UNIVERSITY FOR DEVELOPMENT STUDIES, TAMALE

COMPARATIVE STUDY OF GENDER DIFFERENCE IN PRIMARY SCHOOL ENROLMENT BETWEEN RURAL AND URBAN COMMUNITIES IN THE WEST MAMPRUSI DISTRICT OF THE NORTHERN REGION

BY

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THESIS SUBMITTED TO THE DEPARTMENT OF AFRICAN AND GENERAL STUDIES, FACULTY OF INTEGRATED DEVELOPMENT STUDIES, UNIVERSITY FOR DEVELOPMENT STUDIES, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF PHILOSOPHY DEGREE IN DEVELOPMENT STUDIES.

NOVEMBER, 2014
DECLARATION

Student

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

Candidate's Signature: ................................ Date: 14-11-14

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Supervisor

I hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University for Development Studies.

Supervisor's Signature: ................................ Date: 15-11-14

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ABSTRACT

Education is an important tool to the socio-economic development of countries and educational policy makers guided by this importance, design policies to harness its benefits. The concern of countries like Ghana is the attainment of gender and location parity in education especially the full course of basic school as contained in the Millennium Development Goals (MDGs) and thus enshrined in their constitutions to guarantee universal education. Policy makers and researchers alike are preoccupied with how to find remediable solution to, or insightful examination of, educational disparity. The literature is, therefore, replete with a number of theories and propositions which are sometimes conflicting and limited in measurement thereby making full appraisal difficult. This study uses the concurrent mixed method, combining qualitative and quantitative techniques, to determine the significance of gender-location difference in primary school enrolment, the probability of enrolling female or male, the significant household determinants of female enrolment and why households are inclined to certain enrolment preference in the West Mamprusi District of the Northern Region. The findings revealed that there was no significant gender difference in enrolment in rural or urban communities and between the two though the probability of enrolling female in primary school is 0.32 and male 0.68. There was more likelihood of female being enrolled in rural than urban communities though not on every measure. The number of male and female children of school-age in the household composition, income level of household head, number of female children already enrolled in school and the enrolment decision-maker were found as significant determinants of female enrolment. Perceptions, cultural and economic considerations informed household enrolment decisions. As a result, further research on demand and supply side enrolment determinants, civic education on the benefits of equal education, female empowerment interventions among others are recommended.
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To you all, may God Almighty grant your desires and bless you.
DEDICATION

To my parents for the show of love and patience
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<thead>
<tr>
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<th>Full Form</th>
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<tbody>
<tr>
<td>CAMFED</td>
<td>Campaign for Female Child Education</td>
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<tr>
<td>EFA</td>
<td>Education for All</td>
</tr>
<tr>
<td>FHHs</td>
<td>Female Headed Households</td>
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<tr>
<td>GER</td>
<td>Gross Enrolment Ratio</td>
</tr>
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<td>GES</td>
<td>Ghana Education Service</td>
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<tr>
<td>GPI</td>
<td>Gender Parity Index</td>
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<td>JHS</td>
<td>Junior High School</td>
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<td>MDGs</td>
<td>Millennium Development Goals</td>
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<td>MHHs</td>
<td>Male Headed Households</td>
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<td>NGOs</td>
<td>Non-governmental Organisations</td>
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<td>PHC</td>
<td>Population and Housing Census</td>
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<td>UPE</td>
<td>Universal Primary Education</td>
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CHAPTER ONE:

INTRODUCTION

1.1 Study Background

Ghana's ability to develop and to join the league of developed countries would require massive investment in education of her citizenry. Building the human resource base is necessary for the country's development (Ghana Statistical Service, 2007). For developing countries like Ghana to attain the needed development, education and its equality need to be taken serious.

The analysis of Ghana's education development and comparing northern Ghana to southern Ghana shows a disproportionately lower level of development in northern Ghana, with the rural communities the most affected (Fant, 2008). Also, a major trend in education in developing economies in general, and Ghana in particular, is that schooling attainments are relatively low and observed differences in such attainments between males and females exist, with those of the latter lagging behind the former (Sackey, 2007). From this assertion by Sackey (2007), the gender dimension of development in terms of education is in favour of the male to the disadvantage of females though enrolment could be generally low for both sexes. Spatial and gender equity in development are key tenets of any comprehensive development and for the attainment of this comprehensive development education must play a vital role.

The importance of education as a tool for development is demonstrated in the policy interventions of countries. Improving the quality of education remains an
important goal for many countries including Ghana, and it is in line with this that the
country subscribed to Millennium Development Goals (MDGs) and also its own local
consitutional requirement (Osei, Owusu, Asem & Afutu-Kotey, 2009) that all persons
shall have the right to equal educational opportunities and facilities.

The importance of education is as old as importance of development itself, which
is traceable to the 1940s. The Universal Primary Education (UPE) was enshrined as a
human right in article 29 of the United Nation’s Universal Declaration of Human Rights
in 1948 making it obligatory for nations to provide the necessary framework, institutions
and infrastructure for their citizenry to have access to education (Chimombo, 2005;
Dunne, Leach, Chilisa, Maundeni, Tabulawa & Kutor, 2005). Since the 1990 Jomtien
Conference on Education for All (EFA) they have serious action by governments among
other development agencies to increase educational enrolments, in particular of girls,
because most girls of the global south countries have school enrolment rates being low
and also characterised by higher drop-out rates and lower achievement than boys (Dunne
et al., 2005). The MDGs encourage a balanced education for both sexes/gender. The
second MDGs is achieving universal basic education with gender parity as a target. The
socio-economic development and material prosperity of any developing country, and
Ghana in particular, is contingent on the human resources of the country (Ghana
Statistical Service, 2005, 2007; Tenikue, 2009). It is therefore not surprising that the
United Nations Human Development Index has human resource capital as one of the
measures of growth and development.
The advanced countries have witnessed significant development of their human resources and the development of these countries is correlated with their level of human resources development. Some of these countries have also attained gender parity in education especially at the basic level and this has no doubt contributed to the development of those countries. For instance, in the United States and in the European Union, over 50% of the students at the tertiary level are women (Pekkarinen, 2005).

The story of gender equality in education in the global south countries and especially in Africa seems ominous. The story even gets darker the more in rural Africa accounted for by a number of factors. Chamie (1983) noted that from 1960 to 1980 enrolment rates for girls have lagged consistently behind the rates for boys in all developing regions. Education in developing countries have low quality, weak in efficiency and relevance as well as aims and goals are unclear (SEND Ghana, 2010 citing UNICEF, 2007). Even though the number of children enrolled in primary schools in developing world was observed in the 1980s to have increased markedly in the last 20 years, the goal of universal primary education for girls and boys and the goal of equal access to primary education are yet to be realized (Chamie, 1983).

Also, some studies have observed recently that Ghana’s educational enrolment driven policies have not succeeded in attaining the 1:1 gender parity index with girls’ enrolment below 50 percent (Asare, 2009; ISODEC & UNICEF, 2011). It has to be noted however, that countries within Africa have different levels of achievements in education with some countries making progress than others. Ambassador Melanne Verveer (2011) captured this right:
Much progress has certainly been made since 2000, when nations around the world committed to Millennium Development Goal (MDG) 2 for the achievement of universal primary education; yet considerable gaps remain, particularly for girls. According to some estimates, 72 million children worldwide do not attend school, and 54 percent of the unschooled are girls. In addition, although gender parity in primary education has increased over the past decade, a parity gap of 6 million still remains — and it is even starker in the developing world (Verveer, 2011, p.1).

Ghana, as a country, is not spared of the challenges and disparities in educational attainment between the two genders and between rural and urban areas. Ghana’s educational system is much less well resourced and has lower participation rates than that of Botswana according to a comparative study by Dunne et al. (2005). Ghana government has shown commitment to achieving Universal Primary Education (UPE) (SEND Ghana, 2010). She has made significant investment in the education of her citizenry and since independence various governments have intervened to improve access and quality education for all Ghanaians. Prior to independence, education policies were skewed towards southern Ghana to the detriment of the northern part and this is the root of disparities in educational development between northern and southern Ghana (Akyeampong, Dganmah, Oduro, Seidu, & Hunt, 2007; Prah, 2002). But the coming into force of the 1992 constitution of Ghana made education in Ghana a human right issue requiring universal application irrespective of gender, locality and ethnicity. In response to the constitutional requirement of the Government of Ghana to provide basic education
for her citizens, the Free Compulsory Universal Basic Education (FCUBE) was introduced in 1996, thereby fulfilling article 25(1) of the constitution (SEND Ghana, 2010).

Interventions to promote education in Ghana predated the 1992 constitution. The Guggisberg era in the 1920s with its sixteen (16) principles in education provided a comprehensive expansion of the education sector (Akyeampong et al., 2007). These principles stressed equal opportunities for both girls and boys. The post-independence education interventions in Ghana are marked with several policies and reforms in the education sector. Government policies, reforms, activities of Non-governmental Organizations (NGOs) and gender activists, international and multinational organizations have all contributed to the promotion of education in Ghana especially gender parity in education in particular. Examples of these interventions are the recent attempts to decentralize education management and the introduction of capitation grants aimed at improving enrolment and removing disparity between girls and boys and between rural and urban areas (Akyeampong et al., 2007).

The commitment shown by the government towards the realization of universal basic education, irrespective of gender and location, has yielded some dividends. The national gross enrolment data for Ghanaian primary and junior secondary schools over four academic years between 1997 and 2000 shows a gradual increase in the proportion of girls enrolled in both primary and junior secondary schools but not without boys still outnumbering girls at both levels (Dunne et al., 2005). The introduction of the capitation
grant scheme is another initiative that is clearly making an impact (Akyeampong et al., 2007) with increased enrolment for both sexes.

Whereas the country can be commended for making greater strides towards reducing, to the barest minimum, the illiteracy rate and guaranteeing basic education for every citizen, there are still disparities in education between northern Ghana and southern Ghana, between rural areas and urban areas and between the two gender - male and female (Sackey, 2007; WiLDAF-Ghana, 2006). The country has been slow, despite the interventions and reforms, in realising the attainment of UPE and in some cases the situation has deteriorated (SEND Ghana, 2010) and continues to grapple with the problem of quality (GES, 2003). The skewness in educational attainment against northern Ghana, rural areas and women constrains the country’s development considering the fact that some of these categories constitute a greater proportion of the country’s population. If education is essential to the eradication of poverty, diseases and marginalization of women, it can then be argued that the manifestation of poverty, disease and marginalisation in rural areas is a manifestation of lower levels of education.

Research in northern Ghana indicates that the probability of children’s enrolment is based on a complex set of factors such as the educational level of parents, the ability to pay costs of schooling and households livelihood type (Akyeampong et al., 2007). Schooling is influenced household factors and decision making processes - the size of the household, the number of children of school-age, the socio-economic status and the labour demands on the household are factors which might shape decisions on schooling (Akyeampong et al., 2007). Although the gaps in education between rural and urban
communities and between the male and female have historical antecedents, there are other socio-economic, cultural, institutional and policy factors attributable to these phenomena. Knowledge of these factors and their respective impact on education would go a long way to inform interventions of government and gender based organizations. Even when knowledge and literature on education enrolment, access, decision to enrol boy or girl, survival rates between the two sexes, the difference in education due to location among others abound, efforts to place measurement and weight to these findings to inform comprehensive policies are limited. In the Northern Region, particularly, there are inadequate studies and knowledge on those issues. It is therefore a matter of importance that a study is conducted in such related fields.

This study examines gender and its relationship with primary school enrolment in the West Mamprusi District of the Northern Region. It draws on prior knowledge and literature on gender and educational enrolment and their relationship with locality. It also examines whether there is any significant difference in primary school enrolment by gender and by location. It measures the statistical significance of the household factors that influence a household’s enrolment decision, the likelihood of boy or girl being enrolled in school in the household decision making process. Finally it makes recommendations on the basis of the findings.
1.2 Problem Statement

Education is a basic human right and has to be universal, inalienable and legally protected. Governments, therefore, have the basic obligations of protecting, respecting and fulfilling this right. It is a matter of good governance and legal requirement that government ensures that her citizenry are educated irrespective of their sex or gender and location. It would be in the letter and spirit of the 1992 constitution and specifically article 25 (1) of the constitution that government takes education of her citizenry seriously.

Some reforms were undertaken over the years by governments to improve quality of education in the country, which can also aid in the fulfilment of the MDGs. Ten policy goals are in the Education Strategic Plan of the Growth and Poverty Poverty Strategy (GPRS II) and this covered areas such as: increasing access to and participation in education and training, improving the quality of teaching and learning for enhanced pupil/student achievement, promoting good health and environmental sanitation in schools and institutions among others according to Osei et al. (2009).

Government also introduced the capitation grant in 2004 to serve as incentive for enrolment in schools and retention. The scale of infrastructural development in the education sector all speaks volumes of the commitment of various governments to ensuring universal basic education. In recent times, government of Ghana has embarked on a campaign to remove all schools under trees in an attempt to improve on the quality

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1 The grant is a measure to increase enrolment by the provision of financial assistance of about GH¢ 6.00 per pupil in each school per annum paid to basic schools to eradicate household need to pay fees especially among poor households. Schools received fixed amount based on the number of pupils enrolled.
of education and improve enrolment. But does this campaign necessarily lead to the desired objectives?

Despite the government’s policy interventions such as abolition of school fee payment at the basic level adopted by the Government of Ghana as one of the key policy interventions for influencing education outcomes (Filmer, 1999), the country has been slow in attaining UPE and in some cases there is increased disparity between male and female enrolment (GES, 2003; ISODEC & UNICEF, 2011). Education is one of the endangered resource in the view of planners and students of educational development (Hallak & Poisson, 2007). Educational attainment in the country is very low, and with large gender and rural-urban inequalities despite the fact that education is playing a great role in determining individuals’ development and social mobility (FAO, 2012).

Research indicates that school enrolment and retention rates in Ghana have increased for both boys and girls in recent years, particularly since the introduction of the capitation grant. However, the gender gap persists and even widens at higher grade levels according to WiLDAF-Ghana (2006). The gap does not only exist between between males and females but between children in rural and urban communities with children in rural communities more unlikely to be enrolled in school than their urban counterparts irrespective of age (Akyeampong et al., 2007).

Also, net Junior High School (JHS) enrolment rates amongst rural children are also lower when compared with that of the rates among urban children because large proportion of rural children have never attended school (Akyeampong et al., 2007). These studies are a testament to the fact that some problems still exist in education in general,
between urban and rural areas and in particular and that existing educational enrolment 
driven policies have not been able to attain a gender balanced outcome (ISODEC & UNICEF, 2011). What is then the significance of the gender difference in primary school enrolment in rural communities as well as urban communities?

Primary education enrolment in rural areas and among females has ramifications for national development. In the first place, if education is considered a necessary requirement for economic growth and development and developing countries have a greater proportion of their population living in rural areas with poor accessibility to education, it could mean that developing countries like Ghana might miss the mark towards prosperity. Again, females constitute a greater portion of the population and lower enrolment would reinforce the cycle of marginalization and abject poverty in which women find themselves. Similarly, lack of equal access or the relatively lower enrolment of female or women limits the social and economic alternatives available to them and their potential contribution to development in the country. Any gender disparity in primary school between rural and urban communities may perpetuate difference in other aspects of development.

Government in addressing problems in education, just like any other development need, is sometimes constrained by a number of challenges including the inadequate and unreliable information in order to inform policies and interventions. There is a lot of research and scholarly literature on and causes and effects of lower female enrolment in education (Dunne et al., 2005). Notwithstanding this, there seems to be inadequate study and measurement of the problem of school enrolment. The magnitude of female's
disadvantage in terms of primary enrolment between rural and urban areas is limitedly espoused by researchers, although it is worth acknowledging Sackey’s (2007) probit models and estimates on current school attendance and attainment through the use of micro-level data from the Ghana Living Standards Survey (GLSS) which showed that parental education and household resources are significant determinants of schooling. The inadequate information may result in ill-informed policies and interventions that do not adequately confront the challenges.

In essence, various governments in Ghana have shown commitment to ensuring universal basic education for citizenry as a matter of human rights and as part of the drive towards the achievement of the MDGs, but these efforts have not led to the provision of solutions to female disadvantages in enrolment and the disadvantaged position of rural areas. The paucity of studies in this regard has not helped government either. The principal question, what is the true state of gender difference in primary school enrolment between rural and urban areas and what determines female enrolment, still remain. This study provides some answers to the questions through a comparative analysis of primary school enrolment between rural and urban areas.

1.3 Research Questions

The main and specific questions for inquiry under this study are stated below.

1.3.1 Main Research Question

The main research question for the study is:
What determines gender difference in primary enrolment between rural and urban communities, if any?

1.3.2 Sub Research Question

The study wishes to answer the following sub research questions:

a. Which gender is more likely to be enrolled in school by the household in rural and urban communities?

b. Why do households prefer a particular gender enrolment decision to the other?

c. What is the relationship between household characteristics and female primary school enrolment in rural and urban communities? and

d. What is the magnitude of gender difference in primary school enrolment between rural and urban communities?

1.4 Objectives of Study

1.4.1 General Objective

The general objective of this study is to investigate whether or not gender differences exist in primary school enrolments between rural and urban communities and the determinants of female primary school enrolment in the West Mamprusi District of the Northern Region.

1.4.2 Specific Objectives

The specific objectives include:
a. To investigate the likelihood of households enrolling a male and female in primary school in both urban and rural communities in the West Mamprusi District
b. To find out reasons why households are inclined to a particular gender enrolment decision in the West Mamprusi District.
c. To ascertain the relationship between household characteristics and female primary school enrolment decisions in urban and rural communities in the West Mamprusi District.
d. To measure the magnitude of gender difference in primary school enrolment in rural and urban communities in the West Mamprusi District.

1.5 Hypotheses

The study tests conjecture statements using statistical approaches at the 1, 5 and 10 percent levels of significance. The following sets of hypotheses were tested:

$H_0$: There are no significant gender differences in primary school enrolment between urban and rural communities.

$H_1$: There are significant gender differences in primary school enrolment between urban and rural communities.

$H_0$: Significant gender differences do not exist in primary school enrolment in rural communities.

$H_1$: Significant gender differences exist in primary school enrolment in rural communities.
Significant gender differences do not exist in primary school enrolment in urban communities.

$H_0$: Significant gender differences do not exist in primary school enrolment in urban communities

$H_1$: Significant gender differences exist in primary school enrolment in urban communities

After many a careful tests of hypothesis with data confirming the hypothesis, it is treated as a proposition in research (Neuman, 2007). Once a proposition, the scientific community confidence on the supposed relationship between variables begins to increase and member of the community would begin to accept it as truthful. This is why repeated testing, if already tested, is necessary for scientific studies. $H_0$, represents the null hypothesis, whiles $H_1$ is the directional or alternative hypothesis.

1.6 Relevance of the Study

The 1994 UN International Conference on Population and Development emphasized the relevance of women’s educational attainment as an instrumental factor to promoting women’s status and development, and as a factor contributing to fertility decline in developing countries (United Nation, 1995). This does not only call for interventions in promoting women education but also calls for research into gender and education issues. The study would provide some insight into gender dynamics of enrolment between rural and urban areas as isolated cases and in comparative analysis, in the West Mamprusi District of the Northern Region of Ghana and as such would be
relevant in a number of ways including knowledge generation, filling knowledge gaps, and stimulating further research.

This research is an academic work and would fill the gaps in knowledge on gender and education in the West Mamprusi District in particular and Ghana as a whole. Also, it would provide literature and report on the state of female enrolment in primary school education in the study district thereby promoting the scope of social science and knowledge in particular. In addition, this study would highlight determinants of female enrolment and reasons for a particular enrolment preference. Recommendations for further studies are part of this study and would thus promote research and scientific knowledge. Again, the study would provide government, policy makers, international organizations, multinational organizations and other interested stakeholders information that would aid gender and education policies and interventions. For instance, information on determinants of female enrolment and the probability of enrolment can help organisations interested in the promotion of education. Recommendations of this study can serve as projects for interested organizations.

