised in this growth strategy (Agyeman et al., 2000; Takyi et al., 2019).

One of the key objectives to help realize economic stability is the delivery of fair education thus, the introduction of free compulsory primary and middle school education in 1960 (Akyeampong et al., 2007). This was to help project the building of schools in all places no matter the geographical location. The Northern Scholarship was also instituted as the northern part of Ghana was seen as mostly deprived. This was to help remove challenges of access to formal education. Economic and geographical challenges of formal education were minimized as a result of the policies that were put in place (McWilliam &

Kwamena-Poh, 1975) while overlooking quality education because of poor management in the expansion of infrastructure (Akyeampong et al. 2007; Akyeampong, 2008).

In 1961, a new educational Act (ACT 87) was introduced to answer the controversy of "expansion or quality" and with this Act, local authorities of education were responsible for the expansion of primary school education in order to find solution to quality demands which characterized the quick expansion of infrastructure in the education sector. (Akyeampong, 2008; Takyi et al., 2019).

The Kwapong Review Committee was subsequently founded in 1966 to address the deteriorating quality of education and offer reform recommendations. The establishment of a ten-year basic education programme with a break at the conclusion of the eighth year, during which students would be evaluated for advancement to the second cycle of education, was one of the main recommendations. A two-year extension programme with a focus on pre-vocational education would be offered to those who were not selected for the second cycle (Akyeampong, 2008). The goal of this recommendation was to guarantee everyone's fair access to formal education and training. As a result of the major obstacles that Ghana's educational system faces (Ministry of Education, 1999; Donge, 2003; World Bank, 2004; Wilson & Samuel, 2013 and Akyeampong 2010), the Dzobo Committee was later formed in the middle of the 1970s to help with the crucial changes that were meant to solve problems with equal access to education. The Dzobo Committee suggested: **(1)** pre-tertiary educational structure be reduced from 17 to 12 years. **(2)** Increment in instructional time **(3)** untrained teachers should not be engaged anymore and **(4)**

plan and manage the system of education effectively and efficiently (Wilson & Samuel, 2013). To make education more work-based, there was suggestion by the Dzobo Committee to pay more attention to vocational and technical subjects at the Junior High School level (Akyeampong, 2008).

The Free Compulsory Universal Basic Education (FCUBE) was introduced in 1996 to help improve enrolment and keep learners in school. This intervention aimed at ensuring all children who attained ages to be in school were enrolled by 2005 (Wilson & Samuel, 2013). Senior secondary school examination failure rates awakened efforts of the educational system reformation in 2002, as many could not access formal education at the tertiary level. Eventually, the Anamuah-Mensah Committee was formed in 2002 to make recommendations for the way forward specially to have a look again at the entire educational system of Ghana. On the committee's recommendation, the concept of senior high school (SHS) came into existence and the formation period extended from three (3) to four (4) years.

There was increment in infrastructure investment to be able to receive the growing number of students. However, the duration of SHS has been reduced to three (3) years and continued so until now. Though the duration has been retained at three years, the introduction of the Comprehensive Free Public Senior High School Policy in 2017 is evidence that, equity goals are still pursued. This policy cancels the payment of fees regardless of their financial backgrounds and give enable students to be able to continue school when they would have quit formal education due to financial constraints (Wilson & Samuel, 2013).

Feeding is provided for these students in school to make sure they remained in school. Around GH₵1.2 billion was allotted to this educational strategy in 2017; GH₵188 million came from the Government of Ghana, and an additional GH₵200 million came from the country's oil earnings (Ministry of Finance, 2017). In addition, a number of initiatives and policies have been put out to guarantee the achievement of fair and excellent education. The Ghana Education Standard and Guidelines (2015), the Information and Communication Technology in Education Policy (2015), the Education Strategic Plan 2010-2020, and the Inclusive Education Policy 2015 are a few of them. It is important to remember that the foundation of these policies is the 1992 Ghanaian constitution, which requires the state to provide educational facilities at all levels and in all regions of the country, with the overarching goal of making these facilities as accessible as possible to all citizens. The aforementioned discussion highlights Ghana's government's steadfast dedication to ensuring that everyone, regardless of gender or social standing, has access to formal education. This will help to develop a literate and productive population that will actively participate in society (Ministry of Education, 2012; Takyi et al., 2019).

However, the main reason why parents spend extra on their wards' education or send their wards to private schools in Ghana irrespective of the free pre-tertiary education policy has not yet been established scientifically and conservatively, this notion remains vague. Hence, the purpose of the study was to explore the predictive variables of households' spending and choice of pre-tertiary schools in Ghana under the free education policy.

Theoretical Review

Three key theories that guided the study are the Human Capital Theory, Household Production Theory and Theory of Education as a Public Good and a Private Good.

Human Capital Theory

The notion of human capital has been widely examined in theoretical and practical research, with its roots found in the writings of academics like Adam Smith (1937), Petty (1962), and Krugman (1994). According to these studies, education is a crucial measure of human capital and forms the basis of a number of growth models, such as the endogenous growth theory proposed by Lucas (1988), the conventional growth theory advanced by Solow (1956), and the models that account for total factor productivity, which Krugman (1994) particularly discussed. Fundamentally, the argument makes the claim that formal education can increase people's potential for economic productivity, which is determined by both their innate skills and the investments made in their growth (Becker, 2009).

Human capital is defined as the skills, knowledge and competences of an individual that have economic value to a nation or an organization (Chijioke & Amadi, 2019). Human capital is also defined as knowledge, expertise, capabilities, experience exemplified in, and inseparable from an individual (Koval, Polyezhayev & Bezkhlibna, 2019). Human capital is widely seen as knowledge, capabilities, abilities and traits in an individual that facilitate the formation of their personal, economic and social wellbeing (Faggian, Modrego & McCann, 2019). Human capital development is an act that increases the value of an individual or an employee (Weller, Hymer, Nyberg & Ebert, 2019).

Training or education is a basic tool that helps to develop human capital (Faggian, Modrego & McCann, 2019). Human capital is the set of skills, knowledge, social and personality characteristics coupled with creative abilities, demonstrated in the ability to go through an activity successfully in order to produce economic yield (Nwafor, Piranfar & Aston, 2020). It is also reading and writing capabilities or gaining some special skill within a restricted industrial application (Berninger, 2019).

Human Capital Theory (HCT) applies similar concepts as a person's investment in the acquisition of knowledge expecting the investment to give positive returns (Fuller, 2019). The theory of human capital was the proposition of Schultz in 1961 and Gary S. Becker developed it from 1962 to 1964 (Goldin & Katz, 2020). HCT supports the notion that acquisition of formal knowledge or training transfer important skills to individuals or workers, which in turn increases their productivity and incomes (Au, 2019).

Becker (2009) distinguished between specific human capital and general human capital (Weller, 2019). According to him, specific human capital incorporates skills gained by education that is definite for a special body or organization (Ahmed & Brennan, 2019). General human capital or general skills are competences that are received through formal impartation and useful generally (Marginson, 2019). That is, this education fits any organization and not just one particular organization (Buchanan & Huczynski, 2019). His views of human capital are just as "physical means of production" (for instance, firms and machines); there can be investment in the education of human resource and the returns will depend on the amount of skills they have (Buchanan & Huczynski, 2019). Consequently, human capital is the production process where

higher contributions give higher results. However, human capital is sustainable, but cannot be handed over like land or labour (Baumane-Vītoliņa et al., 2019).

Human Capital Theory (HCT) has popularly been employed in economics by Mincer and Gary Becker of the Chicago School of Economics (Saad, 2017). This theory has consistently been increased due to qualitative improvement in each generation (McAdam, Miller & McSorley, 2019). Training increases output by transferring capabilities and abilities that affect their benefits in future and eventually their lifetime benefits (Segun & Emmanuel, 2019). The theory proposed that whatever is spent on the acquisition of knowledge and skills is expensive and could be seen as a venture because there is the expectation of raising personal earnings (Odey, Agba & Edet, 2019). Human capital has different sources. These are distinctive skills, education, training and influences from pre-labour market (David, 2020).

Innate ability is a natural intelligence, work ethics or unobserved effort of an individual (Chen, 2019). The basic challenge is that, high achievers have the likelihood of long number of years in education than low achievers; however, high achievers gain a lot from their length of education than low achievers. (Miele et al., 2019). It is therefore challenging to separate the effort of education and inborn capabilities (Rabe, 2020). Several kinds of literatures tried to investigate and overcome this particular problem by observing same persons who are different in terms of training. (Ghauri, Grønhaug & Strange, 2020). Despite the fact that this is impossible in practice, higher-level econometrics have been used in various levels of achievement. (Ghauri, Grønhaug & Strange, 2020). Meanwhile, nonrandom selection is mostly challenging when trying to evaluate earnings to the training of a person with

low ability instincts to the labour market (Asadullah & Xiao, 2020). For example, contrary to their male counterparts, a reasonable number of women who leave college will leave the labour force for periodic extensions (Abbott et al., 2019). This means that evaluating the earnings to college will depend on a fraction of the completely available data which may not represent the entire number of women (Abbott et al., 2019).

It should be noted that personnel could be owners of varying capabilities or human capital because of their inborne variations (Faggian et al.,2019). Documentations from biological research had a part of the intelligent quotient (IQ) that is originally genetic. The relevance of this in labour economics is twofold: (I) the likelihood of human capital heterogeneity though persons may have similar venture openings and financial challenges; (II) the likelihood of correlating with other variables of interest in empirical applications in order to deal with the source of differences in human capital (Barth, Papageorge & Thom, 2020).

Many researchers target education because it is the easily observable part of human capital investments (Abbott & Gallipoli, 2020). However, the contribution of earnings that control education is not reasonably sufficient which implies that education variations contribute to the little part of the varied benefits (Chetty et al., 2020). This indicates that human capital goes beyond education. However, the study on education will give more insight if it is presumed that similar forces affect educated and uneducated ventures. Therefore, reference can be made from the pattern of education investments that may be taking place to non-education investment that are challenging to monitor (Parker, 2019).

Training is a part of human capital employees derive after education is mostly attached to a group of capabilities required for a specific entity or industry or useful with a specific set of technologies (Kuzminov, Sorokin & Froumin, 2019). Training is similar to schooling in some aspects. However, workers find it challenging to invest in their education and this is a challenging situation (Weller et al., 2019). The organization can also put resources together to educate their staff and even pay a greater portion of the cost of the training investment. The organization plays a major role since the training has a significant match to the needs of the firm in future. Therefore, training under this is seen as a joint investment by the individual and the organization (Weller et al., 2019).

People always encounter some effect of peer groups. This is called pre-labour market influence (Davies, 2018). This affects the individual's human capital considerably. In most cases, this pre-labour influence is considered sociological. However, there is an investment component. For example, altruistic parent's decision on the place of residence in order to expose their offspring to positive or negative pre-labour market influences (Davies, 2018).

An additional source is non-education ventures and quality of education. There can be different amounts of human capital if twins who were raised in similar homes but ended up attending different schools with varying qualities (Gould, Simhon & Weinberg, 2020). Also, their investments might be different in terms of finance or one may study harder than the other or study some subjects or have better quality tutorials than the other. These unobserved skills or components are very crucial to the economists and very relevant in this current study since most parents send their wards to certain schools based on

quality (Gould et al., 2020). Others also spend more for quality. The challenge however is there is not enough or refined information on these aspects of human capital yet, this study gathers some data with the aid of econometric techniques to arrive at these dimensions of human capital (Gould et al., 2020).

Figure 1 is the Human Capital Model (HCM) linking resources to education and training to outcomes as well as the production process to earnings or output.

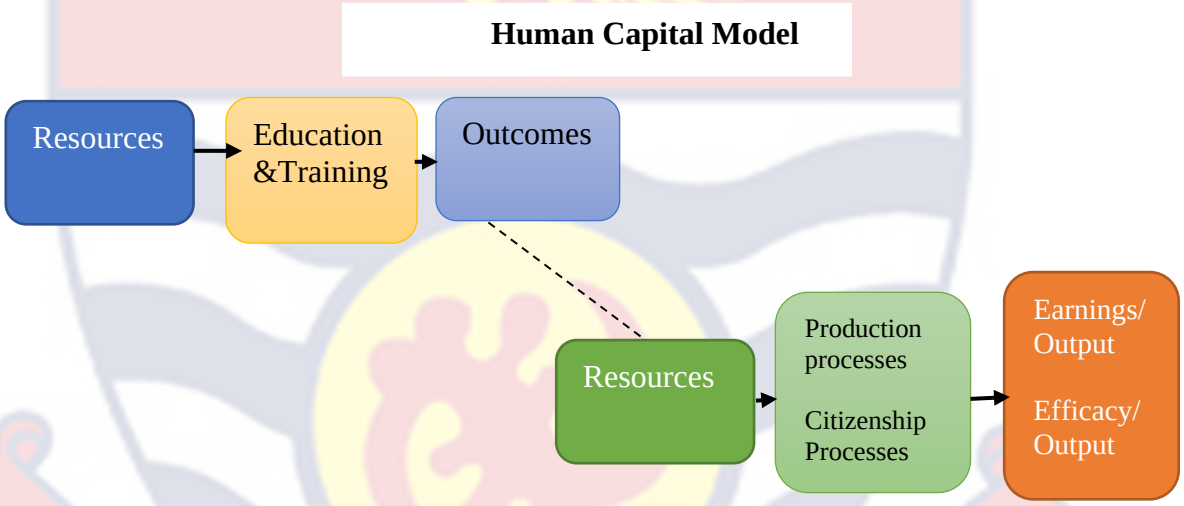

Figure 1: Human Capital Model

Source: Swanson & Holton (2001)

According to the Human Capital Theory (HCT), which is illustrated in Figure 1, people are motivated to increase their human capital by gaining relevant education and experience. The belief that such endeavours would probably result in increased future earnings is the main driving force behind this. According to Swanson and Holton (2001), the fundamental idea of human capital theory is that increasing individual productivity and promoting economic growth should be the main goals of education.

Human Capital Theory on Investment and Credit Constraints

The requirement for income to be used for educational investments, especially when credit is limited, has prompted many investigations into the possible impact of different parent backgrounds on children's academic performance, as discussed by Caucutt and Lochner in 2020. Empirically, family income and education are related (Mooi-Reci et al., 2019). In most cases, a regression equation linking the two main variables would be:

Schooling = Controls + αlog parental income …… (1)

As a consequence, the parameter α is estimated to have positive values, which is consistent with the existence of credit limitations. At least two distinct theories can account for the derivation of a positive α. According to the first, parents who are more affluent tend to consume more commodities, including education, and perceive it as a good for consumption. Because the "separation theorem" does not apply when a decision is made for a non-pure investment, it is not possible to definitively ascribe the positive correlation between family income and education in this particular case to the presence of credit constraints (Gaddah, Munro & Quartey, 2016). In labour economics, a similar argument holds true, with wealthier parents being more likely to make educational investments for their kids. A second argument stems from the differences in how education-related expenditures and benefits are distributed among various families; this distribution is probably correlated with income levels (Diemer, Marchand & Mistry, 2019).

Adding other variables that can act as proxy for the costs and benefits of education, or for people's views on education, has been one way to overcome this problem. For instance, the importance of income as a determining factor is

significantly reduced when the parents' educational attainment is considered in the research. This begs the question of whether this diminishment suggests that credit market barriers have no bearing at all on the educational landscape. It also raises the question of whether parental money has no direct impact on students' academic performance.

Particularly, two main reasons might make such interpretations not to be necessary. Firstly, the income of a parent may affect the quality instead of the quantity of education (Blaabæk et al., 2017). For instance, the choice of school for a parent in a particular neighbourhood might be based on the quality of schooling. This indicates that higher income earning parents may invest in more human capital for their wards by providing them better schooling which will make them not spend long years in one particular stage in school. Secondly, parents' income might be wrongly measured and this may have a significant transitory component (Modalsli & Vosters, 2019). Therefore, ceteris paribus, parents' education may be a much better proxy for permanent income than observations in these data sets. This is because although there may be few instances where parents with low education may earn high income because they venture into business in the informal sector, the general trend is that parents with higher education were more likely to end up in the formal sector of the economy, where they earn relatively higher and permanent income. In this sense, when income is necessary for education, all its effects may load on the parental education variable. Although, none of the problems indicated is easy to deal with, the incomes of children could be looked at instead of their schooling as the resultant variable, if and only if the extent of income can reflect their skills. This may incorporate unobserved dimensions of human capital that

includes school quality (Modalsli & Vosters, 2019). This is therefore related to intergenerational mobility with a typical regression model as:

"log child income = controls + αlog parental income ……. (2)".

This suggests that Ama should have between thirty and forty percent more money than Kofi if Ama's parents are twice as wealthy as Kofi's parents. As such, in relation to this generational relationship, disparities arising from different initial conditions tend to converge and decrease with time. This indicates that we live in a relatively "egalitarian" society. The following simple model throws more light on this.

$Iny_t = \mu + \alpha Iny_{t-1} + \varepsilon_t$ ……. (3)

Where y_t is the income of the t-th generation, ε_t is the serially independent disturbance term with variance δ_ε^2. The long-term variance of log income is given by;

$\sigma_y^2 = \frac{\sigma_\varepsilon^2}{1-\alpha^2}$ …… (4)

The long-term variance of logarithmic income will be roughly 10% larger than δ_ε^2 if the predicted value of α, which equals 0.3, is used. Therefore, rather than reflecting inherited variances, the long-term income distribution will primarily reflect transient shocks altering dynastic income and skills (Modalsli & Vosters, 2019). However, going back to equation (3), we can see that the persistence level of approximately 0.3 does not deviate much from what one could reasonably expect in terms of parental transmission of cultural values that have a positive impact on their children's education or the inheritance of IQ traits between parents and their children. Therefore, these findings imply that the development of children's human capital is mostly unaffected by parental wealth. It is important to note, nonetheless, that these conclusions have not been

without criticism due to the presence of intrinsic biases that reduce the possibility of finding significant values for the α coefficient. The bias introduced by measurement error causes the coefficient α to be steered towards a value around zero, causing this phenomenon. Moreover, it's crucial to keep in mind that observations made using a traditional panel dataset mostly concern young children, whose income variability is typically lower than that of later life stages. Once more, this temporal element creates a bias that causes the coefficient α to move downward. Modalsli and Vosters (2019) highlight that income mobility can have a non-linear pattern, with significant mobility occurring in the middle-income range and minimal mobility at the extremes of the income spectrum.

Criticism of Human Capital Theory

The Human Capital Theory has been criticised for its inadequate ability to explain human behaviour outside of the context of commodification (Masiye , 2019; Tittenbrun, 2016; Lehoczky & Schervish, 2018). Furthermore, the theory's premise is mostly based on quantitative features, which might provide difficulties when addressing variables that are difficult to quantify. Moreover, as the criticisms made by Tittenbrun (2016), Masiye (2019), and Lehoczky and Schervish (2018) emphasise, it ignores the critical aspect that capital is an independent social force, from which the creation of social value flows.

Household Production Theory

Another important theory for this study is the Household Production Theory. An important feature of the household production theory relevant to this study is its recognition of the fact that households are rational economic

agents and that the education of its members especially, the ward is associated with a host of decisions, including household income, household size, human capital and all the key variables before arriving at an outcome (Stourm et al., 2020).

According to Becker (2009), Mincer (1970), and Schultz (1961), there is a production function in every home. This is supported by the household production theory. This role creates a link between the various household members and the total output of the household. In the context of a budgetary constraint, households want to maximise their utility by equating their income from both property and market-sector sources with their spending on goods and services (Silvo and Verona, 2020). Households must also contend with time limits in addition to limitations related to products and finances (İmrohoroğlu & Zhao, 2020). According to Wang (2020), equilibrium is reached when the percentage of an input's marginal productivity (like time) equals the percentage of its pricing (the wage rate in this case). The idea is predicated on Wang (2020) hypothesis that each member of a household will work cooperatively to allocate their time between activities in the market and non-market sectors. Arora and Rada (2020) also emphasise that this theory suggests two different models that control how resources are distributed within households: the unitary model and the collective model.

Models of Household Decision Making

According to Tshabalala and Sidique (2020), the unitary household model assumes that members of the home pool their resources and allocate them based on a common set of goals and desires. Within this approach, households seek to optimise the group members' overall well-being by allocating income

and other resources to investments with greater rates of return, based on current salaries and prices (Simmons et al., 2020). Notably, an increase in household income leads to an improvement in the general well-being of every household member (Ma et al., 2020). As posited by Thomas (1990), cited in Klein (2020), effective income distribution occurs when all available resources are combined and distributed according to a common rule, and the marginal rate of substitution between two goods is constant across other pairs of consumption goods (Klein, 2020).

Individual preferences are aggregated and uniformly weighted within these frameworks to create a collective objective function that symbolises the welfare or utility function at the household level. Next, this function is optimised under a variety of restrictions, such as resource availability, household technology, and individual time allocation. Finding the most advantageous way to allocate resources and investments is the main goal (Cohen, 2020). This method emphasises the idea that household income can be pooled and used jointly, a practise noted and investigated in similar research by a number of academics, such as Donkoh and Amikuzono (2011), Becker (2009), and Okuwa et al. (2015). According to Tian and Chang (2020), the model treats the household as a cohesive entity that is fundamentally an individual agent. As such, decisions made by the household are structured to serve the interests of this rational consumer. This method justifies the combination of many types of wealth, income, and resources in homes, all of which have an impact on household expenditures, especially when it comes to schooling (Eroğlu, 2020). This theory is important to the research because it investigate the standards that

households use, functioning as rational actors in the economy, to decide what to spend, including money on schooling (Chen, Jiang, & Zhou, 2020).

Limitations of the Unitary Household Model

The limitations of the unitary household model include its assumption that resources are pooled, which may require at least one member of the household to monitor others and sanction those who go against the rules (Doss & Quisumbing, 2020). Additionally, its failure to incorporate the process by which resources are distributed, its inequity distribution of resources; the assumption is restrictive when it is applied to decision-making between spouses; its approach models of the behaviour of groups as if they were unique individuals are some of its limitations (Doss & Quisumbing, 2020). In the theory, however, these models rely on aggregation of utility of individuals into a fixed household welfare function which may violate macroeconomic theory (Chiappori et al., 2020).

According to Bárcena-Martín et al. (2020), the collective home model recognises the existence of individualistic components in households and conceptualises them within a communal structure. This is especially true when it comes to welfare. The welfare of each individual household member does not always correspond with the welfare of the household as a whole under this approach. According to Vahabi et al. (2020), resources are not immediately consolidated in this situation, and the household functions as a unit even though its members still retain their individual preferences. Market-driven rates of return and the relative bargaining power of different household members both affect how resources are allocated (Basu & Maitra, 2020). According to Djurfeldt (2020), bargaining power is impacted by a variety of social and

cultural norms as well as outside factors like the availability of paid employment opportunities, labour laws, and control over productive assets and property rights. It's critical to understand that, while some members of the household may benefit from an increase in income, others may see no discernible improvement in their well-being or even a decrease (Berggren & Bjørnskov, 2020). The models of collective households are useful for explaining why gender differences continue to exist even in cases when household income increases over time (Padavic et al., 2020).

The foundation of the collective models is the idea of Pareto efficiency in intra-household distributions, which was explained by Bernard et al. in 2020. As noted by Pellegrini-Masini in 2020, this framework acknowledges that individualistic behaviour within homes can comprise both cooperative and non-cooperative tendencies, and it does not impose any particular solution as the norm. Pellegrini-Masini again noted in 2020, that this method includes a subset of models that fit into the cooperative behaviour category without adopting the extremely restrictive assumptions that are typical of specific collective models. It is important to remember that each participant in a cooperative agreement must obtain utility that is at least equal to their own baseline "surplus" utility (Kittel, 2020). The education system in Ghana has its own peculiarities because of its structural imbalance, which is induced by inefficient educational policy interventions (Anlimachie & Avoada, 2020). The peculiarities of the education system have been taken into consideration because of their implication for the framework of analysis.

Theory of Education as a Public Good or Private Good

Cohen (2018) explored how education might have the qualities of both a public and private good. One common justification for government participation in education is the understanding that a person's education might have beneficial externalities for others. However, the government's financial assistance for education may have unforeseen effects, like the development of ineffective incentives. Moreover, when the government takes over as the exclusive source of education, it could discourage creativity and turn learning establishments into forums for the spread of popular political and intellectual views (Cohen, 2018).

There are two key justifications that the government should get involved in education. The first stems from the worry that some parents might not provide their kids with a proper education if there is no mandatory school attendance or public financial support. According to the second argument, people can ignore the positive externalities that education can have on society as a whole if there is no government action. As a result, there may be a decrease in educational attainment compared to what is considered socially optimal (Cohen, 2018).

This relates to the public goods justification, which applies to both adults and children, for government involvement in education. When a good demonstrates no rivalrous consumption, that is, when one person's use of the good does not reduce its availability for others, and non-excludability, that is, when preventing others from accessing the good would be excessively expensive or practically impossible, it is said to be public (Huang & Horiuchi, 2020). An obvious illustration of a pure public utility is a satellite system intended to redirect large asteroids away from Earth. Since every individual's

advantage accrues to the entire population, everyone benefits equally from the protection it offers against extinction caused by asteroids. (Chaubey & Rath, 2020). Due to the fact that excludability is mostly dependent on cost factors, most items do not strictly fit into one of two categories: either they are excludable or they are not. Consider, for example, a country club that tries to restrict entry to members who pay a fee. Even with their best efforts, some might manage to get around these restrictions by going inside the club with pals or using fake IDs to get in, which would save them the money. Essentially, there is a continuum along which rivalry and excludability are positioned, with various degrees that depend in part on technology and financial considerations (Cohen, 2018).

What justifies the notion that education is a public good? While specialised education gives people specialised skills for a living, elementary education helps people develop their intellectual and creative capabilities (Amiel et al., 2020). Beyond the benefits of education on an individual basis, people also engage in a communal epistemic environment and are impacted by market forces and democratic decisions. Our conversations impact other people's viewpoints, our skills define how much value we add to others in the marketplace, and our voting choices have a significant impact on other people's lives and freedoms (Amiel et al., 2020). According to these justifications, education can be considered a public benefit since its effects are far-reaching and affect other people in the political community. If the policies we support by voting for affect the welfare of people in other countries and future generations, then these consequences also extend beyond the boundaries of a particular political community. This is demonstrated by actions like endorsing a politician

for office who keeps his word to wage war or voting in favour of vaccination laws that require protection against contagious illnesses. Since humans are social creatures, we engage in constant social contact. To the extent that these interactions are influenced by our extensive educational backgrounds, we might consider education, or its effects, to be in the public interest (Finn, 2020).

The term "good" has generated some confusion because of the various ways it is used when discussing public goods. When used in an economic context, the term "good" refers to anything that can satisfy a need or be valued subjectively, as opposed to designating anything that is valued objectively. For example, if an artist were to gather tears from upset kids to use in an art show called "crying kids," the show would be considered a good. This exhibit is nevertheless classified as a good even in the unlikely event that there is no demand for tickets to see it, even though its inherent value is up for debate (Loi, 2020).

Private goods make up the equivalent of public goods, to use the exact terminology of the notion. Examples of private assets that are rivalrous and excludable are things like a couch in your living room or a car parked in your garage. It is important to note, nevertheless, that economists occasionally distinguish between "public goods" and "private goods" in addition to coining the phrase "public bad" (Frydenlund, 2020). When academics and journalists use the word "public bad" to describe events such as environmental degradation, they are using the term more figuratively to refer to negative externalities that cannot be eliminated. However, this classification may be deceptive inasmuch as the primary goal of the private/public divide is to designate situations or commodities that are, in part, experienced jointly as opposed to being

exclusively consumed for individual use. A notable illustration of this may be seen in Saudi Arabia's educational system, which propagates an extreme version of Islam and is seen as a public good in that country. This classification is accurate, despite the fact that it may be seen negatively because it encourages bigotry and terrorism (Shea, 2017). The consequences of this curriculum are far-reaching and impact many people, although only a small number of extremist Islamists believe it to be beneficial. This specific case strikingly illustrates that education can qualify as a public good, even when its outcomes are considered adverse (Anomaly, 2018).

Of course, one may define "public good" to mean just products that are universally and equally desirable, and define "public bad" to refer to outcomes that are universally and universally disapproved of. However, this strict definition would severely restrict the range of applications across the universe of products and results. Take peace as an example, which is the ultimate public good and is frequently achieved through the funding of state-sponsored military operations. As a matter of fact, some people don't want peace; this is especially true if their religious beliefs force them to fight (DeAngelis & McCluskey, 2020). Some people have a strong desire for peace, but since they believe in pacifism, they are not prepared to work for it or pay taxes to sustain it. There are also others who, because of their misanthropic or nihilistic viewpoints, show little regard for the continuance of life, whether it be for a short while or a long time. Even though these choices can be seen as out of the ordinary, they represent how infrequently a decision that meets the criteria for becoming a public benefit is accepted or rejected by all. This rarity is highlighted even more when we consider that the production of even widely accepted public goods is

not free. Consequently, conflicts frequently arise about which public goods should be created, how to provide them, and how much is reasonable to produce (Anomaly, 2018).

Criticism of Public Goods Argument

The preceding discussion of public goods demonstrates that categorising something as nonrival and nonexcludable does not imply that government provision is required. Many public products may not be worth the associated expenses, and outsourcing their production to government institutions may increase inefficiencies and even lead to inequitable resource transfer. The term "public goods," invented by Paul Samuelson, was intended to designate areas where government involvement could improve market allocation of traditional private commodities. However, Samuelson later amended his position, claiming that the presence of non-excludable externalities creates a "prima facie case...for social concern and scrutiny of the outcome," rather than an irrefutable case for government intervention (Ford, 2020; Boianovsky, 2019). The well-known idea holds that market transactions are prone to producing a suboptimal quantity of public goods in terms of maximisation of societal well-being. Governments, on the other hand, tend to provide more public goods than is socially desirable, notably by accumulating debt and developing bureaucracy that promote their interests and lobbying influence (Anomaly, 2018).

Welfare economists developed the theory of externalities and public goods in the early twentieth century, with the goal of providing a framework for government intervention when market mechanisms fall short of optimising social well-being (Dumbrell et al., 2020). However, public choice economists posed a challenge to the welfare economics paradigm in the latter half of the twentieth century by applying economic principles to the examination of political processes and political actors (Cachanosky & Lopez, 2020). To build a comprehensive theory guiding state activities, whether in the area of educational policy or other domains, public choice theorists have emphasised the importance of a theory that tackles not just market failures but also the concept of government failure (Furton & Martin, 2019). Fundamentally, economics requires us to do comparative analyses and analyse the unintended consequences of policies by assessing the incentives they generate.

Economic Cost: Implicit and Explicit Cost

Economic cost is the sum of any goods' forfeited worth from the standpoint of an individual (Kouba et al., 2022). Economists mostly use economic cost to assess the prudence of one course of action vs another (Kumar & Gupta, 2020). This assessment takes into account a variety of elements, including monetary, temporal, and other resource-related expenses, all of which comprise explicit costs. The comparison includes not only the advantages and disadvantages of pursuing a specific course of action, but also those associated with the chosen course itself. It is crucial to note that economic cost differs from accounting cost in that it includes the concept of opportunity cost (in certain contexts, accounting cost is referred to as explicit cost, while opportunity cost is referred to as implicit cost). Explicit cost are direct, tangible expenditures

incurred by a company, such as wages, salaries, rental fees, or raw materials. Implicit costs, on the other hand, include the opportunity cost associated with resources already owned by the firm and used in its operations. This includes cases in which a company chooses to allocate these resources to its business rather than other uses. Consider an entrepreneur who runs a firm; her decision to use her own labour within the business reflects an implicit cost because she misses out on the possibility to make income from alternative employment (Kumar & Gupta, 2020). Two categories of cost can be identified: explicit and implicit costs. Explicit costs are actual payments made for tangible, verifiable expenditures. These include easily quantifiable disbursements such as staff salary or office rental fees. Implicit costs, on the other hand, while less visible, are equally considerable. They represent the missed opportunities linked with the firm's use of resources that it already has. These resources are frequently given by the firm's proprietors, particularly in the context of small firms. Examples include owners who work in the firm without receiving formal pay or who use a portion of their home as a retail store (Kumar & Gupta, 2020). Implicit costs also include the depreciation of important assets, materials, and equipment required for a firm's operation (Kouba et al., 2022). Given these distinctions between implicit and explicit costs, and in accordance with the study's contextual framework, we can classify hidden expenditures, such as those associated to extra classes, accommodation, transportation as implicit costs. Advantages or educational expenditures incurred by the government, on the other hand, can be classified as explicit costs because they do not demand direct financial outlays from parents (Kouba et al., 2022).

Theoretical Reviews and Critique of the Literature

Numerous studies have examined the relationship between education, household spending, and educational choices, shedding light on the complex interplay of factors influencing these decisions. For instance, research by Arora and Rada (2020), Mooi-Reci et al (2019), and Kouba et al (2022) have underscored the economic returns on investment in education, emphasizing the role of education in fostering economic growth. While these studies offer valuable insights into the broad impact of education on socioeconomic development, they often lack a comprehensive exploration of the micro-level determinants of household spending and choice of pre-tertiary education under specific policy frameworks.

