

Households' Investment in Financing Education: Ghana's Recent Experience

BY

OWUSU, BERNARD MENSAH

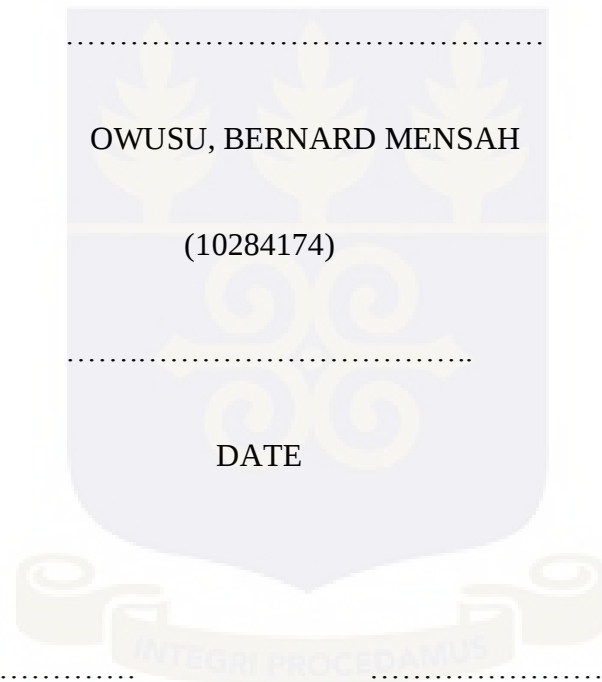
(10284174)

**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA,
LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT
FOR THE AWARD OF MPhil ECONOMICS DEGREE.**

MARCH, 2017

DECLARATION

I, OWUSU MENSAH BERNARD, hereby declare that this thesis is the original research undertaken by me under the guidance of my supervisors towards the award of an MPhil Degree in Economics at the Department of Economics, University of Ghana. I hereby declare that except references cited in the work, this thesis is a product of my effort.



DR. AUGUSTINE FRITZ GOCKEL
(SUPERVISOR)

MR. THEODORE ANTWI-ASARE
(SUPERVISOR)

DATE

DATE

ABSTRACT

The primary quest of governments, development partners (multilaterals and well-meaning civil societies) and Non-Governmental Organizations to end all forms of poverty and ensure dignified life for all under the UN declarations (MDGs and now SGDs) remains a prime policy target for all development stakeholders especially those in developing countries. The link between education, poverty reduction, healthy living and economic growth has been extensively studied in the literature. Public and private (largely households) are two popular educational funding sources in Ghana. In the era of scarce government resources, this thesis examines the contributions households make towards financing education (at all levels) for its members. The study adopts a quantitative research approach using cross sectional regression and probit analyses based on Ghana Living Standards Survey 6 (GLSS VI). The results show that household income has a significantly positive effect in determining households educational spending. Besides, household size, age of household head, employment status of household head, educational level of household head, and asset ownership of households largely have a positive effect on households' spending on education. The study recommends inter alia that the Government of Ghana should as a matter of urgency make commitments towards improving rural incomes by investing heavily in agriculture. This is projected to increase rural household income and rural household spending on education. Moreover, the government should increase educational commitments in vulnerable areas particularly rural and Savannah areas. The study proposes a pragmatic means of curbing upsurge in population without having a negative impact on future development. Lastly, the study proposes that since education level of household heads significantly influence households' educational spending, governments should institute and intensify adult educational programmes.

DEDICATION

This thesis is dedicated to all my loved ones especially to my mum, siblings, girlfriend and friends both in Ghana and diaspora for their support during my pursuit of this degree.



ACKNOWLEDGMENTS

First of all, I am very grateful to the Lord God Almighty, for granting me life. He has been faithful and has always brought the right people into my life for various purposes. May His name be adored now and always!

I greatly appreciate the tireless effort of my supervisors Dr. Augustine Fritz Gockel and Mr. Theodore Antwi-Asare whose guidance and genuine supervision invaluablely enriched this study. I am most grateful to Dr Boakye-Yiadom of the Department of Economics, University of Ghana and Dr Ichiro of Soka University, Japan for their practical lectures in development economics that aroused my interest in choosing a topic in that field. I am also eternally grateful to Dr. Poon Wai Ching of Monash University, Malaysia for being gracious towards me this far. I am very grateful to all my MPhil mates especially Samuel Ampaw and David Aduhene Tanoh for their assistance whiles I was away.

May the Lord Bless my brother, Bright Amankwa, for supporting my M.Phil. Studies and a big thanks to my mum for all the spiritual and emotional support. To my colleagues, management and members of NERA especially my friend; Emerald (the lady who didn't allow me to forfeit my masters dream when the going became tough), I say a big thank you for your invaluable contributions to the success of this study. May the good Lord bless all your attempts in life.

Finally, God bless everyone whose name could not be mentioned here due to lack of space; especially members of my family and my friends in Soka University, Japan for their exceptional demonstration of love to me.

Table of Contents	
DECLARATION	i
ABSTRACT	ii
DEDICATION	iii
ACKNOWLEDGEMENTS	iv
LIST OF TABLES	
LIST OF FIGURES	
LIST OF ABBREVIATIONS	
CHAPTER ONE	
INTRODUCTION	
1.1 Introduction.....	
1.2 Background.....	2
1.3 Problem Statement	4
1.4 Research Objectives	7
1.5 Significance of the study.....	7
1.6 Outline of study	8
CHAPTER TWO	
BROAD OVERVIEW AND STYLIZED FACTS	
2.1 Introduction	10
2.2 Educational Sector Overview and Reforms.....	10
2.2.1 Educational Sector Overview Before 1951.....	11
2.2.2 Educational Sector Overview From 1951-1986.....	12
2.2.3 Educational Sector Overview From 1987 Onwards.....	14
2.3 Some Key Indicators of the Educational Sector.....	17
2.4 Households expenditure on Education in Ghana.....	28
CHAPTER THREE	
LITERATURE REVIEW	
3.1 Introduction.....	34
3.2 Background to Theoretical Literature.....	34
3.3 Human Capital Theory.....	37

3.4 Household Expenditure Economics on Education.....	38
3.5 Empirical Literature.....	39
Conclusion and Summary of Empirical Literature.....	44
CHAPTER FOUR	
METHODOLOGY	
4.1 Introduction.....	46
4.2 Data	46
4.3 Data Analysis.....	47
4.4 Probit Model.....	48
4.5 Empirical Model Specification.....	49
4.6 Description of Variables and Expected Behaviour.....	50
4.6.1 Location of Household.....	52
4.6.2 Household Characteristics.....	55
4.6.3 Household Head Characteristics.....	56
4.7 Diagnostic Test.....	59
CHAPTER FIVE	
DISCUSSION OF RESULTS	
5.1 Introduction.....	60
5.2 Descriptive Statistics.....	60
5.3 Empirical Test Results	62
5.4 Discussion of Cross Sectional Results.....	66
5.4.1 Household Characteristics.....	67
5.4.2 Household Head Characteristics.....	68
5.4.3 Location of Household.....	70
5.5 Discussion of Probit Results	72
5.5.1 Household Characteristics.....	73
5.5.2 Household Head Characteristics.....	73
5.5.3 Location of Household.....	74
5.6 Conclusion.....	75

CHAPTER SIX

SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

6.1 Introduction.....	77
6.2 Summary and Conclusions.....	77
6.3 Policy Recommendation.....	80
REFERENCES	83
LIST OF VISITED WEBSITES.....	96
Appendix.....	96



LIST OF TABLES

Table 2.1 Number of Schools in Ghana at the Various Educational Levels.....	23
Table 3.1: Summary of Empirical study.....	45
Table 4.1 Definition of Variables.....	50
Table 4.2 Summary of Household Location and the Expected Signs.....	54
Table 4.3: Summary of Variables and Expected Signs.....	58
Table 5.1: Descriptive Statistics.....	61
Table 5.2 Results from Cross Sectional Regression.....	63
Table 5.3: Breusch-Pagan/Cock-Weisberg test.....	64
Table 5.4: Variance Inflation Factors for the Independent Variables (VIF).....	65
Table 5.5: Test Results from Cross Sectional Regression.....	66
Table 5.6 Test Results from Probit Model.....	72

LIST OF FIGURES

Fig 2.1 Public Educational Spending as a Percentage of Gross Public Expenditure.....	18
Fig 2.2 Public Educational Spending as a Percentage of GDP.....	19
Fig 2.3 Educational Sector Allocations in Percentages.....	20
Fig 2.4 Public Educational Spending at the Various Educational Levels.....	21
Fig 2.5 Sources of Educational Income.....	22
Fig 2.6 Gross Enrolment Rates at the Various Educational Levels.....	24
Fig 2.7 Pupil to Teacher Ratios at the Various Educational Levels.....	25
Fig 2.8 Percentage of Trained Teachers at the Various Educational Levels.....	26
Fig 2.9 Progression Rate to Secondary School by Sex.....	27
Fig 2.10 Gender Parity Indicators at the Various Educational Levels.....	28
Fig 2.11 Percentage of Households' Educational Cost Components.....	29
Fig 2.12 Percentage of Households' Educational Cost Item by Locality Using GLSS V.....	31
Fig 2.13 Percentage of Households' Educational Cost Item by Locality Using GLSS VI.....	31
Fig 2.14 Households' Educational Sub-Sector Expenditure.....	32

Fig 2.15 Households' Educational Financing Structure: Who Pays?.....33



LIST OF ABBREVIATIONS

MDG	Millennium Development Goals
WB	World Bank
PRSP	Poverty Reduction Strategy Policies
WEF	World Economic Forum
WCEFA	World Conference on Education for All
UNDP	United Nations Development Program
SSA	Sub Sahara Africa
UNESCO	United Nations Educational, Scientific and Cultural Organization
GPRS	Ghana Poverty Reduction Strategy
GSGDA	Ghana Shared Growth and Development Agenda
ERP	Economic Recovery Program
SAP	Structural Adjustment Program
GDP	Gross Domestic Product
BECE	Basic Education Certificate Examination
WASSCE	West Africa Secondary School Certificate Examination
SDG	Sustainable Development Goals
ODA	Official Development Assistance
DFID	Department for International Development
EFA	Education for All
UPE	Universal Primary Education
CHASS	Conference of Head of Assisted Schools
GETFUND	Ghana Education Trust Fund
GLSS	Ghana Living Standards Survey
OECD	Organization of Economic Cooperation and Development
IDA	International Development Association
HIV	Human Immuno- Deficiency Virus

AIDS	Acquired Immuno- Deficiency Syndrome
USA	United States of America
NARC	National Rainbow Coalition
IMF	International Monetary Fund
CPP	Conventions People Party
FCUBE	Free Compulsory Universal Basic Education
AfDB	African Development Bank
CDF	Comprehensive Development Framework
OLS	Ordinary Least Square
GSS	Ghana Statistical Service



CHAPTER ONE

1.1 INTRODUCTION

Education can either be funded by governments, corporate bodies, multilateral organizations, communities, families or individuals. Despite the above truth, many reduce educational funding to two main sources; public and private (Majumdar, 1983). Individual investment refers to all other investments aside commitments from the public funds. With individual investment, prominence is given to household investment while public investments refers to government funding. Both public and household investments play complementary roles. For instance, Panchamuki (1989) and Majumdar (1983) opined that educational facilities may be supplied by the government but households make its utilization possible.

Education is derived from the word “educere” which comes from a foundational Greek word “educere”. “Educere” means to bring out a potential or develop a potential. This can be done consciously and unconsciously. Educate can be defined as “to develop mentally, morally or aesthetically especially by instruction or to train by formal instruction and supervised practice especially in skill, trade or profession”. From the above, education is therefore the process of acquiring values, attitudes, knowledge including skills to fully enhance individuals’ capacities and societal wellbeing. This shows that investing in education has a present and future benefit on the individual, society and the country (UNESCO, 2002). Hence finding a sustainable investment mix for funding education is a step in the right direction which is the basis for this thesis. Although this paper seeks to explore sustainable financial mix for funding education, particular attention will be given to households financing variables that influence spending on education. In

this era of fiscal challenges at the national level, the paper will make recommendations to boost households' educational financing component.

1.2 BACKGROUND

According to Smith (1776, p.101) “a man educated at expense of much more labour and time may be compared to one expensive machine... The work which he learns to perform will replace the whole expense of his education”. Education from basic level through to the highest level endows individuals with the capacity to successfully pursue their private goals and equip them with the knowledge and skills. It also equips them with values and attitudes, necessary to contribute effectively to economic, social and political development of their societies. According to World Bank (1995) education provides both private and public benefits. That is, it empowers individuals to enjoy high standard of living and contributes to national development. Again, education among several other things helps in reducing illiteracy, poverty and fertility (Psacharopoulous et al 1997). Similarly, it helps to improve nutrition, health, productivity of labor and the quality of governance (Psacharopoulous and Woodhall, 1985).

In the past, there existed biasness towards public and donor funding of education. For example, the international community held the view that national governments, assisted by private donors (international and local) have the obligation to ensure basic education is provided to all citizens (World Economic Forum 2000; UNDP 2003). The World Conference on Education for All (WCEFA, 1990) emphasized the need for universal basic education for all. These initiatives were undertaken to reduce households' financial burden as far as education was concerned. At the World Education Forum in Dakar (WEF, 2000), the term basic education was still in use, although it had been displaced by 'primary' in the target setting. In the Regional Framework for Sub-Saharan Africa (WEF, 2000), the two terms are used almost interchangeably, often written

as 'primary (basic) education'. What constitutes basic education is largely country specific; while some see it as primary education (first stage of basic education) and lower secondary education (second stage) (UNESCO, 2003: 418), others differentiate senior secondary school education from basic education as in the case of Ghana.

Investment in education is a crucial element in any strategy to reduce poverty and promote development (Psacharopoulos and Woodhall, 1985). Investment in its generic term will be very difficult to measure. It encapsulates financial, labour effort (strength) and time resources put in a venture. By investment in education, this paper refers to the financial resource committed or expensed in getting an individual (in this case household member) educated. According to the World Bank (2005), educational investment not only generates economic benefits such as increasing salaries, productivity and growth, but also produces social benefits related to social cohesion, political participation or even fertility and health. But, if education is so crucial to reducing poverty and inequality, how should this investment be financed or guided?

There is no a priori adequate level of resources that a country should devote to education. However, all other things being equal, the actual level of resources a country invests in education and the nature of disbursements help in attaining educational objectives. A good education financing system must therefore have an adequate financing pool so that society can derive full benefits from the sector. According to Jackson et al (2015) adequate levels of education expenditure lead, all other things being equal, to optimum educational and development outcomes.

Countries are endowed with different types and levels of economic resources, and thus policymakers (a stakeholder) confront legitimate disagreements regarding the goals of education,

education finance reform priorities and implementation. This is the key reason why World Bank suggests to countries to absorb education costs based on their available resources (Psacharapoulous and Woodhall, 1985). Failure to heed to this may pose some problems including disagreements. Therefore, moving forward with an effective education reform programme may require a credible institutional environment. This may increase stakeholder's participation so that educational costs and benefits will be reasonably distributed.

The international community also recognizes that governments cannot themselves supply every human, financial or organizational requirement for this task (World Economic Forum 2000; UNDP 2003). In many societies, part of the financial burden has to be shared with households. The scale and nature of household financing of education may be problematic especially for poor households compared to resource endowed households.

1.3 PROBLEM STATEMENT

Over the years, there have been huge government commitment to education but they have proven inadequate. The education expenditure to GDP ratio during the period under consideration (2009 to 2014) were 5.3%, 5.5%, 6.3%, 7.9%, 6.1% and 5.85% respectively (Government of Ghana Budget Statements, 2009,2010,2011,2012,2013,2014). Although Ghana's average expenditure during the period is approximately 6% of GDP which meets the educational investment threshold set by the African Union and UNESCO (2014), it remains inadequate. Data from the World Bank (as shown in chapter two, Fig 2.1 of this study) shows that Ghana for the past decades has allocated more than 20 percent of gross expenditure on education. Budgetary allocations to the Ministry of Education as captured by the Ghana's Budget Statements from the years 2009 to 2014 support the claim above. For example, in 2014, total expenditure earmarked to the sector

was GHS 6.6 billion representing a 17.5% increment of the 2013's allocation (Ghana Government's Budget 2014). Out of the allocated GHS 6.6 billion, GHS 5.1 billion representing 77.2% of total education expenditure was spent on compensation. On average, between 2009 and 2014, wages and salaries consumed about 72% of the total amount earmarked for the Ministry of Education. This trend leaves room for a meagre resource to be spent on essential components of education including provision of educational inputs and other capital expenditure.

Additionally, untimely release of statutory allocations (grants) to the sector confirms the financial constraints of this sector hence the need to find reliable sources of educational funding. It is becoming an annual ritual that the Conference of Heads of Assisted Secondary Schools (CHASS) has to issue threats of closing down schools especially in the three Northern regions before government releases grants to these schools (<http://citifmonline.com/2016/07/20/chass-to-shutdown-schools-over-unpaid-subsidies>). Not only that, untimely release of funds for Ghana Education Trust Fund (GETFUND) illustrates how fiscally constrained the country is in financing the sector.

Furthermore, the emergence of huge public sector debts and interest commitments limit the fiscal space hence making it difficult for government to invest in important sectors including education. For instance, in 2000, after the International Monetary Fund (IMF) completed the Debt Sustainability Analysis (DSA) exercise, it came to bear that the Net Present Value (NPV) of external debt to fiscal revenue was 557% and the NPV of external debt to export criteria was 157% (IMF, June 2001). This qualified Ghana to access the benefits of debt relief as at 2000 as stipulated in the HIPC criteria but it actually did in 2002. In excess of over 4 billion dollars was forgiven in debt making Ghana's debt to GDP ratio fell to 26.2% in 2006 from 187% as at the end of 2000 (BOG, September 2014). Since then the debt to GDP ratio has increased to 38.9% in

2010, 48.4% in 2012, 67.1% in 2014, 72.7% in 2015 and around 70% at the end of the second quarter in 2016. (Budgets, 2011, 2013, 2015, 2016; BOG, September 2016). According to Government of Ghana Budget Statement (2017) the debt to GDP ratio stand at 73%. Again, according to Ghana Government Budget Statement (2016), about GHS 10.5 billion (about 29% of revenue) was used to pay interest on debts. This limits the government's capacity to fund other essential sectors including education. It is therefore not surprising that the sector suffers financial resources inadequacy. In addition, despite the importance of education, government's capacity in financing education is constrained due to sheer educational cost coupled with equally important competing needs.

Lastly, global economic downturn coupled with Ghana's middle income status makes donations from donor agencies an implausible avenue for soliciting educational financing assistance. According to UNESCO (2010), Official Development Assistance (ODA) represents 15% of external financing gap. This makes up for the annual financing gap estimated at 16.2 billion before Education for All (EFA) at the basic level can be attained (UNESCO, 2010). Again, according to UNESCO (2010), ODA commitment almost doubled from USD 2.1 billion in 2002 to 4.1 billion in 2007. This upsurge in donor funding to the sector can be linked to the pursuit of MDGs (UNESCO, 2010). However, for some time now, international financial flow or official development assistance (ODA) in education continues to fall. In Ghana, it is estimated that "aid contributes somewhere between 5% and 15% of the total resources available to education" (DFID, 2005: 10). Unfortunately, the flow of donor funds to Ghana has suffered a snag in recent times. For example, between 2013 and 2014, aid contributions towards education fell by USD 600 million (<https://www.ghanabusinessnews.com/2016/04/25/donor-funding-for-education-in-africa-continues-to-fall-unesco/>). This downward trend of educational aid flow may be due to

several factors. In an environment of limited resource and many competing needs, education has not been able to sufficiently demonstrate its relative importance or justify its urgent need for resources (Steer & Baudenville, 2010). Again, evidence to make stronger advocacy for aid donation seems to be missing. For instance a debate on whether education results should be measured in terms of quality rather than access seems to blur the argument for education funding (Steer & Baudenville, 2010).

In sum, high public debts, high interest payments, untimely release of grants and reduction of ODAs in education must push the country to explore more sustainable ways of financing this all important sector that is if we are really serious of growth, development, reduction of poverty, inequality and ensuring equity. The points stated above make it imperative for policy makers to explore private investments in education. With private investment in education, this thesis seeks to explore the potential of households to make significant commitments towards educating its members rather than relying largely on the Central government that is fiscally constrained hence unable to timeously discharge its educational commitments.

1.4 RESEARCH OBJECTIVES

In specifics, this paper seeks to achieve the following

- To investigate the determinants of households educational expenditure
- To investigate the likelihood of change in households' educational spending as a result of small change in any of the determinants found above.
- To investigate the pattern and components (things that constitute educational cost) of educational expenditure in Ghana

1.5 SIGNIFICANCE OF THE STUDY

The study seeks to contribute to the deliberation on the effective educational financing model that is sustainable and has a far reaching impact on reducing poverty and inequality especially in this era where fiscal constraint hit governments across the globe. This paper will explore households' educational financing capacities and how these capacities can augment government's fiscal commitments towards education thereby creating the needed mix in educational financing in order to reduce poverty and inequality among the economically vulnerable groups within the country. Most of the existing studies on the subject matter have focused on government and international financing of education while neglecting the importance of the household financing. This paper seeks to expand the discourse on education financing particularly at the households level.

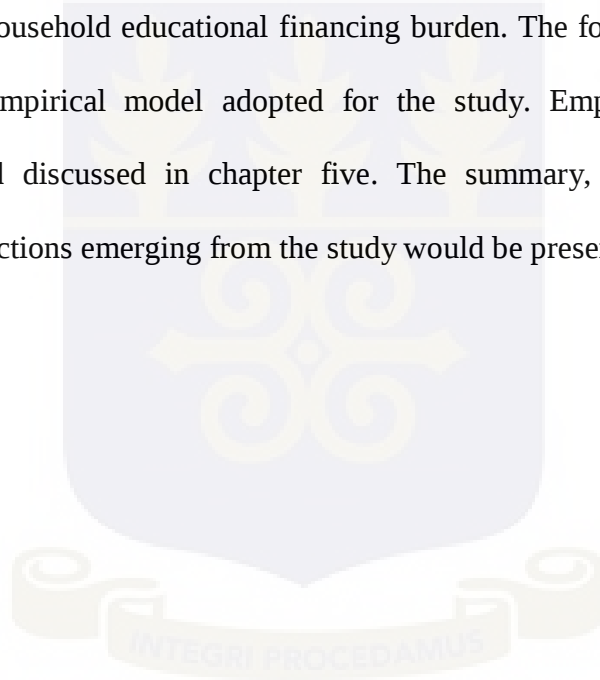
Schultz (1961, 1962), Bowmann (1966), Denison (1962, 1967) and Krueger (1968) went to the extent of investigating the role of education towards development. Their contributions led to the involvement of some donor agencies including the World Bank to fund education in developing countries (Psacharopoulous and Woodhall, 1985). In this era of fiscal constrains it is imperative for developing countries like Ghana to explore the capacity of the citizenry in financing education and provide help to whom and where it matters.

Furthermore, the paper will assist policymakers in knowing the educational patterns and also direct government assistance in strategic areas. It will do so by analyzing the Ghana Living Standard Surveys (3 to 6). This will inform policy discussions in identifying the pattern, examine the challenges and explore the interventions that will ably assist challenged or vulnerable households. This will ensure equitable distribution of resources and ensure that development is

spread across board. It also seeks to explore avenues of making education vibrant by resolving the funding challenge that impedes on the supply of education in Ghana.