The study focusing on gender difference in primary school enrolment between urban and rural areas would also create awareness on factors accounting for difference in school enrolment and the motivations for enrolling a particular sex in school. This would not only expose the challenges against rural development, but would also inform rural development interventions.
1.7 Definition of Terms

The major terms in this study have been defined in this section. The operationalised definitions have also been stated here.

1.7.1 Gender

The term gender has many meanings and its meanings are overlapping and still evolving (Evans, 1999). First, it refers to the social differentiation between what is seen as masculine and feminine and this differentiation is socially constructed based on social relations instead of physical or biological characteristics of males and females (Evans, 1999). Evans (1999) again noted that the term gender is also sometimes used to refer to an attribute of all human beings and is used interchangeably with sex. Gender incorporates society’s interpretation of sex-based characteristics and with cultural attachment of values to the contribution of each sex (Ford, 2002). Gender is how a person’s biological outlook valued from the cultural lens and interpreted into locally accepted ideas of what it is to be a woman or man (Reeves & Baden, 2000). The concept of gender refers to roles and behaviours and expectation of women and men in the cultural context of a society and when contrasted with sex, gender roles are not biologically determined but are determined by the society over time and differ from one society to another (Verbaken et al., 2009).

Although the second definition of gender by Evans (1999) considers gender as a synonym of sex, gender is a separate term with its unique meaning that is different from sex. The other definitions (Evans, 1999; Ford, 2002; Reeves & Baden, 2000; Verbaken et al., 2009) have one central feature - the consideration of gender as a social construct. In
the Ghanaian societies, the sex of a person is sometimes directly assigned a particular
gender. For instance, boys are males and girls and females. Men and women sometimes
also assume a slightly different meaning from male and female. Education, as a social
activity, could have implications for social relations and roles. For the purposes of this
study, therefore, gender is defined as social ascriptions of roles and responsibilities a
person should perform in society based on the person’s sex or biological features.

1.7.2 Primary School

For the purpose of the study, primary school refers to public basic school after
pre-primary school (crèches/nursery and kindergarten) and before Junior Secondary
School. By public school, the researcher refers to formal learning institutions or bodies
managed by public authorities or government. The study considers only public schools
for the purpose of this study. The study area has a total of 115 public primary schools and
7 private primary schools giving the total number of primary schools of 122.

1.7.3 Rural Community

The distinction between rural and urban communities is sometimes difficult since
there is not a straight-jacketed way of definition. Some definitions of rural communities
take into consideration spatial characteristics of the communities. ‘Rurality’ according to
FAO (2012) is a dynamic phenomenon and with improvement in infrastructure and
accessibility to rural areas, the distinction between rural and urban becomes difficult to
draw. In this case, rural communities are those communities inaccessible and with
inadequate infrastructure. Rural areas in the developed economies often means sparsely
populated and rich and sometimes sparsely populated and poor whereas in the countries of global south it means poor, whether densely or sparsely populated (Tusubira, 2004). The definition of a rural area, therefore, is dependent on a number of variants. Rural communities for the purpose of this study are communities or a group of people living in a particular geographic area outside the district capital or in the countryside and with a population of less than 5,000 inhabitants (Ghana Statistical Service, 2013).

1.7.4 Urban Community

Urban communities are the opposite of rural communities. Certain criteria are used in the delineation of an area as urban. The United States (US) Bureau of the Census divides the nation (US) into urban and rural areas based on the population density of census blocks (Isserman, Feser, & Warren, 2007). For instance, a density of at least 500 people per square mile is included in an urban area. Urban communities here refer to communities or a group of people living in a particular geographic area with a population of 5,000 inhabitants or more (Ghana Statistical Service, 2013). A distinction is not made between urban and peri-urban communities in this study.

1.8 Organisation of Report

This study is organised into six major chapters. Chapter One contains the general introduction of the study constituting the background of the study, the problem statement, research aims and objectives, and relevance of the study. Chapter Two contains literature review with extensive discussion of concepts and theories. Chapter Three explains the
methodological underpinning of the research focusing on justification of the research design and procedure, sampling and data collection, data analysis, and ethical issues. Chapter Four consists of the analysis of the socio-economic characteristics of respondents whiles Chapter Five contains the analysis of the collected data. Finally, Chapter Six presents major findings, conclusion and recommendations.
CHAPTER TWO

GENDER, LOCATION AND BASIC SCHOOL ENROLMENT: RELEVANT LITERATURE REVIEW

2.1 Introduction

Improved education is a prerequisite for holistic development of children and citizens because it contributes significantly to the social and economic wellbeing of people (AusAID, 1997; Ghana Statistical Service, 2005, 2007, 2008). More importantly, girls' education could propel growth and development of a country through higher educational attainment (AusAID, 1997). In fact, the prosperity of society and personal development of people is underpinned by education as a very important resource (Ford, 2002). In this chapter, some theoretical work and perspectives on gender equality and enrolment, location and basic school education, theories of choice in schooling, among others are explored.

2.2 Gender Equality in Education

One of the key debates in education, especially in the 21st century, is equality in education and this has been interpreted in 4 different ways (EACEA, 2010). These are: equal life chances, equality of opportunities, equal cultivation of different capacities and independence of educational attainment from social origins (EACEA, 2010).
Equal life chances dimension suggests that, education should not be viewed as a vehicle to ensure parity in life chances because of factors such as family income, beliefs and cultural practices that play a role to create difference in the status of boys and girls (EACEA 2010). Equality of opportunity “adopts a three-fold categorisation: formal opportunities, actual opportunities and outcomes” (EACEA, 2010, p. 20). Access to and participation in a structured education constitute formal opportunities while actual opportunities combines formal opportunities features with such other factors such as family background. The last and most recent perspective focuses on non-discrimination, addressing disadvantages faced by women to ensure parity and conscious process of mainstreaming gender issues in governance and cultural structures. Parity in enrolment and completion rate is the focus of gender equality in school and thus an important part of gender mainstreaming (EACEA, 2010).

The quality and equality of access to education is prioritised by article 3 Declaration of Education for All (EFA) in 1990, especially for women and girls (Antze, 2011) and this highlights the global importance of education. Countries consider the inherent and perceived benefits and aspire for equality of gender in human development and especially in education. Taylor & Mulhall (1997) assert, and rightly so, that primary schooling capacitate individuals to contribute to development by individuals.

Studies by the World Bank found that, 1% rise in women in secondary school education causes income growth per capita to increase by 0.3% (Antze, 2011). Educated women are also more likely to support schooling of daughters and capacitate them to
manage the household efficiently (Antze, 2011; Oduro, 2000). All these underscore the benefits of female education to the development of nations and strengthen the case for equality in education. The current development policy document of the government of Ghana- The Ghana Shared Growth and Development Agenda (GSGDA), has outlined strategies to be adopted to bridge the gap in access to education which includes, making teachers available, eliminating sexual harassment, incentivising girls to enrol in school among others (NDPC, 2010). This attests to the recognition of education and equality education as key to the development of the country.

2.3 Gender Inequalities in Basic School Enrolment

It has been stated in the previous chapter that gender is a social construct and this has implication for roles differentiation and other social activities. Gender is an important issue in education debate (de Lange, 2007) because of the ascription of roles to boys and girls based on socialisation and culture in Africa.

Some studies have noted the existence of gender inequality in education (Amin & Chandrasekhar, 2009; Asare, 2009; ISODEC & UNICEF, 2011; NDPC, 2010; Oduro, 2000; Pal, 2004; Sifuna & Sawamura, 2010). Some traced inequality as resultant effect of colonial rule (Prah, 2002) whiles some blame norms and values about women for the inequality (Antze, 2011). Closely related to this, Campbell and Storo (1994) note that sex is often seen as a measure of one’s capability although they were quick to point out the weakness in that view.
There is parity in developed countries such as US and the European Union and women turn to exceed men in educational attainment in some cases (Pekkarinen, 2005). This assertion is made with reference to higher education but this could not have been possible without a good number of females at the basic level in such countries. Substantial number of countries has profile for males below that for females in school enrolment. For instance, Colombia has boys’ enrolment rate of 98 percent to that of girls (Filmer, 1999).

Despite the foregoing, about 44 million girls remain out of school across the world and Sub-Sahara Africa has about 45% of this number according to Asare (2009). This makes gender inequalities in school enrolment an important global topic. The literature seems to have identified developing countries in the web of inequality but it does not suggest that developed countries are totally free from the pro-male enrolment syndrome. For instance, many counties of the US have pro-male enrolment system (Ford, 2002).

In Africa, many studies find evidence of gender differences in schooling, literacy rates, enrolment rates, dropout rates and attainment (Amin & Chandrasekhar, 2009; Pal, 2004). Tenikue (2009) suggested that male children were more likely to be enrolled in school than females and this has therefore given a caveat in that there could be some countries in Africa with female enrolment advantage over males. But for most developing countries (e.g. Ghana, Niger, Mali, etc), girls’ enrolment have lagged behind that of boys manifest disparity between boys and girls in terms of access to primary school (Chamic, 1983).
It has to be mentioned however that considerable improvements have been made by countries towards increasing enrolment and ensuring gender parity in basic school enrolment in developing countries, resulting in marked increase in school enrolment rates for children aged 6 to 11 (Chamie, 1983). By extension, there is an increase in enrolment rates at the basic schools in developing countries since the age group of 6 to 11 are normally in the basic schools. Results of a study by Tenikue (2009) even showed no male-female difference in the likelihood of being enrolled in school among regular children, although females are less likely to be enrolled in school than are males among irregular children. Irregularities were summarized as school delay due to late enrolment and dropout whiles schooling devoid of these delays was regular.

Despite this sterling findings by Tenikue (2009), girls’ completion rates is still below 60% in contrast with an average of 75% for boys in many African countries (Asare, 2009) and most women in Africa still receive less schooling than men despite the expansion of educational opportunities (Agyepong, 2001). These various studies establish the fact that gender differences exist in school enrolment at the basic level of education in Africa as a continent.

Gender differences in school enrolment beyond the global and continental levels also have country specific implications. In other words, there are intra-country gender differences in enrolment (Chamie, 1983; MOESS, 2006; NDPC, 2010; Ghana Statistical Service, 2005). For example, wide disparity between those who have never attended school at the national and those in the Northern Region was observed through the analysis of the 2000 Census (Ghana Statistical Service, 2005). Ghana was only able to
attain a gender parity ratio of 1:0.96 even with the introduction of the capitation grant contrary being a signatory to the MDGs and target set in the Education Strategic Document 2012-13 (Asare, 2009). This is in spite of the increased in number of primary schools (MOE, 2010, 2011, 2012). The gender disparity therefore poses threat to achieving UPE and the goals of EFA (Taylor & Mulhall, 1997).

The country continues to make significant progress in Gross Enrolment Ratio (GER) which is due to increase in private and public schools enrolment (MOE, 2010, 2011, 2012). With the increasing enrolment over the past years (except in 2010/2011) the country has not yet attained 1:1 parity in enrolment. The Gender Parity Index (GPI) increased from 0.96 in 2009/2010 to 0.97 in 2010/2011 and in each year, the Northern Region had the lowest figure 0.87 and 0.88 respectively (MOE, 2011, 2012). As a country, the statistics presented above and in other studies (Dunne et al., 2005; Fant, 2008; ISODEC & UNICEF, 2011; Oduro, 2000; Sackey, 2007; WiLDAF-Ghana, 2006) indicate that school enrolment in Ghana has increased for both boys and girls, particularly since the introduction of the capitation grant but gender and location differences still persist (Akyeampong et al., 2007; ISODEC & UNICEF, 2011; MOESS, 2006; Sackey, 2007). Sackey (2007) for instance stated that the lagging of females behind females is still a major trend in education.

The figures presented above again are challenged by the fact that not much is done in terms of trying to statistically measure the disparity. The GPI of the MOE comes closer to measuring the disparity but on what scale would one say there is large or small disparity? This deficiency is given a solution by this study.
At the regional level, 77.9% have never been to school in the Northern Region as compared to only 44.5% at the national level (Ghana Statistical Service, 2005). The region has a GER of 99.9% and 87.4% for boys and girls respectively at the primary school in 2010/2011. Currently, girls constitute 46.1% of public primary school enrolment in the region but 49.1% in private primary schools according to MOE (2012). The statistics showed gender difference in primary school enrolment but the dynamics are different between private and public schools. Whereas there is female disadvantage in public schools, this situation is relatively better in private schools. The 2010/2011 year even recorded girls’ advantage over boys in private primary schools. Studying the pattern through the MOE reports, the region has over the last ten years recorded the lowest girls’ enrolment rate in primary school as compared to other regions.

In the West Mamprusi District, total enrolment in the public primary schools was 23,520 in 2010/2011 year and female pupils constitute 47.5%. Private primary school enrolment constitutes 44.2% girls for the same period. Proportion of boys to girls’ enrolment in public primary school remained unchanged in 2011/2012 but increased to 47.9% in the case of private primary school (MOE, 2012). The district also has 123 primary schools and 12 out of this number are private primary schools. By absolute values and percentage, there is boys’ dominance in primary school enrolment and girls continually lag behind their boys counterparts (MOE, 2012). These figures of the MOE at this level are still bedevilled with the same challenge of statistical measurement.

From the above literature, it is obvious that Ghana, the Northern Region and the West Mamprusi District have some gaps in primary school enrolment. Questions that
remain unanswered in this literature are the significance of the difference in enrolment and whether this difference is visible between the rural and urban communities and if it does what is the magnitude? An academic research on female enrolment in educational institutions in the West Mamprusi District by Yidana (2000) highlighted gender difference in educational enrolment and copiously outlined factors responsible for such a phenomenon. The research could not however determine the magnitude of this gender difference and lacks quantification of the gap in enrolment.

2.4 The Magnitude of Gender Difference in Basic School Enrolment

The literature in the previous section confirms the fact that gender differences exist in school enrolment and specifically, primary school enrolment at the global, regional, and national levels. What remains a question is the magnitude of the difference. To what extent can we conclude the difference is significant and to what extent do we conclude the difference is negligible?

To appreciate the extent of the difference, Taylor and Mulhall (1997) estimated that women constitute two-thirds of the world's illiterate adults. Females participate less in formal schooling than males in developing countries (Prah, 2002) and this therefore means that a greater proportion of the people who cannot read and write are women.

A study by Pal (2004) noted that there are significant gender differences in child schooling in the Indian states though he admitted that very few studies explain this gender difference. However, with a statistical measures of male-female enrolment in Cameroon, Tenikue (2009) did not find significant difference in enrolment before the age
of 11 and this means that there were no difference in enrolment in lower primary. But there was significant difference in male and female enrolment rates among the students who attained age exceeding 12. This simply means, the difference in male and female enrolment rate widens as they move from lower stages to higher stages as demonstrated in the non-significance of the difference before the age of 11 but thereafter turns to be significant.

In Ghana, there is no significant difference in enrolment between girls aged 6-10 years to that of boys but the gap widens for children aged 11-16 years with girls’ enrolment about 8 percentage points lower than boys according to Akyeampong et al. (2007). The situation in Ghana in terms of enrolment difference is not different from the Africa-wide picture of enrolment since the finding of Akyeampong et al. (2007) is consistent with what has been found by Tenikue (2009) in Cameroon.

The West Mamprusi District in particular currently records 47.5% of girls as against 52.5% of boys in public primary school enrolment and 47.9% and 52.1% for girls and boys respectively in private primary schools (MOE, 2012). This insight only depicts the percentage point difference in the enrolment but has not been subjected to statistical measurement and analysis. The level of analysis of the gender difference in enrolment is through the GPI. But as noted already, this measure makes it difficult to tell at what point we consider the percentage point difference significant.
2.5 Location and School Enrolment

The provision of formal education in Ghana has witnessed some significant and notable increases since independence. However, gender and location difference has diluted the effect of the increase (Baden, Cathy, Green, Otoo-Ayortey, & Peasgood, 1994). In fact, education infrastructure gap between the north and south exist since the birth of Ghana (Little, 2010). Some studies (such as Akyeampong et al., 2007; FAO, 2012) attest to the fact that difference in school enrolment exists between rural and urban areas.

The extent of this difference may vary across space and time, but the fact remains that this difference exists. Girls are disadvantaged in access to education and the plight of the girls in rural areas is worse in terms of educational access (Akyeampong et al., 2007). There is difference in primary school enrolment between girls in rural and urban areas as well as difference in enrolment between boys in rural and urban areas (Chamie, 1983). By this, the gap in enrolment between rural and urban boys is lower than the gap between girls. Stressing the disadvantage of rural primary schools over urban ones, Taylor & Mulhall (1997) further noted that the urban areas have more children going to school than rural areas and is more likely for a child to be enrolled in school in the former than the latter. The analysis and dynamics of the difference in primary school enrolment could however be different from other countries.

In urban areas, there is lower girls’ enrolment than boys with a likely reason that girls were fostered in urban areas for domestic chores according to Akyeampong et al. (2007). The phenomena of urban poverty seems to be aggravating gender inequality in
urban areas (Kyeyune, 2012) with evidence to suggest that increased urbanisation has mixed (negative and positive) effects on education (Dachi, 2012).

In the three northern regions (Northern, Upper East and Upper West regions) has less female headed households (FHHs) than male-headed households (MHHs) (FAO, 2012). This therefore suggests that in the educational decision making process where head of households decide which child should go to school, few women can influence choice because there are more MHHs than FHHs. Apart from rural-urban difference, there is gender difference in enrolment in these three regions even among same sex (FAO, 2012).

Location, therefore, has some influence on enrolment but it is not only the matter of location, but several other factors play to produce inequality between male and female enrolment as well as between rural and urban primary school enrolment.

2.6 Factors Influencing Enrolment Decision: Rural-Urban Comparative Review

Non-enrolment in northern Ghana cannot be attributed to ignorance, failure to see the benefits of education and culture (de Lange, 2007). This contradicts the MOESS (2006) report when it noted low awareness of the importance of education for girls as a possible reason for lower female participation in primary school education. What could then be influencing parent decision to enrol an offspring in primary school?

The household is a critical and key decision maker on whether to send a child to school or not and the decision is often weighed against the potential benefits and cost to the household (Akaguri, 2011; Al-Samarrai & Peasgood, 1998). However, older children
in households sometimes enrol themselves (de Lange, 2007) and one would therefore agree with Akaguri (2011) that enrolment ceases to be simply a decision resting with the household. Socio-cultural, political, ideological and economic factors working through power relation (Prah, 2002; Al-Samarrai & Peasgood, 1998) influence enrolment decision.

2.6.1 Economic Factors

Some researchers (de Lange, 2007; ISODEC & UNICEF, 2011) have found some economic factors to be influencing enrolment and decision to enrol a child (girl or boy) in school. Economic factors are obvious factor capable of measure (Antze, 2011) and Rose & Al-Samarrai (1997) found several studies associating non-attendance and school dropout to economic reasons. Some economic factors influencing decision to enrol are discussed below.

2.6.1.1 Poverty

Results presented in the study (Amin & Chandrasekha, 2009) gave a striking and startling significant association of gender and poverty. Poverty influence on household school enrolment decision is reinforced by the study conducted by Pal (2004) when he stated that wage rates among other variants partly explain the gender differences in enrolment. Pal (2004) also found some evidence that as income increases, gender disparity narrows especially so when the household is resource constrained. This has been corroborated by other studies (Filmer, 1999; GES, 2004b; Ghana Statistical Service, 2005; Härnä, 2010; Prah, 2002; Yidana, 2000). Even though the measurement by the
GSS (2005) examines the relationship between income and level of education and concluded that the level of education of a household has influence on income and it means income has influence on enrolment decision. Whereas poverty is a factor influencing enrolment and female enrolment to be specific, lower female enrolment also has a ramifications on poverty.

