



MIGRATION-EDUCATION LINKAGES: THE CASE OF GHANA

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DECLARATION

This is to certify that this thesis is the result of research undertaken by Franklin Amuakwa-Mensah towards the award of the Master of Philosophy degree in Economics in the Department of Economics, University of Ghana.

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ABSTRACT

Education and migration are very essential in development outcomes since education improves the capability of the individual. Despite studies on migration in Ghana, the link between migration and education in the Ghanaian economy is unclear. This study therefore presents an empirical examination of the linkages between migration and education in Ghana. While GLSS 4 and GLSS 5 datasets were used for the descriptive analysis, the GLSS 5 dataset was used for the econometric estimations. Heckman's two stage method was used in examining the impact of education on migration; however the Ordinary Least Squares (OLS) estimation was used to find the impact of migrant remittances on education expenditure. The relationship between migration and education was also examined by using the chi-square test.

The empirical results revealed that a greater proportion of internal migration in Ghana is rural-rural and urban-rural. Also, an individual's educational attainment positively affects his/her decision to migrate. Further, it was seen that other socio-economic variables significantly affect an individual's migration decision. Though education affects the migration decision in both urban and rural areas, its significance varies for the different stages of educational attainment. Moreover, it was found that migrant remittances positively affect educational expenditure. Based on the findings of the study it is recommended that the education system should be improved in the entire country by providing qualified teachers and studying materials, and the rural areas should be upgraded close to the standard of the urban area in order to reduce inequality in educational infrastructure. Also, a smooth functioning credit market should be created in

the country to provide financial support to households which do not receive remittances to finance their educational expenditure.

DEDICATION

This work is first of all dedicated to the Almighty God for His protection and guidance in my life. Secondly, this work is dedicated to my parents and the rest of my family members for their support throughout my education.

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ABBREVIATIONS

BECE	Basic Education Certificate Examination
CEE	Common Entrance Examination
FCUBE	Free Compulsory Universal Basic Education
FDI	Foreign Direct Investment
GCE	General Certificate of Examination
GER	Gross Enrolment Rate
GLSS	Ghana Living Standards Survey
GSS	Ghana Statistical Service
IB	International Baccalaureate
ICT	Information and Communication Technology
IGCSE	International General Certificate of Secondary Education
JHS	Junior High School
JSS	Junior Secondary School
KG	Kindergarten
MDG	Millennium Development Goal
MSLC	Middle School Leaving Certificate
NPP	New Patriotic Party
NRC	National Redemption Council
OLS	Ordinary Least Squares
PNDC	Provisional National Defence Council
Prof	Professional
SHS	Senior high school
SSS	Senior Secondary School

SSSCE	Senior Secondary School Certificate Examination
TVET	Technical and Vocational Education and Training
VOC	Vocational
WASSCE	West Africa Senior School Certificate Examination

CHAPTER ONE

INTRODUCTION

1.1 Background and Problem Statement

Generations from time to time have many men and women who have left home in search of better standard of living. Wattenberg (1948) states that the dramatic shifts of population during war tended to create an impression that the uprooting of individuals and families in present times is largely an accompaniment of social upheaval. Many of the changes, such as moves from rural to urban settings, and vice versa, mean a movement to drastically different patterns of community living.

It is frequently observed that substantial interregional wage differentials within a country exist, where the low-wage regions are also characterized by comparatively high unemployment rates (Eggert et al., 2009). It has to be noted, however, that international migration is often restricted by the rich countries. Further, high-wage regions tend to have a higher share of high-skilled individuals in their workforce. Due to a high demand for qualified workers, they offer attractive jobs to natives and foreigners alike, the latter inducing a “brain drain” out of poorer regions.

It is often assumed that migrants are usually people of the lowest economic status. It may be true that unskilled workers compose the bulk of perpetual wanderers. However, among people having a relatively large amount of training, the percentage of those persons who

leave home communities to try their fortunes elsewhere is relatively high. In fact, Eggert (2009) stated that the propensity to migrate is stronger for high-skilled individuals than for the low-skilled persons.

Some development outcomes are affected by education and migration. The impact of education on development is profound since education plays a transformative role in the lives of poor people by providing them with skills, independence and confidence. On the other hand, economic motivation is the underlying premise of most theories of migration (Sjaastad, 1962; Todaro, 1969; Haris-Todaro, 1970; Lucas, 1997).

Sjaastad (1962) views the decision to migrate as a net present value decision that weighs financial and psychic costs and benefits. Traditional modelling treats migration as a response to spatial disequilibrium in economic opportunity, for example, people moving from lower to higher wage regions (Herrin et al, 2008). When domestic labour markets cannot fully absorb an increasing level of educated labour force, migration is an important channel for resolving local market imbalances with potentially large benefits to the individuals. In this disequilibrium view, migration is the force that equilibrates differences in labour market conditions. With specific reference to developing countries, the expected income hypothesis (Todaro 1980) is based on the premise that migrants are drawn to destinations (usually urban areas) where expected income is higher than the rural alternative.

International migration is seen to be increasingly helping the economic performance in ‘sending’ countries (especially developing countries) through remittances and increased trade in goods and services. There is also the possibility of remittances serving as a source of Foreign Direct Investment (FDI) provided market failures across borders are addressed and national migration policies are not biased against migration. According to the Development Research Centre on Migration, Globalisation & Poverty (2009), migrant remittances, estimated by the World Bank to be US\$283 billion worldwide in 2008, have led to substantial investments in human and physical capital back at home countries. In most instances, remittances have yielded increased investments in the education of migrants’ children. However, migration can also actually create disincentives for education. This occurs when the educational qualifications of the ‘sending’ country have little impact on the type of jobs most migrants can acquire in the area of destination. This may influence their ideas about whether educational investments are worthwhile.

Velde (2005) states that there exist specific problems related to migration of key occupational groups¹ in most developing countries even though the evidence shows that return migration is substantial. In spite of the benefit² from migration enjoyed by ‘sending’ countries, developing countries need to deal with the specific problems posed by losing key workers.

¹ These occupational groups comprise of doctors, nurses, teachers, technicians etc.

² These benefits include remittances and exposure.

In receiving countries, immigrants are blamed for disrupting civil society, draining public coffers, and lowering wages, among other woes. Once they become citizens, immigrants generally obtain the right to vote, altering domestic politics. In sending countries, emigrants cause corresponding fiscal³ and political disruptions by their departure. At the same time, skilled immigrants receive credit for spurring innovation and the growth of technology sectors.

The past few decades have witnessed a rapid pace of urban population concentrations in developing countries of Africa and elsewhere. In Ghana, for example, the proportion of the population residing in urban areas increased from 32 percent in 1984 to 44 per cent in 2000 as shown in Figure 1.1. This increase in the urban population is projected to exceed 50 percent of the total population by 2010 (Ghana Statistical Service, 2005). However, in 2008 this projection was even exceeded, as the proportion of the population residing in urban Ghana was 50 percent (see Figure 1.1). One can infer that in 2010 the rate may be twice that of 1984. This was confirmed by the provisional result of the 2010 population and housing census where the population density of Ghana almost doubled from 52 in 1984 to 102 in 2010 (GSS, 2011). The growth trend shows that the proportion of urban dwellers is rising rapidly. For instance, the 4.6 percent inter-census growth rate for the urban population recorded between 1984 and 2000 outstripped the overall population growth rate of 2.7 percent recorded over the same period (GSS, 2002).

³ There is a fall in tax revenue since these individuals leaving the country will be working abroad and paying their taxes there.

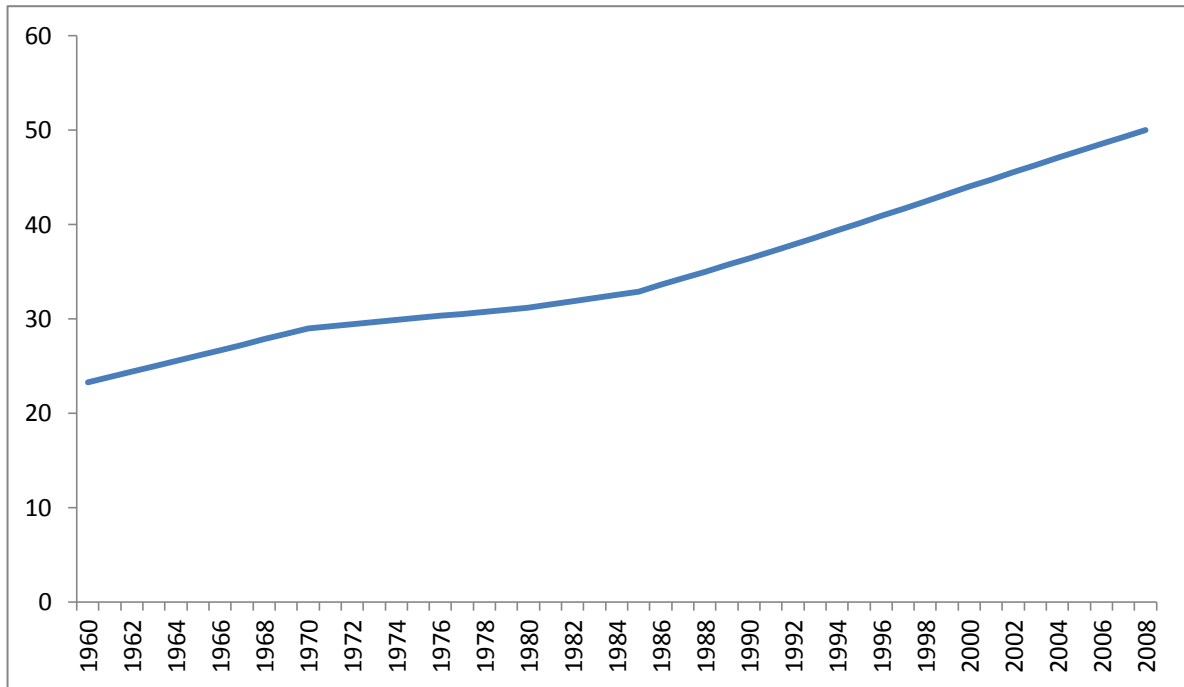


Figure 1.1: Urban Population (% of total population)

Source: Based on data from the 2009 World Development Indicators

According to GSS report on school attendance for the period 2008, there is a difference in school attendance among the ten regions of Ghana. This difference in school attendance is such that individuals in the three northern regions have lower school attendance rate than those in other regions (GSS, 2008). In the same light, the rate of migration in Ghana is such that those in the three northern regions have a low rate of migration relative to those in other regions (GSS, 2008). Given the current problem of uneven distribution of the rate of school attendance in Ghana with the three northern regions having the least rate of schooling, coupled with the low migration rate in the northern regions (GSS, 2008), can one say that the low rate of school attendance in some part of the country is attributed to the low migration rate in those areas or the low rate of migration in some part of the country is attributed to the low rate of school attendance in those areas?

Studies such as Rapoport and Docquier (2005) which investigate the impact of migration on education in developing countries have emphasized the potential for remittance income to improve access to education for the poor and consequently reduce education inequality. There are also instances where some level of education is needed to inform the individual's decision to migrate. Given that the income in the location the individual is migrating to is higher than his current location, it raises the potential returns to schooling and can therefore increase human capital investment (Rapoport and Docquier, 2003). So the question is, what are the inter linkages between migration and education? Does education attainment have any impact on the rate of migration or does migrant remittance rather impact on educational expenditure?

1.2 Objectives of the Study

Given that education affects the individual's economic status and that economic motivation is the underlying premise of most migration theories, this study proposes to study the linkages between migration and education using Ghana as a case study. Specifically, the study seeks to;

1. Investigate whether the education level of an individual affects his/her migration status.
2. Examine the impact of remittances on educational expenditure.
3. Analyze the difference in migration-education linkages for the different types of migration.
4. Test the relationship between migration status and educational attainment.

1.3 Research Questions

The following questions will be addressed in this study:

- i. What is the effect of education on migration?
- ii. What is the effect of remittances on educational expenditure?
- iii. Are there any differences in migration-education linkages for the different types of migration?
- iv. What is the relationship between migration status and educational attainment?

1.4 Justification of the Study

Recognizing the importance of education to an individual and the society as a whole is essential since education improves the life of people especially the poor by uplifting the economic and social status of the individual. Coupled with the fact that most theories of migration are based on economic motivation and that economic status of an individual are enhance through education, there is therefore a need to study the linkage between migration and education.

Migration literature in Ghana such as Beals et al. (1967), Caldwell (1968), Gbortsu (1995) and Reed et al (2005), studied the impact of education on migration without considering the causality between migration and education. As a result the link between migration and education in the Ghanaian economy is unclear. This study therefore proposes to study the linkages between migration and education, using Ghana as the case study.

When the linkages between education and migration are known, it will aid policy makers in their policy formulation in relation to migration and education. In addition, the study will contribute to existing literature on migration in the Ghanaian economy.

1.5 Scope of the Study

This study will focus on internal migration and not international migration. The study will adopt the definition for a return migrant, an in-migrant and a non-migrant in the 2005/06 Ghana Living Standards Survey (GLSS 5) report. According to the report of GLSS 5, the definition of an in-migrant, return migrant and a non-migrant are given as;

1. In-migrant: a person (aged 15 years or more) born outside current place of residence.
2. Return migrant: a person (aged 15 years or more) born at current place of residence and who has lived elsewhere for more than one year and returned to the place of birth.
3. Non-migrant: an “adult” (aged 15 years or more) who is neither an in-migrant nor a return migrant;

In examining the impact of remittance on education, the study will concentrate on the remittance to a particular household and educational expenditure.

1.6 Organization of the Study

The remaining part of this work is organized into five chapters; chapter two will examine education and migration in Ghana. Chapter three will discuss the relevant literature on migration and education. Chapter four discusses the methodology and chapter five presents the estimation and discussion of empirical results. The sixth chapter concludes the thesis and provides policy recommendations based on the findings of the study.

CHAPTER TWO

EDUCATION AND MIGRATION IN GHANA

2.0 Introduction

Ghana is one of the English speaking countries of West Africa and it covers an area of approximately 238,540 km². The provisional result of the 2010 population and housing census shows the country's population has reached 24.2million (GSS, 2011). Ghana is bordered on the north by Burkina Faso, on the east by Togo, on the south by the Gulf of Guinea, and on the west by Côte d'Ivoire. Within sub-Saharan Africa Ghana is the first independent nation.

The focus of this chapter is on the education and migration patterns in Ghana. The outline of the chapter comprises of the systems of education in Ghana, evolution of the educational system, school enrolment trend, and migration and education trend for 1998/99 and 2005/06.

2.1 The System of Education and School Attainment in Ghana

Ghana currently operates a structure consisting of 2 years kindergarten (KG), 6 years primary, 3 years junior high school (JHS), 3 years senior high school (SHS) and generally 4 years university education. The kindergarten, primary and junior high schools which make up the basic education are free and compulsory. Students who perform sufficiently

well in the qualifying exams (the Basic Education Certificate Examination) can then proceed to senior high school. At this stage, students are expected to pay fees. While these (fees) vary between schools, depending on factors such as the location and perceived desirability of the school, fees are generally high and often unaffordable to poorer parents.

According to the Education Sector Performance Report (Ministry of Education, 2011), the gross enrolment rate (GER) for primary education as of the 2009/2010 academic year is 94.9%. The free and compulsory education has contributed much in getting majority of children, 94.9% as of 2009/2010, into school. Yet, in spite of the tremendous improvements, not all children are in school. The current gross enrolment rate of 94.9% means over 5% of Ghana's school going age children are still out of school. This implies that Ghana may not be able to meet the Millennium Development Goal (MDG) of universal (100%) primary education enrolment by 2015. The reasons given to this low primary enrollment rate in spite of the policy of free and compulsory primary education are;

1. Schools usually charge levies for a range of miscellaneous necessities, such as school equipment, extra classes and so on. In addition, there are also some costs for schooling such as school uniforms, feeding and books. According to Hashim (2004), in 2000 and 2001 these costs were significant in a context where poverty was extensive and family sizes are also large. In the same vein, a study by the Ghana Statistical Service (GSS, 2003) which considered 17,034 children, found that out of Upper East children who did not attend school, the highest percentage

(64 per cent) failed to attend because their parents could not afford for them to attend school.