Moreover, studies such as those by Chowdhury and Synthia (2020) and Adjei (2021) have started to examine shifts in enrollment patterns following the introduction of policies like the Free Senior High School Policy. However, these studies generally provide descriptive insights without delving into the underlying predictors of household choices or the potential hidden costs that might persist despite the free education policy. These studies also tend to focus on quantitative enrollment shifts, leaving gaps in the understanding of the complex decision-making processes that influence household preferences.

Several gaps emerge from the existing literature. First, while studies highlight the macroeconomic impact of education, there is a dearth of research investigating the specific determinants of household spending and choice of pre-tertiary education under the Free Education Policy in Ghana. This gap points to a need for a nuanced examination of factors that guide parental decision-making within the context of this policy.

Second, the lack of exploration into potential hidden costs associated with the Free Education Policy presents a significant gap. Existing studies often overlook the possibility that while tuition fees might be eliminated, other ancillary expenses could persist, impacting households' choices and expenditures.

Third, the literature tends to treat education as a uniform concept, with limited attention to the nuanced differences between public and private institutions. This gap is particularly notable in studies like that of Iddrisu, Danquah, and Quartey (2017), which focus on overall education expenditure without differentiating between the two educational sectors.

The current study seeks to address these gaps by examining the predictors of household spending and choice of pre-tertiary education under the Free Education Policy in Ghana. Through an in-depth investigation of factors such as perceived quality, accessibility, child security, economic status, and socio-demographic characteristics, the study aims to provide a comprehensive understanding of the drivers behind parental decision-making.

Furthermore, the study's focus on the hidden costs associated with the Free Education Policy responds to the lack of research in this area. By exploring potential additional expenses that households may bear despite the policy's intentions, the study offers a more holistic understanding of the financial implications of education.

Lastly, the study's differentiation between public and private education modes within the context of the policy sets it apart from prior research. This approach recognizes that while the policy eliminates tuition fees in public

institutions, households may still make choices based on various factors that impact their expenditures.

In conclusion, the current study endeavors to bridge gaps in the literature by offering a nuanced examination of the determinants of household spending and choice of pre-tertiary education under the Free Education Policy. By delving into specific predictors, hidden costs, and sectoral differentiations, the study aims to provide valuable insights for policymakers and stakeholders in Ghana's education system.

Survey of Empirical Studies

Factors Influencing Household Spending on Pre-Tertiary Education

Addai (2023) investigated the variables of annual household spending on schooling in the Ghanaian environment. This study used GLSS 6 household-level data, which included information from 16,772 households. The Tobit model was used in the analysis. According to the statistics, Ghanaian households devote around 52.1 percent of their household spending to basic education. In addition, there was an inverse link between household income and annual schooling expenditure. The household head's educational attainment, family size, and the educational level of the household head revealed as statistically significant determinants impacting educational expenditures in Ghana.

A study by Koomson and Danquah (2021) also examined the effect of financial inclusion on energy poverty in Ghana. The purpose of their study sought to understand how access to financial services and resources may influence or alleviate the energy-related challenges and limitations faced by individuals or households in Ghana. The authors argued that a significant

portion of the Ghanaian populace lack access to affordable, clean energy, particularly in rural areas, resulting in health problems and a substantial mortality rate attributed to household air pollution. Also, despite efforts to enhance financial inclusion, there are gender disparities in access to financial services, thus, understanding the relationship between financial inclusion and energy poverty in Ghana is a requirement for empirical studies. The authors used data from two rounds of living standards survey from Ghana (i.e., GLSS6 and GLSS7) for the study. They employed the linear probability model (LPM) and Pooled OLS where they instrument endogeneity associated with financial inclusion using distance to the nearest bank. The authors found that financial inclusion (FI) has a beneficial impact on reducing household energy poverty and this was robust when alternative robustness checks were employed. The study revealed that FI tends to be more effective in decreasing energy poverty in rural households and those headed by males. The authors also identified consumption poverty, household net income, and spending on children's education as key pathways through which FI influences energy poverty. According to the authors, a policy option is for regulators of the financial system to put in place the needed structures that will reduce the average distance to banks.

Hardy (2021) assessed the effectiveness, reach, and implications of the Child Tax Credit as a policy tool for promoting family economic stability in the United States. The authors focus was to investigate how the Child Tax Credit program influences the financial well-being of families, particularly those with children, by providing financial assistance and potentially reducing economic hardships. Hardy argued that the difficulty faced by families with low and

unstable incomes, constitute high debt and low savings due to unanticipated financial challenges. Yet, economic assistance programs like Temporary Assistance for Needy Families (TANF) has been inadequate, leading to the use of risky financial products, the need to assess the role of an expanded Child Tax Credit in providing a crucial source of support for these families. Hardy used data from the treasury department on existing support systems such as Earned Income Tax Credit (EITC), Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF) and Medicaid to review the significance of the Child Tax Credit. The author found that income instability is a prevalent issue affecting all families, with a particularly pronounced impact on Black families, individuals with lower educational qualifications, and households headed by unmarried individuals. The findings also revealed that Child Tax Credit payment issued in 2021 kept 3.7 million children out of poverty and reduced the monthly child poverty rate by 29 percent. As a recommendation, Hardy pointed out that an expanded, monthly and fully refundable Child Tax Credit would mean greater stability for families, thus, strengthening the Child Tax Credit would help close harmful gaps.

A similar study was conducted in Ghana by Iddrisu and Danquah (2021). The authors explored the multidimensional measures of financial inclusion and how financial inclusion or exclusion affects household welfare in Ghana. They indicated that financial inclusion is a key policy objective for many developing countries, as it can enhance economic growth, reduce poverty, and improve social outcomes. Yet, they argued that there is a lack of empirical evidence on the welfare effects of financial inclusion in Ghana, especially using a multidimensional measure of financial inclusion that captures the different

aspects of access, usage, quality, and welfare. Therefore, they seek to compare the effects of financial inclusion across different quantiles of the welfare distribution, and across different measures of welfare such as expenditure, income, and poverty using a nationally representative household survey data set from Ghana. Iddrisu and Danquah (2021) used data from the seventh round of the GLSS (GLSS 7), which was conducted in 2016–17. They constructed a multidimensional index of financial inclusion and used ordinary least squares (OLS), instrumental variables (because they suspected endogeneity problem), propensity score matching (PSM), and quantile regression (QR) for their estimations and robustness checks. their findings indicated that households facing financial deprivation experience lower levels of welfare when contrasted with those who are financially included. They also demonstrated that financial inclusion exerts a significant influence on the welfare of poor households in comparison to their non-poor counterparts. Thus, aside from enhancing household welfare, financial inclusion may also contribute to narrowing the income disparity between poor and non-poor households. Their findings also revealed that each of the four facets of financial inclusion independently impacts household welfare, yet disparities based on household poverty status are obvious. They suggested that policy makers should expand the coverage and quality of financial services, especially for the rural and marginalized households, to increase their access to credit, savings, insurance, and payments.

Churchill and Marisetty (2020) investigated the impact of financial inclusion on poverty in India. The purpose of the research was to investigate the channels through which financial inclusion impact poverty reduction in India. They argued that financial inclusion can improve household welfare by

increasing the expenditure on education, health, and other essential goods and services. The authors used a new nationally representative survey data covering approximately 45,000 Indian households to measure financial inclusion and poverty. They used the data from the survey to measure the average monthly expenditure on education per household. The authors also examined the effects of financial inclusion on multiple measures of poverty including the household Poverty Probability Index (PPI), household deprivation scores, and poverty line. The authors constructed a multidimensional indicator of financial inclusion based on four dimensions: access, usage, quality, and welfare. Churchill and Marisetty (2020) employed the propensity score matching (PSM) econometric method and quantile regression (QR) to estimate the causal effects of financial inclusion on poverty. They found that financial inclusion has a strong poverty-reducing effect across all the measures of poverty used. They also found that financial inclusion has a positive and significant effect on expenditure on education, implying that households with higher levels of financial inclusion tend to spend more on education. They further revealed that this effect is stronger for the lower quantiles of the expenditure distribution, suggesting that financial inclusion benefits the poorer households more in terms of enhancing their educational outcomes. They concluded that financial inclusion is crucial in promoting human capital development and reduce poverty by increasing expenditure on education. They then suggested some policy implications such as expanding the coverage and quality of financial services, improving financial literacy and awareness, and enhancing the regulatory framework for financial inclusion.

Tita and Aziakpono (2017) investigated the relationship between financial inclusion and income inequality in sub-Saharan Africa. The authors intended to explore how the level of access to financial services, resources, and opportunities (financial inclusion) relates to the distribution of income among various segments of the population in sub-Saharan Africa. They focused on examining whether financial inclusion efforts, as well as the extent of inclusion at a detailed, disaggregated level, have any impact on income inequality within the region. They argued that despite the significance of financial inclusion, there is the need for a comprehensive analysis that goes beyond microfinance impacts, which vary across countries and do not address universal financial access. The methodology of their study is based on cross-sectional regression analysis, partially adapted from the model specification presented by Clarke et al. (2006) and utilizing data from the World Bank Global Findex database and the World Bank Development Indicators. The study's findings indicate that there is a negative relationship between health insurance and formal loans for paying school fees and income inequality. This negative relationship is more pronounced in rural areas, suggesting that scaling up access to formal school fee loans and providing health insurance in rural areas can potentially reduce income inequality in both the short and long term. On the other hand, aspects of financial inclusion like account use for business purposes, electronic payments, and formal savings were found to have a positive relationship with income inequality. The authors recommended a two-fold approach: firstly, a commitment to democratic governance to enhance the quality and effectiveness of institutions supporting financial sector development, and secondly, the adoption of a comprehensive development strategy that combines top-down and

bottom-up approaches to ensure the active involvement of all sectors of the economy.

The empirical review conducted thus far reveals that financial inclusion efforts can have a varied impact on income inequality, with some facets of financial inclusion potentially reducing income inequality. Moreover, the review highlights the importance of considering the impact of financial inclusion on specific expenditure areas, such as household spending on education. It suggests that access to formal loans for education and micro-insurances can potentially reduce income inequality, especially in rural areas. Other aspects of financial inclusion, such as account use for business purposes, electronic payments, and formal savings, may have a significant relationship with income inequality, and a consequential effect on spending on education.

Ndamusyo (2021) explored the factors that influence household spending on schooling in Uganda's western region. The study sought to assess the determinants of household expenditure on education in this area, utilising data from the Uganda Bureau of Statistics' 2016 Uganda National Household Survey. The study concentrated on the relationships between demographic variables, family socioeconomic position, and educational expenses. At a 95% confidence level, the outcomes of this study indicated a statistically significant association between the educational attainment of the household head and household spending on education. Furthermore, his study discovered a favourable relationship between household education spending and the educational degree of the members in the home. Furthermore, the study found a statistically significant association between income stability and household education spending at a 95% confidence level. The data, however, did not reveal

a long-term link between income stability and household education spending. Furthermore, at a 95% confidence level, the age of the household head was found to have a substantial influence on household expenditure on schooling. It was discovered that as the age of the home head increased, so did household expenditure on schooling. Furthermore, his research findings demonstrated a significant association between the number of children in a home and the level of household education expenditure, with statistical significance at a 95% confidence level. It was discovered that households with more children spent a greater proportion of their income on schooling than those with fewer children. Furthermore, the gender of the household head was found to have a statistically significant influence on household education spending at a 95% confidence level. The study found that male-headed households allocated greater financial resources to schooling than female-headed households. As a result, he recommended that younger family heads create a savings culture, allowing them to adequately plan for future school expenses associated to their children. Furthermore, he called for increasing investments in children's education by family heads as a means of securing their future possibilities. Furthermore, he suggested that the government explore granting school fee subsidies to female-led homes in order to improve access to high-quality education for children in such households.

Ndamusyo's study in Uganda examines demographic and socio-economic factors influencing education expenditure. Although it aligns with the current study's context, it doesn't investigate hidden costs or delve into school choice determinants. Nevertheless, its insights into demographic and socio-economic influences offer a useful comparison point.

Iddrisu, Danquah, Barimah, and Ohemeng (2020) conducted a study in Sub-Saharan Africa (SSA) which focused on education expenditure and gender related biasness. The purpose of their study was to investigate the issue of gender gaps in educational expenditure in sub-Saharan Africa using individual-level data from Ghana. The authors argued that while numerous studies have addressed gender bias in resource allocation within households, there is a limited focus on gender disparities in educational spending within households, especially in the context of sub-Saharan Africa. They further argue that, lack of individual-level expenditure data has hindered the detection of gender bias in intra-household spending, as most existing research relies on household-level expenditure data, often missing gender-related expenditure patterns due to the use of the Engel curve method. To overcome the difficulties associated with the Engel curve technique, they use a hurdle or two-tiered model to explore two potential sources of gender bias: bias in the decision to enrol/keep boys and girls in school; and bias in the educational expenditure on boys and girls enrolled in school. Their data was individual-level expenditure data on child schooling drawn from the Ghana Living Standards Survey (GLSS 6) conducted in 2012–2013. The authors found a notable gender gap in educational spending in Ghana, where boys are more likely to be enrolled in schools than girls. However, once children are enrolled, households tend to allocate equal amounts of expenditure to both boys and girls for their schooling. They recommend that policies aimed at increasing female enrolment rates and reducing gender biases in educational expenditure could help reduce gender gaps in educational outcomes.

Yun and Yusoff (2018) focused on the determinants of public education expenditure in Malaysia from 1982 to 2016. The authors aimed to understand

what drives the government's decisions regarding how much money is allocated to public education, and which economic, social, or political factors are most significant in determining the level of public spending on education in the country. They argued that Despite improvements in Malaysian student performance over time, recent international assessments, such as the Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS), have shown disappointing results, ranking Malaysia in the bottom third among participating countries. This raises concerns about the effectiveness of the education system in Malaysia. Consequently, the study likely aims to investigate the factors and determinants influencing public education expenditure in Malaysia in light of these challenges. Their study was a time series analysis and thus adopted the autoregressive distributed lag (ARDL) Bound Testing approach and Error Correction Model (ECM). The authors sourced their data from the Economic Planning Unit, Malaysia Statistical Department, and the World Bank. Their findings revealed that the determinants of public education expenditure in Malaysia are real GDP growth rate, unemployment rate, inflation rate, and the working-age population which supports the Keynesian Counter-Cyclical theory, indicating a negative long-term relationship between economic growth and public education expenditure, where as the economy grows, education spending tends to decrease. They then recommended that policymakers should consider economic conditions and societal demands when making future allocation decisions for education expenditure.

Mukherjee and Sengupta's (2021) conducted research on the determinants of private expenditure on education in India based on the National

Sample Survey 71st round conducted in 2014. The purpose of their study was to understand the factors influencing individual investments in education, which are essential for educational progress. They argued that private expenditure on education is a crucial factor affecting educational outcomes. Despite government efforts to provide infrastructure at minimal cost, individual households continue to incur expenses from their pockets for various educational purposes. Hence the need to identify the key determinants of private expenditure on education to inform policy decisions and improve educational access and equity. The researchers utilized data from the National Sample Survey 71st round conducted in 2014 to analyse descriptively the influences on private expenditure on education. The study employs quantitative methods to examine various factors affecting private spending on education. The authors revealed that factors positively influencing private spending include household consumer expenditure, respondent's age, the use of private coaching, and household computer ownership. In contrast, factors such as household size, rural residence, female gender, belonging to specific social groups (STs, SCs, OBCs), following minority religions, and attending certain types of schools have a negative impact on private education expenditure. The study recommended policies to ensure gender equity in educational spending, effective family planning for smaller household sizes, support for marginalized social groups through scholarships, increased government institutions for affordable education, expanded access to English-medium schools, efforts to make private coaching redundant through improved school teaching, and promoting digital inclusion through subsidies or community computer centres for the financially disadvantaged.

Mukherjee and Sengupta's study on private expenditure in India contributes insights into determinants, emphasizing socio-economic factors. Although the focus is on private expenditure, some variables examined, such as household size, household consumer expenditure, and medium of instruction, may be relevant to the current study. However, the divergence in education systems limits direct applicability.

Furthermore, Ebaidalla (2018) focused on the analysis of household education expenditure in Sudan. The study identified several key determinants that significantly influence education expenditure, including household income, the educational level of the household head, the age of the household head, household size, the number of school-age children, and residence location, specifically urban or rural areas. According to the study's findings, the income elasticity of education in the urban sample model exceeds that in the rural model, implying that households in urban regions devote a greater part of their resources to education expenses. Furthermore, household income had a positive and significant impact on schooling expenditure, notably in the highest income quintile. The data show that households with higher income levels tend to devote more financial resources to schooling than their counterparts in metropolitan regions. These findings highlight the persistence of limited intergenerational educational and income mobility in Sudan, indicating that children from less affluent households remain entrenched in lower income brackets and educational attainment levels, struggling to catch up with their peers from more affluent families.

Ebaidalla's Sudanese study examines factors like household income and residence's impact on education expenditure. While it offers insights into

relevant determinants, Sudan's socio-economic context diverges from Ghana's, potentially limiting its applicability.

Andreou (2012) conducted a study regarding household education expenditure in Cyprus. Using data from the Family Expenditure Surveys for the years 1996/7, 2002/3, and 2008/9, this study studied household expenditure on education in Cyprus and the factors determining the degree of educational investment. According to the findings of this study, the volume of education-related expenses rises in direct proportion to household income over these years. Furthermore, the survey discovered that in the primary and secondary education levels, the share of households allocating monies to private tutoring services ranges between 60% and 90%. Importantly, this share varies only slightly between socioeconomic categories. Income, family size (number of children), geographical location of residence, and the educational background and age of the household head were identified as the key drivers determining the extent of household education expenditure in his empirical study. The study also found that education and the age of the family leader have less of an impact over time. These findings have far-reaching consequences for a variety of issues concerning Cyprus's educational systems.

Andreou's analysis of education expenditure in Cyprus highlights income's impact. However, the contextual differences between Cyprus and Ghana make direct comparisons challenging. Although the study delves into factors affecting expenditure, it lacks exploration of hidden costs and choice factors crucial to this study's focus.

Furthermore, Sekhampu and Niyimbanira (2013) conducted a separate examination into the factors of household education expenditure in a South

African township. According to the findings of this study, household income, household size, the number of employed members, employment status, and the educational level of the household head all have a significant and beneficial influence on household expenditure on education. Furthermore, the married status of the home head was found to have a negative relationship with household education expenditure.

Sekhampu and Niyimbanira's South African study explores household income, household size, and educational attainment's impact on education expenditure. While it provides insights into socio-economic factors, its context differs significantly from Ghana's, making direct comparisons challenging.

Earlier, Donkoh and Amikuzuno (2011) explored the determinants of household education expenditure in Ghana. Their main objective was to identify the various determining variables of households' spending on education. Their main variable was socio-economic determinants of households' spending on education. They used the 2006/2007 Ghana Living Standards Survey Round Five (GLSS-V) data. They used the logit model and estimated that high education does not necessarily mean high probability of spending on education. They did this by categorizing household heads in terms of education, land ownership, vehicles, and other valuable assets as well as households living with greater number of children of school going age, rural households, and households targeted for urgent support and those living in the forest belt. Although this study tried to identify the socio-economic variables that determine household spending on education, they failed to ascertain whether same variables determine their choice of school. Also, their study was based on the basic level of education, this current study extended it to the second cycle

institutions. This current study also extended the variables to ward's security, quality of education, parents' economic status, accessibility and the demographic profile of parents.

Donkoh and Amikuzuno's study in Ghana identifies determinants of household education expenditure. They focus on socio-economic variables such as education level, land ownership, and assets. While their study provides valuable insights into the socio-economic factors affecting expenditure, it falls short in exploring whether the same factors influence school choice. Additionally, the focus on basic education limits its applicability to the second cycle institutions examined in this current study.

Factors Influencing Choice of Pre-Tertiary Education

Though studies on choice factor that drives pre-tertiary school choice are limited in the Ghanaian context, the review suggest a number significant work has been done elsewhere.

Gilano and Hailegebreal (2021) evaluated the quality of education in South Ethiopia. The study aimed to assess the various factors that influence or contribute to the quality of education. The study was a case study endeavour which focused on the Arba Minch College of Health Sciences in South Ethiopia. The authors argue that despite an increase in the number of students and institutions, there is a pressing need to assess and enhance the quality of education, which has become a political and media issue. While various countries have implemented quality control measures for higher education, the quality of education remains a challenge for academia and external stakeholders. The study employed an institution-based cross-sectional design, collected data using a structured questionnaire, and analysed it using SPSS 25.0.

The authors found that on a scale of one to five, the overall perception of educational quality was rated at 2.87±1.12, falling well below the expected requirements. Additionally, about half of the parameters received a score of ≤3, resulting in an overall educational quality rating that remained below average. They also identified that accessibility, child security, friendliness of staffs to each other and students, availability of clear guideline of conduct, presence of effective, accurate, and promotive services, high standard administrative buildings, availability of standard catering service, availability of standard laboratories, communication, distance and sociodemographic factors among others as drivers of perceived quality of education. These factors identified could be grouped under school factors, student and teacher factors which eventually drives school choice for wards.

Sneka and Akshaya (2022) assessed the factors influencing parent's decision in sending their children to private schools using a sample 176 respondents. The results found quality of teaching, Communication of the children, extra-curricular activities, child security, transportation facility and advanced technologies as major drivers of parent decision to choose between public and private schools.

As an effort to identify determinants of choice of school type, Awale (2021) sought to investigate and understand the factors that influence students' decisions when choosing private management colleges for their education in Kathmandu, Nepal. The purpose was to identify and analyze the various determinants and considerations that play a role in students' preferences for specific private management colleges, such as location, reputation, facilities, cost, and other factors that may influence their choice. Awale argued that there

is a lack of clarity among college managers in Nepal regarding the factors influencing students' choices of specific colleges, leading to issues of overcrowding in some and under-enrollment in others. Thus, the need to address these uncertainties and investigate the key determinants of college choice, potential gender-based variations, and other related factors. The study utilized a descriptive research design with a quantitative approach, collecting data through questionnaires from undergraduate management students in Kathmandu. The sample size of 384 was determined using Krejcie and Morgan's table. Statistical analyses, including ANOVA, correlation, and regression based on the least squares' principle, were conducted to examine the relationships. The author found that the primary determinant for students' choice of a management college in Kathmandu is the college's image, followed by the physical environment (i.e., students' safety). The author noted that advertising resources in Nepal have not been effectively utilized and then emphasized the need for more efficient advertising strategies by school management.

Subedi (2021) examined the factors which influence parent preference between public or private schools using primary data collected from six secondary schools at the pre-tertiary level. The outcome suggested that Class size was the strongest factor that parents' choice between public and private schools followed by favourable environment for their children (security) and School facilities.

Rotanova, Shimichev and Golvanov (2021) analysed the extent to which the protection of information in secondary schools impacts the overall information security of students. The purpose of their study was to explore how schools safeguard students' personal information and data, both digitally and

through other means, and assess the effectiveness of these measures in ensuring the privacy and security of students' information in a secondary school setting. The authors believe that information security and the protection of students' personal data are crucial aspects that parents and students consider when choosing an educational institution. The authors argued that the problem of students' information security is exacerbated by the increasing difficulty in protecting children's identities from information threats. With a significant number of children exposed to unfiltered internet content and undesirable materials, there is growing concern about the impact on their mental and physical development. According to the authors, the research methodology involved several methods, including scientometric analysis of relevant scientific sources, modelling in research concept development, analysis of educational standards, and diagnostic approaches such as questionnaires and interviews. The authors found that the structure of the information and educational environment aligns with the Federal state educational standard for secondary schools and effectively ensures students' information security while using the internet. Various aspects of this environment are regulated by local documents and orders based on regional and Federal regulations, including those related to internet security, registers for internet access, content filtering control, and detecting incompatible internet resources with students' educational goals. Their findings further underscored the significance of schools maintaining high standards of information security, which translate into overall child security, as a factor in educational decision-making.

Zuilkowski, Piper and Ong'ele (2020) investigated the reasons why parents in Nairobi, Kenya, opt for low-cost private schools instead of public

schools, even in an era when primary education is offered for free in public schools. The study aimed to explore the factors and motivations behind parents' decisions to choose private schools, which may come with additional costs, over the free public education system, with a particular focus on the perceived quality of education and related factors that influence this choice. The authors argued that the problem stems from the challenges faced by countries with free primary education (FPE) policies, which have led to increased enrolment but also difficulties in financing the expansion in access. According to the authors, in Kenya, parents' concerns about the declining quality of primary education after the Free Primary Education program started have driven them to seek alternative options, particularly low-cost private schools. Therefore, imperative to investigate parental decision-making regarding school choice, the reasons for choosing low-cost private schools, the perception of educational quality, and the actual costs incurred, despite the availability of free public primary education. The authors used a mixed-methods approach, combining data from closed- and open-ended survey items with interview data for the study. The authors found that parents whose children attended low-cost private schools (LCPS) primarily made their choice based on perceptions of quality and school environment, whereas parents with children in government schools were additionally concerned about cost and school proximity.

The outcome generally points to the fact that parents with wards in private and public schools have different preference for their ward's education. The study recommended that the government should enhance the connection between low-cost private schools (LCPS) and the education system by allowing

full Ministry of Education (MoE) registration, enabling LCPS to access Free Primary Education (FPE) funds and capitation grants.

Dahari and Ya (2011) investigated the factors influencing parental decisions on pre-school education in Malaysia. The primary goal of their research was to identify the critical characteristics that have the greatest influence on parents' choice of a pre-school for their children. According to their findings, parents' selections for pre-school institutions are heavily influenced by a variety of criteria, the majority of which are related to the features of the pre-schools themselves. Furthermore, the authors stated that parents have various educational opinions and preferences, which often creates a quandary when it comes to making judgements concerning their children's pre-school education. Dahari and Ya stressed the crucial relevance of pre-school facilities aligning their offerings with the expectations of both parents and children in order to effectively attract and keep their clientele. Their research technique included data collecting via survey questionnaires distributed to a sample of 162 parents with children enrolled in pre-schools. The researchers used multiple linear regression analysis as their analytical framework to identify predictor variables that significantly influenced parents' decisions on which pre-schools to enrol their children in. Their research revealed the key factors that influenced parents' pre-school selections. The pre-school's brand reputation, whether it was privately operated, the assurance of safety and security measures, the quality of educational instruction, parent social and economic status and the level of hygiene maintained within the pre-school facilities were all relevant considerations. Furthermore, their research revealed that parents preferred pre-schools that provided English language education as well as those with a

religious affiliation. It should be noted, however, that the researchers did not establish a causal link between the identified characteristics and household education spending.

Dahari and Ya explore factors influencing parents' choice of pre-school education in Malaysia. Their study contributes valuable insights into parental decision-making but falls short of linking these factors to household spending on education. The study's gap lies in not addressing the financial implications of parents' choices, neglecting the role of socio-economic variables, which can influence school choice and spending patterns.

The focus of a study conducted by Badriyah et al. (2021) was on assessing accessibility and travel time efficiency for kids attending schools in Bandung Regency. According to the study, the choice of school has become a critical aspect in the decision-making process for parents and kids when it comes to managing their time allocation. They also examined the present school placement system, which is closely related to the zoning system used throughout all educational levels, from elementary to high school. Schools are expected to accept around 80% of their pupils from adjacent communities under this approach. The fundamental premise guiding school selection is to maximise the efficiency of both time and travel distances for pupils. However, it is critical to recognise that many elements impacting a school's effectiveness extend beyond the criteria established for determining school site.

Their primary goal was to determine the relationship between the current geographical arrangement of Senior High Schools and the efficiency of students' commute time to school. The researchers used a selection approach that included both random and stratified sampling to pick thirty-one (31) schools for

their investigation. According to the findings, the cumulative travel time expended by pupils to go to school is efficient. This conclusion is based on the data, which shows a reasonably consistent distribution of travel times among the students.

This study examines the impact of accessibility on school choice in Bandung Regency. While it touches upon the efficiency of travel time, it overlooks the broader determinants that influence school selection, such as perceived quality, safety, and socio-demographic variables. Consequently, the study misses the opportunity to provide a comprehensive understanding of the factors affecting school choice.

Awale (2021) did a research study to investigate the factors that influence students' choice of Private Management Colleges in Kathmandu. The study was inspired by the realisation of the extremely competitive and dynamic character of the educational service business, particularly in Nepal, which has seen substantial growth in the sphere of education. The study sought to investigate why students choose some universities over others, as college officials have a limited awareness of this element. To do this, the study examined the important elements that influence students' decisions of Management Colleges in Kathmandu. The study looked at the effects of various factors such as the college's location, peer influence, advertising, institutional reputation, past performance, social aspects, tuition fees, faculty qualifications, resource facilities, and the physical environment of the college. The findings of this study indicated that a college's reputation and physical surroundings have a major impact on students' decisions when choosing a college for their further education.

Awale's study investigates factors influencing students' choice of management colleges in Kathmandu. The study offers insights into choice drivers but lacks consideration for socio-demographic factors and their impact on college selection. By not examining the role of parents' preferences, economic status, and the broader socio-economic environment, the study overlooks crucial determinants of students' educational decisions.

Similarly, Qasim, Al-Askari and Massoud (2021) investigated and analysed the factors that influence the decisions made by students when choosing a school in the private higher education (HE) sector in the Kurdistan region of Iraq. The authors argued that private universities in Kurdistan, face the challenge of attracting students in a competitive higher education market. With government funding constraints and regional conflicts, these institutions need effective strategies to increase their market share. While previous research on student university choice exists, it has predominantly been conducted in developed countries, and no studies have explored the factors influencing student university choice in the unique cultural and socioeconomic context of Kurdistan, where private universities are relatively new. The study aimed to fill that research gap. They employed a survey research design using questionnaire targeting first-year students in private universities. The sample size was 518 students. The authors used confirmatory factor analysis (CFA) to analyse the data. They found that the university characteristics that most influenced student choice were reputation/accreditation, quality of teaching, employability, and quality of facilities. They are found that cost of study was not highly influential in relation to student choice. They recommended that universities consider increasing their tuition fees and dedicating the extra revenues to boosting their

reputation, enhancing their quality of teaching and accreditation, and increasing their connection to and relationships with local employers.

Qasim et al. delve into factors affecting student choice in private higher education institutions in Kurdistan-Iraq. While their study captures crucial determinants such as reputation, quality of teaching, and employability, it overlooks socio-economic variables like parental income and financial constraints. This omission limits the study's understanding of how cost influences choice, hindering the development of comprehensive policy recommendations.

Another research study by Shahzad, Naoreen and Ashraf (2020) investigated the factors that influence parents' decisions when choosing between public and private schools for their children's education. The purpose of their research was to understand the various factors, which include financial considerations, quality of education, distance to schools and, cultural or social factors that play a role in shaping parental preferences for one type of school over the other. The study employed a descriptive methodology to investigate the factors influencing parental school choice and the sources of information parents use for decision-making. Data collection involved administering questionnaire to 300 parents with children in either public or private schools. The study found that the factors influencing parental decisions for enrolling their children public and private sector schools include students' moral development, teacher quality, a caring school environment, discipline, and safety, while parents' education level, dissatisfaction with school class sizes, and their profession were less influential. Thus, the same key factors were important for both public and private schools, but personal interaction with the school (i.e.,

Parent-Teacher Meetings) was less prominent in public school choices compared to private school choices. The authors suggested improving coordination between parents and teachers in public schools through regular Parent-Teacher Meetings (PTM), with both government and private schools striving to meet parents' expectations.

Magulod (2017) conducted research into the various factors that contribute to the effectiveness and performance of both public and private elementary schools in the Philippines. The study aimed to identify and understand the determinants of school effectiveness and student performance, comparing these factors between the two types of schools. The research also explored the implications of these findings on educational planning and policy development in the context of elementary education in the Philippines. Magulod argued that school effectiveness is a crucial variable affecting students' academic achievement, and the quality of education relies not only on teachers but also on the effective coordination of the school environment. With educational reforms and the introduction of standardized tests in the Philippines, understanding the effectiveness and performance of public and private elementary schools is vital for educational planning. The author employed a mixed-method research approach for the study. Descriptive correlational method, was used to examine the relationship between school effectiveness and performance and then factorial analysis, to identify key components of school effectiveness in both private and public elementary schools. The study involved 182 principals and teachers from 20 sampled schools. Magulod found that three principal components were crucial for school effectiveness: instructional leadership, high expectations for success, and a clear and focused mission.

These factors could be consolidated into two categories: school leadership competency and professional collaboration. Magulod further revealed that students in both private and public schools had access to a quality learning environment, with private schools emphasizing a clear mission and public schools focusing on a safe and orderly environment. Public elementary schools also outperformed private elementary schools in terms of performance. The author suggested that the Philippine National Government should allocate additional budget resources to public elementary schools and provide increased subsidies to private elementary schools to enhance their school effectiveness and performance.

The reviewed studies provide valuable insights into factors influencing educational choices but fall short of delivering a comprehensive understanding that integrates socio-economic determinants, parental preferences, and the financial implications of these choices.