Rural areas often have low income in comparison with urban areas due to the small size of their financial market hence parents in rural areas unable to support education of children (Taylor & Mulhall, 1997; Akyeampong et al., 2007). Urban areas would thus have higher enrolment. However, urban poverty and issue of urban slums make the notion of urban leverage and ‘rural doom’ articulated by Akyeampong et al. (2007) not a straight forward phenomenon.

The lack of money or poverty is cited for non-enrolment in the West Mamprusi district and the Upper East and Upper West Regions (de Lange, 2007; Yidana, 2007). The influence of poverty as an economic reason cannot therefore be discounted in why parents or household take a particular enrolment decision.

2.6.1.2 Cost and market incentives

Education is an investment initiative (Al-Samarrai & Peasgood, 1998) and to this extent, households sometimes examine the opportunity cost of sending a child to school against other competing economic activities such as farming. The opportunity cost of participating in domestic work and sending a girl to school are important determinants of enrolment (Pal, 2004; Taylor and Mulhall, 1997). For instance, opportunity cost of girl’s
time to schooling is used as justification for non-enrolment in Ethiopia (Rose & Al-Samarrai, 1997).

Households in making decision of either enrolling a male or female may prefer boys to stay at home and support household businesses or the vice versa depending on the household’s estimation of the expected returns in alternative activity rather than schooling.

2.6.2 Cultural factors

Akyeampong et al. (2007) noted that cultural belief and practices as well as the perception of girls’ role in the society influence female enrolment in Ghana. This has been confirmed by other studies (for example, ISODEC & UNICEF, 2011; Asare, 2009; Taylor & Mulhall, 1997). If child bearing, domestic and subsistence duties are considered the duties of the females, enrolling them in school and learning or any other activity that distorts the smooth execution of these ‘divine’ duties may not be seen as duties of the girl. This would certainly affect female enrolment. A culture that does not promote education in general would not education of both female and males. In Ghana, inimical cultural beliefs and practices deny girls of the right of access to education and contribute to the disparity in access to basic education (Asare, 2009).

In this age of enlightenment and technological advancement, some would wonder if the cultural argument for gender difference in enrolment between female and male would hold. Nonetheless, culture is an explanatory variable to the difference in primary school enrolment (Antze, 2011; GES, 2004a) and Ghana is no exception. In the West
Mamprusi District, cultural reason was found by Yidana (2000) for lower female enrolment.

2.6.3 Household Factors or Characteristics

Some studies (Akyeampong et al., 2007; Al-Samarrai & Peasgood, 1998) tend to concentrate on the influence of household characteristics such as, the size of the household, number of children in the household, gender of household head among others on school enrolment. These characteristics influence whether a child goes to school or not (Ngware, Oketch, & Ezeh, 2008; Akyeampong et al., 2007; Al-Samarrai & Peasgood, 1998). Ngware et al. (2008) noted that the relationship between household characteristics and enrolment decision is often illustrated with aid of household production function.

Education of adults members of the household is found have a significant relationship with them enrolling children (de Lange, 2007; Pal, 2004). Many studies (for example, Rose & Al-Samarrai, 1997; Shapiro, 2003; Pal, 2004; Tenikue, 2009) note that parental education influence whether or not a child attends school. Parents with education also have the leverage than their uneducated or less educated colleagues and hence can send their children to school, other things being equal (Al-Samarrai & Peasgood, 1998). Boys and girls have equal chances of being enrolled if parents are literate whiles enrolment chances for children is about six percent lower if parents have no basic literacy (Al-Samarrai & Peasgood, 1998). In this case, education of household head equalises life chances for both sexes.

Household size and the number of children in the household of school going age can influence enrolment in general and female enrolment to be specific. There is negative
relationship between the number of siblings in a household and the chances that a child from the household would be enrolled in school despite the difference in gender of the children (Shapiro; 2003; Amin & Chandrasekhar, 2009). This is because, the larger the numbers of siblings, resources available are constrained and the appropriation among the siblings thereby affects schooling negatively. This is however not always the case because older members provide resource for the education of younger ones and positive relationship can be established (Al-Samarrai & Peasgood, 1998). It is more likely for a child to be enrolled in school in families with larger number of children in rural areas than in urban areas especially after controlling the effect of household size of the estimation (Colclough et al., 2003).

Female headed households in Africa prioritise schooling of children (Antze, 2011). This means household headship has implication for which gender is enrolled in school. FHHs and MHHs are found in both rural and urban areas. Household headship would therefore have a universal effect across localities. However, the proportions of FHHs and MHHs in the different location may account for this effect of the factor.

On the occupation of the household head, Tenikue (2009) found a relationship between the occupation and the probability of enrolment and that when the head of the household is employed in agriculture, the chances of enrolling a child in school irrespective of gender is reduced. Most rural households in Ghana are into subsistence agriculture and by the findings of Tenikue, children in rural areas are less likely to be enrolled. Formal public sector workers who were head of households were 5% to 12%
more likely to enrol a child to school than head of household who were not employed (Colclough et al., 2003) and with this, rural areas are still disadvantaged.

Religion also influence choice and schooling (Colclough et al., 2003) although there is mixed results of the relationship between religion and schooling. Households that profess paganism are unlikely than Christians to enrol children in school while Muslims are also unlikely than people of other faith to enrol children in school (Al-Samarrai & Peasgood, 1998; Rose & Al-Samarrai, 1997).

### 2.6.4 Educational Institutional Factors

School factors or the supply side determinants such as; school’s location, financial cost of schooling, the class size and the content and teaching methodologies of teachers among others also influence schooling or enrolment (Antze, 2011; GES, 2004a). The GES (2004a) noted that parents do not allow their children especially girls to walk for longer districts for security reasons. This means if a school is located far from the community, girls are more likely to be left out.

Sub-standard school infrastructure particularly in rural areas have accounted for low enrolment in Ghana especially when compared to urban communities through econometric estimation (Oduro, 2000). Even though this assertion is silent on how inferior quality of education infrastructure affects female or girls’ primary school enrolment in particular, it has been used to explain disparity between rural and urban areas in educational enrolment. The absence of education infrastructure in an area can affect the enrolment of both girls and boys in school since the presence of school significant relationship to enrolment (Filmer, 1999). The role of infrastructure in primary
school enrolment cannot therefore be underestimated and could therefore account for the difference in enrolment between rural and urban areas and between girls.

Similarly, educational systems have been gendered based on the ascription of values and perceptions (Prah, 2002) and the school curriculum has been biased towards boys at the disadvantage of girls (Baden et al., 1994). This is a major barrier to female enrolment because these stereotyped educational institutions and programmes either discourage or limit female education to particular sectors.

2.7 Theories of Choice and Household Enrolment Decisions

An important point of departure in discussing the theories of choice in schooling decisions is to first of all agree with the argument that education is an investment or consumption good and decision makers examine cost and benefits before investment (Al-Samarrai & Peasgood, 1998; Pekkarinen, 2005). Even though the argument by Pekkarinen (2005) considers schooling as a decision of the student, such decisions at the basic level are made by the head of the household (Akaguri, 2011; Al-Samarrai & Peasgood, 1998).

As an investment good, household would choose from various alternatives and even if education was the only investment possibility or choice, the household may face budget constraints requiring the household optimal level of schooling. According to Amin (2009), parents would invest in education such that there is parity in the marginal rate of return to education for each child. In this case, more investment on children with the higher returns than those with lower returns is expected of the household. It means
that parents would have to consider among the boys or girls and on assumption of which sex has the highest return to investment (education) take a decision. The concept of the sibling sex composition effect has been used by Amin (2009) to explain household or parents choice in schooling decision under resource constraints as well as aversion to earnings inequality. The disutility rising from income inequality between children will make parents invest more in the less able child to offset the any earnings inequality depending on the ratio of boys to girls in the household (Amin, 2009).

Apart from the economic explanation of the sibling sex composition effect, Amin (2009) also provided some sociological explanation to the sibling sex composition using the Rosenberg’s (1965) ‘sex minority hypotheses’. The theory posits that a girl raised up with only brothers performs better than girls raised up with only sisters due to parents greater attachment to minority groups in the sibling constellation (Amin, 2009). This hypothesis is however criticised for being simplistic that parents would necessary favour minority sex. Moreover, any skewed attention could create its own challenges which parents would not be happy with especially with aversion to earning inequalities. The ‘revised sex minority hypothesis’ thus states that having siblings of opposite sex is disadvantageous in contrast to the ‘sex minority hypotheses’ (Amin, 2009) which states the opposite.

The ‘reference group theory’ was also adopted to explain the sibling sex composition by Amin (2009). It argues that sibling sex composition affects the parents’ interest in equality for outcomes of children. For instance, in a family consisting of one son and one daughter, parents may measure children’s’ achievement on the same
wavelength and, thus, invest same resources on their schooling. But when a second girl is born, the reference group for the first daughter would be changed and she is then measured on the same wavelength against the sister. The theory, therefore, predicts that women with sisters will be enrolled in school than women with brothers (Amin, 2009).

Another theory which is applied in schooling decision is the ‘Relative-change theory’. This theory is derived from the prospect theory and it posit that individual choices are made after the assessment of wide range of risky and un-risky options in a process where the individual assigns values to gains and losses (Omwami, 2009). This theory somehow considers the individual as a rational being whose decision is based on expected gains after assigning weighs.

In the light of the fact that different choice theories explain decision of parents in education, one would agree more Al-Samarrai and Peasgood (1998) that household schooling decisions is a product of the interplay of factors such as social, cultural and economic factors working through power relations within the household.

2.8 Conceptual Framework of how Household Characteristics and Location are related to Enrolment

Based on the reviewed literature, it is expected that the relationship between primary school enrolment and location and characteristic of the household be established to ascertain whether or not location of the household and other characteristics of the household have effect on enrolment and how they impact on boys and girls enrolment.
The a prior postulation is that, there are no differences in primary school enrolment and that household characteristic interplaying with location to give a certain enrolment proportion.
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Research findings are often measured against the methods and processes used in the research when the research is to be accepted as scientific. The chapter provides the methodological process of this study and elucidates the study design, states the philosophical underpinning, study area, sample and sampling strategy, data sources and collection strategies and methods of data analyses. The chapter also discusses some ethical considerations by the researcher in the conduct of this study.

3.2 Brief Background of the Study Area

This study was undertaken in some selected communities in the West Mamprusi district of the Northern Region. The district was created in 1988 by the government of Ghana under LI 1448 with its capital at Walewale (WMDA, 2012). The district is located roughly within longitudes 0°35'W and 1°45'W and latitude 9°55'N and 10°35'N. The total land area is 5,013 km² and it shares boundaries with eleven districts namely, Savelugu/Nanton, Karaga, Gushegu, East Mamprusi, Talensi/Nabdam, Wa East among others (WMDA, 2012).

The total population of the district as at 2000 was 115,025 inhabitants. However, this figure rose to 168,011 inhabitants during the 2010 Population and Housing Census (PHC) (Ghana Statistical Service, 2012). Of this population, 83,005 are males and 85,006
females. The female population is below the national average of 51.2% while the male population is above the national average of 48.8%. Only five communities in the district have a population of 5,000 and above according the District official website (cic-walewale.blogspot.com). A district with such characteristics - higher female numbers and few urban communities - makes it a good area for an academic investigation on what is happening to women’s education especially in rural communities. The district has 13.6 proportion of household headed by females (Ghana Statistical Service, 2012).

The researcher conducted the study in four selected communities, namely. Walewale (district capital), Kukua No. 2, Janga and Daboya No. 2. Kukua No. 2 is located in the southern part of the capital, Walewale, and on the Tamale-Bolgatanga highway. Janga is in the interior south-west part of the capital while Daboya No. 2 is in the south-western corner of the district capital. The 2010 PHC would have given an up-to-date demographic characteristic of the study communities but this is however under process. According to the 2000 PHC, Walewale recorded a population of 13,558 inhabitants, 2,054 households and an average household size of 6.1 people. Kukua No. 2 recorded a population of 1,244 inhabitants, 148 households and an average household size of 8.4 people. Janga had a population of 5,054 inhabitants, 507 households and average household size of 10. Also, Daboya had a population of 599 inhabitants, 70 households and an average household size of 8.6 people. Figure 3 shows the map of the study district, with spatial distribution of educational facilities, and arrows pointing to the study communities.
3.3 Selecting the Study Areas

The choice of a research problem originates from “many potential sources” (Creswell, 2009, p. 98) including researcher’s interest and personal experiences. The research problem identified by the researcher relates to an area. Selecting an area by a researcher for a study can be based on researcher’s interest and identified problem or gap in knowledge in the area. Firstly, the choice of the West Mamprusi district for the study is as a result of the observation that majority of educated people in the district have primary education as the highest level compared to other districts in the region (Ghana Statistical Service, 2005). Also, a number of young girls drift to southern urban towns for menial jobs at the expense of education. These reasons among others informed the choice of the district for the study. Moreover, there are limited studies that measure enrolment between boys and girls and also whether differences exist.

Figure 3.1: Map of the West Mamprusi District
The researcher divided the district into eight circuits in line with the Ghana Education Service' (GES) division of the district into circuits - Walewale Central, Walewale West, Walewale East, Janga, Kpasenkpe East, Kpasenkpe West, Tinguri, and Kparigu. Two circuits (Walewale Central and Janga circuits) were randomly selected through the lottery method. Communities under each circuit were grouped into urban and rural based on the definition set out for these two under this study. In each group, one community was selected through the same random process and at the end, Walewale, Kukua No. 2 (of the Walewale circuit), Janga and Daboya No. 2 (of the Janga circuit) were selected.

3.4 Research Design

Research designs, according to Creswell (2009), are plans and the procedures for research spanning the decision from broad assumptions to comprehensive strategies and methods for collecting data and analysing them. Given the three major types of designs - qualitative, quantitative and mixed researches - the mixed design was used for this study. The study is mixed because it shares the features of a qualitative study such as using words, open-ended questions and exploring the meaning people or groups ascribe to a social problem as well as the features of quantitative research which include using numbers, closed ended questions and testing objective theories by examining the relationship among variables, measuring variables and analysing data using statistical procedures.
The research started with a background to the problem, research objectives, hypothesis and justification for the study, the theoretical overview of the themes or literature review through to data collection, analysis and presentation of findings. It used statistical tools for the quantification of some of the qualitative issues such as choice and other factors that influence choice before making inference to the broader population. The study used the concurrent mixed method (Creswell, 2009) where quantitative and qualitative data are collected and merged to give comprehensive and better analysis and understanding of the research data. The pragmatic worldview (Creswell, 2009) is the philosophical underpinning for the use of the mixed research design. With this philosophical worldview, instead of concentrating on methods, the researcher concentrated on the problem and objectives and used all possible, available strategies to discuss them.

3.5 Sampling Design and Sample

The purpose of sampling is to collect cases that enhance understanding of the research problem but qualitative researchers usually would concentrate less on detailed techniques for drawing a probability sample (Neuman, 2007). Researchers often, especially those having to choose a sample, contemplate how big should be a sample. In determining the appropriate sample size for a study, factors such as the level of significance, the maximum allowable error, the population error variance, and the effect size should be considered (Barrow, 1996; Healey, 1996; Hinkle, Wiersma, & Jurs, 1994). Behavioural researchers can often use higher alpha level (level of significance) of 0.10.
because having to make adjustment that would avoid the tendency of making type II error (Hinkle et al., 1994). The type II error occurs when the researcher fails to reject the null hypothesis though it is false. Consideration must therefore be given to the consequence of making both the type I and type II errors when selecting the sample size (Hinkle et al., 1994).

The determination of the ideal sample size is guided by one basic principle and this is; the smaller the population, the bigger the sample ratio has to be and larger population permits smaller sample ratio, in order to generate samples that are reflection and representatives of the whole population (Neuman, 2007). This is so because, with an increase in population, the returns in accuracy for sample size reduce. For instance, population under 1,000 needs large sampling ratio of about 30%, moderately large population (10,000) needs about 10% sampling ratio and very large population (over 150,000), needs very small ratio and about one percent is possible (Neuman, 2007). For a statistical study, this principle may not give the ideal and representative sample size.

The sample for this study was statistically estimated by the researcher as 384 respondents using the 95 percent level of significance or risk level, precision rate of ±5%, and a variability of 47.6% female enrolment against total enrolment as a major attribute of the study. This is thus shown below according to Bartlett, Kotrlik & Higgins (2001).

\[ n = \frac{t^2 \times p \times q}{\alpha^2}, \]

where,

- \( t \) = the value for selected alpha or confidence level (95% level) of .025 in each tail of the two tails i.e. 1.96 (note that this is also the risk level or the amount of risk
the researcher is willing to assume that the true margin of error may actually exceed the acceptable level).

- \( pq \), is estimated variance,

- \( p \) is the proportion (variability) of female enrolment, 0.476, against the maximum possible proportion of 0.5,

- \( q \) is \( 1-p \) (0.5) and

- \( d \) is the acceptable margin of error the researcher is willing to allow (0.05).

Substituting these values into the equation 3.1, gives

\[
\text{Sample size } (n) = \frac{1.96^2 \times (0.476)(0.524)}{0.05^2}
\]

\[
= \frac{3.8416 \times 0.25}{0.0025} = 0.9604
\]

\[
= 384.2 \sim 384
\]

This sample size represents a sample ratio of 0.026 or about 3% considering the total households of 14,554 in the district according to the 2000 population and housing census.

Probability sampling techniques and specifically, the stratified sampling technique was used to select households in the urban and rural communities. This was to avoid skewing the sample in favour or against, say, urban communities or respondents. Final units (head of households) were selected using the simple random sampling technique. The household head assumes the role of a manager of the household (Akaguri, 2011) and decision to enrol are made by the household head, even though that decision is
sometimes taken by other members of the family and not always the head (Al-Samarrai & Peasgood, 1998). The household head is a key decision maker on child school enrolment decision in Ghana (Akaguri, 2011; de Lange, 2007). This prompted the choice of households as the sample frame, coupled with the fact that the Ghanaian social structure is patriarchal. Consideration was given to household with children and a household selected without a child was automatically disqualified and replaced with another randomly selected from the same category.

In drawing the sample from the various locations - rural and urban - the total population and the number of households in the Northern region and West Mamprusi district was considered by the researcher. According to the 2010 PHC, the Northern Region has a total of 2,479,461 inhabitants and of this, 750,712 representing about 30.3% of the total population are in urban areas while 1,728,749 representing about 69.7% are in rural areas. The West Mamprusi district has a total of 168,011 people, 44,614 inhabitants are urban based while the remaining 123,397 are rural based (Ghana Statistical Service, 2012). The total number of households in Ghana is 5,467,136 and majority of households are headed by males (65.3%), with female-headed households constituting 34.7 percent. The average rural households in Ghana are 2,417,688 (44.2%) whereas the urban households are 3,049,366 (55.8%). However, the number of households in the Northern Region is 318,119 and of this, 212,048 households representing 66.7% are in rural areas while 106,071 households representing 33.3% are in urban areas (Ghana Statistical Service, 2012).
The researcher used the regional averages as a proxy measure to divide the sample among the various locations. By this, 66.7% of the sample size of 384, thus 256 households were drawn from the rural areas whereas the remaining 33.3%, thus 128 households were drawn from the urban areas. Table 3.1 shows the various communities and the sample drawn from each.