2. There are indirect costs involved in schooling and these include the loss of a child's labour in the household's economic/livelihood activities especially once children reach the age of about thirteen since he/she can render more services to the family.

Based on the fifth round of Ghana Living Standard Survey 2005/06, it was realized that about 31% of all adults have never been to school, less than one-fifth (17.1%) attended school but did not obtain any qualifications; 39% have MSLC/BECE/VOC certificate as their highest qualification, while a small percentage of 13.6% possess secondary or higher qualification as shown in Figure 2.1.

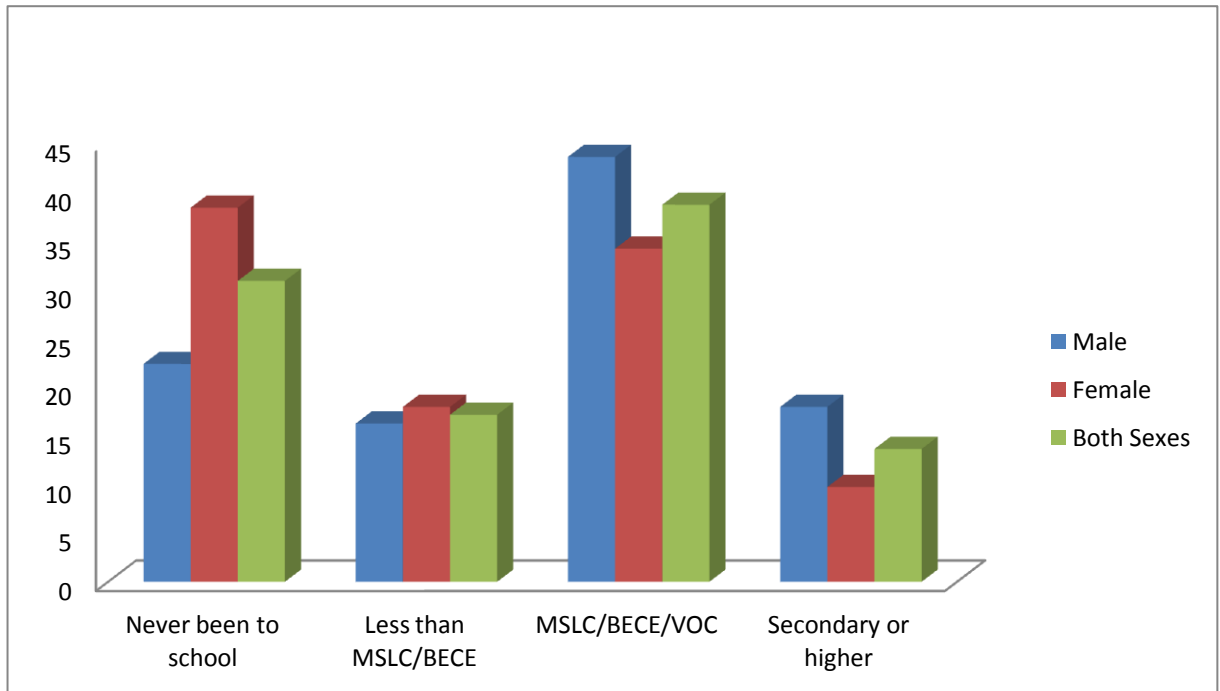


Figure 2.1: Level of Educational Attainment in Ghana

Source: Based on data from GLSS 5

Moreover, the survey indicated that current school attendance rate of school-going age persons at all levels of education in Ghana is 86%. The rates for females are lower than their male counterparts across the regions of Ghana (Figure 2.1). The rate of school attendance in Ghana is not evenly distributed. This is because a high percentage of individuals in the three northern regions have lower school attendance rate than other regions (see Figure 2.2). Among the regions with high school attendance rate, the Greater Accra region has the highest rate of school attendance of about 88.5% which is followed by the Ashanti region with school attendance rate of 80.6%.

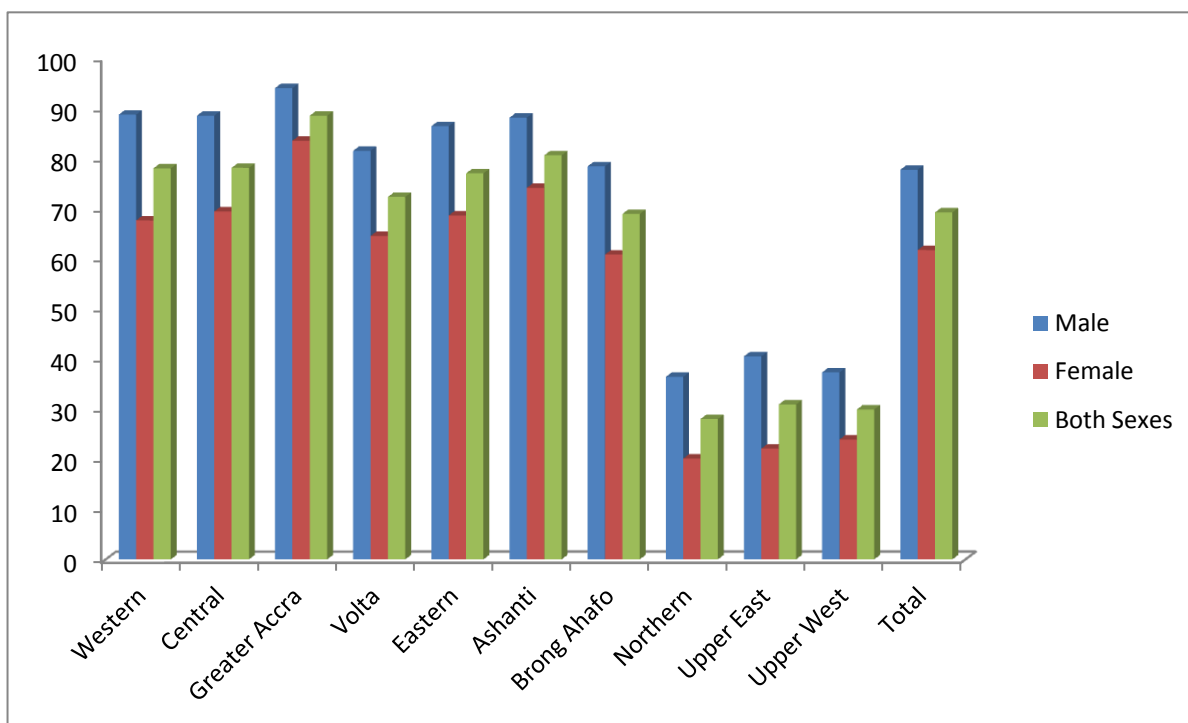


Figure 2.2: Proportion of Adults in each Region who have been to School, by Region and Sex (percent)

Source: Based on data from GLSS 5

In relation to the literacy level in Ghana, GLSS5 report (GSS 2008) indicated that 51% of adults are literate in English or a local language. And there exist substantial differences between the sexes and between localities as far as literacy is concerned. A little over 6 out of every 10 men, but only 4 out of every 10 women are literate. Almost 70% of adults in urban areas are literate as against 40% of adults in rural areas.

2.2 Evolution of Educational Systems in Ghana

Ghana's education system in the first fifteen years after independence had been described as one of the best in Africa (World Bank, 2004). This best educational standard of Ghana's had begun to slip slowly into decline in the mid 70s, leading to the setting up of several commissions of inquiry. Notable among those commissions is the Dzobo

Education Review, which was set up to determine the causes and the way forward for recovery. From the time of Ghana's independence in 1957, the educational system that prevailed in the country was based on the British system. In 1987 the country embarked upon an educational reform that gradually replaced the British-based O-level and A-level system with the Junior Secondary School (JSS) and the Senior Secondary School (SSS).

Though the last O-level examinations were administered in June 1994, transition was completed in June, 1996 when the last class took A-level examinations. Remedial examinations were offered through 1999 to O-level students who wanted to improve on their results. The educational reform affected all Ghanaian schools both public and private, with the exception of three non-Ghanaian schools that offered the American high school, London O/A level and the International General Certificate of Secondary Education/International Baccalaureate (IGCSE/IB) curricula. This education reform which was based on the recommendations of the Dzobo commission was described as one of the most ambitious programmes in Sub-Saharan Africa.

The education reforms were part of a national economic recovery plan in the 1980's which began with a restructuring of the school system. Basic education had been affected by a crippling economic decline prior to the reforms in the education system; this had devastating consequences on the quality and efficiency of education provision and delivery. Generally, the persistent criticism of the educational system before the reform was its structure, which had a total of 17 years of pre-tertiary education. It was also

considered to be inefficient, highly selective and usually marginalizing participation of the poor in education.

Subsequent to the implementation of the new structure of education, government commenced an education sector policy in 1996 known as “Free Compulsory Universal Basic Education (FCUBE). The main objective of the FCUBE policy was to ensure that all school-age children received free and compulsory quality primary education by 2005. The FCUBE helped to create the following:

- a) Motivation for a coordinated sector programme providing a framework for donor support to education.
- b) A drive for educational decentralization with greater recognition of the important role of community participation in school management for school improvement.

The FCUBE was developed on the basis of three vital components which include:

- a) Improving quality of teaching and learning through the reassessing and modification of teaching materials, new measures on teaching incentives, and a focus on in-service teacher training.
- b) Strengthening management at both central and district level.
- c) Improving access and participation especially through schemes that encouraged girls’ participation at primary school level.

2.2.1 Dzobo Education Reforms of 1974

The National Redemption Council (NRC) government in the early 1970s established an Educational Review Committee which was chaired by N. K. Dzobo, to recommend reforms in the educational system of the country. The core reasons for the reforms include (Ministry of Education, 1974):

- i. The educational system inherited from the colonial masters prepared people only to run the administration and the economy. This means that the education system was reliant on demands of other countries instead of that of Ghana. As a result, it was strongly felt that there was the need for a new educational system that would educate Ghanaian youth to be reliant on the national resources for the rapid development of the country.
- ii. The schooling provided by the colonial system was inappropriate and did not equip people with skills that will enable them to secure appropriate employment.
- iii. The basic education failed to address the socio-economic development needs of the country. Thus, basic education needed to focus on how Ghanaians can deal with the problems of the environment, disease, deforestation and low agricultural productivity.
- iv. There was the need to place emphasis on science and technological education which was not the case in the prevailing educational system.

The targets which were set by the educational reforms based on the recommendations of the Dzobo commission included:

- The replacement of the six years primary education, four years middle school and seven years secondary and sixth form education with six years primary education, three years junior secondary school and four years senior secondary education. Thus shortening pre-tertiary education from 17 to 13 years.
- Improving the quality of teaching and learning by increasing school hours and introducing a policy measures to phase out untrained teachers.
- Setting up measures to make education planning and management more efficient and effective.

The reforms following the recommendation of the Dzobo commission had several strengths and these included the following:

- The reforms placed emphasis on practical courses which were missing in the existing educational system which was mainly the grammar type education. This was intended to equip school leavers with the required skills to be employed in the productive sectors of the economy.
- There was the provision of different courses to take care of the individual interest and differences of the students. Some of these courses include technical, vocational and commercial, these were introduced aside the grammar type education. Due to this policy students who were not academically good in the arts

find their way into technical, vocational and commercial schools, and this assured such students of a bright future.

- The new educational reform had various exit points, ensuring that individuals who could not continue with the formal education find something profitable doing. Thus, leavers from the Junior Secondary School were equipped with some level of technical and vocational skills to enable them upgrade these skills through a few year of apprenticeship. Students from the Senior Secondary (Lower) and the Technical, Vocational and Commercial schools who did not pursue further education were anticipated to have adequate skills and knowledge to gain employment in various sectors of the economy. Senior Secondary (Upper) students who did not get the opportunity to enter the university were trained for middle level professions in available institutions such as Polytechnics, Specialist and Teacher Training Colleges.

Notwithstanding the strengths of the reforms which have been discussed earlier, there were weaknesses associated with its implementation. To begin with, the government of the time did not have the political will to implement the program nationwide. It only established 113 Junior Secondary Schools throughout the country. In addition, the implementation of the reform was on a pilot scale. Thus, the new education system co-existed with the old one instead of the new system replacing the old one. The middle schools continued to be in place while the few pilot Junior Secondary Schools also existed side by side. Further, the Junior Secondary School element of the reform was

implemented in such a way that the entire idea was pessimistic in itself. Students from the Junior Secondary Schools were engrossed in the old system. That is, the Senior Secondary School element of the entire reform package, which should have engrossed students from the Junior Secondary Schools, was never implemented.

2.2.2 Evans-Anfom Reforms of 1987

The Provisional National Defence Council (PNDC) government in 1987 implemented new educational reforms. The reforms were based on the report of the Education Commission headed by E. Evans-Anfom. This Education Commission published its report in August, 1986, and it was to deal with the concerns and criticisms about the educational system at that time. These concerns and criticisms were almost the same as those that called for the 1974 reforms.

The main features of the reforms include the following (Ministry of Education, 1986). It changed the educational structure from seventeen years to twelve years at the pre-university level. Thus, the new educational structure further reduced the Dzobo structure of 1974 by one extra year. As a result, instead of the six years Primary, three years Junior Secondary, two years Senior Secondary (Lower) and two years Senior Secondary (Upper) which was proposed by the Dzobo Report of 1974, the Evans-Anfom Report of 1986 suggested six years Primary, three years Junior Secondary and three years Senior Secondary education.

The reforms which were based on the Evans-Anfom report led to an entire replacement of the old pre-university educational system. Thus, the middle schools were eliminated and the Common Entrance Examination (CEE) which was used for selection into Secondary Schools was also replaced by the Basic Education Certificate Examination (BECE). The secondary level also experienced some changes, the General Certificate Examination (GCE) Ordinary ('O') level and Advanced ('A') level were replaced by the Senior Secondary School Certificate Examination (SSSCE).

The significances of the reforms to national development cannot be overemphasized. The reforms of 1987 aimed at providing a broad-range of manpower supply for the various sectors of the economy. This manpower supply included the training of people to engage in agriculture to provide the needed raw materials to feed the industries and provide adequate food for the nation as a whole. The new education structure was intended to train people in science and technology for the advancement of science and technology in the country. The protection and conservation of the environment and raising health standards were also a major concern of the reforms.

One of the strengths of the 1987 reform was that it provided a comprehensive basic education which improved access to education for more children of school-going age. The reforms made it possible for Junior Secondary Schools to be provided throughout the country, thus helping to increase literacy levels in the country. Moreover, the reform also introduced Continuous Assessment which formed part of the final examination, thus

replacing the single-shot examination existing in the old system. On the contrary, the reform had several weaknesses which included insufficient textbooks for all basic schools in the country, inadequate infrastructure and teaching-learning materials, inadequate trained teachers for the Junior Secondary Schools. These weaknesses affected the quality of basic education in the country.

2.2.3 Education (Anamuah-Mensah) Review of 2007

The New Patriotic Party (NPP) government on January 17, 2002 instated a Presidential Committee on Review of Education Reforms in Ghana. This committee was chaired by Jophus Anamuah-Mensah. The responsibility of the committee was to review the entire educational system in the country with the view to making it responsive to current challenges.

The main factors which led to the introduction of the current Junior High and Senior High School reforms were to address the inadequacies and shortcomings in the previous reforms as discussed earlier. In addition, the reform was initiated for formation of human capital for industrial growth and for ensuring competitiveness in the global economy. Moreover, it aimed at enhancing the ability of students to make use of recent developments in Science and Technology, especially Information and Communication Technology (ICT). The reform also aimed at a thorough transformation in the field of work and employment; and the preservation of cultural identity and traditional indigenous knowledge and creativity (Ministry of Education, 2002).