Hidden Cost of Pre-Tertiary Education

Kutortse (2018) used empirical evidence drawn from household-level data to explore the price and income elasticity of demand for education in Ghana. The major goal of his research was to analyse the responsiveness of household demand for various levels of education in Ghana in relation to differences in education prices and family income. Kutortse used the Quadratic Almost Ideal Demand System (QUAIDS) model in conjunction with a Two-Stage Budgeting procedure that included a limited set of household demographic variables to conduct this analysis. In Ghana, these methodologies were used to investigate the household price and income elasticity of demand for education. According to the findings, Ghanaian families have a higher

degree of income elasticity when it comes to their need for basic education. Furthermore, it was discovered that household demand for education was relatively insensitive to changes in education prices. However, when individuals advanced from primary to secondary school, their sensitivity to price adjustments grew. Kutortse (2018) emphasised the additional financial difficulties that Ghanaian households experience in addition to the mandatory school payments. Furthermore, the study found that rural households' demand for secondary school was more sensitive to price and income fluctuations than their urban counterparts. It is worth mentioning that this study did not find a direct link between the predictive variables examined in this study and the selection of educational institutions or overall educational spending.

Kutortse's study focuses on price and income elasticity of demand for education in Ghana. While it sheds light on how households respond to price changes, its main limitation lies in not addressing the factors that influence households' choice of school and spending patterns. The study's lack of consideration for variables like perceived quality, accessibility, and child security creates a gap in the understanding of hidden costs' impact on school choice.

A research was conducted by the Results for Development Institute for the UBS Optimus Foundation in October 2015 which delved into the costs of government and private education, as well as factors influencing households' decision-making around education in the peri-urban area of Kasoa, Ghana. The study purposefully focused on two types of educational institutions: government schools that are free or subsidized by the government, and private schools that are relatively cheap and compared the actual expenses incurred by households

in providing education for their children. The study argued that, despite the government's commitment to providing free basic education in government schools in Ghana, an increasing number of households, particularly in peri-urban areas, are turning to low-cost private schools due to perceived limitations of the government system, and thus the study aimed to investigate the financial implications of this trend in Kasoa, Ghana. The study involved household surveys conducted in Kasoa. Researchers collected data on education spending patterns and school attendance. The findings revealed that school attendance is high, with 88% of children attending school, and 83% of households having at least one child in a private school in Kasoa. Gender equality is valued in education in Kasoa. However, private schools cost households approximately 54% more per student than government schools, with an average annual cost of GH¢ 793 in government schools and GH¢ 1218 in private ones. The study further indicated that government school heads attribute extra charges to insufficient capitation grants. The study recommends increasing capitation grants to government schools to alleviate the financial burden on households and promote equitable access to quality education in Kasoa, Ghana.

Akaguri (2014) conducted research on fee-free public or low-fee private primary education in rural Ghana, with the goal of analysing the impact of associated expenses on impoverished families' decisions on which school to send their children to. The study used data from a household survey done in three rural areas, as well as interviews conducted in the Mfantseman Municipality in Ghana's Central Region. The major goal was to evaluate the cost consequences for families choosing either fee-free public schools or low-fee private schools. The study's findings revealed that both solutions were

associated with expenses that disadvantaged low-income households. This was especially noticeable for the most economically disadvantaged households, who could not manage the financial burden of schooling many children.

While fee-free public education has effectively eliminated charges such as tuition and examination fees, it is important to note that other direct expenses such as transport, meals and school uniforms continue to represent a significant portion of household spending on education, particularly for economically disadvantaged families. This is especially true when it comes to accessibility. Low-cost, profit-driven private schools, on the other hand, remain financially inaccessible to the poorest households. Given these circumstances, Akaguri (2014) concluded that, while fee-free public education is a great step forward, it nevertheless puts huge financial obligations on households. These responsibilities can be a significant barrier to school access for economically disadvantaged students. The study's findings highlight the urgent need for Ghana's government and other nations facing similar issues to adopt and implement pro-poor policies. Such policies should aim to ensure that the most economically disadvantaged households are not burdened with any costs, as this is the only practical route to meeting the promise to Education for All and ensuring that all children have the opportunity to finish a full cycle of basic education.

Furthermore, Badriyah, Ruhimat and Setiawan (2021) investigated and analysed the efficiency of travel time experienced by students when commuting to their schools within the Bandung region in Thailand. The authors aimed to assess factors affecting the time it takes for students to travel to school, including transportation options, distance, infrastructure, and potentially their

daily routines, in order to identify areas for improvement in optimizing travel time for students in the region. The authors argued that transportation facilities significantly impact individuals' needs and opportunities, particularly in the context of students choosing their travel-to-school modes. While selecting schools farther from home can yield benefits, it comes with costs such as money, time, opportunities, and potential exposure to unsafe areas. Therefore, needful to assess the efficiency of travel time for students based on school location to determine the effectiveness of the Students Admission policy in terms of travel time in Thailand. The authors employed a descriptive approach with a quantitative emphasis. To select the sample, the researchers used a stratified sampling technique and collected data through questionnaires. A total of 400 students from various Junior High Schools in Bandung were included, with 13 students selected from each of the 31 sampled schools. The authors found that most students (76.7%) took between 1 and 20 minutes to reach their schools, adhering to the standard ideal travel time of less than 20 minutes. The proximity of the residence to the school was a key factor in achieving this efficiency, allowing some students to walk. However, 23.3% of students took longer than 20 minutes, which was considered inefficient for school commutes. The authors indicated that such an efficient travel time have cost-saving implications for parents, as shorter distances typically result in lower transportation expenses. It also influenced school choice, as parents prioritized schools that are conveniently located to reduce travel time and expenses.

Empirical Reviews and Critique of the Literature

Numerous studies have examined the relationship between education, household spending, and educational choices, shedding light on the complex interplay of factors influencing these decisions. For instance, research by Iddrisu, Danquah, Barimah, and Ohemeng (2020), Addai (2023), Mukherjee and Sengupta's (2021) and Ndamusyo (2021) have underscored the economic returns on investment in education, emphasizing the role of education in fostering economic growth. While these studies offer valuable insights into the broad impact of education on socioeconomic development, they often lack a comprehensive exploration of the micro-level determinants of household spending and choice of pre-tertiary education under specific policy frameworks.

Moreover, studies such as those by Shahzad, Naoreen and Ashraf (2020), Awale (2021) and Adjei (2021) have started to examine shifts in enrollment patterns following the introduction of policies like the Free Senior High School Policy. However, these studies generally provide descriptive insights without delving into the underlying predictors of household choices or the potential hidden costs that might persist despite the free education policy. These studies also tend to focus on quantitative enrollment shifts, leaving gaps in the understanding of the complex decision-making processes that influence household preferences.

Several gaps emerge from the existing literature. First, while studies highlight the macroeconomic impact of education, there is a dearth of research investigating the specific determinants of household spending and choice of pre-tertiary education under the Free Education Policy in Ghana. This gap points to

a need for a nuanced examination of factors that guide parental decision-making within the context of this policy.

Second, the lack of exploration into potential hidden costs associated with the Free Education Policy presents a significant gap. Existing studies often overlook the possibility that while tuition fees might be eliminated, other ancillary expenses could persist, impacting households' choices and expenditures.

Third, the literature tends to treat education as a uniform concept, with limited attention to the nuanced differences between public and private institutions. This gap is particularly notable in studies like that of Iddrisu, Danquah, and Quartey (2017), which focus on overall education expenditure without differentiating between the two educational sectors.

The current study seeks to address these gaps by examining the predictors of household spending and choice of pre-tertiary education under the Free Education Policy in Ghana. Through an in-depth investigation of factors such as perceived quality, accessibility, child security, economic status, and socio-demographic characteristics, the study aims to provide a comprehensive understanding of the drivers behind parental decision-making.

Furthermore, the study's focus on the hidden costs associated with the Free Education Policy responds to the lack of research in this area. By exploring potential additional expenses that households may bear despite the policy's intentions, the study offers a more holistic understanding of the financial implications of education.

Lastly, the study's differentiation between public and private education modes within the context of the policy sets it apart from prior research. This

approach recognizes that while the policy eliminates tuition fees in public institutions, households may still make choices based on various factors that impact their expenditures.

In conclusion, the current study endeavors to bridge gaps in the literature by offering a nuanced examination of the determinants of household spending and choice of pre-tertiary education under the Free Education Policy. By delving into specific predictors, hidden costs, and sectoral differentiations, the study aims to provide valuable insights for policymakers and stakeholders in Ghana's education system.

These empirical reviews were therefore used to formulate the following conceptual framework.

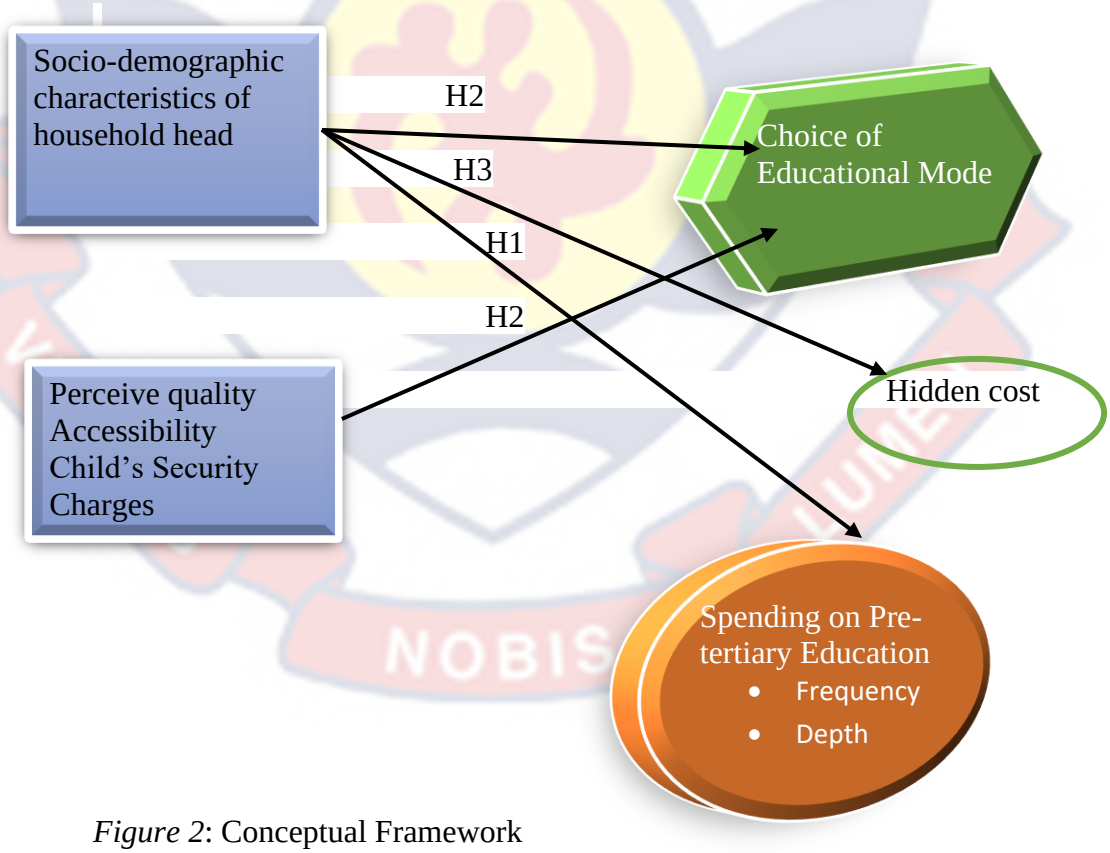

Figure 2: Conceptual Framework

Source: Author's Construct, 2023

The conceptual framework in Figure 2 indicates that socio-demographic characteristics of the household head (sex, education, economic status and location), perceived quality of schools, accessibility of schools and child's security, charges and other household level variables such as access to support in payment of expenses, payment option and family type influence the choice of educational mode and expenditure on education.

Household characteristics simultaneously drives choice and level of pre-tertiary educational expenditure; since other household expenses such as health, accommodation and feeding compete educational expenses for the same budget (Iddrisu, Danquah & Quartey, 2017). Hence, the choice between public (relatively cheaper) and private (relatively expensive) may differ across households with flexible budget and those with tight budgets. The flexibility of a budgets, however, depends on the size of the household, the income, employment and educational level of household head, as well as the cost of living in the location of the household (Donkor & Amikuzuno, 2011; Yeboah, 2018). The aforementioned household characteristics have been considered important factor in household educational expenditure of which pre-tertiary is not an exception (Iddrisu, Danquah & Quartey, 2017).

Aside the conditions of a household, the framework establish that other school factors may play significant role in the choice and level of educational expenses. For example, proximity of a school to household has direct implication on cost of transportation and perception of risk of parents and guardians for the ward's safety. Hence, the extent empirical literature suggested that school factors such as accessibility, safety, perceived quality of the school and economic or social status could explain the choice of pre-tertiary school as

well as level expenditure (Chowdhury & Synthia, 2020; Shabbir et al., 2014). Economic or social status refers to the fact that some parents or guardians may choose a particular model of school and spend more because it adds to their social stratification in the community. Since the end product of education is the performance as an outcome variable; perceived quality of a school in terms of human resources, infrastructure and past academic success may well motivate the choice for a particular school or model of education.

The core tenet of the framework was that a combination of household characteristics and school factors determines the level of pre-tertiary expenditure as well as the choice of schools for wards. The consideration of both factors in a single study was another contribution made by the current study to the empirical literature.

Chapter Summary

The chapter presented the theoretical perspectives and the empirical review of the related literature. The empirical evidence in Ghana suggested that the issue of drivers of educational expenses have been addressed extensively at the macro level and at the aggregated level of all level of education. The segregation into the respective level of such as pre-tertiary is missing even though the structure and demands of each level differ in the Ghanaian context. Also, datasets from national survey are mostly used which fail to deal with other equally important drivers of choice between public and private schools such as quality, security and performance due to their absence in the secondary datasets used. The current study sought to contribute by filling these gaps using both the national representative sample and complemented it with a micro survey of a metropolis.

CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter describes the methodological framework adopted in conducting the study. Specifically, it discusses the research design, the study population, the sampling procedure and the instrument used for data collection. Data collection procedure and the analysis of the data have also been discussed.

Research Paradigm

The research is a cross-sectional study that used both secondary and primary data. It employed the pragmatic research philosophy within the framework of neoclassical economics. The pragmatic research paradigm combines the ontological positions of both objectivists and the constructionists. Hence, the tenets of both the positivist and the interpretivist were followed either in isolation or concurrently. The positivist epistemological position proceeds from the ontological position of the objectivist; which posits that social reality exist and could be objectively measured in a value free manner (Saunders, Lewis & Thornhill, 2012). That is, the construct of educational expenditure at the pre-tertiary level in Ghana exist and could be objectively measured by an unbiased research following the prescribed approaches. The position of the positivist was consistent with the current study in the areas of incidence of educational expenditure as well as the depth of educational expenditure among Ghanaian households. Following the positivist philosophy, it was possible to quantify incidence of educational expenditure in terms of probability and the depth in terms of actual monetary expenditure in terms of

Ghana cedis. Other issues such as choice were quantified on a Likert-type scale and analysed in terms of frequencies and percentages.

An aspect of the study, however, required a switch from positivist philosophy to interpretivist philosophy due to the nature of the variables. The interpretivist philosophy questions the objectivity of social reality; and instead proposed a subjective aspect of it (Kaushik & Walsh, 2019). That is, an objective estimate of social reality in a value free environment is almost always impossible; since researchers may have their own prejudices (Kaushik & Walsh, 2019). Hence, they proposed a subjective analysis of the qualitative responses directly from the respondents rather than their quantification (Saunders, Lewis & Thornhill, 2012). This position was consistent with aspect of the current study such as reasons for switching wards between public and private schools which inadvertently may differ from one household to another. It was, therefore, necessary to adopt the interpretivist position and allow parents or guardians to give their own reasons in an open statements, that were later put into themes for in-depth analysis. The decision to fall on either positivist or interpretivist philosophies based on their appropriateness to the context is referred to as the pragmatic paradigm; which was adopted for this study.

Research Design

This study used an explanatory research design as its investigative framework. This methodological technique investigates the underlying causes of events when information is limited. Its major goal is to improve understanding of a subject by determining the mechanisms or reasons underlying a given phenomena and forecasting future incidents. The motivation for using this research design related to the study's goal of scrutinising and

outlining the effects influencing household heads' choice of educational institutions and allocation of financial resources for their dependents' education. The explanatory research design is focused on eliciting the underlying causes. It encompasses an investigation into the essence (WHAT), elucidation of the mechanisms (HOW), and clarification of the rationales (WHY) governing a spectrum of circumstances or occurrences, rather than focusing on a singular instance of a problem (George, 2019). The explanatory design is considered appropriate for the study because the main focus of the study was to examine why parents and guardians spent outside the public school system in Ghana despite the state efforts to make public schools affordable. It also seeks to explain why some parents and guardian may consider their expenditure under the current free SHS to be prohibitive compare to the previous system. The descriptive survey design also allowed the researcher to cover the wide study area and to collect data on more respondents for the analysis (Matyas & Kamargianni, 2019).

Moreover, the research approach used was both quantitative and qualitative (i.e. a mixed method). The mixed method approach in line with the pragmatic paradigm which was adopted to allow the option to use both quantitative and qualitative research approach to address the stated objectives (Creswell, 2014). The issues of educational spending and school choice by households have issues that require rigorous statistical hypotheses testing to allow for generalization to the population of household heads in Ghana, while other areas require in-depth qualitative enquiry that can explain the situation of the target population better (Saunders et al., 2012). Hence, the study triangulates the quantitative and qualitative research approaches for some

objectives and for some used the two approaches in isolation. The triangulation was concurrent since the quantitative and qualitative data were gathered and analysed together.

In terms of hidden cost and choice of school, the study used cross-sectional, descriptive, explanatory and interpretive phenomenological designs to guide the conduct of the study. The major goal of the collected cross-sectional survey data was to depict a population, circumstance, or phenomenon at a certain point in time (Spector, 2019). Cross-sectional data investigations entail the systematic collection of information about the existence or magnitude of one or more variables of interest—be it exposure or outcome—as they manifest within a specific population at a specific point in time (Aggarwal & Ranganathan, 2019). According to Aggarwal and Ranganathan (2019), "Cross-sectional studies are usually simple to do and inexpensive, usually do not pose much of a challenge from an ethics viewpoint" (p.3). The cross-sectional data is, however, prone to selection bias or measurement bias, which can be minimized by combining it with the descriptive survey design to cover a wider area and range of respondents (Longman et al., 2019). This study adopted the descriptive survey design, in terms of geographical scope, alongside the cross-sectional design to mitigate the possibilities of bias in the quantitative outcomes when cross-sectional designs are used in isolation.

The qualitative study followed an interpretive phenomenological framework. This methodology provided the chance to understand the fundamental nature underlying certain observed quantitative responses and to explore further explication based on the participants' actual experiences. This strategy allowed respondents to share ideas gleaned from their lived

experiences, promoting a thorough understanding of the basic issues at hand. (Zou et al., 2019). The mixed method approach involved the collection of primary quantitative and qualitative data through representative household surveys. The aim of the mixed design was to ensure complementarity between the qualitative and quantitative research methods (Escolano-Pérez et al., 2019). The combination of the cross-sectional and the descriptive survey design was therefore appropriate for the wide scope of the study area.

Study Area

The study had both national and regional coverage based on the research objective. The scope of the first two objectives was on the entire country; hence the entire country (Ghana) was the study area. The GSS zoned the country into seven localities that transcends regional boundaries to constitute the study area for the collection of the GLSS7 survey data for a representative nationwide data. The locations were Accra, Coastal Urban, Forest Urban, Urban Savannah, Rural Coastal, Rural Forest and Rural Savannah. Hence, Accra was cut out of the other parts of the Greater Accra Region to form a block due to its uniqueness as going beyond a metropolis and nearer to a megapolis. The current study followed the GSS classification to extend its analysis into the Accra zone (Accra Metropolitan Assembly-AMA) for primary data collection to further examine the aspect of the study objectives for which data was not readily available in the GLSS7 survey dataset.

The Accra Metropolitan Assembly (AMA) is one of the twenty-six (26) districts, municipalities and metropolis in the Greater Accra Region. The AMA currently has three sub-metros which are the Ablekuma South Sub Metropolitan District Council, Ashiedu Keteke Sub Metro and Okaikoi South

Sub Metro. The Ablekuma South Sub Metro stands as the most expansive within the AMA and demarcates its borders with Ablekuma Central, Ablekuma North Municipal Assembly, and Ashiedu Keteke Subdivision. Based on a 3.1% projected growth for the Greater Accra Region, the population of Ablekuma South sub-metro was projected to be 315,051 in 2018 (Babah, 2020) pending the district population breakdown from the Population and Housing Census 2021. The principal economic activity prevailing in the Sub-Metro primarily revolves around fishing and fish mongering due to the predominant presence of communities along the coastline. Furthermore, this region accommodates various commercial establishments such as supermarkets, financial institutions, petrol stations, educational facilities, and hotels. Notably, it features two primary markets, namely Dansoman Market and Korle Gonno, alongside several educational institutions, hotels, banks, petrol stations, and supermarkets. The Sub-Metro encompasses significant districts like Korle Gonno, Korle–Bu, Chorkor, Mamprobi, and New Mamprobi, which served as enumeration areas during the data collection phase in the current study.

The Ashiedu Keteke Sub Metro's territorial boundaries include the Osu Klottey Sub Metro to the west, Ablekuma South to the east, Ablekuma Central to the north, and the Gulf of Guinea beach to the south. Despite the fact that statistics from the Population and Housing Census (PHC) in 2021 are still being collected, the officially documented population remains at 143,768 as of 2018. This Sub-Metro is home to the Greater Accra region's Central Business District (CBD), which serves as the epicentre for substantial commercial endeavours within the (AMA). That is, major markets in the Metropolis such as Makola, Agbogbloshie, Kwasiodwaso markets among others are all located

within the Sub Metro. Aside from commerce, major economic and social services activities in the sub metro include education, banking, Hospitals and light industrial activities among others. The major suburbs include Ngleshie, Mudor, Kinka, Nmlitsagonno, Amamomo, Korle Wonkon and Korle Dudor.

The territorial demarcation of the Okaikoi South Sub Metropolitan District Council aligns its borders with Okaikoi North to the North, Osu Klottey to the South, Ablekuma Central to the West, and Ayawaso West to the East. Its current population estimate in 2018 was about 148,897. The Sub-Metro main economic and social service in the Sub Metro includes education, commerce, banks, the Kaneshie Market, and health services. The major communities include Kaneshie, Bubiashie, Darkuman, New Fadama, and Avenor among others.

The AMA was selected because of the dominant private schools and extra classes within it (Brion, 2020). In the Greater Accra Region, most parents do enroll their wards in private classes and schools, of which AMA is the hot spot (Babah, 2020). Parents in these localities are also mostly fond of spending a lot on their wards' education due to the characteristics of their demography (Anderson, 2019).

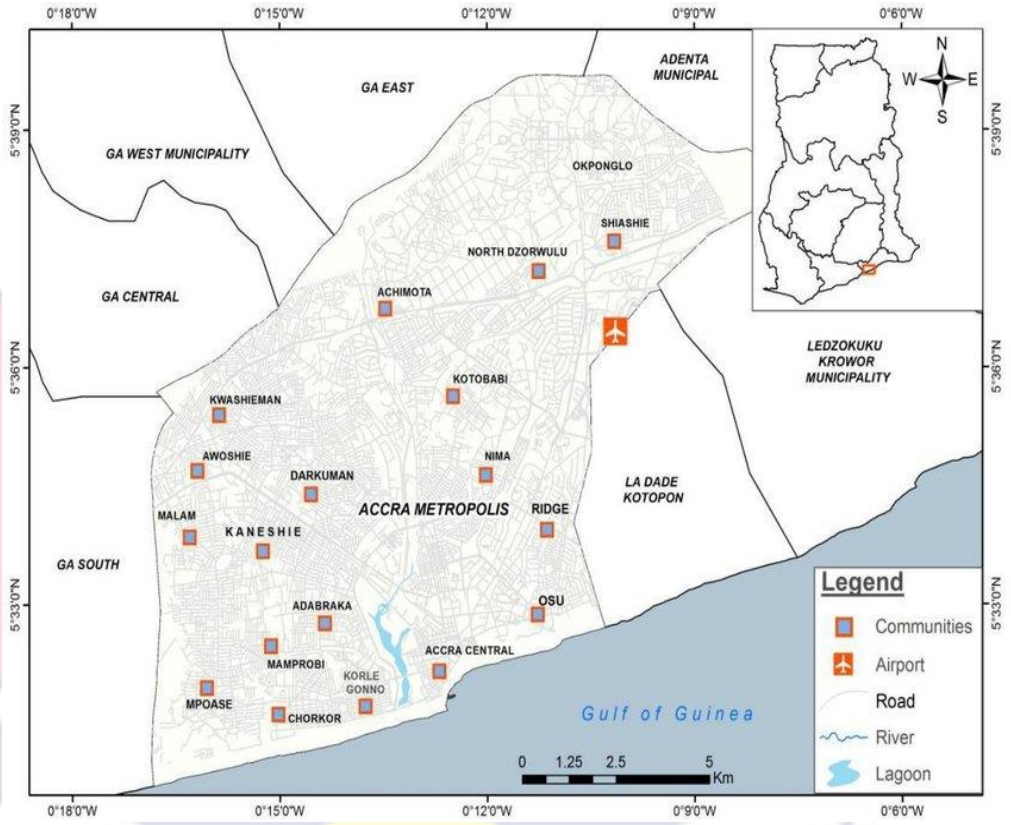

Figure 3: District Map of the Greater Accra Region show the position of AMA (Accra)

Source: AMA (2023)

Population

Though it was possible to determine the projected population of the study area to be 607,716 residents (Ablekuma South Sub Metro=315,051, Asiedu Keteke Sub Metro=143,768 and Okaikoi South Sub Metro=148,897); the actual population of the parents with wards in pre-tertiary was indeterminate. That is, the composition of households that spend on pre-tertiary is a dynamic one which has households exiting and entering at a high rate on annual basis. The best option was to use the sampling frame of the GSS for the GLSS7 which was conducted within the same period as the projected populations of the sub-metros. It was estimated that the GLSS has an effective population of 168 sampled households in AMA that had wards in public and

private pre-tertiary schools. Out of this sample, there were 51 households with wards in private schools, representing about 30.35% of the sampled households, and the remaining 117 (69.65%) had wards in public or quasi-public schools. The total sample size of 168 also represents about 27.81% of the 604 total sampled households from the AMA. Applying this proportion to the projected population of the Metropolis gives about 169, 006 household populations with wards in the pre-tertiary level. The target population of this study, therefore, was the household heads in the 169,006 household in AMA with wards at the pre-tertiary level. The accessible population consists of all the household heads present in the selected Metropolis during the period of the study.

Sampling Procedure

Krejcier and Morgan (1970) sample size determination table was used to trace the minimum sample size from the projected population. The minimum sample size according to the table was about 377 households for the projected population of 169, 006 which was expanded to 832 households for the final data collection. The practical sample size was increased to 832 to get enough representation for the household that were net private and public-school adopters, and to allow for the application of parametric tests such as regression analysis. This is because, as the sample size increases, the distributions of both public and private school adopters asymptotically become normally distributed and the estimated values become closer to the population parameters (Aggarwal & Ranganathan 2019; Greene, 2011; Tarima & Flournoy, 2019). Since all sample size determination formula gives theoretically minimum possible sample needed to ensure representativeness, it is a culture to increase the sample size to a sizeable number that the researcher can handle. The sample size was

therefore double increased from 377 to 832 respondents to ensure that a representative number could also be selected from each of the three Sub Metros in AMA as presented in Table 1.

Table 1: Distribution of Sample across Sub-Metros

Sub Metro	Projected population	Pre-tertiary Population	Sample respondents
Ablekuma South	315,051	87,631	431
Ashiedu Keteke	143,768	39,988	197
Okaikoi South	148,897	41,415	204
Total	607,716	169,006	832

Source: Survey Data, (2023)

The ratio of public to private schools in the GLSS7 was not followed in this study because the research had the chance to address the issue of the dichotomy of choice between public and private by households since in reality a household may adopt both systems. The study gathered data on four different categories of household as Private only, Public only, More Private and More Public. The dichotomy was later defined as the net adopters of either public or private which defines a household that prefers a particular type to the other and hence can be said to be adapting the other out of difficulty.

The final household heads were selected based on the purposive but incidental sampling technique. That is, households with wards in pre-tertiary schools at the time of the study were purposively sampled but among the population of pre-tertiary households no preference was given to any particular households. That is, respondents were incidentally sampled from each sub-metro until the required quota was attained before the research shifted camp into the other sub-metro until the total sample of 832 household heads was

effectively obtained. If a given questionnaire was not well filled a new household was sampled from the affected sub-metro and category of school to replace the lost respondent. This was possible because the study area was clustered to allow for easy movement among the three-sub metro once the researcher camped in one of them (Ablekuma South).

Data Collection Instruments

The study used a combination of primary and secondary data sources. The secondary data served the aim of addressing the study's initial goal. The dataset used was derived from the Ghana Living Standards Survey round seven (GLSS7), which was conducted by the Ghana Statistical Service from 2016 to 2017. The Ghana Living Standards survey is a nation-wide study, serves as a thorough home assessment instrument, providing insights into the socioeconomic realities of Ghanaian families. Its scope includes, among other things, demographic profiles, educational attainment, health indicators, work status, time allocation, migration trends, housing circumstances, and household agricultural activities. This survey is notable for being the most latest and thorough household survey done in Ghana.

The enumeration phase of the Ghana Living Standards Survey Round 7 lasted a full year, from October 2016 to October 2017. This comprehensive survey has a countrywide reach and a sample size of 15,000 carefully selected households from 1,000 specified enumeration zones. The survey's sample strategy and methodology included the use of a stratification technique, with geographical considerations, ecological zones, and residential location serving as key control elements. The enumeration regions or clusters were separated

into three basic ecological zones: coastline, forest, and savannah, which were then further differentiated and analysed into rural and urban strata.

The Ghana Statistical Service keeps a detailed inventory of enumeration regions acquired from previous censuses. These enumeration regions served as the primary sample units, with homes within each enumeration area serving as secondary sampling units. The survey used stratified random sampling in two stages. The enumeration areas were initially stratified based on the ten administrative regions that existed during the survey period, and then based on the rural and urban distinctions within these regions. A proportionate probability strategy was used to allocate selected enumeration areas throughout the ten regions based on population size.

The use of GLSS 7 data was intended to identify the factors impacting household expenditure on pre-tertiary education in Ghana. This database provided in-depth information into educational topics involving both youngsters and their parental figures. The educational data set included a wide range of general education information, such as school attendance and maximum educational attainment. It also provided deep insights into educational paths, highlighting important characteristics such as highest earned certification and distinctions between school types (i.e., private versus public institutions).

The study collected information on the educational costs sustained by households for each individual enrolled in school during the previous twelve months. Questions about education generally centred on full-time formal educational activities and were aimed at individuals aged 3 and up, given that the national educational structure requires children to begin pre-schooling at the age of four.

A well-developed structured questionnaire was the primary method used to obtain empirical data. This instrument was painstakingly designed to translate the research objectives into precise queries aimed at extracting the necessary data for further analysis. In designing the questionnaire, the researcher had access to questionnaires used in similar surveys Oseni et al., (2018); Mortimore and Stone (1991); Gilano and Hailegebreal (2021); Rotanova et al. (2021); Awale (2021) and Qasim et al. (2021) that were adapted, and also questions specific to the objectives of this study were then added. Both fixed alternative and open-ended questions were used. A sample of the questionnaire is in Appendix 1. The structured questionnaire addressed objective two and three of the study. The information was obtained by allowing the literates to fill out the questionnaire themselves while the non-literates were assisted by the research assistant. The questionnaire had 60 items in all.

The questionnaire had three main sections (A-C). Section A of the questionnaire was designed to examine the demographic and socioeconomic factors. It contained questions on the background information which dealt with items like the gender of household head, educational qualification of household head, household type, family size and number of children in pre-tertiary schools under your care. This same section contained the economic activities of the respondent. This includes employment status, earnings among others. The purpose of this section was to provide background information about the respondents whose views were going to be sought during the study. 15 questions were asked under this section of which 7 were open-ended for the respondents to provide their own responses and 8 multiple choice types where household heads responded by ticking.

Section B contained 5 variables on the Characteristics of schools which are Perceived Quality of schools, Child's Security, Accessibility of School and Economic Status. In all, 22 questions were asked**.** The instrument was structured to measure the perceived intrinsic and extrinsic choice of school on a 5-point rating scale. Household heads were asked to mark (✓) in the designated column beside specific statements, indicating the importance they assigned to the criteria influencing their choice of a school for their dependents or children. No importance (0), small importance (1), moderate importance (2), major importance (3), and highest importance (4) were assigned to the scale responses.

Finally, section C of the instrument was designed to elicit households' thoughts on increased educational expenses. It consists of 20 components provided in several formats, including a rating scale, open-ended questions, and yes/no questions. The rating scale items were developed using a 5-point rating scale with the following categories: strongly agree (1), agree (2), moderately agree (3), disagree (4), and strongly disagree (5). The yes-or-no approach allowed respondents to tick (✓) their comments in the column that best reflected their opinions. Similarly, multiple-choice answers included choices for respondents to tick (✓) the choice that best expressed their thoughts. Respondents were given the option to provide personalised responses in a few cases.