Table 3.1: Sampling proportion of households in the various study communities

<table>
<thead>
<tr>
<th>Community</th>
<th>Location</th>
<th>Number of Households</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walewale</td>
<td>Urban</td>
<td>2,054</td>
<td>$\frac{2054}{2561} \times 128 = 103$</td>
</tr>
<tr>
<td>Janga</td>
<td>Urban</td>
<td>507</td>
<td>$\frac{507}{2561} \times 128 = 25$</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td></td>
<td>2561</td>
<td>128</td>
</tr>
<tr>
<td>Kukua No. 2</td>
<td>Rural</td>
<td>148</td>
<td>$\frac{148}{218} \times 256 = 174^{**}$</td>
</tr>
<tr>
<td>Daboya No. 2</td>
<td>Rural</td>
<td>70</td>
<td>$\frac{70}{218} \times 256 = 82^{**}$</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td></td>
<td>218</td>
<td>256</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>2779</td>
<td>384</td>
</tr>
</tbody>
</table>

*** These figures are greater than the number of households as at 2000. This number however increased afterwards since these figures were met except for Kukua No.2 where 10 respondents were drawn from nearby community, Loagri No.2

Also, the researcher adopted simple random technique to select schools and their enrolment where there were more than one primary school in the selected communities. For instance, Janga has three primary schools and through the random process, the

---

2 These numbers were based on the 2000 PHC. It is possible they have changed during the 2010 census, but such details were not available at the time of the survey.
Hamdariya E/A Primary School was selected. The others include Walewale Presby Primary ‘A’, Daboya No. 2 Primary and Kukuai/Loagri R/C Primary ‘B’ schools.

3.6 **Data Sources and Collection Strategies**

Data were identified by the sources and the techniques and strategies used in collecting the data. The sources of data and the data gathering strategies are presented below.

3.6.1 **Data Sources**

The study used the two fundamental sources of data - primary and secondary. The choice of primary data was occasioned by the fact that the household census results for the 2010 PHC had not been collated and processed by the Ghana Statistical Service and even if it was, would not capture schooling choice by households. Primary data used for this study include the socio-economic characteristics of the respondents, enrolment choice and enrolment decision making and the reasons for choice of a particular gender for enrolment. The primary data were mainly used by the researcher to achieve the objectives of the study. The secondary data were those data used to determine the enrolment difference between females and males and between rural and urban communities. These data were obtained by the researcher from the West Mamprusi district office of the GES. Also, the literature from books, journals, dissertations, reports, electronic sources provided some information for the study and provided a framework for comparison.
3.6.2 Data Collection Strategies

A number of strategies and techniques were used by the researcher in the data collection process. Strategies used in collecting data are discussed below.

3.6.2.1 Cross-sectional survey

A survey design provides a quantitative description of trends, attitudes, or opinions of a population by studying a sample of that population (Creswell, 2009, p.145). This technique is the generally applied technique in data collection in a number of fields (Neuman, 2007). A cross-sectional survey of households to record the characteristics such as income, age of household head, household size, among others made possible the results obtained. Also, survey gives the desire responses when used to solicit response to question that seeks to measure variables (Neuman, 2007) and exactly so in this study. Cross-sectional survey is essentially used in this study for collecting primary data. The survey used semi-structured questionnaires (see Appendix 1) which allowed for open-ended questions. The open-ended questions in the questionnaires generated in-depth opinion on some of the qualitative issue in the study.

3.6.2.2 Interview Guide

This was used to engage the district office of the GES to gather information on enrolment segregated by gender in the various communities of interest (Walewale, Janga, Kukua No.2 and Daboya No. 2). These data were used to test the hypotheses of this study.
3.7 Data Analysis

In the analysis of the data, different models were used depending on the objectives set out in the study. Each model was purposely selected to provide answers to the relevant questions and to aid in the attainment of the study objectives. Under this section, the various data analysis models for specific objectives are presented.

3.7.1 Analysis of Enrolment Choice and Enrolment Probability

The discrete choice model was employed as a statistical means of ascertaining schooling probability of female children in rural and urban communities in the West Mamprusi district. Primary school enrolment and the choice between female and male for schooling by the household (enrolment choice) is a categorical dependent variable. Categorical variables are usually analysed within the framework of discrete choice models (Nkegbe, Kuunibe, & Abdul-Mumin, 2012). Even though schooling choice (choice between male and female) is a qualitative variable, this data analytical tool helps in the quantification of the variable to aid measurement. The advantage of this approach is that, it provides an objective basis for interpreting the results of study on standard measurement or units.

It was established theoretically that schooling choice is sometimes influenced by the utility households would derive and the opportunity cost of various choices. The decision maker (household) would have to choose from the set (either enrolling female or otherwise) depending on the satisfaction the respective choice would give. Both observable and unobservable factors would influence this choice and since the researcher could not determine household satisfaction to be driven from the two different
alternatives, observing and measuring some characteristics of the choice maker (household) to determine how they influence the choice made was resorted to. The household is faced with limited alternatives (binary choice) which are mutually exclusive and a rational household is expected to choose the gender that maximises his or her utility. This is usually based on the linear random utility assumption (Nkegbe, Shankar, & Ceddia, 2012) given as:

\[
\begin{align*}
U_{i0} &= x_{i0} + e_{i0} \\
U_{i1} &= x_{i1} + e_{i1}
\end{align*}
\]

where,

- \( U_{i0} \) and \( U_{i1} \) represent the utility of choosing not to enrol and to enrol female children in school respectively,
- \( x_i \) represents the household characteristics, and
- \( e_i \) represents other variables that disturb the probability of female enrolment either than those specified in \( x_i \).

The error term in the choice model is assumed to be normally distributed.

The probability that the household makes a particular choice option is related to the probability distribution of the error difference in the expected utility of the different options given by:

\[
P_i = \text{Prob}(Y_i = 1|x) = \text{Prob}(y_i^* > 0|x) = \text{Prob}[e_i > -x_i^\prime \beta | x] = F(x^\prime \beta)
\]
where, \( F \) is the cumulative distribution function (cdf) of \( e_i = (e_1 - e_0) \) evaluated at \( x' \beta \) and \( y^*_i = (U_{i1} - U_{i0}) \) is the latent variable and linked to the choice model through the relation:

\[
y_i = \begin{cases} 
1 & \text{if } y^*_i > 0 \\
0 & \text{otherwise}
\end{cases}
\]

The probit statistical model expresses the probability that \( y \) takes the value 1 (the probability that a female is enrolled) as follows:

\[
P_i = \Pr(Y_i = 1 | x) = \Phi(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \cdots + \beta_n X_n) \quad 3.4
\]

where, \( \Phi(\cdot) \) is the standard normal cumulative distribution function (cdf) and the probit function (Hill, Griffiths, & Lim, 2011), specified as:

\[
\Phi(z) = P[Z \leq z] = \int_{-\infty}^{z} \frac{1}{\sqrt{2\pi}} e^{-0.5u^2} du \quad 3.5
\]

The integral expression (3.5) is the probability that a standard normal random variable falls to the left of point \( z \) or an area under the standard normal probability density function to the left of \( z \) in geometric terms (Hill et al., 2011). The general regression model with the categorical response variable and explanatory variables is given as:

\[
y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \cdots + \beta_n x_n + \mu \quad 3.6
\]

\( y \) is the dependent categorical variable. This is within the framework of multiple regression analysis, but a nonlinear model. The probit model thus, does not subscribe to
the assumptions of a constant variance and perfect linear relationship with an increase in $X$ having a constant effect on choice (Hill et al., 2011). The relationship between the expected value of $y$ and the explanatory variables $x_1, x_2, x_3 \ldots x_n$ is therefore described as nonlinear. Again, the distribution of the $\mu$, the error term, is assumed normal.

The probit model generated the coefficient of the various explanatory variables and thereby provided the direction of the effect of the explanatory variables (age of household head, household income, female children of school-going age, male children of school-going age, enrolment decision maker, religious practice of the household head, female children enrolled in primary school, gender of household head and location of the household head) on the resultant variable (enrolment preference). Apart from the direction of the effect of the explanatory variables, the model was also used to generate marginal effects from the coefficients to communicate the actual effect which the coefficients cannot provide (Hill et al., 2011). This is because of the non-linear relationship between the probability of enrolling female and the explanatory variables.

The probit model in this study has been estimated using the *Stata version 9* statistical software.

### 3.7.2 Analysis of Gender Difference in School Enrolment

In attempting to determine the association between location and enrolment and whether or not there is gender difference in primary school enrolment between rural and urban communities, the chi-square ($\chi^2$) cross-tabulation, also known as the contingency table analysis, was employed in the data analysis. For nominal level measurement in which samples are counts of items arranged in categories, the $\chi^2$ may be used to
determine the independence between two variables. The $\chi^2$ tests hypotheses about the difference between proportions of two or more population and in this case difference between male enrolment and female enrolment; between male enrolment preference and female preference and some other auxiliary test for association. Through the test, it can be determined whether data show real difference or not. The general hypotheses are:

$H_0$: There is no significant difference between male and female enrolment

$H_1$: There is significant difference between male and female enrolment

The point of interest in the statement above is to determine whether differences exist in the proportion of male to female enrolled in primary school - determining difference between the proportions. The null hypothesis ($H_0$) states that the proportion or distribution across categories (male and female) are the same for all the population while the alternative hypothesis ($H_1$) states the opposite. Other categories that the test examined for differences and association were enrolment between rural and urban communities.

The $\chi^2$ compares the observed frequencies of distribution with the expected frequencies of the null hypothesis and the test statistic for independence thus specified as:

$$\chi^2 = \sum_{ij} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

where,

- $O_{ij}$ is the observed frequencies of enrolment of category in row $i$ and column $j$.
- $E_{ij}$ is the expected frequencies of enrolment of category in row $i$ and column $j$.
The expected frequency for the cross-tabulation under the independence condition is given by the formula:

\[
e_{ij} = \frac{(Row_i \text{ Total})(Column_j \text{ Total})}{n}\]

where \(n\) is the sample size.

To make a decision of difference, the \textit{p-value} of the \(\chi^2\) is examined. A \textit{p-value} less than or equal to 0.1 leads to the conclusion that the \(\chi^2\) value is significant and real difference exists between categories implying the difference could not have been due to chance. For the purpose of this study, \(\alpha = 0.01, 0.05\) and 0.1 were the levels that the researcher tests the results for differences in primary school enrolment.

This test is used in the data analysis with some underlying assumptions. The sampling process actually catered for these assumptions in that, independent sampling was done in the rural and urban communities (in other words, the selection processes in the rural communities did not affect the selection in urban communities); categories (urban and rural, male and female) are distinct and mutually exclusive and list of categories were exhaustive. Here again, the statistical software \textit{Stata} was used by the researcher to run the test.

3.7.3 \textit{Analysis of Reasons for Enrolment Decisions}

A qualitative analysis technique with in-depth examination of opinions and views was also used in the analysis of the data by the researcher. This was applied principally to analyse reasons why households are inclined to a particular enrolment preference. Here,
the researcher compared opinions, looking for crosscutting reasons for household preference for a particular gender enrolment decision. Detailed statements of respondents were presented by the researcher in the report. Statements that were used to illustrate the views or opinion of respondents were mostly shared by a number of other respondents. This was done within the idea of John Stuart Mill's method of agreement. By this method, the researcher looked for consistency or commonalities among the various responses or reasons.

3.8 Operational Model Specification and Variables

The case of the effect of household characteristics on choice or the relationship between household characteristics and primary school enrolment preference of household (female enrolment) was determined by the researcher through the use of the binary probit model as presented in equation 3.5. The empirical model of this study is specified as:

$$P = y = f(\beta_0, \beta_1 \text{age}, \beta_2 \text{incom}, \beta_3 \text{fsex}, \beta_4 \text{msex}, \beta_5 \text{deciomaker}, \beta_6 \text{religion}, \beta_7 \text{gen}, \beta_8 \text{fchldinsch}, \beta_9 \text{location})$$

Probability, $p$, of preferring female enrolment ($y = 1$) is a function of the observed variables. The $\beta_s$ represent the parameters of the explanatory variables specified in the model. Table 3.2 depicts the variables used in the model, their definition and measurement.
Table 3.2: Definitions and measurement of variables used in the model

<table>
<thead>
<tr>
<th>Variables</th>
<th>Description and Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>prefgen</td>
<td>Preferred gender in primary enrolment decision: 1 if a household head prefers to enrol female and 0 otherwise</td>
</tr>
<tr>
<td>age</td>
<td>Age of household head measured in whole years at last birthday.</td>
</tr>
<tr>
<td>income</td>
<td>Income level of the household head measured as a continuous variable in Ghana cedi per annum</td>
</tr>
<tr>
<td>fsex</td>
<td>Number of female children of school-going age in the household</td>
</tr>
<tr>
<td>msex</td>
<td>Number of male children of school-going age in the household</td>
</tr>
<tr>
<td>decionmaker</td>
<td>Enrolment decision-maker in the household: 1 if decision on enrolment is by the father and 0 otherwise</td>
</tr>
<tr>
<td>relg</td>
<td>Religious practice of household: 1 if Islam, 0 if otherwise</td>
</tr>
<tr>
<td>gen</td>
<td>Gender of household head: 1 if male, 0 if female</td>
</tr>
<tr>
<td>fchldinsch</td>
<td>Number of female children enrolled in primary school measured in figures of children who have attained school-going age</td>
</tr>
<tr>
<td>location</td>
<td>Location of the household: 1 if it is located in rural community and 0 if in urban community</td>
</tr>
</tbody>
</table>

3.9 Ethical Consideration

The dilemmas faced in conducting this study were how to balance the pursuit of knowledge and at same time protect the values of households who served as participants to the research; how to balance cost without compromising credibility of findings and how to make this research work acceptable in the scientific community considering the vast number of research findings and standards requirements. Indeed, social researchers confront ethical dilemmas (Neuman, 2007) and this was not an exception. The researcher
had to consider some ethical standards in research and avoided scientific misconduct such
as research fraud and plagiarism. Ideas and contribution of people were duly referenced
and source of material used in this research stated. Except for the researcher’s own idea
that might be similar to some other writers’ idea but was not seen at the time of
conducting this research, the researcher did due diligence in referencing and
acknowledging other people’s work. Research participants who consented to respond to
the questionnaire, were given utmost confidentiality and protection and were not exposed
to any danger or deceived in the process. The researcher did not indulge in providing
misleading information, improper sampling, biased analysis, presentation and
interpretation of data was done. This research was thus conducted with utmost ethical
consideration.
CHAPTER FOUR

FINDINGS ON THE SOCIO-ECONOMIC CHARACTERISTICS OF
RESPONDENTS

4.1 Introduction

This chapter presents the results of the analysis of data on the socio-economic characteristics of the study respondents. In this chapter, the characteristics of respondents with particular attention on household features that are central to this study are discussed. The characteristics of rural respondents and urban respondents in particular and comparative examination of these characteristics are noted in this chapter. Household characteristics noted under this chapter provide some basis for the results presented in chapter five of this study.

4.2 Characteristics of Respondents

The characteristics of respondents are broadly divided into two major types: social characteristics and economic characteristics. Social characteristics of the respondents refer to age of the respondents, marital status of respondents, household headship and gender, household size and composition, household schooling decision among others. On the other hand, economic characteristics include household employment status, occupation and income levels of respondents.
4.2.1 **Age of Respondents**

The age of the respondent is one important social characteristic that has influence on taste, utility and for that matter decision. Enrolment decision making which is subject to utility maximisation can also be influenced by the age of the respondent. For the rural communities studied, the average age of the household heads is 45 years. The minimum years recorded for respondents was 22 whilst the maximum age stood at 85 years. Similarly, urban respondents had the minimum and maximum ages of 22 and 75 years respectively. The mean ages were 45 and 40 years for rural and urban communities respectively. A paired t-test of difference in mean ages between rural and urban communities shows no difference even at 10 percent level. The mean age of respondents in the study area was 43 years. The age group of households heads interviewed are presented in Table 4.1:

**Table 4.1: Age groups distribution of respondents**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total Freq.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>Urban</td>
<td></td>
</tr>
<tr>
<td>20-30</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>31-40</td>
<td>82</td>
<td>53</td>
</tr>
<tr>
<td>41-50</td>
<td>81</td>
<td>21</td>
</tr>
<tr>
<td>51-60</td>
<td>45</td>
<td>21</td>
</tr>
<tr>
<td>61-70</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>71-80</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>81-90</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>256</td>
<td>128</td>
</tr>
</tbody>
</table>

**Paired t-test of difference in means**

<table>
<thead>
<tr>
<th>Group</th>
<th>Observation</th>
<th>Mean age</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>256</td>
<td>44.57031</td>
<td>11.69091</td>
</tr>
<tr>
<td>Urban</td>
<td>128</td>
<td>40.13281</td>
<td>11.69654</td>
</tr>
<tr>
<td>Combined</td>
<td>384</td>
<td>43.09115</td>
<td>11.86387</td>
</tr>
</tbody>
</table>

**Diagnostics:**

\[ f = 0.9990 \]

Ho: ratio = 1  
Ha: ratio = 1  
Degree of freedom = 255, 127  
\[ 2*Pr(F < f) = 0.9813 \]

Source: Field survey, 2013

62
From the table, it can be observed that most respondents' age concentrate within the range 20 to 70 years. Majority of respondents (35.16%) were in the age bracket of 31-40 years, followed by respondents within the bracket 41-50 years (26.56%). The age distribution of respondents is further represented in the histogram in Figure 4.1. The normal density curve is superimposed over the graph to check if the age variable in the sample is about normally distributed. The sample was therefore about normally distributed as shown in the Figure 4.1 below although; there were some outliers in the distribution.

**Figure 4.1: Histogram of age distribution of respondents**

![Histogram of age distribution of respondents](source: Field Survey, 2013)

4.2.2 *Marital Status, Gender and Household Headship of Respondents*

The marital status of respondents were categorised into four distinct classes, namely currently married, currently divorced, currently widowed and currently single. These were mutually exclusive and exhaustive categories. Among the rural respondents,
82.03 percent were currently married, 11.33 percent widowed and 5.47 percent single. On the other hand, 72.66 percent respondents in urban communities were married, 3.91 percent widowed and 17.19 percent were single. In all, a total of 303 representing 78.91 percent of the total respondents (384) were married, 36 (9.38) percent were single and 34 (8.85) percent were widowed. Table 4.2 summarises the marital status and gender of household heads in the study area.

Table 3.2: Frequency table of respondents’ marital status and gender

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Location</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rural</td>
<td>Urban</td>
<td>Row Total</td>
<td></td>
</tr>
<tr>
<td>Currently Married</td>
<td>n</td>
<td>210</td>
<td>93</td>
<td>303</td>
<td></td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>69.31</td>
<td>30.69</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>82.03</td>
<td>72.66</td>
<td>78.91</td>
<td></td>
</tr>
<tr>
<td>Currently Divorced</td>
<td>n</td>
<td>3</td>
<td>8</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>27.27</td>
<td>72.73</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>1.17</td>
<td>6.25</td>
<td>8.85</td>
<td></td>
</tr>
<tr>
<td>Currently Widowed</td>
<td>n</td>
<td>29</td>
<td>5</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>85.29</td>
<td>14.71</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>11.33</td>
<td>3.91</td>
<td>8.85</td>
<td></td>
</tr>
<tr>
<td>Currently Single</td>
<td>n</td>
<td>14</td>
<td>22</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>38.89</td>
<td>61.11</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>5.47</td>
<td>17.19</td>
<td>9.38</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>N</td>
<td>256</td>
<td>123</td>
<td>384</td>
<td></td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>66.67</td>
<td>33.33</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td></td>
</tr>
</tbody>
</table>

Household headship

<table>
<thead>
<tr>
<th>Gender</th>
<th>Location</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rural</td>
<td>Urban</td>
<td>Row Total</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>n</td>
<td>37</td>
<td>32</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>53.62</td>
<td>46.38</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>14.45</td>
<td>25.00</td>
<td>17.97</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>n</td>
<td>219</td>
<td>96</td>
<td>315</td>
<td></td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>69.52</td>
<td>30.48</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>85.55</td>
<td>75.00</td>
<td>82.03</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>N</td>
<td>256</td>
<td>128</td>
<td>384</td>
<td></td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>66.67</td>
<td>33.33</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Field survey, 2013)
According to the Ghana Statistical Service (2012), household head is defined as a member of the household, either a male or female, recognised as such by the other household members and generally has economic and social responsibility within the household. This definition was adopted for this study especially with attention on the social and economic responsibilities that go with the headship.