The reform aimed at ensuring 100 percent access to basic education, placing high premium on technical/vocational education and training and improving the quality of instruction and making it flexible enough to accommodate various abilities of students. The Anamuah-Mensah Report recommended similar educational structure just like the Evans-Anfom Report of 1986. However, the difference was the inclusion of two years of Kindergarten education as part of Basic Education and the inclusion of Apprenticeship training for leavers of the Junior Secondary School who were unable to or do not want to continue in the formal sector.

The committee gave the provision that provided all the necessary inputs needed for effective teaching and learning would be given, i.e. adequate teachers, textbooks, classrooms, etc, then 3 years would be enough for the Senior High School (SHS). Meaning the committee gave the option for either 3 or more years based on the input. The change from the three years Senior Secondary School to the four years Senior High School was to ensure that students have sufficient time to prepare for their final exams; West Africa Senior School Certificate Examination (WASSCE).

In September 2007, the government started implementing the-Anamuah-Mensah recommended reforms. The program also faced problems in its implementation and these included the delay in the supply of syllabuses and textbooks for the smooth take-off of the program, and teachers were not adequately prepared in terms of training to implement

the reforms. These problems were later dealt with as the implementation of the reforms progressed, however the next major problem was the inadequate classrooms and other facilities as students proceeded to the fourth year of Senior High School (SHS) in September 2010.

The opposition party at the time of the reforms in 2007 indicated its displeasure with the change in the duration of the SHS. And it subsequently stated in its election manifesto of 2008 that if elected, it would reverse the SHS duration from 4 years to 3. As the party won the elections, processes were put in place and the change from 4 years to 3 was officially effected in August 2009 for SHS only. The technical schools which are part of the secondary cycle schools duration remains at 4 years at the request of the Technical and Vocational Education and Training (TVET) sector. This means it was not because of the September 2010 challenges⁴ that caused the change of the SHS from the 4 years to 3 year.

2.3 School Enrolment Trend

The various education reforms in the Ghanaian economy have impacted positively on school enrolment at all levels of education. The school enrolment in gross terms for 1971 was about 65% and 40% for primary and secondary schools respectively. From that time there have been successive increases in school enrolment for primary over the years and even reaching the height of 103% in 2008 as shown in Figure 2.3. However, secondary

⁴ Insufficient classrooms

education experienced a decline in school enrolment in the 1970s through to the early 1990s. An upward trend in school enrolment for secondary education emerged in the late 1990s and this has continued till date. Though the school enrolment for tertiary education is increasing it is not encouraging since it ranges between 2% and 8%.

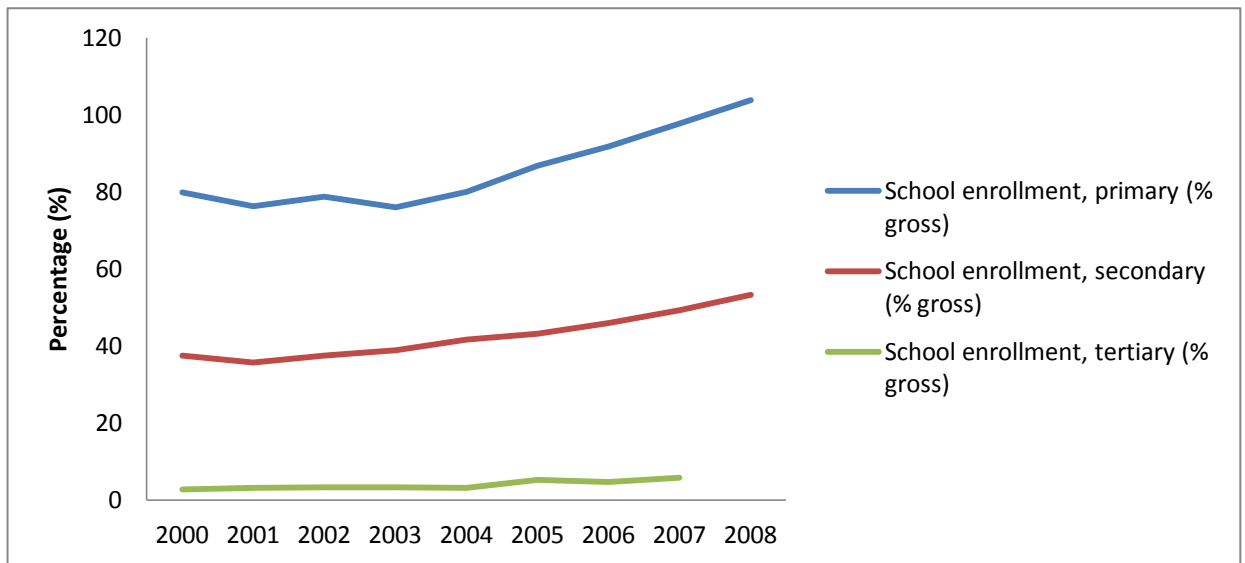


Figure 2.3: School Enrolment Trend

Source: Based on World Bank Data (WDI, 2010)

2.4 Migration and Education Trend for 1998/99 and 2005/06

Over the years, the rate of internal migration in the Ghanaian economy has been increasing. In 1998/99 the rate of migration was about 50.5% and this comprises 33.4% in-migrants and 17.1% return migrants. The rate of migration increased to about 58.0% in 2005/06 and this encompasses 41.7% in-migrants and 16.3% return migrants. Though the rate of migration increased in total, its component distribution changed with the rate of in-migrants increasing while that of return migrant reducing as shown in Table 2.1. In relation to the gender distribution of migrants, it was realized that in 1998/99 females

dominated with a share of 58.6% while their male counterparts constituted 41.4%. In 2005/06, the females continued to dominate in terms of migration. However, the gap between the females and males dropped as the share of females fell to 54.2% and that of males increased to 45.8% as shown in Table A.1 (see appendix).

Table 2.1: Migration in Ghana for 1998/99 and 2005/06

Migration Status	% of Population for 1998/99	% of Population for 2005/06
In-Migrant	33.37	41.71
Return Migrant	17.10	16.31
Non-migrant	49.53	41.98
Total	100	100

Source: Author's computation based on GLSS 4 and GLSS 5

Though there is a general perception that many people in the rural areas normally migrate to the urban areas for many reasons, the Ghanaian economy showed the contrary. In both 1998/99 and 2005/06 GLSS surveys, it was revealed that majority of the internal migrants in Ghana moved from either a rural area to another rural area or from an urban area to a rural area. From Table 2.2 which shows the classification of migrants based on origin-destination, it can be seen that in 1998/99 migrants who fall into urban-rural category dominated with a share of 35.5%, this was followed by rural-rural with a share of 25.9% and the urban-urban migrants which accounted for 22.8%. The urban-rural and rural-rural categories also dominated in 2005/06. However, whereas rural-rural category increased to 30.9%, that of urban-rural category fell slightly to 35.0%. That of urban-urban migrants

in 2005/06 also increased to 23.1%. The lowest category in 1998/99 and 2005/06 was the migrants who moved from foreign to urban, the rate in 1998/99 was 3% but this fell to 2.2% in 2005/06.

Table 2.2: Classification of Migrant (origin-destination for 1998/99 and 2005/06)

Types of Migration	% of Migrant for 1998/99	% of Migrant for 2005/06
Urban-Urban	22.79	23.14
Urban-Rural	35.45	35.08
Rural-Urban	9.26	6.09
Rural-Rural	25.87	30.90
Foreign-Urban	2.96	2.15
Foreign-Rural	3.67	2.64
Total	100	100

Source: Author's computation based on GLSS 4 and GLSS 5

The age distribution of Ghanaians between 1998/99 and 2005/06 revealed that a higher percentage of Ghanaian internal migrants in 1998/99 were between the age range of 15 and 25. The migrants between the age range of 15 and 25 constituted 26.6%; this was followed by those in the age range of 25 and 35 (constituting 21.5%). However, in 2005/06 majority of Ghanaian internal migrants were between the age range of 25 and 35 (constituting 23.0%), and this was followed by those in the age range of 15 and 25 (constituting 22.5%). In both periods (1998/99 and 2005/06), the migrants in the age range of 55 and 65 were the minority of migrants accounting for 9.8% in 1998/99 and 8.9% in 2005/06 as shown in Table A.2 (see appendix). In a nutshell, it can be said that

Ghanaian internal migrants are made up of young adults (15 to 45) since they constituted about 63% in 1998/99 and 66.1% in 2005/06.

In relation to the marital status of migrants, it was realized that a higher percentage of internal migrants in Ghana were married, followed by those who had never married. In 1998/99, migrants who were married accounted for 37.8% of migrants, and those who had never married accounted for 27.8%. This trend was consistent for 2005/06, however the migrants who were married increased to 53.3% and those who had never married decreased to 22.8%. The group with the lowest rate of migrants for both periods were the widowed, who had a rate of 11.2% in 1998/99 and 6.9% in 2005/06 as shown in Table A.3 (see appendix). It is misleading therefore to conclude from the analysis of migrants based on their marital status that most internal migrants in Ghana migrate due to marriage. From Table A.4 (see appendix), it was realized that in 1998/99 and 2005/06 most migrants migrated due to family reasons other than marriage. In 1998/99, 49.3% of migrants gave other family reasons as the reason for migrating. However, this figure fell to 37.2% in 2005/06.

The regional distribution of migration shows that the Ashanti region for the periods of 1998/99 and 2005/06 have produced majority of migrants in Ghana. This was evident as a higher percentage of individuals indicated the Ashanti region as their region of origin in 1998/99 and 2005/06, constituting 22.5% and 16.6% respectively. This was followed by the Eastern region with 16.7% in 1998/99 and 13.9% in 2005/06. Whereas the Greater

Accra region is the third dominant region which produced migrants in 1998/99 with a share of 12.2%, the Volta region took over in 2005/06 with a share of 12.1%. While the Upper East region was the region which produced less migrants in 1998/99 with a share of 0.6%, the Northern region took over in 2005/06 with a share of 5.2% as shown in Table A.5 (see appendix).

In relation to the destination of migrants, the Ashanti region dominated in both periods with a share of 21.5% in 1998/99 and 17.6% in 2005/06. This suggests that in 1998/99 the Ashanti region was a “net emigrant” since those migrants who indicated the region as their origin (22.5%) were greater than the migrants in the region (21.5%) as shown in Figure A.1 (see appendix). However, in 2005/06 the Ashanti region was a “net immigrant” since those migrants who indicated the region as their origin (16.6%) were less than the migrants in the region (17.6%) as shown in Figure A.2 (see appendix).

In 1998/99, the Volta region was the second region with the dominant destination of migrants with a share of 18.2%. This suggests that during 1998/99, the Volta region was a “net immigrant” since those migrants who indicated the region as their origin (9.00%) were less than the migrants who indicated the region as their destination (18.2%). On the contrary, in 2005/06 the Volta region was the seventh region with the dominant destination of migrants with a share of 8.3%. But 12.1% of migrates indicated the Volta region as their origin. Implying that in 2005/06, the Volta region was a “net emigrant”

since those migrants who indicated the region as their origin (12.1%) were greater than the migrants in the region (8.3%).

The second region with the dominant destination of migrants in 2005/06 was the Greater Accra region (constituting 13.7%) and the Upper East region was the region with the least destination of migrants. On the whole, whereas the Eastern region dominated having more of its members being migrants (constituting 71.7%) followed by the Central region (69.9%) in 2005/06, the Volta region dominated in 1998/99 with a rate of 57.3% of its members and this was followed by the Ashanti region with a rate of 54.1%. In both periods (1998/99 and 2005/06), the three northern regions had the lowest rate of their members as migrants as shown in Table A.5 (see appendix).

The gender distribution of Ghanaians based on the highest educational attainment revealed that a greater percentage of Ghanaian males have MSLC/BECE to be their highest educational attainment in 1998/99 and 2005/06 with the share of 42% and 46.5% respectively. This is followed by those with no educational attainment and this accounted for 36.7% in 2005/06 and 36.3% in 1998/99. Males with other educational attainment were the group with the least percentage in both 1998/99 and 2005/06 with the share of 0.4% and 0.3% respectively.

On the contrary, a greater percentage of females in Ghana have no educational attainment and this accounts for 47.8% in 1998/99, decreasing to 46.4% in 2005/06. This was followed by females with MSLC/BECE as their highest educational attainment and this accounted for 41.9% in 1998/99 and 39.2% in 2005/06. Whereas females with degree (first and higher) as their highest educational attainment constituted the least group in 1998/99 with a share of 0.04%, in 2005/06 females with other educational attainment were least having a share of 0.2%. On the whole, males dominate females in terms of educational attainment for 1998/99 and 2005/06 as the percentage of males with educational attainment was higher than their female counterparts. This is shown in Table 2.3.

The distribution of educational attainment based on locality revealed that a higher percentage of Ghanaians in the urban areas for the periods of 1998/99 and 2005/06 have MSLC/BECE as their highest educational attainment. In 1998/99 the share of urban population who had MSLC/BECE as their highest educational attainment was 45.8%, while in 2005/06 the rate decreased to 44.6%. The second dominant category in the urban areas was those with no educational attainment. In 1998/99, this group constituted 33.5% and it fell to 27.2% in 2005/06. Whereas degree holders constituted the least category of the urban population in 1998/99 with a share of 0.1%, those with other educational attainment took over in 2005/06 with a share of 0.4%, though higher than the share of degree holders in 1998/99. This may be due to the increase in private tertiary institutions after the period of 1998/99.

Table 2.3: Gender Distribution of Ghanaians based on Highest Educational Attainment for 1998/99 and 2005/06

Highest Educational Attainment	Male 2005/06	(%)	Female 2005/06	(%)	Male 1998/99	(%)	Female 1998/99	(%)
None	36.73	[47.38]	46.38	[52.62]	36.34	[42.55]	47.75	[57.45]
MSLC/BECE	41.97	[54.92]	39.17	[45.08]	46.53	[51.92]	41.93	[48.08]
Voc/Com	4.80	[56.50]	4.19	[43.41]	4.62	[56.04]	3.53	[43.96]
Teacher/Prof.	6.26	[69.13]	3.18	[30.87]	10.19	[67.16]	4.85	[32.84]
SSCE	8.07	[59.34]	6.28	[40.66]	1.81	[50.63]	1.72	[49.37]
Degree	1.87	[77.84]	0.61	[22.16]	0.09	[66.67]	0.04	[33.33]
Others	0.30	[64.71]	0.19	[35.29]	0.41	[69.23]	0.18	[30.77]

Source: Author's computation based on GLSS 4 and GLSS 5

Values in parentheses are expressed as a percentage of male and female in each category

In relation to the rural population, most of them have no educational attainment in 1998/99 and 2005/06. About 55.1% of the rural population in Ghana had no educational attainment in 2005/06. The second dominant group was those with MSLC/BECE as their highest educational attainment. In 1998/99, this group constituted 43.1% and this fell to 36.8% in 2005/06.

On the whole, whereas majority of degree holders were made up of urban dwellers in both periods under consideration with the share of 85.8% and 66.7% in 2005/06 and 1998/99 respectively, the majority of those with no educational attainment were made up of rural dwellers in both periods (1998/99 and 2005/06) with the share of 67.3% in 1998/99 and 67.2% in 2005/06 as shown in Table A.6 (see appendix).

2.4.1 Relationship between Migration and Educational Attainment for 1998/99 and 2005/06

The educational attainment of migrants over the years has skewed towards those with Middle School Leaving Certificate (MSLC)/Basic Education Certificate Examination (BECE) as their highest educational attainment. In 1998/99 and 2005/06 migrants with Middle School Leaving Certificate (MSLC)/Basic Education Certificate Examination (BECE) as their highest educational attainment were 45.8% and 42.8% respectively. This was followed by those with no educational attainment having a rate of 39.5% and 37.2% in 1998/99 and 2005/06 respectively. Individuals with other educational attainment constituted the least group in both periods (1998/99 and 2005/06), having a share of 0.3% in 1998/99 and 0.3% in 2005/06.

Though majority of migrants have MSLC/BECE as their highest educational attainment, a greater proportion of individuals with a degree (1st degree and higher) are migrants in 1998/99 and 2005/06 with a proportion of 100% and 83% respectively. The second group of migrants in 2005/06 is those with Teacher's training/nursing/technical/professional qualifications, they had 73.0% of its members as migrants. However, the second group of migrants in 1998/99 is those with Senior Secondary Certificate Examination (SSCE) having 63.3% of its members as migrants as shown in Table 2.4.