Validity and Reliability Test of the Instrument

The degree to which a test accurately analyses the target measure is referred to as its validity. According to Oliver (2010), validity is an essential requirement that applies to all study types. It is not a fixed idea that can be

assessed by a single statistical analysis; rather, it is a fundamental feature that includes the entire study effort (Dudovskiy, 2018).

This study sought to assure validity at several stages, beginning with the careful selection of instruments and progressing through the phases of data collection and analysis. As mentioned by Rotanova et al. (2021) and Subedi (2021), the questionnaire and its specific interrogative form were adopted in accordance with validated inquiries found in established literature, hence improving elements such as internal, content, and construct validity. According to Oliver (2010), the use of statistical techniques capable of handling ordinal variables, such as logistic regression, and the use of a 95% significance level in hypothesis testing were deliberate choices made to improve the statistical and external validity of the study's findings. Furthermore, a triangulation approach integrating both quantitative and qualitative methodologies to address the same research question was used to strengthen multiple aspects of internal and external validity, allowing for the potential generalisation of findings to the larger study population.

To establish content validity, the instruments were given to an expects in the field to scrutinize and incorporate in them any corrections or comments they offered. This was done to ensure that the content of the instruments is based on the content of the literature (Zuilkowski et al., 2018). Five Lecturers (staff) responded to the questionnaire. Participants were advised to thoroughly evaluate the questionnaire items and highlight any instances that they believed to be difficult or unclear. Additional pages were provided alongside the questionnaire to allow responders to provide feedback on any errors or inadequacies they discovered. All feedback, including comments,

recommendations, rectifications, and uncertainties, was carefully reviewed and integrated into the instrument's final iteration's refining.

Pre -Testing of Instrument

The questionnaire was drafted several times. The initial drafts were presented to supervisors for validation on the representation of all stated objectives. The draft was then pre-tested in a pilot survey at Kasoa. Kasoa although a city in the Central Region of Ghana, is the closest City to Greater Accra and shares almost every characteristic with the residents and population of Accra. That is, the reason Kasoa is not part of Greater Accra could at best be linked to land ownership which place the city in the Central Region of Ghana. However, it a fact that a significant number of households in Kasoa work in Accra and some even schools in Accra which made it appropriate choice for pilot testing of the instruments. The questionnaire was administered to 50 household heads to assess their understanding of the questions and their reactions. The questionnaire was then revised and a final draft was prepared.

The importance of conducting a pilot test in establishing the feasibility of the study cannot be overstated. It also provided an essential opportunity to assess the suitability of the data collection tool. According to Fraenkel and Wallen (2000), pilot testing of the questionnaire revealed uncertainties, such as poorly articulated questions that might be incomprehensible, and provided insights into whether the instrument was clear to the respondents. The instrument’s reliability was tested using the Cronbach alpha. An overall Cronbach alpha value of 0.86 was obtained which translates to good on the Cronbach scale. This goes to suggest that the instrument was internally consistent and therefore reliable to measuring the underlying constructs. The

individual Cronbach alphas for the respective constructs in the quantitative analysis were presented in Table 2.

Table 2: Reliability Test Using Cronbach's Alpha

Construct	Average interitem covariance	Number of items in the scale	Scale reliability coefficient
Perceived Quality	0.4696756	8	0.8496
Child's Security	0.4429747	5	0.8163
Accessibility	0.1754	8	0.8016
Economic Status	0.3730599	3	0.7681
Hidden Cost	0.4900713	4	0.8517

Source: Author's Construct (2023)

Cronbach's alpha (α) stands out as an easily calculable statistic for analysing internal consistency, enabling easy interpretation and requiring minimal computation time, according to Namdeo and Rout (2016). Cronbach's alpha values near 1.0 suggest more internal consistency among scale items. George (2019) and Namdeo & Rout (2016) provide a framework: if the alpha value exceeds 0.9, the consistency is considered Excellent; between 0.8 and 0.9 is considered Good; between 0.7 and 0.8 is considered Acceptable; 0.6 to 0.7 is considered Questionable; 0.5 to 0.6 is labelled Poor; and values below 0.5 are labelled Unacceptable (Namdeo & Rout, 2016). Based on these classifications, the items on Perceived Quality, Child's Security, Accessibility of school and Hidden Cost were classified as good. The measurement of the items on economic or social status was acceptable in measuring the construct of economic or social status.

Data Collection Procedure

Data collection began after the research methodology was approved, ethical clearance was obtained, and necessary permits were obtained. Before beginning data collection, ethical clearance was sought from the University of Cape Coast's Institutional Review Board in order to streamline the instrument administration process. A letter of introduction was also obtained and given for approval to the AMA Sub Metro Assembly Head Office, which was sanctioned by the Head of the Department of Business and Social Sciences Education. Following the approval procedure, contact was made with the families to solicit participation. Household heads that demanded identifications and authorizations were shown to be given the chance to view the approval before their consent was sought for the data collection.

Thirteen research assistants were recruited from the M.Phil. in Education first-year students and trained to assist in the data collection. They were trained and given practical experience by involving them in the pilot testing survey; which made them familiar with the content of the questionnaire before the actual data collection period. The data collection was done through house-to-house administration of the questionnaire to the household head either in the early morning or late evening when the heads could be accessed. In some cases, it became necessary to trace some household heads to their work place for questionnaire collection. Where the household head, although have gone through the questionnaire and claim to have filled it but cannot find it, a new set is offered but he or she is pleaded to fill and return it immediately. The contact of each household head was taken at the point of distribution of the questionnaire which greatly aided the response rate. Since the final sampling

procedure was accidental, the poorly filled questionnaires that could not be traced were replaced by a similar household in terms of gender and school type in the same community.

The response rate was therefore 100% after correcting for poorly filled and those that could not be traced. Together, 7 questionnaires were replaced for being poorly filled, and refusing to respond to major questions, and 5 were replaced for the inability to retrieve the questionnaires. The training given to the field assistants on the content of the questionnaires enabled them to answer the queries of the respondents to ensure valid responses without any biases.

Data Analyses Tools

The secondary data was managed with the STATA statistical software; which was the original software in which the data was retrieved from the Ghana Statistical Service. The variables were recoded and generated based on the operationalization adopted in the study. The quantitative primary data from the mini-survey of Greater Accra were coded and entered into the excel spreadsheet and subsequently transferred into STATA statistical package for further management and analysis. The analysis used both descriptive and inferential statistics such as frequencies, percentages, mean, standard deviation and regression analyses. The tools of data analysis for each research objectives have been presented after the discussion on the theoretical model specification.

Theoretical model specification

To find out the factors which determine household choice of pre-tertiary education, the researcher adopted the model of Nishimura and Yamano (2008). Drawing on prior research on expenditure and school selection (e.g., Glewwe

and Jacoby, 1994; Alderman et al., 2001; Glick and Sahn, 2006), it is proposed that parents derive satisfaction from their children's human capital, which is influenced by their schooling, as well as other goods and services consumed. When given the option of enrolling in public school, private school, or not enrolling at all, parents choose the option that maximises utility. Let Y_i represent household income and P_{ij} represent the costs incurred by the household for selecting education option j, including fees, direct expenses, and the lost value of the child's productivity in household or business activities if j is chosen. Denote S_{ij} as the increase in the child's human capital as a result of a year's enrollment in a given schooling option. As a result, the following is a fundamental formulation of parental utility:

$$V_{ij} = a_0 S_{ij} + a_1 f(Y_i - P_{ij}) + e_{ij} \quad (5)$$

Where, Vij is the utility function, e_{ij} is a random disturbance term, and f (.) is a function of the household expenditure net of schooling, the increase in human capital S_{ij} is expected to vary across school options primarily because the quality of the alternatives may differ. Since this change is not directly observed, $a_0 S_{ij}$ is replaced by a reduced form equation for the utility from human capital:

$$a_0 S_{ij} = \tau Q_j + \delta_j + X_i + n_{ij} \quad (6)$$

where Q_j is a vector of school quality variables, and X_i is a vector of observed household and individual characteristics. Many of these factors affect utility both through the production of human capital and through the direct effects of preferences for schooling or human capital. Substituting (6) into (5) yields:

$$V_{ij} = \tau Q_j + \delta_j + X_i + a_1 f(Y_i - P_{ij}) + \varepsilon_{ij} \quad (7)$$

where $\varepsilon_{ij} = n_{ij} + e_{ij}$. The household chooses (i) the schooling option j that yields the highest utility.

The complementarity between choice and expenditure was explicit in the model since the kind of choice made have implication for the level of pre-tertiary expenditure. The model posits that though income level or expenditure matters to household's choice but other equally important factors comes to play when making final decision on the type of pre-tertiary school of a ward at the basic school level. Hence, parents and guardians maximised their utility from their ward's pre-tertiary educational expenditure subjects to constraints which are both real and apparent. The current study examines the drivers of the pre-tertiary expenditure in Ghana and the case of choice factors in Greater Accra Region of Ghana.

Objective One: Determinants of Households' Spending on Pre-tertiary Education

This objective examined the predictive variables of households' pre-tertiary educational expenditure in Ghana. The study used the Ghana Living Standard Survey seven (GLSS7), which is the most recent nationwide survey on Ghana released in 2018. The chapter approached the issue of pre-tertiary educational expenses from two perspectives as a major contribution to the literature. The two perspectives were in terms of the operationalisation of household's pre-tertiary expenditure as a dependent variable.

The first operationalisation was in response to the question on how many households of a given independent variable spend on pre-tertiary expenditure in Ghana. This categorisation implies that a household head that spends GHS100.00 has equal weight as a household that spend GH1,000.00 on pre-tertiary education when they both answer yes. This type of operationalisation captures the frequency or incidence of pre-tertiary

educational expenditure but fails to capture the actual depth of the expenditure. The second operationalisation of pre-tertiary was done in terms of the actual income expenditure on pre-tertiary expenditure measured in terms of Ghana cedis. The two operationalizations resulted in two research question stated as:

1. What factors drive the incidence of households' expenditure on pre-tertiary education in Ghana?
2. What factors influence the depth of household expenditure on pre-tertiary education in Ghana?

The two research questions were examined on the same independent variables; and hence followed the same theoretical and empirical model specifications but different estimation techniques.

Theoretical OLS and Logistical model specifications

The theoretical model begins with the assumption that Pre-Tertiary Education Expenditure (PTEE) is the function of household-specific characteristics (HHSC), choice factors (CF) and some control variables (CV) specified as: $PTEE_i = f(HHSC_i, CF_i, CV_i)$ ……(8).

The choice of appropriate link function depends on the definition and distribution of the dependent variable PTEE. This study adopted two separate measures of PTEE which results in the two theoretical model specifications.

The ordinary least squares (OLS) model is the traditional cross-sectional regression that assumes a continuous unbounded dependent variable. As a parametric test, the OLS model must obey the classical linear model assumption including normality. To ensure normality of the educational expenditure, which had a wide range and it is skewed, the natural logarithm of the expenditures were taken. The model in equation (8) was transformed into a log-normal model

for which the coefficients in the empirical model in equation (11) were interpreted as percentage point changes. The robust standard error were used to control for the issue of heteroskedasticity found with the initial estimations. The model did not suffer from omitted variables bias and hence was estimated with the OLS estimation methods.

The second operationalisation of PTEE was in a dichotomy as whether a household spent on pre-tertiary education (1) or not (0). This operationalisation produced a binary dependent on a variable whose distribution violates the classical OLS assumptions such as the need for the dependent variables to be continuous and measured in an interval-ratio scale. Normality could not be guaranteed since the values cluster at 0 and 1. Hence the OLS model could not be specified for the model in equation (11) since the dependent variable in equation (8) needs to be adjusted further. To address the challenge of 0 and 1 clustering, a link function was needed to transform the outcomes into probability such that the outcome shall be spread in the range of 0 to 1 inclusive. Though an appropriate link function (probit or logit) creates a king of a continuous variable within the range of 0 to 1, the outcome is still bounded and could not be estimated by an OLS estimator. Hence, the logistic regression model was used since it was consistent with all the post-estimation analyses such as predictive margins and its plots needed for further analysis. If the explanatory variables are denoted by X, then the typical logistic model could be specified as: $\frac{\pi_i}{1-\pi_1} = e^{\beta_i X_i}$……..(9)

Where π is the probability that a household spent on pre-tertiary education within the study period and 1-π is the complementary probability. The fact that β's are exponents indicates that the probabilities π are not linear in the

parameters which was another violation of an OLS assumption (Greene, 2000). The natural logarithm of equation (9) was taken to give:

$$ln \frac{\pi_i}{1-\pi_1} = \beta_i X_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(10)$$

The transformation in equation (10) proves that though the odd ratios are not linear in the marginal effects of β's; the log-odds ratios are linear in terms of the β's. The final model was, therefore, interpreted in terms of the odds ratio which is considered straight forward to interpret and more intuitively appealing to understanding (Long, 2016). Based on equation (10), the empirical model was estimated in equation (11).

Empirical Model Specification:

The empirical model for determinants of pre-tertiary expenditure in Ghana was specified as in equation 11:

$$PTEE_i = \alpha + \beta_j X_i + e_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(11)$$

Where, PTEE is the Pre-Tertiary Educational Expenses which measures 1 if the household spends on PTEE and 0 otherwise, or measures as the log of pre-tertiary educational expenses in cedis.

The first definition of PTEE was specified using the logistic regression model and estimated using the maximum likelihood estimation procedure. That is, the dichotomous variable that resulted from the first categorisation demands either the logistic or probit model for the estimation (Chiang et al., 2020; Fenta et al., 2020; Pääkkönen, 2020). However, the logistic regression model was chosen over the probit model because of the ability of the logistic to support a number of post estimation tests such as predictive margins and margins-plot. The predictive margin means were used for some interactive effects among the

independent variables that made the logistic regression model ideal for the estimation.

The Ordinary Least Squares (OLS) estimation method was used to estimate the second model. While the actual costs variable did not have a normal distribution, the logarithmic transformation of this variable had a normal distribution and satisfied all other OLS conditions except homoskedasticity. As a result, to correct the potential violation of the homoscedasticity assumption, robust standard errors were used. Furthermore, the OLS model supported the prediction margins for interaction effects.

Objective Two: Factors that Determines Household Choice of Pre-Tertiary Education School in Ghana

This analysis also used the same secondary dataset as objective one (GLSS7) to examine the major drivers of households' choice between public and private schools at the pre-tertiary level in Ghana. The analysis was purely quantitative and used logistic regression along with the predictive marginal probabilities for interactive effects. The choice variable which was a dummy dependent variable was coded as 1 for households that have wards in private schools and 0 for those with wards in public or quasi-public schools. Hence, the public schools were used as the reference category to estimate the probability that a household in Ghana would prefer to have the ward in a private school as against public schools. The empirical model was estimated as in equation (12):

$$SC_i = \alpha + \gamma_j CF_i + \rho_j HC_i + \sigma_i HHC_i + e_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (12)$$

Where γ is the vector of slope coefficients for Choice Factors (CH) such as proximity, expenses and incidence of fees payment, ρ is the vector of slope coefficients of Household unique characteristics (HC) such as household size,

location and financial inclusion; and σ is a vector of the slope coefficients of Household Head Characteristics such as marital status, education level, age and gender of the household head. The estimation technique followed the Maximum Likelihood estimation technique just as in the case of Objective One.

Definition and Measurement of variables

The dependent variable is education expenditure

Table 3: Definition and Measurement of Variables

Variable	Definition and measurement of variables	Apriori Expectation
Education expenditure	Household spending on pre-tertiary education in cedis	-
School Type	Public (0) or Private (1)	
Charges	Total Charges (Registration, Examination, Transportation, etc.	+
Incident of Fees payment	Parent (0), Supporter (1) and Self (3)	+/-
Proximity	Distance of school from household (in km)	-
Education of HH	Formally educated (1) or not (0)	+
Age of HH	Age of the household head in years.	+
Age square	Square of the age of the household head in years.	-
Marital status	Household head marital status and is =1 if she is not married =2 if she is married/cohabiting	+
Location	Location of the household head	+/-
Household size	Total number of family members.	+
Gender	Male (1) and Female (2)	+/-
Financial Inclusion	Included (1) and Not Included (2)	+

Source: Author's Construct (2023)

The exploratory factor analysis was also conducted to test for the Common method biased in the observed aspects of the respective constructs in

the primary data. The results for the four main constructs (Quality, Child Security, Accessibility and Economic Status) were estimated; and the factor loadings suggested that none of the components accounted for more the 50% of the any of the constructs (see Appendix C). According to Rodríguez-Ardura and Meseguer-Artola (2020), the issues of common method bias is less of a concern when none of the factor loadings exceeds 50%.

Objective Two: Factors that Drives Household Choice of Pre-Tertiary Education in the Greater Accra Region?

This objective was a triangulation of data for Objective Two in terms of Choice Variables. That is, a number of important choice factors for pre-tertiary schools in developing countries such as Ghana were not readily available in the secondary data source used. Hence, the study sought to address the shortfall by assessing the role of such variables in the choice decision in Ghana using the primary data collected from the AMA Metropolis in Ghana. Two aspects of choice were also considered under the objective; which was the choice factors and preference between public and private schools with their qualitative reasons for their choice. The choice factors used in the context of this objective referred to factors that household heads consider before settling on a choice of pre-tertiary school for their wards. These factors were assumed to be irrespective of school type as either public or private; since they come to play when considering the choice between two private or public schools. The analysis was then extended to cover factors that influence the choice between public and private pre-tertiary schools. The analysis was referenced to choose of basic school (up to JHS level) since all parents with wards in SHS have made the basic school choice before or have an idea about it from the past. The SHS was not the focus

of choice in this study since the placement decision is centralised and parents have less control aside from selecting several possible schools for consideration. The analysis was both quantitative and qualitative. The quantitative analysis used both descriptive and inferential statistics such as percentages mean rating, confirmatory factor analysis (CFA) and logistic regression. The objective led to the following research questions:

1. What are the choice factors of pre-tertiary school in Greater Accra Region?
2. What factors explain respondents' school choice between public and private schools for their wards?

Empirical Model Specifications

After examining the descriptive statistics of the choice factors, the analysis was examined in the CFA framework as presented in Figure 4.

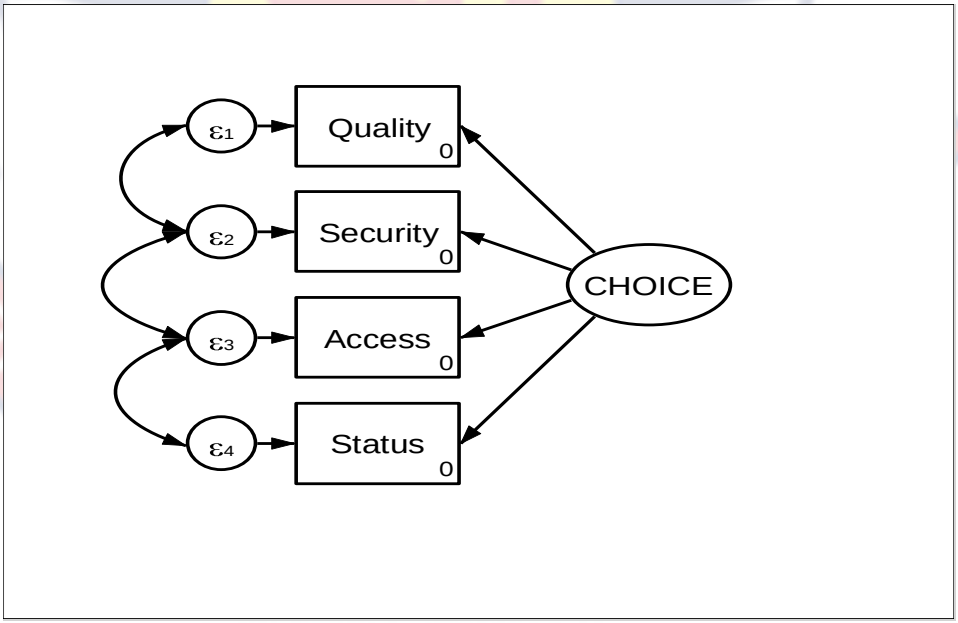

Figure 4: Confirmatory Factor Analysis (CFA)

Source: Author's Construct (2023)

In Figure 4, Choice was considered as a latent variable which has Quality, Security, Access and Status as observed aspects. Each of the observed aspect was initially predicted from an estimated CFA model using a set of items on the questionnaire that were meant to measure the construct in question. The estimation technique used for the estimation was the asymptotic distribution since the normality of the ordinal variables on the five-point Likert scale could not be guaranteed. The factor variable predicted from the CFA model was, however, continuous in nature and normally distributed; hence the maximum likelihood estimation (MLE) was used for the final model estimation as presented in Figure 4.

To estimates the model for the second research question, the logistic model was used to estimate the model in equation 13:

$$scht_i = \alpha + \beta_1 Quality_i + \beta_2 Security_i + \beta_3 Access_i + \beta_4 Status_i + \gamma_i BT_i + \varepsilon_i \ldots (13)$$

Where α is the intercept, β's are the marginal effects of choice factors, γ is the vector of slope coefficient of selected background traits (BT) of the household head or the household and ε is the stochastic error term. The background trait used included sex, marital status, employment status and educational level of the household head. Other household-level variables such as household size, access to scholarship at the pre-tertiary level, and family type were included in the background traits. Except for household size, the rest of the background traits were categorical.

The qualitative responses on the reason for the switch between public and private schools were group according to themes and analysed using the thematic content analysis. The responses were written by the respondent on the

open-ended question on the questionnaire; which minimised the transcription error of translating audio into text.

Objective Three: The hidden costs of pre-tertiary education and its drivers in the Greater Accra Region

This objective examined the hidden or extra cost the parents and guardians incur on their ward's education at the pre-tertiary level. The dependent variable was cost measure on the ratio scale in terms of Ghana cedis. The parametric test such as K-way ANOVA and its post-estimation test like predictive margins and contrast test were used for the analysis. The regression-based ANOVA was estimated on the cost and background traits such as choice of school, marital status, occupation, sex, family type and education level of the household head. Mean and standard deviations were used to examine the distribution of cost in the area of extra class, transportation and hostel fees or rents. Non-parametric test such chi-square test was used to examine the statistical dependency between selected categorical variables. The underlying K-way ANOVA model was specified as in equation 14:

$$Cost_i = \alpha + \rho_1 choice_i + \rho_2 Sex_i + \rho_3 Mar_i + \rho_4 Occup_i + \rho_5 Fam_i + \rho_6 Edu_i + \rho_i Schor_i + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots (14)$$

Though equation fourteen is a full cross-sectional model that was estimated with the OLS estimator, the analysis did not dwell much on the marginal coefficient for the marginal effects. This was due to the fact that several other factors that could explain hidden costs were missing in the available variables. The issue of omitted variables, however, has limited effects mean values of the categorical factors; hence the analysis was limited to the comparison of the predictive margin means. An approach similar to one-way ANOVA but which applies to

regression outputs, the Contrast Test, was used for the analysis as post-estimation test after the K-way ANOVA.

Justification of the Study Variables

The variables used in this study are conceptually and operationally defined in the following section. The choice of variables was purely informed by the literature. Educational expenditure and the choice of school were assumed to be influenced by individual and demographic factors, household characteristics and geographic location factors. As mentioned earlier the study was ingrained in the household production model based on which the variables below were chosen.

Household Demographic Data

Hsieh and Shen (2000) conducted a research to investigate the factors influencing parents decisions about their children's school selection. Their strategy entailed obtaining relevant data from the publicly available School Safety and Discipline component of the 1993 National Household Education Survey. Their research found that parental education levels and family income have a substantial impact on school choice preferences. Furthermore, their data revealed that White parents with better educational attainment and higher money favour private schooling, whereas Black parents with higher educational attainment but lower family income chose public schools.

Economic status of household

Donkoh and Amikuzuno (2011) investigated the factors that influence family education spending in Ghana. Their major goal was to identify the various elements that influence households' educational spending. Their primary focus was on the socioeconomic factors that influence households'

educational expenses. They used data from the 2006/2007 Ghana Living Standards Survey Round Five (GLSS-V) to determine that a higher level of education does not inherently imply a higher likelihood of educational expenditure. This determination was made by stratifying household heads based on their educational attainment, land ownership, vehicle ownership, and other substantial assets, as well as households with a greater number of school-aged children, those living in rural settings, those flagged for immediate assistance, and those located within the forested region.

Characteristics of schools

In a study conducted by Awale (2021), it was found that school choice by households was largely affected by the characteristics of the school. His main objective was to examine the effects of inter-school competition on student outcomes by using exogenous variation in the availability of private schools in Chile. His results suggest that greater and better characteristics of a school significantly increases school enrolment and raises both test scores and the productivity of schools.

Doss and Quisumbing (2020) revealed that parents who preferred private schools preferred quality criteria such as smaller school size, ethnic homogeneity, and a safer school environment. Parents who choose assigned schools, on the other hand, preferred to prioritise quality considerations such as location, average school size, and safety measures within the school environment.

Extra cost on education

According to a UNESCO's (2017) household survey, household expenditure on education constituted 46% of the government's public

investment in education, which accounted for 1.7% of the Gross Domestic Product (GDP) in Sub-Saharan Africa (SSA). In essence, for every US$100 funded by the government to the education sector, households contributed an additional US$46. Furthermore, the same survey revealed that, on average, 29.2%, 49%, and 44% of households' overall education spending in SSA were devoted towards primary education, Junior High School (JHS), and Senior High School (SHS), respectively.

Ethical Considerations

The study upheld ethical standards in research as much as possible. All secondary sources used were duly acknowledged and cited; while the primary data was conducted in line with the best practices in research. First, permission was sought from the Institutional Review Board (IRB), on the appropriateness of the research instruments for data collection; and approval was given before data collection. The respondent's consents were sought and assured of confidentiality and anonymity during data collection. Confidentiality was assured by avoiding any unique identifier of any respondents on the instruments; while data were kept under pass words always. The results were reported in all honesty just as they were obtained.

Chapter Summary

This chapter discussed the research methodology of the study. It also looked at the study area, population, sampling procedure and data collection instruments. Data collection procedure and data management as well as data analysis procedures were also looked at. Methods, as per every objective were also discussed to get a better perspective of the anticipated results.

CHAPTER FOUR

DETERMINANTS OF HOUSEHOLD SPENDING ON PRE-TERTIARY EDUCATION IN GHANA

Introduction

This session sought to examine the predictive factors of household expenditure on pre-tertiary education in Ghana. The estimations were done with the GLSS 7 dataset 2017 and the analysis was purely quantitative. The specific objectives were to:

1. Examine factors that drive the frequency of households' expenditure on pre-tertiary education in Ghana.
2. Examine factors that influence the depth of household expenditure on pre-tertiary education in Ghana.

Descriptive Statistics

This section presents the summary statistics of the key variables used to estimate the logit model. Figures 5 and 6 present the distribution of pre-tertiary educational (PTE) expenditure based on the respondent's characteristics. Figure 5 suggests that 2,838 respondents, representing 67% of those without formal education, spent on pre-tertiary education, whilst 5,798 respondents, representing 58.25% of those with formal education, spent on pre-tertiary education within the survey period. It was also observed that about 63.83% (4345 out of 6,807) of the respondents that were 'financially included' household heads spent on PTE, while 59.76% (4,184 out of 7,001) of the household heads who were not 'financially included' spent on PTE. About 63.13% (7,000 out of 11,088) of employed respondents spent on PTE, while 56% (1,636 out of 2,921) of those not employed spent on PTE. On marital

status, about 71.51% (6, 4121 out of 8,979) of the married household heads spent on PTE, while 44.04% (2,215 out of 5,030) of the unmarried households spent on PTE. Finally, about 63.38% (2,767 out of 4,366) of the female-headed household spent on PTE, while about 60.86% (5,869 out of 9,643) of male-headed households spent on PTE.

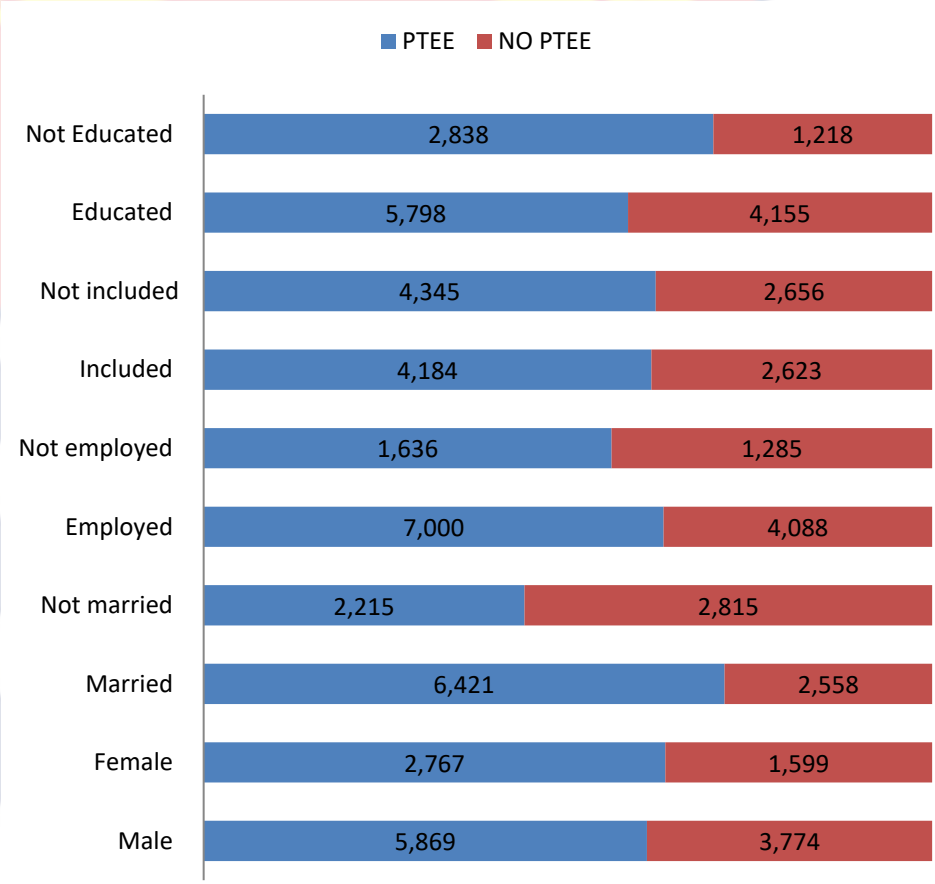

Figure 5: Frequency of Pre-Tertiary Educational Expenditure (PTEE) Based on Household Characteristics

Source: Author's Construct (2023)

Figure 5 presents the case of the seven blocks used by the GSS to identify a household location in Ghana. The results suggested that most households in rural Savannah (72.16%) spent on PTE, while about 64.99% of the households in the urban Savannah spent on PTE. About 61.85% of the

respondent in the rural Coastal areas and about 56.81% of the respondents in urban Coastal areas spent on PTE. Also, about 59.33% of the household heads in the rural Forest and 53.33% of the household heads in urban forest spent on pre-tertiary education (PTE). It was only in Accra that the number of households that spent on PTE was slightly below 50% of the households. That is, about 49.17% of the households in Accra spent on pre-tertiary education.

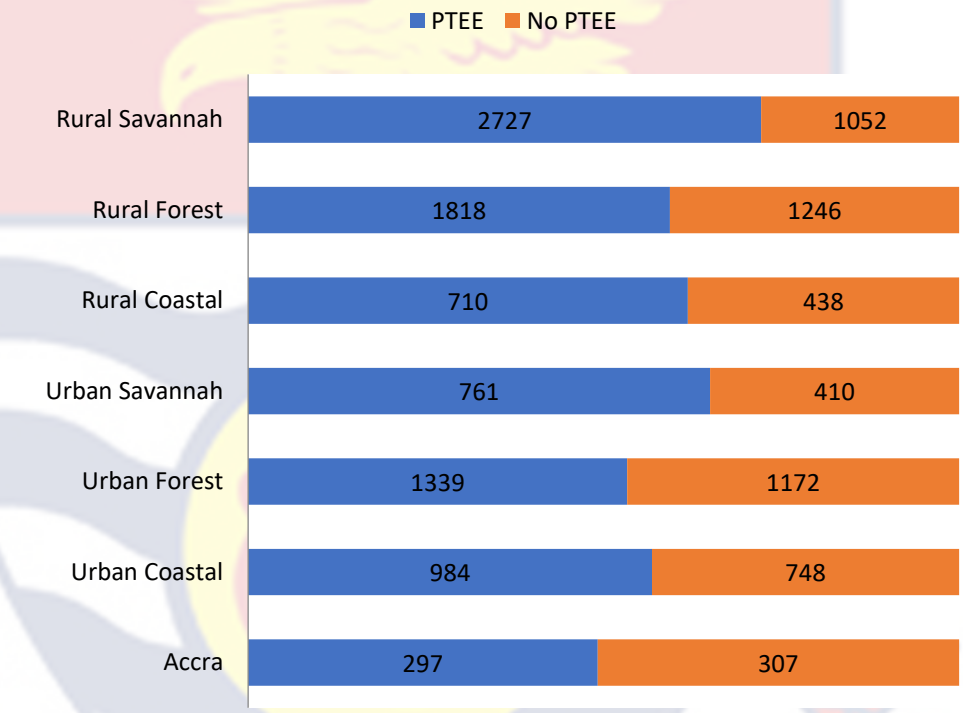

Figure 6: Frequency of Pre-Tertiary Educational Expenditure (PTEE) Based on Location

Source: Author's Construct (2023)

Based on the analysis of the frequencies, it was concluded that more households in rural areas and in the Savannah areas where education can be thought to be less appreciated were rather recoding large percentage inclusion on pre-tertiary education in Ghana. However, this observation may not be surprising, because the focus of the analysis was at the pre-tertiary level which most people in remote and difficult areas strive to attain.