The study concentrated on household head as the basic unit of decision making in the household based on some theoretical prepositions as noted in chapter two. In the rural communities 85.55 percent of the respondents were male-headed households. The remaining (14.45 percent) were under female headship. Seventy-five percent (75%) of respondents were male-headed households in urban communities while only 25 percent were female headed households. On the basis of proportions, about 0.86 of households in rural areas were male headed in contrast with about the proportion of 0.75 in urban communities. This is an indication that there are more male-headed households in rural communities than urban communities on the basis of the sample.

Overall, 82.03 percent of households were male-headed as against 17.97 percent female-headed. It would however not be appropriate to state that the proportion of male headship is 0.82 because, in the cultural context of the people, there is what can be termed conditional headship. This refers to headship arising from the social and natural conditions in the household such as divorce, death, among others. All household heads outside the marital status, ‘currently married’, can be regarded as conditional heads. For instance, of the 69 female heads, only 20 respondents (28.99 percent) were currently married. Similarly, 283 respondents of the 315 male headed households representing 89.84
percent households were currently married. These categories can thus be referred to as *default headship*. Under this study, the cultural definition of real household head is not relevant since they all make social and economic decisions. The analysis of the relationship between household headship and marital status is in Table 4.3.

**Table 4.3: Household headship and marital status of respondents**

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Household Head</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Currently married</td>
<td>n 20</td>
<td>283</td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>6.60</td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>28.99</td>
</tr>
<tr>
<td>Currently divorced</td>
<td>n 7</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>63.64</td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>10.14</td>
</tr>
<tr>
<td>Currently widowed</td>
<td>n 26</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>76.47</td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>37.68</td>
</tr>
<tr>
<td>Currently single</td>
<td>n 16</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>44.44</td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>23.19</td>
</tr>
<tr>
<td>Total</td>
<td>N 69</td>
<td>315</td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>17.97</td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(Source: Field survey, 2013)

### 4.2.3 Household Size and Composition

Household size or composition is determines the capabilities, choices and strategies available to the household (Ansolegnang, 2006). The point of interest in this assertion is how this is a determinant of choice in enrolment decision making.

The rural communities studied have an average household size of 10 people with a minimum size of 2 people and a maximum size of 40 people. There was an average of about 4 adults and 6 children in a household. The urban communities recorded an average
of 8 inhabitants per household with a minimum size of 2 people and maximum size of 35 people. Also, they recorded an average of about 4 adults and 6 children in a typical household. The overall analysis revealed an average household size of 9 people, constituting 4 adults and 5 children.

For the purpose of this study, children were defined to mean persons or members of the household less than age 18. The number of children on the average outnumbered the number of adults. The household has to make a choice in schooling decision especially when the household is faced with constraints such as resources and utility maximisation.

The size distribution of households shows a skewed pattern towards the ranges between 3 and 15 people. All households, except about 41 fall within the range. This distribution is illustrated with the histogram in Figure 4.2.

Figure 2.2: Histogram of household size distribution

(Source: Field Survey, 2013)

The normal density line superimposed on the graph reveals the distribution of household size departs slightly from being normal.
4.2.4 Household Schooling Decision

Authors such as de Lange (2007) and Akaguri (2011) have noted that the head of household is a major decision maker of child schooling decision in Ghana. This study therefore considered the household schooling decision. In the rural communities surveyed, 38 mothers, 115 fathers, 8 children, 88 mother and father, 5 grandparents and 2 others (uncle) were taking decision regarding schooling or primary school enrolment. Pattern of enrolment decision making among the urban respondents is similar to that of the rural respondents and the details are shown in Table 4.4.

<table>
<thead>
<tr>
<th>Decision maker</th>
<th>Location</th>
<th>Row total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td>Mother</td>
<td>38</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>55.88</td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>14.84</td>
</tr>
<tr>
<td>Father</td>
<td>115</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>68.86</td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>44.92</td>
</tr>
<tr>
<td>Child</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>88.89</td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>34.38</td>
</tr>
<tr>
<td>Both father and Mother</td>
<td>88</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>66.17</td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>34.38</td>
</tr>
<tr>
<td>Grand parent</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>100.00</td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>1.95</td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>100.00</td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>0.78</td>
</tr>
<tr>
<td>Total</td>
<td>256</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>between %</td>
<td>66.67</td>
</tr>
<tr>
<td></td>
<td>within %</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(Source: Field survey, 2013)
There were more fathers (43.49) taking decision on primary school enrolment than any other decision maker in the study area.

A test of association between the enrolment decision maker and the head of the household gives $\chi^2$ of 93.8072 and a probability value 0.000 implying that there is association between the enrolment decision maker and head of the household at 1 percent level of significance. The test is consistent with the findings of de Lange (2007) and Akaguri (2011) that the household head is the major enrolment decision maker. The result of the chi square test is found in Appendix 2.

4.2.5 Educational Status of Respondents

Educational attainment is one of the measures of the wellbeing of families and the United Nations Human Development Index considers education as one of the important variables in determining the level of development and wellbeing of citizenry. The educational attainment simply refers to the highest level of school that a person ever attended. Rural communities generally have a lower level of education relative to urban areas and this general pattern was observed in the study of rural and urban communities in the West Mamprusi District.

In the rural communities studied, about 58.6 percent of respondents have never attended school and hence have zero years of schooling experience. For those who have had schooling, majority of them have primary school level as the highest level of education. On the other hand, 41.4 percent of the respondents in urban areas have not had any schooling and majority of them have college or polytechnic as the highest level of education attained.
In all, 47.17 percent of the respondents have some level of education whereas the remaining 52.86 percent of the respondents do not have any education. Details of the educational level of the respondents are presented in the Table 4.5.

**Table 4.5: Level of education attainment by respondents**

<table>
<thead>
<tr>
<th>Educational level</th>
<th>Location</th>
<th>Rural</th>
<th>Urban</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>53</td>
<td>7</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>between %</td>
<td>88.33</td>
<td>11.67</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>within %</td>
<td>20.70</td>
<td>5.47</td>
<td>15.63</td>
<td></td>
</tr>
<tr>
<td>JHS/Middle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>24</td>
<td>19</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>between %</td>
<td>55.81</td>
<td>44.19</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>within %</td>
<td>9.38</td>
<td>14.84</td>
<td>11.20</td>
<td></td>
</tr>
<tr>
<td>SHS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>17</td>
<td>18</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>between %</td>
<td>48.57</td>
<td>51.43</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>within %</td>
<td>6.64</td>
<td>14.06</td>
<td>9.11</td>
<td></td>
</tr>
<tr>
<td>College/Polytechnic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>8</td>
<td>21</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>between %</td>
<td>27.59</td>
<td>72.41</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>within %</td>
<td>3.13</td>
<td>16.41</td>
<td>7.55</td>
<td></td>
</tr>
<tr>
<td>University</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>2</td>
<td>9</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>between %</td>
<td>18.18</td>
<td>81.82</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>within %</td>
<td>0.78</td>
<td>7.03</td>
<td>2.86</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>between %</td>
<td>66.67</td>
<td>33.33</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>within %</td>
<td>0.78</td>
<td>0.78</td>
<td>0.78</td>
<td></td>
</tr>
<tr>
<td>No school</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>150</td>
<td>53</td>
<td>203</td>
<td></td>
</tr>
<tr>
<td>between %</td>
<td>73.89</td>
<td>26.11</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>within %</td>
<td>58.59</td>
<td>41.41</td>
<td>52.86</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>256</td>
<td>128</td>
<td>384</td>
<td></td>
</tr>
<tr>
<td>between %</td>
<td>66.67</td>
<td>33.33</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>within %</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Field survey, 2013)

**4.2.6 Children of School-Age**

A child of school-age is an important variable in parent decision making regarding enrolment. It is when parents have a number of children and different gender of children that the problem of choice becomes more pressing. The burden of choosing which gender to enrol in school would be less when a parent has to choose one from a set of one element.
This assertion is supported when household were asked why they prefer to enrol a particular gender instead of the other. The simple answer ‘he or she is my only child’ was advanced by them. Children of school-age was defined to mean children between the ages 6 and 12. All other things being equal, the child should have completed the full course of primary school education by age 12. The survey revealed that about 1,234 children in the two rural communities were children of school-age and of this number, 913 were enrolled in primary school. Of the 1,234 children of school-age, 568 were female and 666 were males and this gives an average of 2 and 3 female and male children of school-age respectively per household. Of the 913 children reportedly enrolled in primary school, 476 children were males and the remaining 437 were females. An average of 2 children of both sexes were enrolled in primary school.

The urban communities recorded a total number of 434 children of school-age and of this; male children of school-age were 261 whereas female children were 173 with an average of 2 and 1 males and female respectively. Three hundred and twenty-eight (328) children of the total children were actually enrolled in primary school. One hundred and ninety-five (195) males and 133 females made up the number of children actually enrolled in primary school with an average of 2 and 1 males and female children respectively enrolled in school per household. The rural communities therefore recorded more children of school-age than urban communities for both females and males. The number of female children of school-age for urban communities was less than males, a case similar to that of rural communities.
The combined analysis shows that an average of 4 children per household was of school-age with minimum and maximum numbers of 0 and 25 respectively. There were a total of 1,668 children of school going age. Nine hundred and twenty-seven (927) of these total numbers were male children and 741 were female children. This suggests that respondents had more male children of school-age than female children.

Sex composition of children of school-age and sex composition of children enrolled in school have implications for choice by the household head regarding children primary school enrolment. The probit results in chapter five of this work examine the effect.

4.2.7 Religious Practices of Respondents

The major religions practised by the people include Islam, Christianity, and the African Traditional religions. The Northern Region in particular is dominated a great number of people (60 percent) who believe in the Islamic faith in Ghana (Ghana Statistical Service, 2012).

Unlike in the rural communities used for this study, all respondents in urban communities fall into the three major religions in Ghana, viz. Christianity, Islamic and the African Traditional religions. There was an instance of a respondent in the rural area saying he had no religion. About 18 percent of rural communities’ respondents were of the Christian faith as compared to 13 percent of urban respondents. Similarly, about 79 percent of the respondents from rural communities were of the Islamic faith whereas 85 percent of urban respondents professed the Islamic faith. Overall, 16.41 percent of respondents were Christians while 80.73 percent were Muslims. Table 4.6 depicts the composition of the various faiths being practised.
<table>
<thead>
<tr>
<th>Religion</th>
<th>Location</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td>Christianity</td>
<td>46</td>
<td>17</td>
</tr>
<tr>
<td>between %</td>
<td>73.02</td>
<td>26.98</td>
</tr>
<tr>
<td>within %</td>
<td>17.97</td>
<td>13.28</td>
</tr>
<tr>
<td>Islam</td>
<td>201</td>
<td>109</td>
</tr>
<tr>
<td>between %</td>
<td>64.84</td>
<td>35.16</td>
</tr>
<tr>
<td>within %</td>
<td>78.52</td>
<td>85.16</td>
</tr>
<tr>
<td>Traditional African</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>between %</td>
<td>80.00</td>
<td>20.00</td>
</tr>
<tr>
<td>within %</td>
<td>3.13</td>
<td>1.56</td>
</tr>
<tr>
<td>No religion</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>between %</td>
<td>100.00</td>
<td>0.00</td>
</tr>
<tr>
<td>within %</td>
<td>0.39</td>
<td>0.00</td>
</tr>
<tr>
<td>Total</td>
<td>256</td>
<td>128</td>
</tr>
<tr>
<td>between %</td>
<td>66.67</td>
<td>33.33</td>
</tr>
<tr>
<td>within %</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(Source: Field survey, 2013)

There is the dominance of people who professed the Islamic religion both in rural and urban communities as shown in the table.

4.3 Economic Profile of Respondents

The economic activity of respondents is another aspect of the household life that could influence choice. As noted in the literature and would be established later in this study, the economic activity of a household are used to advance the reason for household preferring a particular enrolment choice to the other. Opportunity cost of enrolment is related to the economic activity of the household. This makes issues discussed in this
section important for the purpose of this study. Under this section, two issues; household employment status and occupation and the household income level, have been examined.

4.3.1 Occupation of Respondents

In the rural communities, respondents employed in the formal sector were 4.68 percent of the total rural respondents. The urban communities had about 25.78 percent employed in the formal sector. This, relative to the figure recorded in rural communities is on a high side, especially when a large proportion of the sample was drawn from the rural communities. See Appendix 3 for details of the occupation by location.

The analysis of the aggregated data of rural and urban communities revealed that 7.55 percent of the total respondents were employed in the public service, 3.13 percent employed in civil service, and 1.04 percent employed in the NGOs service for formal sector employment category. In the informal sector employment category, 59.11 percent were engaged in farming, 7.29 in trading and 5.21 in handicraft. Almost 3 percent (2.86%) were in other category of both formal and informal sector employment such as mechanics and drivers.

4.3.2 Income Level of Respondents

In the separate analysis of the data for the rural communities, the minimum income per annum was GHC 180.00. In effect, such a household is earning about GHC 0.50 per day which is very far below the United Nations poverty line income of $1 per day. The maximum income recorded was GHC 9,600 per annum. This income level is high relative
to the minimum income level. The average income per household head is GH₵ 2,478.88. The major source of income is through farming and other informal activities.

In the urban communities, the minimum income level was GH₵ 200 and the maximum income recorded was GH₵ 10,260. The average income level of the household heads was GH₵ 2,534.6. In other words, the household heads earn GH₵ 2,534.6 per annum on average.

Comparative analysis of the rural and urban communities in terms of income distribution reveals some similarities and differences. Rural and urban communities showed difference in earnings among household heads. Again, respondents in formal sector employment for both communities were observed to have higher income level while those in informal employment sector were observed to have lower income level. There is an association between income levels and employment sector. The observed difference between the rural communities and urban communities is the fact that, the minimum and maximum income for urban communities was respectively higher than the minimum and maximum incomes for rural communities. Also, from the mean incomes, household heads in urban communities have a higher income than those in rural communities. Overall, an average income of GH₵ 2,497.5 per household head per annum was recorded in the study area.

The income distribution of the respondents is depicted with the Lorenz curve shown in Figure 4.3. From the curve, it could be observed that, the diagonal line represents the line of equality and the bend away from this line means some level of inequality
to the minimum income level. The average income per household head is GHC 2,478.88. The major source of income is through farming and other informal activities.

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The income distribution of the respondents is depicted with the Lorenz curve shown in Figure 4.3. From the curve, it could be observed that, the diagonal line represents the line of equality and the bend away from this line means some level of inequality.
between the high income earning household heads and the low income earning household heads. The farther away the curve is from the diagonal line, the more the inequality.

**Figure 4.3: Lorenz curve showing income distribution in study communities**

![Lorenz curve](image)

(Source: Field survey, 2013)

From the Figure 4.3 above, the curve bends away significantly from the diagonal line signifying disparity of income in the study area. From the sampled data, it was found that the top 20% income earners control about 51% of the incomes whiles the bottom or poorest 60% control only about 22% of the incomes. Inequality exists because of the disparity in earnings between those employed in the formal sector and the predominantly informal sector workers in the study area.

### 4.4 Summary

In summary, the average age of respondents is 43 years, 78.91 percent of respondents are married, 9.38 percent single and 8.85 percent are widowed. Over eighty-
two (82.03) percent of respondents are male household heads while 17.97 were female household heads. Meanwhile, in the 2000 PHC, there were 13.6 percent of female-headed households in the West Mamprusi District (Ghana Statistical Service, 2008). This justifies the pattern of the household headship in the study communities.

The average household size in the study communities is about 9 people per household, with 4 adults and 5 children. Compared with the national average household size of 4.4, northern regional average of 7.7 and the district (West Mamprusi district) average size of 8.4 (Ghana Statistical Service, 2012), the average household size for the study areas is close to the district average.

Primary school enrolment decision is mostly taken by the father (43.49 percent of the cases) in the study areas. Over forty-seven (47.17) percent of the respondents have some level of education whereas the remaining 52.86 percent of the respondents do not have any education. Similar to the pattern recorded by the Ghana Statistical Service in the 2010 PHC, there were more respondents in the rural communities who have never attended school than those who have never attended school in urban communities. In the Northern Region, 54.9 percent of the inhabitants have never attended school (Ghana Statistical Service, 2012).

Also, an average of 4 children per household were of school-age with minimum and maximum numbers of 0 and 25 children of school-age respectively. There were a total of 1668 children of school going age. Nine hundred and twenty-seven (927) of the total number was male children and 741 females.
On religion, 80.73 percent of the respondents professed Islam, 16.41 percent professed Christianity and about 2.60 percent were of the African Traditional faith. The proportion of respondents who are Muslims in the study communities is more than the regional average of about 60 percent (Ghana Statistical Service, 2012). The district averages as per the 2000 census are 14.4 percent Christians and 66.7 percent Muslims.

The percentage of the respondents employed in formal and informal sectors of both the urban and rural economies was 86.20 percent while the remaining 13.80 percent were economically inactive. Farming was the major occupation of the respondents. Other occupations include public and civil service, NGOs service, trading and handicraft. Average income of the respondents through the various economic ventures of the people was GH¢ 2497.5 per household head per annum.
5.1 Introduction

The research examines under this chapter, the basis of counts and percentages, the most preferred gender to be enrolled in primary school in the rural and urban communities. This leads to a conclusion on the most preferred gender by households for primary school enrolment in the study area. With nominal enrolment figures in some selected primary schools, a chi-square test for difference in enrolment between male and female children in both rural and urban communities was carried out. The research also examines the determinants of female enrolment and the probability of enrolling a male or a female in both rural and urban communities based on their respective characteristics. Some reasons given for a particular gender preference in primary school enrolment have been presented qualitatively with extensive quotations and explanatory notes. This chapter provides answers to the research questions the study seeks to answer.

5.2 Gender Preference in Primary Enrolment Decision

Under this section, the most preferred gender (by households) for primary schooling in rural and urban communities are examined. This section concludes with the comparative analysis of the most preferred gender for primary school enrolment in the study area.
5.2.1 Primary School Enrolment Preference in Rural Communities

Gender preference is a phenomenon that exists not only in school enrolment decision making process but also in other social and economic spheres of household and family life. In the light of education decision making, respondents were asked to make a choice between male and female children for primary school enrolment. Choice was restricted to two options and respondents were to choose either of the options. The analysis of the data revealed that 169 of the 256 sampled respondents drawn from the rural communities chose the male child as the most preferred gender for enrolment in primary school. On the basis of relative proportions therefore, a significant proportion (0.66) of respondents preferred to enrol male children in primary than female children. On the other hand, 87 household heads preferred to enrol the female child in primary school. The relatively greater proportion of respondents’ preference for male primary school enrolment to female is a testament to the fact that most household heads in rural areas prefer their male children to be educated to the female children. Reasons advanced by respondents for male preference against female children in primary school enrolment decision are discussed in subsequent sections of this chapter.

Interestingly, an assessment of the relationship between headship and enrolment preference also showed that more female headed households preferred to enrol male children to female children. Of the 37 female-headed households in the rural communities, 21 preferred to enrol male children in primary school while the remaining 16 preferred female enrolment. Over fifty-six (56.76) percent of female-headed households preferred to enrol male children while 67.58 percent of male-headed households preferred male
5.2.1 Primary School Enrolment Preference in Rural Communities

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children. On the other hand, 43.34 percent of female-headed households preferred to enrol female children while 32.42 percent of the male-headed households preferred to enrol female children. The proportion of female-headed households preferring to enrol female children is more than the proportion of male-headed households who prefer to enrol female.

On the face of the data and statistics, there is some association between gender and preference for female enrolment (female headed household prefer to enrol female in primary school) by using the proportion of female-male headed households who prefer female enrolment. On another hand, there is no association (female headed households like male headed household prefer male enrolment in school) when using the percentage of female who prefer male enrolment to those who prefer female enrolment. This cursory look and inference presents less a better assessment of the test for association between these two variables. The $\chi^2$ test for association was used and the results are illustrated in Table 5.1.