Table 2.4: Migration Status and Highest Educational Attainment

Highest Educational Attainment	Migrant (2005/06) in %	Non-Migrant (2005/06) in %	Migrant (1998/99) in %	Non-Migrant (1998/99) in %
None	37.21 [52.24]	46.80 [47.76]	39.52 [48.44]	44.90 [51.56]
MSLC/BECE	42.80 [60.96]	37.71 [39.04]	45.84 [53.54]	42.45 [46.46]
Voc/Com	5.30 [68.01]	3.43 [31.99]	4.68 [59.34]	3.42 [40.66]
Teacher/Prof.	6.08 [73.04]	3.09 [26.96]	7.40 [51.04]	7.58 [48.96]
SSCE	6.45 [51.61]	8.31 [48.39]	2.16 [63.29]	1.34 [36.71]
Degree	1.83 [82.95]	0.52 [17.05]	0.13 [100.00]	0.00 [0.00]
Others	0.33 [76.47]	0.14 [23.53]	0.26 [46.15]	0.32 [53.85]

Source: Author's computation based on GLSS 4 and GLSS 5

Values in parentheses are expressed as a percentage of migrant & non-migrant in each category

Also, in finding out the relationship between migration and school attendance for 1998/99 and 2005/06, it was realized that the majority of migrants and non-migrants had attended school in 1998/99 and 2005/06. In 1998/99 it was realized that 66.2% of non-migrants have attended school and the share was about 69.3% for migrants. Though the share was still high in 2005/06 (65.1% of non-migrants attended school against 64.8% of migrants) it was low relatively to the share in 1998/99. Out of those who had attended school, it was realized that majority of them were migrants in 1998/99 and 2005/06. In 1998/99 for example, about 51.6% of Ghanaians who had attended school were migrants. This share increased to 57.9% in 2005/06 as shown in Table 2.5.

Table 2.5: School Attendance and Migration Status

School Attendance	Non-migrants (%) 2005/06	Migrants (%) 2005/06	Non-migrants (%) 1998/99	Migrants (%) 1998/99
Yes	65.11 [42.09]	64.80 [57.91]	66.15 [48.38]	69.27 [51.62]
No	34.89 [41.76]	35.20 [58.24]	33.85 [51.95]	30.73 [30.73]

Source: Author's computation based on GLSS 4 and GLSS 5

Values in parentheses are expressed as a percentage of migrants & non-migrants in each category

2.5 Summary

This chapter examined an overview of education and migration in the Ghanaian economy. It was realized that the Ghanaian educational system has gone through various reforms after independence. These reforms have led to an increase in educational enrolment over the years. In spite of the increase in the educational enrolment over the years, the level of literacy is not encouraging and it is even worse among females. The pattern of migration was also discussed in this chapter. It was realized that migration in Ghana is selective with young adults constituting the majority of the migrants and the trend of migration in Ghana is mostly urban-rural and rural-rural. Also, both migration and education attainment is unevenly distributed across the regions of Ghana.

CHAPTER THREE

LITERATURE REVIEW

3.0 Introduction

The focus of this chapter is to critically review relevant literature pertaining to migration and education. In the discussion, attention is given to reviewing literature that relates to the role of remittances in education attainment. Though the study is about migration-education linkages, the literature to be reviewed will be skew towards migration. This chapter is basically organized into three broad sections which include a review of theoretical literature, review of empirical literature on migration and review of literature pertaining to returns to education.

3.1 Review of Theoretical Literature

One of the leading models in migration literature is the gravity model and this was influenced by Ravenstein (as well as Newton). The gravity model postulates that migration between place i and place j , is a positive function of repulsive forces at i , attractive forces at j and is inversely related to the "friction" or distance between i and j .

As an extension of the gravity model, Stouffer (1940) introduced the notion of intervening opportunities in the model. He postulated that migration over a given distance is held to be directly related to the number of opportunities at that distance and inversely related to the number of possible alternative migration destinations between i and j .

Stouffer placed more emphasis on the nature of a particular place (that is, the level of infrastructure development) than distance determining to where migrants go.

Later, a dual model which placed rural-urban migration as the main source of development process was advocated by Arthur Lewis in the mid 1950's. Though Lewis did not aim at propounding an explicit theory of migration, his model nevertheless, formed an important element of the model that influenced economic and policy discussion on migration – especially, rural-to-urban – in the 1950s and 1960s. In his model, Lewis (1954) tries to explain the transition from a stagnating economy based on a traditional rural sector to a growing economy driven by the development of a modern urban sector. Lewis assumes that rural economies initially present a specific situation in which there is 'surplus labour' in the agricultural sector. As a result it supplies labour to the modern industrial sector by the movement of the surplus labour from the rural sector to the industrial sector.

Thus, movement of the labour force between the two economic sectors (that is the rural and urban) involves the reallocation of the labour force across space through migration from low population density rural areas to high population density urban areas. Lewis (1954) argued that rural-to-urban migration is the likely outcome of a wage-gap between rural (with the surplus labour) and urban sectors (with the scarce labour). The movement of labour from the low wage sector to the high wage sector will continue until the wage-gap is eliminated. In summary, Lewis argued that;

1. In most developing countries there exist a large subsistence sector and an expanding capitalist sector, thus these economies are characterized by a dual economy.
2. Due to the scarcity of labour in the capitalist sector the marginal productivity of labour in that sector is positive, while that of the subsistence sector is insignificant (that is, zero or even negative) due to unlimited supply of labour.
3. The productivity of labour and wage are increased as capital is used in the capitalist sector than what pertains in the subsistence sector.
4. The development process is characterized by a gradual transfer of labour from the subsistence to the capitalist sector. This characteristic is desirable since it provides the required human resource for industrial expansion.
5. As the entire surplus of labour is use by the capitalist sector the process of labour transfer will eventually come to a halt.

The movement of surplus labour from the subsistence sector to the modern or capitalist sector in Lewis' model is a key force to capital accumulation and economic growth. Even though Lewis' theory is highly applauded, it has come under some criticisms. The assumption about the existence of surplus labour in the subsistence sector is the major criticism raised. The argument is that for many developing countries, this assumption has limited strength. For instance in most farming communities, the assumption of surplus labour is likely to be invalid during the seasons where more hands are needed on the farm. Thus, during the periods of ploughing, planting and harvesting, where more labour is needed to carry out these activities on the farm labour is not in excess supply.

An additional criticism has been raised in relation to the theory's assumption of continuous demand (by the capitalist sector) for rural labour as long as the capitalist sector is expanding. Todaro and Smith (2003) brought to light that this assumption is problematic given that the modern sector's expansion may be associated with investment in labour-saving technology (that is, technology which makes use of less labour).

Sjaastad (1962) views the decision to migrate as a net present value decision that weighs financial and psychic costs and benefits. Thus, he conceptualizes migration as an investment that has a higher probability of increasing labour productivity, and will result in an efficient allocation of resources. By treating migration as an investment, Sjaastad postulated that the individual after evaluating the present value of net income streams (associated with migrating to alternative locations); can make a rational choice/decision based on the option with the highest rate of return.

An individual will have an incentive to migrate from location i to j if migration will increase the present value of his/her lifetime net income. On the contrary, the individual will have no incentive to migrate if migration will not increase the present value of his/her lifetime net income. Other studies that share this view include those by Mincer (1958), Schultz (1961) and Becker (1962).

The issue of selectivity bias of migrants was also addressed in Sjaastad's framework. The framework by Sjaastad explains why young individuals are more likely to migrate (relative to the aged). Thus, the young, on average, would have a longer time horizon

(compared to that of older persons) over which the returns to migration can be reaped. Lucas (1997) on the other hand argued that young persons have a higher discount rate than that of older persons which implies that young individuals prefer the present to the future hence migration will be lower among young individuals than older ones since the present value of lifetime net income will be small for the young than their older counterpart. This often made assertion may not be valid.

The most celebrated migration model in the late 1960s is the hypothesis formulated by Todaro (1969), and this was subsequently extended by Harris and Todaro (1970). In these models, the key assumptions include the following:

- i. The urban formal sector has the highest wage levels in the economy and attracts most of the rural dwellers to seek job in the urban formal sector;
- ii. This high wage in the urban formal sector is due to the difficulty in obtaining urban formal jobs. As a result the search for such jobs is best carried out from a state of urban unemployment or urban informal employment;
- iii. Since the labour force in the urban sectors is assumed to be constant at any point in time, the probability of obtaining an urban formal sector job is inversely related to the rate of urban unemployment.

Migration, especially from rural to urban, according to Todaro is determined by rural-urban “expected” real wage differentials. This means that rural-to-urban migration depends on a combination of rural-urban actual real wage differentials and the probability of obtaining an urban job. The probability of obtaining an urban job among other things

depends on education. Todaro's hypothesis essentially highlights the view that rational economic considerations are the main factors in migration decisions. Thus, Todarian models focused on explaining the existence of unemployment in urban areas and link it with internal migration.

As a result Todaro proposes a simple dynamic formalization where the individual's migration decisions are based on the difference between the discounted expected income streams in urban and rural areas after taking into account migration costs and the risks of unemployment in the urban centre. This made Lucas (1997) to point out that, Todaro's model represents a reformulation of Sjaastad's (1962) model.

The core contribution of Todaro's framework is to find a linkage between urban unemployment and migration flows. Based on certain parameter values of Todaro's model, the intensity of the link established by Todaro can lead to a paradox (known as the Todaro paradox). Thus, a policy aiming at increasing the number of available jobs in a city may increase the level of unemployment because of induced migration.

Harris and Todaro (1970) presented a static framework version of the Todaro model in which the interaction between the rural and urban sectors is more detailed. Thus, they made use of a two-sector internal trade model with unemployment, to obtain an equilibrium characterized by urban unemployment. In addition to assuming that prospective rural migrants are utility maximisers, Harris and Todaro assume the existence of a periodic random job selection process, whenever the number of job seekers exceeds

the number of available jobs. The main premise of the Harris-Todaro hypothesis is the existence of an institutionally determined urban minimum wage in many developing countries which can equilibrate the labour market with considerable urban unemployment.

Cole and Sanders (1985) have criticized the Harris-Todaro model for not clearly modeling the subsistence sector which mostly employs uneducated migrants. They argue that the Harris-Todaro model flawed the job selection process and expected income calculations if, by lack of qualification, uneducated migrants could not find a job in the modern urban sector. In a situation where the urban wage tends to decrease with an increase in the unemployment rate as argued by Hoddinott (1996) in his study on urban African labor markets, then this would tend to reduce the expected earnings differential in the transition towards the equilibrium in the model. This suggests another reason why migration flows could be overestimated, making the Todaro paradox even less likely to occur.

Moreover, Fields (1975) criticized and modified the Harris-Todaro model by proposing four extensions to the model. He did this by incorporating a more general job-search behaviour, an urban traditional sector, preferential hiring by level of education, and labour turnover considerations. These modifications resulted in a considerably smaller and more realistic predicted rate of unemployment. In spite of the various extensions to, and criticisms of, the basic Todaro model, it continues to be a key/important reference in the theoretical, empirical, and policy discussions on migration.

Based on the discussion so far, it can be realized that the economics literature on migration has traditionally often postulated that an individual decision to migrate is motivated by mainly economic considerations. However, this view of migration decision being motivated by economic considerations has been challenged. Lucas and Stark (1985) are of the view that there are instances where adult members of a household collectively decide that one of its members should migrate. This means that there is a dominant role of the family or household in migration decisions. This school of thought treats migration as the outcome of a collective (rather than an individual) strategic decision made by the family or household. In this situation, migration is employed as a livelihood means for diversifying income and to insure the entire household (including the migrants) against risks and uncertainty. This is because it is believed that the migrant will send remittances to the family or household.

Rosenzweig and Stark (1989) have applied the risk-theoretic framework to examine how households use both marriage and migration to reduce consumption fluctuations. They (Stark and Rosenzweig) hypothesized that the spatial distribution and features of marital arrangements involving daughters are partly due to a tacit inter-household contractual arrangements aimed at smoothing consumption. In order to test their hypothesis they used a longitudinal data from villages in South India, and found evidence in support of their hypothesis; the combination of marriage and migration contributes to a decrease in consumption variability, and households that are susceptible to higher income risks are more likely to engage in longer distance marriage and migration arrangements.

Mckenzie and Rapoport (2006) identified three channels through which migration can impact on education decisions. These channels are;

- i. Remittances affecting the possible amount of education investment;
- ii. The effect of having parents absent from the household due to migration; this may translate into less parental input into education acquisition and maybe into more house and farm work by remaining household members, including children;
- iii. The effect of migration prospects on the desirable amount of education; this will depend on how education incentives are affected by the prospect of migration.

Mckenzie and Rapoport (2006) also pointed out that the impact of migration on education is uncertain and may depend on the household resource. There are instances where remittances from migrant may lead to an increase in education investment. On the other hand, less parental input into the child's education acquisition due to migration may also reduce the level of education attainment by the child.

3.2 Review of Empirical Literature

In modeling the determinants of migration, the data to be used is very important. The data normally used is either micro-level or macro-level data. Most research in the 1980's made use of aggregate or macro-level data to analyze the determinants of migration. Since this study will focus on micro analysis, more of the literature to be reviewed will focus on those which make use of micro-level data. The discussion here will briefly consider studies which made used of macro-level data and later focus on the studies that uses micro-level data.

DaVanzo (1981) suggested that studies that made use of macro-level data typically treated migration as a device that helps to equilibrate the labour market by narrowing the spatial income differentials. Yap (1977) made an attempt to review macro-migration studies and she noted that econometric estimates authenticated the importance of economic factors in migration decisions. Particularly, it was found in the macro-migration studies that whereas income differential affect migration decisions positively, distance too influence migration decisions negatively. In a situation where wages or per capita income of origin and destination localities are included independently, it was found that while the wage at the destination positively affect migration, the origin wages usually showed negative effect on migration. According to Yap (1977), the chances of obtaining employment, better educational opportunities and the availability of social amenities are other economic considerations affecting the individual's decision to migrate.

In recent times, many migration studies have made use of micro-level data to investigate the determinants of migration. The increasing use of micro-level data for migration studies can be attributed to the increase in the number of household surveys, especially, in developing countries, and using micro-level migration data has an advantage of increased scope for more detailed analyses of the relationships between migration decisions and household or individual attributes such as education, marital status, age, employment status and so on. Another advantage of the use of micro migration data is that it provides more observations on relevant variables, thus enhancing the capacity for the generation of results that are more reliable.

Lucas (1997) established a micro migration equation which has the decision of individual i to migrate to be a function of the wage differential between the current location and the destination location, the cost involved for individual i to migrate, the attribute of individual i and a disturbance term.

Mckenzie and Rapoport (2006) tried to model the impact of migration on education as, the years of schooling completed by a child in a household being a function of the education level of the mother, the presence of a migrant in the household, individual characteristics of the child and community characteristics.

In an attempt to test the theoretical models discussed, Schrieder and Knerr (2000) have examined the potential of migration with remittance strategies in smoothing the incomes of rural households. They applied probit and Tobit models to 1991/92 survey data from Cameroon and observed that the failure of migration with remittance strategies in serving as a social security mechanism when the potential remitter does not expect any considerable inheritance. They however noted that migration and remittance strategies seem to help small-scale farmers in times of crises.

Giani (2006) using a descriptive analysis tried to examine the link between migration and education in Bangladesh. The focus of the study was to examine the rural-urban migration patterns of children who move to Dhaka city (either on their own or with their parent). This was done by exploring the consequences that migration process which is driven by economic and social reasons has on the children's education. Giani found that

the inter-linkages between migration and education are uncertain but poverty and poor standard of education in Bangladesh are strong arguments in explaining the linkages between migration and education.