1.6 OUTLINE OF THE STUDY

The study would have six (6) chapters, the first chapter being the introduction. This introductory chapter is followed by chapter two touching on some stylized facts on the Ghanaian Educational Sector, including expenditure trends by households. Chapter three (3) would be dedicated to the review of the theoretical and empirical literature on the main theme of the paper which are factors influencing the household educational financing burden. The fourth chapter presents the methodology and the empirical model adopted for the study. Empirical results would be presented, analyzed and discussed in chapter five. The summary, conclusions and policy recommendations or directions emerging from the study would be presented in chapter six.



CHAPTER TWO

OVERVIEW OF EDUCATIONAL SECTOR AND STYLIZED FACTS

2.1 INTRODUCTION

This chapter has two main sections. The first section gives an overview of Ghana's educational sector. Sharp focus will be given to the various educational reforms Ghana has embarked on. The next section will touch on some stylized facts on Ghana's education. Sourcing data from World Bank, Index Mundi and the Ghana Living standard surveys, a set of statistical graphs have been generated to highlight important dimensions of household's and public educational spending in Ghana.

2.2 EDUCATIONAL SECTOR OVERVIEW AND REFORMS IN GHANA

Several changes have occurred in the educational arena before the state Ghana came into force. In all the reforms, financing of education especially at the basic level has been the priority of government. The literature reveal that there have been hay and bad days as far as Ghana's educational sector is concerned. For instance, as posited by Foster (1965) Ghana's educational system was deemed one of the most developed in Africa. On a different score, Scaddling (1987) and Peil (1995) opined by the 1980s, Ghana's educational system was dysfunctional and could not meet the aspirations of the country. These different accounts by these scholars underscore why the Ghanaian educational sector has undergone several reform trajectories. The history on

Ghana's educational reforms can be grouped into three (3); Namely Pre self –rule (before 1951), independence era (1951 -1986) and 1987- 2003. This grouping is done in this study to facilitate discussion on the several reforms.

2.2.1 EDUCATIONAL SECTOR OVERVIEW BEFORE 1951

During this era, education was largely provided by the missionaries through the mission school system. The missionaries not households largely funded education in those period. This was done to facilitate the spread of the Gospel. According to Antwi (1991) and Graham (1971) the European and missionaries introduced western formal education in Ghana as far back as 1765. The Presbyterian and Methodist church largely directed the curriculum hence it was narrow; focusing on basic literacy, Bible knowledge and Arithmetic. Schools were set up in Forts by the Dutch (Christianborg Castle, Osu), Portuguese (Elmina Castle) and the British (Cape Coast Castle) to train the mulatto children. The missionaries built many schools including grammar schools, teacher training schools, boarding and day schools.

The colonialists had full authority (fully funded and directed curriculum) of Gold Coast from 1874 and had built many schools as at 1881. They created an office called Inspector of Schools to give attention to education and later appointed Office of Director of Education. Sir Hugh Clifford set some bold targets for education in 1918 including among others ensuring primary education for all African children, establishing teacher training school in every province and ensuring better remuneration for teachers. From 1921 to 1927, Governor Guggisberg initiated steps in entrenching education. His focus was ensuring better teaching and quality management. The Phelps-stokes Fund Committee and the 1922 Committee led to the establishment of the Prince of Wales College in 1927 to educate both males and females. The Prince of Wales

College (now Achimota School) educated many people including nationals from other countries. Despite some bold commitments from the colonialists, many villages could not benefit from this initiative because of poor infrastructure, low quality staff.

2.2.2 EDUCATIONAL SECTOR OVERVIEW FROM 1951 -1986

In 1952, the government undertook a grand educational developmental goal; to abolish illiteracy, raise quality human resource for development. This was done to help the state realize his broad developmental goals. According to the seven (7) year Plan for National Reconstruction and Development (1963/64 to 1969/70) document, government of Ghana under Accelerated Development Plan sought to provide free primary education for all. Ghana was among the first countries to introduce free Universal Primary Education (UPE) in Africa (Gyimah-Brempong and Appiah, 2008). There was massive infrastructural expansion and massive intake in teacher training institutions between 1951 and 1953. These significant gains were followed through in 1960 after the Botsio Commission on Education which led to the passage of 1961 Act.

The Education Act made education free and mandatory at the primary and middle level (World Bank, 2004). Under the 7 year Development Plan (1963 – 1970), several reforms were proposed with the aim of making secondary education too free for all Ghanaians. The Accelerated Development Plan (ADP) received legislative backing through the introduction of Education Act 1961. This Act among others emphasized free, universal and compulsory basic education for children from six (6) years. In this document, management of education was to be in the hands of Local Authority Councils. The Ghana Human Development Report (1998) accounts that the number of schools went up to 3372 in 1952 from 1081 in 1951 and enrolments doubled in five

(5) years making Ghana an internationally acclaimed country with the most developed educational structure in Africa.

The Education Act also focused on teachers. Some initiatives were embarked upon to satisfy the needs of teachers. Teacher training colleges were opened to provide training to both unqualified and potential teachers. This largely increased teachers' output. Although education was free under the ADP, households bore some costs. Parents were to assist in contributing towards education within their local areas. Books, uniforms were not free hence households provided these items to complement the government's efforts. This means that under the ADP, government bore largely the tuition cost but households were committed to bearing the minor cost including providing school uniforms, shoes and books for their kids. In 1963, the government introduced text books scheme to provide subsidized textbooks to the school pupils. Even with this text book scheme, households were required to pay a token for these textbooks.

Incessant military interventions characterized this period. Many factors including coups, oil price hikes in the year 1970 resulted in financial challenges. This period was also largely characterized by brain drain (Nti, 1999). Many Ghanaian teachers in search of better conditions of living fled Ghana resulting in massive teacher shortfall particularly in the 1970s. Prior to 1972/73, there was Kwapong Review Committee in 1966 which among others described the educational system as elitist (an overly formal educational type focused on the study of grammar). The UNESCO (1970) report inter alia posited that Ghana's educational system was providing inadequate base for English and Mathematics and did not equip pupils enough for practical work. Upon military takeover, the Dzobo Committee was formed to make amendments and modifications in the educational system of Ghana. This led to the coming into being of New Structure and Content of Education (NSCE). The NSCE among others reduced pre tertiary education from seventeen (17)

to thirteen (13) years (six years for primary, three years for Junior Secondary school now Junior High School, two years lower and upper levels of secondary education each). The grand goal of the NSCE was to equip pupils with employable skills while reducing the number of years spent in pre tertiary schools. This led to the introduction of vocational training at pre university levels. Even in this era, the challenge of unqualified teachers persisted and unavailability of funds did not make it possible for the country to realize full impact of the NSCE.

In the early 1980s, Ghana's educational system suffered in quality. This happened because, in 1983, educational funding was downsized. To be specific, educational funding was reduced from 6.4% of GDP in 1976 to 1.7% of GDP in 1983. This low contributions from government increased households' burden of funding education. According to Abdallah (1986) in one of his addresses as the Secretary of Education, he bemoaned the status of education and vehemently articulated the need for reforms. Unfortunately, owing to lack of funds, bureaucracy, lack of interest and commitment from officialdom, the new program or reform never saw light of day up until 1987.

2.5 EDUCATIONAL SECTOR OVERVIEW FROM 1987 ONWARDS

At this point, funding of education again shifted from households to governments and donor agencies because several international agreements; Declaration on the Rights of a Child, Education for All, Lome' Convention coupled with Multilateral and Bilateral negotiations spurred the government's commitments to education. Again, the government's own desire of restructuring the economy under the supervision of the Bretton Woods institutions also enjoined it to make commitments towards making the education system work again. In pursuit of this commitment, in 1987, the New Educational Reform (NERP) was introduced to restructure pre

tertiary education. The Ministry of Education Report (1988) opined that the NERP among others sought to redeem education system and make it relevant to the needs of the country and individuals. The World Bank on its part, launched a program to support education infrastructure that led to the building of about 3000 pavilion school systems. Among the goals of the NERP as stipulated in the Structural Adjustment Program (SAP) included restructuring Pre University to 12 years and to ensure cost effectiveness and cost recovery. Furthermore, as part of the NERP, Vocational, Agricultural and Technical training were downgraded and basic education was made compulsory. Pre tertiary education (primary, JSS/JHS, SSS/SHS) was reduced from 13 to 12 years; (9 years of basic education, 3 years secondary education).

Asante (1988) states that the large scale exodus of teachers meant that over 50% of recruited teachers were untrained. The state of infrastructure despite the assistance from donor agencies was deplorable. Ghana following the successful completion of the Economic Recovery Program enjoyed some goodwill from the developed partners. This attracted foreign assistance into the educational sector. After the seven (7) years of implementing NERP, the performance of pupils did not change much. For instance, (MoE Prep 1994) states that 6% of grade 6 sampled pupils tested nationwide achieved criterion mark of 60% and above in English but only 3% achieved 55% and above in Mathematics. This led to the formation of Educational Review Committee leading to the review of Curriculum and initiation of FCUBE as the constitution provided.

Article 39 (2) of the 1992 constitution of Ghana made provision for Free Compulsory Universal Basic Education (FCUBE). FCUBE sought to ensure that all individuals had nine (9) years of compulsory and government sponsored (not households financed) basic education in order to prepare the children adequately for further education. Among the many objectives of FCUBE include; improve quality in teaching and learning, improve management efficiency and

sustainability, increase access and partnership and decentralize the management of education (MoE, 1996 p.5). FCUBE led to the change in the curriculum. It also led to the teaching of Mathematics, Environmental Studies, Ghanaian Language, English and Religious and Moral Education at lower primary and Integrated Science, Music and Dance and Physical Education at both lower and upper primary.

Aside FCUBE, there have been several interventions from donor partners and development assistance. Aside the World Bank Group, UNICEF, DFID, SIDA, USAID, DANIDA have been so much involved in making Ghana's education work again. USAID for instance, initiated the Primary Education Program (PREP) to ensure inputs, in-service training was taken notch higher (USAID/GHANA, 1995, p9). Again, DFID introduced Whole School Development (WSD) program in 1998 to improve teaching and learning. This placed emphasis on literacy, problem solving and numeracy.

In January 17, 2002 the government of Ghana inaugurated a committee to review education. This committee is popularly called the Anamuah-mensah committee and was chaired by the then Principal of University College of Education, Winneba. The report of the Committee was entitled "Meeting the Challenge of Education in the 21st Century. The Committee among others found out that preschool (Kindergarten education) was virtually excluded from the educational system. It also found out that the education was so much focused on grammar and paid less attention to Technical and Vocational training.

The Committee therefore proposed inter alia eleven (11) years for basic education; 2 years preschool, 6 years primary and 3 years Junior Secondary School. Although the number of years for basic education was increased, the increment was not to affect the age at which the average

Ghanaian completes basic school because the preschool was to take place when the child is 4 years so that by 6 years, he or she starts primary one (1) as it used to be the case. Again, local participation was encouraged and the Ghana Education Service (GES) was to relax rules on school uniforms particularly at preschool and lower primary because it was discovered that many households prevented their wards from going to school because they could not afford school uniforms. There were preparations for the shift system to phase out in five years, place much focus on science and technical education, improve on infrastructure, improve supervision at the district levels and also the government was to continue with the cost sharing policy.

On the financing side, in 2005, the government through the Ghana Education Service sought to provide fee free basic education in all government (public) schools. The government did this through the Capitation grant system. This was done to make it possible for children regardless of their socioeconomic status, location and parental background.

2.3 SOME KEY INDICATORS OF THE EDUCATIONAL SECTOR

This section touches on some facts on Ghana's educational sector. It looks at diverse matters including government spending, sources of income, pupil to teacher ratio at the various levels and school enrolments.

To start with, the government of Ghana spend more than 20 percent of total government expenditure on education. The educational share of government spending was below 20 percent prior to the year 2004. For the past decade, the year in which the educational sector absorbed the greatest share of government spending was 2012. The educational share of total expenditure was in excess of 37 percent in that year. Fig 2.1 shows the trend since 1998.

Fig 2.1 Public Educational Spending as a Percentage of Gross Public Expenditure



Source: World Bank Data

From Fig 2.1, it can be observed that in the year 1999, the educational sector consumed about 15 percent of gross government expenditure. The share of educational spending increased subsequently and particularly in 2012, the educational sector consumed more than one third of total government spending. Although the share of educational spending decreased in subsequent years, it remained above 20 percent of total spending.

Secondly, Ghana on average almost meets the African Union and UNESCO public educational expenditure threshold. These entities expect countries to spend 6 percent or more of their Gross

Domestic Products (GDP) on education. Although Ghana's educational spending as a percentage of GDP has been fluctuating, it meets the threshold set by these agencies. From the graph below, it is evident that, prior to the year 2000, public educational spending as a percentage of GDP was relatively low. There have been some improvements for the past ten (10) years.

Fig 2.2 Public Educational Spending as a Percentage of GDP



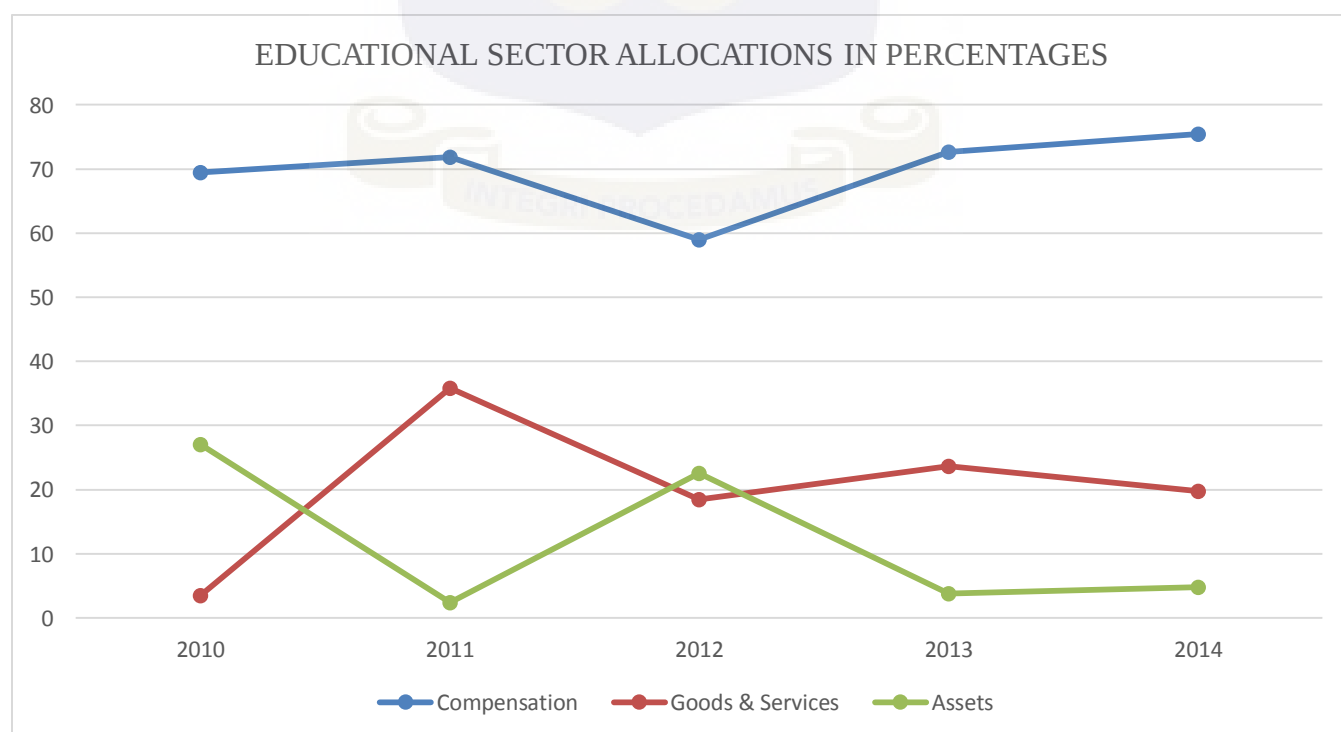
Source: World Bank Data

Fig 2.1 looks at share of educational spending relative to total government expenditure while Fig 2.2 looks at educational spending as a percentage of GDP. From Fig 2.2, it is revealed that although educational spending as a percentage of GDP increased from 1989 to 2000, government of Ghana was spending below four (4) percent during that period. From the year 2000 till date, public educational spending constitutes more than five (5) percent of GDP. Although there were years within this period that government's educational spending fell short of the six (6) percent threshold set by UNESCO and the African Union, there have been improvements. For example,

in 2011, educational spending as a percentage of GDP was more than 8 percent. On average, for the past decades, Ghana spends six (6) percent of GDP on education.

Thirdly, Ghana spends chunk of educational sector allocation on wages and salaries (compensation). The allocations made to the sector are variedly spent. The pattern of the expenditure gives an interesting outlook. It has largely been the case that a greater chunk of the budget allocations go into compensation or recurrent expenditures. With little development in the sector, it would have been a normal expectation that greater proportion out of the entire allocation is invested into infrastructural asset or capital expenditure. However, the opposite is true. The amount invested into capital expenditure (capex) keeps fluctuating and in some instances, a meagre amount has been earmarked for capex purposes. In some instances, the earmarked amount although infinitesimal, little below the actual amount is spent in this regard. The figure below shows the sectoral allocations into the educational sector.

Fig 2.3

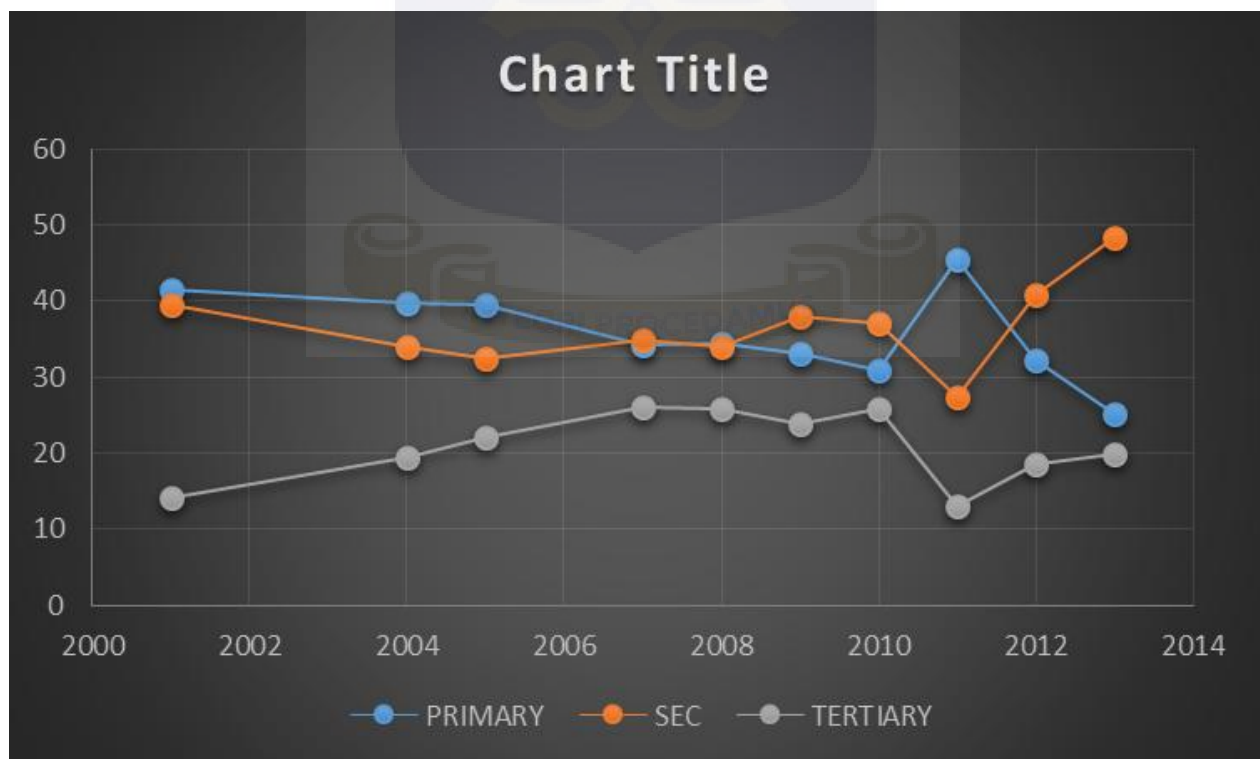


Source: Ghana's Budget Statement (2010 to 2014)

From Fig 2.3, it can be observed that for all the years, compensation took a chunk of government's allocation to the educational sector. The compensation component takes about 70 percent or more of public educational spending for all the years except 2012.

Furthermore, of all public allocations to the educational sector, tertiary education receives the least (in percentage terms). From the Figure 2.4 below, it can be seen that consistently, government spends less on tertiary education compared to secondary and primary. It may be because of the various studies stressed the importance of basic education. From the graph it can be seen that prior to the year 2008, the government allocated chunk of the sector's resource to primary education. This trend changed in the years 2009, 2010, 2012 and 2014.

Fig 2.4 Public Percentage Educational Spending at the Various Educational Levels

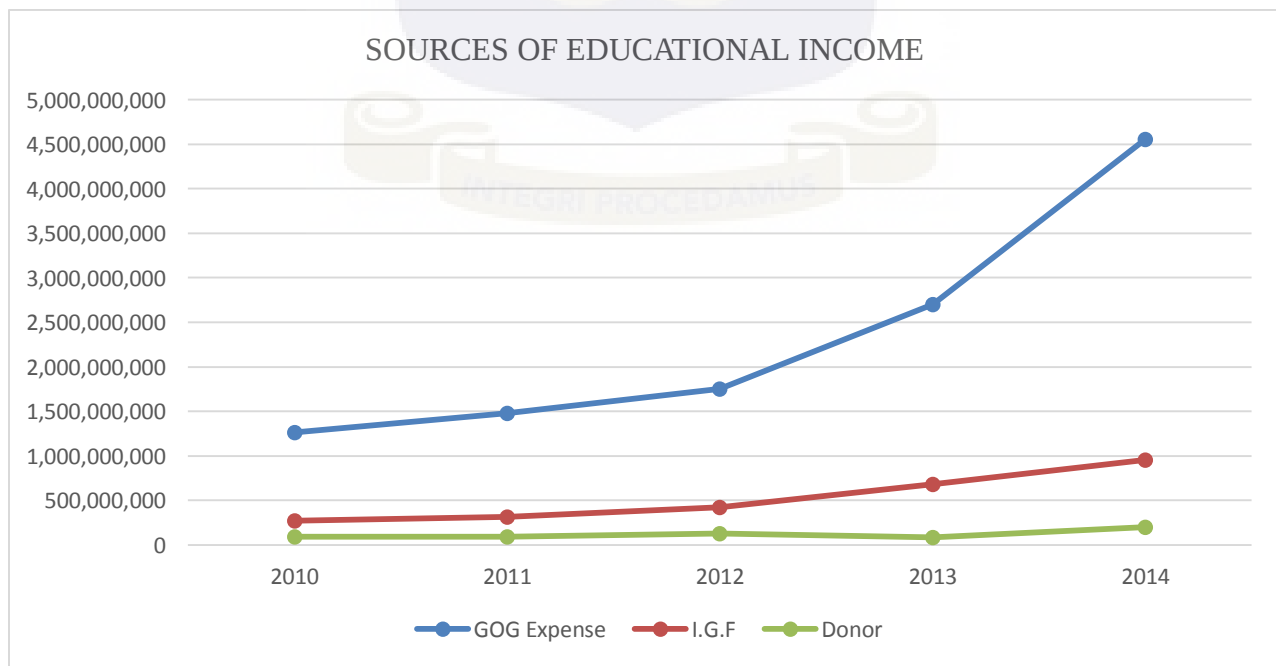


Source: World Bank Data

From Fig 2.4, although from 2001 to 2008, government's allocations to the tertiary education level increased, it remains the educational level that receives the least resource from the public. The secondary and basic levels consistently receive 30 percent or more except the years 2011 and 2013 for secondary and basic education respectively.