Table 5.1: Association between household headship and enrolment preference in rural communities

<table>
<thead>
<tr>
<th>Household Head</th>
<th>Preference</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Female-headed</td>
<td>21</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>(24.4)</td>
<td>(12.6)</td>
</tr>
<tr>
<td>Male-headed</td>
<td>148</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>(144.6)</td>
<td>(74.4)</td>
</tr>
<tr>
<td>Total</td>
<td>169</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>(169.0)</td>
<td>(87.0)</td>
</tr>
</tbody>
</table>

Pearson $\chi^2(1) = 1.6527$  $Prob = 0.199$
Likelihood-ratio $\chi^2(1) = 1.6039$  $Prob = 0.205$
(Source: Field Survey, 2013)

3 Figures in the parentheses represent expected value of observation and so all values in parentheses.
The analysis of the association between the enrolment preference and the gender of the household head in rural areas suggests that there is no association between the preferences or choice and gender of the household head at the 1, 5 and 10 percent levels. The \( \chi^2 \), which measures the degree of association is 1.65 whereas the probability of significance is 0.199. Conventionally, the \( p-value \) has to be less than or equal to 0.01, 0.05 and 0.1 for the null hypothesis to be rejected at the 1, 5 and 10 percent levels respectively. At all these levels, it can be concluded that the gender of the household head has no association with choice of enrolling a male or a female.

5.2.2 Primary School Enrolment Preference in Urban Communities

It has been shown in the analysis of the data for the rural communities that there is no association between enrolment choice and gender of the household. It was again found that male children are the most preferred gender in primary school enrolment. Under this section, the research attempts to find out whether same can be said of urban communities.

In the urban communities, 91 respondents of the total 128 respondents preferred to enrol the male child in primary school. This represents 71.09 percent of the sample. Thirty-seven (37) respondents, representing 28.91 percent of the sample preferred to enrol female children in primary school. More household heads in absolute and percentage terms prefer to enrol male children in primary school than household heads who prefer to enrol female children.

On gender basis, 40.63 percent of the 32 female-headed households prefer to enrol female, while only about 25 percent of the male-headed household prefer to enrol female. Again, female-headed households, on the basis of proportion, prefer to enrol female
children than male-headed households, but even those households have tendency to choose boys ahead of girls for enrolment.

To avoid the problem of making conclusion on the basis of cursory look, the contingency table analysis for association was conducted. The test gave $\chi^2$ of 2.8512 and the probability of significance value of 0.091. At the 1 and 5 percent levels, there is no association between gender of a respondent and the choice the respondent makes on primary school enrolment. At the 10 percent level, however, there is an association between gender of the household head and preference for either a male or female child to be enrolled. In other words, female headed households turn to prioritise female enrolment than male-headed households. See Table 5.2 below details of output of the test.

Table 5.2: Association between household headship and enrolment preference in urban communities

<table>
<thead>
<tr>
<th>Household Head</th>
<th>Preference</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
</tr>
<tr>
<td>Female-headed</td>
<td>19</td>
<td>13</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>(22.8)</td>
<td>(9.3)</td>
<td>(32.0)</td>
</tr>
<tr>
<td>Male-headed</td>
<td>72</td>
<td>24</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>(68.3)</td>
<td>(27.8)</td>
<td>(96.0)</td>
</tr>
<tr>
<td>Total</td>
<td>91</td>
<td>37</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>(91.0)</td>
<td>(37.0)</td>
<td>(128.0)</td>
</tr>
</tbody>
</table>

Pearson $\chi^2(1) = 2.8512$  \(Prob = 0.091\)
Likelihood-ratio $\chi^2(1) = 2.8512$  \(Prob = 0.098\)
(Source: Field Survey, 2013)
5.2.3 Comparative Examination of Gender Preference in Primary School Enrolment

The different analyses for rural and urban communities all showed that male children are preferred for primary school enrolment to female children. Under each analysis, most female-headed households prefer to enrol male children to female children when they are faced with choice. And in each case, proportionately more female-headed households to male-headed households preferred to enrol female children. The separate analysis of the association between gender of the household head and enrolment preference all indicated no association at the 1 and 5 percent levels. The joint analysis of the data shows that, 67.71 percent of the 384 respondents preferred male enrolment while the remaining 32.29 percent preferred female enrolment.

Expectedly, more male-headed households prefer male enrolment than female enrolment and this is just the product of the preference in rural and urban communities. In fact, the aggregate level analysis takes the average shapes of the patterns in rural and urban communities. The measure of association is shown in Table 5.3.

Table 5.3: Association between household headship and enrolment preference (aggregate)

<table>
<thead>
<tr>
<th>Household Head</th>
<th>Preference</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Female-headed</td>
<td>40 (46.7)</td>
<td>29 (22.3)</td>
</tr>
<tr>
<td>Male-headed</td>
<td>220 (213.3)</td>
<td>95 (101.7)</td>
</tr>
<tr>
<td>Total</td>
<td>260 (260.0)</td>
<td>124 (124.0)</td>
</tr>
</tbody>
</table>

Pearson $\chi^2 (1) = 3.6477$  \hspace{1cm} $Prob = 0.056$
Likelihood-ratio $\chi^2 (1) = 3.5280$  \hspace{1cm} $Prob = 0.060$

(Source: Field survey, 2013)
The contingency table analysis gave \( \chi^2 \) of 3.6477 and probability of significance of 0.056. This shows that there is no association between the gender of the respondents and the preference he or she makes in primary school enrolment at the 99 percent and 95 percent confidence level. However, there is significant association between the gender of household head and the preference in primary school at the 10 percent level of significance. What this means is that, on the error of 10 percent, the gender of the respondent influences his or choice for female or male for enrolment into primary school. This finding somehow supports the assertion in the literature that families headed by women tend to prioritise schooling (Antze, 2011) and in the case of this study, female schooling.

5.3 Gender Difference in Primary School Enrolment

On percentage basis, the research established that male children are the most preferred gender for primary school enrolment. But does the difference in preference actually mean difference in enrolment in primary school? In this section, secondary data on primary school enrolment for some selected primary schools in the study communities are used to confirm whether or not gender difference exists in primary school enrolment. This confirmation of difference is important to put to rest the uncertainty that the literature presents especially the conflicting views of difference and lack of difference in primary school enrolment.
5.3.1 Primary School Enrolment Difference in Rural Communities

Using secondary enrolment data from the West Mamprusi district office of the GES, the $\chi^2$ test for independence was conducted. The analysis of the data was at the different classes of the primary school. The variables of interest for the test were class of the student as the column variable and the gender of the students as the row variable. The objective of this test was to ascertain whether or not gender difference exists in primary school enrolment in rural communities. The hypotheses were thus:

$H_0$: There is no significant gender difference in primary school enrolment in rural communities

$H_1$: There is a significant gender difference in primary school enrolment in rural communities.

The test results show $\chi^2$ of 5.5811 and the probability of significance of 0.349 (Prob = 0.349). By these results, it can be concluded at the 99, 95 and 90 percent confidence levels there is no significant difference in primary school enrolment in rural communities.

By extension, the difference between female students and the male students in primary school was not statistically significant. Even though the number of male children in most cases (all except at primary 1 and 4) were higher than the number of female pupils, the difference was not significant. The nominal enrolment figures show difference but the test proves otherwise. The detailed results are shown in the output in Table 5.4.
Table 4: Test results for gender difference in primary school enrolment in rural communities

<table>
<thead>
<tr>
<th>Students' Gender</th>
<th>Class of Student</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary 1</td>
<td>Primary 2</td>
</tr>
<tr>
<td>Male</td>
<td>43</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>(48.7)</td>
<td>(41.8)</td>
</tr>
<tr>
<td>Female</td>
<td>49</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>(43.3)</td>
<td>(37.2)</td>
</tr>
<tr>
<td>Total</td>
<td>92</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>(92.0)</td>
<td>(79.0)</td>
</tr>
</tbody>
</table>

Pearson $\chi^2(4) = 5.5811$ \hspace{1cm} Prob $ = 0.349$

Likelihood-ratio $\chi^2(5) = 5.5979$ \hspace{1cm} Prob $ = 0.347$

(Source: Field survey, 2013)

From these results, the null hypothesis that gender difference in primary school enrolment does not exist in rural communities could not be rejected since the evidence supports this even at the 1.0 percent level. The alternative hypothesis, which tentatively suggested that difference exists, is not supported by the available evidence. It also means, at the inter-classes level difference between male and female children in the different classes (1 to 6) is not significant.

5.3.2 Primary School Enrolment Difference in Urban Communities

The $\chi^2$ test for independence using the data for the urban communities produced a value of 0.7063 and the probability value of 0.983. This again, just like the data for the rural communities, is not significant (see results in Table 5.5). The hypotheses preceding the test are:
**Ho:** There is no significant gender difference in primary school enrolment in urban communities

**H₁:** There is significant gender difference in primary school enrolment in urban communities.

### Table 5: Test results for gender difference in primary school enrolment in urban communities

<table>
<thead>
<tr>
<th>Gender</th>
<th>Primary 1</th>
<th>Primary 2</th>
<th>Primary 3</th>
<th>Primary 4</th>
<th>Primary 5</th>
<th>Primary 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>88</td>
<td>85</td>
<td>89</td>
<td>89</td>
<td>78</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>(86.8)</td>
<td>(86.3)</td>
<td>(88.2)</td>
<td>(87.3)</td>
<td>(82.4)</td>
<td>(77.0)</td>
</tr>
<tr>
<td>Female</td>
<td>90</td>
<td>92</td>
<td>92</td>
<td>90</td>
<td>91</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>(91.2)</td>
<td>(90.7)</td>
<td>(92.8)</td>
<td>(91.7)</td>
<td>(86.6)</td>
<td>(81.0)</td>
</tr>
<tr>
<td>Total</td>
<td>178</td>
<td>177</td>
<td>181</td>
<td>179</td>
<td>169</td>
<td>158</td>
</tr>
<tr>
<td></td>
<td>(178.0)</td>
<td>(177.0)</td>
<td>(181.0)</td>
<td>(179.0)</td>
<td>(169.0)</td>
<td>(158.0)</td>
</tr>
</tbody>
</table>

Pearson $\chi^2(5) = 0.7063 \quad Prob = 0.983$

Likelihood-ratio $\chi^2(5) = 0.7069 \quad Prob = 0.983$

(Source: Field survey, 2013)

Decision rule is that, $H_0$ has to be rejected when $p \leq 0.05$ at the 5 percent level, but fail to reject if otherwise. Similarly, the null hypothesis would be rejected if $p \leq 0.01$ or 0.1 at the 1 and 10 percent levels respectively. The null hypothesis would not be rejected in this case since the $p$-value is greater than the conventional decision points - there is no gender difference in primary school enrolment in urban communities. This also means, there is no significant difference between boys and girls in the different classes in urban communities.
5.3.3 Primary School Enrolment Difference between Rural and Urban Communities

The contingency table analysis for the difference in primary school enrolment between rural and urban communities using the aggregate data from the schools in the study areas revealed that there is no significant gender difference in primary school enrolment between rural and urban communities even at the 10 percent level. These results of the test are shown in Table 5.6.

Table 5.6: Difference in primary school enrolment between rural and urban communities

<table>
<thead>
<tr>
<th>Students' gender</th>
<th>Location</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td>Female</td>
<td>237</td>
<td>534</td>
</tr>
<tr>
<td></td>
<td>(251.0)</td>
<td>(520.0)</td>
</tr>
<tr>
<td>Male</td>
<td>266</td>
<td>508</td>
</tr>
<tr>
<td></td>
<td>(252.0)</td>
<td>(522.0)</td>
</tr>
<tr>
<td>Total</td>
<td>503</td>
<td>1,042</td>
</tr>
<tr>
<td></td>
<td>(503.0)</td>
<td>(1,042.0)</td>
</tr>
</tbody>
</table>

Pearson $\chi^2(1) = 2.3149$ \hspace{1cm} Prob = 0.128
Likelihood-ratio $\chi^2(1) = 2.3159$ \hspace{1cm} Prob = 0.128

(Source: Field Survey, 2013)

It is evidently clear that children enrolled in urban community schools are more than those in rural community schools. Revisiting the hypotheses:

$H_0$: There is no significant gender difference in primary school enrolment between urban and rural communities.

$H_1$: There is a significant gender difference in primary school enrolment between urban and rural communities.

The $\chi^2$ value of 2.3149 with the probability value of 0.128 means that, the null hypothesis cannot be rejected even at the different 1.0 percent level. In other words, there
is no significant gender difference in primary school enrolment between rural and urban communities even at the 10 percent level. Gender difference in classes in the primary schools was also non-significant at the 1, 5 and 10 percent levels. See results in the Appendix 4. The finding is inconsistent with a number of studies (Chamie, 1983; FAO, 2012; WiLDAF-Ghana, 2006) that suggest difference in enrolment exists between rural and urban areas. It is however consistent with Akyeampong et al. (2007) who found non-significant difference between rural and urban school children within the ages 6-11.

The absence of gender difference in primary school enrolment at different measures can be attributed to pro-female education programmes such as the creation of gender desk by GES for the promotion of female education, increased sensitization on the benefits of female education and the relatively larger proportion of female children to male children of school-age. Improvement in rural infrastructure also removes some of the barriers to enrolment in rural communities. Although the literature is replete with gender inequality in education (Amin & Chandrasekhar, 2009; Asare, 2009; ISODEC & UNICEF, 2011; NDPC, 2010; Oduro, 2000; Pal, 2004; Sifuna & Sawamura, 2010) at different levels of education, this inequality in the context of this study is not statistically significant. This does not presuppose that, there is no difference, since some significant difference can be found at the 15% level. More efforts at narrowing or at least sustaining what is currently reported by this study are required.
5.4 Determinants of Female Enrolment

The analysis of household characteristics and choice in schooling decision, especially household primary school enrolment decision is done within the probability model test. The choice of the probit model for the test has been justified in the methodology section and to reiterate this point, the choice to enrol a child is a categorical binary variable usually analysed within the framework of discrete choice models. The choice set includes choosing to enrol female or choosing to enrol male in primary school (the otherwise option). Preference for female children and preference for others are mutually exclusive and finite categories. The model measures quantitatively, the effect of household characteristics such as income level of household heads, sex composition of household children, enrolment decision maker and gender of household head among other variables (both continuous and categorical) using the marginal effects.

The choice made by the household head between the two alternatives depends on the satisfaction each alternative would give the household. Measuring utility was difficult since it is intrinsic to respondents but it is possible to use their proxies. These proxies were the household characteristics that could be observed and sometimes measured. The variable of interest was enrolling female in primary school as the dependent variable and this was regressed using selected household characteristics as the explanatory variables. The results of the regression are presented in Table 5.7.
Table 5.7: Binary Probit regression results

Dependent Variable: Preference for female enrolment

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient estimates</th>
<th>Marginal Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimates</td>
<td>SE^a</td>
</tr>
<tr>
<td>age</td>
<td>0.0083</td>
<td>0.0083</td>
</tr>
<tr>
<td>income</td>
<td>0.0004***</td>
<td>0.0000</td>
</tr>
<tr>
<td>fsex</td>
<td>1.0162***</td>
<td>0.1127</td>
</tr>
<tr>
<td>msex</td>
<td>-0.5529***</td>
<td>0.0789</td>
</tr>
<tr>
<td>decionmaker</td>
<td>-0.4259**</td>
<td>0.2170</td>
</tr>
<tr>
<td>religion</td>
<td>-0.3176</td>
<td>0.2383</td>
</tr>
<tr>
<td>gen</td>
<td>-0.1716</td>
<td>0.2848</td>
</tr>
<tr>
<td>fchldinsch</td>
<td>-0.5297***</td>
<td>0.1152</td>
</tr>
<tr>
<td>location</td>
<td>-0.0716</td>
<td>0.2358</td>
</tr>
<tr>
<td>constant</td>
<td>-1.3105</td>
<td>0.6285</td>
</tr>
</tbody>
</table>

Model Diagnostics

Number of observations = 384

Likelihood ratio $\chi^2 = 269.55 \quad \text{Prob}(\chi^2) = 0.0000 \quad \text{Pseudo } R^2 = 0.5580$

Log likelihood \(= -106.77775 \quad \text{Correctly classified } = 90.63\% \)

***, and ** denote statistical significance at the 0.01 and 0.05 levels respectively. ^a denotes standard error of the explanatory variables.

The diagnostic tests of the model from the table give likelihood ratio (LR) chi-square of 269.46 and the pseudo $R^2$ of 0.5580. The $\chi^2$ has significance or probability value of 0.0000 indicating that both the $\chi^2$ and the pseudo $R^2$ are statistically significant at least at the 1 percent level. The log-likelihood $\chi^2$ gives the joint significance of all the explanatory variables in the model. The pseudo $R^2$ value of 0.5580 interpreted loosely means the model explains a greater proportion of the variation in households' primary
school enrolment choice. The pseudo $R^2$ and $\chi^2$ being significant at least at the 1 percent implies, the independent variables (age of respondents, income of respondents, female composition of children of school-age, male composition of children of school-age in the household, primary school enrolment decision maker in households, religious practice of respondents, gender of respondent, number of female children actually enrolled in school and location of the household head) jointly explains the preference for female primary school enrolment in the West Mamprusi District. Overall, the percentage correctly classified in the model is 90.63% indicating a superior predictive ability of the model.

The $\beta$'s, or parameter coefficients of the explanatory variables all have the a priori or postulated signs based on the literature and normal prediction - they all show the expected behaviour in respect of choice problem. From the coefficient estimates of the explanatory variables, age is not a significant determinant of preference for female primary school enrolment even at the 10 percent level. However, the direction of the coefficient shows that as a person grows older, the chance that he/she enrols a female child increases. Income level of respondents (income), number of female children of school-age (fsex), number of males of school-age (msex) and number of female children actually enrolled in primary school (fchldinsch) were all significant determinants of preference for female enrolment in primary school at the 1 percent level. The enrolment decision maker (decionmaker) is also significant at the 5 percent level. The non-significant variables in the model are, age of household head, religion of household head, gender of the household head and location of the household head.
The coefficients estimates of the explanatory variables in Table 5.7 only give the direction of change of the z-score for a unit change in the predictors or explanatory variables holding other things constant. Unlike the ordinary least squares (OLS) estimates, these coefficients cannot be interpreted directly as slopes of the variables on the probability of preferring female primary school enrolment. The marginal effects of the explanatory variables are usually used to report on the effects of the individual variables on the probability of preference for female enrolment.

Income level of the household head is a significant determinant of preference for female enrolment at the 1 percent level. The marginal effect of income shows that the probability of choosing to enrol female increases by 0.0001 with an increase in income by GHC 1.00, holding other things constant. This is so because the variable (income) has a marginal effect of 0.0001 on the probability of enrolling female. This is consistent with the finding of Kirdar, Dayıoğlu & Tansel (2007) that significant difference in enrolment is due to household income.

Also, the number of female children of school-age is a significant determinant of the probability of enrolling a female in primary school at the 1 percent level and has a positive relationship with preference for female enrolment. The marginal effect value of 0.2843 suggests that the probability of enrolling a female increases by about 0.3 when the number of female children of school-age increases by one, holding other things constant.

Number of male children of school-age was also significant at the 1 percent level but shows a negative relationship with preference for female enrolment. The direction of the relationship means households with higher male-female composition are more likely to
prefer male enrolment to female enrolment. This variable is the direct opposite of the immediate preceding variable explained. The increase in the number of male children of school-age decreases the probability of enrolling female by 0.1547.

The number of children of school age and the gender composition of members of household among others influence whether or not a child goes to school (Akyeampong et al., 2007) and an increase in number of male children in households that are poor decreases the likelihood of female being enrolled in school (Kirdar, Dayıoğlu, & Tansel, 2007). The behaviour of the variables, viz. fsex and msex in the model, is consistent with the assertions by Akyeampong et al. (2007) and Kirdar et al. (2007).