However, Haapanen (1998) was able to find a linkage between migration and education. The study made use of multinomial logit to determine whether internal migration affect labour market transition of unemployed workers in 1994 and also to find out the determinants of migration between 1990 to 1995 in Finland. The result of the study was that migration to growth-centre region increases employment likelihood of the unemployed worker while migration to other regions reduces it. Also, education increases the likelihood of migration to growth centre regions but does not affect migration to other region. Thus, education impacts on migration to growth centre regions.

Nivalainen (2003) in his work also used a multinomial logit model to investigate the decision to migrate to rural areas in Finland. The study made use of a large individual-level dataset. In comparing rural in-migrants and non-migrants, it was realized that in-migration to rural areas is selective and the probability of rural in-migration increases with age. Also, typical rural in-migrants are pensioners and these are characterized with a small income. Moreover, he found out that educational level and family relatives is not different for both rural in-migrants and rural non-migrants. In general, those moving to rural areas are older, have a lower educational level and a smaller income. Nevertheless, there existed differences in relation to the distance of migration: short distance rural in-

migrants are more likely to be couples with young children, while long distance rural in-migrants are more often pensioners and return-migrants.

A longitudinal analysis was used by Ralston (1981) to examine the sex difference in the relationships between education and migration among Nova Scotia youth. It was revealed that post-secondary aspirations and actual post-secondary attainment are significantly related to migration among males but not among females. Also, young men tend to continue their education more, migrate to greater distances and attend universities and technology institutions while the women attend institutions which are located in their origin communities.

In Ghana, there are numerous studies which have made use of descriptive analysis and econometric analysis to determine the link between migration and education. Tutu (1995) using the 1991 Migration Research Study tried to examine the pattern of migration in Ghana and noted that the major forms of migration are rural-rural, followed by rural-urban and urban-rural. Also he brought to light that the dominant regions of destination of migrants are the Greater Accra, Ashanti, and Western Regions but the Upper East region was the least attractive destination for migrants.

Also, Batse (1995) using data from 1960, 1970 and 1984 population censuses of Ghana, found out that rural-rural migration dominates the other forms of migration. However, its importance relative to that of the other forms of internal migration has reduced since the 1970s. On the contrary, Ghana Statistical Service (2000a) computed the share of

migration flows using the Ghana Living Standard Survey four, it was noted that the share of urban-rural (35%) dominates the migration flow, followed by rural-rural (32%), urban-urban (23%), and rural-urban (10%) in that order. This shift in migration patterns between 1970 and 1984 (that is, a fall in rural-rural migration) has been suggested by Batse (1995) to be partly due to a decline in farming and mining activities in the rural areas in the 1970s and early 1980s.

The foregoing discussions suggest that rural-to-urban migration is not the most common form of migration in Ghana. Lucas (1997) and De Haan (1999) in their studies for other countries than Ghana stated that rural-to-rural migration is the most common type of migration in developing countries. This assertion confirms Ghana's situation between 1960 and 1970, based on the literature reviewed.

In relation to the studies that examine factors that affect the rate of migration, Beals et al. (1967) using data from the 1960 population census noted that distance negatively affects the rate of migration. Thus, they found that distance is a strong deterrent to interregional migration in Ghana. Further, Caldwell (1968) in a study of rural-to-urban migration using survey data found evidence in support of the negative effect of distance on migration. He noted that there was a clear inverse relationship between the propensity to migrate to the towns and the distance from the nearest large locality for all individuals aged more than 20 years. This result according to Caldwell was found to be statistically significant for both sexes. This negative impact of distance on migration rate may be linked to

information costs, as well as important cultural and social differences between localities, Beals et al. (1967).

Ackah and Medvedev (2010) using data from the 2005/06 round of Ghana Living Standard Survey (GLSS 5) realized that migration decision is influenced by the opportunities available to the individual (this is based on the individual characteristics) and constraints faced by communities. Thus, there exist greater incentives for more educated individuals from communities with deprived access to social amenities (that is, education and health services) to migrate. They further noted that households with migrants are better off than household without migrants. However, the amount of remittance depends on whether the household sends migrants to urban areas or not.

Tsegai (2005) found that incomes of migrant households are higher than those of otherwise comparable non-migrant households. However, the coverage of his study was limited to the Volta Basin. Boakye-Yiadom (2008), using data from the 1998/99 round of Ghana Living Standards Survey (GLSS 4), found that, although some rural-urban migrants experienced welfare losses, on average, rural-to-urban migration significantly enhanced the welfare of internal migrants.

Economic considerations have been seen as one of the major reasons for migration in the migration literature. In Ghana, Beals et al. (1967) observed the likelihood for migrants to move to regions with high wages. They found out that high wage levels in the destination region contributed highly to the propensity to migrate. In the same light, Tutu (1995)

using data from the 1991 Ghana Migration Survey suggest that job-related reasons play a major role in migration decisions. In sum, the evidence suggests that favourable economic conditions in potential destination localities act as a key determinant of the propensity to migrate in Ghana (Boakye-Yiadom, 2008).

There are instances where the welfare level in the sending community (or household) affects the decision to migrate. This in the Ghanaian literature was confirmed by Beals et al. (1967). In their study it was found that there is a negative effect of origin locality's income on migration. Thus, if the income of the individual at his origin is high then there exists a low probability of the individual to migrate. On the contrary, Caldwell (1968) found out that there are instances where better-off rural households have higher propensity of migrating to the towns.

The conflicting idea from the results of Beals et al. (1967) and Caldwell (1968) may be attributed to the fact that they are actually capturing different effects on migration. Whereas the result of Beals et al. reflects the tendency for people to want to stay in an area if favourable economic conditions prevail, Caldwell's result reveals that for any community characterized by unfavourable conditions members of richer households are generally able to embark on migration. Beside there are differences in datasets used in the two studies, Caldwell was only reporting an association while Beals et al. carried out a regression analysis.

The gender factor also has a role in the migration decision in Ghana. Caldwell (1968) and Tutu (1995) noted that the propensity to migrate is higher amongst males than amongst females, especially over longer distances migrants in Ghana, and this is dominated by young persons. Boakye-Yiadom (2008), also noted that male urban residents are more likely to migrate to rural localities than their female counterpart. In most developing countries marital status plays an important role in every aspect of life including migration. While Tutu (1995) observed that the unmarried are more likely to migrate, Caldwell (1968) evidence was not very strong.

Age is also a major factor which affects the decision to migrate in Ghana. Boakye-Yiadom (2008) noted that urban adults (who are less than 35 years old) relative to their elderly (65 years plus) counterpart are less likely to migrate to rural areas. This suggests that most urban-to-rural migration in Ghana is embarked on by the elderly (mostly pensioners). On the contrary, age has a weak influence on rural-to-urban migration. Nevertheless, in comparison with the elderly, rural household heads aged between thirty five (35) and forty five (45) years are more likely to be rural-to-urban in-migrant.

Considering the impact of education on migration, the evidence from Ghana suggests that education affects migration negatively (Beals et al., 1967). Beals et al. made use of econometric analysis to examine the interregional migration in Ghana. On the contrary, Caldwell (1968) found a statistically significant positive association between education and the propensity for rural-to-urban migration. Gbortsu (1995) using the 1991 Migration Research Study, noted that a higher percentage of migrants have no formal education,

compared to non-migrants. Gbortsu further brought to light that it is only with respect to university education, that the proportion of migrants with education exceeds that of non-migrant.

Boakye-Yiadom (2008) using data from the 1998/99 round of Ghana Living Standards Survey (GLSS 4), found out that education has no strong influence on urban-to-rural migration decision. However, he noted that there exists an indication that relative to having no-education, an educational attainment to the MSLC/BECE level could increase the probability of migrating from an urban area to the rural sector. In the same vein, Reed et al. (2005) using an event History analysis method with data collected from the 2002 Population and Environmental Survey of the Central region, noted that individuals with more education especially those with primary or middle school education were more likely to migrate from rural to urban than the non-educated.

However, they brought to light that individuals with secondary education were less likely to move to a rural area. Whereas Reed et al. (2005) sample concentrated on only the Central region, Boakye-Yiadom (2008) considered the entire country and also used the Heckman procedure to correct for selectivity bias since migrants are non-randomly selected.

Hashim (2005) drawing on interview with young migrants from rural household in North-Eastern Ghana to rural farming household in Central and Southern Ghana, noted that majority of children migration in Ghana is due to work reason and also educational

attainment. He stated that these two major reasons for migration among children are conflicting since working undermines the child access to education. However, there exists a paradox since some children most at times migrate for work in order to acquire enough funds to access educational opportunities.

3.3 Returns to Education

Barro and Lee (2000) observed that a greater amount of educational attainment implies more skilled and productive workers, who in turn increase the output of goods and services. An abundant well-educated human resource also helps to facilitate the absorption of advanced technologies. Furthermore, the level and distribution of educational attainment has a strong impact on social outcomes such as children's education, child mortality and income distribution.

The returns of education can be categorized into private returns and social returns. The private returns deals with the monetary earning received by the educated person. These earnings of the educated individuals do not reflect the external benefits that affect society as a whole. Such benefits which do reflect the external benefits that affect society are known as externalities or spillover benefits, since the educated individual spillover some benefits to other members of the community who do not contribute to the cost of schooling. These external benefits of education may be grouped into social benefits and economic benefits.

In relation to the social benefit of education it comprises of those benefits enjoyed by society as the educated person educates family members and friends about social issues such as crime and health issues such as diseases. Whereas the external economic benefits comprise of the increase in productivity of the educated worker as he/she is employed. In spite of these external benefits of education it is very difficult to measure and as such the return to education is mostly under estimated.

These external benefits of education are responsible for the increasing investment by governments of different countries of which Ghana is no exception. The investment by government into education is mostly skewed to the primary school level due to the belief that the return to education declines by the level of school, that is to say, the returns to primary education is higher than secondary and tertiary (Psacharopoulos, 1994). Also, the increasing interest in education by developing countries like Ghana is the fact that the return to education in developing countries is higher than return to education in developed countries. This is because the cost of education is higher in developed countries than developing countries, (Psacharopoulos and Patrinos, 2004). These costs comprise of the forgone opportunities of schooling and the actual costs of schooling.

In relation to the private return to education, accumulation of human capital is seen as an investment decision, where the individual gives up some proportion of income during the period of education and training in return for increased future earnings, (Blundell et al., 1998). This means that the individual will only undergo additional schooling or training

(i.e. invest in their human capital) if the costs⁵ are compensated by sufficiently higher future earnings.

In a competitive labour market where wages reflect the marginal product of workers, to be able to command higher earnings, the better-educated or more-trained workers must be sufficiently more productive in employment than their less-skilled counterparts. We should however note that in the presence of imperfect competition or barriers to entry into different occupations, wage differentials between the qualified and the unqualified may not necessarily be related to productivity differentials.

In relation to Ghana, Sackey (2008) using data from Ghana Living Standard Surveys of 1991/2 (GLSS 3) and 1998/9 (GLSS 4) and ordinary least squares technique examined the private return of education in Ghana, he observed that earnings rise with higher levels of schooling. In the same way, the return to an additional year of secondary schooling for female workers increased from 7.3% in 1992 to 12.3% in 1999. In the case of tertiary education, the change is from 11.4% in 1992 to 18.4% in 1999. For male workers the return to an additional year of secondary education decreased from about 7% to 6%, while the return to tertiary education increased from about 13% to 19%. Sackey (2008) also carried out a spatial analysis and found out that there exists a rural-urban gap in the returns to an additional year of tertiary education. Linking these results to migration, he

⁵ These costs comprise of tuition and training course fees, forgone earnings while at school and reduced wages during the training period

brought to light that the data show a relatively low incidence of rural-to-urban migration; notwithstanding relatively higher earnings prevailing in urban areas.

3.4 Summary

The above discussion considered relevant literature concerning migration and education. The theoretical literature discussed in migration includes the gravity model which was propounded by Ravenstein. The dual model of Lewis was also considered in our discussion, this model hypothesizes that the excess labour supply in the rural area will migrate to the urban area where labour is scarce. According to Sjaastad (1962), the decision to migrate is seen as a net present value decision that weighs financial and psychic costs and benefits.

In the case of Ghana, it was realised that the determinants of migration include age, gender, distance, education, geographical characteristics and economic consideration. In relation with the educational factor, it was realised that the impact of education on migration is uncertain. Whereas, some studies have a negative impact of education on migration others find a positive impact of education on migration. Though, there was the evidence that migration through remittance increases educational attainment. Returns to education comprises of private and social returns. And a higher level of educational attainment increases the skill and productivity of a worker. In relation to Ghana, empirical studies suggest that earnings rise with higher levels of schooling.

CHAPTER FOUR

METHODOLOGY

4.0 Introduction

This chapter outlines the methodology used in this study and discusses the estimation procedure. The chapter is organised into four sections. Section one presents the theoretical framework within which the study is carried out, section two presents the model for empirical estimation, section three presents the estimation procedure and section four discusses the data source for the study.

4.1 Theoretical Framework

Though the focus of this study is to examine the linkage between migration and education, Sjaastad's (1962) human capital framework will be the main framework to be used to examine the impact of education on migration. This framework would be used to model the individual's migration status. For any potential migrant, the continuous form expression of the net present value or net gain from migration which the individual seeks to maximize is given by:

$$PV_{mp} = \int_0^n [W(t)_{im} - W_{ip}(t)] e^{-rt} dt - C_{imp} \quad (4.1)$$

Where PV_{mp} represents the net present value of moving from location p to m

C_{imp} represents the initial costs of moving from location p to m;

$W(t)_{im}$ represents the welfare of the individual at the destination place

$W(t)_{ip}$ represents the welfare of the individual at the origin location,
 t represents the time period which flows from year 1 to the n th year, and
 r presents the implicit discount rate.

From equation 4.1, an individual will have an incentive to migrate from location p to m if migration will increase the present value of his/her lifetime net income (that is, $PV_{mp} > 0$). On the contrary, the individual will have no incentive to migrate if migration will not increase the present value of his/her lifetime net income (that is, $PV_{mp} < 0$).

Polachek and Horvath (1977) refined the simple Sjaastad model by proposing an optimal control model of life cycle locational change. In this situation, the individual is assumed to maximize his present value of lifetime earnings, where available controls include:

- Investment in human capital
- a strategy of search for attractive wage opportunities in other locations, and
- Mobility investment in the form of location change.

In this framework investment is carried out at each stage of the life cycle, where "location" is viewed as a composite of locational attributes. According to Nakosteen and Zimmer (1980), the inclusion of search time as an available control introduces a feature of periodicity in migration over the life cycle. This is because migrants experience a reduction in their accumulated stocks of information subsequent to moving.

The significant feature of this dichotomy is that the decision to migrate may be modeled in part by means of a binary variable representing "move" or "not move" for each individual. The model used in our study will adhere to a similar convention. In such a case we will allow a simultaneous determination of the migration decision and returns to migration in the form of welfare. In this study we will pay explicit attention to the problem of self-selection.

4.2 Model for Empirical Estimation

Before we start the discussion of the empirical model to be used in this study, we will recall the research questions underlining this study. The research questions under consideration are:

- i. What is the effect of education on migration?
- ii. What is the effect of remittances on educational expenditure?
- iii. Are there any differences in migration-education linkages for the different types of migration?
- iv. What is the relationship between migration status and educational attainment?

It is worth noting that though the focus of this study is to examine the links between migration and education, we will consider other factors that affects an individual's migration status beside his/her education level. As a result, the basic modeling strategy to be used to address the first and third research questions will follow closely to that of Lee (1978), Nakosteen and Zimmer (1980) and Boakye-Yiadom (2008). In their model, they estimated three simultaneous equations which are:

- a) A migration decision equation, defined over both migrants and non-migrants;
- b) A welfare equation for migrants; and
- c) A welfare equation for non-migrants.

However, an ordinary least squares (OLS) estimation will be used to address the second research question. In the OLS estimation, educational expenditure will be regressed on remittances received by particular household, total employment income and other control variables. And a chi square analysis will be used to test the relationship between education and migration.

The model of Nakosteen and Zimmer (1980) will be adapted in order to relate the theoretical model to the empirical model in addressing the first and third research questions. In their model, they assumed that:

At any given time, individual i will choose to migrate if the anticipated welfare gain exceeds the corresponding migration costs.