The descriptive on the frequencies had an inherent limitation: it ignores the actual monetary value of the educational expenses. When it comes to whether a household head spent on pre-tertiary education or not, both the household head that spent GHS10.00 and the one that spent GHS1,000.00 shall all answer yes to the question. To circumvent this shortfall, which has been ignored in earlier studies, the current study also focused on the actual expenditure on pre-tertiary education in Ghana Cedis as presented in Tables 4 and 5.

Table 4: Descriptive Statistics of Households' Expenditure on Pre-Tertiary Education

Variables	Mean (GHS)	CV
Male	1670.516	1.641054
Female	1586.065	1.569095
Married	1709.861	1.639081
Not married	1450.964	1.515682
Education (formally)	2014.711	1.494683
Not Educated	884.9915	1.676374
Employed	1717.07	1.557203
Not Employed	1328.492	1.952992

Source: Author's Construct (2023)

The results suggested that male-headed households spent an amount of GHS1,670.52 on pre-tertiary education annually with a wide spread of 164%, whilst the female-headed households spent an amount of GHS1,586.07 on pre-tertiary education annually with a wide spread of 157%. The married household heads spent about GHS1,709.86 on pre-tertiary education with a wide spread of about 163%, whilst the unmarried household heads spent about GHS1,450.96

with a wide spread of 152%. The difference between formally educated household heads and those not formally educated was the most pronounced. The formally educated spend more than twice that of the households without formal education. It was also observed that household head who were employed spent about GHS1, 717.07 with a wide spread of 156%, while those not employed spent about GHS1, 328.49 with a wide spread of 195%.

Figure 7 presents a joint dot plot of the number of households that spent on pre-tertiary education (red dots) and the actual monetary expenditure in Ghana cedis (blue dots). The results suggest that households in Accra had the least household count on expenditure on pre-tertiary education as compared to other locations. In contrast, households in the rural savannah had the greatest counts. However, the results on the actual educational expenditure present the direct opposite of the count. Households in Accra spent about GHS4, 568.76 with a spread of 118%; while households in rural Savannah spent about GHS660.22 with a spread of 185%. Meaning, the average expenditure of the household in Accra on pre-tertiary education was about seven times that of households in Savannah even though the number of households spending on pre-tertiary education in rural Savannah was about 9 times that of the households in Accra. The observed disparity can be attributable to a detailed investigation of the various variables, which reveals that a significant percentage of the expenditure disparity derives from higher tuition costs in urban areas compared to those in rural areas. While transport and private coaching charges has also increased, their share of total expenditure is considerably smaller when compared to course fees. Another observation from Figure 7 was that households in the urban areas spent more on pre-tertiary

education than those in the rural areas, such that households in urban Savannah spent more than rural Coastal and rural Forest areas.

The stress here was that estimations with counts and probabilities might well differ from those that used the actual expenditure in terms of how household characteristics influence pre-tertiary expenditure. The current study solved this puzzle by estimating both models on the same sample.

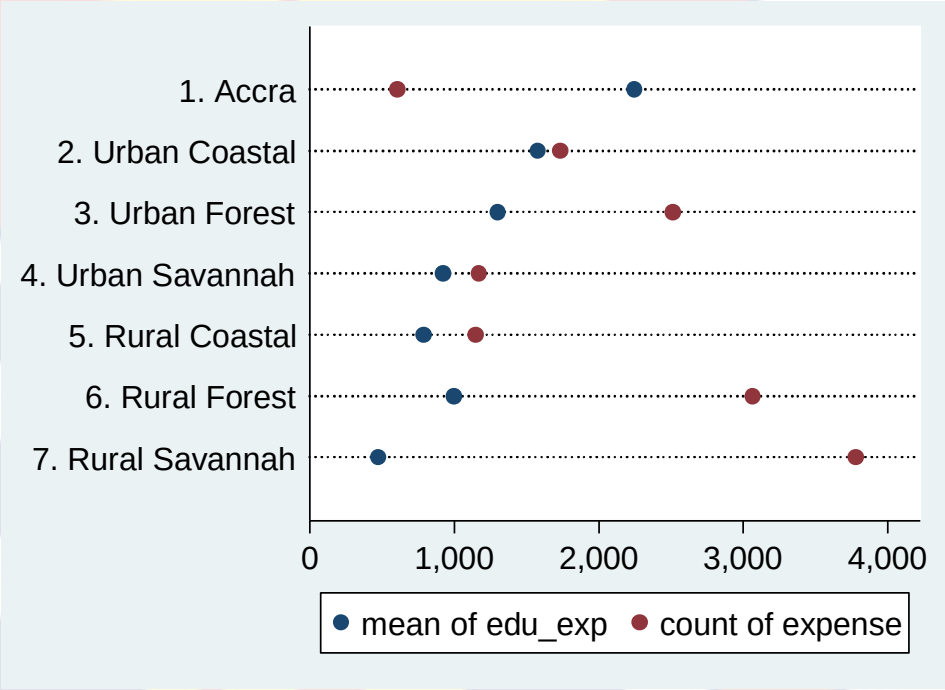

Figure 7: Joint Plot of Count and Actual Expenditure of Households on Pre-Tertiary Expenditure

Source: Author's Construct (2023)

Determinants of Frequency of 'Households' Pre-Tertiary Educational Expenditure in Ghana

This specific objective aimed at examining the factors that determine the likelihood that a household head in Ghana would spend on pre-tertiary education before the introduction of the Free SHS Policy but under the FCUBE policy. The analysis was purely quantitative and used the logistic regression

model for the estimations of the odd ratios. The diagnostic test suggested that the fitted logistics regression model was fit for interpretation and policy recommendations. The Wald Test of the overall significance of the model suggested that the estimated model was at least better than an empty model with only an intercept (Chi-square =3144.259; Prob > chi2=0.000<0.05). The classification test also suggested that the model meets the sensitivity and specificity conditions largely since about 85.75% of the distributions for the estimation are correctly classified (see sensitivity verses specificity plot in Appendix A). The pseudo-R-square of about 47.1% and a relatively closed McFadden (adjusted) pseudo-R-square of about 46.9% was relatively good for a cross-sectional model. The results were therefore presented in Table 5 and subsequently interpreted.

Table 5: Regression Output of Educational Expenses on Selected Determinants

Expense	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Financial Inclusion: None	1	.	.	.	.	.	
Financial Inclusion	1.139	.062	2.40	.016	1.024	1.267	**
Married	1	.	.	.	.	.	
Not married	1.412	.1	4.86	0.000	1.229	1.623	***
Schooled:	1	.	.	.	.	.	
Not schooled	.697	.05	-5.06	0	.606	.801	***
Male:	1	.	.	.	.	.	
Female	2.936	.196	16.13	0	2.576	3.347	***
Employed	1	.	.	.	.	.	
Not employed	.856	.059	-2.25	.024	.748	.98	**
Accra:	1	.	.	.	.	.	
Urban Coastal	1.4	.191	2.48	.013	1.073	1.828	**
Urban Forest	1.497	.195	3.09	.002	1.159	1.934	***
Urban Savannah	1.963	.292	4.53	0	1.466	2.627	***
Rural Coastal	1.828	.273	4.05	0	1.365	2.449	***

Table 5 contained

Rural Forest	1.491	.198	3.01	.003	1.15	1.934	***
Rural Savannah	1.435	.202	2.57	.01	1.089	1.892	**
Household size	4.781	.147	50.98	0	4.502	5.078	***
Household size square	.945	.002	-27.81	0	.941	.949	***
Age	1.077	.01	7.84	0	1.057	1.097	***
Age square	.999	0	-7.91	0	.999	.999	***
Land: own	1	.	.	.	.	.	
Not own	.979	.063	-0.33	.742	.863	1.111	
Constant	.001	0	-23.35	0	.001	.003	***

Mean dependent var	0.618	SD dependent var	0.486
Pseudo r-squared	0.471	Number of obs	13808
Chi-square	8651.412	Prob > chi2	0.000
Akaike crit. (AIC)	9752.361	Bayes. crit. (BIC)	9880.422

*** p<.01, ** p<.05, * p<.1

Source: Author's Construct (2023)

As presented in Table 5, the results suggested that financial inclusion positively influences the likelihood that a household head would invest in pre-tertiary education in Ghana. Compared to the household heads that were not financially included, the odd that those that were financially included would spend on pre-tertiary education is multiplied by about 1.139. This implies that the financially included household heads were about 13.9% more likely to spend on pre-tertiary education than those that were not financially included.

Also, marital status was found to be a significant predictor of 'households' expenditure on pre-tertiary education. That is, compared to the household heads who were not married (single, separated or widowed), the odd that a household head who is married/co-habiting would spend on pre-tertiary education is multiplied by about 1.412. Meaning that, married or co-habiting households have higher tendencies, about 41.1% more likely, than those not married. It was also observed that compared to those with access to formal education, the odd that those who had no formal education would spend on pre-

tertiary education is multiplied by about 0.697. These results imply that household heads who had no access to formal education were about 30.3% less likely to spend on pre-tertiary education than those who had access to some form of formal education.

Interestingly, it was observed that female household heads are three times more likely to spend on pre-tertiary education than male household heads, keeping other factors constant. It was also obvious that the employed household heads were more likely than those not gainfully employed. Interestingly also, it was observed that compared to households in Accra, households in all parts of Ghana are more likely to spend on pre-tertiary education. Unexpectedly, household heads in urban Savannah were the most likely followed by rural coastal to spend on pre-tertiary education. Urban and rural forests had an almost identical likelihood of spending on pre-tertiary education in Ghana.

Household size indicated a direct but reducing effect on the tendency to spend on pre-tertiary education. The result implies an inverted U-shaped curvilinear relationship between household size and the tendency to spend on pre-tertiary education. The predictive margins-plot was used to visualize the curvilinear relationship as presented in Figure 8.

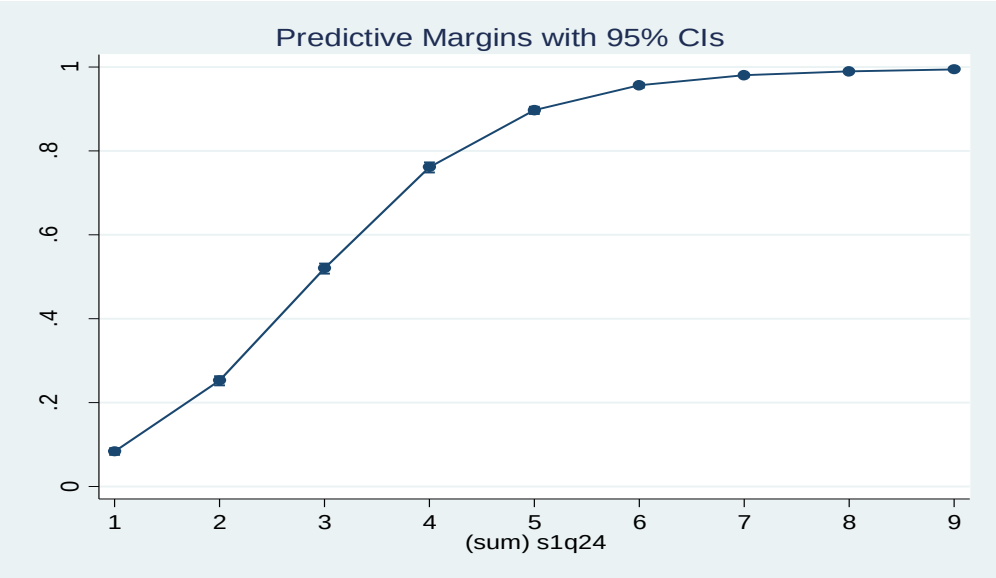

Figure 8: Predictive Margins-Plot of Effects of Household Size on the Tendency to Spend on Pre-Tertiary Education

Source: Author's Construct (2023)

The plot in Figure 8 suggests that, as household size increases by the mean values of 4, the actual shape of the relationship between household size and probability of household expenditure on pre-tertiary education is rather Ogive. That is, 'households' expenditure on pre-tertiary education increases at an increasing rate at lower size but increases at a decreasing rate when household size is relatively large.

The results on the age of household heads also indicated direct but diminishing effects on household expenditure on pre-tertiary education, which implies an inverted U-shaped relationship. That is, the level variables of age were positive (odds ratio of more than one) and statistically significant at the 5% significance level; while the squared variable of age was negative (odds ratio of less than one) and statistically significant at the 5% significance level. The predictive margins-plot was used to depict the nature of the relationship at

an interval of 10 years, beginning from 15 years to 100 years; and the results as presented in Figure 9 confirmed the expected inverted U-shaped relationship. The plot indicated that 'households' expenditure in pre-tertiary education increases with age until about 55 years before the expenditure begins to fall as the household heads age increases further.

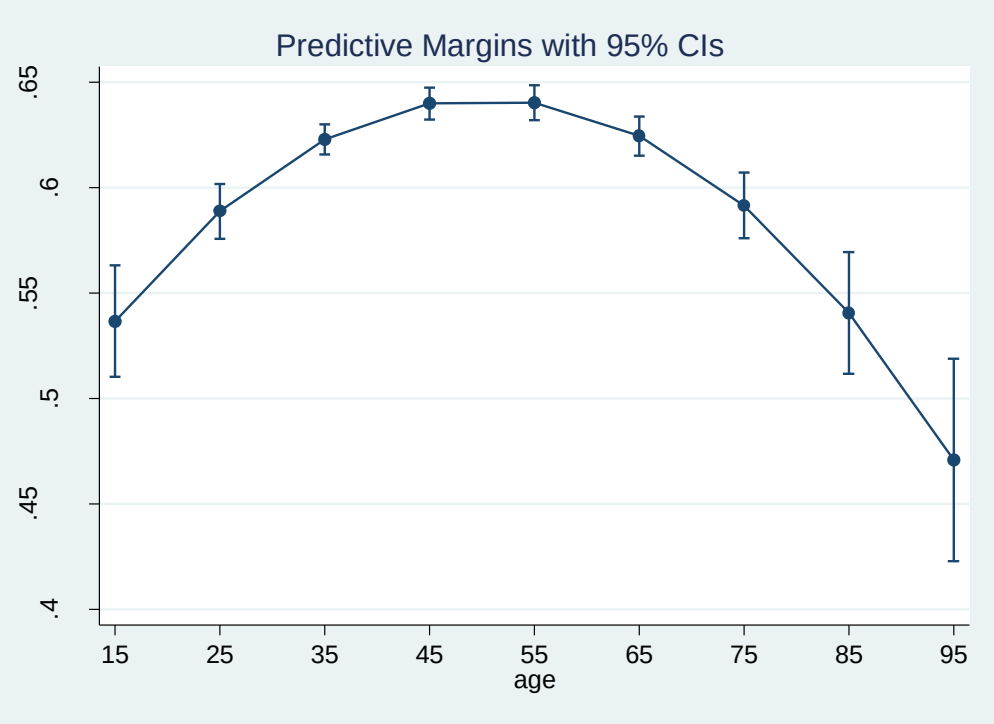

Figure 9: Predictive Margins-Plot of the Relationship Between Age (in Years) and Pre-Tertiary Educational Expenditure of Households in Ghana.

Source: Author's Construct (2023)

The general conclusion from the analysis was that the incidence of 'households' educational expenditure in Ghana is predicted by 'households' characteristics such as gender, marital status, employment status, access to formal education, household size, age of the household head and location of the household.

Drivers of Depth of Household Expenditure on Pre-Tertiary Education in Ghana

This specific objective sought to examine how household characteristics influence the actual monetary expenditure of households on pre-tertiary education. The analyses were purely quantitative and used fractional regression following the logistic model framework. The results were presented in Table 6.

Tables 6: Regression Outputs of Pre-Tertiary Expenditure on Household Characteristics

		Robust		
edu	Coef.	Std.Err.	Z	P>z
Not Financial Inclusion				
Financial Inclusion	0.358	0.029	12.200	0.000
Status married				
Not married	0.009	0.045	0.200	0.845
Employed				
Not employed	-0.017	0.042	-0.410	0.681
Formal education				
No formal education	-0.381	0.037	-10.150	0.000
Male				
Female	0.007	0.042	0.160	0.871
Accra				
Urban Coastal	-0.548	0.084	-6.500	0.000
Urban Forest	-0.622	0.077	-8.040	0.000
Urban Savannah	-1.135	0.095	-11.900	0.000
Rural Coastal	-1.173	0.085	-13.770	0.000
Rural Forest	-0.970	0.080	-12.080	0.000
Rural Savannah	-1.858	0.086	-21.720	0.000
Household Size	0.181	0.013	13.680	0.000
c. Household Size #c. household Size	-0.003	0.001	-4.420	0.000
Age	0.064	0.007	9.640	0.000
c. Age # c. Age	-0.001	0.000	-8.870	0.000
Land own.				
land own.	0.145	0.038	3.800	0.000
_cons	-5.373	0.173	-31.120	0.000
Number of obs = 13,808		Wald chi2(21) = 3528.95		
Pseudo R^2 = 0.0746				

Source: Author's Construct (2023)

As presented in Table 6, the results indicate that financial inclusion significantly influences household expenditure in pre-tertiary education positively. Compared to household heads who are not financially included, the pre-tertiary educational expenditure of households that were financially included increases by about 36 pesewas, keeping other factors constant. Also, compared to household heads that were formally educated, the expenditure of household heads without formal education decreased by about 0.38 pesewas; whilst compared to household heads that own land, the educational expenditure increased by about 0.15 pesewas for the household heads that do not own land.

The results on location indicated that households in Accra spend more on education than households in any other location in Ghana, all other factors remaining constant. It was observed that compared to households in Accra, the pre-tertiary expenditure of households decreased by 1.86 cedis in rural Savannah, 1.17 cedis in rural Coastal, 1.13 cedis in Urban Savanah 0.97 pesewas in the rural forest, 0.62 pesewas in urban Forest and 0.55 in urban coastal. The results were all statistically significant at the 5% significance level.

The outcome observed an inverted U-shaped relationship between household size and pre-tertiary educational expenditure and between 'households' age and pre-tertiary educational expenditure. The margins-plot of the two relationships, as presented in Figure 10, suggested that the observed inverted U-shape is pronounced mainly with the age of the household head than household size. The results on age suggest that household expenditure increases steadily from 15 years to about 55 years before peaking and beginning to fall as the household age increases further.

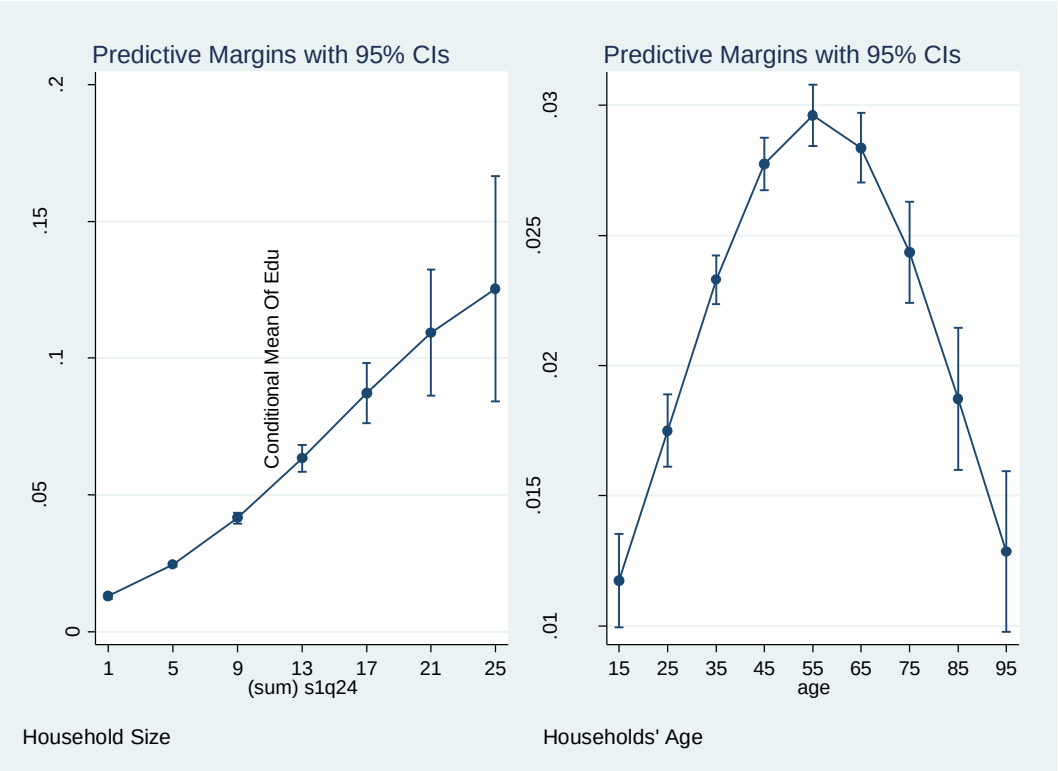

Figure 10: Plots of the Relationships between Household Head and Expenditure, and between Age of Household Head and Expenditure**.**

Source: Author's Construct (2023)

From Table 6, it was further observed that gender of household head, marital status and employment status were not statistically significant predictors of actual expenditure on pre-tertiary education in Ghana.

Discussion of the Results

This session sought to address a research gap in the literature on the determinants of 'households' pre-tertiary educational expenditure in terms of frequency and depth of expenditure. The first objective aimed at examining the factors that affect the likelihood (frequency) that a household shall spend on pre-tertiary education in Ghana. The results suggested that financial inclusion, marital status of household head, gender of household head, employment status of household head, location of household, education level of household head,

household size, and age of household head significantly explain the tendencies that a household would spend on pre-tertiary education. The outcome of the study general validates the Human Capital Theory on the tenet that household characteristic are significant drivers of educational expenditure (Mooi-Reci et al., 2019). The results indicate that the Human Capital Theory, which has been proven to be consistent for educational attainment in general, also apply to aspects of the educational attainment in the pre-tertiary level in the Ghanaian context. The result is also in line with the fact that education is both public and private good; such that it is an outcome of both national and household production function as contained in the household production theory (Silvo & Verona, 2020).

The results were consistent with some earlier studies both within and outside Ghana (Koomson & Danquah, 2021; Churchill & Marisetty, 2020). Several studies on educational expenditure in Ghana used frequency of expenditure, and the current results are consistent with the outcome.

Financial inclusion was found to increase the tendencies that a household would spend on pre-tertiary education. The observation that financial inclusion positions a household to spend more on wards at the pre-tertiary level could be seen from its ability to reduce poverty and income inequality. Iddrisu and Danquah (2021) revealed in the Ghanaian context that financial inclusion lowers income inequality by benefiting poor households more than rich households. Since demand for education has both, i.e. the wish aspect and the purchasing power aspect, it could be stated from the income effects perspective that financial inclusion improves households' purchasing power and hence increases their pre-tertiary expenditure on education. This is especially plausible

because pre-tertiary expenditure, in public schools, is relatively small and could be covered by the income effects on financial inclusion on even poorer households. Tita and Aziakpono (2017) made a similar observation about the income effects of financial inclusion on households in Sub-Saharan Africa and its power to demand vital products such as educational products. Elsewhere, in Nepal, Chiapa, Prina and Parker (2016) made a direct observation that the financial inclusion of household heads significantly influences the education expenditure of their children and increases parent's educational aspiration for their female wards.

Married (formally married or co-habiting) household heads are less likely to spend on pre-tertiary education than those not married (separated, divorce or single). The apriori expectation was that a married couple would have higher tendencies to spend on pre-tertiary education than the unmarried, but the result was the opposite. However, considering the cultural background of Ghana, one can give credence to this finding. The culture of dependency in Ghana suggested that unmarried household heads may have responsibility for some family members, at least at the pre-tertiary level. It is plausible to expect that an unmarried household head who seeks to support his family may be more likely to begin from the pre-tertiary level than at the tertiary level.

The current findings imply that the outcome of the study supported *the "Parents 'Don't Matter Hypothesis"* instead of "Two Parents are Better than One Hypothesis". The *"Parents 'Don't Matter Hypothesis"* has been identified as most likely in the African setting and has its strength in the extended family system (Churchill & Marisetty 2020; Bayar & Ilhan, 2016). According to Churchill & Marisetty (2020), empirical data from Africa show that children

placed in the care of relatives, whether orphaned, because their biological parents are impoverished, or because their relatives have access to superior educational facilities, show notable trends. Bayar & Ilhan, (2016) added that "in some developing countries the extended family is so strong that it offers a "safety net" that buffers against any potential ill effects of single parenthood, orphan hood, and poverty when it comes to 'children's education". The observation that married/cohabiting spouses who still decide together had reduced tendencies to incur pre-tertiary educational expenses as compared to separated, single or widowed household heads was, therefore, considered plausible in the Ghanaian context.

On the role of gender, it was observed that female-headed households were about thrice as likely as male-headed households to spend on pre-tertiary education. This result was also consistent with the family system of Ghana, where children in their early stages are more likely to stay with their mothers than their fathers. Hence, a more significant part of the pre-tertiary education could occur in female households, either with a partner or alone, than in the male- headed households, especially where the mother is absent. This outcome was consistent with the findings of Donkoh and Amikuzono (2011) in Ghana, and Ogundari and Abdulai (2014) in Nigeria. The sex or gender of the household head significantly influences the odds that a household shall spend on pre-tertiary education of their wards, with female-headed households being at an advantage.

Regarding the location of households, it was clear that the households in Accra have the least likelihood of spending on pre-tertiary education. It further observed that households in the rural areas have higher tendencies to

spend on pre-tertiary education than urban households. The major implication of these findings was that the rural areas appear to have been delegated the role of pre-tertiary education to the urban areas for economic activities. The outcome of the study supported the findings of Donkoh and Amikuzono (2011) when they used GLSS6. Donkoh and Amikuzono (2011) concluded that rural households are more likely than urban families to donate finances to education, despite urban households spending more overall. This finding is supported by Hardy's (2021) study, which looked into the rural opportunity gap by analysing literature on factors influencing college access and choice for rural students. Hardy (2021) observes that, despite the fact that rural areas house nearly 20% of the U.S. population, little research has been conducted to examine the educational experiences of rural adolescents. Furthermore, most researchers in the extant literature on rural students prefer to perceive this group via a single, deficit-based lens (Hardy, 2021) and emphasize how the college enrollment rate of rural students is lower than that of their counterparts from other locals (Hardy, 2021). Although it is reasonable to say that students from rural backgrounds face unique challenges in pursuing higher education, it is critical to recognise that the rural identity does not effect all rural students equally. Furthermore, despite the challenges faced by rural students, empirical data shows that this group is gradually enrolling in post-secondary institutions (Hardy, 2021), demonstrating an increased trend in the rural population's ability to navigate higher education environments.

Household size and age of household heads were found to have curvilinear relationship with pre-tertiary education in Ghana. It was observed that the tendencies for pre-tertiary spending on education initially increase with

household size but decline slightly as the household size increases. That is beyond the household size of 13 members, pre-tertiary expenditure increases at a decreasing rate, giving rise to an Ogive shape. This observation could be explained to imply the likelihood that more members grow above the pre-tertiary level as the household size increases. The result was in support of the earlier findings of Iddrisu, Danquah, Barimah and Ohemeng (2020) in Ghana; Broer, Bai and Fonseca (2019) and Okuwa et al (2015) in Nigeria. That is, both Iddrisu et al. (2020) and Broer, Bai and Fonseca (2019) observed a positive relationship between household size and educational expenses, while Okuwa et al (2015) observed a negative relationship between the two variables. The current study resolves the supposed inconsistency by observing an inverted U-shape relationship between household size and pre-tertiary educational expenses, which implies that the observed differences in the direction of the relationship could only be due to estimating different arcs on the curvilinear relationship. It could also imply that the distribution of pre-tertiary educational expenditure and household size differs from that of the overall expenses, and that demands further investigation.

Age of household head indicated a completely inverted U-shaped relationship with pre-tertiary education that peaks at about 55 years. The tendencies of household expenditure decline steadily after 55 years. Just as in the case of household size, the current study observation of a perfect U-shaped relationship between age and educational expenses has been hinted in studies such as Iddrisu et al. (2020), Donkoh and Amikuzono (2011) and Okuwa et al (2015). That is, Iddrisu et al. (2020) and Donkoh and Amikuzono (2011) observed direct effects of age on educational expenses whilst Okuwa et al

(2015) observed a negative relationship. As explained earlier, these inconsistencies in the direction of effects could be attributed to differences in the slope of the portion of the curve that is estimated at any point in time. Aside from the possible misspecification of age as a linear variable to pre-tertiary educational expenses, it is theoretically plausible to expect age to indicate curvilinear rather than linear effects on education expenses. That is, sociologically, most households with older household heads could be in their emptiness stage in the family structure or have more elderly household members who may continue to incur educational expenses. It is less likely to be at the pre-tertiary level (Iddrisu, Danquah, Barimah, and Ohemeng 2020; Churchill and Marisetty 2020). Also, most of the older members of the nuclear family who have begun their own family with wards that shall necessitate pre-tertiary spending on education may have become household heads themselves. Hence, pre-tertiary educational expenses should in theory, decline sharply with age, which was empirically observed in the current study.

Education and employment status indicated that apriori expected positive effects on pre-tertiary education. Studies by Iddrisu et al. (2020), Bayar et al (2016), Broer, Bai and Fonseca (2019), Huy (2012) and Adu-Ababio & Osei (2018) and Bodur and AVCI (2015) all observed a direct relationship between the educational level of the household head or parent and educational expenses. At least, for the sake of prestige in the social class, relatively educated household heads might not risk seeing any member of their school household going age out of school. It is even natural to expect parents negotiating for the education of their wards of pre-tertiary school-going age to be educated when such children are to stay with other family members or strangers. The same

cannot be said of adolescents of tertiary education age since some may opt to be given a trade instead of formal tertiary or even secondary education. The study of Broer, Bai and Fonseca (2019) also captured the role of the employment status of the household head and observed a direct effect just as it was observed in the current study.

The second objective followed a similar approach as the first objective but focused primarily on the depth of the pre-tertiary educational expenditure. How much in monetary terms, do respective groups of household characteristics spend on pre-tertiary education? The results suggested that financial inclusion, level of education, location of household, household size, age of household head and land ownership were the significant predictors of the depth of household pre-tertiary expenditure in Ghana. It was observed that marital status, gender of household head and employment status are not statistically significant in explaining the depth of 'households' pre-tertiary educational expenditure in the Ghanaian context.

Financial inclusion again indicated significant positive effects on the depth of household education expenditure. That is, household heads that were financially included spent more on pre-tertiary education than those that were not financially included. It could be concluded that financial inclusion significantly explains household pre-tertiary expenditure in terms of both frequency and depth, and the effect is consistent as explained earlier.

Formal education as well influences both the depth and frequency of 'households' pre-tertiary expenditure. That is, formally educated household heads are more likely to spend more money on their wards than those that are less formally educated, keeping other factors constant. This observation could

be explained by the income effects of education, where formally educated household heads are more likely to be gainfully employed in a secure job that allows them to spend more on their ward's education. For example, more of them may even be demanding private pre-tertiary education for their wards which could be relatively more expensive than the relatively free public schools. It could also be argued that more formally educated household heads may be in the position to understand the value of formal education better and hence be prepared to invest more into it even at the pre-tertiary level. This could be especially because such household heads may best appreciate the value of giving their wards a proper foundation, which they believe comes with extra cost on good school environment and private tuition (Addai, 2023; Rabe, 2020).

The effects of household location on the depth of educational expenditure counter to its effects of frequencies. Despite spending on fewer wards at the pre-tertiary level, the household heads in Accra spend more on pre-tertiary education than any other location in Ghana. Comparatively, the monetary value of educational expenditure on pre-tertiary is higher in urban areas than those in rural areas. These observations were because the rural areas produce more wards at the pre-tertiary level than the urban areas. Keeping academic achievement constant, the actual monetary expenditure in the urban areas could be inefficient compared to the rural areas in terms of the input-out approach. Earlier studies have made several stylised facts about the moderating role of location on educational expenditure. Bayar et al (2016), Okuwa et al (2015) and Donkoh and Amikuzono (2011) unanimously found that urban households spend more in monetary terms than rural areas. This observation could be attributed to the overall high cost of living in the urban areas, especially

in Accra, since the cost of feeding at school, transportation to and from school, and home tuition are all expected to be higher in urban than in rural even equivalent services. The work of Iddrisu et al. (2020) bemoaned the relatively low household investment in the Savannah region as was observed in the current studies. Donkoh and Amikuzono (2011) also found that households in the forest areas spend more on education than those in Ghana's coastal and savannah areas.