Decision maker in the household is a discrete variable - dummy variable - which assumes the value of 1 if enrolment decision is made by the fathers, who are usually men, and 0 if otherwise. The coefficient shows a negative relationship with choice and significant at the 5 percent level. In other words, if decision to enrol a child is taken by the father, the probability of a female child being enrolled in school decreases by 0.1162. By this, changing decision making power from mother or grandparents to father would cause a decrease in the probability of enrolling female by 0.1. The point about enrolment decision maker has been highlighted in Akyeampong et al. (2007) and the finding in this study supports that observation.

Religion is one other variable that has been highlighted in the literature of enrolment decision and how it affects enrolment of girls. Islam was the major religion of the respondents and it was used to run the test against the other faiths. To ascertain the effect of Islamic religion on female child primary school enrolment, religion was changed
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into a dummy variable (Islam = 1 and other religions = 0). The probit regression shows a negative relationship between female enrolment and Islamic religion. This was not significant even at the 10 percent level. It is highly probable that Muslim families would not be enrolled in school than those from others from religious backgrounds (Rose & Al-Samarrai, 1997) and so the finding confirms that, but it is not significant.

On the *a priori* postulation, the gender of the household head was expected to be a significant determinant of enrolling a female in school. This was however not the case with the regression. Nonetheless, there was a negative relationship between male headship and female enrolment as expected. This means that the gender of the household head is not really the issue as it shows no significance even at the weakest level of test (10 percent) but the decision maker regarding primary school enrolment which is significant to female enrolment. There is no statistical support for the assertion that household headed by women prioritises schooling (Antze, 2011) and in the context of this study, female schooling. This notwithstanding, the study revealed that a change of headship from female to male reduces the probability of enrolling a female in school.

The number of female children enrolled in school is a significant determinant of how many more female children gets enrolled in primary school. This variable is significant at the 1 percent level and has negative relationship with probability of enrolling female in school.

In comparison with the positive relationship recorded for the number of female of school-age, this negative relationship means that beyond certain threshold (about 2 female already enrolled) a household would not enrol a female in school. The marginal effect of -
0.1482 of this variable implies that an increase in the number of female children in primary school by 1 child decreases the probability of further enrolling female by 0.1482. May be the fear expressed by household heads that female children in school mostly get pregnant and dropout is the reason why households would not enrol female in school beyond a certain threshold. The ‘reference group hypothesis’ somehow explains why probability of enrolling a female in school reduces as the number of female children already enrolled increases, because female children of schooling age reference group (female siblings in school) are ‘bad’ examples for enrolment decision-making.

The last important variable in the model is the location of the household head. Rural households were unlikely to enrol female children because of the inverse relationship between preference for female enrolment and the rural location of household head. From the marginal effect of this variable, a change of location from urban to rural community would decrease the probability of female enrolment by about 0.0200, but this is not significant even at the 10 percent level.

It is therefore evidently clear that the significant determinants of female primary school enrolment are the income level of the household, number of female children of school-age in the households, the number of male children of school-age in the households, the primary school enrolment decision maker, and the number of female children actually enrolled in primary school. The interaction of these variables jointly, significantly determines the probability of enrolling a female in primary school. Ngware et al. (2008) note that household characteristics are important determinants of schooling decision and
the findings agree with the assertion but with some reservation since not all household characteristics are important or significant determinants of schooling decision.

5.5 Location and Enrolment Probability

The probability of enrolling female in primary school in the study district was predicted to be 0.32 which is equivalent to the average value of female preference. In rural communities, the predicted probability of enrolling a female in primary school was 0.34 whereas the probability of enrolling same gender in urban communities was predicted to be about 0.30. On this measure, the likelihood of enrolling female in primary school was higher in rural communities than in urban communities. Sample size variations and other variables unaccounted for in the estimation could be responsible for this finding. It is therefore important to consider the variable used in the estimation in order to make inference of the probability.

The probit model calculated marginal effects at means of the variables and taking into consideration the various variables in the respective locations, it is possible to suggest which location would have the higher probability of enrolling a female. For instance, from the socio-economic characteristic in chapter four, average income for rural communities surveyed was GHC 2,478.9 while that of urban communities was GHC 2,534.6. This means the probability of enrolling a female in urban communities is about 0.006 more than in rural communities. Low income households live in rural areas (Akyeampong et al., 2007) and in comparison with urban areas, the probability of enrolling a female is lower.
Similarly, the average number of female children of school-age is 2 and the number of male children of school-age is 3 in rural communities compared to 2 and 1 male and female children of school-age respectively for urban communities. The number of female children of school-age has the marginal effect of 0.3 from Table 5.7. The probability of enrolling a female in urban communities is 0.3 lower than in rural communities because rural communities have more female children of school-age. Similarly with the number of male children of school-age, the probability of not enrolling a female in urban communities is less than the probability of not enrolling a female in rural communities by 0.2. This is so because the variable has a negative relationship with probability.

From the socio-economic analysis in the previous chapter, 115 fathers were taking decision on children primary school enrolment in rural communities whereas 52 fathers were doing same in urban areas. The difference of 63 means that, many more fathers in rural communities are making decision which has negative relationship with probability of female enrolment. The probability effect is about 0.1 for each difference. Religion is another dummy variable and 201 respondents in rural versus 109 respondents in urban areas were Muslims. This also has negative effect of magnitude 0.1 though not significant. Many more people in rural areas are Muslims than urban areas and hence reduce the probability of enrolling female in rural areas than it does in urban communities.

On proportional basis, there were more male-headed households in rural areas than in urban communities (0.9 against 0.8). Male headship reduces probability of female enrolment in primary school by 0.05 and as such, urban communities’ probability of enrolling a female is about 0.5 more than rural communities.
Lastly, female children already enrolled in primary school as noted earlier have negative relationship with probability of enrolling a female in primary school. In fact, this variable was found to be a significant determinant of enrolling a female in rural communities and insignificant in urban communities but overall significant. The average number of female children already enrolled in school for rural communities was 2 children and that of urban was 1. This suggests that the threshold level has been reached in rural communities and also means that the probability of not enrolling a female in primary school in urban communities is 0.1 less than the probability in rural communities.

From the averages of household features, magnitudes of parameter estimates and the direction of relationship between female primary school enrolment and household characteristics, it is more likely for a female to be enrolled in primary school in urban communities than in rural communities. The finding is similar to the suggestion in the current literature that in many African countries, male children are more likely to be enrolled at school than females (Tenikue, 2009). Also, it corroborates Akyeampong et al.’s (2007) finding that rural children are significantly less likely to be enrolled in school than urban children, irrespective of the age-group.

5.6 Reasons for Household Enrolment Choice

Choice of a sex or preference for a particular sex in primary school enrolment decision is motivated by social, cultural and economic reasons. The decision maker weighs the ‘why I should enrol male children over female children or the why I should not enrol male over female’. The decision on enrolment is justified by the reasons the decision
maker advances to buttress a particular decision made. Respondents in this study were asked why they preferred a particular sex for enrolment to the other. The responses were re-coded into themes and terms and in this section, the report presents the reasons given by household heads for their inclination to a particular choice in enrolment decision making.

5.6.1 Preference for Male in School Enrolment

Household heads often choose between their boys and girls for primary school enrolment not out of only economic considerations, but also on cultural and social considerations as well as perceptions of the capability of the different gender. The factors that force a household to choose the male sex over the female sex are presented in Table 5.8 with explanation.

Table 6: Frequency table of reasons for male preference school enrolment

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males more determined to succeed in education</td>
<td>122</td>
<td>31.77</td>
<td>PMC</td>
</tr>
<tr>
<td>Female drop from school due to pregnancy</td>
<td>66</td>
<td>17.19</td>
<td>TP</td>
</tr>
<tr>
<td>Female marry and leave household</td>
<td>42</td>
<td>10.94</td>
<td>CC</td>
</tr>
<tr>
<td>Cost of education/lack of money</td>
<td>34</td>
<td>8.85</td>
<td>EC</td>
</tr>
<tr>
<td>Female not brilliant for schooling</td>
<td>12</td>
<td>3.13</td>
<td>PMC</td>
</tr>
<tr>
<td>Females supposed to support household chores</td>
<td>10</td>
<td>2.60</td>
<td>CC</td>
</tr>
<tr>
<td>Others</td>
<td>16</td>
<td>4.17</td>
<td>Others</td>
</tr>
</tbody>
</table>

(Source: Field survey, 2013)

The first major classification of reasons for the preference of male in primary schooling is the perception of males’ capability. There are engrained perceptions on
differing capabilities of male children and female children and these perceptions shape the choice of male for primary school enrolment. In the context of education and performance, there are some perceptions that work against female enrolment and promote male enrolment in school. Some of the perceptions that work against female primary school enrolment include the perception that boys are determined in educational success than girls. The perception that boys are more determined to succeed in school than girls accounts for about 31.77 percent. By determination, respondents use pass rate of students and level of educational attainment of students to come to this conclusion. An example of perception of determination of male children than female children is captured in the statement of a respondent:

"Male children are hard working and believe that some day to come they would marry and take all responsibilities of wife and children. Because of this, male children have some sense of competition and determination to succeed through education. Unlike male children, female children think of marrying and being taken care of by men and hence are not serious in education."

Also, some household heads hold the opinion that male children are more brilliant than female children and as such the former should be enrolled in school over the latter. The opinion that female children lack the brilliance for schooling was shared by 3.13 percent of those who preferred males.

These perceptions held by household heads influence their choice against female in enrolment decision making. There are many examples and living experience of the people with which they back their perception. It would require intensive education and role modelling for households to overcome these perceptions.
Campbell and Storo (1994) observed that someone’s sex is often seen as an important determinant of their abilities and interests. This was exactly the case for respondents who use the capability and ability argument. In agreement with Campbell and Storo (1994), this assumption is entirely not correct, especially with regard to education and performance in school, since knowing someone’s sex may tell a lot about them only biologically and very little about them in educational performance and success.

Another classification of reasons for male preference is the problem of teenage pregnancy and fear of it expressed by some respondents accounted for the lack of interest in enrolling female. The phenomenon of teenage pregnancy, especially among school children is bad example for parents when considering a female for primary school enrolment. Not only is it a threat to education, but teenage pregnancy also has health implication on the lives of children. Parents fear enrolling children who will end up being impregnated and getting dropped out of school. Households with both female and male children make assertion of how the female children dropped out of school due to teenage pregnancy while their male siblings have attained higher level of education. In an account of a parent about his children, he noted that:

“My first two daughters sent to school became pregnant and could not even complete the Junior High School. This experience has made me to stop sending girls to school. After all, what is the essence of sending a child to school to become pregnant?”
Another respondent supporting male education over female stated that:

"I am of the strong support for male education over female because I think that is the appropriate thing to do. This is because when females reach their puberty, they lose their senses and also think of men instead of concentrating on their books. They end up failing while their male counterparts keep on improving".

Parents hold the view that the male child does not face this problem and more likely to be successful in education. Again, they hold the view that female in school are more prone to becoming pregnant than those not in school. The safety and success of the male child in school is guaranteed according to respondents and for such people who consider this, they would not consider female for primary school enrolment. This reason accounted for about 17.19 percent of frequencies.

The cultural consideration is one other classification of reasons why male is preferred to female in primary schooling. The culture of the people also has implication on whether a female has the opportunity to be enrolled in school or not. It informs which sex to choose for schooling and this was demonstrated in the interview responses by household heads. Both Traditional and Islamic religions place value on marriage and especially so in the Islamic religion. Many respondents stated that it was only required of them to get their female daughter married and not for enrolment in school. The need for a female child to marry was used by some parents to explain why they prefer male to female in primary school enrolment. About 10.9 percent of those who prefer male to female in primary school enrolment cited the reason that the female is expected to get married and leave their household and for that matter, it was not a matter of priority to get their daughters or
female children enrolled in school. They believe that the female child is not a member of their household but a member of another household since she would get married. The male child they believe is the custodian of their culture and customs and stays with the household or family until death. This statement below is a statement by a household head when asked about his enrolment choice.

"Naturally, female children are not for me. God created them for some people, so they will soon leave me. So, if I send them to school to become 'somebody' one day and there is a problem in my house, they will not be around to help".

Similar explanation was given by the other respondents who considered this as a reason for not preferring female children education or investment in female education. They contend that female daughters sometimes marry to someone far away from the parents and will not be around to take care of the parents at old age. It is obvious that some parents do not consider the female child as member of their households with responsibility to cater for her, rather they consider her as member of a different household and it is worthless spending money in educating someone else’s family member. More also, children grow up with predetermined roles and responsibilities assigned them by the society. There is what is supposed to be the role of female children and what is supposed to be the role of male children. Female children are assigned the roles of household chores and taking care of young siblings while male children are assigned the roles of supporting in household labour activities and learning the father’s occupation. Depending on the value attached to the role, a family may decide to waive it. But the interview of household heads revealed that some parents do not want their female children to be enrolled in school because they require them to take care of household chores. The cultural considerations for
preferring male enrolment in primary school at the expense of the female are consistent with some of the findings of Yidana (2000), Akyeampong et al. (2007) and Asare (2009).

The preference of male over female is motivated by one other classification of reasons - economic consideration. The cost of enrolling a child in school and managing the child’s education presents a huge financial and economic cost to the household. This is a burden to poor households and a compromise on further income generation. Interview with household heads highlighted this economic consideration when a number of respondents mentioned the lack of money and cost of education as the reason for preferring to enrol male children. This was the fourth most occurring reason and accounted for about 8.85 percent of the frequencies of reason. It would be reiterated that economic cost involves the opportunity cost of enrolling a female. For instance, a respondent noted that:

“I will not use my little resources to send a girl to school who would not bring any benefit to me or end up failing, rather, I will use my little resources to cater for male children who I am sure will take over responsibilities from me”.

Many more respondents shared the same sentiments tying what they consider unproductive investment in girls to the best appropriation of their limited financial resources in boys. Thus, those who are inclined to male preference advance what can be considered as making the most productive investment of their limited financial and economic resources. As one respondent proverbially put it, “two bulls cannot drink in the same bucket at the same time” and, as such, when household heads are faced with limited resources, they choose the sex that can give the most expected returns. The benefits of education for girls are not clear unlike boys (Chiba & Leong, 2011). Similar economic
reasons for non-enrolment of females were found by de Lange (2007) in the Upper East and Upper West regions and Yidana (2000) in the West Mamprusi district among other studies.

The other reasons for male preference are the benefit of male education over female and intrinsic love for male children. The importance attached to education is usually expressed in metaphor “eye opener” (de Lange, 2007) and it was demonstrated in this study by respondents using “become somebody”. They believe that educating a male would give the household the most of those benefits than educating a female. The benefits they noted include: support and care for the family and household on the death or old age of the head of the household, improvement in the income level of the family through earnings after education, and the prestige to a family with educated children and adults. Prestige to family is a benefit that was found to corroborate the finding by de Lange (2007) that, parents found invaluable when they have a child with ‘nasala’ job (educated person’s job).

5.6.2 Preference for Female in Primary Schooling

Those who prefer to enrol a female instead of a male also argue based on perception and living experiences of neighbours that male children are generally unsympathetic to their parents and do not adequately take care of parents after education unlike female children. Especially for the female-headed households, they believe that the male child after success in education would concentrate on their immediate families such as wife and children without attention for the parents who catered for his education. They noted that, female children care and are more sympathetic to the family. This was the
single most cited reason accounting for over 45 percent frequency of reasons. For instance, a female household head lamented in the following statement:

"My step son was educated by my late husband but after his education, he left the house and he's staying with his wife and children. If that were a woman, she would have gotten time for me and her siblings"

The essence of parents investing in a child is for the child to 'become somebody' as the households head affectionately mention. By becoming somebody, the child is expected to take care of the family and support in family upkeep. Some household heads could not have the guarantee of male children to provide this support.

Even though the proponents of male education have outlined and explained the benefits of male education over female education, the proponent of female education were of the view that male education is not beneficial as compared to female education. Non-beneficial nature of male children's education was second most cited reason by those who preferred female enrolment. They counter claimed that female education is more beneficial in terms of improvement in the income level of household, care and support for the household as well as being more brilliant than male children. The benefits advanced by respondents were similar to those noted by Antze (2011) and Oduro (2000). Thus, educated women are essential to the wellbeing of their family, society and nation, and that educating women make them better managers. No respondent however gave smaller family size as benefit for educating women. In other words, no one wanted to educate their daughter for her to have smaller family size.

Few other proponents of female enrolment (3.65 percent) mentioned the need for boys to support in the household activities such as farming and trading. For such people,
the opportunity cost of sending male to school is high especially on household activities and labour requirement. Therefore, they prefer to retain the male child to support household activities while the female goes to school. A household head remarked:

“I wonder why I should send my son to school. When my old lady and I will be in the farm my son would be wasting in school. We need labour to carry out farming activities. After all, boys’ schooling to me is useless because when you educate them, they end up supporting only their wives and not you the parents”

This statement is testament of the importance the respondent attached to his farming activities compared to educating a male who he is not sure will support him later.

Some other reasons why some households prefer to enrol female in primary school than male children are the need for the empowerment of women, avoiding the drift of female children to southern Ghana for what is popularly called kayeye (head-porters), and equipping them to become better and good housewives and managers. Table 5.9 summarises the frequency of reasons cited for preferring female children to male in primary school enrolment.

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male children do not care much for family</td>
<td>56</td>
<td>14.58</td>
</tr>
<tr>
<td>Male education is not beneficial</td>
<td>15</td>
<td>3.91</td>
</tr>
<tr>
<td>Male provide labour for household occupation</td>
<td>14</td>
<td>3.65</td>
</tr>
<tr>
<td>Cost of education/lack of money</td>
<td>13</td>
<td>3.39</td>
</tr>
<tr>
<td>Others</td>
<td>11</td>
<td>2.86</td>
</tr>
</tbody>
</table>

(Source: Field survey, 2013)
5.7 Summary

Primary school enrolment decision by households is a matter of choice and a matter of prioritising family needs for utility maximisation from their limited resources. The results presented in this chapter highlighted that most respondents, on the basis of percentage, preferred to enrol male children in school than their female children in both rural and urban communities. A test for the association between the gender of the respondents and the preference show an association between the two at the 10 percent level.

Also, the gender difference in primary school enrolment in rural communities, in urban communities and between urban and rural communities were found to be non-significant even at the 10 percent level test for difference.

The significant determinants of female enrolment were found to be income level of the household head, the number of female children of school-age, the number of male children of school-age, primary school enrolment decision maker in the household and the number of female children in primary school. Other determinants, though not significant, include age of the household head, religious practice and gender of the household head and the location of the household. The significant determinants of primary school enrolment individually and jointly affect the probability of enrolling a female child in primary school. It was also ascertained that it is more probable for a female to be enrolled in rural community than in urban communities and it was more likely for a male to be enrolled than a female in the district.
The reasons for preferring male in primary school enrolment to female are summarised into; perception of the males' capability and determination to succeed, teenage pregnancy associated with female education, cultural beliefs and practices such as marriage and economic consideration in investment by making most efficient use of limited resources. The few who prefer female enrolment also argue that male children lack the care and sympathy for parents after acquiring education, household labour need from male children, and the perceived benefits of female education over male, female empowerment among others.
6.1 Summary of Major Findings

This study does a comparative analysis of gender difference in primary school enrolment in rural and urban communities. The study determined the effects of some household characteristics on the probability of enrolling a female child in primary school, the household enrolment preference and the reason why household heads or parents are inclined to a particular enrolment decision. The study has attempted to provide answers to the research questions. This was presented in the previous chapters of this study. In this chapter, a summary of the major findings in the light of the objectives is presented. The chapter also draws some conclusions, arising from the findings and proposes some recommendations for policy and further research.

6.1.1 Preferred Gender for Primary School Enrolment

The study revealed difference in the preference by household heads when it comes to the primary school enrolment. Whereas some household heads preferred to enrol female children in primary school others preferred to enrol male children.