This means that at any given time, an individual will migrate if his/her percentage gain in welfare exceeds the migration costs. Thus, an individual will choose to migrate if;

$$\left[\frac{W_{mi} - W_{ni}}{W_{ni}} \right] > C_i \quad (4.2a)$$

And this individual will not migrate if:

$$\left[\frac{W_{mi} - W_{ni}}{W_{ni}} \right] \leq C_i \quad (4.2b)$$

Where W_{mi} denotes individual i's welfare as a migrant; and

W_{ni} denotes individual i 's welfare as a non-migrant.

And C_i , represents direct and indirect costs incurred by individual i in moving from region m to region n . This cost of migration is a proportion of income and income⁶ is assumed to be a proxy for welfare. It is argued that the costs of migration (C_i) can be represented as a function of one or more personal characteristics (X_i) of the migrant, one or more community characteristics (Z), and a random disturbance term. Thus,

$$C_i = g(X_i, Z) + \varepsilon_i \quad (4.3)$$

From equation 4.3, these personal characteristics include age, sex, education level, marital status and so on, and the community characteristics include cost of living, unemployment rate, locality, region and so on.

From the inequalities 4.2a and 4.2b, it follows that the decision to migrate or not to migrate may be expressed as a function of (anticipated) welfare gains, personal characteristics (where education level is a key variable), household characteristics and community characteristics. The linear functional form to be used to express this relationship is adopted from Nakosteen and Zimmer (1980). Thus, the migration decision equation which would be based on the Heckman two stage procedure is given as (see Boakye-Yiadom, 2008):

Individual i will migrate if:

$$M_i = \alpha_0 + \alpha_1 X_i + \alpha_2 Z_i + \lambda \left(\frac{w_{mi} - w_{ni}}{w_{ni}} \right) - \varepsilon_i > 0 \quad (4.4a)$$

⁶ Income is assumed to be equivalent to consumption expenditure. Also consumption expenditure will be used as a proxy for welfare.

and does not migrate if

$$M_i = \alpha_0 + \alpha_1 X_i + \alpha_2 Z_i + \lambda \left(\frac{w_{mi} - w_{ni}}{w_{ni}} \right) - \varepsilon_i \leq 0 \quad (4.4b)$$

Where, α_1 is a vector of coefficients of the variables in X_i

X_i is a vector of variables representing appropriate individual and household characteristics

α_2 is a vector of coefficients of the variables in Z_i

Z_i is a vector of variables representing appropriate community characteristics

λ is a coefficient of the welfare gain variable

α_0 is constant term

ε_i is an error term; and

It has been argued that $(\ln W_{mi} - \ln W_{ni})$ and $(W_{mi} - W_{ni})/W_{ni}$ are approximately equal (that

is, $\ln W_{mi} - \ln W_{ni} \equiv \frac{W_{mi} - W_{ni}}{W_{ni}}$), Lee (1978). The empirical model for this study can be

specified with the welfare equations formulated in logarithmic form as:

$$M_i = \alpha_0 + \alpha_1 X_i + \alpha_2 Z_i + \lambda (\ln W_{mi} - \ln W_{ni}) - \varepsilon_i \quad (4.5)$$

Where M_i is unobserved, but we rather observe $M_i = 1$ if $M_i > 0$, and $M_i = 0$ if $M_i \leq 0$

The impact of education on migration is examined via personal characteristics of the individual. In addition, the perceived difference in welfare for the migrant and the non-migrant is a paramount determinant of one's migration status. This explains the need for the inclusion of the variable $(\ln W_{mi} - \ln W_{ni})$ in equation 4.5.

It is argued by Boakye-Yiadom (2008) that an individual's welfare level depends on personal characteristics (such as educational attainment, age, sex, marital status, etc.) and community attributes (such as, the availability of socio-economic amenities). In this case, an individual's welfare equation can be expressed as a function of variables representing both individual and community characteristics. Thus,

$$\ln W_{mi} = \theta_{0m} + \theta_{1m} X_i + \theta_{2m} Z_i + \varepsilon_{mi} \quad (4.6a)$$

$$\ln W_{ni} = \theta_{0n} + \theta_{1n} X_i + \theta_{2n} Z_i + \varepsilon_{ni} \quad (4.6b)$$

where

$\ln W_{mi}$: log of migrant welfare

$\ln W_{ni}$: log of non-migrant welfare

X_i : Vector of variables representing appropriate individual characteristics

Z_i : Vector of variables representing appropriate community characteristics

θ_{1m} : Migrant vector of coefficients of the variables in X_i

θ_{2m} : Migrant vector of coefficients of the variables in Z_i

θ_{1n} : Non-migrant vector of coefficients of the variables in X_i

θ_{2n} : Non-migrant vector of coefficients of the variables in Z_i

ε_{mi} and ε_{ni} are all Normally distributed error terms with zero mean and constant variance.

From equation 4.5, it can be observed that the dependant variable is binary in nature and this suggest that the parameters of the decision equation (that is, equation 4.5) may be estimated by maximum likelihood probit or logit techniques. But in relation to this study the maximum likelihood probit technique will be used as we follow the Heckman's two stage procedure. The welfare equations expressed in equations 4.6a and 4.6b would be

estimated by ordinary least squares (OLS) and the resulting fitted values of log-welfare could be inserted into equation 4.5 to obtain consistent estimates of the decision equation (that is, structural equation). As suggested by Nakosteen and Zimmer (1980) and Lee (1978), the Ordinary Least Squares (OLS) technique is inappropriate for estimating the welfare equations due to its failure to account for selectivity bias. When the welfare equation is not modified, then the conditional means of the welfare disturbance terms are non-zero and not constant for all observations. Thus;

$$E(\varepsilon_{mi} | M_i = 1) = \sigma_{m\varepsilon^*} \left[\frac{-f(\psi_i)}{F(\psi_i)} \right] \quad (4.7a)$$

$$E(\varepsilon_{ni} | M_i = 0) = \sigma_{n\varepsilon^*} \left[\frac{f(\psi_i)}{1 - F(\psi_i)} \right] \quad (4.7b)$$

Where $\sigma_{m\varepsilon^*}$ and $\sigma_{n\varepsilon^*}$ are elements of the covariance matrix

$f(\bullet)$ and $F(\bullet)$ are the standard normal density and cumulative distribution functions respectively.

$$\psi_i = \beta_0 + \beta_1 X_i + \beta_2 Z_i$$

and ψ_i is obtained by substituting equations 4.6a and 4.6b into equation 4.5 and simplifying. Thus,

$$M_i = \beta_0 + \beta_1 X_i + \beta_2 Z_i - \varepsilon_i^* \quad (4.8)$$

Where X_i and Z_i have their usual meaning

If we assume that the disturbance term is normally distributed with unit variance, equation (4.8) can be estimated by maximum likelihood probit method. This probit estimation yields fitted values (ψ_i) which will be used as estimates of the arguments in

equations 4.7a and 4.7b. Equations (4.7a) and (4.7b) summarize the selectivity bias which results from OLS estimation of the welfare equations. As a result OLS estimates are inconsistent and lead to biased estimates of returns to migration.

As a consequence, this study will account for selectivity bias by using Heckman's (1979) two-step model. In this case, the welfare equations are modified by incorporating appropriate "selectivity variables", and adding error terms with zero means.

4.3 Estimation Procedure

4.3.1 Impact of Education on Migration

In estimating all the parameters of equation 4.5, the following procedure (Heckman two-step method) will be used:

i. Probit estimation of the reduced-form migration decision equation

The regressors in equation 4.8 consist of the exogenous variables in all the three equations (that is, equations 4.5, 4.6a and 4.6b). Fitted values ($\hat{\psi}_i$) obtained from this (first) stage are used to construct the inverse Mill's ratio.

ii. Insertion of the inverse Mill's ratio into the appropriate welfare equations and estimating the welfare equations by OLS

Thus, the corrected welfare equation can be written as;

$$\ln W_{mi} = \theta_{0m} + \theta_{1m} X_i + \theta_{2m} Z_i + \sigma_{m\epsilon^*} \left[\frac{-f(\psi_i)}{F(\psi_i)} \right] + \eta_{mi} \quad (4.8a)$$

$$\ln W_{ni} = \theta_{0n} + \theta_{1n} X_i + \theta_{2n} Z_i + \sigma_{n\epsilon^*} \left[\frac{f(\psi_i)}{1 - F(\psi_i)} \right] + \eta_{ni} \quad (4.8b)$$

Where $E(\eta_{ni} | M_i = 1) = 0$ and $E(\eta_{ni} | M_i = 0) = 0$

The parameter estimates obtained by using the above two-step procedure according to Lee (1978) are known to be consistent. The variables for the non migrant are generated by using counterfactual scenario.

iii. Probit estimation of the structural migration decision equation

After determining the consistent parameter estimates of the welfare equations, we obtain the fitted values of the logarithm of welfare. This is used to compute estimates of the anticipated gain in welfare ($\ln W_{mi} - \ln W_{ni}$). Simultaneously with other exogenous variables, the estimates of the anticipated gain in welfare ($\ln W_{mi} - \ln W_{ni}$) are substituted into the structural decision equation to obtain the probit estimates of the structural migration decision equation (that is equation 4.5).

In estimating the structural equation, we will do that for three different samples after carrying out the Heckman's two step procedure for each sample. These samples are;

- a) The pooled sample which does not concentrate on the locality of the individual.

In this situation we will examine the total impact of education attainment on migration status.

- b) We will also group the destination of the individuals based on locality. Here the urban sample will be used to estimate the structural equation.

- c) The rural sample obtained from b) will also be used to estimate the structural equation.

These classifications of the destination of the individual in b) and c) above will help us examine how the impact of education on migration status differs for the types of migration.

It should be noted that whereas the New Economics of Labour Migration (Stark and Bloom, 1985) theory looks at migration at the household level, this study will concentrate on in-migrants only. Further, the effect of education on migration may also be through information (the educated are better informed and likely to migrate), income (the educated are likely to have higher income and thus have a better chance to migrate), etc. However, this study will concentrate only on how educational attainment affects migration due to data constraints.

4.3.2 Impact of Remittance on Education

In relation to the second research question (that is, what is the effect of remittance on educational expenditure?) we will use the Ordinary Least Squares (OLS) method to estimate the impact of remittance on educational expenditure. This is based on the idea that migrants send remittances to their families and these remittances could be used to foster education expenditure, hence having a high probability of increasing access to education, (Rapoport and Docquier (2005)). As a result, the model to use to answer the second research question is specified as:

$$Exp_c = \alpha_0 + \alpha_1 R_c + \phi X_{h,c} + \beta P + \varepsilon_c \quad (4.7)$$

Where

Exp_c is the log of expenditure on education in household c ;

P represents a dummy variable which takes the value of 1 if education is one of the major uses of the remittances received and 0 otherwise;

$X_{h,c}$ are a number of characteristics of the household head in household c ;

R_c is the log of remittances to household c ;

α_0 and ε_c are the constant term and disturbance term respectively.

It must be noted that the effect of migration on education is multi-dimensional. This is because networking, technology transfers and exposure are other ways whereby migration can affect education. However, this study will concentrate on how migration through remittances affect education due to data constraints.

4.3.3 Relationship between Migration status and Educational attainment

The chi-squared will be used to test the relationship between educational attainment and migration status. The chi-squared test is used to determine whether an association (or relationship) between two categorical variables in a sample is likely to reflect a real association between these two variables in the population. The sample data is used to calculate a test statistic, the size of which reflects the probability (p-value) that the observed association between the two variables has occurred by chance, that is, due to sampling error. The two categorical variables to be tested in this study are migration status and highest educational attainment. The null and alternative hypotheses in relation to this study are;

H_0 : Migration status is not associated with highest educational attainment

H_1 : Migration status is associated with highest educational attainment

When the chi-square calculated is greater than the chi-square critical values we reject the null hypothesis that migration status is not associated with highest educational attainment. In relation to this study, the Pearson chi-square will be used.

4.4 Data Source

The main source of data for this study will be from the 2005/06 and 1998/09 rounds of Ghana Living Standard Survey which are called GLSS5 and GLSS 4 respectively. Both rounds of the Ghana Living Standards Survey focus on the household as a key socio-economic unit and provide important insights into living conditions in Ghana. In addition to the demographic information collected in the surveys, the data also covers various aspects of living conditions, such as, consumption, education, health, housing, employment, migration, tourism and remittance flows. Moreover, the datasets make it possible to decompose the analyses on the basis of several categories, such as, administrative regions, ecological zones, rural-urban location, and gender of household head.

Whereas both GLSS 4 and GLSS 5 would be use in the descriptive analysis, the econometric analysis will make used of GLSS 5. In the econometric analysis, the pooled model (comprising of both urban and rural locality) which considers the impact of education on migration has 6976 household members as the sample size. However, the

sample size for the other two models which is based on the locality of the individual has 3340 household members for the urban locality and 3636 for the rural locality. The model which examines the impact of remittance on educational expenditure has 944 households as the sample size.

4.5 Summary

The chapter focused on the methodology to be employed to address the research questions. Sjaastad's (1962) human capital framework was used to examine the impact of education on migration. In addressing the problem of selectivity bias, Heckman's two stage method will be used. The study will make use of an OLS to assess the impact of remittances on educational expenditure. A chi-square will be used to examine the relationship between migration status and educational attainment.

CHAPTER FIVE

ESTIMATION AND DISCUSSION OF RESULTS

5.0 Introduction

This chapter will concentrate on the estimation and discussion of results. The chapter is divided into four sections which are: section one will examine the impact of education on migration; section two will discuss migration-education linkages for urban and rural, section three will analyse the impact of remittances on educational expenditure. And the last section will examine the relationship between migration status and educational attainment.

5.1 Impact of Education on Migration

The estimation technique used to examine the impact of education on migration is Heckman's two method. The dependant variable for the structural equation is the migration status of individual i (M_i). This variable is a dummy and it takes the value of 0 if the individual is a non-migrant and 1 if the individual is a migrant. A migrant in this study is an in-migrant. The welfare equations to be estimated have the logarithm of welfare as the dependant variable. In this study, consumption expenditure of the household head is used as a proxy for welfare for members from the same household with the head since it is assumed that individuals in the same household have similar welfare.

The set of regressors for the structural equation include a vector of the individual and household attributes (X_i), a vector of community characteristics (Z_i) and (anticipated) welfare gain ($\ln W_{mi} - \ln W_{ni}$). The individual and household attributes include highest educational attainment, age group, age squared, marital status, gender, household size, ethnicity and industry employed. The locality of the individual's destination and current region of the individual constitute the community characteristics. These variables are chosen based on theory, reviewed literatures and an introductory analysis that examines various combinations of regressors.

The highest educational attainment of the individual is classified into four groups. These are; no qualification, basic education, secondary education and higher education. The expected sign of the highest educational attainment variable is uncertain since studies in Ghana suggest that the educational level of an individual has a positive impact on migration (see Caldwell, 1968) and others suggest that it has a negative impact (see Beals et al., 1967; Gbortsu, 1995). There are studies which suggest that education has a weak effect on the decision to migrate (see Boakye-Yiadom, 2008).

The age variable in this study is categorized into three and these categories are $15 \leq \text{age} < 35$, $36 \leq \text{age} < 60$ and $\text{age} > 60$. The categorization of age is to find out whether young adults tend to have a higher tendency to migrate than the elderly. As a result, it is expected that the tendency to migrate amongst lower age groups will be higher than that of higher age groups. This is based on the relevant literature reviewed. The reference variable for the age variable is $\text{age} > 60$.

Marital status is classified into three groups. These are; married, never married and those in other category. Based on the literature considered in this study, the sign of the marital status variable is uncertain. The reference variable for marital status is married.

Sex is a dummy variable which takes the value of 1 for a male and 0 for a female. We expect that males have a lower probability of migrating than female in Ghana. This is based on the descriptive analysis considered earlier, as female migrants were more than their male counterparts. The reference variable for the sex variable is female.