The household size indicated the same U-shape but this time, with a higher peak of about 13 members in a household before expenditure increases at a decreasing rate. The age of household head exhibited consistent inverted U-shape with a depth of pre-tertiary educational expenditure with a peak of about 55 years Iddrisu et al. (2020) and Broer, Bai and Fonseca (2019) both revealed that household size significantly and directly drives 'households' decisions on whether to spend and how much to spend on education and healthcare services in Ghana. The result, however, contradicts the outcome of the studies of Okuwa et al (2015) in Nigeria, which observed negative effects of increasing household size and age of household heads on educational expenditure.

Although land ownership did not matter in the case of frequency of households' pre-tertiary expenditure, it indicated a direct effect on the depth of households' pre-tertiary expenditure. That is, household heads who own land were more likely to spend more on pre-tertiary education than those that do not own land. The observation that assets ownership significantly impacts on the depth of educational expenses was consistent with the earlier results of Donkoh and Amikuzono (2011) from the GLSS 5 data set.

Interestingly, although the gender of the household head significantly affects the likelihood of household expenditure on pre-tertiary education, it does not matter when it comes to the size of the actual monetary expenditure. This observation was in line with the earlier outcomes of Okuwa et al (2015) studies, which found that being female or male head does not influence educational spending patterns.

These results align with the research undertaken by Yun and Yusoff (2018) regarding the factors influencing public education expenditure in Malaysia. Their investigation revealed a correlation between variations in education expenditure and specific economic indicators, notably the real gross domestic product (GDP) growth rate, unemployment rate, as well as the population segments aged under 15 and over 64.

Overall, the study's findings provide insights that can be related to various theoretical frameworks and concepts, offering a more comprehensive understanding of the complex factors influencing households' decisions on pre-tertiary education expenditure under the Free Education Policy in Ghana.

Chapter Summary

The chapter examined the drivers of household expenditure in Ghana with the household as the unit of analysis. Two aspects of household pre-tertiary educational expenses were considered in terms of frequencies and depth. The results indicated that though some household characteristics drives both frequencies and expenditure of pre-tertiary expenditure; there are cases of different drivers as well. Hence, the study concluded that, frequency of expenditure and depth of expenditure needs to be separated empirically for

better understanding of pre-tertiary educational expenditure and its determinants.

CHAPTER FIVE

DRIVERS OF PRE-TERTIARY SCHOOL CHOICE IN GHANA: THE INTERACTIVE EFFECTS OF CHOICE VARIABLES AND HOUSEHOLD UNIQUE CHARACTERISTICS

Introduction

This research objective focused primarily on the factors that determines the respondents' choice between public (relatively free) and private (relatively fee-paying) in the study area. The logistics regression model was used since the dependent variable is dichotomous. That is the dependent variable, choice of school, was defined as 1 if the individual has a net private school choice (i.e. have more of the wards in private schools) and 0 if the individual had a net choice of public school (i.e. have more of the wards in public schools). This definition was based on the fact that the market structure of education in Ghana is predominantly a duopoly of public and private schools.

Descriptive Statistics

Table 7 present the descriptive statistics of the main variables of the study. That is, the dependent variable, school Choice defined as Public or Private School; and the choice variables are Charges, the proximity of household to school and incidence of payment. The incidence of payment of educational charges falls on parents, external support or self-support. The results as indicated that 568 (about 69.10%) wards attended the public school of which 443 representing 77.99% had their expenses paid by their parents, 26 representing 4.58% had their fees paid by an external person as support to the household and the remaining 99 representing 17.43% had to pay for their school expenses. Also, 254 (31.90%) wards were in private schools of which 213

representing 83.86% had their charges paid by their parents, 5 representing 1.97% had it by an external person as support to the household and the remaining 99 representing 14.17% had to pay for their school expenses. Hence, whether the choice is public or private, the incidence of pre-tertiary educational expenses payment falls on the parents of the wards. Self-care happens to be the next source of payment for school expenses in Ghana though they are mostly found attending public school. That is about 73.33 (99 out of 135) of those who paid their expenses attended or are attending public schools. The general conclusion here was that much as an individual at the pre-tertiary level is not under the direct care of their parent, they may likely be attending public schools.

Table 7: Cross-tabulation of Choice and Incidence of Expenses in Ghana

	Incidence of Educational Expenses			
School Type	Parent	Support	Self	Total
Public	443	26	99	**568**
	(77.99)	(4.58)	(17.43)	**(100.00)**
Private	213	5	36	**254**
	(83.86)	(1.97)	(14.17)	**(100.00)**
Total	656	31	135	822
	(79.81)	(3.77)	(16.42)	(100.00)

N/B: Figures in brackets are percentages based on row total

Source: Author's Construct (2023)

Two of the main variables were continuous and their distributions were presented in Table 8. The average educational expense was about GHS160.72 with a spread of about GHS317.38. The wide spread was an indication that the range was very large as could be seen in the Minimum expenses of GHS1.00 to GHS5,000.00. It was obvious from the spread of expenses that the distribution

is skewed which explains why the variable was logged in the regression analysis. The proximity of the household to the school was found to range from 0 to 14km with an average of about 1km.

Table 8: Summary Statistics of Charges and Proximity to School in Ghana

Variable	Obs	Mean	Std. D.	Min	Max	skewness	Kurtosis
Charge	882	160.717	317.375	1	5000	0.903	12.03
Proximity to school	882	.983	1.013	0	14	.524	1.27

Source: Author's Construct (2023)

Determinants of Choice of Pre-Tertiary School Type among Ghanaians

As mentioned earlier the study used three proxies as drivers of choice of pre-tertiary school (proximity of school to household, the charges and incidence of payment of charges) for their wards. Also, two aspects of household unique characteristics are classified as inherent (sex and age of household head) and acquired traits (household size, level of education, marital status, financial inclusion, economic status and location of household). The piece-wise regression approach was followed to ensure the consistency and reliability of the estimated coefficients and their efficiencies to estimates three models using logistic regression. The first model (Model 1) included only the three main choice variables, the second (model 2) added the acquired traits while the full model (model 3) had all three groups of variables, as presented in Table 9. The Wald test of overall model significance found all models to be at least better than an empty model at the 5% significance level. Also, the classification test, which acts as the R-square in the context of the limited dependent variable, indicated that the percentage of the model that is correctly classified improved as the household characteristics were included; and the highest was obtained in the full model. The efficiency of the model also

improved with the inclusion of the household traits since more variables became significant but the coefficients remained relatively the same. Hence, the full model was eventually explained.

The major observation was that educational charges significantly influence the choice of pre-tertiary school for wards, and the results are relatively robust to the inclusion of other variables in the model. That is, a cedi increase in the number of education charges multiplied by the odds of choosing private schools by about 0.702 for an average household. The results implied that increasing educational expenses could lower the odds of adopting private schools at the pre-tertiary level by about 29.8% in Ghana. Meaning more parents in Ghana move their wards from private to public schools when charges such as transportation, registration and stationery increase. The results could also imply that parents may get the relief to enroll some of their wards into private schools if the charges in the public-school decrease. Regarding the later explanation, a parent in Ghana would then be treating public schools as inferior good with negative income effects of price fall.

It was also observed that the odds of choosing a private school decrease if the incidence of payment of charges falls on external supporter, but increase when the ward is self-financing their education as compared to when the incidence falls on the parents of the wards. The results appeared reasonable in the sense that external support may well have its own responsibility which may not allow them to absorb the high cost of private schools as compared to relatively free public schools. Also, if the individual is self-financing then they have the incentive to choose what they feel gives them the greatest value, and since they may have themselves alone to take care of as compared to parents

with a responsibility to more wards may want to adopt private schools. Besides, self-financing is more likely to occur at the secondary and vocational level for which public schools may be more expensive or hard to get admission than private schools. That is, an individual that begins self-financing at an early age may not obtain the competitive grade needed for public schools at the senior or vocational school level. The Proximity of school to the household was found not to be a significant predictor of school choice at the pre-tertiary level in Ghana.

The results found no statistically significant difference between the odds of choosing a private school for wards of a household without formal education, and those with basic and secondary education. Statistical significant differences were observed in the case of household heads with tertiary education, and the results indicated that the odds of choosing private over public school increased by about 67.70% for a parent that attained tertiary level as compared to those with educational level below tertiary level. Household head who were financially included also indicated about a 62.0% increase in the odd of choosing private over public schools as compared with those that were not financially included. Compared to the residents in Accra, only the residents in Urban and Rural Savannah indicated reduced odds of choosing a private school for wards at the pre-tertiary level. That is, the odds of choosing a private school falls by about 62.3% and 72.5% in Urban and Rural Savannah respectively. The results implied that the situation of school choice at the pre-tertiary level is relatively identical in most parts of Ghana and the case in Accra could be used as a cluster for Ghana as it was done in the current study for further analysis of the school choice.

It was further observed that household size significantly explains the odds of choosing private schools such that increase in the size of a household tends to reduce the odds of choosing a private school for a ward by about 16%, keeping other factors constant. Also, compared to the male-headed household, the odds of choosing private schools increase by about 98% for female-headed households. Again, the age of household heads was also found to have increased but diminishing effects on the odds of choosing a private school over public school for wards at the pre-tertiary level. Marital status and economic status were found not to be significant predictors of households' choice of pre-tertiary school in Ghana.

Table 9: Piece-wise Regression Models for Pre-Tertiary School Choice in Ghana

	Model 1		Model 2		Model 3	
Variables	Coef.	Sig	Coef.	Sig	Coef.	Sig
Proximity	1.111		1.053		1.053	
Charges	0.814	***	0.702	***	0.702	***
Incidence of payment						
Parent (ref.)	1		1		1	
Support	0.604		0.762		0.762	**
Self	1.31		1.963	**	1.963	**
Education of Household head						
None			1		1	
Basic			1.195		1.195	
secondary			1.308		1.308	
Tertiary			1.677	**	1.677	**
Marital status			1		1	
Not Married			0.898		0.898	
Economic status						
Employed			1		1	
Not Employed			0.884		0.884	
Not Financial Inclusion			1		1	
Financial Inclusion			1.628	**	1.628	**
Accra			1		1	
Urban Coastal			0.684		0.684	
Urban Forest			0.652		0.652	
Urban Savannah			0.387	**	0.387	**
Rural Coastal			0.818		0.818	
Rural Forest			0.796		0.796	
Rural Savannah			0.275	***	0.275	***
Household size			0.897	**	0.84	***
Male			.		1	
Female				***	1.98	***
Age				**	1.054	**
Age square				**	.999	**
			Diagnostics			
Wald Test	Chi2=126.667	Prob=0.000	Chi2=148.352	Prob=0.000	Chi2=154.273	Prob=0.000
Classification test	69.34%		70.4%		70.72%	

**** p<.01, ** p<.05, * p<.1 n=822*

Source: Author's Construct (2023)

Since age had an inverted U-shaped relationship with the choice of pre-tertiary school in Ghana, it was necessary to predict the threshold at which the relationship changes which was done as presented in Figure 11. The two plots confirmed the nature of the relationship and indicated an overall threshold of about 45 years. The breakdown into gender indicated that the threshold age of about 45 years is consistent for both male and female-headed households.

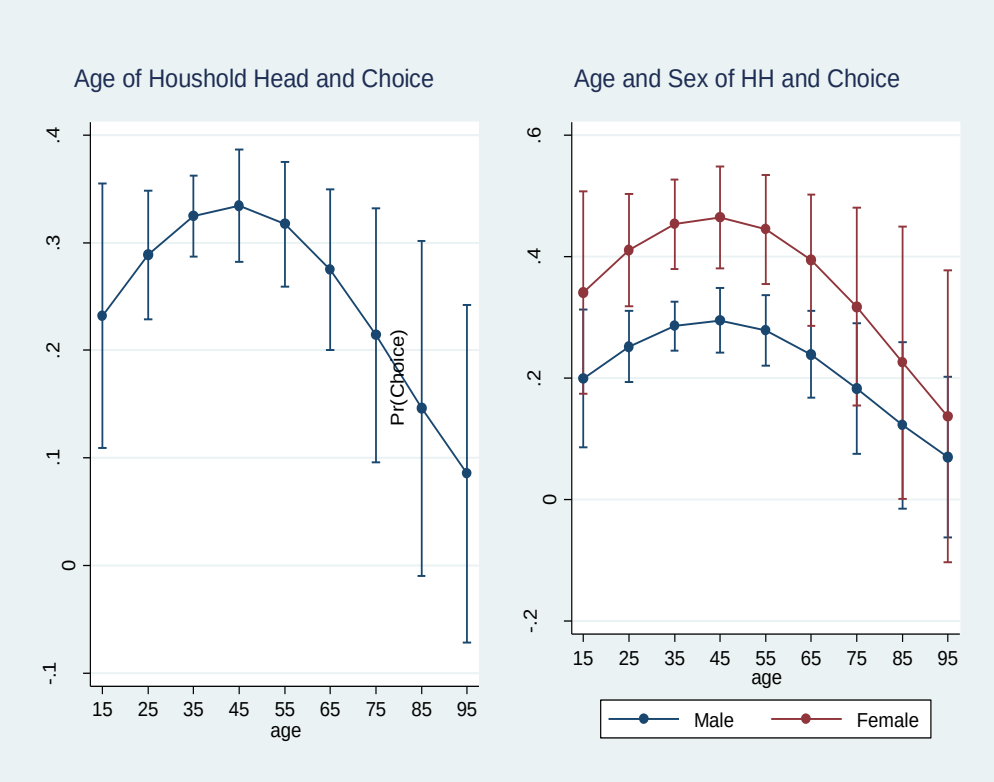

Figure 11: Age Threshold of Pre-Tertiary School Choice

Source: Author's Construct (2023)

The interactive effects of the significant choice factors and the insignificant households' characteristics were assessed to determine if there was full moderation effect. Figure 12 presents the marginal probability of interactive effects of marital status, economic status and charges. The downward sloping of the plot as educational charges increase suggests that the probability of choosing a private school over public school falls as educational charges

increases. It was further observed that household heads who were not married but are employed were the most likely to choose a private school for their wards at any level of charges. It was not surprising that married heads who were not employed were the least likely to choose a private school for their wards. The major conclusion from the results was that the level of educational charges moderates the interactive effects of marital status and economic status on the choice of school for wards at the pre-tertiary level. That is, statistically significant differences were observable among the groupings from the two variables when charges are low but the difference vanishes when the charges increases further. (see Table 10 and Figure 11). In figure 11, it could be observed that the gap between the plots bridges as charges increases, and almost converges at a very high level of charges.

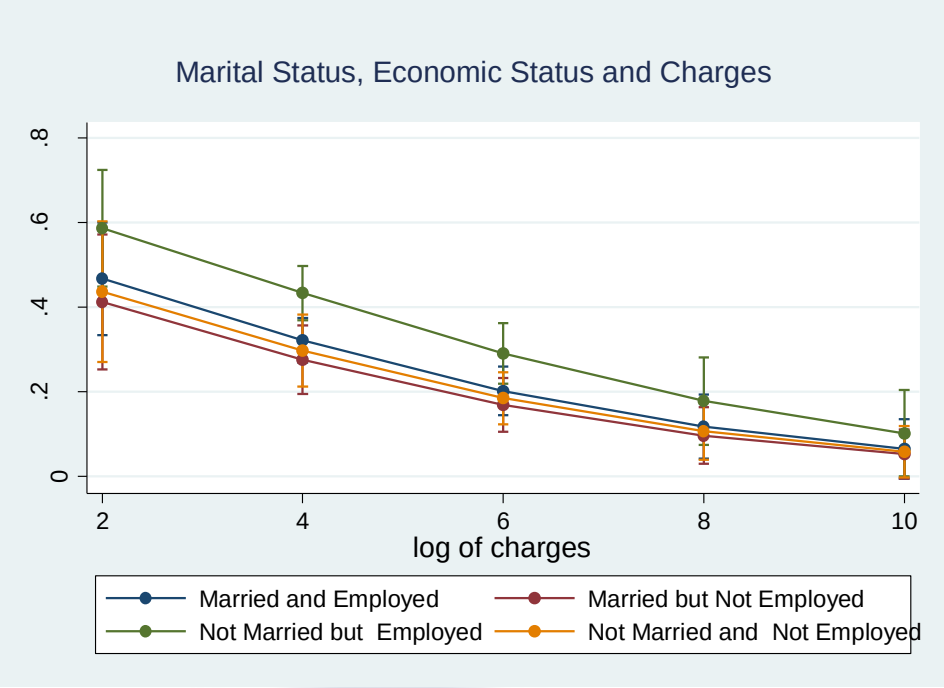

Figure 12: Interactive Effects of Marital Status, Economic Status and Charges on Choice

Source: Author's Construct (2023)

The content of Table 10 is what was plotted in Figure 11, except that the results in the Table 10 have further information on statistical significance among the gaps observed in the line plots in the figure 11.

The fact that the group column of the household head who were Not Married but Employed had no letter was an indication that a statistically significant difference exists between the probability of choice of household heads who are Not Married but Employed and any other paring of the two factor variables (marital and economic status). But letters and repetition of letters could between seen in all other columns as the level of charges increases. Thus, charges moderate the effects by ensuring uniformity in the pre-tertiary school choice decision of households. For example, there was about 58.70% likelihood that a household head who is Not Married but employed would choose private over public school in Ghana as compared to 46.70% for the Married and Employed, 43.60% for heads who were not married and not employed; and about 41.2% for household heads who were married but not employed.

Table 10: Bonferroni Group Comparison of Marginal Probabilities

Marital Status and economic status	Margin	Std.Err.	Groups
1#Married and Employed	0.467	0.068	JK
1#Married but Not Employed	0.412	0.081	GIJK
1#Not Married but Employed	0.587	0.070	
1#Not married and Not Employed	0.436	0.085	IJK
2#Married and Employed	0.321	0.027	HI
2#Married but Not Employed	0.275	0.041	FH
2#Not Married but Employed	0.433	0.033	K
2#Not married and Not Employed	0.297	0.043	FGH

Table 10 continued

3#Married and Employed	0.202	0.029	EF
3#Married but Not Employed	0.169	0.033	DE
3#Not Married but Employed	0.290	0.036	HIJ
3#Not married and Not Employed	0.185	0.031	DE
4#Married and Employed	0.118	0.039	CD
4#Married but Not Employed	0.097	0.034	BC
4#Not Married but Employed	0.178	0.053	EFG
4#Not married and Not Employed	0.107	0.035	BC
5#Married and Employed	0.065	0.036	AB
5#Married but Not Employed	0.053	0.029	A
5#Not Married but Employed	0.102	0.052	ABCD
5#Not married and Not Employed	0.059	0.031	A

N/B: Note: Margins sharing a letter in the group label are not significantly different at the 5% level.
N/B: 1 indicate low charges through to 5 as highest charges

Source: Author's Construct (2023)

Location of the household was given two definitions as strict (rural and urban) and extended into the seven components as presented in Figure 13. The results suggested that in a strict sense, urban households have higher tendencies to adopt private schools for the wards at the pre-tertiary level. However, as usual, the difference vanishes as the level of charges increases significantly. The extended definition plots, however, indicated some interesting outcomes. That is, though households in Accra had the highest tendencies while rural Savannah and the least tendencies to choose a private school for their wards; it was also the case that households in rural Forest had a higher likelihood than Urban Coastal and Urban Savannah to choose a private school for their wards. The

general conclusion from the results is that the effect of location on choice decisions is more complex than just the rural-urban dichotomy.

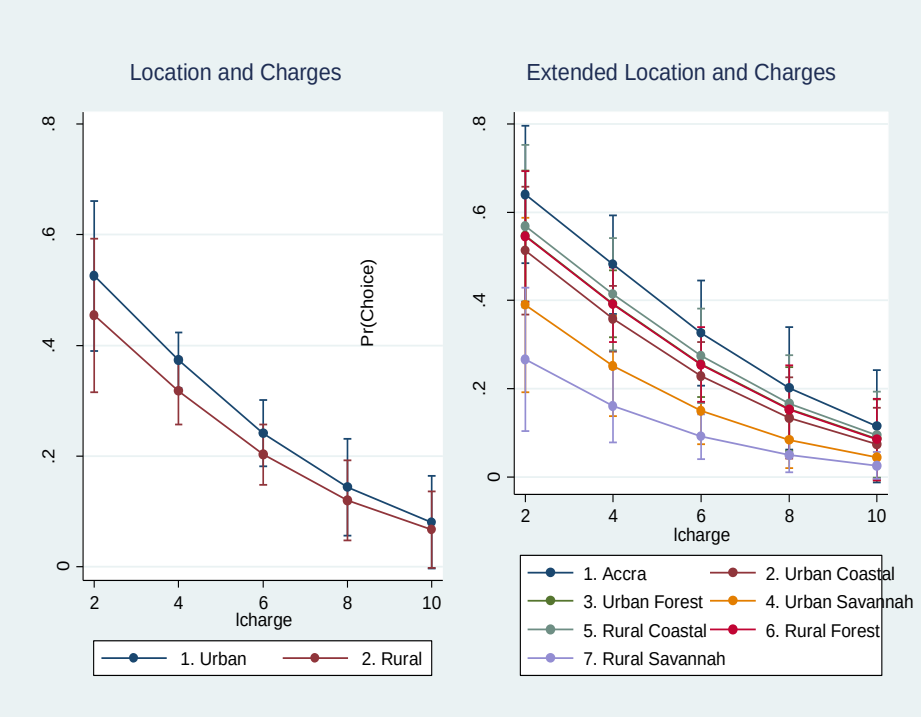

Figure 13: Interactive Effects of Location and Charges on Choice Decisions

Source: Author's Construct (2023)

Finally, the interactive effects of gender and restricted definition of location (rural and Urban) were assessed as presented in Figure 14. The results found strong effects of gender on pre-tertiary school choice decision than location; such that female-headed households whether in rural or urban had higher tendencies to adopt a private school for their wards at the pre-tertiary level than male-headed households. That is, though urban households have higher odds to choose private over public schools; female-headed households in rural areas are more likely to choose private schools for their wards.

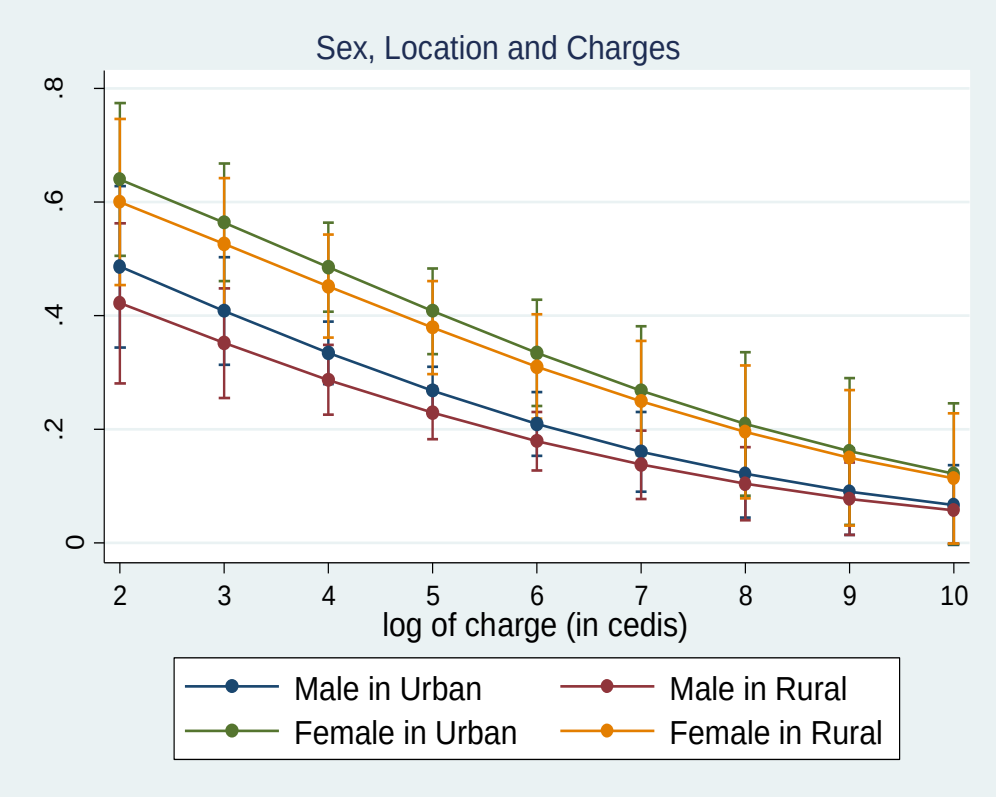

Figure 14: Interactive Effects of Location, Gender and Charges on Choice Decisions of the results

Source: Author's Construct (2023)

The Chapter examined two specific objectives which are the drivers of pre-tertiary school choice and the interactive effects of choice and household characteristics on school choice in Ghana. The test of hypothesis of the first objective revealed that the pre-tertiary decision of households in Ghana is significantly dependent on choice factors such as the level of charges and incidence of payment of charges; as well as household unique characteristics such as parents' education, financial inclusion, location, household size, gender and age of household head. Choice factor such as proximity of school to household and household unique characteristics such as marital status and economic status were found not to be statistically significant in explaining

households' decisions regarding the choice of pre-tertiary school for their wards.

The outcome suggested that household decision to choose a private school for their wards at the pre-tertiary level decreases as the level of educational expenses or charges on transportation, registration and school fees, and stationary costs increases. This pattern was found to persist irrespective of location, gender of household head, marital status and economic status. The result implies that the continuous fall in educational charges could reduce enrolment in private schools at the pre-tertiary level of other choice factors improve in public schools. That is, if parents are still choosing private over the public in some cases, where both are present and the public is relatively free, then other factors may be sustaining their decisions. Also, it was observed that the choice of private school exceeds that of public schools if the incidence of payment of charges falls on the students themselves, followed by when the payment is done by parents. The likelihood of selecting private over public significantly reduces when the payment of charges falls on an external supporter to the household. That is, since private schools are relatively more expensive at the pre-tertiary level than public schools (McCullough, Hatipoglu & Burnett, 2015), it plausible that a third party to a household may chose the latter option. McCullough, Hatipoglu and Burnett, (2015) found in Kasoa, an extension of Accra, that private schools cost households about 54% more per student than public ones; which explains why a third party may avoid such responsibility. Also, before external help may be needed to pay the fees of a ward at the pre-tertiary level then the household may be relatively poor. Hence, the household head may not be in the position to augment the support of the external third

party to enroll the wards in a private school, irrespective of what they perceive about public schools.

In terms of location of household, it was observed that residents in the Savannah zone of Ghana, whether rural or urban, have reduced tendencies of choosing private schools for their wards. This result resonated with the initial claim on the role of poverty since the Savannah zones are documented poverty-endemic zones. That is, although urban areas were found to be more likely to choose a private school for the wards at the pre-tertiary level; the disaggregated results indicated that rural coastal and rural forest residences were more likely to adopt private schools for their wards than Urban Savannah. Rural Savannah households indicated the least likely to choose a private school for their wards. This may be explained by the negative effects of charges as observed in the current study and from a national policy perspective. That is, pre-tertiary schools have always been free in the northern zone that covers Savannah areas as compared to the other areas where only a portion was free until the introduction of the Free SHS policy.

In terms of the gender of the household head, an unexpected finding emerged: female-headed households tended to prefer private schools over public schools when compared to their male-headed counterparts. This conclusion deviated from the basic assumptions, which held that female-headed households would be more financially vulnerable than male-headed households on average. The outcome could, however, be explained from the angle that females are mostly more involved in decision concern wards than males; and they may be more inclined to seek what they perceive as better for their wards (Chaturvedi, 2016). That is, empirical study suggests that most people perceive

private schools as more quality in terms of performance at the pre-tertiary level than public schools in developing countries (Chowdhury & Synthia, 2020; Shabbir, 2014; Anomaly, 2018). Chowdhury and Synthia (2020) concluded that as government schools are well ahead of private schools in creating self-discipline, morality and good work habits among students; private schools are superior in developing the critical thinking skill of the kids. Besides, female-headed households are most likely to receive further remittent from other sources in most cases than male-headed households in Ghana. That is, even if the male is not the head, due to separation, they most often still support the house and in most cases are directly responsible for educational expenses (Chaturvedi, 2016).

The results on household size indicated that increasing household size has decreasing effects on the odds of choosing private schools over public schools at the pre-tertiary level. This was a normal expectation since the needs of a household become diverse and constrained as the size increase; which calls for survival decisions including choosing an educational type that is of economic status, keeping other factors like income level constant. The results on the parent level of education found that the education level must be very high (at least up to a tertiary level) to significantly influence the school choice of wards at the pre-tertiary level. That is, a parent with tertiary education indicated a higher tendency to choose private school over public schools for their wards. The observation could be explained by the income effects as the higher education level could guarantee enough income to meet the high charges of private schools. The effects of income were not directly evaluated in the current study but were implied through economic status and education level.

The Age of the household head was found to have direct but diminishing effects on the likelihood of choosing a private school. The threshold of 45 years was found to be the turning point after which the direct effects of age on the choice of private school changes to negative. Clear, an increase in age could be accompanied by increases in both income prospects and household size. But the results suggested that the household size effects are outweighed by the age effects up until 45 years when the negative household size effects become more pronounced. After the threshold age of 45 years, it could be expected that the household could be having more children at each level of the educational ladder and the share of pre-tertiary expenditure in total education could be diminishing, resulting in reliance on public schools.

The result on the interactive effects of marital status and economic status was found to be statistically significant in explaining choice decisions, although none of them did individually. The observation is that household head who were not married but were gainfully employed had the greater tendency to enroll wards in private schools than those who were married. The term not married referred to single or separated household heads which shed more light on the outcomes. That is, these individuals may have smaller household size and may receive remittances than married or co-habited households (who may also have large household size). The differences were, however, observed to vanish as the level of educational charges increased; which suggested that the actual choice variables are stronger than the household level variables at influencing the decision on the choice of pre-tertiary school for their wards.

The outcome of the study provided support to some exiting studies and contradicted a few as well. Chaturvedi (2016), and Chaubey, and Rath, (2020),

for example, found that households' income, parents education and proximity to the school as among the major drivers of school decision between public and private schools. Manzoor, Rasul, Ahsan, and Safdar (2017) observed that parents' income and private school fees are the significant drivers of school choice decisions. Bernard, Doss, Hidrobo, Hoel, and Kieran, (2019) had earlier also found that household size, education level of parents, the income of parents, staff qualifications and school performance are among the major drivers of households.

The outcome of the current study supported the findings of Zuilkowski et al (2020) on educational expenses or cost, but contradicted proximity since the current study did not support the statistical significance of the proximity of the school. Similarly, the results supported most of the findings of Awan and Zia (2015) but contradicted a few. Awan and Zia (2015) identified five drivers of choice as socioeconomic status of the parents, school proximity, cost of schooling, and perception of the parents towards quality education and employment opportunity. Again, proximity was not supported in the current study as an important determinant of pre-tertiary school choice. Other studies such as Kosunen and Carrasco (2016), Qasim et al., (2021) found socioeconomic characteristics of the household and its head such as household size, level of education, marital status and economic status among others as important drivers of pre-tertiary school choice.

Chapter Summary

The chapter examined the drivers of household pre-tertiary school choice decisions between public and private schools from a national perspective using a national representative survey dataset. It focused mainly on the role of

socio-economic households' unique characteristics and the how they combine with other school characteristics to drive the choice decision of households about pre-tertiary schools. The analyses found most of the household's unique characteristics had direct effects on the choice of school (size, education, gender, location and age) and a few had interactive or moderating effects (marital status and economic status) on choice decisions. The results on location indicated that choice decisions are uniform across locations in Ghana except for the residents in Savannah zones. The outcome provided further support for the decision to conduct a case study of choice decision with Accra and its immediate environments in the next Chapter.

CHAPTER SIX

DRIVERS OF PRE-TERTIARY SCHOOL CHOICE: THE ROLE OF SCHOOL FACTORS AT THE COMMUNITY LEVEL

Introduction

The issue of parent school choice is complex because it could be sociological (cultural or societal factors), economical (employment and real cost) and psychological (perceived quality and performance) among others. It is difficult to access proxies on all the major constructs of drivers of school choice in a secondary data; while primary data does not allow for a wider scope enough to evaluate all the constructs. The best practice in the literature was to triangulate data and methodology to balance the inherent limitations which were done in the current study. This chapter, therefore, approaches the issues of household school choice from all perspectives using expanded primary data but the limited scope of Accra and its immediate environment.

The design for this chapter triangulates data in terms of both quantitative and qualitative responses. The quantitative data were analysed frequencies, percentages, Confirmatory Factor Analysis (CFA) in the SEM framework and binary logistic regression. The qualitative response was analysed through thematic content analysis.

Descriptive Statistics

A descriptive statistic is a brief statistical description that statistically depicts or embodies the qualities of a dataset. Inferential statistics, on the other hand, entails using and analysing statistical summaries. Descriptive statistics serve two basic functions: first, they provide fundamental insights into variables

within a dataset, and second, they expose probable relationships or correlations between these variables.

Table 11 shows the summary of the profile of the household heads studied. The final sample comprises 514 male-headed households, representing 61.78% of the sampled households; and 318 female households representing 38.22% of the sampled households. The fact that male- headed households dominate the household structure in Ghana is consistent with the outcome of all rounds of GLSS surveys from the Ghana Statistical Service (GSS, 2018). The results also revealed that the predominant household or family type was nuclear, representing 87.26% of the sample households. This observation was not surprising since several households in Accra are migrants who have their extended families elsewhere. The statistics also revealed that 73.68% of the household heads had low formal education (from no formal education up to S.H.S/O/A-level graduates) while 20.91% were tertiary graduates. In addition, 73.92% of the household heads were married or cohabiting while 26.08% were not married (single, separated or widowed).