In the rural communities, the most preferred sex or gender by household head in primary school enrolment decision was the male. At least, 66 household heads out of 100 household heads selected at random in the rural communities studied would prefer to enrol male assuming a normal distribution of household headship. Holding household headship constant, 57 household heads out of the 100 female-headed households would prefer the
male child. Conversely, 68 household heads out of 100 male-headed households would prefer male. This makes male children the most preferred gender for primary school enrolment in rural communities.

In the urban communities, the most preferred gender by household heads for primary schooling is also the male child. At least 71 household heads out of 100 household heads in the urban communities studied would prefer to enrol the male child in primary school while only the remaining 29 household heads would prefer to enrol the female child. This analogy assumes a normal distribution of household headship in terms of gender. Out of 100 female headed households drawn at random, 59 of them would prefer male children while 41 of them would prefer female children’s primary schooling. Similarly, out of 100 male headed households drawn at random, 75 household heads would prefer to enrol male children in primary school and the remaining 25 household heads would prefer female.

Irrespective of the location - whether or not the household is located in the rural or urban area - 68 household heads out of 100 household heads selected at random from the district would prefer to enrol their male child at the expense of the female child. Of 100 female headed households drawn at random from the West Mamprusi District, 58 of them would prefer to enrol male child and the remaining 42 would prefer female. Also, if 100 male headed households are drawn at random from the study district, 70 of them would prefer to enrol the male child in primary school while only 30 would prefer to enrol the female in primary school. The most preferred gender for primary school enrolment by household heads in the study communities and the West Mamprusi District at large is the
male child of households. It was also found that there is an association between the gender of the household head and the preference in primary school enrolment at the 10 percent level in the urban communities specifically and the district at large.

6.1.1.1 Reasons for Male Enrolment Preference

The preference for male children in primary school enrolment was motivated by a number of factors. The major reasons that were given for the preference of male over female children in primary school enrolment are stated below:

a. Male children have the capability and determination to succeed in education than female children. By capability, male children are more brilliant than female children and this is rather culturally driven and unscientific. Determination to succeed was measured by respondents’ perceived seriousness male children attached to education as against the lack of seriousness by female children.

b. The social problem of teenage pregnancy that has bedevilled female education was found as a disincentive for female primary school enrolment and a reason for some households to prefer male to female for primary schooling. According to the household interview, male children are not affected by this menace and can give good returns on any investment made in their education.

c. Cultural and social expectations of female children as future housewives influence the preference in primary school enrolment against female children and in favour of male children. Marriage makes female children members of different households rather than that of their parents’ household and parents would want to “put their
hands where their mouth is'. The male child remains with household to takeover responsibilities of household care from parents.

d. The cost of education and poverty force household heads to choose a male over female for primary school enrolment. Resources demands in schooling make it difficult for household to enrol female even if they would want to. For such households, resource inadequacy and making the most efficient use of limited resources is the reason for preferring male to female for primary school enrolment.

e. Perceived benefits of male education over female is the last but not the least reason for the preference for male over female in primary school enrolment. The utility or marginal rate of returns to education factor plays a crucial role here. By this, parents invest more in the child with the highest marginal rate of return to education under their budget constraint. The perceived satisfaction in terms of benefits from male schooling informed their preference over female. Highlights of benefits include support and care for household on death or old age of household heads, prestige to family and the improvement in family income.

f. For the household heads who preferred to enrol male children, earning inequality was not actually an issue for them. They preferred to maximise utility with one choice than to adopt balancing tactics in choosing which gender would be enrolled in primary school.

6.1.1.2 Reasons for Female Enrolment Preference

The major reasons given for the preference of female children over male in primary school are:
a. Female children are generally more sympathetic to parents than male children and when educated would adequately cater and care for the household than male children. This was the single most cited reason by those who preferred female child enrolment to that of the male child in primary school.

b. Also, perceived benefits of female education over male was another reason for the preference of female child enrolment over male child. For such households, the satisfaction from enrolling a female outweighs that of male.

c. The need for household labour in farming and other household occupations was one other reason that did not favour male enrolment and was used to advance preference for female enrolment. For such households, the opportunity cost of sending a male child to school against assisting in providing labour for household upkeep was high.

d. The women empowerment argument, avoiding the drift of female children to southern Ghana for menial jobs and equipping female children to become better household managers were other reasons. For those who gave these reasons, they are afraid of the disutility in earning inequality among children and, as such, enrolling female is considered as an option to correct challenges facing women.

6.1.2 Gender Difference in Primary School Enrolment

The test for gender difference in primary school enrolment in rural and urban communities and between the two localities revealed the following:

a. There is no significant gender difference in primary school enrolment in rural communities in the West Mamprusi District of the Northern Region even at the 10
percent level of significance. It was equally found that significant gender difference does not exist in the different classes of the primary schools. As such, the alternative hypothesis that significant gender difference exist in primary school enrolment in rural communities is not tenable and thus rejected.

b. There is no significant gender difference in primary school enrolment as well as class level gender difference in urban communities in the West Mamprusi District even at the 10 percent level. The conjecture null statement that significant gender difference in primary school enrolment does not exist would not be rejected.

c. There was no significant gender difference in primary school enrolment between rural and urban communities even at the 10 percent level. In other words, there is no significant gender difference in primary school enrolment between rural and urban communities in the West Mamprusi District. The null hypothesis that there is no significant gender difference in primary school enrolment between rural and urban communities could not be rejected.

d. The non-significant gender difference in primary school enrolment in the West Mamprusi District can be attributed to government policies such as the capitation grants, establishment of gender desk in the GES, advocacy and projects activities of organisations such as the Campaign for Female Child Education (CAMFED), improvement of infrastructure in rural communities and the higher number of female children of schooling age, offsetting the male dominance.
6.1.3 Determinants of Female Primary School Enrolment

The relationship between household characteristics and enrolment of female in primary school was mixed. The household determinants of female primary school enrolment found to be significant were as follows:

a. Income level of the household is a significant household determinant of female enrolment in primary school and has positive relationship with choice of female. Change in income by GHC1 enhances chances of enrolling a female by 0.0001.

b. The number of female children of school-age is positively related with enrolling female in primary school and a significant determinant for that matter. Increase in the number of female children of school-age by 1 increase the chances of enrolling female in primary school for that household by 0.2843.

c. The number of male children of school-age in a household was negatively related to female enrolment and a significant determinant of female enrolment. Increase in male children of school-age in a household by 1 will decrease the chances of enrolling a female by 0.1547.

d. The findings ‘b’ and ‘c’ above, are a confirmation of the sibling sex composition theory especially the revised sex minority hypothesis, which posits that an increase in the number of siblings of the opposite sex are harmful to educational achievement because sex minority children in the sibling composition may find gender specific needs unmet.

e. Primary school enrolment decision maker in the household is a significant determinant of female children enrolment in primary school and has inverse
relationship if enrolment decision is made by the father. A change of decision making power on primary school enrolment from mother to father would affect the chances of enrolling a female by 0.1162.

f. The number of female children already enrolled in primary school is a major hindrance to more female children being enrolled in primary school. The composition of female children already enrolled in primary school is inversely related to the chances of enrolling female in primary school. If female enrolled in primary school in a household increases by 1, the chances of female enrolling in school reduces by 0.1482. The ‘reference group hypothesis’ somehow explains the inverse relationship between female children enrolled in school. According to this hypothesis, female children will be measured against those already enrolled but the problem of teenage pregnancy and subsequent drop out characterising female education (reference group) in the district decreases parents’ will to enrol female.

g. The age of the household head was not an important determinant of female enrolment in primary school though positively related to choice of female for primary school enrolment as well as religion and gender of household head and the location of the household though they were negatively related to female primary school enrolment.

6.1.4 Probability of Enrolment

From the predicted probabilities in the probit regression analysis, it was more probable for a female to be enrolled in primary school in the rural communities than in the urban communities in the West Mamprusi District of the Northern Region. The
determinants of female enrolment from the regression however showed mixed effect on probability of female enrolment. In all, male children were more likely (0.68 probability) to be enrolled overall than female children (0.32).

6.2 Conclusion

The researcher conducted this study with a clearly defined problem and tries to investigate the problem in the West Mamprusi District of the Northern Region of Ghana as well as to ascertain the household determinants of female enrolment through a comparative analysis. From the problem statement, literature review, research methods to the findings, the objectives of the study guided the research. Based on the objective of the study, it is concluded that gender difference in primary school enrolment does not exist in either rural or urban communities and between rural and urban communities in the West Mamprusi District, albeit parents generally prefer to enrol male children than females. This put to rest the conjecture statements of difference in primary school enrolment between male and female children in rural and urban communities and between the two.

It was established by the research that the male gender is the most preferred for primary school enrolment but there was a higher chance that a female would be enrolled in primary school in urban communities than in rural communities. Significant household determinants of female enrolment have been shown in this study. In fact, it is the modest contribution to knowledge by unearthing the statistical significance of the gender difference in primary school enrolment and the expansion made on other issues of gender and education that makes this research work invaluable. The study fits into the existing
body of literature and has thrown light on some theories such as the sibling sex composition, utility function and gender role theories, among others. It has been illustrated that it is not enough to say gender difference exists in primary school enrolment without attempt to test the significance of the difference; after all, differences are bound to exist. More so, it draws attention to the internal determinants of who gets enrolled in school thereby offsetting the over concentration on external or supply side factors. This research thesis does not only promote the social sciences discourse in academic sense, the knowledge is equally relevant to policy makers and change agents.

It would however not be totally correct to state that the observed preference for male is due to household characteristics and socio-economic factors only. These are only parts of the whole and supply side of education and policy environment need to be thoroughly investigated to give a comprehensive understanding of the problem.

6.3 Recommendations

Gender and education, more specifically the problem of gender difference in primary school enrolment, is an issue that requires both academic research and effective policy making and implementation to be solved. This study demonstrated that there is no significant difference, even though household preference is to enrol the male child not the female, but to further deepen knowledge and improve practices, the following recommendations are proposed:

a. Further comparative study of supply and demand sides’ determinants of primary school enrolment between rural and urban communities focusing on their effects on
the different sexes should be carried out by academics in the field of education and gender studies.

b. Further research confirming the 'reference group hypothesis' and concentrating on reasons for the negative effect of female children enrolled in primary school on probability of enrolling more female children in primary school - reasons beyond the problem of teenage pregnancy as found by this study - is proposed.

c. Advocacy and civic education on the benefits and need for equal opportunities for both boys and girls in education need to be conducted regularly by the National Commission for Civic Education, Plan Ghana, Youth Alive and other related organisations and agency. This would help eliminate misconception and misperception characterising enrolment decision making which are inimical to certain sexes.

d. There should be policy targeting by the MOE, CAMFED and other interested stakeholders to bring any difference in enrolment between male children and female children in rural communities at par with urban communities. This could be done by giving special scholarship to female students and children from rural communities as well as special attention to the urban poor and the less privileged.

e. Lastly, the Ministry of Gender, Children and Social Protection should consider women social and economic empowerment intervention since this has prospects in increasing the probability of girl primary enrolment.
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Appendix 1: Household Research Questionnaire

Preamble:
Dear Respondent, I wish to seek your consent to respond to this questionnaire on the study entitled: *Comparative Study of Gender Difference in Primary School Enrolment between Urban and Rural Communities*.

I am a Graduate Student of the University for Development Studies undertaking this study in partially fulfilment of the requirements for the award of Master degree in Development Studies. The objective of the study is to determine the effect of household characteristic on enrolling a particular gender in primary school, the probability of enrolling a particular gender and to ascertain whether or not gender difference exist in enrolment between rural and urban communities. This is an academic research expected to aid my study and contribute to knowledge and possibly help government policy. Information so provided would be treated with the outmost confidentiality and the information shall not be used in a matter that is injurious to respondent. I therefore seek your honest answers to the questions below if you consent to respond. I count on your assistance in filling this question.

**Please tick with the sign “✓” if you agree or do not agree to respond to this questionnaire.**

I agree to respond to the questions contained in this questionnaire honestly _____
I do not want to respond to this questionnaire_______

To be filled by the interviewer

Name of Interviewer: ________________________ Today’s Date: ________________________
Address of Respondent: _____________________ Telephone: ________________________
Community: _______________________________
SECTION 1 - HOUSEHOLD CHARACTERISTICS

INSTRUCTIONS
1. Print in gaps and circle the appropriate response code where applicable.
2. Skip options are available to ensure sequence of questions and responses.

<table>
<thead>
<tr>
<th>NO</th>
<th>QUESTIONS</th>
<th>CODING CATEGORIES</th>
<th>Skip</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Are you the head of this household</td>
<td>Yes</td>
<td>→ Continue interview</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>How old were you at your last birthday</td>
<td>AGE IN COMPLETED YEARS</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Gender of respondent</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>What religion do you practise?</td>
<td>Christianity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Islam</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Traditional African</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others (SPECIFY)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No Religion</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>What is your Marital Status?</td>
<td>Currently married</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Currently divorced</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Currently widowed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Currently separated</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Currently single</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Have you ever been to school?</td>
<td>Yes</td>
<td>→ Q7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>What is your level of education?</td>
<td>Primary</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>JSS/Middle school</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SSS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>College/polytechnic</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>University</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others (Specify)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No Response</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Are you employed?</td>
<td>Yes, formal sector employed</td>
<td>→ Q9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes, informal sector employed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No, unemployed</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>What work do you do?</td>
<td>Public service</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Civil service</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NGOs service</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Farming</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trading</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Handicraft</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others (Specify)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>What is the size of your household? i.e. all members of the household</td>
<td>Number (specify) Adults</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>What is the gender composition of household?</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>How much do you earn monthly? Use expenditure as a proxy if more appropriate.</td>
<td>GHC</td>
<td></td>
</tr>
</tbody>
</table>

---

Household is defined to mean all members living in the same compound, eat from same pot and under one head.
# SECTION 2 - HOUSEHOLD PRIMARY SCHOOL ENROLMENT DECISION

<table>
<thead>
<tr>
<th>NO</th>
<th>QUESTIONS</th>
<th>CODING CATEGORIES</th>
<th>Skip</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Who takes decision on child’s school enrolment?</td>
<td>Mother 1, Father 2, Child 3, Both mother and father 4, Grandparents 5, Others (Specify) 6</td>
<td>Skip ____</td>
</tr>
<tr>
<td>14</td>
<td>How many children of schooling going age do you have?</td>
<td>Number (Specify)</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>What is the sex composition of children of school going age</td>
<td>Males (Specify number), Females (Specify number)</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>How many children do you have enrolled in primary school?</td>
<td>Number (Specify)</td>
<td>None →Q17</td>
</tr>
<tr>
<td>17</td>
<td>What is the sex composition of the children enrolled?</td>
<td>Males (Specify number), Females (Specify number)</td>
<td>→Q23, Q24, Q25 and Q26 →Q19, Q20 Q21 and Q22</td>
</tr>
<tr>
<td>18</td>
<td>Which sex would you prefer to be enrolled in school first?</td>
<td>Male 0, Female 1</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Why do you prefer your male child to go school than your female child?</td>
<td>Lack of money/cost of education 1, Males more determine to succeed in education 2, Female students drop-out 3, Females are not brilliant for schooling 4, I want her to support household chores 5, Female gets married and leave my household 6, Others (Specify) 7, a.</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Explain further your reason stated in Q19 above</td>
<td>Please write on the blank page 1 attached.</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Do you think there are more benefits enrolling in school male than female?</td>
<td>Yes 1, No 0</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>What benefits do you think you will get in enrolling male?</td>
<td>Support and care for household on death or old age 1, Improvement in family/household income 2, Prestige to the family 3, Others (Specify) 4</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Why do you prefer your female child to go school than your male child?</td>
<td>Lack of money/cost of education 1, Male education has no benefit to household 2, Males don't care much about family 3</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 2: Association Test between Enrolment Decision-Maker and Household Headship

<table>
<thead>
<tr>
<th>Enrolment Maker</th>
<th>Decision Maker</th>
<th>Household Headship</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>39</td>
<td>29</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>(12.2)</td>
<td>(55.8)</td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td>9</td>
<td>158</td>
<td>167</td>
</tr>
<tr>
<td></td>
<td>(30.0)</td>
<td>(137.0)</td>
<td></td>
</tr>
<tr>
<td>Child</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>(1.6)</td>
<td>(7.4)</td>
<td></td>
</tr>
<tr>
<td>Both Mother And Father</td>
<td>17</td>
<td>116</td>
<td>133</td>
</tr>
<tr>
<td></td>
<td>(23.9)</td>
<td>(109.1)</td>
<td></td>
</tr>
<tr>
<td>Grandparents</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>(0.9)</td>
<td>(4.1)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>(0.4)</td>
<td>(1.6)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>69</td>
<td>315</td>
<td>384</td>
</tr>
<tr>
<td></td>
<td>(69.0)</td>
<td>(315.0)</td>
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</table>

Pearson $\chi^2(5) = 93.8072$, $Prob = 0.000$

Likelihood-ratio $\chi^2(5) = 80.6621$, $Prob = 0.000$
### Appendix 3: Occupation by Location of Respondents

<table>
<thead>
<tr>
<th>Location</th>
<th>Occupation</th>
<th>Public service</th>
<th>Civil service</th>
<th>NGO Service</th>
<th>Farming</th>
<th>Trading</th>
<th>Handicraft</th>
<th>Others</th>
<th>unemployed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td></td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>198</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>31</td>
<td>256</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.95</td>
<td>1.95</td>
<td>0.78</td>
<td>77.34</td>
<td>1.95</td>
<td>1.95</td>
<td>1.95</td>
<td>12.11</td>
<td>100.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17.24</td>
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<td>87.22</td>
<td>17.86</td>
<td>25.00</td>
<td>45.45</td>
<td>58.49</td>
<td>66.67</td>
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<td>29</td>
<td>23</td>
<td>15</td>
<td>6</td>
<td>22</td>
<td>128</td>
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<tr>
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<td></td>
<td>18.75</td>
<td>5.47</td>
<td>1.56</td>
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<td>17.97</td>
<td>11.72</td>
<td>4.69</td>
<td>17.19</td>
<td>100.00</td>
</tr>
<tr>
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<td></td>
<td>82.76</td>
<td>58.33</td>
<td>50.00</td>
<td>12.78</td>
<td>82.14</td>
<td>75.00</td>
<td>54.55</td>
<td>41.51</td>
<td>33.33</td>
</tr>
<tr>
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<td>29</td>
<td>12</td>
<td>4</td>
<td>227</td>
<td>28</td>
<td>20</td>
<td>11</td>
<td>53</td>
<td>384</td>
</tr>
<tr>
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<td></td>
<td>7.55</td>
<td>3.13</td>
<td>1.04</td>
<td>59.11</td>
<td>7.29</td>
<td>5.21</td>
<td>2.86</td>
<td>13.80</td>
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<td></td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

### Appendix 4: Inter-class gender difference in primary school enrolment in study areas

<table>
<thead>
<tr>
<th>Gender of student</th>
<th>Class of students</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary 1</td>
<td>Primary 2</td>
</tr>
<tr>
<td>Male</td>
<td>131</td>
<td>132</td>
</tr>
<tr>
<td></td>
<td>(135.3)</td>
<td>(128.2)</td>
</tr>
<tr>
<td>Female</td>
<td>139</td>
<td>124</td>
</tr>
<tr>
<td></td>
<td>(134.7)</td>
<td>(127.8)</td>
</tr>
<tr>
<td>Total</td>
<td>270</td>
<td>256</td>
</tr>
<tr>
<td></td>
<td>(270.0)</td>
<td>(256.0)</td>
</tr>
</tbody>
</table>

Pearson $\chi^2(5) = 0.8563$ \hspace{1cm} $Prob = 0.973$

Likelihood-ratio $\chi^2(5) = 0.8563$ \hspace{1cm} $Prob = 0.973$