Anticipated welfare gain is expected to have a positive impact on migration and this expectation is supported by both theoretical and empirical considerations. The sign of the household size variable is uncertain. In a case where household size has a positive impact on migration, it implies the push factors at home are strong enough to cause individuals to migrate. On the other hand, when the household size variable have a negative sign it implies that large household size has an element of strong social ties which serves as a disincentive for household members to migrate.

It is worth noting that in order to ensure that the parameters of the reduced form migration equation are identified, the welfare equations must contain at least one exogenous variable that is excluded from the reduced form migration equation (Nakosteen and Zimmer, 1980). Consequently, in the three models⁷ to be estimated, household size is included as a regressor in the welfare equations, but excluded from the

⁷ The pooled model, urban model and the rural model

reduced form migration decision equation. Also, in the structural (migration) decision equation we have ethnicity to be a regressor but this is excluded from the welfare equation.

Table 5.1 shows a list of variables used in the econometric analysis, together with their mean, standard deviation, minimum and maximum values.

Table 5.1: List of Variables for the Econometric Analysis

Variable	Description	Observation	Mean	Std. Dev.	Min	Max
LnW	Log of Welfare	6976	16.7279	0.7173	13.54	20.21
hhsz	Household size	6976	4.92661	3.05309	1	29
agesq	Age squared	6976	1421.18	1003.26	225	8649
migstatus2	Migration Status	6976	0.58386	0.49295	0	1
education1	No qualification	6976	0.38016	0.48546	0	1
education2	Basic Education	6976	0.43148	0.49532	0	1
education3	Secondary Education	6976	0.10436	0.30575	0	1
education4	Higher Education	6976	0.084	0.27741	0	1
age1	15<Age<35	6976	0.53985	0.49845	0	1
age2	35<Age<60	6976	0.42775	0.49479	0	1
age3	Age>60	6976	0.0324	0.17706	0	1
regioncat1	Western Region	6976	0.10378	0.305	0	1
regioncat2	Central Region	6976	0.0777	0.26771	0	1
regioncat3	Greater Accra Region	6976	0.18234	0.38615	0	1
regioncat4	Volta Region	6976	0.08343	0.27655	0	1
regioncat5	Eastern Region	6976	0.12328	0.32878	0	1
regioncat6	Ashanti Region	6976	0.21617	0.41166	0	1
regioncat7	Brong Ahafo Region	6976	0.09346	0.2911	0	1
regioncat8	Northern Region	6976	0.04243	0.20159	0	1
regioncat9	Upper East Region	6976	0.03412	0.18154	0	1
regioncat10	Upper West Region	6976	0.04329	0.20353	0	1
Mar 1	Married	6976	0.52179	0.49956	0	1
Mar 2	Other relationship	6976	0.22577	0.41812	0	1
Mar 3	Never Married	6976	0.25244	0.43444	0	1
Other_Akan	Other Akan	6976	0.22964	0.42063	0	1
Asante	Asante	6976	0.20499	0.40372	0	1
Fante	Fante	6976	0.1207	0.3258	0	1
Ga_Adangbe	Ga Adangbe	6976	0.09246	0.28969	0	1
Ewe	Ewe	6976	0.15955	0.36621	0	1
Northern_T	Northern Tribes	6976	0.17747	0.38209	0	1
All_other	All Others	6976	0.0152	0.12234	0	1
Agricultural	Employed in Agric	6976	0.42231	0.49396	0	1
Manufac	Employed in Manufac.	6976	0.13503	0.34178	0	1
Service	Employed in Service	6976	0.43607	0.49593	0	1
Others	Employed in other Sect	6976	0.00659	0.08094	0	1
Male	Male	6976	0.54186	0.49828	0	1
Female	Female	6976	0.45814	0.49828	0	1
Urban	Urban	6976	0.47878	0.49959	0	1
Rural	Rural	6976	0.52122	0.49959	0	1

The discussion that follows considers the empirical results from the application of Heckman's two stage procedure. Whereas the welfare model evaluates the determinants of welfare for the migrant and non-migrant household members independently, the migration model, corrected for selection bias, examines the influence of the education, anticipated welfare gain and other factors on the individual's migration decisions. From the probit models we will also estimate the marginal effect at the mean values of the explanatory variables.

Marginal effects measure the expected change in the dependent variable as a function of a marginal change in one of the explanatory variables while all other explanatory variables are held constant. The magnitude of the marginal effect depends on the values of the other variables and their coefficients. In general, the marginal effects are calculated at the mean (when all other variables are at their mean). In Probit models and other binary regression models (such as logit models), the marginal effect is the slope of the probability curve relating the explanatory variable to the probability that the dependent variable will be equal to one holding other explanatory variables constant. The marginal effect measurement is mostly used to interpret the effect of the regressors on the dependent variable in binary models.

The probit model

From the Heckman's two stage procedure discussed earlier, the first step is to estimate a reduced form decision equation, which includes as explanatory variables all the

exogenous variables in equation 4.8. Estimation results show that most of the signs of the parameter estimates generally conform to a priori expectations.

From the estimation in Table 5.2 (column 2), the probability of migrating is significantly dependent on age squared, the levels of education (with the exception of those with basic education), region (with the exception of those in the Northern region), individuals who have never married, those working in the agriculture sector, sex, locality and being Ga Adangbe.

The estimation of the reduced form regression suggests that the probability of migrating increases with the stages of education. The significance of the education variables implies that as an individual increase his/her educational attainment there is a high probability of that individual migrating. As expected, there is a high probability of an individual in Western, Central, Eastern, Volta, Ashanti, Greater Accra, and Brong-Ahafo regions migrating than those in the three Northern regions. This is shown by the coefficients of the marginal effect in Table A.7 (see appendix). This confirms the report by the GSS (2008) which shows that the three northern regions have few migrants.

It was also realized from the co-efficient of the marginal effect in Table A.7 (see appendix) that an individual in an urban area has 0.13 probability of not migrating than those from the rural area. The explanation to this is that there are more push factors in the

rural areas and more pull factors in the urban areas to encourage individual to migrate from the rural areas to the urban (Ackah and Medvedev, 2010).

The welfare equations

The next step is to model the determinants of welfare for the migrant and non-migrant. The estimates of the welfare model for the migrant and non-migrant equations are presented in Table 5.2, columns 3 and 4 respectively. Inclusion of all exogenous variables in both the decision (reduced form) and welfare equations will result in multi-collinearity problems in the second stage of the estimation procedure (Nakosteen and Zimmer, 1980). Thus, household size is included as a regressor in the welfare equations, but excluded from the reduced form migration decision equation. And the ethnicity variable is found in the migration reduced form equation but not in the welfare equation.

From the results in columns 3 and 4 of Table 5.2, it can be realized that household size, educational attainment, marital status, sex, region and locality of the individual have significant effect on the welfare of both migrants and non-migrants. However, the selectivity bias variable does not significantly affect the welfare of both the migrant and non-migrant. This implies that selectivity bias does not apply to migrants in relation to their welfare. The educational attainment of an individual significantly has a positive impact on his/her welfare since in both models the p-value for all the stages of educational attainment is less than 1%. This can be explained in the sense that as one

attains higher education it increases the chances of the individual getting a job and more income hence enhancing the person's welfare.

The size of the household has a strong positive impact on welfare since in both models the p-value of household size is less than 1%. Also, the locality of the individual has a strong positive impact on welfare. It was realized from the estimation that the log of welfare of migrants in the urban area will be 0.24 higher than those in the rural areas. Also, the log of welfare of non-migrants in the urban area will be 0.20 higher than those in the rural area. Being male has a negative effect on welfare. Thus, the log of welfare of migrants who are male is about 0.07 less than their female counter parts. Also, the log of welfare of non-migrants who are male is about 0.12 less than their female counterparts.

Though the adjusted R^2 is less than 50% in both models for the migrant and non-migrant, the F statistics is significant at 1%. This implies that the regressors in the welfare equations for the migrant and non-migrant greatly explain changes in the log of welfare hence the model is a good fit. Whereas the R squared for the migrant welfare equation is about 0.45 that of the non-migrant is about 0.38. This implies that the regressors in the migrant welfare equation explain variations in the log of welfare better than those in the non-migrant equation.

Table 5.2: Probit estimation of the reduced form migration decision equation, and the Heckman selection model results

Regressand	Migration Status		Migrant Welfare		Non Migrant Welfare	
	Coef.		Coef.		Coef.	
Agesq	0.0002 ***	(0.00)				
Hhsiz			0.1249 ***	(0.01)	0.0978 ***	(0.01)
Basic Education	0.0269	(0.04)	0.1462 ***	(0.03)	0.1324 ***	(0.03)
Secondary Education	0.1311 **	(0.07)	0.2833 ***	(0.04)	0.3701 ***	(0.05)
Higher Education	0.3314 ***	(0.09)	0.5803 ***	(0.05)	0.5688 ***	(0.08)
15<age<35	0.3881 **	(0.19)	-0.0769	(0.05)	-0.1086	(0.08)
36<age<60	0.3075 **	(0.15)	-0.0425	(0.05)	-0.0671	(0.08)
Western Region	0.8720 ***	(0.17)	0.9429 ***	(0.16)	0.7155 ***	(0.16)
Central Region	0.9700 ***	(0.18)	0.8664 ***	(0.16)	0.7980 ***	(0.18)
Greater Accra	1.0127 ***	(0.17)	1.0916 ***	(0.16)	0.8573 ***	(0.16)
Volta Region	0.5116 **	(0.22)	0.6353 ***	(0.15)	0.5238 ***	(0.15)
Eastern Region	1.0597 ***	(0.16)	0.8640 ***	(0.16)	0.8194 ***	(0.17)
Asanti Region	0.7101 ***	(0.16)	0.8930 ***	(0.15)	0.6902 ***	(0.15)
Brong-Ahafo	0.5563 ***	(0.17)	0.7550 ***	(0.15)	0.5782 ***	(0.16)
Northern Region	0.1887	(0.16)	0.5726 ***	(0.18)	0.5010 ***	(0.16)
Upper East	-0.3126 **	(0.16)	0.2618	(0.19)	0.0265	(0.17)
Other relationship	0.0240	(0.05)	-0.1581 ***	(0.02)	-0.1275 ***	(0.03)
Never Married	-0.3961 ***	(0.06)	-0.1245 ***	(0.05)	-0.1228 **	(0.05)
Agricultural	-0.6529 ***	(0.23)	-0.2453 *	(0.13)	-0.4603 ***	(0.17)
Manufac	-0.3517	(0.25)	-0.0614	(0.12)	-0.3108 *	(0.16)
Service	-0.3226	(0.23)	-0.0412	(0.12)	-0.2888 *	(0.16)
Male	0.0806 **	(0.03)	-0.0709 ***	(0.02)	-0.1232 ***	(0.02)
Other Akan Tribe	-0.0919	(0.20)				
Asante	0.0021	(0.21)				
Fante	0.1345	(0.21)				
Ga Adangbe	-0.4197 **	(0.21)				
Ewe	0.0025	(0.20)				
Northern Tribe	0.1549	(0.20)				
Urban	-0.3408 ***	(0.08)	0.2372 ***	(0.04)	0.2013 ***	(0.05)
Selectivity Bias			0.0942	(0.12)	-0.1395	(0.13)
_cons	-0.4821	(0.40)	15.314 ***	(0.21)	16.0219 ***	(0.27)
Number of obs.	6976		4073		2903	
F	17.53		43.78		20.1	
Prob > F	0.0000		0.0000		0.0000	
R-squared			0.4496		0.3797	

Notes: 1) ***, **, and * denote 1%, 5% and 10% levels of significance, respectively.
Standard errors of coefficients are in parentheses

Structural equation

Based on the Heckman estimation procedure, the final step entails a probit estimation of the structural form of the migration decision equation (see Table 5.3). Here, we computed the anticipated welfare gain variable after predicting values of the log of welfare for both the migrant and non-migrant. The anticipated welfare gain is inserted into the structural decision equation and the results of the parameter estimates are presented in Table 5.3. Based on the p-value of the F statistic in Table 5.3, the model passes the goodness of fit test. This implies that there is at least one variable that is not equal to zero; hence the dependent variable is explained by at least some of the regressors.

From Table 5.3, it can be seen that the variables that significantly affect an individual's migration status in Ghana are the household size, age squared, younger adult, secondary educational attainment, region, ethnicity, locality, sex and anticipated welfare gain. Whereas, household size, locality and male sex have negative impact on the decision to migrate, the highest educational attainment, ethnicity, age squared, younger adult and anticipated welfare gain have positive impact on the decision to migrate. The negative impact of household size on the decision to migrate can be explained from the fact that the extend family relation dominate in most Ghanaian household and a larger household size is associated with strong social ties. This therefore reduces the incentive for an individual to migrate. From the marginal effect estimation in Table 5.4, it can be realized that a unit increase in the household size will reduce the probability to migrate by 0.06.

Table 5.3: Probit Structural migration decision estimation

Regressand:migstatus2	Coef.	Std. Err.	T
Hhsize	-0.2415 ***	0.0171	-14.1500
Agesq	0.0003 ***	0.0001	3.7500
Basic Education	0.0414	0.0927	0.4500
Secondary Educat	0.7444 ***	0.1178	6.3200
Higher Education	0.2669	0.1744	1.5300
15<age<35	0.5072 *	0.2589	1.9600
36<age<60	0.2639	0.1883	1.4000
Other relationship	0.1011	0.0865	1.1700
Never Married	-0.2966 **	0.1439	-2.0600
Western Region	0.4138	0.3037	1.3600
Central Region	1.0838	0.3184	3.4000
Greater Accra	0.3007	0.3203	0.9400
Volta Region	0.8414 **	0.3266	2.5800
Eastern Region	1.3544 ***	0.3208	4.2200
Asanti Region	0.1699	0.3412	0.5000
Brong-Ahafo	0.2243	0.3093	0.7300
Northern Region	1.1401 ***	0.2414	4.7200
Upper East	-0.6115 **	0.2603	-2.3500
Agricultural	-1.4142 ***	0.2222	-6.3700
Manufac	-1.7328 ***	0.2560	-6.7700
Service	-1.6327 ***	0.2249	-7.2600
Other Akan	1.0408 ***	0.2338	4.4500
Asante	1.4501 ***	0.3532	4.1100
Fante	1.3217 ***	0.2346	5.6300
Ga Adangbe	1.6048 ***	0.2605	6.1600
Ewe	0.5634 ***	0.2113	2.6700
All other tribe	0.4452	0.4161	1.0700
Male	-0.5715 ***	0.0914	-6.2600
Urban	-0.2722 **	0.1077	-2.5300
difLnWh	7.1257 ***	0.2977	23.9400
_cons	4.1698 ***	0.4652	8.9600
No. of obs	6976		
F	39.76		
Prob > F	0.00000		

Notes: 1) ***, **, and * denote 1%, 5% and 10% levels of significance, respectively.

Educational attainment affects the decision to migrate positively. This is in line with other studies in Ghana such as those by Caldwell (1968) and Reed et al. (2005). These studies suggest there is a higher probability for one to migrate as the individual attains higher education. From the marginal effect in Table 5.4, it can be seen that the probability of an individual with a secondary education qualification migrating is 0.13 higher than those with no qualification. Also, individuals with higher education qualification have a probability of 0.06 higher than those with no qualification to migrate.

The region in which an individual is staying also has an impact on the decision to migrate. It was realized from the estimation that whereas individuals in Western, Greater Accra, Ashanti and the Brong-Ahafo regions were less likely to migrate, those in the Central, Volta, Eastern, Northern and Upper East regions were more likely to migrate. Among the regions which significantly affect migration decision, it is only the Upper East region which affects migration negatively. The ethnicity of the individual significantly affects the migration decision. Thus, the ethnicity of the individual positively affects the decision to migrate.

From Table 5.4, the marginal effect for the ethnicity variable shows that individuals from Asante tribe have a probability of 0.23 of migrating than individuals from northern tribes. In the same vein, individuals from other Akan tribes, Fante, Ewe, Ga Adangbe and all other tribes have a migration probability of 0.2, 0.19, 0.11, 0.20 and 0.09 respectively higher than those from the northern tribes. It can be seen from the marginal effect that

individuals from Asante tribe have a greater probability of migrating than the others. This supports the notion that Akans migrate more than other tribes.