Having looked at the allocations and how much is invested in the different areas, it is in order to investigate the sources of funds for the sector. There are three sources for education funding. They are internally generated funds (IGF), government budgetary allocations and through donor funding. The governmental allocations have always been the greatest of the three. The governmental allocation is a way government subsidizes education or takes the burden of bearing the entire educational cost off the shoulders of households. The donor funds usually go into specific infrastructural support or to support a specific initiative that has far reaching impact on development. The figure below shows the pattern of the income sources since 2010.

Fig 2.5



Source: Ghana's Budgets (2010 to 2015)

Not all but also, it is a generally known fact that the number of basic schools in Ghana far outweighs the number of secondary and tertiary schools. With basic school, it combines all the Kindergartens, primary schools and junior high schools.

Table 2.1 NUMBER OF SCHOOLS IN GHANA AT THE VARIOUS EDUCATIONAL LEVELS

KINDERGARTEN	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Public	12481	13263	13505	13305	13492	13828
Private	4990	5538	5410	5972	6608	7132
Total	17471	18801	18915	19277	20100	20960
PRIMARY						
Public	13835	14431	14360	14112	14142	14405
Private	4722	5292	5473	5742	6360	6904
Total	18579	19723	19833	19854	20502	21309
JUNIOR SEC. (JHS)						
Public	7969	8462	8336	8818	9076	9445
Private	2799	3244	3231	3618	4006	4395
Total	10768	11709	11567	12436	13082	13840
SENIOR SEC. (SHS)						
Public	496	511	515	535	556	562
Private	201	209	242	293	284	301
Total	697	720	757	828	840	863
TERTIARY						
Public Universities		7	6	9	9	
Public professional coll.		7	9	8	8	
Chartered Private		3	3			
Private Tertiary		51	55	51	60	
Polytechnic		10	10	10	10	
Public Col. of Education		38	38	38	38	
Private Col. of Education		3	3	3	3	
Total		119	124	119	128	

Source: Education Sector Performance Report 2015

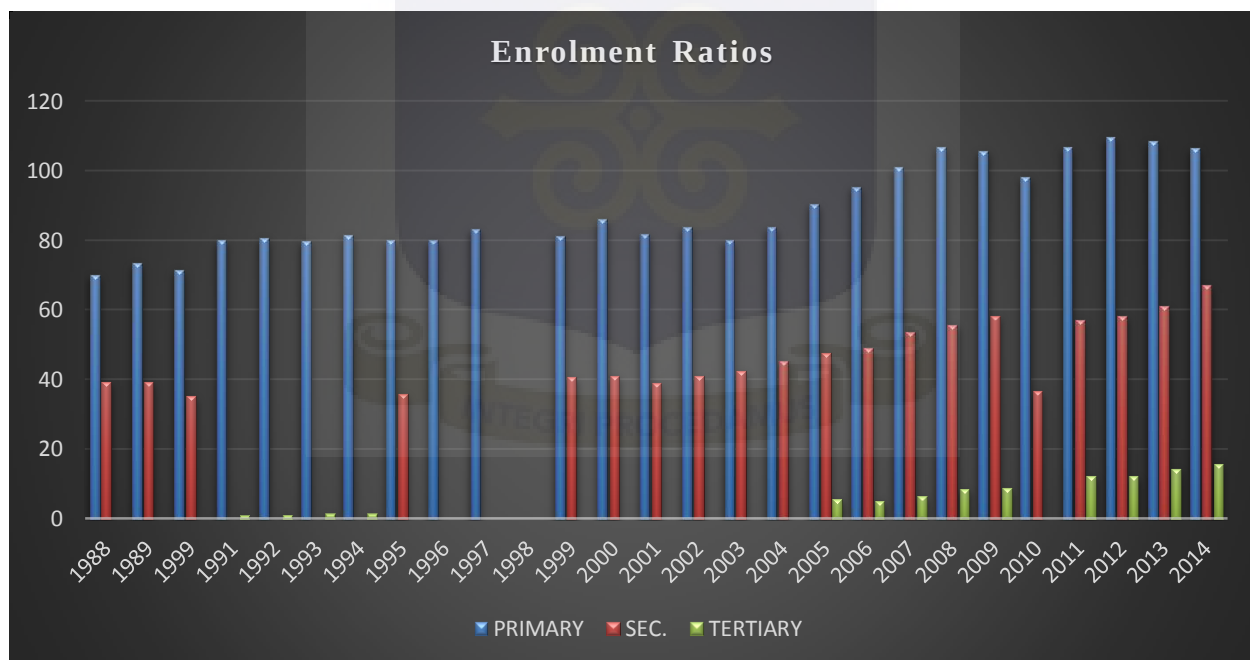
Table 2.1 above gives the breakdown of the number of schools in Ghana. From Table 2.1, it is shown that the number of schools at the Basic education level outweighs those at other levels.

The Basic education level consists of Kindergarten, Primary and Junior High Schools. Table 2.1

shows that the number of schools at the tertiary levels is the least compared to other levels of education. For example, while there were about 36056 public basic schools in 2010/11 academic year, there was only 511 public secondary schools and about 60 public tertiary schools. The numbers as shown by Table 2.1 may also explain why the government commits huge resources to schools at the basic levels.

In furtherance of the above, in Ghana, enrolment is highest at the primary educational level compared to the other levels. This also might explain why governments devote substantial amount to the primary sector compared to the other sectors. Similarly, enrolment is lowest at the tertiary levels compared to the others.

Fig 2.6 Gross Enrolment Rates at the Various Educational Levels



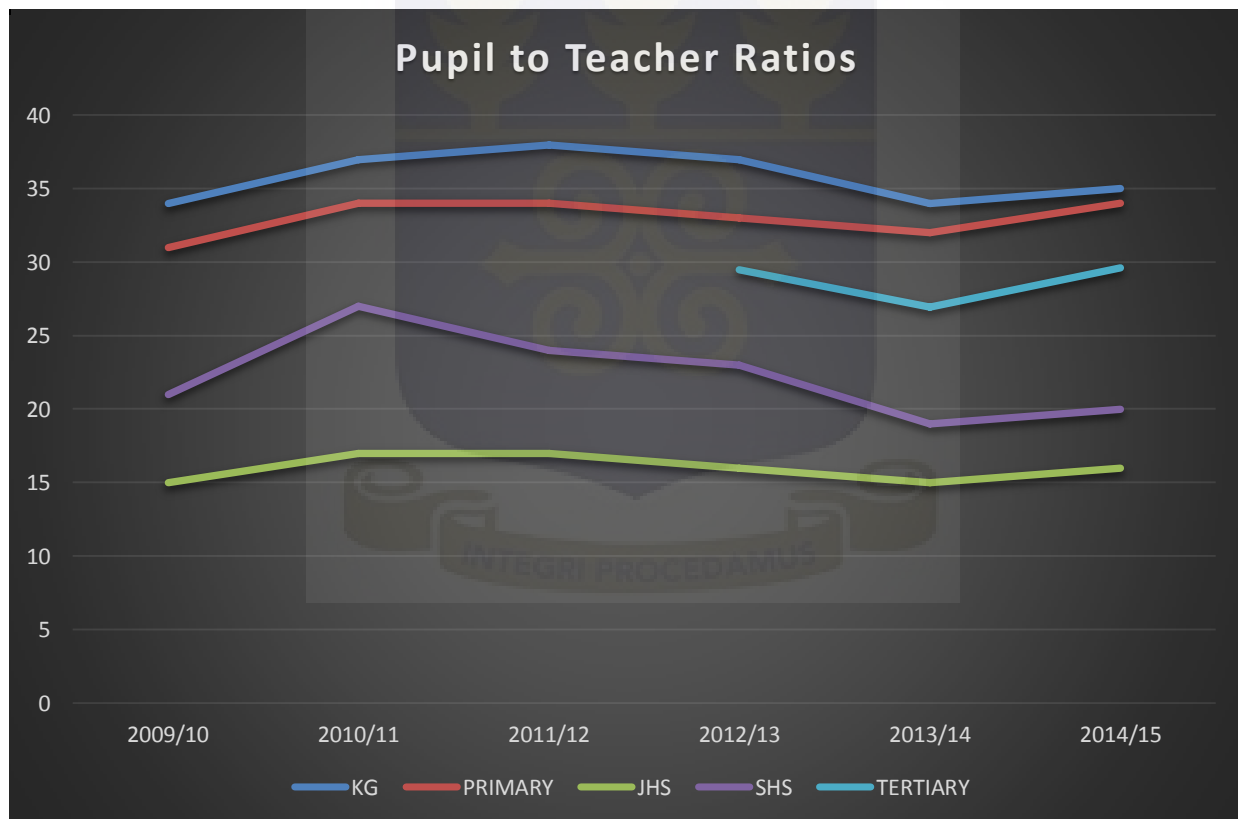
Source: World Bank Data

From Fig 2.6, for all the years, the Gross Enrolment Ratios (GER) at the primary levels were highest while the GER for the tertiary level was the lowest. At the primary level, the year with the highest GER was the 2012. Pupil to teacher ratio is worst in the preprimary and primary

levels compared to the other levels of education. From the graph, there exist high pupil to teacher ratio at the preprimary and primary levels. Secondary education level records the lowest pupil to teacher ratio since the year 1999.

In addition to the above, aside pupil to teacher ratio being lowest at the Junior High Schools, the percentage of trained teachers at the Junior High Schools is also high. It can be observed in Fig 2.7 below that, pupil to teacher ratio at the JHS is less than 20 while it is highest at the Kindergarten (above 35) level.

Fig 2.7 Pupil to Teacher Ratios at the Various Educational Levels

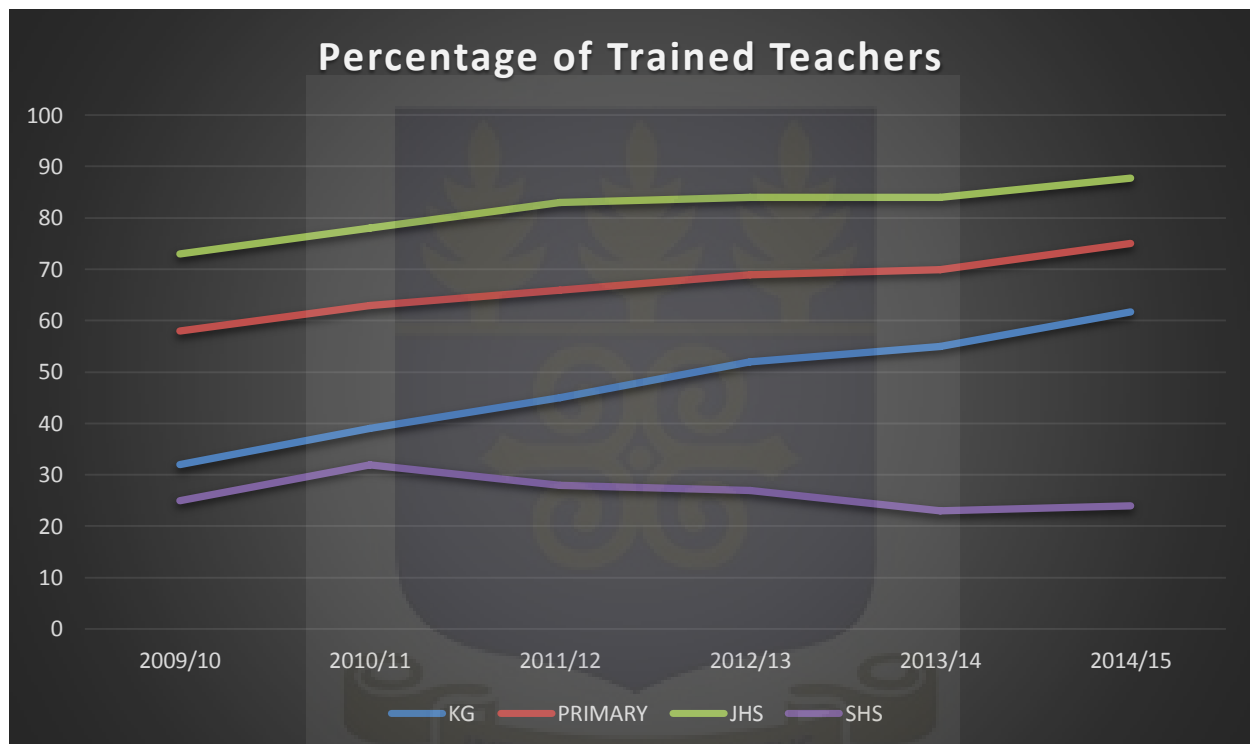


Source: Education Sector Performance Report 2015

From Fig 2.7, it can be observed that the number of pupils a teacher attends to is highest at KG, higher at Primary and Tertiary levels and high at Secondary schools.

Although there is high pupil to teacher ratio (as shown in Fig 2.7) at the primary levels of education relative to other levels, percentage of trained teachers at the various levels except the secondary level has been improving.

Fig 2.8 Percentage of Trained Teachers at the Various Educational Levels

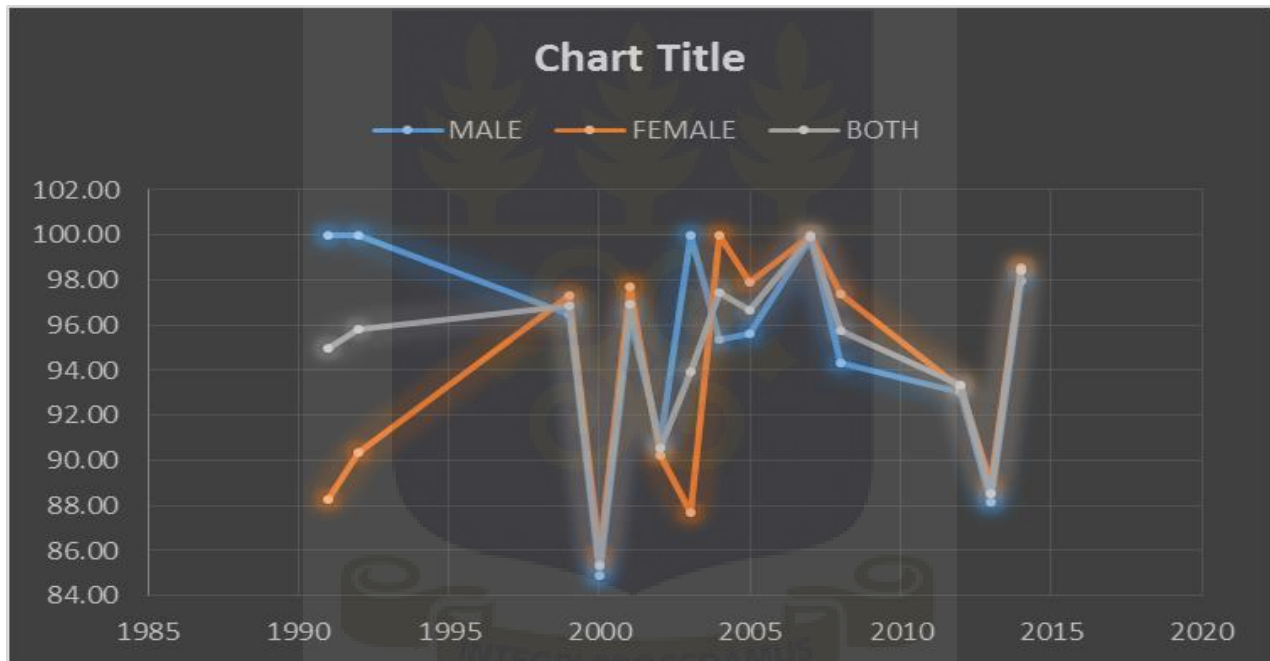


Source: Education Sector Performance Report 2015

As shown by Figure 2.8, the percentage of trained teachers at the Kindergarten, primary and Junior High schools have been consistently increasing. Although there is quite a sizeable number of untrained teachers at these levels, the upward trend paints a positive picture. However, at the secondary level, particularly after 2010/11 academic year, the percentage of trained teachers at this level has been decreasing.

Furthermore, until recently, percentage of males that progressed to secondary schools is higher than the females' percentage. Although the progression rate for males showed a downward trend from the year 1990 to 2000 while that for females showed an increasing trend, the progression rate was still higher for males compared to females. From the year, 2005 the progression rate for females have been higher than that of the males. Again from the graph, it can be seen that the year with the best progression rate in Ghana was 2007.

Fig 2.9. PROGRESSION RATE TO SECONDARY SCHOOL BY SEX

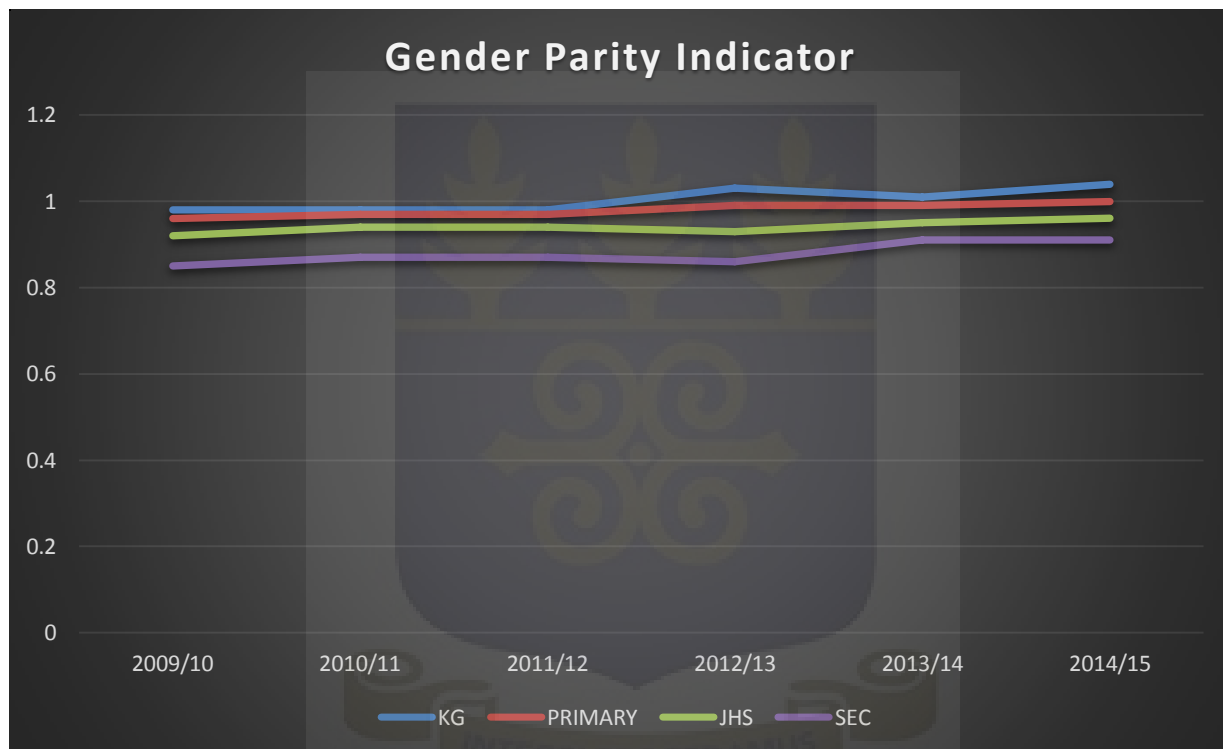


Source: World Bank Data

Fig 2.9 shows that the progression rate to secondary school has been oscillating. Prior to the year 2000, although the progression rate decreased among males and steadily increased among females, the number of males that progressed to secondary schools were more than females. However, consistently after the year 2007, despite the decline between 2012 and 2013, the percentage of females that progressed to secondary schools were higher than males.

Lastly, although there have been improvements in the Gender Parity Indicator (GPI) at all levels, it worsens at higher educational levels. That is as one progresses from one educational level to the other, GPI worsens.

Fig 2.10 Gender Parity Indicators at the Various Educational Levels



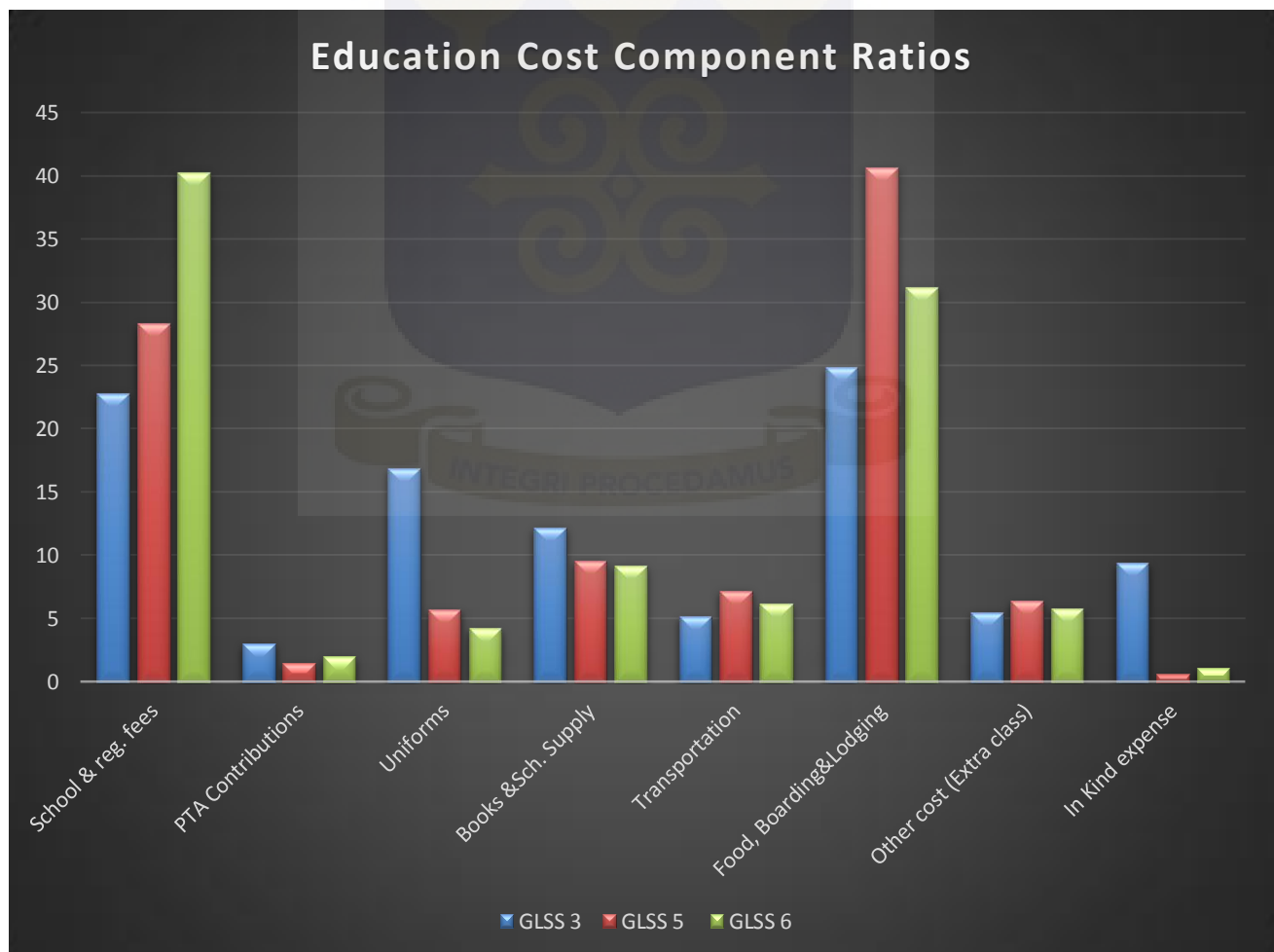
Source: Educational Sector Performance Report 2015

Fig 2.10 shows that consistently GPI at all levels of education has been increasing. However the GPI becomes lower as it moves to higher level of education. For example the GPI for KG in 2009/10 academic year was 0.98 but reduced to 0.96 at primary, fell again to 0.92 at the JHS level and lastly fell to 0.85 at the SHS level. As shown by Fig 2.10, GPI was highest at KG and lowest at the SHS level. The 2014/15 academic year was the year KG had the highest GPI (1.04) followed by 2012/13 (1.03).