Table 11: Detailed Profile of Household Heads

Variables	Frequency	Percent
Sex		
Male	514	61.78
Female	318	38.22
Household Type		
Nuclear	726	87.26
Extended	106	12.74
Level of Formal Education		
Low	219	26.32
High	613	73.68
Marital Status		
Not Married	217	26.08
Married	615	73.92
Occupation		
In wage employment in public sector	503	60.46
In wage employment in private sector	127	15.26

Table 11 continued

In self-employment	167	20.07
Not working	35	4.21
Type of School Attended by HHH		
Public	745	89.54
Private	60	7.21
Does not apply	27	3.25
Ward/child's school type		
Private	294	35.34
Public	538	64.66
Total	832	100

Source: Author's Construct (2023)

The results further revealed that the majority (60.46%) of the household heads were in wage employment in the public sector while 15.26% were in wage employment in the private sector. This means that, 75.72% of the household heads were in wage employment. About 20.07% of the household heads were into self-employment or entrepreneurship, while the remaining 4.21% were not working. It was also obvious from the findings that, the majority (89.54%) of the household heads themselves attended the public schools since public schools were the earliest schools in all the communities in Ghana before the private schools set in. However, this percentage has reduced drastically in the modern days as significant numbers of parents now send their wards to private schools (35.34%), especially in the urban areas of the country.

Household size, number of children in school and those in pre-tertiary institutions were the only continuous variable among the correlates and hence the mean value was estimated. It was observed that the average household size as about 6 with a spread of about 2 members. Also, the average number of children in school under the care of household heads studied was 3 with a spread of 2 members. Moreover, the average number of children in pre-tertiary institutions under the care of the household heads was 2 with a spread.

Research question 1: What are the Choice Factors for Pre-Tertiary Schools in Accra?

This research question aims at identifying the major observed aspect of choice for the pre-tertiary educational institution based on the parent and guardian's perspective. The analysis was purely quantitative and used the confirmatory factors analysis (CFA) and mean rank. The Weighted Rank Mean (WRM) was used to determine the weight of each observed variable in the main construct while the CFA was used to confirm the relative importance of each major construct to choose as a latent variable. Four major constructs were identified in the area of Perceived Quality of School (PQS), Child's Security (CS), Economic or Social Status (ESS) and Accessibility of school (AS). Through the analysis "Des." represents a description of the level of importance while the WRM of 0 is "not important at all (NI)", 1 is "of little importance (LI)", 2 is "of average importance (AI)", 3 is "very important (VI)" and 4 is "absolutely essential (AE)". All the interpretation was done correctly to the nearest whole number to ensure that the analysis is consistent with both the ordinal and interval aspects of the rating scale used.

The result from the grand mean suggests that the most ranked predictor of the choice of school for wards was the perceived quality of the school; with a mean rank of about 3 (2.82) and a spread of 1. This was followed by the child's security (2.10), economic status of the parents (1.86) and accessibility of school (1.69). Based on the rating scale used it was concluded that the respondents rated the Perceived Quality of schools as *very important* to choice decisions, while Child's Security, Economic and social status and accessibility were ranked as being of Average importance.

This section presents the analysis of data collected from the respondents of the study.

Table 12: Weighted Rank Mean (WRM) of Predictors of Choice of School

Variables	WRM	SD	Des.
Perceived Quality of schools (Grand mean) ((a	**2.82**	**1.08**	**VI**
The school has enough qualified teachers	3.94	0.819	**AE**
The school performs well academically	3.88	0.794	**AE**
The school has well-motivated staff	3.00	0.886	**VI**
The school has enough and spacious classroom blocks	2.92	0.961	**VI**
The school has a well-equipped library	2.38	1.173	**AI**
The school has improved social amenities and infrastructure	2.37	1.153	**AI**
The school has a well-equipped science lab/voc./ICT facility	2.36	1.204	**AI**
The school has a leisure facility	1.72	1.331	**AI**
Child's Security (Grand mean)	**2.10**	**1.09**	**AI**
Child's security is a core priority of the school	3.08	0.928	**VI**
Movements of children are monitored promptly	2.86	0.916	**VI**
The school is well fenced	2.66	1.201	**VI**
The school has active CCTV gadgets fixed at vantage places	1.35	1.374	**LI**
I wanted my child to attend my church school	0.54	1.041	**LI**
Economic Status (Grand mean)	**1.86**	**1.16**	**AI**
I can afford	3.34	0.790	**VI**
Prestige	1.37	1.482	**LI**
Most of my friends' children are in the same school	0.86	1.213	**LI**
Accessibility of School (Grand mean)	**1.69**	**1.26**	**AI**
Ease of access to the school	2.76	0.968	**VI**
The school is in the neighbourhood	1.51	1.414	**AI**
My school has a school bus that picks up my child	1.22	1.396	**LI**
The school is closer to my work place	1.26	1.278	**LI**

Key: NI = Not Important at all, LI = of Little Importance, AI = of Average Importance, VI = Very Important, AE = Absolute Essential

Source: Author's Construct (2023)

The individual components of each of the four main constructs were examined more a detailed result. The perceived quality of the school was captured by 8 observed aspects as presented in Table 12. The outcome suggests that the respondents considered the need for a school to have *enough qualified teachers* and to have a track record of *performing well academically* as

absolutely essential (AE) in their choice of the school for their wards. Also, evidence of *well-motivated staff* and the presence of enough *and spacious classroom blocks* were rated as very important (VI) aspects of their quality checks and the decision to enroll their wards in a school. Finally, the respondent rated the existence of a *well-equipped library, improved social amenities and infrastructure* and well-*equipped science lab/voc./ICT facilities* as being of average importance in their choice of pre-tertiary educational institutions for their wards. The results imply that both teacher characteristics and school characteristics are important to individuals' decision to choose a pre-tertiary institution for their wards in Accra.

Child's Security was proxy by 5 observed aspect as presented in Table 12. The results indicated that the respondent rated the need for *Child security to be a core priority of the school, where movements of children are monitored promptly* and *the school is well fenced* as being of great importance. The presence of *active CCTV gadgets fixed at vantage places* and *parents or a guardian owning the school* was of little importance to the choice of pre-tertiary institution for the wards of the respondents.

In the case of economic or social status proxies, it was observed that the respondents rated the *ability to afford* as very important to the school choice decision, but Prestige and the fact that most of the wards of the parent or guardian were in the same school were rated as being of little importance to the school choice decision. In terms of accessibility, the respondents rated ease *of access to the school* as very important to school choice decisions, and the location of the school in the neighbourhood was of average importance. Also, the closeness of the school to the parent or guardians' work place and a school

bus that picks wards were rated as being of little importance to the school choice decision of the respondents.

The last part of the analysis in this objective examined how the four observed aspects contribute to the school choice decision of the respondents. The observation made from the grand mean was subjected to a statistically significant test under the current analysis. The CFA was initially applied on the observed aspects of choice factors as presented in Table 12; and the factors variables were predicted to serve as indices for the respective constructs. The indices were then considered as observed aspects of a latent variable called choice factors. The CFA results, as presented in Table 13, suggest that all four measures are observed aspect of the school choice decision of the participants. The results indicated that if the contribution (loading) of the perceived quality of the school is 1 then that of Childs' security is about 0.828, followed by economic and social status at 0.732 and accessibility at 0.680. Since all the coefficients are pure values (have no unit) it was concluded that the drivers of choice in terms of importance are the perceived quality of the school, provisions for wards' security, economic or social status and accessibility. It is worth mentioning that these analyses are general to both private and public schools, and not the assessment of the choice between private and public schools. That is, for two public schools in the same catchment area, parents or guardians are more likely to enroll their wards in the one they perceived to have better teaching staff and security for their wards irrespective of the proximity of the schools. The same could be said of two private schools in the same locality, but the begging question is whether that applies to the choice between public and private schools.

Table 13: Confirmatory Factor Analysis (CFA) of Predictors of Choice of School

Measurement	Coef.	Std. Err.	z	P>|Z|	[95% conf. interval]	
Perceived quality of schools						
Choice						
Cons	1	(constrained)				
	0	(constrained)				
Child security						
Choice	0.8284613	0.0075405	109.87	0.000	0.8136821	0.8432404
Cons	0	(constrained)				
Accessibility of school						
Choice						
Cons	0.679656	0.0093378	72.79	0.000	0.6613544	0.6979577
	0	(constrained)				
Economic status						
Choice	0.7318807	0.0097677	74.93	0.000	0.7127364	0.751025
Cons	0	(constrained)				
Var(perceived quality of schools)	0.3041593	0.0209268			0.2657887	0.3480693
Var(child security)						
Var(accessibility of school)	0.1129981	0.0119764			0.0918024	0.1390875
Var(economic status)	0.3557761	0.0202607			0.3182018	0.3977872
Var(choice)						
	0.381026	0.0224392			0.3394893	0.4276447
	7.024752	0.3593199			6.354649	7.765518

Source: Author's Construct (2023)

Research Question Two: What School Factors Explain Parents' School Choice between Public and Private Schools for their Wards?

This research question focused primarily on the factors that determine the respondents' choice between public (relatively free) and private (relatively fee-paying) in the study area. The logistic regression model was used since the dependent variable is dichotomous. That is the dependent variable, choice of school, was defined as 1 if the individual has a net private school choice (i.e. have more of the wards in private schools) and 0 if the individual had a net choice of public school (i.e. have more of the wards in public schools). This definition was based on the fact that the market structure of education in Ghana is predominantly a duopoly of public and private; and in an urban area like Accra, it is likely to have a ward in both systems (the need to define in terms of the net). The significant observed aspect of the four major constructs used in objective one was used to create indexes to serve as independent variables alongside the demographic characteristics of parents or guardians.

The maximum likelihood estimation technique was used to estimate the logistic regression after which the necessary post-estimation tests were done. The Wald test of overall significance indicated that the fitted model was at least better than an empty model that has only an intercept (Chi-square 158.465; Prob > chi2 0.000<0.05). The classification test also indicated that about 67.9% of the outcomes are correctly classified, which is relatively good for a cross-sectional model. The outcome of the logistic regression was presented in Table 14 and accordingly interpreted in terms of the odds ratio. The results, as presented in Table 14, suggested that *Social Status, Child Security, Perceived*

Quality of school have direct effects on the odds that a parent in Accra shall be a net adopter of a private school for pre-tertiary education of the wards.

Table 14: Determinants of School Choice Among the Respondents in Accra

Variable	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Social Status	1.229	0.067	3.77	0	1.104	1.368	***
Accessibility	0.881	0.037	-2.98	0.003	0.811	0.958	***
Child's Security	1.083	0.037	2.34	0.019	1.013	1.158	**
Perceived quality	1.064	0.021	3.11	0.002	1.023	1.107	***
Scholarship	2.457	0.658	3.35	0.001	1.453	4.154	***
Married (base)	1	.	.	.	.	.	
Not married	0.753	0.151	-1.42	0.157	0.509	1.115	
Wage public	1	.	.	.	.	.	
wage private	1.397	0.34	1.38	0.169	0.868	2.249	
Self employed	0.782	0.173	-1.11	0.265	0.507	1.206	
Unemployed	0.734	0.357	-0.64	0.525	0.283	1.906	
Low education (base)	1	.	.	.	.	.	
Higher education.	2.8	0.584	4.94	0	1.861	4.214	***
Male (base)	1	.	.	.	.	.	
Female	0.52	0.087	-3.91	0	0.374	0.721	***
Household size	0.91	0.035	-2.48	0.013	0.844	0.98	**
Extend. (base)	1	.	.	.	.	.	
Nuclear	4.224	1.197	5.09	0	2.424	7.359	***
Constant	0.03	0.02	-5.41	0	0.009	0.108	***
Mean dependent var		0.395	SD dependent var		0.489		
Pseudo r-squared		0.160	Number of obs		832		
Chi-square		158.465	Prob > chi2		0.000		
Akaike crit. (AIC)		965.994	Bayes. crit. (BIC)		1032.128		

*** *p<.01*, ** *p<.05*, * *p<.1*

Source: Author's Construct (2023)

The results, as presented in Table 14, suggested that Social or Economic Status, Child Security, and Perceived Quality of school have direct effects on the odds that a parent in Accra shall be a net adopter of private school for pre-tertiary education of the wards. In terms of magnitudes of effect, social status measures were found to influence parent decision more; followed by child's security and perceived quality of the school (1.229>1.083>0.881). Interestingly,

the odd of private school adoption reduce as accessibility improves. The major implication of this finding is that accessibility of school, be it private or public, matters less to adoption than social statuses such as prestige, security of the wards both to school and at school and the perceived quality of the school in terms of qualified and motivated teaching staff and academic performance.

Several demographic variables were also found to explain pre-tertiary school choice between private and public schools. That is, educational level, sex of parent or guardian, household size and family type were found to significantly influence the decision of parents about the school choice of the wards at the pre-tertiary level. It was observed that compared to parents/guardians with low education (up to SHS) the odd that parents that have higher education (tertiary) shall choose a private school for the ward is multiplied by 2.8. That is, highly formally educated parents are about thrice as likely as less formally educated parents or guardians.

Also, it was observed that male household head parents or guardians were more likely to enroll the wards in private schools as against females on average. That is, compared to male parents or guardians the odd that a female parent or guardian shall adopt a private school for most of the wards is multiplied by about 0.52 times that of the males. This result implies that male parents or guardians are about twice as likely as female parent or guardians to choose private schools over public schools.

The household that had the luxury of being purely nuclear, without the significant presence of external family members as part of the household, indicated very high odds to adopt a private school for the pre-tertiary education of their wards as compared to those with external family presence. The

relatively nuclear households were about 4 times more likely than those in extended household setups to adopt private schools over public schools. Also, parents or guardians who access scholarship offers 2.5 times more likely to choose private schools for their wards than those that do not have any such offer. This implies that when financial barriers are removed, most parents and guardians would opt for private schools instead of public schools.

Finally, household size was observed to exert negative effects on the odd that a household shall adopt private school over the public school at the pre-tertiary level. That is, the odd of adopting a private school decline by about 0.09 [1-0.91] for every additional household member that joins that household. Interestingly also, marital status and economic status or occupation were found not to be significant predictors of pre-tertiary school choice among residents in Accra.

The respondents' views were sought on what motivates their switch between public and private schools at the pre-tertiary level. Below are some of the responses from some parents and guardians:

To enable my children to do well in the BECE and get their first choice

The move was because of private schools BECE performance

I realized my children's academic performance were low as compared to my brother's children in private school

My children academic performance was very low as compare to my next-door neighbour that necessitated the move.

The class size was too large and supervision there was poor

The class size was too large, so I moved my children

I moved my children to private school because of the conducive environment such as the facilities there.

The attention given to my children to me was not the best so I moved them to a private school.

I moved my children because of poor monitoring and supervision of assignment or homework

My children complain about the indiscipline of some pupils and lack of commitments of the teachers

The family relocated and I had to move my children to private school because of the distance

Because of relocation, and I found it difficult to enroll them in public school because of their class so they moved to private school

The responses fall into perceived better academic performance in primary school, large class size in public schools relative to private schools, poor monitoring and supervision in public schools as compared to private schools, indiscipline and lack of commitment on the part of the teachers. The question still begs as to whether these are mere perceptions or realities on the ground; but the fact still remains that real decisions have been taken and continue to be taken by parents and guardians based on these views about public schools as being ineffective.

Some parents and guardians also hinted at moving their wards from private to public school and their reasons for the such move were assessed as presented below.

My financial issue does not support [private school fees]

The school fees from the upper primary was very high

Because of the high school fees

The school did not have upper class for the children, so after class 3, they have to continue elsewhere

The class was up to KG, I move them when they complete KG to a public school nearby

The school did not have JHS. Hence after class 6, they have to continue elsewhere

Because of the school placement policy now, my ward went to a public school to sit the BECE, to enable him get his first choice no matter his grade.

This is because the public-school tutors have time for their students. They take their time to explain or understand every students' view. They give extra attention to weaker students

The reasons for which parents or guardians move their wards from private to public schools were very limited and mainly based on the lack of supply of private school systems and the availability of public schools. Another trend observed among parents and guardians were the decision to move their wards to the public school to sit for the BECE examination mainly to guarantee better placement. This observation was collaborated by several parents and it was based on their believe that the placement into better schools [first choice schools] is biased towards public school students for the same BECE results from private schools. An interesting comment given by parents was the fact that public school teachers have time for their students, and have a place for weaker students in their classrooms. Much as this observation seems out of place amid the reasons that parents gave for moving their wards from public to private

schools, the comments could be seen as echoing the fact that public schools are guaranteed to have professionally trained teachers as compared to even the best private schools. The respondent stressed the understanding of the wards though the other parents only stressed the grade aspect of private schools compared to public schools.

Discussion of Results

As discussed in this study, education is a child's fundamental right and it is the utmost responsibility of every parent to ensure that their children get the best education. In that regard, choosing a suitable school is the most important decision parents or households make as parents. The main objective of this chapter was to identify and examine the determining factors that influence households' choice of education for their wards. The findings of the study revealed that the majority of the household heads whose wards and children are in the pre-tertiary institutions in the Greater Accra Region were males (61.78%) with an average household size of 6. Comparing this figure with the current population and housing census, males mostly dominate when it comes to household heads in the Greater Accra Region. Therefore, this finding is not far from what is captured in the 2021 population and housing census. Also, the average number of children in school under the care of household heads studied was 3. Moreover, the average number of children in pre-tertiary institutions under the care of the household heads was 2. The findings also revealed that the predominant household or family type was nuclear, representing 87.26% of the sample studied. The study also revealed that 73.68% of the household heads were tertiary graduates while 20.91% were S.H.S/O/A-level graduates. In addition, 73.92% of the household heads were married while 26.08% were not

married. The study revealed that the majority (60.46%) of the household heads were in wage employment in the public sector while 15.26% were in wage employment in the private sector. This means that, 75.72% of the household heads were in employment. It was also obvious from the findings that the majority (89.54%) of the household heads themselves attended the public schools since public schools were the earliest schools in all the communities in Ghana before the private schools set in. However, this percentage has reduced drastically in the modern days as most parents do send their wards to private schools, especially in the urban areas of the country.

The study further revealed that the most ranked predictor of the choice of school for wards was perceived quality of school (2.82), followed by child's security (2.10), economic status of the parents (1.86) and accessibility of school (1.69). Moreover, parents valued enough qualified teachers, well-motivated staff, enough spacious classroom blocks, the academic performance of the school, the school being fenced, the movements of children being monitored promptly, child's security is a core priority of the school, affordability, and ease of access to the school as very important.

One of these determining variables is the household heads' perceived quality of the schools that their wards or children attend. The variables used to assess the perceived quality of the schools were "The school has enough qualified teachers", "The school has well-motivated staff", "The school has enough spacious classroom blocks", "The school has means of transportation", "The school has a well-equipped library", "The school has improved social amenities and infrastructure", "The school performs well academically", "The school has a well-equipped science/vocational/technical/ICT facilities/labs"

and “The school has a leisure facility” respectively. The result shows that all these variables are indicators of the perceived quality of schools. These indicators are not far from those outlined in the work done by Gilano and Hailegebreal (2021), Subedi (2021) and Valiente, Swanson, DeLay, Fraser & Parker (2020). According to Valiente, Swanson, DeLay, Fraser and Parker (2020), buildings and resources, pedagogy, achievement outcomes, subsequent achievements of pupils are the indicators of the perceived quality of schools. These indicators are also similar to that of Gilano and Hailegebreal (2021). Moreover, these nine variables as described above were all significant as the measuring indicators for the perceived quality of schools. This therefore, shows that the indicators of the perceived quality variables were accurate (Gilano & Hailegebreal, 2021; Valiente, Swanson, DeLay, Fraser and Parker (2020).

Also, the variables used to assess child’s security were “The school is well fenced”, “The school has active CCTV gadgets fixed at vantage places”, “Movement of children are monitored promptly”, “Child’s security is a core priority of the school”, “I wanted my child to attend my church school” and “The school is in the neighborhood” respectively. The correlation between these variables and child security is positive and indicates that the variables were the right measuring indicators of child security. These findings conform to what was found by Rotanova et al. (2021). The study revealed that all the described variables used in assessing a child’s security were significant. This therefore confirmed that the variable, child security is very important in predicting the household choice of education for their wards (Rotanova et al., 2021).

For accessibility of schools, the following variables were used. These were “My school has a school bus that picks my child”, “The school is closer to

my work place", "Ease of access to the school", "Prestige", "Most of my friends' children are in the same school" and "I can afford" respectively. The study revealed that these variables were the true measuring indicators of accessibility. Meanwhile, the results indicate that school accessibility (Badriyah et al., 2021) is also vital in choosing a school for wards or children. The final factor was the economic status of the household heads and their taste for prestigious kinds of schools. A study by Awale (2021) and Qasim et al. (2021) also found similar factors being the determinants of school choice.

The results focused on the community-level factors that affect pre-tertiary school choice. The main findings have been reiterated, discussed and integrated with the exiting literature in this section. The discussion followed the stated research questions.

In terms of the demographic variables, the study revealed that "Gender of household head", "Level of education of household head", "the kind of work household heads do", "the type of school household heads attended", "Household size (No of persons in the household)", and "Number of Children in pre-tertiary schools under their care" were significant in determining the choice of school. These findings are in line with what was found by Sneka and Akshaya (2022), and Awan and Zia (2015). Awan and Zia. in their study examined the parental choice of primary school in Pakistan with a critical look at the types of school's different types of families or households choose for their wards. It came out in their findings that demographic variables of the household heads, such as age, gender, educational level, occupation, and household size were some of the significant variables that influence their choice of school for their children.

In terms of which of the four major drivers of school choice decision, it was observed that the perceived quality of the school and its human resources were the most important factor considered by parents before choosing a pre-tertiary school for their wards. This observation was not surprising since the end product of the whole educational process is performance and how it translates into good grades for academic progression. That is, the major focus of pre-tertiary education is to ensure academic progression; as such parents are most likely to avoid schools that could not guarantee such ultimate aim of good grades. Child's security was the next important driver of pre-tertiary school decisions followed by economic status and then accessibility. The relative importance of child's could be attributed to the age bracket of most of the pre-tertiary wards, usually below 15 years and a young as 5 years. Parents and guardians have the natural tendency to care more about the safety of such students at a tender age; must factor it into their school choice decisions as observed in the current study.

However, it was clear that parents and guardians were willing to trade-off child's security for the quality of school and teaching environments but not for social status or accessibility. Accessibility was rated last among the four main drivers of choice possibly because the determination of a child's security factor some elements of accessibility, hence individuals may not worry much about proximity if they are sure their wards may be saved when they are within the school. For example, an adjacent school that crosses a highway may feel less safe for a ward than a distant school on the same side of the highway as the residence of the ward. Also, some parents may take the extra burden of

commuting their wards to school once they are sure they would be safe within the school premises and its immediate environment.

As discussed earlier, the perceived quality of the schools was measured by the number of qualified teachers in the school, enough spacious classroom blocks, well-equipped science or vocational or technical or ICT facilities or labs, and leisure facilities. An additional factor in the choice of school was the child's security. The child's security was measured by the active CCTV gadgets fixed at vantage places by the school, and the child's security is a core priority of the school. Another factor in choosing a school by the parents was the accessibility of the schools. The accessibility was also measured by the school having buses that convey the children from their homes to school and also pick them to their various houses when school closes, and the easiness in accessing the school by road and proximity of the schools. The outcome of the study supports the results of earlier studies such as Chowdhury and Synthia (2020), Cachanosky and Lopez (2020), Awan and Zia (2015), Michelmore and Pilkauskas (2022), Ashley, et al. (2014), and Magulod (2017) among others. Zuilkowski, Piper and Ong'ele (2020) observed school characteristics such as class size, perceived quality and performance are the major drivers of pre-tertiary school choice in Kenya.

Chapter Summary

The chapter extended the earlier discussion on the drivers of pre-tertiary school choice of parents from community and school factors perspectives. The results first confirmed the statistical importance of household characteristics as predictors of pre-tertiary school choice at both the national and community level in Ghana. On the main focus of the chapter, the results suggested that

community factors such as proximity of the school to household and perceive quality; and school factors such as accessibility and safety were found to be significant factors that influence pre-tertiary school choice at the community level.

CHAPTER SEVEN

HIDDEN COST OF THE IMPLEMENTATION OF THE FREE SHS EDUCATION POLICY TO PARENTS

The purpose of this analysis was to examine the hidden costs associated with the implementation of the free pre-tertiary education policy on parents. Two main research questions were answered in this chapter as stated below:

1. What factors drive extra expenditure on pre-tertiary education in Accra?
2. What are the non-financial costs to parents under the free SHS policy?

Descriptive Statistics

The analysis began with the distribution of extra expenditure as presented by the respondents. Table 15 present the frequencies and percentages of expenditure on the three revenue areas targeted.

Table 15: Distribution of Expenditure on Vacation Classes for Wards

	Overall		Male Heads		Female Heads	
Cost Area	Freq.	%	Freq.	%	Freq.	%
Vacation Classes	378	45.43	247	48.05	131	41.19
Transport	126	15.14	70	13.62	56	17.61
Hostel	11	1.33	6	1.17	5	1.57
	N=832		Male=514		Female=318	

Source: Author's Construct (2023)

The results, as presented in Table 15, suggested that about 45.43% (378 out of 832) of the respondents spent on their wards during the vacation classes; but more of the male heads, 48.05%, than female heads, 41.19%, bears this expense. About 15.14% (126 out of 832) of the respondents agreed they spend on transportation on their kinds of vacation classes; but more of the female heads, 17.61%, than male heads, 13.62%, bears these expenses. However, only

1.33% of the respondent (11 out of 832) spends on their kids to stay in hostels or rented places to attend vacation classes.

Table 16 presents the cross-tabulation of expenditure on extra classes during vacations and choice of pre-tertiary schools. The results indicated that more of the parents who were net adopters of private school spent on their wards to attend vacation classes than the parents or guardians who were net adopters of public school. That is about 58.36% of parents who have more wards in private schools also spend on vacation classes, while only 36.98% of parents or guardians who have more wards in public schools spent on vacation classes of their wards. The chi-square test of dependency indicated that statistical dependency exits between the tendency to spend on vacation classes and the type of school choice for wards (Pearson chi2(1) = 36.6755, Pr = 0.000<0.05). That is, more of the parent with their wards in private schools do spend on vacation classes than those with their wards in public schools.

Table 16: Cross Tabulation of Vacation Class and School Choice

Variable	Public	Private	Total
Do not Spend	317 (63.02%)	137 (41.64%)	454
Spend	186 (36.98%)	192 (58.36)	378
Total	503 (100%)	329 (100%)	832
Chi-square test	Pearson chi2(1) = 36.6755 Pr = 0.000		

Source: Author's Construct (2023)

Table 17 presents the distribution of the actual financial expenditure on the three cost areas. The estimates suggest that parents spend about 316.53 Ghana cedis on vacation classes every term with a relative spread of about 60%. It was further observed that the expenditure could be as low as 50 Ghana cedis and as high as 1,000 Ghana cedis. Also, about 239.13 Ghana cedis is spent in

addition to transportation to and from classes venue every vacation, with the amount ranging from 20 Ghana cedis to 800 Ghana cedis. Though very few parents spent on hostel fees and rent during vacation classes the amount spent was found to be relatively large ranging from 450 Ghana cedis to 2,000 Ghana cedis for every stay for a vacation class. The average rent expenditure was about 997.06 Ghana cedis with a spread of about 77 percent. Together, the parents spend about 434.19 Ghana cedis on average on vacation classes, transportation and accommodation during vocations in Accra and its immediate environment.

Table 17: The Distribution of Extra Monetary Cost for Parents

Variable	Mean (GHS)	CV	Min. (GHS)	Max. (GHS)
Vacation classes	316.53	0.60	50	1,000
Transportation	239.13	2.05	20	800
Hostel Fees/Rent	997.06	0.77	450	2,000
Overall Cost	434.19	0.92	50	2,000

Source: Author's Construct (2023)

What factors Drive Extra Expenditure on the Pre-Tertiary Education in Accra?

The outcome of the descriptive statistics suggested that a significant number of parents and guardians spend an extra amount on their ward's education aside from the main school expenditure mainly to ensure their academic success at the pre-tertiary level. This research question sought to examine the factors that drive such extra expenditure as well as the amount spent on such extra expenditure. The regression-based ANOVA was used alongside predictive margins and it plots to compare the average expenditure across the categorical variables. The analysis was limited to the only parents that spend some amount of money on their wards during the vacation; since the zero from

no expenditure could serve as outliers to the mean estimates. When the zeros were dropped, the dependent variable, the amount spent on vacation classes, was found to be normally distributed; and equality of variances was assured on all the categorical variables as demanded ANOVA analysis. The contrast estimate was conducted after the ANOVA estimate (see Appendix B) and the results was presented in Table 18

Table 18: Contrast Analysis of Extra Pre-Tertiary Educational Expenditure

	Df	F	P>F
Scholarship	1	13.110	0.000
Choice of school	1	4.710	0.030
Marital status	1	4.420	0.036
Occupation	3	2.160	0.092
sex	1	0.040	0.836
family	1	8.240	0.004
Education level	1	3.570	0.059
Denominator	821		

Source: Author's Construct (2023)

The results, as presented in Table 18, indicated that access to scholarship, school choice, marital status family type and parents' level of education are significant predictors of the amount of money spent on vacation classes of wards. The contrast test, as an extension of ANOVA test, can detect statistically significant differences but fail to indicate the sources of the observed differences. Just as post hoc could be done to identify the source of the differences in the case of one-way ANOVA; the predictive margin means could be estimated to determine the source of the difference in the means as

well as determine why some variables were not statistically significant in the ANOVA test. The results of the predictive margin means are presented in Table 19.

Table 19: Predictive Margin Means of Extra Pre-tertiary Educational Expenditure

	Delta-method			
	Margin	Std.Err.	T	P>t
scholarship				
No scholarship	164.038	9.976	16.440	0.000
scholarship	273.635	28.242	9.690	0.000
Choice school				
Public	159.512	12.329	12.940	0.000
Private	203.937	15.477	13.180	0.000
Marital status				
Married/cohabit	214.851	20.226	10.620	0.000
Not married	163.752	11.256	14.550	0.000
Occupation				
Wage Public	177.991	12.512	14.230	0.000
Wage Private	169.879	24.702	6.880	0.000
Self-employed	202.530	23.882	8.480	0.000
Unemployed	68.664	47.714	1.440	0.151
sex of head				
Male	175.486	12.067	14.540	0.000
Female	179.654	15.519	11.580	0.000
family Type				
Nuclear	188.205	10.078	18.670	0.000
Extended	100.880	28.127	3.590	0.000
Education level				
High	189.290	11.327	16.710	0.000
low	142.900	20.339	7.030	0.000

Source: Author's Construct (2023)

The results presented in Table 19 suggest that the predictive average extra educational expenditure would have been GHS 164.04 if all the respondent had no access to scholarship opportunities; and it would have been GHS273.64 if all the respondents had access to scholarship opportunities. The contrast test indicated that this difference was statistically significant at the five percent significance level (F= 13.11, p-value=0.000<0.05). Hence, it was concluded that parents that had a scholarship for their wards leveraged that to

provide more extra classes for their wards during the vacation than those that bear all the pre-tertiary expenses of their wards.

It was also observed that if all the respondents had preference for public schools then the extra educational expenditure would have been about GHS159.51 on average; whilst it would have been GHS203.94 if all of them had a preference for the private school systems. The contrast test confirmed the statistical significance of the observed difference in extra expenditure (F=4.710, p-value=0.030 <0.05). Parents or guardians that have a preference for the private school system have a higher tendency to provide spend more on their wards even if they eventually attend public school at the Senior High school level than those that are used to the public-school system.

Again, it was observed that if the entire respondent were married or cohabiting then the extra educational expenditure would have been GHS 214.851 on average and about GHs163.75 if all the respondents were not married. The contrast test confirmed statistically that married or cohabiting couples spend significantly more on extra classed than unmarried or separated or divorced parents and guardians (F=4.420, p-value=0.036<0.05). It was also observed that parent in purely nuclear family systems spends more on extra classes of their wards (GHS 188.21) than those in some form of the extended family system (GHS 100.88).

If all the respondents were highly educated then the expenditure on extra classes would have been about GHS189.29, and it would have been GHS142.90 if they were less formally educated. Though no statistically significant difference could be observed among the expenditure on extra classes for the respective categorization of the educational level at the five percent significance

level (F=2.16, p-value<0.092>0.05); the significant difference could be claimed at the ten percent significance level (F=2.16, p-value<0.092<0.1). Hence, at the 10% significance level it could be concluded that the self-employed spend more on their ward's extra educational expenses than wage employees, public or private, but the unemployed as expected had the least extra expenditure.

Aside from the monetary cost of vacation classes for wards, especially those at the senior high school level, the respondents were asked to identify other areas of financial cost that they incur under the FSHS policy regime. Table 20a presents the outcome of the financial cost areas they were presented to rate.