2.4 HOUSEHOLD EXPENDITURE ON EDUCATION IN GHANA

To start with, in answering research objective three (3), all educational cost components have been broken down. Since other surveys did not do this disaggregation, the study used data from GLSS III, GLSS V and GLSS VI to answer this research objective. The surveys revealed that the two largest educational cost are food, boarding and lodging and school and registration fees. From the graph below, it can be seen that food, boarding and lodging constituted largest household educational cost item both in GLSS III and GLSS V. However, school and registration fees constituted the largest cost item in GLSS VI.

Fig 2.11 PERCENTAGE OF HOUSEHOLDS' EDUCATIONAL COST COMPONENTS

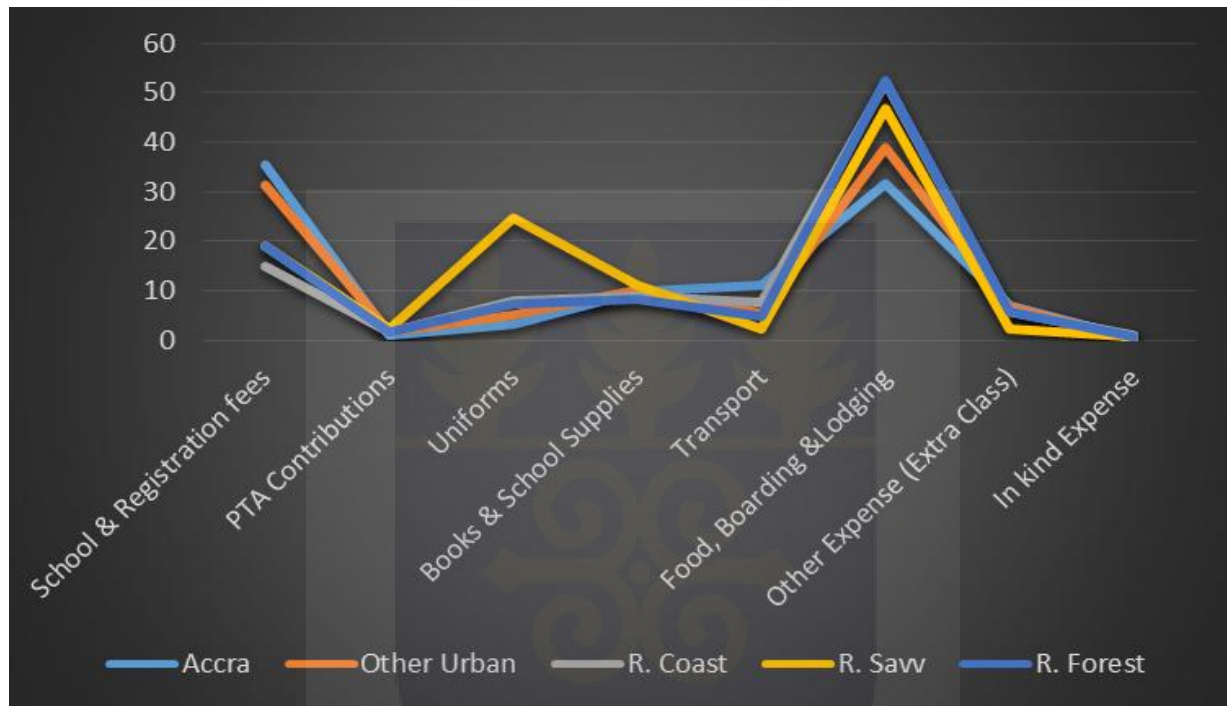


Source: GLSS (III, IV, V, VI)

From Fig 2.11, using the GLSS III data, it is revealed that food, boarding and lodging constituted 24.9 percent of households' educational cost. The next highest expenditure component was school and registration fees. This constituted 22.8 percent of households' educational spending. Similarly, using GLSS V data, it is observed that food, boarding and lodging constituted 40.7 percent of households' educational spending while the next highest cost; registration and school fees constituted 28.3 percent of households educational spending. The trend as shown by GLSS VI changed making registration and school fees the highest educational cost component. As shown by Fig 2.11 and analyzing the GLSS VI data, it is observed that school and registration fees constituted 40.3 percent of households' educational spending. The next component that households' hugely spend more according to the data from GLSS VI is the food, boarding and lodging; constituting 31.2 percent of households' educational spending.

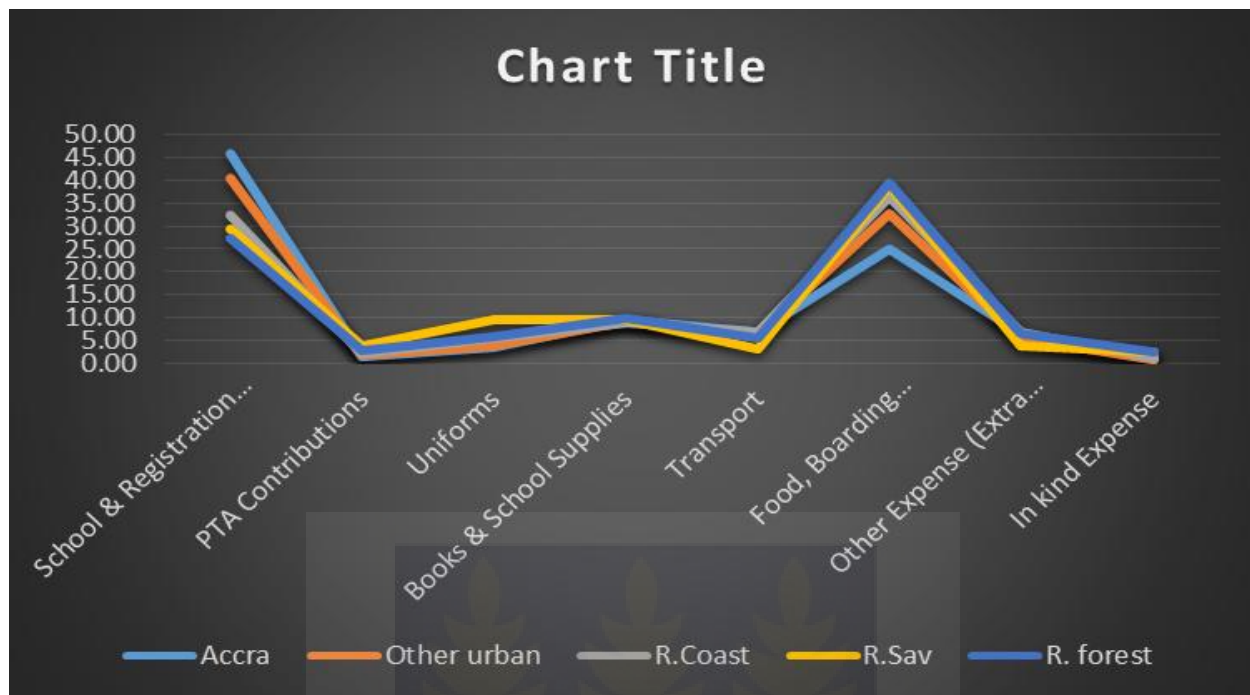
Secondly, analyzing the GLSS V and VI, it is revealed that rural households spend highest on food, boarding and lodging. Even among the rural households, households in the rural forest spend highest on food, boarding and lodging. Figures 2.12 and Fig 2.13 were obtained from GLSS V and GLSS VI data. They reveal that the greatest educational cost item for households in the rural forest, rural coast and rural savannah spend is food, boarding and lodging. Specifically food, boarding and lodging constituted 52.3% in GLSS V and 39.57% in GLSS for households in the rural forest. On the contrary, the highest educational cost item for households in Accra is school and registration fees. This cost item constituted 35 percent and 46 percent in GLSS V and GLSS VI respectively. For households in other urban areas, food and loading constituted the highest (38.9%) educational cost item in GLSS V. This changed in GLSS VI. The cost item that constituted the highest for households in other urban areas was school and registration fees.

Fig 2.12 Percentage of Households' Educational Cost Item by Locality Using GLSS V



Source: GLSS V

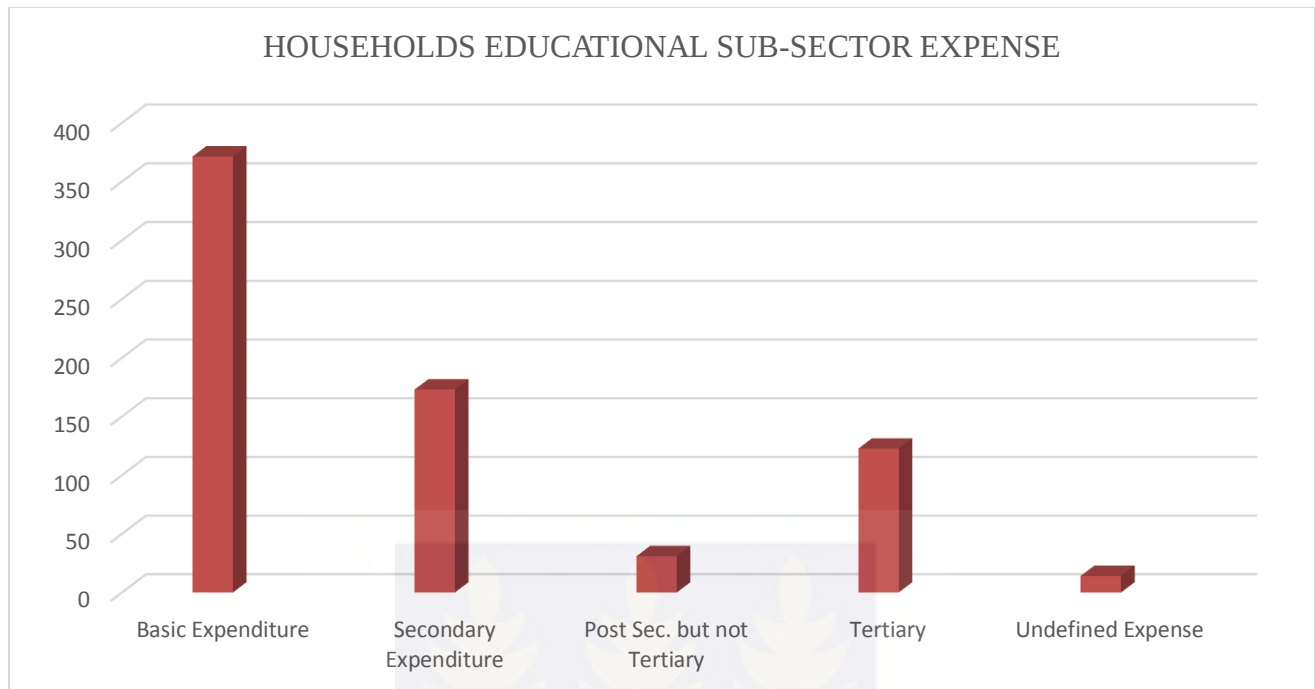
Fig 2.13 Percentage of Households' Educational Cost Item by Locality Using GLSS VI



Source: Ghana Living Standards Survey 6

Furthermore, in answering research objective three (3), the graph below will be beneficial. The subsector that captures the greatest amount of households spending on education is the Basic education. Basic education captures pre-primary through to Junior High School. From Figure 2.14, it can be seen that about 52.2% of total household spending on education is incurred at the basic level. From the data, out of the amounts defined, the least cost is incurred at the post-secondary but not tertiary education level.

Fig 2.14

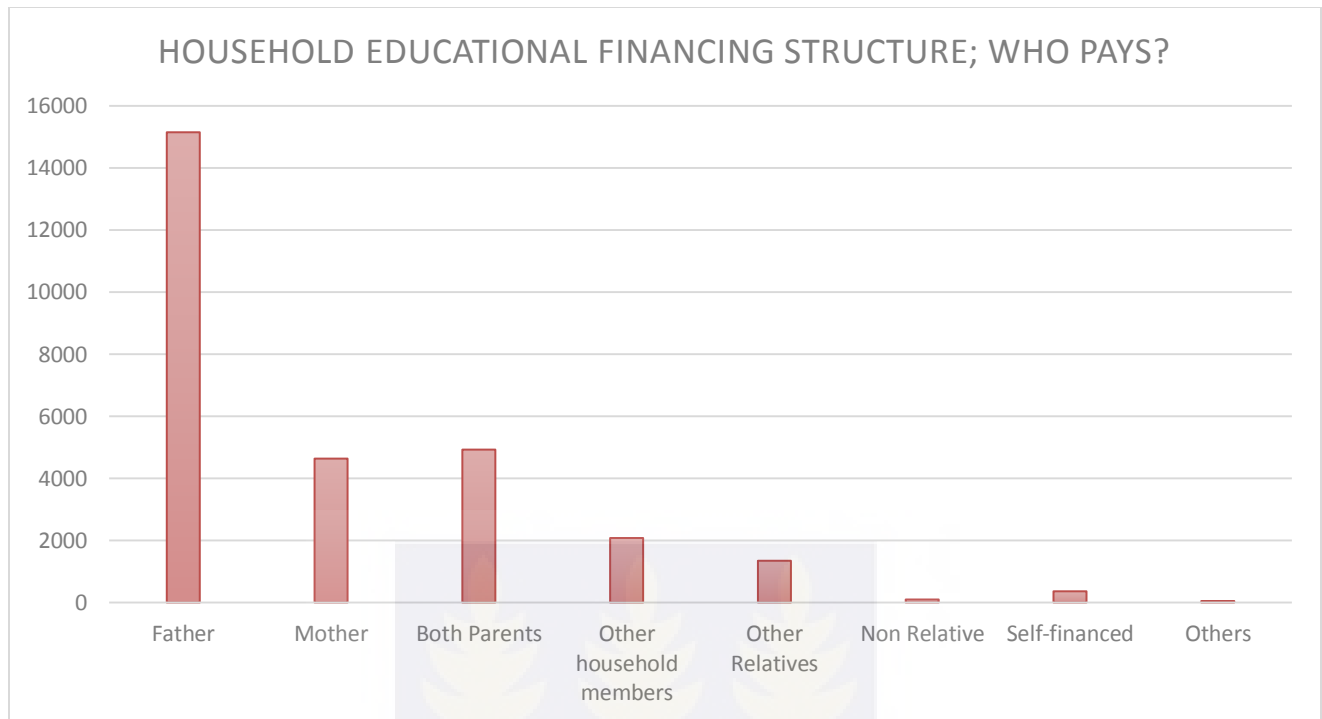


Source: Ghana Living Standard Survey VI

Fig 2.14 shows that households on average spend 52.2 percent on basic education, 24.3 percent on secondary education, 4.3 percent on post-secondary but not tertiary education and 17.2 percent on tertiary education.

Not all but also, of all the people who bear educational costs, fathers in households on average bear the greatest percentage of the cost while non-relatives bear the least.

Fig 2.15



Source: Ghana Living Standards Survey 6

That is on average the percentage of fathers that pay for households' education is higher than mothers. From fig 2.15, on average, about 52.7 percent of fathers pay for households' educational spending while 16.1 percent of mothers pay for households' educational spending. In addition, about 1.3 percent of people self-finance their education.

Lastly, comparing the number of households that incur educational cost to those who obtain educational scholarships, the data from GLSS VI shows the number of households that obtain scholarship is few. Thus the number of people that have their educations financed through scholarships is negligible. From the GLSS VI, about 99.48% of households spend on education leaving less than one (1) percent of households to have their education financed through scholarships.

CHAPTER THREE

LITERATURE REVIEW

3.1 INTRODUCTION

This chapter has many sections. The theoretical literature on the subject will be looked at while also looking at literature on human capital development and households' expenditure. Also, existing literature that analysed the determinants of households' educational spending will be reviewed. The last part provides a review of empirical findings that already exist on the subject.

3.2. BACKGROUND TO THEORETICAL LITERATURE

Making presumptions on education contribute to formulation of inefficient and unsound policies on fees, scholarship and subsidies (Jandhyala, 2002). This means policies on education especially on educational funding should be based on verifiable facts. Presumptions and emotion driven policies may achieve little outcome. It is therefore not surprising why many countries; Kenya, Malawi and Uganda that publicly funded education encountered challenges (Oketch and Somerset, 2010; Chimombo, 1999; Mukudi, 2004; Avenstrup et al, 2004).

Individual educational investment refers to the investment by students and or their parents (Tilak, 2002). Individual investment on education also refers to household educational funding. According to Majumdar (1983), unless household expenditure match with public expenditure, there can be only empty or overcrowded classrooms. This shows that household educational financing is as equally important as public educational funding. Neglecting households' expenditure proves too costly for educational planning in the long run (Jandhyala, 2002). As established by other literature that household educational funding complements government spending, a neglect of household educational spending impedes on the outcomes from public educational spending

According to Tilak (2002) households educational spending is favored on the following grounds; if the government lacks resources, if it is believed that households spending on education will improve efficiency and if there is a necessity to explore and exploit the willingness and ability of households to pay for children's education. This shows that households' spending on education is permitted if the national economy suffers a snag leading to poor revenue mobilization by the government. Again, if there is verifiable evidence to prove that households spending will improve quality, efficiency and also households are willing and able to pay for children's school fees. According to Prichett (2001), public educational spending does not always improve quality, efficiency and economic growth. This points out that before government intends to fund education, it must ensure that the state is financially endowed enough. Also, the government must ensure that quality or efficiency will not be compromised and lastly, there must be a proof that households are unwilling and unable to fund education.

On the other hand, arguing for the need for government financing of education, Tilak (2002) posited the following; household spending violates the letter and spirit of educational laws and statutes enshrined in UN declarations including the Conventions on the Right of the Child. Tilak (2002) argues that once the UN declaration advocates for universal basic education for all, it is the responsibility of states not households to fund this initiative. This assertion gives no consideration to households' willingness and ability. It intimates that once it is a declaration or law (as the 1992 Constitution stipulates with respect to basic education), the state must provide. Secondly, Tilak (2002) argues that household spending on education may entrench inequities in society. This system will lead to the rich spending more while the poor spending less. If this occurs, inequality will widen in the future since only the rich will be in a better position to fund children's education thereby disadvantaging the poor. Lastly, the paper argues that high level of

household expenditure may force the poor not to demand education. Considering the fact that education is important, inability of the poor to demand it may affect the individual poor and the nation in the long run hence states not households must solely fund education.

Basically, three (3) concepts may influence educational attainment (Wilson 2001) and by extension may influence households' educational spending decisions. They are expected returns of education, school characteristics, educational attainment of the household head or household characteristics (Wilson, 2001).

Theoretically, cost, returns, preference may influence demand for education. Findings from China showed that households' income significantly affect educational spending (Gustafsson and Li, 2004). This means that rich households relative to poor households spend more on children's education. In explaining the above, Jandhyala (2002) opined that if households' income is low, effective demand for education will be low hence under investment in education. In countries where the credit market is developed, households can obtain a credit facility to invest in children's education (Behrman and Knowles 1999). However, in developing countries, the credit market is undeveloped hence they have to draw from their meagre income in spending on education. According to Okuwa et al (2015), household heads engaged in professional occupation spend more on education. For the purpose of this study two theories that also drive household educational investments will be looked at. These theories are the human capital theory and the household expenditure. The human capital theory looks the relationship between education, growth and wellbeing. It is an extension of the capital concept and opines that expenditure on education, job training and health are capital investments that will yield economic and social benefits both at the individual and community levels (Netcoh 2016). The household expenditure theory on the other hand looks at what drives households' consumption or production decisions.

3.3 HUMAN CAPITAL THEORY – THEORY ON EDUCATION

Human capital means ‘knowledge, skills, competencies, abilities individuals have that speed up the creation of personal, social and economic wellbeing (OECD, 2001). In a more simplistic sense, any activity that improves human quality is human capital. It includes education, training, on the job or in-service training, health care just to mention but few. The human capital theory basically views education as the solution to reducing poverty and increasing economic growth. Petty (1962) and Smith (1776) set the foundation for this theory and was later broadened by Becker (1964) and Schultz (1971). In Adam Smith’s “Inquiry into the Wealth of Nations (Smith, 1776), he was bold to warn that wealth is not just limited to physical structures but emphasized the significant role human resources plays in increasing productivity. This made him a giant advocate of education. Pritchett (1996) education on growth, Carnoy (1995) education on productivity are modern academic works that expanded the theory.

In the endogenous growth theory, Romer (1986) and Lucas (1988) state that education increases productivity. According to Romer (1986) learning is a factor input of production and has increasing returns making growth progressive. Such models look at acquiring knowledge lead to increase in human capital. Hanushek and Wobmann, (2007). On the macro level, in the endogenous model, education raises human capital efficiency hence leading to higher productivity. Olaniyam and Okemakinde (2008) in investigating education’s link to economic growth said among others that education has positive externalities.

In sum, the human capital theory states two models determine household decision making behavior on education (Jandhyala, 2002). They are the individual maximizing model as proposed by Becker (1967) and the family decision model as proposed by Behrman, Pollak and Taubmann

(1982). The family models argue that, at the basic stage of the child, he or she does not influence his or her education. The decision to spend is made by the family not the beneficiary child. This model further argues that parents invest time (direct inputs), money (indirect inputs) and other resources in children's education because they derive utility from that. Becker (1981) parents invest in children's education at a point where Marginal Cost is equal to Marginal Benefit ($MB=MC$). According to Hanushek (1992) the decision to spend on children's human capital (including education) is a function of parents' characteristics, characteristics of children, parental preferences. In the opinion of Becker and Tomes (1986) spending on children's education, skills, health, etc are indirect children's human capital. If there are no credit constraints, educational spending decisions will not be a problem for households but in developing countries credit constraints exist as intimated by Behrman and Knowles (1999) so other factors come into play in deciding on quantum of children's educational spending.

3.4 HOUSEHOLD EXPENDITURE ECONOMICS

This theory makes the assumption that households are rational economic agents. This rationality assumption envisages that every households take into consideration all the key variables before arriving at an outcome. According to Mattila-Wiro (1999) households' time, consumption and production of goods are determined by market forces. This theory states that there are two (2) models that direct household resource allocations; unitary model and the collective model. For the purpose of this paper, the unitary model is used. In unitary model a unit function is to be maximized and this unit function is the household welfare function. According to Thomas (1990) Income is allocated efficiently when Marginal rate of Substitution between two (2) goods is the same for other pair of consumption goods and all available resource are pooled and reallocated depending on a common rule. This shows that household income can be pooled and spent as

done by many scholars including Donkoh and Amikuzono (2011) and Okuwa et al (2015) in similar studies. The model considers household as a single entity (agent) hence the decision made by household is done to benefit this agent as a rational consumer. It justifies the pooling together of wealth, income and other resources of the households that affect household educational spending. This theory is useful to the study because it looks at what households (a rational economic agent) consider before taking an expenditure decisions including spending on education.

3.5 EMPIRICAL LITERATURE

In Ghana, compared to other countries in Asia and the Middle East, little empirical study has been conducted on household educational spending. For example, Hartmann (2008) studied the role of private tutoring in Egypt and informal markets of education, Kanaan, Al- Salamat and Hanania (2009) looked at household educational financing in Jordan, Jandhyala (1991, 2002, 2009) and Huy (2010) studied this subject in India and China respectively.

Tilak (1991) using time series data (1960-1961 and 1984-1985) in India found that households do not promptly respond to public bodies as far as educational spending is concerned. This means that a small upward movement in public income leads to a proportionate increase in public educational spending while an increase in households' income lead to less than proportionate increase in their educational spending. Similarly, Jandhyala (2009) found that the coefficient of elasticity for both government and households' expenditure on education do not substitute each other but play complementary roles. Prakash and Chowdhury (1994) also using a larger time series found that education is a superior good for both the government and

households. It therefore found a positive income elasticity with respect to educational spending for households and the government.

Sengupta et al (2008) analysed household educational spending and educational levels using expenditure classes between 1999 -2000 and 2004 -2005. This study grouped the population into poor, poorer, marginal, vulnerable, middle and high income households. It found out that the monthly per capita expenditure on education increased for all income groups including the poor. Jandhyala (2002) using data from India found that rich income households spend 6.1 times than the bottom poor.

Jandhyala (2002) did a study on determinants of household spending on education in rural India. The study was grouped into sections and different variables were used in different sections. For the first section, Jandhyala (2002) used level of economic development measured by GDP per capita, government educational spending per capita and educational situation in the state. With respect to educational situation in the state, literacy rate, pupil teacher ratio and number of rural dwellers with upper education were used. It found out that high teacher to pupil ratio increase household educational spending. Thus, with schools having high pupil to teacher ratio, quality falls so households incur extra cost on private tutoring. Again, it also found out that there exist strong positive linkage between public spending on education and households' spending. This study reinforced that government and household spending play complementary roles. If government wants households to increase spending on education, government must increase its spending on education.

For the second section, Jandhyala (2002) used the following variables; household income, education level of household head, size of household, caste, religion, gender, proximity to

school, factors relating to the school and development level of the school's location. From this study, all variables were significant and further revealed that households' income impact positively on educational spending. Again, educational incentives such as free meal, books and uniforms reduce household spending on education. Lastly, it also found that educational levels of household heads impact positively on educational spending.

Dang (2013) in a similar study (commissioned by the World Bank) to investigate demand for private tutoring in Vietnam used the tobit model. This study also used the following independent variables; age of household's head, gender, household head's years of schooling, household living standards, residence, ethnicity, grade of student, household size and number of siblings. It was found that households spend 40 percent more on private tutoring when the child is transiting from primary school to lower secondary school and 83 percent more when the child is moving to upper secondary. It also revealed that number of siblings did not show strong pattern of gender bias but one more child within 11-14 or 15-17 age brackets has a negative impact on household spending than more children with 0-5 or 6-10 age brackets.

Uma (2008) studied if household spending on education spending is dependent on returns to education in India and observed that the rate of return to education was extremely significant in raising households' amount spent on education for both sex and its impact is much huge in secondary schools. Qian and Smyth (2010) investigated determinants of households' educational spending in China using 32 communities in 2003 and found out that household where mothers have higher education and father is engaged in professional occupation is likely to spend more on education. Knight and Shi (1996) also found that parent's educational attainment positively impacts household educational spending.

Jandhyala (2009) studied household education spending and implication on redefining poverty line in India where tuition fees, examination fees, transportation fees, stationary, private coaching were the expenses and observed that high income households spend more on primary education than poor households but the opposite is true for secondary spending. Donkoh and Amikuzono (2011) in studying determinants of household expenditure in Ghana found that female headed households likely to spend more on education than male headed households.

Huy (2010) found that these determinants (households' income, years of education of household head, household head's occupation, number of children in the household and marital status of household head) significantly impact on education spending in Vietnam. The independent variables used in this study were household income, years of education, nature of jobs, number of children at each educational level and marital status of household head. It was found that educational level of household head positively impacts on educational spending. Again, it was found that household heads with professional occupation spend more on education. Furthermore, it was found that the size of the household and household income positively impact on educational spending. However, household head being male, married or divorced were found to be insignificant. Similarly, Glewwe and Patrinos (1999) used 1992 to 1993 household survey to investigate determinants of educational demand in Vietnam. The study found that urban households spend more on education than the rural folks. It also concluded that as households move from the Northern region to the Southern regions, they tend to spend more on education. Glewwe and Jacoby (2003) also used panel data (from 1993 to 1998) to investigate factors that influence school enrolment in Vietnam. The study found that the level of household wealth (asset) induces demand for education and by extension influences educational spending.

Okuwa et al (2015) in studying the determinants of household educational spending in Nigeria used sex of household head, age of household head, geopolitical zone, area of residence, household size and marital status as independent variables. The study found that being female or male head does not influence educational spending pattern. It was also found that there exist huge disparity between urban and rural educational spending pattern and urban households spend more on education. Again, it was revealed that age of household head and household size negatively impact on educational spending.

Donkoh and Amikuzono (2011) used logit model to estimate the socio-economic determinants of household probability of spending on education using GLSS V. In the year of study, a household that spent on education was assigned (1) and the one that didn't spend on education assigned (0) so according to Maddala (2003) because of heteroscedasticity challenge and the fact that probability cannot be assigned zero and one, discrete choice model was used. The variables used include sex of household head, age of household head, educational level of the child, bus ownership, land ownership, asset ownership, ecology and region. The study found that all variables were significant and did maintain their expected signs. From the study, it was revealed that female household heads are likely to spend more on education than their male counterparts while rural households are likely to spend more on education than their urban counterparts although urban households actually spend more. Again, the probability for households in the forest areas to spend on education is high compared to those in the coastal and savannah areas. This is so because from the study, households within the forest areas wield huge mineral deposits and fertile arable lands. This increases their income capacities hence increasing their wealth accumulation and by extension their purchasing power for essential goods and services including education.

Pradeep (2011) in his study; determinants of household expenditure on engineering education in Delhi used household, institutional and individual variables as determinants. This study found that non-fee item is negatively related to household income but household educational spending is directly related to household income albeit the degree of impact is less. Also it found out that households in Delhi and its neighbourhoods relatively spend less on education compared to those from the other cities hence have proximity (stay far from school's location) affects household expenditure on engineering education because of transportation cost and or boarding fees.

Bayar et al (2016) in a similar study used the following independent variables. They were region, marital status, education level of household head, employment status of household head, mother's educational level, mother's occupation, number of children and household income. It found that educational spending for higher income household group not sensitive to changes in income. Again the study showed that educational level of household head and mother's education positively impact household educational spending. Lastly, it was revealed that households living in the urban areas spend more on education than their rural counterparts.

3.6 CONCLUSION AND SUMMARY OF EMPIRICAL RESULTS

Making assumptions on education may lead to formulation of unsound policies (Jandhyala, 2002). This means all educational policies must be based on verifiable facts. If this is done, countries may not repeat the mistakes of some African countries like Malawi and Kenya. Individual's educational spending is interchangeably used for household educational spending. Households' educational spending play complementary role to public educational spending hence the neglect of households educational spending in policy formulations may lead to a negative outcome in the long run. Household educational spending is favoured if it is proven that

government lacks resources, it will improve efficiency and if households are willing and able to pay (Jandhyala, 2002). To examine household educational spending, the study analysed the human capital theory and the households' expenditure economics theory.

According to Wilson (2001), expected return on education, school characteristics and educational attainment of household heads influence household educational demand and spending. This study ignored variables like caste, religion and ethnicity as done by Jandhyala (2002) because they were deemed largely as sociological matters rather than economic determinants. It uses the cross sectional regression model as done Okuwa et al (2015). Dang (2013) and Donkoh and Amikuzono (2011) used tobit and logit models respectively but this study uses the probit model. Summary of empirical study is shown in Table 3.1.

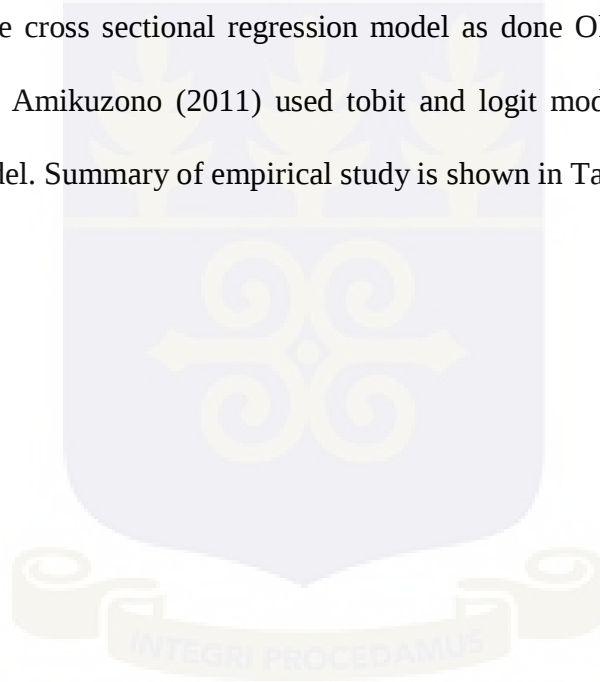


Table 3.1. SUMMARY FROM EMPIRICAL STUDY

Study	Variables	Findings
Bayar and Ilhan (2016)	Marital status, education level of household head, sex of household head, employment status of household head, income, number of children and region	1.Education level of household head and mother's education positively impact educational spending. 2.Educational spending for high income households not sensitive to income changes 3.Urban households spend more on education.
Jandhyala (2002)	Level of economic development, government spending on education and educational situation of the state	1.High pupil to teacher ratio increases household educational spending. 2.There is a positive link between public educational spending and household educational spending.
Jandhyala (2002)	Caste, religion, ethnic group, household size, education level of household head, occupation of household head, gender of student, marital status of household head, landholding, household income, availability of other educational incentives.	1.Household income positively affects educational spending. 2.Educational level of household head affects educational spending. 3.Household size negatively affects educational spending. 4. Availability of educational incentives negatively affects educational spending.
Huy (2010)	Household income, years of study, nature of job, number of children, marital status, household size, educational level of household head	1.Household head educational level significantly positive. 2.Household size and income positively affect educational spending.
Donkor and Amikuzono (2011)	Sex of household head, age of household head, education of household head, bus ownership, durable asset, sex of a child, location and number of children	1.Female household heads likely to spend more on education 2. Probability to spend on education is higher in rural areas but urban areas actually spend more 3. Probability to spend on education is higher in the forest areas.
Okuwa et (2015)	Sex of household head, age of household head, geopolitical zones, area of residence, household size, marital status	1.Age and household size negatively significant 2.Households in the northern sector spend less on education 3.Sex of household head positively significant.

Pradeep (2011)	household characteristics, institutional characteristics and individual characteristics	1. Proximity to school positively impact on household educational spending 2. Non fee items are negatively related to income but household income is directly related to educational spending although the degree of impact is less.
Dang (2013)	Age of household head, gender, household head years of schooling, size of household, grade of student, number of siblings, ethnicity	1. household income, education of household head, residence, student grade and household size significantly influence demand for private tutoring thereby affecting educational spending. 2. Ethnic majority spend more on private tutoring than their minority counterparts

CHAPTER FOUR

METHODOLOGY

4.1 INTRODUCTION

This chapter discusses the statistical techniques employed in determining the variables that influence education in Ghana and their theoretical basis. This chapter is grouped into sections. A description of relevant variables and sources of data for the study is discussed in the next section. A theoretical basis for the variables used in the study is also presented in this chapter.

This study follows studies done by both Donkoh and Amikuzono (2011) on Ghana and Okuwa et al (2015) on Nigeria. The point of departure is that Donkoh and Amikuzono (2011) relied on data from GLSS V but this study uses GLSS VI data. In addition, Donkoh and Amikuzono (2011) only examined likelihood of change by using discrete choice model (logit) but this study uses cross sectional regression to examine how the independent variables relate to educational spending before it later uses discrete choice model (probit) to examine the likelihood of change in educational spending as a result of change in any of the independent variables. Lastly, this study also examines the pattern of households' educational spending. Donkoh and Amikuzono (2011) did not examine the pattern and component cost of education at the household levels.

4.2 DATA

The data comes from GLSS VI collected by The Ghana Statistical Service in the year 2012/2013. It is the sixth nationally represented survey conducted at the households' level with the view of gathering pertinent socio economic data. GLSS VI is a nationwide survey and collected detailed information on almost all key areas including demographic characteristics and socio-economic characteristics. The survey reveals the welfare, poverty levels and consumption levels between different groupings: rural, urban, regions and ecology. In all, about 16772 households were surveyed. For the purpose of the Cross sectional regression, 11302 households which had values attached to their educational spending were used. Since the study wanted to investigate the probability of change in educational spending as a result of a change in explanatory variables, for the binary model (probit) was also adopted, About 16534 households were properly enlisted hence used in the probit model.

4.3 DATA ANALYSIS

Descriptive statistics such as percentages and mean were used to describe the data. In response to objective one (1), Ordinary least square regression analysis was used initially to analyse the determinants of households educational spending. This method was used in similar study done by Okuwa et al (2015) and Rojas (2012) to analyse the determinants of households' spending on education in Nigeria and Columbia respectively. After correcting for significant heteroscedasticity, Generalized Least Square (GLS) method was used. Similarly, in response to objective two (2); investigate the likelihood of change in educational spending as a result of change in any of the explanatory variables, probit model was used. This is because in assessing probability of household educational spending, the dependent variable (education spending) becomes continuous hence households with zero spending will be cut-off hence sample selection bias results. To correct this, discrete choice models like tobit, logit and probit models are

considered appropriate (Maddala, 2003). In similar study by Donkoh and Amikuzono (2011), logit model was used. Again, Bayar et al (2016) in a related study used the tobit model. Probit model also being a discrete choice model was used to ascertain if the results derived using the other models (tobit and logit) will be significantly similar.

4.4 PROBIT MODEL

The dependent variable is discrete; it takes the values of zero and one. Households that incurred any expenditure on education is assigned (1) but households that did not spend on education is assigned zero (0). The OLS is limited because of heteroscedasticity challenges and it is difficult to get probabilities values lying between zero and one. Hence as proposed by Maddala (2003) and Greene (2003), discrete choice model (such as logit or probit) is used. Similar model (logit) was used by Donkoh and Amikuzono (2007) in a similar study using the GLSS V. Aside the probit model being normally distributed relative to the logit model, this is done to assess whether there will be any significant difference from the findings as captured by Donkoh and Amikuzono (2007).

As characteristic of every economic model, there are two sides (dependent and independent variables) in this regression relationship.

$$Y = \beta_0 + \beta_1 X_i + \dots + \mu \dots \dots \dots (1)$$

In equation (1), a simple OLS model, Y= dependent variable where X^s = independent variables and μ = error term. The error term captures all other variables that were not stated in the model but may have effect of impacting the outcomes.

$$Y^* = \beta_0 + \beta_1 X_i^* + \dots + \mu^* \dots \dots \dots (2)$$

Equation (2), is a simple probit models where $Y^* =$ probability that households spend on education not make expenditure on education) and X_i^* = vector of parameters to be estimated.

$Y = 1$ if $Y^* > 1$ (thus if households spend on education)

$Y = 0$ if households do not spend on education.

From above (equation 2) and relations above,

$$\begin{aligned} \Pr(Y=1/X_i\beta) &= 1 - e^{-X_i\beta} / (1 + e^{-X_i\beta}) \\ &= e^{X_i\beta} / (1 + e^{X_i\beta}) \end{aligned} \quad (3)$$

In case of regression model, it is given as

$$Y^* = 1 - F(X_i^*\beta) + \mu^* \quad (4)$$

To derive the marginal effects, equations (3 and 4) can be transformed to

$$d \frac{\Pr}{dx} = \beta_i (\Pr(1 - \Pr)) \quad (5)$$

For Average marginal effects (AME), continuous variables will look like

$$AME = \frac{1}{n} \sum (X\beta)$$

For dummy variables, $AME = \frac{1}{n} \sum [(X\beta / X = 1) - (X\beta / X = 0)]$

4.5 EMPIRICAL MODEL SPECIFICATION

The empirical model presents a set of other explanatory variables that determines households' educational spending (expenditure) in a country. In line with previous studies, many of the

variables are measured as a dummy variables while others have been log linearized. Also, a set of control variable (fixed effects accounting for regional difference) is included in the model because of their possible effects on the independent variable in and in some instance on other explanatory variables in a country. For purposes of this study, this model is defined below:

$$\text{Leduc} = \beta_0 + \beta_1 \text{Sexhhhd} + \beta_2 \text{AgeHhd} + \beta_3 \text{educHhd} + \beta_4 \text{regions} + \beta_5 \text{Assets} + \beta_6 \text{lninc} + \beta_7 \text{hhsiz} + \beta_8 \text{Ecz} + \beta_9 \text{emp_hh} + \beta_{10} \text{mar} + \mu \dots\dots\dots (6).$$
 This equation represents the cross sectional regression model.

$$\text{Log} [\text{Pr}/ (1-\text{Pr})] = \beta_0 + \beta_1 \text{Sexhhhd} + \beta_2 \text{AgeHhd} + \beta_3 \text{educHhd} + \beta_4 \text{regions} + \beta_5 \text{Assets} + \beta_6 \text{lninc} + \beta_7 \text{hhsiz} + \beta_8 \text{Ecz} + \beta_9 \text{emp_hh} + \beta_{10} \text{mar} + \mu \dots\dots\dots (7).$$
 This equation represents the cross-sectional probit model and the variables are defined in the table below.

Table 4.1 Definition of Variables

$\text{Log} [\text{Pr}/ (1-\text{Pr})]$ = the log of probability of households making expenditure in education.

lneduc = the log of total household total educational spending

lninc = the log total household income

hhsiz = the total size of the household

AgeHh = age of household head (this is grouped into four; 15-30 =1, 31-45 =2, 46-60 =3 and 60+ =4)

rur = rural urban dummy (rural = 1, urban = 0)

emp_hh = employment status of household head (unemployed =1, employed =2, retired =3)

male = sex dummy of household head (female = 0, male =1)

mar = marital status of the household head (never married =1, married =2, single = 3)

educhh = the educational level of the household head (no education = 1, basic education =2, secondary education =3, tertiary education =4)

region_GH = the regions of Ghana (Western region =1, Central region =2, Greater Accra region =3, Volta region =4, Eastern region =5, Ashanti region =6, Brong Ahafo region =7, Northern region =8, Upper East =9, Upper West =10)

Ecz = ecological zones of Ghana (coastal = 1, Savannah = 2 forest= 3)

4.6 DESCRIPTION OF VARIABLES AND THEIR EXPECTED BEHAVIOUR

Many factors determine household spending on education. The influencing factors may be economic, social or cultural (Huy, 2010). According to Tilak (2002) Socio-cultural factors, household characteristics (size of the household), household head characteristics like education level of head, employment and geographical or location factors influence household spending on education. Okuwa et al (2015) analyzed households' educational determinants using descriptive statistics and regression analysis by using age of household head, household size, area of residence, number of spouse, educational level of household head and geopolitical zone. Donkoh and Amikuzono (2011) in conducting similar study used sex of household head, durable asset, age of household head, ecology and region as variables. Lastly, Rojas (2012) in investigating the determinants of basic education spending in Columbia used household size, location of the household (urban or rural), marital status of household head and educational attainment of household head as the independent variables.

This study will give no attention to variables such as caste, religion and ethnic group as used by Jandhyala (2002, 2009). This is to give more attention to economic factors that influence educational spending as done by Okuwa (2015), Donkoh and Amikuzono (2011) and Bayar et al

(2016). For the purpose of this study, the variables used are grouped into three pillars and will be discussed in turn. They are:

- Location of household. This looks at variables such as whether the household is located at either urban or rural area, which of the ten (10) administrative regions is the household located and which ecological zone is the household located?
- Household characteristics. This analyses variables such as household size, total income of household and assets or wealth ownership of household.
- Household head characteristics. This examines variables such as age of household head, sex of household head, educational level of household head, employment status of household head and marital status of household head.

4.6.1 LOCATION OF HOUSEHOLD:

Under location of household head, three issues will be looked at. They are region touching on all the ten (10) administrative regions in Ghana, ecological zone touching on the three ecological zones in Ghana and area of residence (urban or rural) of the household. Each is discussed in turn.

RURAL / URBAN

The location (rural or urban) of the household affects educational spending. The location of the household may impact on the household's economic endowment hence influence its spending on a good or service. Households are influenced by some characteristics (cultural and economic) depending on their location. According to Bayar (2016) rural and urban distinctions play a major role in determining household educational spending. It has been shown that urban households spend much on education than their rural counterparts (Okuwa 2015). This finding was also made by Rojas (2012) in his study on determinants of households educational spending in

Columbia. The gap may be attributable to asymmetric information leading to greater wealth, higher education, better media access hence making urban parents spending more in education (Majumdar et al 2004). Al Samarrai and Reily (2000) argued that projected rate of return may be different in rural and urban areas hence may explain the educational spending disparity. Again, there may be difference in culture, and that may explain the disparity. Lastly, Okuwa (2004) posited that the real cost of taking a child to school may be different in the rural and urban areas. Despite urban households spending much on education relative to their rural counterparts, the probability for rural households to spend on education is higher. It is therefore expected that area of residence (urban or rural) positively impacts on household educational spending.

ECOLOGICAL ZONE

In Ghana, three (3) ecological zones exist. They are forest, coastal and savannah zones. The forest zone is perceived as richer because it is endowed with huge mineral deposits and it is endowed with fertile land favourable for agriculture (Donkoh and Amikuzono, 2011). The a priori expectation is that the households in the forest areas will spend more on education. This expectation although arguable is not misplaced because the forest zone is seen as richest when comparing it to the coastal and savannah. The savannah area captures the northern Ghana and it is seen as the most vulnerable. All the Living Standard Surveys confirm this. It is the main reason why government provides them educational subventions. According to Ofori (2003) households in the south are relatively richer than those in the north and possess more educational facilities than the north. It is expected that ecological zone positively impact on educational spending with households in the forest areas spending more compared to those in the coastal and savannah areas.