Table 20: Respondents' View about the Hidden Financial Cost of Pre-Tertiary Education

Variables	Mean	Median	Std. Dev.	Description
I prefer the cost-saving advantages of free SHS to cost associated with the previous system	3.92	4	1.319	Agree
I spend more on feeding of my wards than I would have paid in a boarding system	4.82	5	1.113	Strongly Agree
I spend more on books because my ward needs to learn on his own most of the time	3.61	4	1.152	Agree
I spent significantly on extra class during the vacation due to its length	2.78	3	1.208	Moderately Agree
I spend significantly more on my ward's feeding because he/she is not a boarder	2.51	2.5	1.228	Moderately Agree
I spent significantly more on transportation because my ward had to travel to classes during vacations	2.38	2	1.076	Disagree
I spend more on utility because my ward stays in hostel or apartment outside the school	3.17	2	1.143	Moderately Agree
I spend significantly more on hostel rents during school session	2.9	3	0.921	Moderately Agree

Source: Author's Construct (2023)

The respondents generally agreed the fact that they *prefer the cost-saving advantages of free SHS to the cost associated with the previous system*. However, they strongly agreed to the fact that they *spend more on the feeding of my wards than I would have paid in a boarding system under the previous system*. These two observations may well appear contradictory but a critical examination reveals they are not. That is, *cost-saving advantages* in the earlier statement may constitute something more than the financial cost to include the stress of raising the money at once among others; whilst the second situation deals with the comparison of uncontrolled feeding expenses of the wards, especially those outside the boarding house, against the fixed boarding fees under the previous system. For example, a quick survey of the parent that had wards in hostels revealed that they spend on average about GHS329.50 a month on feeding which translates into about GHS988.50 in three months (a term under the previous system); but the feeding fees would have been far below that under the boarding system.

The respondent again agreed to the statement that *they spend more on books because my ward needs to learn on his own most of the time* due to the long breaks associated with the tracking and semester system. This observation could be linked to the fact that parents that do not intend to enroll their wards on vacation classes may have to make enough approved text available to their wards to study while at home. Most classes may as well demand that certain text books are acquired by the students to facilitate learning if they don't already have them. The respondents also moderately agreed on the quantitative outcome by stating that *they spend significantly on extra class during the vacation due to its length*. The moderate agreement was in support of the earlier

observation that about half of the parents and guardians were not enrolling their wards into vacation classes; hence may not constitute a cost to them.

The respondent rejected the fact that transportation constitutes a major cost area to their wards, especially those on day system, but moderately agreed to the fact that utility bills and rent constitute significant financial cost to them. The issue of rent is obvious and observation done in some communities closed to SHS revealed that rent shot up as the students compete with residence for space. Where students stay in an apartment with non-students, the issue of utility becomes a major burden since they have to pay for what they are mostly not in the house to use.

What are the non-financial costs to parents under the free SHS policy?

Economic cost includes both explicit and implicit costs; both demands equal attention in the analysis of the hidden cost of pre-tertiary education. The extra financial cost could be considered explicit but other non-financial costs could best be described as implicit. The current research question sought to examine the views of parents and guardians about such implicit costs of pre-tertiary education, with special reference to the FSHS as presented in Table 20b.

Table 21: Respondents' View about the Hidden Non-Financial Cost of Pre-Tertiary Education

Statement	Mean	Median	Std. Dev	Description
I am more concern about the facts that my ward stays outside the school environment when schools are in session	3.5	4	1.317	Agree
I wish my wards were in the boarding due to my busy schedule	3.77	4	1.165	Agree
I will prefer to pay for a boarding fee just to see my ward under the schools' care	4.45	5	1.166	Strongly Agree
The fact that my ward walks to prep on campus or miss prep entirely is a bother to me	2.61	3	1.101	Moderately Agree
I fear my ward will pick bad company for his/her stay in the community alone	2.89	3	1.09	Moderately Agree
My ward complains frequently about mistreatment from room mates	2.39	2	1.053	Disagree
If I had the means I will prefer to see my ward in a private school with boarding instead	2.28	2	1.184	Disagree
I feel my wards performance is negatively impacted by his/her stay outside the school	3.58	4	1.046	Agree
feel my wards performance is negatively impacted by the length of the vacations	4.03	4	1.131	Agree
My ward report of frequent ailment because of poor environments at the hostel or apartment	1.98	2	0.886	Disagree
My wards attendance to school is not encouraging because he/she stays outside the school	1.97	2	0.857	Disagree

Source: Author's Construct (2023)

The respondent generally agreed that they are concerned about the facts that my ward stays outside the school environment when schools are in session, and that they wish their wards were in the boarding due to my busy schedule. As such they strongly agreed to the fact that they would prefer to pay for a boarding fee just to see my ward under the schools' care. They moderately

agreed with the statement that they get bothered by the fact that their ward walks to prep on campus or misses prep entirely due to their stay outside the school; and agreed that their wards performance is negatively impacted by his/her stay outside school as well as the length of the vacations impact on their ward's performances. The respondent generally rejected statements such as their complains frequently about mistreatment from roommates, they prefer to see my ward in a private school with boarding facilities, their wards report of frequent ailment because of poor environments at the hostel or apartments and their wards attendance to school is not encouraging because he/she stays outside the school.

Discussion of Results

All the above analyses revealed that parents do spend extra on their wards irrespective of the free senior high school implementation as reviewed by Ola-Morris (2021) and supported by Mukherjee and Sengupta (2021). According to Mukherjee and Sengupta (2021), though the government provides a vast infrastructure at minimal cost, the parents have to incur a cost from their pockets for various purposes for their ward's education. Furthermore, despite the government's introduction of the Free Senior High School (SHS) policy in 2017, parents continue to allocate monies for supplemental classes for their children (Gborbidzi & Appiah 2019). They said that parents were paying between GH150 and GH500 each student for extra SHS 2 classes. However, the current study found a wider range, ranging from GHS20 to GHS1,000. As an investigation by The Finder newspaper in 2019 and cited by Gborbidzi and Appiah (2019), many senior high schools are conducting vacation classes for second-year students on the blindside of the Ghana Education Service (GES)

both in rural and urban areas. Certain classes are conducted within the school premises, while others take place off-campus and are facilitated by teachers from public schools. The fees for these classes range from GH₵150 to GH₵500 for a duration of two months, contingent upon the specific course the student is undertaking. It was evident that science students incurred the highest costs, attributed to the inclusion of practical lessons in their coursework. These evidences among others indicate that parents spend extra on their wards education irrespective of the free education policy.

In terms of frequencies, it was observed that more male-headed household spend on vacation classes of their wards than female-headed households, though no statistically significant difference between the actual monetary expenditure between them on vacation classes of their wards. The main variables that were found to positively influence the monetary expenditure on extra cost of pre-tertiary education were access to scholarship opportunities, having the ward in private schools, being married/cohabiting, having self-employment and public wage employment, having nuclear families, and having high formal education of the household head. The results on the existence of significant extra cost of pre-tertiary education were consistent with the works of Brion (2020) in the Mfantseman District and Results for Development Institute (2015) in Kasoa all in the Central Region of Ghana. Results from Development Institute (2015) found evidence of the extra cost of pre-tertiary education in all the areas observed in the current study. Brion (2020) observed that non-tuition cost, which is bore by both private and public sector patrons, could be significantly higher at the pre-tertiary level in Ghana that is could lead to drop out in some cases even though tuition may be free or relatively cheaper.

The results of Results for Development Institute (2015) collaborated with that of Brion (2020), and made further findings on feeding as a binding constraint on pre-tertiary education in Ghana.

Aside from the extra cost of vacation classed, the respondents raised issues on cost in the area of feeding, stationary, utility and hostels. These areas were highlighted due to obvious reasons offered for their significant increase due to the commencement of the FSHS policy. The respondents felt they spend more on the feeding their wards on the day streams who must have to provide for themselves. Being on the day stream goes not only with providing your feedings, aside from the lunch at school, but also entails paying for utility bills and rent. The respondent indicated that these expenditures are significantly high under the FSHS regimes. The reasons for such possible increments may not be farfetched as the sudden increase in demand for rent in the adjunct communities to SHS could be inflationary. That is, releasing a large number of day students, who have no relatives in the catchment areas of the school placed could create a shortage and push the rent rate upwards. The same inflationary effects could be felt by feeding through the same demand-supply channels. These aspects of the increased high cost of living in the resident communities of the day students could be attributed to several factors such as the spending habits of the students and the relatively small size of most of the resident communities. That is, the day students could be spend-drift as compared to the boarders who have regulated market to spend on. Also, most SHS are in smaller communities or situated far from the central business district of the cities they are located in, which implies that, the effects of any small increase in population could be felt on demand conditions. Regarding the issue of the cost of stationery, the reasons

given were the length of the vacation due to the track-system. The number of weeks that students have to stay home simply makes expenditure on high-quality books and other stationery a need and not a want. Good books were substitutes rather than complements to teachers, especially where reliable vacation classes could not be accessed; parent must make significant expenditures on them for their wards.

The respondents also, raised issues on non-financial cost associated with their wards staying on their own as day students. The entire issues of non-financial cost boils down to the stress that parents have to bear knowing that their 14-16-year-old wards have become households in totally strange communities due to education. These frustrations were evident from the fact that most of the parents were prepared to pay boarding fees, as in the case of the previous system, just to turn the situation around. Most of them bemoaned the difficulties their wards must go through to enjoy school facilities such as prep and feared the situation could impact negatively on their wards' academic performance.

Chapter Summary

The objective of this chapter is to identify and examine the hidden costs that parents incur on their wards education irrespective of the free pre-tertiary education policy. Although parents are relieved of school fees due to the free education policy, there are other hidden costs that parents bear in terms of accommodation for children who were not able to secure boarding placements, transportation, extra classes (since the time they spend at school is not enough as compared to the previous regime), text books and other miscellaneous expenses.

The result revealed a significant average amount being spent by parents on vacations and extra classes, feeding, transportation, accommodation, books and other necessary materials. The evidence among others indicates that parents spend extra on their wards education irrespective of the free education policy.

CHAPTER EIGHT

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This section of the study concludes the study with a summary, conclusions, recommendations and limitations of the study. It also covered the contributions to knowledge and direction for further studies.

Summary

The free compulsory basic education (FCUBE) and free senior high school (FSHS) policy are one of the best social and economic intervention policies that openly affect both parents and their wards in senior high school since education is recognized in the SDGs as both a fundamental human right and an enabling right that is central to the realization of the whole Agenda 2030. The study explored the prevalence and depth of pre-tertiary education among households in Ghana and specifically for households in Greater Accra on the choice factors for pre-tertiary education and the possibility of hidden cost in the face of FCUBE and FSHS policies. The analysis involved both quantitative and qualitative research approaches, and hence followed the pragmatism research paradigm. Both secondary and primary data were used for the analysis. The secondary data was obtained from the GLSS 7 dataset from the Ghana Statistical Service (GSS) on a representative household sample of the entire country. The primary data was collected through a survey of households in the Greater Accra Region using structured questionnaire.

The datasets from the secondary and primary data sources were used separately to answer different research questions. The analysis used both descriptive and inferential statistics. The descriptive statistics used included the

mean, median and coefficient of variation (CV); while regression analyses were done for the inferential hypothesis testing process. The results were presented, interpreted and discussed in line with the existing literature. The summary of the main findings is presented in the next section.

Summary of Main Findings

The main findings are summarized under the respective research objectives as:

1. **Determinants of Households' Spending on Pre-Tertiary Education**

Private household expenditure on education forms a critical component of education expenditure in many developing countries. Household investments in education are influenced by a wide variety of factors. The results suggested that financial inclusion, marital status of household head, gender of household head, employment status of household head, location of household, education level of household head, household size, and age of household head significantly explain the tendencies that a household would spend on pre-tertiary education; while only financial inclusion, level of education, location of household, household size and age of household head significantly predict the depth of household pre-tertiary expenditure in Ghana.

It was observed that households' expenditure on pre-tertiary education increases sharply at lower household sizes but increases at a decreasing rate when household size is relatively large. The study found threshold effects of 55 years for the effects of household head's age on pre-tertiary expenditure in Ghana. That is, household pre-tertiary expenditure increases sharply with age until 55 years after which it drops at the same sharp rate to produce inverted U-shape. This observation was consistent with the frequency and depth of

expenditure of pre-tertiary expenditure. It was also found that increasing household size decreases both the frequency and depth of pre-tertiary expenditure among Ghanaian households.

The decision to consider both frequency and depth of pre-tertiary expenditure yielded results. The results indicated that though marital status, gender of household head and employment status were statistically significant in predicting the number of households that spend on pre-tertiary education but are not statistically significant at explaining the depth of households' pre-tertiary educational expenditure in the Ghanaian context. That is though female headed households were more likely to spend on pre-tertiary education than male-headed households, but both household heads have identical average expenditure on pre-tertiary education. Similarly, employed or unmarried household heads have high incidence to spend on pre-tertiary education than unemployed or married heads; but their actual pre-tertiary expenditure was identical.

The effects of the location of household on the depth of educational expenditure counter to its effects of frequencies. That is, despite the spending of fewer on wards at the pre-tertiary level, the household heads in Accra (AMA) spend more on pre-tertiary education in monetary terms than any other location in Ghana. Comparatively, the monetary value of educational expenditure on pre-tertiary education is higher in urban areas than those in rural areas. Land ownership, although did not matter for the case of frequency of a household's pre-tertiary expenditure, indicating a direct effect on the depth of a household's pre-tertiary expenditure. That is, household heads that owe land were more likely to spend more on pre-tertiary education than those that do not owe land.

2. **Determinants of Household Choice of Pre-Tertiary Education in Ghana**

At the national level, the results revealed that increasing educational level of household head drives more households towards private schools than public schools. Other factors in the increase household's likelihood to adopt private pre-tertiary schools over public schools include: small household size, female-headed households, financially included households, urban residency and younger households heads up to 45 years and household heads who are not married but employed. Other factors such as school charges and staying with a parent or paying one's own fees also increase the likelihood of adopting private schools for the wards.

3. **Determinants of Household Choice of Pre-Tertiary Education at the Community Level in Ghana**

At the community level the analysis of the primary data confirmed the relative importance of household factors such as household size, gender of household head and educational level of the household head. In addition, the number of children at the pre-tertiary level in the household was found to impact negatively on the decision to choose a private school for wards. The major outcome of the primary data survey was the observation that school characteristics are significant factors in making pre-tertiary school choices both in general and between public and private schools. That is, for both public and private schools the major factors that parents consider before enrolling their wards into a pre-tertiary school were the perceived quality of the school, child security, economic status and accessibility of the school in order of priority.

It was observed that the factor that drives parent/guardian perception of quality of a school includes: *the school has enough qualified teachers, the school has well motivated staff, the school has enough and spacious classroom blocks, the school has means of transportation, the school has a well-equipped library, the school has improved social amenities and infrastructure and the school performs well academically*. The factors that constitute improved amenities and infrastructure includes *the school having a well-equipped science/vocational/technical/ICT facilities/lab and the school has a leisure facility*.

Specific Child Security factors that parent consider before enrolling the ward into a given pre-tertiary institutions were *the school is well fenced, the school has active CCTV gadgets fixed at vantage places, movements of children are monitored promptly, school belong to their church and the school is in neighbourhood*. The accessibility factors of choice included school has a bus to commute ward to and from school and the school is closer to household (proximity); while the economic status variables were *affordability of the school, prestige attached to the school (popularity), and having wards of peers in the schools* in order of importance.

4. Hidden Cost of the Implementation of the Free SHS Education Policy to Parents

The results suggested that despite the state efforts in making education free, there are still some significant hidden costs in the area of extra/vocational classes, transportation and accommodation. In general, the parent spent about GHS434.00 with a range of GHS20.00 to GHS2,000.00 in a semester. It was further observed that household that have access to some form of sponsorship

for their ward's education spend more on extra educational cost, while parent that have their wards in private school also spend more. Also, household head that are married spend more than unmarried household heads on extra educational cost. Self-employed household heads were found to spend more on extra educational expenses than the public wage employed and private wage employed. Educated household heads spent more than the less educated while Nuclear family spend focused households spend more than Extended family focused households on extra educational expenses.

The parents and guardians upheld the cost saving advantages of the Free SHS system though the complained about the length of the vacation which increase their extra educational expenses in the area of vacation class, transportation and stationery. The non-financial costs identified by the parents/guidance about the current SHS system were stress and fear for their wards security, especially when they have to stay outside the school. But they still prefer the current system to seeing their wards in private schools where they have to pay more.

Conclusion

The findings of the study lay the foundation for a number of conclusions to be drawn. First, it was concluded from the results that pre-tertiary educational expenditure is still a significant proportion of household expenditures in Ghana. This is an indication that a lot needs to be done to make pre-tertiary education more affordable even for public school since significant amount of hidden cost still exist. Clearly the Free Compulsory Basic Education (FCUBE) has not reduced pre-tertiary educational expenditure enough as expected. With regard to the Free Senior High School (FSHS) policy, the issues

have to do with the semester and tracking system that prolong the vacation period and necessitate further extra educational expenses on parents and guardians. The responds were still appreciative of the cost reducing advantages of the FSHS but seek for improvement in the semester and tracking system.

The observation that very educated and financially included household were most likely to opt for private school suggests that most Ghanaian appear to treat public schools as inferior product. This view was corroborated by the observation that the odd of adopting public schools increases as educational expenses increases. That is, the income effects of price increase on public schools is positive which signifies an inferior product such that more parent shall abandon public schools as their income increases or the state reduces the cost of public schools significantly.

The pull factors identified for private schools to attract more pre-tertiary education choice were found to be improved infrastructure, perceived quality and security of school environments. Possibly the major pull factor of more parents to choose public schools over private school are the proximity and reduced charges. Removing these barriers could see more parents abandoning the state investment in public schools for their perceived quality private school options.

Also, the observation that the choice of pre-tertiary school type depends on some household characteristics could be considered as evidence of inequality because access to quality education is a right not a prestige that should be reserved for the highly educated, financially included, younger household heads and households with small size. Parent were found to be very concern about

their pre-tertiary school type by seeking to prioritized school quality and child security in their choice of school.

It was also concluded from the findings that the propagation of incidence of pre-tertiary educational expenses differ significantly from that of the actual depth of pre-tertiary expenses among household heads in Ghana. It was further concluded that the urban Ghana appear to use for resources to prepare the same number of students in rural areas if all other facts such as performance are held constant. This was evident in the high incidence of pre-tertiary enrolment in rural and compared with the urban areas; as against the low average pre-tertiary educational expenses in rural compared with the urban residents.

Recommendations

The conclusion from the main findings calls for some recommendations that shall be necessary to resolve some of the issues observed.

1. The study recommends the Ministry of Education through the Ghana Education Service needs to providing more public schools, equipping existing ones and improving infrastructure in public schools to make them competitive with private schools.
2. The Ministry of Education through the Ghana Education Service and the Free SHS Secretariat needs to fast-track the end of the tracking system of SHS in all of its forms. This could be done by expanding infrastructure in existing schools to accommodate all streams of students at the same time to reduce the vacation period. Also, the Ministry of Education can consider expanding the policy to private SHS to make use of the wasted space in some private schools alongside building new schools.

3. Parents need to prepare for the extra cost in the short to medium terms and encourage their wards to take advantage of online and Television lessons which are mostly free.
4. Private school owners at the pre-tertiary level need to invest in the infrastructure of their schools since it is their best bet at competing with the relatively free public schools. The investment into infrastructure needs to include spending on school buses and security services to improve a sense of security in the school environment.
5. Successful Private School owners need to study the geographical distribution of their student population and establish branches closer to well-patronized areas to ensure the proximity and security of their students to households. The Association of Private Schools in Ghana need to sensitize their members on pricing strategies to ensure moderate but economical charges necessary to sustain the interest of parents in the patronage of private schools.
6. Ghanaian couples need to maintain a relatively small family size (at most 6) that would allow for the effective provision of quality pre-tertiary education to their wards. Also, couples need to plan to have their family early to ensure that ensure they bear their pre-tertiary educational expenses before 55 years of age estimated to be the threshold in Ghana.
7. The Ghana Statistical Service (GSS) needs to consider asking more school choice questions in the area of quality, affordability and security in future surveys to drive further research into parents' school choice decisions at all levels of education since this study had to collect primary data on these important variables. Additionally, as indicated earlier concerning the variables such as quality, affordability and security, a direct attempt needs to

be made by the GSS team to encourage respondents to respond to vital questions on education during questionnaire administration.

Contribution of the Study

These made significant contribution to the debates on pre-tertiary educational expenditure. First, the study makes contribution to the literature in the area of drivers of frequencies and depth of pre-tertiary educational expenditure since earlier study focus on only one of them; and mostly used the two terms interchangeable. The outcome of the current study accentuated the distinction between the frequency (which is the likelihood to spend) and the depth (which is the actual amount spent) of pre-tertiary educational expenditure. Second, the study also contributes to the drivers of pre-tertiary expenditure at both macro (national) and micro level (AMA). Thus, the study made observation on national factors which were mainly household characteristics; and community factors which were both household and school factors. Also, the study extended the scope of expenditure to include extra or hidden cost Finally, the analyses of the study were extended beyond simple effects (marginal effects) to include interactive effects of the drivers which made more revelation about the determinants.

Limitations and the Way Forward

The study could not gather quantitative data on the enrolment and performance of students since the implementation of the free pre-tertiary education policy. An attempt was made to secure this data but the researcher could not get it. However, further research should be carried out by gathering data on the performance and enrolment of the pre-tertiary education in the free

policy regimes. This will help to know whether the students are performing irrespective of the challenges they encounter. This study was limited to the extra expenditure of the parents and their respective choice of schools for their wards. This was limited to only pre-tertiary levels. Further research should consider broadening the scope to the tertiary levels. The study concentrated on the Greater Accra Region for the survey. Further research should consider other municipalities, districts or regions.

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APPENDIX A

RESEARCH INSTRUMENT

UNIVERSITY OF CAPE COAST

DEPARTMENT OF BUSINESS AND SOCIAL SCIENCES

EDUCATION

QUESTIONNAIRE FOR HOUSEHOLD HEADS

Preamble:

This questionnaire is meant for academic research work. The aim is to investigate ithe ifactors iinfluencing ihouseholds' ispending and choice of Pre-Tertiary Education in Ghana under the Free Education Policy This research is in partial fulfilment of the requirements for the award of a Doctor of Philosophy (Ph.D.) in Economics Education. Please you are assured that whatever information you give will be treated as confidential. It will therefore be appreciated if your response is made as objective as possible.

Thank you.

Do you have a ward or child at the basic level Yes ( ) No ( )

[Note: If the response is 'No', do not fill the questionnaire]

Please tick and fill the blank spaces appropriately

SECTION A: HOUSEHOLD DEMOGRAPHIC DATA

1. Gender of household head:

    1. Male

    2. Female

2. Household type

    1. Nuclear

    2. Extended

3. Level of education of household head:

    1. No formal education
    2. Primary/JHS
    3. S.H.S/A/O-Level
    4. Tertiary
    5. Any other, please specify……

4. Marital Status:

    1. Not Married
    2. Married

5. Religion:

    1. Christian
    2. Islam
    3. Traditional Religion
    4. Others (specify)

6. Occupation

    1. In wage employment in public sector
    2. In wage employment in private sector
    3. In self-employment
    4. Not working

7. The type of school you attended public ( ) I private ( ) does not apply ( )

8. Family size (Number of persons in the family): ……..

9. Household members who are working: ……..

10. Number of Children in school under your care: ……...

11. Number of Children in pre-tertiary schools under your care: ……..

12. Which of the following categories of pre-tertiary schools do your children attend (You can tick more)? (Please, write N/A if your ward is not at this level)

1. All in private schools
2. All in public schools
3. More in public than in private
4. More in private than in public

13. Has it ever occurred to you to move your ward (s) from public to private?

Yes ( ) No ( )

If yes, what necessitated the move?

……

……

……

14. Have you ever moved your ward from private to public? Yes ( ) No ( )

If yes, what necessitated the move?

……

……

……

15. Is any of your children under scholarship? Yes ( ) No ( )

If yes, what does it cover?

……

……

……

SECTION B:

DIRECTION

Please tick (√) the following statements according to the level of importance you place on the variables that motivated your choice of school for your ward or child using the following five scales. Thank you.

0 = not important at all

1 = of little importance

2 = of average importance

3 = very important

4 = absolutely essential

Which of the following motivated the choice of school your ward attends

Quesno:	Variables	0	1	2	3	4
	Perceived Quality of schools					
1	The school has enough qualified teachers					
2	The school has well-motivated staff					
3	The school has enough and spacious classroom blocks					
4	The school has means of transportation					
5	The school has a well-equipped library					
6	The school has good social amenities and infrastructure					
7	The school performs well academically					

8	The school has a well-equipped science/vocational/technical/ICT facilities (laboratory)					
9	The school has a leisure facility					
	Child's Security					
10	The school is well-fenced					
12	The school has active CCTV gadgets fixed at vantage places					
13	Movements of children are monitored promptly					
14	Child's security is a core priority of the school					
15	I wanted my child to attend my church school					
	Accessibility of School					
16	The school is in my neighborhood					
17	My school has a school bus that picks my child					
18	The school #is closer to my work place					
19	Ease of access to the school					
	Economic Status					
20	Prestige					
21	Most of my friends' children are in the same school					
22	I can afford the bills					

SECTION C: EXTRA COST ON EDUCATION

1. Do you spend ion your ward ion extra classes during the vacation? Yes [ ] No [ ]
2. If yes, please specify the average amount of fees

   GHS……
3. Does your ward travel to classes during vacation? Yes [ ] No [ ]

   If yes, please specify the average transport cost for the period

   GHS……
4. Does your ward need to stay in a hostel in order to access the classes during vacation?

   Yes [ ] No [ ]

   If yes, please specify the average amount of hostel fees

   GHS……
5. **In each of the statements below indicate whether you, Strongly Agree (SA), Agree (A), Moderately Agree (MA), Disagree (DA) and Strongly Disagree (SDA)**

STATEMENT	SA	A	MA	DA	SDA
I spent significantly ion extra class during vacation due to its length					
I spend more ion books because my ward needs to learn ion his own most of the time					
I spent significantly more ion transportation because my ward had to travel to classes during vacations					

I spend significantly more ion hostel rents during school session					
I spend significantly more ion my ward's feeding because he/she is not a boarder					
I am more concerned about the fact that my ward stays outside the school environment when schools are in session					
I spend more ion utility because my ward stays in a hostel or apartment outside the school					
My ward reports of frequent ailment because of poor environment at the hostel or apartment					
I will prefer to pay for a boarding fee just to see my ward under the school's care					
My ward attendance to school is not encouraging because he/she stays outside the school					
I fear my ward will pick bad company during his/her stay in the community alone					
My ward complains frequently about mistreatment from roommates					
I feel my ward's performance is negatively impacted by his/her stay outside the school					
If I have the means I will prefer to see my ward in a private school with boarding instead					

The fact that my ward walks to prep ion campus or miss prep entirely is a boarder to me					
My ward is mostly at home with less supervision due to the length of the vacation					
I wish my wards were in the boarding due to my busy schedule					
I prefer the cost saving advantages of free SHS to cost associated with the previous system					

Please fill this section only if you have a ward in SHS who is a day student

1. Where does your ward stay to attend class during school days?

   Hostel [ ] Rented Apartment [ ] With a family member/friend [ ]

2. Do you pay for the accommodation? Yes [ ] No [ ]
3. If yes, please specify the average amount GHS……
4. Does your ward travel to school? I Yes [ ] No [ ]
5. If yes, please specify the average amount of transport cost GHS……

Covid-19 and Education

1. To what extent has the covid-19 restrictions affected the expenditure on your ward's extra classes? No effect ( ) Low effect ( ) Moderate effect ( ) Severe effect ( ) Very severe effect ( )
2. To what extent do you think your wards academic performance is impacted by the long break due to the pandemic? ? No effect ( ) Low

effect ( ) Moderate effect ( ) Severe effect ( ) Very severe effect ( )

3. What other challenges have you encountered on your ward's education due to the pandemic?

……

……

……

……

4. What plans do you have for your ward's education should the pandemic persist or return in the near future?

……

……

……

……

5. Do you think the long break in the academic calendar was necessary?

……

……

……

……

Thank you.

APPENDIX B

PRELIMINARY RESULTS (ANOVA ESTIMATES)

	Delta-method		Unadjusted
	Margin	Std.Err.	Groups
1#Male#1. Urban	0.486	0.072	HIJ
_at#Sex#loc2			
1#Male#1. Urban	0.486	0.072	HIJ
1#Male#2. Rural	0.421	0.072	F HIJ
1#Female#1. Urban	0.639	0.069	L
1#Female#2. Rural	0.600	0.075	KL
2#Male#1. Urban	0.334	0.028	FGH
2#Male#2. Rural	0.287	0.031	D FG
2#Female#1. Urban	0.485	0.040	JK
2#Female#2. Rural	0.452	0.046	IJ
3#Male#1. Urban	0.209	0.029	E
3#Male#2. Rural	0.179	0.026	C E
3#Female#1. Urban	0.334	0.048	GHI
3#Female#2. Rural	0.310	0.047	GH
4#Male#1. Urban	0.121	0.039	BC
4#Male#2. Rural	0.104	0.033	B
4#Female#1. Urban	0.209	0.064	EF
4#Female#2. Rural	0.195	0.060	EF
5#Male#1. Urban	0.066	0.036	A
5#Male#2. Rural	0.057	0.030	A
5#Female#1. Urban	0.121	0.063	ABCD
5#Female#2. Rural	0.113	0.058	ABC

		Delta-method				
	Margin	Std.Err.	z	P>z	[95%Conf.	Interval]
Incidence of payment						
1. Parent	0.294	0.017	16.850	0.000	0.260	0.328
2. support	0.245	0.092	2.670	0.007	0.065	0.424
3. self	0.423	0.073	5.780	0.000	0.279	0.566
Fathers Education						
none	0.279	0.025	11.030	0.000	0.230	0.329
basic	0.313	0.024	13.060	0.000	0.266	0.360
secondary	0.330	0.057	5.770	0.000	0.218	0.442
Tertiary	0.382	0.056	6.810	0.000	0.272	0.492
Marital status						
Married	0.316	0.024	13.020	0.000	0.269	0.364
Not Married	0.298	0.025	11.850	0.000	0.249	0.348
Economic Status						
Employed	0.312	0.018	17.560	0.000	0.277	0.346
Not Employed	0.290	0.038	7.560	0.000	0.215	0.366
Financial Inclusion						
Included	0.239	0.031	7.770	0.000	0.179	0.300
Not Included	0.330	0.018	18.040	0.000	0.294	0.365
Location						
Accra	0.395	0.053	7.440	0.000	0.291	0.499
Urban Coastal	0.319	0.035	9.130	0.000	0.250	0.387

Urban Forest	0.309	0.033	9.460	0.000	0.245	0.373
Urban Savannah	0.215	0.049	4.370	0.000	0.119	0.312
Rural Coastal	0.356	0.059	6.040	0.000	0.241	0.472
Rural Forest	0.350	0.040	8.720	0.000	0.271	0.428
Rural Savannah	0.167	0.044	3.760	0.000	0.080	0.254
Sex of HH						
Male	0.274	0.018	15.680	0.000	0.240	0.309
Female	0.412	0.035	11.720	0.000	0.344	0.481

APPENDIX C: EXPLORATORY FACTOR ANALYSIS

Perceived Quality of School

Principal components/correlation — Number of obs = 832
Number of comp. = 9
Trace = 9
Rotation: (unrotated = principal) — Rho = 1.0000

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	3.5843	1.89233	0.3983	0.3983
Comp2	1.69197	.806651	0.1880	0.5863
Comp3	.885315	.133778	0.0984	0.6846
Comp4	.751537	.139107	0.0835	0.7681
Comp5	.61243	.0820161	0.0680	0.8362
Comp6	.530414	.127132	0.0589	0.8951
Comp7	.403281	.0842785	0.0448	0.9399
Comp8	.319003	.0972432	0.0354	0.9754
Comp9	.22176	.	0.0246	1.0000

Childs security

Principal components/correlation — Number of obs = 832
Number of comp. = 6
Trace = 6
Rotation: (unrotated = principal) — Rho = 1.0000

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	2.62615	1.35371	0.4377	0.4377
Comp2	1.27245	.566635	0.2121	0.6498
Comp3	.705813	.189965	0.1176	0.7674
Comp4	.515848	.0544733	0.0860	0.8534
Comp5	.461375	.0430119	0.0769	0.9303
Comp6	.418363	.	0.0697	1.0000

Accessibility

Principal components/correlation — Number of obs = 832; Number of comp. = 4; Trace = 4; Rho = 1.0000

Rotation: (unrotated = principal)

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	1.81244	.718727	0.4531	0.4531
Comp2	1.09371	.314412	0.2734	0.7265
Comp3	.779301	.464754	0.1948	0.9214
Comp4	.314547	.	0.0786	1.0000

Economic status

Principal components/correlation — Number of obs = 832; Number of comp. = 3; Trace = 3; Rho = 1.0000

Rotation: (unrotated = principal)

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	1.23124	.230714	0.4104	0.4104
Comp2	1.00053	.232305	0.3335	0.7439
Comp3	.768225	.	0.2561	1.0000