REGION

According to Bayar (2016), regional dispersions is important component in determining the households educational spending. In Ghana the regions are Ashanti, Greater Accra, Western, Central, Eastern, Brong Ahafo, Volta, Upper West, Upper East and the Northern regions. Upper West, Upper East and the Northern regions are collectively viewed as Northern Ghana. The northern Ghana is generally viewed as deprived. The Southern Ghana is seen as far richer than the North. (Ofori, 2003) shows that there exist more educational facilities in the South than the north. This makes the southern Ghana spend more on education compared to their Northern counterparts. However, as explained by Tilak (2002), the depravity in educational infrastructure makes it likely for the vulnerable areas including Northern Ghana to spend more on education. Okuwa et al (2015) found that households in the 3 northern zones spent less on education compared to the households in the southern regions. The probability that people within the south will spend more on education partly due to income levels and on educational facilities is high. Therefore, differences in region (which takes care of variance in spending depending on how close or far the household is from the capital) must be catered for to make the analysis complete. A priori spending in the three northern regions to be small.

Table 4.2 SUMMARY OF HOUSEHOLD LOCATION AND THEIR EXPECTED SIGNS

LOCATION	EXPECTED SIGNS
Urban	Positive
Rural	Positive
Forest zone	Positive
Coastal zone	**
Savannah	**
Western region	**
Central region	**
Greater Accra region	**
Volta region	**
Eastern region	**
Ashanti region	**
Brong Ahafo region	**
Northern region	**
Upper East region	**
Upper West region	**

Note: ** represents variables whose expected signs were inconclusive in the literature hence subject to empirical test.

4.6.2 HOUSEHOLD CHARACTERISTICS:

Household characteristics according to Qian and Smyth (2010) and Glewwe and Jacoby (2003) influence household educational spending decisions. In this study, household size, household income and household asset (wealth) will be discussed under household characteristics.

ASSET OWNERSHIP

Ownership of any form of asset influences the wealth position of the household. The wealthy households are expected to spend more on education than the less wealthy ones. In this study, following the unitary household model discussed in the literature review and Okuwa (2015) phone, radio, fridge, car, television, sewing machine, motorcycle and household ownership were assets that were pooled into a single asset unit. After this was done, following the example of Sengupta et al (2008), households were grouped into poorest, poorer, middle, richer and richest depending on the level of asset. Donkoh and Amikuzono (2011) found that durable assets significantly influence household educational spending. Similarly, Glewwe and Jacoby (2003) found a positive relationship between households' wealth and educational spending. It is expected that wealth (asset) will have positive impact on educational spending.

HOUSEHOLD SIZE

The relationship between education expenditure and size of household is vague. Jandhyala (2002), Rojas (2012) and Okuwa (2015) found that household size negatively impact on educational spending. Rojas (2012) in explaining why household size negatively impacts on

educational spending, it argued that comparing small household size to large household size (*ceteris paribus*) large household size will have myriad needs to satisfy hence less resource left to meet other equally important needs like spending on education. On the other hand, Donkoh and Amikuzono (2011) and Huy (2010) found that household size positively impact on educational spending. The expected sign in this study as far as household size is concerned is positive.

HOUSEHOLD INCOME

According to Glewwe and Patrinos (1999) found a positive relationship between household income and educational spending. In the view of Jandhyala (2002), if households' income is low, effective demand for education becomes low hence low educational spending. The opposite is also true. Bladden and Gregg (2004) also found a positive link between household income and educational spending. This study expects a positive sign for this variable.

4.6.3 HOUSEHOLD HEAD CHARACTERISTICS:

Qian and Smyth (2010), Psacharopoulos and Robert (2010) and Lakshmanasamy (2006) argued that household characteristics like employment status of household head, educational level of household head and sex of the household head influence household educational spending decisions. In this study, the household head characteristics that will be analysed are sex of household head, age of household head, educational level and employment status. Almost all literature; Huy (2010), Bayar (2016) and Okuwa et al (2015) on the subject incorporated these independent variables in their study.

SEX OF HOUSEHOLD HEAD

Many studies have proven that the sex of the household head impacts on its spending decisions. According to Okuwa et al (2015), sex of household head positively affect educational spending. In similar study, Donkoh and Amikuzono (2011) found that households headed by females have greater probability in spending more in education than male headed households. Huy (2010) on the other hand found that household head being male or not is insignificant as far as determining educational spending is concerned. Although Rojas (2012) established that households headed by females spend more on education than males, it found whether household is female or male statistically insignificant. In this study, the a priori expected sign is positive and also it is expected that the probability for female household heads to spend on education is higher compared to their male counterparts.

AGE OF HOUSEHOLD HEAD

With respect to age, Okuwa et al (2015), Huy (2010), Jandhyala (2002) and Donkoh and Amikuzono (2011) computed for age squared and used that in the model. In this study, age will be categorized. This is done to capture which of the age brackets spends more or is likely to spend more on education. The categorization was done as follows (below 30), (31-45), (46-60) and (60+). The age of the household head all other things being equal impacts on his or her earning abilities hence influences his or her educational spending. According to Okuwa et al (2015), age is negatively significant in determining households' educational spending. This means relatively household heads spend less on education because these individuals might have seen all their children through school and may need not to spend on education. This supports a claim made by Mauldin et al (2001). It is expected that household educational spending increases

as household head's age increases but falls after retirement. It is also expected that household heads in the age bracket of (45-60) should spend more on education. Therefore the a priori sign is positive.

EDUCATIONAL LEVELS OF HOUSEHOLD HEAD

Household heads that have received some level of education understand the importance of education. All other things being equal, households with educated household head is likely to spend more on education. Sackey (2007) avers educational attainment of the household head directly impacts children's school attendance probability hence influences households' educational spending. Glick and Sahn (2000) studied on Guinea, and Tansel (2002) studied on Turkey and each study supports the claim above. Jandhyala (2002), Huy (2010) and Okuwa (2015) found educational level of household heads positively influence educational spending. It is expected that educated households spend more on education than uneducated households. Among the educated households, it is expected that household heads with higher education spend more on their children's education. The expected sign for this variable is positive.

EMPLOYMENT STATUS OF HOUSEHOLD HEAD

Employment levels have impact on households' educational spending. On the face value, it may be easier to say employed households spend more on education. However, interrogating the nature and sector in which these household heads are employed will give a better picture. Although some people may be considered as employed in the agricultural sector in the rural areas, they may spend very little on education because they may see children as farm inputs hence the need to engage them in farms rather than enroll them in schools. It is expected that employed households spend more on education than the unemployed.

Table 4.3: SUMMARY OF OTHER VARIABLES AND THEIR EXPECTED BEHAVIOUR

Variable	Expected Sign
Household income	Positive
Household size	Positive
Asset / Wealth:	Positive
Employment status of household head	Positive
Marital status	**
Age of household head	**
Sex of household head	**
Education level of household head	Positive

Note: ** represents variables whose expected signs were inconclusive in the literature hence subject for empirical test.

4.7 DIAGNOSTIC TESTS:

The literature advises that since cross sectional regressions are prone to problems of heteroscedasticity it is useful to test for the presence of this problem and correct appropriately. The presence of the heteroscedasticity violates the Best Linear Unbiased Estimator (BLUE) assumption in OLS. This study therefore tested for this problem and corrected it appropriately using the Breusch Pagan/Cock-Weisberg test.

Similarly, since the model contain several dummy variables, there is the likelihood that it suffers from multicollinearity. To check this, the Variation Inflation Factor (VIF) method was used. The study used the rule of thumb “the mean VIF value is 10 or more or VIF for any of the variables is 10 or more, multicollinearity is present”

CHAPTER FIVE

DISCUSSION OF RESULTS

5.1 INTRODUCTION

Aside the introduction, the analysis of the data is presented in two parts to achieve the objectives of the study. The first part does some descriptive analysis on the study. The second part of the chapter provides an analysis of the estimated results of the study. Under this section, both parts can be grouped into sections. This part discusses results of the diagnostic tests.

5.2 DESCRIPTIVE STATISTICS OF VARIABLES

The descriptive statistics gives a summary description of all the variables that affect household educational spending based on the GLSS VI. The mean, standard deviation, range of dependent and independent variables are shown. This helps in understanding the variables used for the study. It also gives clear view of the statistical picture of all the variables used in the study.

Dummy variables were introduced for all the independent variables except household size and household income. The only independent variable that was log linearized was income. This was done because from the GLSS VI, some households had negative income while others had huge values for income. It was log linearized to standardize the income values used in the study. Table 5.1 gives a broad overview of the descriptive statistics for households' education spending and all the explanatory variables in the model.

Table 5.1 DESCRIPTIVE STATISTICS ON EDUCATIONAL SPENDING DETERMINANTS

Variable	Mean	Std. Deviation	Min. Value	Max. Value
Ln Teduc	5.833	1.699	1.204	11.005
Female	0.284	0.451	0	1
Age: 31- 45	0.41	0.492	0	1
46 – 60	0.301	0.459	0	1
60+	0.17	0.376	0	1
Area of residence (Urban)	0.431	0.495	0	1
Wealth: Poorer	0.22	0.414	0	1
Middle	0.166	0.372	0	1
Richer	0.2	0.4	0	1
Richest	0.227	0.419	0	1
Regions: Central	0.101	0.301	0	1
Greater Accra	0.1	0.3	0	1
Volta Region	0.094	0.292	0	1
Eastern	0.106	0.308	0	1
Ashanti	0.114	0.318	0	1
Brong Ahafo	0.098	0.298	0	1
Northern region	0.098	0.298	0	1
Upper East	0.093	0.291	0	1
Upper West	0.097	0.296	0	1
Marital Status: married	0.67	0.47	0	1
Ecological zone: forest	0.416	0.493	0	1
Savannah	0.365	0.481	0	1
Employment Status: Employed	1.101	0.329	0	1
Retired	1.101	0.329	1	3
Educational level: Basic	0.542	0.498	1	3
Secondary education	0.075	0.263	0	1

Tertiary education	0.099	0.299	0	1
Household size	5.273	2.654	1	29
Ln Income	0.004	0.0008	2.408	13.578

Source: Author's Computation using STATA (13)

From Table 5.1, 43.1 percent of enumerated households were in the urban areas, 8.8 percent of households lived in the Greater Accra Municipal Assembly and 48.1 percent of households were in the rural areas. Also 10.1 percent of the enumerated households lived in Central region, 10 percent lived in Greater Accra region, 9.4 percent, 10.6 percent, 11.4 percent, 9.8 percent, 9.8 percent, 9. Percent, 9.7 percent and 9 percent found in the Volta region, Eastern region, Ashanti region, Brong Ahafo region, Northern region, Upper East region, Upper West region and Western region respectively. Similarly, 41. 6 percent of households were found in the forest areas, 36.5 percent in the savannah areas and 22.5 percent were located in the coastal areas.

Furthermore, on characteristics of household head, on average, 28.4 percent of household heads were females. Also, 41 percent of household heads were between 31 to 45 years, 30.1% of them were between 46 to 60 years, 17 percent of them were above 60 years and 12 percent were below 30 years. Additionally, 67 percent of enumerated household heads were married while 33 percent were unmarried (either single or divorced). Lastly, 54.2 percent of household heads had received basic education, 7.5 percent had secondary education, 9.9 percent had tertiary education and 28.4 percent had no education.

Also, the average household size was 5.2 where the minimum household had one (1) member and the largest household had 29 members. Again, the wealth profile for households were 18.7 percent, 22 percent, 16.6 percent, 20 percent, and 22.7 percent for poorest, poorer, middle, richer and richest households respectively.

5.3 EMPIRICAL TEST RESULTS

From Table 5.2, the OLS estimator shows the independent variables are largely significant. The study used 1 percent, 5 percent and 10 percent levels of significance. The variables that were seen to be highly significant include female household heads, age of household heads, wealth (asset) endowment of households, urban households, households in the savannah ecological zone, employed household heads, log of household income, education levels of household heads and household size. Households in forest zones, Ashanti region, Greater Accra, Central Region, retired household heads and marital status were however insignificant.

Additionally, wealth, sex of household head (females), location, log of household income and household size positively impacts on household spending on education. Lastly, all expected signs were attained after the test.

Table 5.2 DETERMINANTS OF HOUSEHOLDS' EDUCATIONAL SPENDING

No of observation 11302

Prob > F = 0.000

F(29, 11272) = 249.39

R squared = 0.391

Adjusted R- Squared = 0.3893

Variable	Coefficient	Std Error	P > Z
Female	0.345	0.035	0.000
Age: 31- 45	0.188	0.043	0.000
46 – 60	0.445	0.046	0.000
60+	0.308	0.051	0.000
Urban	0.744	0.051	0.000
Wealth: Poorer	0.217	0.040	0.000
Middle	0.463	0.045	0.000
Richer	0.689	0.045	0.000
Richest	0.760	0.044	0.000
Regions: Central	0.023	0.057	0.682
Greater Accra	-0.129	0.123	0.292
Volta Region	-0.653	0.059	0.000
Eastern	-0.226	0.059	0.000
Ashanti	-0.006	0.058	0.92
Brong Ahafo	-0.245	0.069	0.000
Northern region	-0.624	0.069	0.000
Upper East	-0.456	0.087	0.000
Upper West	-0.981	0.087	0.000

Marital Status: married	-0.032	0.034	0.332
Ecological zone: forest	0.057	0.048	0.237
Savannah	-0.386	0.075	0.000
Employment Status: Employed	0.141	0.477	0.003
Retired	-0.158	0.138	0.250
Educational level: Basic	0.396	0.033	0.000
Secondary education	0.885	0.057	0.000
Tertiary education	1.1	0.052	0.000
Household size	0.152	0.005	0.000
Constant	3.034	0.110	0.000

Source: Author's Computation using STATA (13)

As earlier intimated in section 4.7, since cross sectional regression analysis usually suffers from heteroscedasticity, the Breusch-Pagan/Cock-Weisberg test was used to detect heteroscedasticity. The results confirmed the presence of the problem. The table below (Table 5.3) shows the results from the test of heteroscedasticity

Table 5.3: Breusch-Pagan/Cock-Weisberg test

Ho: Constant variance (Homoscedasticity)

Chi2 (1) = 26.155

Prob > chi2 = 0.000

Source: Author's Computation using STATA (13)

From the above, since the null hypothesis showed a constant variance. Again since the “prob > chi2 =0.000”, it shows the model significantly suffers from heteroscedasticity.

Similarly, since the estimation made use of so many dummy variables, there was therefore the need to test for multicollinearity. The VIF method was used to test for the existence of this problem. Contrary to the above, the result showed that independent variables were uncorrelated hence there was no need correcting multicollinearity. The result can be seen in the table below (Table 5.4):

Table 5.4: VARIANCE INFLATION FACTORS FOR THE INDEPENDENT VARIABLES

Variable	VIF	1/VIF
Female	1.59	0.629
Age: 31- 45	2.91	0.343
46 – 60	2.83	0.053
60+	2.38	0.421
Area of residence (Urban)	1.46	0.685
Wealth: Poorer	1.77	0.565
Middle	1.77	0.565
Richer	2.12	0.472
Richest	2.22	0.45
Regions: Central	1.88	0.531
Greater Accra	8.7	0.115
Volta Region	1.89	0.53
Eastern	2.09	0.479
Ashanti	2.18	0.46
Brong Ahafo	2.72	0.377
Northern region	4.24	0.236
Upper East	4.14	0.242
Upper West	4.21	0.238
Marital Status: married	1.6	0.625
Ecological zone: forest	3.62	0.276
Savannah	8.55	0.117
Employment Status: Employed	1.11	0.89
Retired	1.06	0.94
Educational level: Basic	1.75	0.572
Secondary education	1.45	0.689
Tertiary education	1.61	0.622
Household size	1.41	0.708

Ln Income	1.3	0.768
MEAN VIF	2.83	

Source: Author's Computation using STATA (13)

From Table 5.4, the mean VIF is 2.83 which is less than 10 hence there is no serious problem of multicollinearity.

Table 5.3 showed the presence of heteroscedasticity. This makes it improper to use the results in Table 5.2 for any future analysis since the presence of heteroscedasticity defies the BLUE assumption of OLS. A much robust model was used to correct for the weakness found in Table 5.3. The study will therefore rely on the results from the Generalized Least Square model as shown in Table 5.5.

Table 5.5: DETERMINANTS OF HOUSEHOLDS' EDUCATIONAL SPENDING

No of observation 11302

F(29, 11272) = 249.39

Prob> F = 0.000

R squared = 0.3908

Variable	Coefficient	Std Error	P > Z
Female	0.345	0.034	0.000
Age: 31- 45	0.188	0.045	0.000
46 – 60	0.445	0.053	0.000
60+	0.308	0.053	0.000
Area of residence (Urban)	0.744	0.030	0.000
Wealth: Poorer	0.217	0.042	0.000
Middle	0.463	0.045	0.000
Richer	0.689	0.045	0.000
Richest	0.760	0.046	0.000
Regions: Central	0.023	0.052	0.652
Greater Accra	-0.129	0.121	0.285
Volta Region	-0.653	0.058	0.000
Eastern	-0.226	0.057	0.000
Ashanti	-0.006	0.054	0.914
Brong Ahafo	-0.250	0.067	0.000
Northern region	-0.624	0.090	0.000
Upper East	-0.456	0.089	0.000
Upper West	-0.482	0.090	0.000
Marital Status: married	-0.033	0.033	0.330
Ecological zone: forest	0.057	0.046	0.211

Savannah	-0.386	0.077	0.000
Employment Status: Employed	0.141	0.477	0.004
Retired	-0.158	0.138	0.277
Educational level: Basic	0.396	0.034	0.000
Secondary education	0.885	0.057	0.000
Tertiary education	1.1	0.055	0.000
Household size	0.152	0.006	0.000
Ln Income	0.116	0.010	0.000
Constant	3.034	0.110	0.000

Source: Author's Computation using STATA (13)

5.4 DISCUSSION OF CROSS SECTIONAL RESULTS

As done in Chapter 4 (section 4.6), the results from cross sectional regression will be discussed under these thematic areas; location of household, household head characteristics and characteristics of the household. The results are discussed in turn:

5.4.1 HOUSEHOLD CHARACTERISTICS:

As expected, the results indicate a positive relationship between households income and education expenditure. That is holding all other factors constant, a 1 percent increase income will have 11.6 percent increase on household educational spending. Income as a variable in educational spending is highly significant even at one percent (1%). This result corroborates many other results in the academic literature. For instance, Gustafsson and Li (2004) found that education expenditure in China positively related to household income between 1988 and 1993. Similarly, Glewwe and Jacoby (2004) using data from 1993 to 1998 in analyzing demand for education and household resource by using expenditure as proxy for income found a positive relationship between income and demand for education. Tilak (2002) using time series of household expenditure between 1960 to 1961 and 1984 to 1985 found that household expenditure on education is income elastic in India. Andreou (2012) using Harmonized

Household Income and Expenditure Survey (HHIES) of 2010/2011 in 4 Arab countries (Egypt, Jordan, Palestine, Tunisia) found out that income particularly the fifth quintile is positive and significantly influence education expenditure for all countries.

As earlier intimated the relationship between household size and educational spending is vague. Okuwa et al (2015) found that household size is significant but negatively relates to educational spending partly because, large household size usually reduces educational spending and may spend much on other urgent needs including food and shelter. For this study, the relationship between household size and educational spending is positive. This confirms to the finding of Huy (2010) in a similar study. This result is not surprising in the case of Ghana because households are largely dominated by children of school going age hence they tend to spend more on children's education. The report from the Population and Housing Census (GSS, 2010) revealed that the Ghanaian population stood at 24658823 million. Out of the figure, children between ages one (1) to twenty four (24) were about 13653154 representing about 55.36%. Again the median age per the census was 20 years while the mean age was 24 years. These show that Ghana is predominantly youthful hence many of its citizens may be in school (see Census 2010 summary report. pg 37, table 3). In interpreting the results, holding all other variables constant, an increase in household size by one person will lead to a 0.152 percent increase in households educational spending. This variable; household size is significant even at 1 percent.

Ownership of assets have some influence on households' educational spending. Wealth includes assets so it is not surprising that this conclusion is reached. As done by Donkoh and Amikuzono (2011), all assets were lumped together into a pool. From the results, poorer households spend 0.217 more on education compared to poorest households. Middle income (wealthy) households spend 0.463 more on education than poorest households while richer and richest households

spend 0.689 and 0.760 respectively more on education than poorest households. The model revealed asset ownership as statistically significant positive determinant of households' educational spending. This confirms a study by Donkoh and Amikuzono (2011) that assets have positive impact on education spending and highly significant. Okuwa et al (2015) also found asset to be positive and significant educational determinant. Lastly, Glewwe and Patrinos (1999) found a positive relationship between educational spending and wealth (asset).

5.4.2 HOUSEHOLD HEAD CHARACTERISTICS

As expected, holding all other factors constant, using the males as the reference point, females spend 0.345 more than their males counterparts households' educational expenditures. Many studies including Donkoh and Amikuzono (2011), Rojas (2012) and Okuwa et al (2015) also found in their studies that females on average do spend much on children's education compared to males.

Using household heads between the age bracket (15-30) as the reference point and per the OLS results, it can be said, holding all other factors constant, households heads between (31-45) years spend 0.188 more than household heads between (15-30) years as far as educational spending is concerned. Again, household heads between (46-60) years spend 0.445 more than household heads between (15-30) years and household heads aged above 60 years spend 0.308 more than households with the (15-30) age bracket. Age of household head is statistically significant at all levels. Some believe that young heads may be considered progressives and may fully understand the benefits of education hence tend to spend much on education. Okuwa et al (2015) in explaining the negative relationship between household head's age and educational spending posited that old household heads might have taken all their children through school hence

accounting for their low spending on education. Following from this, it can be argued that, all other things being equal, household heads between (46-60) years may have many children whose education may demand much resource compared to household heads in the lower age bracket especially household heads between (15-30) years.

All other things being equal, employed household heads spend 0.141 more on education compared to household heads who are unemployed while the retired spend 0.158 less than those who have retired from active employment. The employment status of household head is highly significant (even at 1%) for the employed but insignificant for the retired.

Qian and Smyth (2010), Bladden and Gregg (2004), Rojas (2012), Knight and Shi (1996) and McMahon (1984) all in their various studies concluded that educational level of household head has a significantly positive influence on household educational spending decisions. From this study, it can be interpreted that, holding all other factors constant, household heads with basic education on average spend 0.396 more than household heads with no education. Similarly, household heads with secondary education spend .885 more on education compared to household heads with no education and finally, household heads with tertiary education spend 1.101 more than household heads with no education. This finding corroborates previous studies that household heads with some level of education spend more on educating their households compared to the head with no education. For instance, Glick and Sahn (2000) in Guinea, Tansel (2002), Glewwe and Jacoby (1994) in Ghana showed that education of parents (household head) impact on children education spending. Sackey (2007) educational attainment of parents especially at the higher levels increase probability of children entering into school.

5.4.3 LOCATION OF HOUSEHOLD

All other variables remaining the same, households in the urban areas spend 0.744 more on education as compared to households in the rural areas. Similarly, with a change of location from rural to urban the probability that households educational spending takes the value one is 0.0475 percentage points. This conclusion was much expected on two levels. Firstly, from the GLSS VI, rural dwellers on average have lower income hence their spending less on education. Secondly, according to GLSS VI, about 71 percent of rural dwellers are engaged in agriculture hence may have less incentive spending on education considering the fact that children can be used as farm inputs. Majumdar et al (2004) also found that huge disparity existed in urban and rural spending. This gap was attributed to information asymmetry. Al Samarrai and Reily (2000) in explaining the disparity in rural and urban educational spending opined that the rate of return on education in both rural and urban areas differ hence the disparity. Okuwa (2004) believes that the difference in opportunity of education in the rural area and urban areas explains the disparity in household educational funding in these two areas. The finding from this study is in line with studies done by Glewwe and Patrinos (1999), Jandhyala (2002), Rojas (2012) and Psacharopoulos et al (1997).

Holding all other factors constant, households in forest zones spend 0.057 more on education compared to households in forest areas. Additionally, households in savannah areas spend 0.387 less on education compared to households in the coastal areas and households in the GAMA areas spend 0.273 more than households in the coastal areas. This corroborates Donkoh and Amikuzono (2007) that households in the forest zone is richer than the coastal and savannah zones because much of the countries resources are deposited there and the climate in the forest zone supports agriculture. Donkoh and Amikuzono (2011) found that the households in the forest zone spends much on education.

Okuwa et al (2015) households in the northern part of Nigeria spent less on education than those in the South. According to Glewwe and Patrinos (1999), households living in the southern areas spend more on education compared to their northern counterparts. From this study, it is shown that whether households live in Upper West, Upper East, Northern, Brong Ahafo, Volta and Eastern regions statistically influence their educational spending decisions.

Haven discussed the results from the cross sectional regression, the study also looks at the likelihood of change in educational spending as a result of a small change in any of the independent variables. This is done to answer research objective two (2). The study therefore discusses the probit results as shown in Table 5.6 in section 5.5.

Table 5.6 DETERMINANTS OF HOUSEHOLDS' EDUCATIONAL SPENDING - PROBIT MODEL

No of observation	16534
LR chi 2 (29)	= 7623.84
Prob> F	= 0.000
Pseudo R squared	= 0.3694

Variable	Coefficient	Average Marginal Effects (AME)	Std Error	P > Z
Female	0.549	0.121	0.321	0.000
Age: 31- 45	0.292	0.069	0.350	0.000
46 – 60	0.306	0.072	0.391	0.000
60+	0.097	0.023	0.430	0.024
Area of residence (Urban)	0. 209	0.048	0.031	0.000
Wealth: Poorer	0.136	0.032	0.037	0.000
Middle	0.198	0.046	0.043	0.000
Richer	0.244	0.056	0.045	0.000
Richest	0.237	0.055	0.046	0.000
Regions: Central	0.414	0.094	0.058	0.000
Greater Accra	-0.064	0.015	0.115	0.579
Volta Region	-0.098	0.023	0.058	0.087
Eastern	-0.071	0.017	0.058	0.220
Ashanti	-0.00048	-0.0001	0.057	0.993

Brong Ahafo	-0.228	0.053	0.070	0.001
Northern region	-0.192	-0.046	0.087	0.027
Upper East	0.477	0.107	0.090	0.000
Upper West	0.451	0.101	0.091	0.000
Marital Status: married	-0.004	-0.0008	0.031	0.405
Ecological zone: forest	0.093	0.021	0.048	0.051
Savannah	-0.156	-0.036	0.077	0.043
Employment Status: Employed	-0.042	0.010	0.044	0.329
Retired	-0.265	-0.062	0.128	0.037
Educational level: Basic	0.328	0.076	0.034	0.000
Secondary education	0.576	0.130	0.055	0.000
Tertiary education	0.569	0.129	0.054	0.000
Household size	0.499	0.114	0.008	0.000
Ln Income	0.004	0.0008	0.010	0.719
Constant	-2.305		0.103	0.000

Source: Author's Computation using STATA (13)

5.5 DISCUSSION OF PROBIT MODEL RESULTS

As done in previous section of the study, results from the Probit model will be discussed in under three thematic areas; household characteristics, characteristics of household head and location of household.

5.5.1 HOUSEHOLD CHARACTERISTICS.

From the probit model, it was revealed that a small change in income changes the probability that educational spending variable takes the value one by 0.0008% and it is insignificant at all standard significance levels. This shows a small change in income may not necessarily impact on education spending. This confirms the finding by Bayar (2016) that household educational spending is insensitive to small changes in household income. However, the study found that wealth (asset) of the household statistically influences households' educational spending decisions. It can be seen that a change from poorest to poorer, middle, richer and richest households changes the probability that households educational spending takes the value one by 0.0317 percent, 0.046 percent, 0.0564 percent and 0.0548 percent respectively. That is a small

change in asset (wealth) ownership of the household increases households' educational spending probability. This confirms the finding by Glewwe and Patrinos (1999).

Similarly, the test revealed that all other things being equal a small change in household size changes the probability that educational spending takes the value one by 0.114 percent and it is statistically significant. This means there exist a likelihood that household size influences educational spending. This supports the finding made by Huy (2010).

5.5.2 HOUSEHOLD HEAD CHARACTERISTICS

It can be seen that a small change in the age of the households head in the age categories of (31-45), (46-60) and above 60 changes the probability that educational spending takes the value one by 0.069 percent, 0.0722 percent and 0.0234 percent respectively. This supports the finding by Donkoh and Amikuzono (2011) that age of household head is likely to positively influence educational spending.

Analyzing the marginal effects of education level of household heads on educational spending, it can be seen that a marginal change from no education to either basic, secondary or tertiary education changes the probability that households education spending take the value of one either by 0.0761 percent, 0.130 percent and 0.129 percent respectively. According to the finding by Donkoh and Amikuzono (2011), educational level of household head (parents) likely influences household educational spending decision. Similar finding was made by Tansel (2002) on a study on Turkey. Bayar (2016) also came to this same conclusion.

It is revealed per the results that a change from male to female changes the probability that educational spending will take the value one by 0.121 percentage points. This means, households

headed by females are likely to spend more on education compared to their male counterparts. This study corroborates the finding made by Donkoh and Amikuzono (2011).

5.5.3 LOCATION OF HOUSEHOLD.

According to Tilak (2002), there exist a probability for households in deprived areas to spend more on education. The argument made to support this claim is that, households in vulnerable locations suffer from human and infrastructural gap hence they are compelled to supplement the meagre infrastructure by spending on education. From this study, it can be seen that households in these regions; Brong Ahafo, Central, Volta, Northern, Upper West and Upper East are likely to spend more on education relative to those in Western region. Whether households live in any of the regions mentioned above significantly affect their educational spending decisions.

The study contrary to Donkoh and Amikuzono (2011) found that households in the urban areas are likely to spend more on education. This finding supports the claim made by Bayar (2016).

5.6 CONCLUSION

This chapter analyses the key variables that influence households educational spending. In some literature some sociological considerations like religion and ethnic groups were considered as variables but this study limited itself to relevant socioeconomic variables such as sex of household head, age of household head, location (urban or rural), ecology, region, employment status, education status, household size, asset ownership and income of the household.

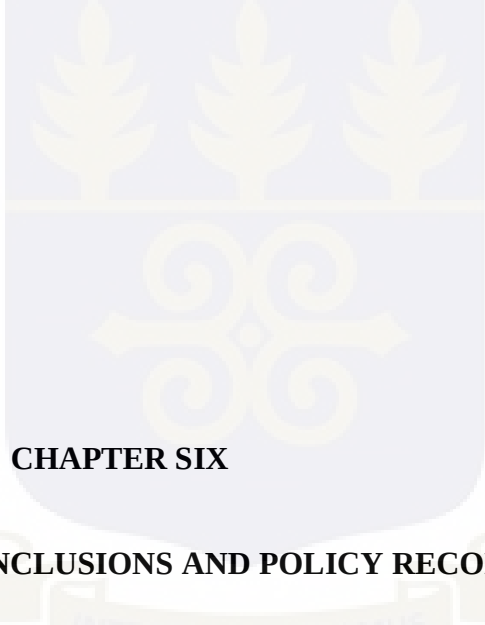
In the cross sectional regression model, it was revealed that variables such as age, sex (female), area of residence (urban), asset ownership or wealth, income, household head's education and household size had significantly positive impact on household education spending. Again, it was

found that whether household head is married or unmarried, retired, lives in either Central, Greater Accra or Ashanti region has an insignificant influence on educational spending.

Similarly from the probit model, it was found that variables like sex (female), area of residence (urban), wealth, age of household head, educational level of household head and whether the household is located in Central, Volta, Brong Ahafo, Northern, Upper West or Upper East has a significant influence on educational spending.

Considering the two models above, it was found that sex of household head, age of household, wealth of the household, area of residence of the household, household size and educational level of household head significantly impact on educational spending. Therefore, policies that may have impact on any of the above listed variables can be put up by government if it aims to encourage household educational spending. For example, since educational level of household head influences educational spending, government can invest in evening schools, adult education and workers college model (as done in the first republic) to give some level of education for interested household heads without education. In addition, government can also institute population control measures to reduce household size in order to reduce educational spending. Households that seek to reduce their educational spending can also be encouraged to take up birth control measures to reduce household size. Furthermore, from the literature and empirical test, it was observed that households in vulnerable areas are likely to increase spending on education. This is because in vulnerable areas suffer from both human and educational infrastructure hence households are compelled to spend to offset the infrastructural gap. Government is therefore advised to prioritize educational spending in vulnerable areas. Not all but also, the test revealed that households in the rural areas spend less on education. In Ghana, there exist rural north and rural south but there seem to be a conscious effort to only support the

north. This study therefore appeals to the government to devise a smart way of identifying all vulnerable households (either in the north or south) and assist them accordingly. Lastly, the test also revealed that income and wealth influence household spending decisions. All the data from the Ghana Living Standard Surveys show that income and wealth ownership in the rural areas are low. Again the surveys also showed that about 72 percent of the rural dwellers are engaged in agriculture. This study proposes that the best way to increase the wealth and income of rural households and by extension increasing their educational spending is fashioning pragmatic steps that boost agricultural production, marketing and reducing post-harvest losses.



CHAPTER SIX

SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

6.1 INTRODUCTION

This chapter presents the summary, conclusion and policy recommendations based on the finding of the study. Some limitations of the study are identified to aid in future studies on the subject matter.

6.2 SUMMARY

There is a general consensus that education does not only impact growth at the individual level, it also promotes progress and development at the national and global levels. Despite previous strides made in this sector, there is enough room for improvements hence having accepted the significance of education, it will be a prudent initiative to investigate a more sustainable way of financing this merit good.

Across Africa, much emphasis has been placed on government financing of education. After independence, countries like Ghana, Kenya and Uganda invested heavily in education. This was done to take burden off households and also to raise the needed human resource for national development. Later on especially in the 1990s, some international declarations and conventions that placed emphasis on education enjoined governments and donors to invest heavily in education. During this time, particularly at the basic levels, households spent less on education.

Ghana's educational reforms have experienced many trajectories. Before the year 1951, colonialists and missionaries other than households funded education. Between 1952 and 1963, under the Accelerated Development Plan, the government of Ghana provided free primary education. Under the ADP, households just provided school uniforms and books while the government paid tuition fees. Other several reforms took place between 1974 to 1999. Each of these policies focused on government spending, quality and household contributions. For example, to reduce household educational burden at the KG levels and to encourage pre basic school education, the Anamuah-mensah Committee of 2002 instructed schools not to make school uniform a school requirement for pupils at KG through to primary three (3)

From the GLSS III, it was revealed that households in Accra (GAMA) have tuition fees as the biggest educational expenditure component followed by food, boarding and lodging while

households in other urban areas (areas other than Accra) and the rural areas have food, boarding and lodging as the highest educational spending component. Similarly the GLSS V gives the same revelation of the GLSS III as far as educational spending components are concerned. There is a little variation with the GLSS VI, although tuition fee constituted the biggest component of GAMA households and other urban households expenditure, rural households (rural forest, savannah and coast) had food, lodging and boarding as the biggest educational expenditure component. However, on average, in Ghana, school (tuition) fees and registration fees constitute the highest educational spending component. Again, per the GLSS VI data, households on average spend highest on basic education followed by secondary, tertiary and post-secondary but not tertiary respectively. Lastly on average, only 0.52% of households in Ghana benefit from scholarships.

The data for the study was sourced from the GLSS VI. It is a nationwide survey that collects information on demographic characteristics and socioeconomic characteristics. After cleaning the data, using the OLS model the sample size reduced from 16772 to 11302 while the number of observations using the probit model was 16534. The data indicated that both annual figures on annual poverty and extreme poverty have increased over the GLSS V figures.

Taking a cue from existing literature on the subject cross sectional regression were used. Cross sectional regression was used to investigate the determinants of education. The probit model on the other hand was used to investigate the likelihood of change in educational spending as a result of small change in any of the independent variables. In some literature, some sociological considerations like religion, caste system and ethnic groups were considered as variables that determine education spending but this study limited itself to relevant socioeconomic variables. After the test, all expected signs were derived.

In conclusion, to answer research objective one, it was found that the variables that are statistically significant in determining households educational spending were sex of household head, age of household head, volume of wealth owned by household, household income, educational level of household head, household size and employment status. Again, it was found that whether household lives in either urban area, Upper West, Upper East, Northern, Brong Ahafo, Volta or Eastern region influences the magnitude of household educational spending. However, it was revealed that whether household is located in the forest area, Central region, Greater Accra, Ashanti region or whether household head is retired from active employment insignificantly influence its educational spending.

Furthermore, in answering research objective two (2), the study found that a small change in any of these variables; age of household head, sex of household head, household wealth (asset), educational level of household head and household size will likely impact on households' educational spending. Again, the study found that whether household lives in urban area, Central, Upper East, Upper West, Brong Ahafo, Northern and Volta region likely impacts its educational spending. This is not surprising because these regions are seen as vulnerable and there are many literature that argue that household in the vulnerable areas are likely to spend more education. It was also found that small change in household income is not likely to influence educational spending.

Lastly, in answering research objective three (3), the data from Ghana Living Standard Surveys showed that basic education constitutes about 52.4 percent of household educational spending. Again, food, boarding and lodging and tuition fees constitute the highest cost components of household educational spending. For rural households, food, boarding and lodging constitute the

highest educational cost component while in the urban areas as shown by the data from GLSS VI, registration and tuition fees constitute the highest educational cost component.

6.3 POLICY RECOMMENDATION AND CONCLUSION

From the Ghana Living Standard Surveys, existing literature and most importantly from the test results, the following recommendations are proposed to improve household financing in education. We believe that, looking at households' financing of education will provide the necessary impetus to make the sector improved hence the following recommendations are hereby proposed. They include but not limited to:

Firstly, from the test results, it was seen that household size significantly affect educational spending decisions hence there is the need for both government and households to institute pragmatic measures that control birth rate. It was discovered from the statistical test that household size affects positively educational expenditure. Since the number of children affects the size of the household, households willing to reduce their educational spending should take pragmatic steps in controlling births. Again, since government also spends huge volume of resources on education, government can also institute national birth control policies to reduce the number of children at school going age. This policy should be carefully undertaken without plunging the country into the challenges many aged communities in Asia and Europe face.

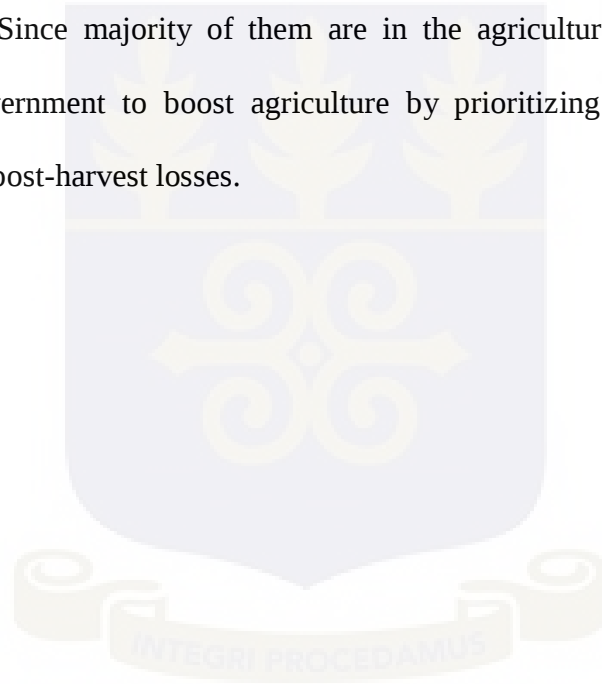
Secondly, from the test results, it was shown that educational level of household significantly influences educational spending and a small change in household head's educational level is likely to have a positive impact on households educational spending. From the survey, it was reported that about 52.4% of household heads had basic education while almost 30% had no education. Government should institute programs that can meet the educational needs of those

with basic education and no education. This study therefore proposes that government should intensify the adult education program. Government can also institute weekend and night school programs for willing adults. This scheme can be implemented in line with the workers' college model as happened in the first republic.

The literature showed that vulnerable areas (areas where human and physical infrastructure is lacking) are compelled to spend. This claim was confirmed by the test results. From the test results, regions and ecological zones that are considered vulnerable are likely to spend more on education. In the first republic, this argument was advanced to justify educational subventions to the Northern Ghana. Unfortunately, the vulnerable and marginalized areas have increased. The data show that there are some households in the Southern areas that are as challenged as those in the Northern sector. There is therefore the need for government to offer targeted assistance that captures almost all marginalized households especially those in the Central, Volta, Brong Ahafo and the three Northern regions. Again, all the data analyzed (GLSS III, IV, V, VI) showed a trend that rural households and some ecological zones are poor hence making their knowledge acquisition problematic. There is therefore the need for the government to identify these vulnerable households either in all rural areas (north and south) and those in vulnerable ecological zones. Additionally, in answering research objective three, the study found that households in the rural areas that are presumably regarded as vulnerable spend much on food, boarding and lodging hence government's decision to pay school and registration fees. Government can also help the vulnerable by absorbing any of these cost components borne by these households. Giving targeted subsidies to these vulnerable groups will literally mean cushioning the vulnerable and strategically roping them into the empowered bracket. This will

ensure equity and shared progress in the country. This will be a genuine step in achieving sustainable development.

Lastly, from the test results, it was revealed that income and wealth positively influence household educational spending decision. There must be initiatives to increase incomes and wealth of households especially those in the rural areas. From the Living standard surveys, it can be seen that about 72 percent of rural households are engaged in agriculture. To boost rural economic capacities, it is expedient to target the industry they are much involved in and make that industry lucrative. Since majority of them are in the agricultural sector, there must be pragmatic steps by government to boost agriculture by prioritizing agricultural production, marketing and reducing post-harvest losses.



References

Addae Mensah, I., Djanmah J., and Agbenyega C., (1973) “Family Background and Educational Opportunity in Ghana”, Ghana University Press, Accra

- Akyeampong K., Djangmah J., Oduro, A., et al (2007) “Access to Basic Education in Ghana; The Evidence and The Issues” Country Analytical Report, CREATE, University of Sussex, UK
- Akyeampong, K., (2005) “Education Expansion and Access in Ghana, A Review of 50 Years of Challenge and Progress”, Centre for International Education, University of Sussex, UK
- Al-Samarrai, S., and Reily, B., (2002) “Urban and Rural Differences in Primary School Attendance; An Empirical Study for Tanzania,” Journal of African Economies, pp, 430-474
- Amartya, S., (1999) “Development as Freedom”, Oxford University Press
- Anderson, R., (1975) “Education in Japan, a Century of Modern Development, United States Department of Health, Education and Welfare, Washington, D.C
- Avenstrup, R., Liang X., and Nellemann, S., (2004) ‘Kenya, Lesotho, Malawi and Uganda; Universal Primary Education and Poverty Reduction; A Case Study from Reducing Poverty- What Works, What Doesn’t and Why?’ (Conference Paper). Washington DC: World Bank
- Bank of Ghana (2014) “Monetary Policy Report: Inflation Outlook and Analysis” Vol. 4 no. 3/2014
- Barro, R., and Lee J.W., (2001), “Schooling Quality in a Cross-Section of Countries” *Economica*, 68(272) pp 465-488
- Batageka, L., (2005) “Universal Primary Education (UPE) in Uganda, Report to the Inter-regional Inequality Facility-Policy Case Study, Uganda”, Institute of Development Studies, University of Sussex
- Bayar, A. A., and Ilhan, B., Y., (2016) “Determinants of Household Educational Expenditures; Do Poor less on Education?” *Topics in Middle Eastern and African economies* vol. 18, Issue no.1

- Becker, G. and Tomes, N., (1986) "Human Capital and the rise and fall of families" *Journal of Labour Economics*, 4; S1-S39
- Becker, G.G., (1964) "Investment in Human Capital; A Theoretical Analysis", *The Journal of Political Economy*, Issue 5
- Becker, G.S., (1962) "Investment in Human Capital; A theoretical Analysis." *Journal of Political Economic* vol. 70 Pg 9-49
- Becker, G.S., (1981), "A Treatise on the Family." Cambridge, MA; Harvard University Press
- Behrman, J., Pollak, R., and Taubman, P., (1982) "Parental Preferences and Provision for Progeny". *Journal of Political Economy*. 90(1): pp 52-73
- Belanger, D., and J. Liu (2004) "Social Policy Reforms and Daughters. Schooling in Vietnam", *International Journal of Educational Development*, 24 pp 23-38.
- Bertrand T.J. and Griffin R., (1984). "The Economic of Financing Education: A case Study of Kenya." Washington DC, WB country Policy report
- Bildirici M., Ocran M., Sunal S., et al (2005) "Determinants of Human Capital Theory, Growth and Brain Drain; an Econometric Analysis for 77 countries" *Applied Econometrics and International Development*, vol 5-2
- Binder, M., (1998) "Family Background, Gender and Schooling in Mexico", *Journal of Development Economics*, 35 pp 54-71.
- Birdsall, N., (1982) "Strategies for Analysing Effects of User Charges in the Social Sectors. World Bank Country Policy Department." Discussion Paper no. 1983-9, Washington D.C
- Bladden, J., and Gregg P., (2004) "Family Income and Educational Attainment: A Review of Approaches and Evidence for Britain", *Oxford Review of Economic Policy*, 20, pg 245-63
- Blaug, M., (1982) "The Distributional Effects of Higher Education subsidies." *Economics of Education Review* 2, no.3 pp. 201-231

- Boissiere, M. J.B., Knight, R., H., et al (1982). "Earnings Schooling, Ability and Cognitive Skills". Washington, D.C World Bank, Development Research Dept.
- Bowman, M.J., (1966) "The Human Investments Revolution in Economics thought. Sociology of Education". (Issue) 111-137
- Bowman, Marg-Jean, Benoit M., Ernesto S., (1984) "The Political Economy of Public Support of Higher Education; Studies in Chile, France and Malaysia". Washington D.C WB, Education Dept
- Bray, M., (1986) "If Universal Primary Education is the Answer, What is the Question? A Comment on weakness in the rational for Universal Primary Education in Less Developed Countries" International Journal of Educational Development, 6(3) pp 147-158
- Brown, A., and Foster, M et al (2001) "The Status of Sector wide Approaches. Working Paper no. 142. Overseas Development Institute
- Buchmann, C., (2001) "The State and Schooling in Kenya: Historical Developments and Current Challenges. Africa Today". 46(1), pp 95-116
- Carnoy, M., and Torres, C., (1992) "Educational Change and Structural Adjustments; A Case of Costa Rica"
- Chakrabarti, A., and Joglekar, R., (2006) "Determinants of Expenditure on Education; An Empirical Analysis using State level of Data" Economic and Political Weekly, 41(15) pp. 1465-1472
- Chimombo, J.P.G., (1999) "Implementing Educational Innovations; A Case Study of Free Primary Education in Malawi, University of Sussex
- Chimombo, J.P.G., (2005) "Quantity versus Quality in Education; Case Studies from Malawi International Review of Education" 51(2) pp 155-172
- Choudhury, P.K., (2011) "Patterns and Determinants of Household Expenditure on Engineering Education in Delhi, Rethinking Development in an Age of Scarcity and Uncertainty New Values, Voices and Alliances for Increased Resilience, University of York

- Cochrane, S. H., (1979) "Fertility and Education, What do we really know?" Baltimore, md: John Hopkins University Press
- Cummings, W., (1980) "Education and Equality in Japan, Princeton, NJ, Princeton University Press
- Dang, H. H., (2013) "Private Tutoring in Vietnam: A Review of Current Issues and Its Major Correlates," The World Bank Development Research Group, Poverty and Inequality Team, WPS 6618
- Deaton, A., (1997) "The Analysis of Household Surveys; A Micro Econometric Approach to Development Policy", John Hopkins University Press, Baltimore
- Denison, E. F., (1967) "Why Growth Rates Differ, Post War Experience in 9 Western Countries, Washington DC, Brookings institution
- Denison, E.F., (1962) "The Sources of Economic Growth in U.S.A and Alternatives before, New York Committee for Economic Development, USA"
- Dewey, J., (1916) "Democracy and Education; An introduction to the Philosophy of education". The Macmillan Company, New York, USA
- Donkoh S. A, Amikuzono J.A (2011) 'The Determinants of household education expenditure in Ghana" Educational Research and Reviews Vol. 6(8), pp. 570-579
- Fields, G.S., (1974) "Private Returns and Social Equity in the Financing of Higher Education. In Education Society and Development; New Perspectives from Kenya". ed. D. Court and D.P Ghai. Nairobi Oxford University Press
- Fields, G.S., (1975) "Higher Education and Income Distribution in a less Developed Country". Oxford Economic Papers 27, no. 2 (July). pp 245-259
- Foster, M., (2000) "New Approaches to Development Cooperation"; what can we learn from Experience with Implementing Sector wide Approaches?" Working Paper, No. 140, Overseas Development Institute
- Foster, P., (1965) "Education and Social Change in Ghana", London; Routledge and Paul Kegan

- Fritz, M., (1982) 'Issues in The Theory of Human Capital; Education as Investment', The Pakistan Development Review vol. XXI, No.1
- Genevois, I., and Sylla, K., (2011) "Innovative Financing for Education. Implementing PPPs for EMIS and Going to Scale, IIEP
- Ghana Statistical Service (1995) "Ghana Living Standards Survey Report on the Third Round (GLSS III)". Accra, Ghana.
- Ghana Statistical Service (2007), "Pattern and Poverty Trends in Ghana; 1991-2006" Accra, Ghana
- Ghana Statistical Service (2008) "Ghana Living Standards Survey on the Fifth Round (GLSS V)". Accra, Ghana
- Ghana Statistical Service (2010) "Ghana- Population and Housing Census" GHA-GSS-PHC-2010-v1.0
- Ghana Statistical Service (2014) "Ghana Living Standards Survey Round Six (GLSS VI)". Accra, Ghana
- Glewwe, P., and Gertler, P., (1990) "The willingness to pay for Education in Developing Countries" Journal of Public Economics, pp. 251 -275
- Glewwe, P., and Jacoby H., (2003) "Economic Growth and the Demand for Education: Is there a Wealth Effect?" Journal of Development Economics, 74(!) pp 33-51
- Glewwe, P., Patrinos, H., (1999). "The Role of the Private Sector in Education in Vietnam Evidence from the Vietnam Living Standards Survey". World Development, 27 (5) pp 887-902.
- Global Campaign for Education (2011) "Fund the Future Education Right Now, a Ten Point Plan for Transforming Aid to Education
- Guisan, M.C., Aguayo, Prichett, E. E., (2001). "Economic Growth and Cycles: Cross- Country Models of Education, Industry and Fertility and International Comparisons" Applied Econometrics and International Development, pp. 9-37

- Gurler, O.K., Turguttu, T., Kirci, N. and Ucdogruk, S., (2007), “Determinants of Educational Demand in Turkey”. *Finans, Politik ve Ekonomik Yorumlar*, vol. 44 (512) pg 89 -101
- Gustaffson, B., and Shi Li (2004) “Expenditures on Education and Health Care and Poverty in Rural China” *China Economic Review* 15; 292-301
- Gyimah-Brempong K., A., (2008), "Technical Efficiency in Ghanaian Secondary School". In E. Aryerterey and R. Kanbur (eds) *The Economy of Ghana*. Woelli Publishing Services. Accra, Ghana
- Hansen W. L., and Weissbrod, B.A., (1969) “The Distribution of the Costs and Benefits of Public Higher Education”. *The Case of California. Journal of Human Resource* 4(2) 176-191
- Hanushek E.,A., Wobman L., (2007) “The Role of Education Quality in Economic Growth”. World Bank Policy Research working paper 4122
- Harberger, A.C., (1965) “Investments in Men Versus Investment in Machines; The Case of India” , Arnold Anderson and Mary Jean Bowman (eds) *Education and Development*, Chicago
- Hashimoto, K., and Health, J.A., (1995) “Income Elasticities of Educational Expenditure by Income Class the Case of Japanese Households,” *Economics of Education Review*, 14 pp 53-71
- Haveman R., Wolfe, B., (1984) “Education and Economic Wellbeing. The Role of Non- market Effects”. *Journal of Human Resources* 19(3); 377-407
- Hsuan, C.I., Sheng-Ju, C., (2015) “International Aid in Developing Asia, Policies and Practices” Springer ISBN 978-981-287-455-9
- International Expert Report (Feb., 2012) “Innovative Financing for Education; moving Forward”, Education Taskforce, Innovative financing to fund development leading Group
- ISSER (2007) “The state of Ghana’s Economy”. Accra Ghana

- Jackson, K., Johnson, R. C., Persico, C., (2015) “The Effects of School Spending on Educational and Economic Outcomes: Evidence from School Finance Reforms”, *The Quarterly Journal of Economics*, 131(1): 157-218
- Jallade, Jean-Pierre (1973) “The Financing of Education, An examination of Basic issues”. WB Staff working paper no. 157, Washington D.C
- James, E., and Benjamin G., (1984), “Public versus Private Education; The Japanese Experiment”, New Heaven, CT; Institution for Social and Policy studies, Yale University
- Jandhyala B.G., Tilak .J.B.G., (2009), “Household Expenditure on Education and Implications for Redefining the Poverty Line in India”
- Jandhyala, B.G and Tilak, J.B.G., (2002) “Determinants of Household Expenditure on Education in Rural India” National Council of Applied Economic Research, New Delhi
- Janison, D., T., and Laurence J. L., (1982) “Farmer Education and Farm Efficiency”. Baltimore md. John Hopkins University Press
- Jolliffe, D., (1998) “Skills, Schooling and Household Income in Ghana” World Bank Economic Review Issue no.1, Washington D.C
- Jones, I. C., (1996) “Human Capital, Ideas and Economic Growth”. Department of Economics, Stanford University
- Jones, T., “The Fall and Rise of Ghana’s Debt: How a New Debt Trap has been Set” Integrated Social Development Centre Ghana, Jubilee Debt Campaign Uk
- Klees, S.J., (2001) “World Bank Development Policy; A SAP in SWAPS Clothing. Current Issues in Comparative Education, 3(2) pp 1-11
- Klees, S.J., (2010) “Aid, Development and Education; Current Issues in Comparative Education”. 13(1), pp 7-28
- Knight, J.B., and Sabot, R.H., (1986) “Overview of Educational Expansion, Productivity and Inequality: A Comparative Analysis of the East African Natural Experiment”. Washington, DC: World Bank.

- Knight, J.B., and Sabot, R.H., (1990) "Education, productivity, and inequality: The East African natural experiment". Oxford, UK: Oxford University Press
- Knight, J.B., and Shi, L., (1996) "Educational Attainment and the Rural Urban Divide in China". Oxford Bulletin of Economics and Statistics, pp 58, 83 - 117
- Kothari, V.S., (1966) "Investment in Human Resources, Bombay; Popular Prakashan Indian Economic Association
- Krueger, O.A., (1968) "Factor Endowments and Per Capita Income Differences Among Countries". Economic Journals 78 (September) 641-659
- Kuznets, S., (1955) "Economic growth and income inequality". American Economic Review. 45(1), pp. 1-28
- Lakshamanasamy, T., (2006) "Demand for Higher Education and Willingness to Pay: An Econometric Analysis Using Contingent Valuation Method". Manpower Journal, pg. 97 – 120
- Lee J., and Bowen, N., (2006). "Parental involvement, Cultural Capital, and the achievement gap among Elementary School Children". American Educational Research Journal, 43, 193-218
- Lucas, R. E., (1988) "On The Mechanics of Economic Development" Journal of Monetary Economics. 22, pg 3-42.
- Machlup F., (1970) "Education and Economic Growth". Lincoln, Nebraska; University of Nebraska Press
- Majumdar, T., (1983) "Investment in Education and Social Choice, Cambridge University Press
- Mattila-wiro, P., (1999) "Economic Theories of the Household; A Critical Review, UNU World Institute for Development Economics Research (UNU/WIDER), Working papers 159
- Mcmahon, W. W., (1984) "Why Families Invest in Education in S. Sudman and M. A. Spaeth (eds), The Collection and Analysis of Economic and Consumer Behaviour Data: In Memory of Robert Ferber, Chicago: Bureau of Economic and Business Research, University of Illinois at Urbana – Champaign, pp 75 -91

- McWilliam, H.O.A., and Kwamena-poh, M.A., (1975) “The Development of Education in Ghana, Longman, London
- Meerman, J., (1979) “Public Expenditure in Malaysia; Who benefits and why?” New York; Oxford University Press
- Mikiko, N., Keiichi, O. et al (2009) “A Comparative Analysis of Universal Primary Education Policy in Ghana, Kenya, Malawi and Uganda” Journal of International Cooperation in Education, No. 1 pp. 143-158
- Ministry of Education (2015) “Education Sector Performance Report”. Ghana.
- Ministry of Finance (2017) “The Budget Statement and Economic Policy of the Government of Ghana for the 2017 Financial Year”. Accra, Ghana.
- Misty L., and Laura D. T., (2011) “The Effects of Poverty on Academic Achievement” Educational Research and Reviews, Vol. 6 (7), pp 522-527
- Mittler, P., (2000) “Working Towards Inclusive Education Social Contexts” David Fulton Publishers
- Mukudi, E., (2004) Education for All: A Framework for Addressing the Persisting Illusion for Kenyan Context International Journal of Educational Development, 24(3) pp 231-240
- Nation Development Planning Commission (2005) The Ghana Poverty Reduction Strategy II, Accra, Ghana
- Obasi, E., (2000) “The Impact of Economic Recession on Universal Primary Education in Nigeria” International Journal of Educational Development, 28(3) pp 189-207
- Oduro, Abena (2008) “An Investigation into Poverty, Education Attainment and Outcomes in Ghana” Ghana Working Paper (meta-Analysis) series
- OECD (2001) “The Wellbeing of Nations; The Role of Human and Social Capital”. OECD Paris
- Ofori, S.C., (2003) “Regional Policy and Regional Planning in Ghana”., Ashgate Publishing Limited, England, United Kingdom

- Okagaki, L., and French, P.A., (1998). "Parenting and children's school achievement; A Multiethnic Perspective". *American Educational Research Journal*, 35(1), 123-144.
- Oketch, O. M., and Rolleston, M. C., (2007) "Policies on Free Primary and Secondary Education in East Africa: A Review of the Literature". CREATE Pathways to Access, Research Monograph No. 10, Institute of Education, University of London.
- Okuwa O.B., (2004) "Private Returns to Higher Education in Nigeria" African Economic Research Consortium. Research paper 139, Nairobi, Kenya
- Okuwa, O.B., Akindale, R.J., Olaoye, O.O., (2015) "Determinants of Household Expenditure on Education in Nigeria" *Journal of Educational Review*, Vol. 8 No(3)
- Olaniyam D.A., Okemakinde T., (2008) "Human Capital theory; Implications for Education Development". Pp 157-162
- Peil, M., (1995) "Ghanaian Education as Seen from an Accra Suburb". *International Journal of Educational Development*. Vol 15, Issue 3, pg 289-305.
- Pradeep, W., Mohanty, R. P., Verma, A., (2011) "Determinants of Innovation as a Competence: An Empirical Study" *International Journal Business Innovation and Research*,
- Prakash, S., and Chowdhury, S., (1990) "Determinants of Educational Expenditure in India" *Journal of Education Planning and Administration* 4(4) pp 1-30
- Psacharopoulos, G., (1977) "The Perverse Effects of Public Subsidization of Education on How Equitable is Free Education?" *Comparative Education Review* 21, no.1: 69-90
- Psacharopoulos, G., and Papakonstantinou, G., (2005) "The Real University Cost in a Free Higher Education Country". *Economics of Education Review*, 24 pp 103-108
- Psacharopoulos, G., and Patrinos, H., (2004) "Returns to Investment in Education; a Further Update" *Education Economics* 12(2) pp 111-134
- Psacharopoulos, G., and Woodhall, M., (1985) "Education for Development, an Analysis of Investment Choices"

- Psacharopoulos, G.,(1984) “The Contribution of Education to Economic Growth. International Comparisons in International Productivity Comparisons and the Causes of the Slowdown”. ed. J.Kendrick. Cambridge, mics Ballinger
- Qian, J. and Smyth, R., (2010), “Educational Expenditure in Urban China: Income Effects: Family Characteristics and the Demand for Domestic and Overseas Education”: Applied Economics pg 1 – 16
- Rojas, A. M., (2012) “Determinants of Households Expenditure on Basic Education in Columbia”. Department of Public Policy. Georgetown University, Columbia.
- Romer, P., (1989) “Human Capital and Growth: Theory and Evidence”, University of Chicago, U.S.A.
- Sackey H. A., (2007) “The Determinants of School Attendance and Attainment in Ghana; Agenda Perspective”. AERC Research Paper 173, Africa Economic Research Consortium Nairobi Kenya
- Safilios-Rothschild, C., (1980) “The Role of the Family; A Neglected Aspect of Poverty. In Implementing Programs of Human Development”. ed. Peter Knight. World Bank Staff Working Paper no. 403, Washington D.C
- Sahn, D.E., Stifel D.C., (2002) “Parental preferences for Nutrition of Boys and Girls; Evidence from Africa”. J. Development Studies 39(1); 21-45
- Scaddling, H., (1989) “Junior Secondary Schools- an Educational Initiative in Ghana” Journal of Comparative and International Education. Volume 19. Issue 1
- Schultz, J.W., (1961) “Education and Economic Growth in Social Forces Influencing American Education”. ed. N. B. Henry, Chicago, National Society for the Study of Education, University of Chicago Press
- Schultz, J.W., (1963) “The Economic Value of Education”. New York Columbia University Press

- Sifuna, D.N., (2007) "The Challenges of Increasing Access and Improving Quality; an Analysis of Universal Primary Education in Kenya and Tanzania since the 1970s" *International Review of Education*, 53 pp. 687-699
- Smith, A., (1776) "An Inquiry into the Wealth of Nation London" George Routledge and son's; 1903 pp. 78-79
- Sofia, N. A., (2012) "Analysis of Households Expenditure on Education in Cyprus" *Cyprus Economic Policy Review*, No. 2, pp 17-38
- Somerset, A., (2006) "A preliminary Note on Kenya Primary School Enrolment Trends Over four Decades". Paper presented at CREATE Conference, University of Sussex
- Stanley F., (2004) "A Development Strategy for Asian Economies; Korean Perspective" Citigroup ADB 0515.04
- Tan, J. P.,(1985) "The Private Direct Cost of Secondary Schooling in Tanzania". *International Journal of Education Development* 5, no.1:1-10
- Tansel A., (2002) "The Determinants of School Attainment of Boys and Girls in Turkey. Individual, household and community factors. *Economics, Education Review*". 21; 455-470
- Thias H.H., and Carnoy M., (1972) "Cost Benefit Analysis in Education: A case study on Kenya". Baltimore md; John Hopkins University Press
- Tilak J.B.G., (2002) "Determinants of Household Expenditure on Education in Rural India". National Council of Applied Economic Research
- Tilak, J.B.G., (1980) "Allocation of Resources to Education in India " *Eastern Economist* 75(9) pp 530-542
- Tilak, J.B.G., (1983) "On Allocating Plan Resources to Education in India" *Margin*, 14(4) pp 93-102
- Tilak, J.B.G., (2001) "Education and Development; Lessons from Asian Experience" *Indian Social Science Review* 3(2) pp. 219-266

- Uma, K., (2008) “Does Household Expenditure on Education in India Depends Upon the Returns to Education?” Centre for Institutional performance and Department of Economics, the University of Reading Business School, United Kingdom
- UNESCO (1961) “Final Report of the Conference of African States on the Development of Education in Africa”. Addis Ababa, Ethiopia.
- UNESCO (2008) Education for All Global Monitoring Report 2008”, Paris
- United Nations Children Fund (2007) “A Human Rights based Approach to Education for All” United Nations, NY
- United Nations Educational, Scientific and Cultural Organization (2012) “Education for All Global Monitoring Report 2012; Youth and Skills; Putting Education to Work” Paris (UNESCO)
- Van der Berg, S., (2008), “Poverty and Education, UNESCO, International Academy of Education, International Institute for Education Planning, Education Policy series 10
- Van-Den-Berg, H., (2001). Economic Growth and Development (International Edition) New York McGraw Hills Companies, Inc.
- Vu Quang. H., (2012) “Determinants of Educational Expenditure in Vietnam“, International Journal of Applied Economics, March 2012, 9(1), 59-72
- Walsh, J.R., (1935) Capital Concept Applied to Man; Quarterly Journal of Economic vol 49
- Wilson, K., (2001) The Determinants of educational attainment; Modelling and estimating the human capital model and education production functions. Southern Econ. J.,
- World Bank (1980) Education sector policy paper Washington D.C, April
- World Bank (2004) “Making Services work for Poor People” World Development Report, Washington, D.C

LIST OF VISITED WEBSITES

<http://www.imf.org/external/pubs/ft/dsa/pdf/2016/dsacr1616.pdf> (06/02/2017)

<http://www.indexmundi.com/facts/ghana/public-spending-on-education> (03/01/2017)

<http://www.oecd.org/dac/effectiveness/parisdeclarationandagendaforaction.htm> (04/10/2015)

<http://www.unmillenniumproject.org/goals/> (04/03/2016)

(<http://citifmonline.com/2016/07/20/chass-to-shutdown-schools-over-unpaid-subsidies>
(22/11/2015)

<http://data.worldbank.org/indicator/SE.PRM.TCAQ.ZS> (03/03/2017)

<http://blog.uvm.edu/cessphd/2016/01/19/the-strengths-and-limitations-of-human-capital-theory-in-educational-research-and-policymaking/> (15/03/2017)

<https://www.ghanabusinessnews.com/2016/04/25/donor-funding-for-education-in-africa-continues-to-fall-unesco/> (09/10/2016)

<http://www.graphic.com.gh/news/education/unicef-two-others-push-for-more-funds-for-education.html> (09/11/2016)

APPENDIX

EDUCATIONAL LEGISLATION SINCE 1957

- The 1992 Constitution Article 24 (1), Article 25(2), Article 38 (2,3)
- Children's Act, Act 560 (Section 8(1) and Section 10(2))
- Educational Act of 1961, Act 87
- Ghana Educational Service Act 1995, Act 506
- University of Ghana Act, Act 79, Amendment Law 1990, PNDCL 239
- KNUST Act 1961, Amendment Law 1990, Act 80
- National Accreditation Board Law 1993, PNDCL 317

Polytechnic Law 1992, PNDCL 279

TEST RESULTS

Explanatory Variables	OLS (lnTedu)	Probit (spend_edu)	
	Coef.	Coef.	AME
Female HH	0.345(0.0349) ***	0.549(0.0321) ***	0.121 (0.00668) ***
Age of HH;			
31-45	0.188(0.0433) ***	0.292(0.0350) ***	0.0691(0.00845) ***
46-60	0.445(0.0458) ***	0.306(0.0392) ***	0.0722(0.00935) ***
60+	0.308(0.0512) ***	0.0972(0.0430) **	0.0234(0.0104) **
Place of residence (Urban)	0.744(0.0305) ***	0.209(0.0308) ***	0.0475(0.00694) ***
Wealth: poorer	0.217(0.0401) ***	0.136(0.0379) ***	0.0317(0.00888) ***
Middle	0.463(0.0447) ***	0.198(0.0429) ***	0.0460(0.00995) ***
Richer	0.689(0.0455) ***	0.244(0.0450) ***	0.0564(0.0104) ***
Richest	0.760(0.0444) ***	0.237(0.0456) ***	0.0548(0.0105) ***
Regions:			
Central	0.0233(0.0568)	0.414(0.0577)***	0.0935(0.0129)***
Greater Accra	-0.129(0.123)	0.0637(0.115)	0.0150(0.0268)
Volta	-0.653(0.0588)***	0.0984(0.0575)*	0.0231(0.0135)*
Eastern	-0.226(0.059)***	0.0711(0.0579)	0.0167(0.0136)
Ashanti	-0.0058(0.058)	-0.000487(0.0573)	-0.000115(0.0135)
Brong Ahafo	-0.245(0.069)***	0.228(0.0699)***	0.0527(0.0161)***
Northern	-0.624(0.086)***	-0.192(0.0868)**	-0.0461(0.0208)**
Upper East	-0.456(0.087)***	0.477(0.0898)***	0.107(0.0197)***
Upper West	-0.982(0.087)***	0.451(0.0914)***	0.101(0.0201)***
Forest	0.0570(0.048)	0.0932(0.0478)*	0.0208(0.0107)*
Savannah	-0.387(0.0759)***	-0.156(0.0769)**	-0.0357(0.0176)**
Employment Status:			
2.Employed	0.141(0.048)***	0.0428(0.0438)	0.00970(0.00989)
3.Retired	-0.158(0.138)	-0.266(0.128)**	-0.0621(0.0304)**
Income: lnTinc	0.116(0.010)***	0.00361(0.0100)	0.000823(0.00229)
1.marital_status (mar.)	-0.0326(0.034)	-0.00368(0.0310)	-0.000839(0.00706)
Education of HH:			
2.Basic education	0.396(0.0331)***	0.328(0.0342)***	0.0761(0.00792)***
3.Sec. education	0.885(0.0573)***	0.576(0.0548)***	0.130(0.0118)***
4.Tertiary and above	1.101(0.0529)***	0.569(0.0540)***	0.129(0.0117)***
Hhsize	0.152(0.00559)***	0.499(0.00833)***	0.114(0.00128)***
Constant	3.034(0.110)***	-2.305(0.103)***	
Observations	11,302	16,534	16,534
R-squared	0.391		
Pseudo R squared	0.362		

Source: Author's computation using STATA (2013)

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1