One of the important findings is the positive and statistically significant estimated coefficient of the anticipated welfare gain (difLnWh) variable. The estimates reveal that the leading factor determining an individual's migration decision in addition to educational attainment is the anticipated welfare gain. Thus, an anticipated welfare gain will significantly increase the probability of an individual migrating. This result is consistent with the underlying migration theory by Todaro (1976) and is also consistent with previous research findings by Beals et al. (1967) and Boakye-Yiadom (2008). From the marginal effect in Table 5.4, it can be realized that a unit increase in the anticipated welfare gain will increase the probability of migrating by 1.75%.

Table 5.4: Marginal Effects for Probit Structural migration decision estimation

Regressand:Migstatus2	dy/dx	Std. Err.	Z	X
Hhsize	-0.0593 ***	0.00	-15.57	4.7894
Agesq	0.0001 ***	0.00	3.7	1441.02
Basic education^	0.0101	0.02	0.45	0.4464
Secondary education^	0.1327 ***	0.02	8.36	0.1042
Higher education^	0.0584 *	0.03	1.69	0.0829
15<age<35^	0.1263 *	0.07	1.92	0.5298
36<age<60^	0.0637	0.04	1.42	0.4369
Other relationship^	0.0242	0.02	1.2	0.2346
Never Married^	-0.0782 *	0.04	-1.86	0.2445
Western region^	0.0857 *	0.05	1.66	0.1095
Central region^	0.1636 ***	0.03	6.32	0.0929
Greater Accra region^	0.0674	0.06	1.04	0.2031
Volta Region^	0.1389 ***	0.03	4.51	0.0725
Eastern Region^	0.2067 ***	0.03	7.25	0.1674
Asanti Region^	0.0396	0.08	0.52	0.1953
Brong-Ahafo region^	0.0501	0.06	0.81	0.0890
Northern Region^	0.1544 ***	0.01	11.45	0.0380
Upper East ^	-0.1908 **	0.10	-1.97	0.0162
Agricultural^	-0.3823 ***	0.06	-6.18	0.4071
Manufac^	-0.5838 ***	0.08	-7.07	0.1386
Service^	-0.4240 ***	0.06	-7.31	0.4469
Other Akan^	0.1969 ***	0.03	6.53	0.2564
Asante^	0.2274 ***	0.03	8.26	0.2000
Fante^	0.1925 ***	0.02	11.61	0.1329
Ga Adangbe^	0.2007 ***	0.02	13.29	0.1083
Ewe^	0.1126 ***	0.03	3.54	0.1546
All other tribe^	0.0866	0.06	1.45	0.0143
Male^	-0.1372 ***	0.02	-6.12	0.5396
Urban^	-0.0671 **	0.03	-2.45	0.4851
difLnWh	1.7493 ***	0.05	35.47	-0.3436
Number of obs.	6976			
LR chi2(38)	39.76			
Prob > chi2	0.00000			

Notes: 1) ***, **, and * denote 1%, 5% and 10% levels of significance, respectively.

(^) dF/dx is for discrete change of dummy variable from 0 to 1

5.2 Migration-Education Linkages for Urban and Rural Migrants

In order to examine whether there is a difference in migration-education linkages for the different types of migrations, the study will compare the magnitude of the education variables in the structural decision estimation for the migrant with an urban locality as destination and that of the migrant with a rural locality as destination. Here the marginal effects computed from the probit estimation will be the basis of our comparison. However, the reduced form of the migration decision and welfare estimation for both migrant and non-migrant will be estimated and presented in the appendix. The variables to be used as regressors in the urban and rural estimations will be the same as those used in the pooled sample. However, the locality of the individual's destination is excluded as a regressor.

The discussion that follows considers the difference in migration-education linkages for migrants with an urban locality as destination and those with a rural locality as destination. From the first stage of the Heckman's procedure we estimated the probit and welfare equation for both urban and rural samples. In checking whether education affect migration decisions in the reduced form equation, it was realized that basic education and secondary education attainment do not significantly affect the decision of an individual with an urban locality as destination. However, all the forms of education attainment with the exception of basic education significantly affect the migration decision for individuals with rural as destination. In all types of destination, education affect migration decisions positively as shown in Table A.8 and Table A.10 (see appendix).

In the welfare equation, we noticed that education is significant in determining the welfare of individuals living in the urban and rural areas. For both urban and rural dwellers the education attainments affect the level of welfare positively at a significant level of 1% as shown in Table A.9 (see appendix).

Household size significantly affects the welfare of individuals in both the urban and rural areas at a significant level of 1%. Whereas, region and the selectivity bias variable significantly affect the welfare of individuals in the rural area, it does not significantly affect those in the urban areas.

In carrying out the final stage of the Heckman's procedure we estimated a probit for urban and rural separately after we had inserted the anticipated welfare gain into the structural decision equation. The results of the parameter estimates are presented in Table 5.5. From Table 5.5, it can be realized that though education affects the migration decision in both urban and rural areas, its significance vary for the different stages of educational attainments. In relation to the urban structural estimation, it was realized that basic, secondary and higher education do significantly affect migration decision. In the rural structural estimation, basic and higher education do not significantly affect migration decisions, however secondary education significantly affect migration decision, but only at the 10% level.

Table 5.5: A Probit Structural Migration decision estimation for Urban & Rural

Regressand:migstatus2	Urban		Rural	
	Coef.	Std. Err.	Coef.	Std. Err.
Hhsize	-0.0936 ***	0.0140	-0.2322 ***	0.0250
Agesq	0.0002 ***	0.0001	0.0002	0.0001
Basic Education	0.2379 ***	0.0746	-0.1499	0.1814
Secondary Educat	0.4682 ***	0.0969	0.3435 *	0.1934
Higher Education	0.3597 ***	0.1061	-0.0528	0.3425
15<age<35	0.2913	0.2605	0.3216	0.5085
36<age<60	0.4646 **	0.2081	-0.4334	0.3520
Other relationship	-0.0341	0.0761	0.2207	0.1554
Never Married	-0.2458 ***	0.0782	-0.3738	0.2431
Western Region	0.4897	0.3583	-0.1352	0.3884
Central Region	0.6512 *	0.3562	0.4822	0.3612
Greater Accra	0.5182	0.3213	0.1486	0.3268
Volta Region	0.0416	0.3939	0.4187	0.3428
Eastern Region	0.9878 ***	0.3578	0.7868 **	0.3414
Asanti Region	0.3359	0.3422	-0.8542 *	0.4778
Brong-Ahafo	0.0110	0.3464	-0.1419	0.3807
Northern Region	0.2540	0.3830	0.6026 **	0.2469
Upper East	-0.8970 *	0.5040	-0.5539 *	0.2879
Agricultural	-0.8934 ***	0.2683	-4.5611 ***	0.6253
Manufac	-0.4320	0.2772	-5.6833 ***	0.6569
Service	-0.4449 *	0.2476	-5.2824 ***	0.6993
Other Akan	0.2818 **	0.1366	1.5055 ***	0.4671
Asante	0.5191 ***	0.1448	2.2119 ***	0.7540
Fante	0.5592 ***	0.1449	1.6609 ***	0.4772
Ga Adangbe	-0.0302	0.1511	2.4334 ***	0.4711
Ewe	0.2558 *	0.1404	0.8866 **	0.3618
All other tribe	0.0879	0.2864	0.2945	0.3197
Male	-0.0091	0.0494	-0.6716 ***	0.1557
difLnWh	2.6979 ***	0.2929	7.0746 ***	0.5245
_cons	-0.5744	0.4916	9.4535	.
No. of obs	3340		3636	
F	11.37		3014.33	
Prob > F	0.0000		0.0000	

Notes: 1) ***, **, and * denote 1%, 5% and 10% levels of significance, respectively.

From the marginal effects in Table 5.6, it can be realized that the coefficients of the educational attainment variables for the urban estimation is higher than those of the rural

estimation. This implies that an increase in educational attainment will prompt an individual to migrate to an urban locality more than to a rural locality.

The structural estimation for both urban and rural samples suggests that household size, ethnicity and anticipated welfare gain significantly affect an individual's decision to migrate in the two areas. However, sex, age squared, basic education and higher education of the individual significantly affect the migration decision for those in the urban areas but not those in the rural areas. From the marginal effect in Table 5.6, a unit increase in the anticipated gain in welfare in the urban area will increase the probability to migrate by 1.02. However, a unit increase in anticipated gain in welfare in the rural area will increase the probability to migrate by 1.32%.

Table 5.6: Marginal Effect for the Probit Structural estimation for Urban & Rural

Regr:migstatus2	Urban			Rural		
	dy/dx	Std. Err.	X	dy/dx	Std. Err.	X
Hhsize	-0.0353 ***	0.01	4.3023	-0.0433 ***	0.01	5.2483
Agesq	0.0001 ***	0.00	1480.45	0.0000	0.00	1403.87
Basic education^	0.0895 ***	0.03	0.4826	-0.0284	0.03	0.4123
Second.education^	0.1645 ***	0.03	0.1605	0.0526 **	0.02	0.0512
Higher education^	0.1283 ***	0.04	0.1300	-0.0102	0.07	0.0386
15<age<35^	0.1097	0.10	0.5049	0.0614	0.10	0.5533
36<age<60^	0.1732 **	0.08	0.4684	-0.0852	0.07	0.4071
Other						
relationship^	-0.0129	0.03	0.2427	0.0382	0.03	0.2269
Never Married^	-0.0944	0.03	0.2396	-0.0781	0.06	0.2492
Western region^	0.1674	0.11	0.0683	-0.0267	0.08	0.1484
Central region^	0.2129 **	0.09	0.0667	0.0712	0.05	0.1175
Greater Accra ^	0.1895 *	0.11	0.3794	0.0254	0.05	0.0369
Volta Region^	0.0156	0.15	0.0428	0.0631	0.04	0.1003
Eastern Region^	0.3017 ***	0.08	0.1244	0.1108 ***	0.04	0.2079
Asanti Region^	0.1217	0.12	0.2023	-0.2131	0.14	0.1887
Brong-Ahafo ^	0.0041	0.13	0.0798	-0.0284	0.08	0.0977
Northern Region^	0.0913	0.13	0.0260	0.0790 ***	0.02	0.0493
Upper East ^	-0.3442 **	0.17	0.0070	-0.1380	0.10	0.0249
Agricultural^	-0.3449 ***	0.10	0.1238	-0.6005 ***	0.12	0.6739
Manufac^	-0.1680	0.11	0.1735	-0.9665 ***	0.01	0.1056
Service^	-0.1617 *	0.09	0.6895	-0.9896 ***	0.01	0.2184
Other Akan^	0.1035 **	0.05	0.2570	0.1891 ***	0.03	0.2559
Asante^	0.1832 ***	0.05	0.2184	0.2025 ***	0.03	0.1827
Fante^	0.1921 ***	0.04	0.1458	0.1475 ***	0.02	0.1208
Ga Adangbe^	-0.0115	0.06	0.1302	0.1538 ***	0.03	0.0877
Ewe^	0.0930 *	0.05	0.1268	0.1167 ***	0.02	0.1807
All other tribe^	0.0327	0.10	0.0128	0.0458	0.04	0.0158
Male^	-0.0034	0.02	0.5227	-0.1210 ***	0.04	0.5554
difLnWh	1.0189 ***	0.11	0.0753	1.3204 ***	0.16	-0.4823

Notes: 1) ***, **, and * denote 1%, 5% and 10% levels of significance, respectively.

(^) dF/dx is for discrete change of dummy variable from 0 to 1

5.3 Impact of Remittances on Education Expenditure

The model which estimates the impact of remittances ($\log\text{Remit}$) on education expenditure has household education expenditure ($\log\text{eduexp}_c$) as the dependant variable; however the natural log of the education expenditure is used in the estimation. Regarding the regressors of the model, they are shown in Table 5.7. The regressors include remittance to a particular household, a dummy variable which takes the value of 1 if education is one of the major uses of the remittance and 0 if otherwise, and a number of characteristics⁸ of the household head. On priori grounds, we expect remittance, total employment income and education level of the household head to have a positive sign.

Table 5.7 shows a list of variables used in the econometric analysis in this model, together with their mean, standard deviation, minimum and maximum values.

⁸ These include the education level of the household head, gender, employment status, age and others.

Table 5.7: List of Variables for Econometrics Analysis 2

Variable	Description	Observations	Mean	Std. Dev.	Min	Max
logeduexp	Log Education Expend.	944	13.593	1.3217	8.52	17.35
hhsize	Household size	944	6.3061	2.582	1	16
logtotemp	Log Total employm. Incom	944	15.905	1.0929	12.1	18.56
logRemit.	Log of Remittance	944	13.442	1.5164	9.21	17.33
agehead	Age of household head	944	47.62	12.217	21	88
regioncat1	Western Region	944	0.1335	0.3403	0	1
regioncat2	Central Region	944	0.0932	0.2909	0	1
regioncat3	Greater Accra Region	944	0.2013	0.4012	0	1
regioncat4	Volta Region	944	0.1006	0.301	0	1
regioncat5	Eastern Region	944	0.1006	0.301	0	1
regioncat6	Ashanti Region	944	0.196	0.3972	0	1
regioncat7	Brong Ahafo Region	944	0.0826	0.2755	0	1
regioncat8	Northern Region	944	0.0604	0.2383	0	1
regioncat9	Upper East Region	944	0.0106	0.1024	0	1
regioncat10	Upper West Region	944	0.0212	0.1441	0	1
Male	Male	944	0.7309	0.4437	0	1
Female	Female	944	0.2691	0.4437	0	1
Urban	Urban	944	0.6748	0.4687	0	1
Rural	Rural	944	0.3252	0.4687	0	1
seg1	Public Sector Employ	944	0.2998	0.4584	0	1
seg2	Wage-Private-Formal	944	0.1939	0.3955	0	1
seg3	Wage-Private-Informal	944	0.1748	0.38	0	1
seg4	Self-agro-export	944	0.0328	0.1783	0	1
seg5	Self-agro-crop	944	0.1038	0.3052	0	1
seg6	Self-bus	944	0.1949	0.3963	0	1
seg7	Non-working	944	0	0	0	0
remit_use	Educ. among 1st three use	944	0.321	0.4671	0	1
education1	No qualification	944	0.6409	0.4798	0	1
education2	MSLC/BECE	944	0.2486	0.4322	0	1
education3	Voc.,Com,O/A level	944	0.0278	0.1645	0	1
education4	TT/nursing/tech/prof	944	0.0299	0.1704	0	1
education5	SSCE	944	0.0431	0.203	0	1
education6	Degree	944	0.0077	0.0877	0	1
education7	Other	944	0.0019	0.0441	0	1

We estimated an ordinary least squares model to examine the impact of remittances on education expenditure. In the estimation we have education expenditure as the regressand

and the regressors are remittances to a particular household and other socio-economic variable. The results from the estimation are discussed as follows;

Based on the F statistic (47.01), the model passes the goodness of fit test. This implies that there is at least one variable that is not equal to zero; hence the dependent variable is explained by the regressors. Thus, the model predicts that about 56% (using the adjusted R^2) of variations in the dependent variable (natural log of education expenditure) is explained by the regressors. Testing the individual parameters as to whether they are statistically different from zero at the 10%, 5% and 1% levels yields two outcomes where some parameters pass the test and others do not.

Effect of Household Size: the effect of household size on education expenditure was uncertain since a household with many members at school going age is expected to spend more on education provided there are funds. On the contrary, a poor household with many members will spend more money on their up keeping hence having less to spend on education. In relation to this study, it was realized that the household size does not significantly affect education expenditure since the p-value is 0.27 as shown in Table 5.8.

Table 5.8: Educational Expenditure and Remittance, OLS Regression

Regressand: log Education Expenditure	Coefficient	Std. Error	t-Statistic	Probability
Hhsize	-0.01412	0.01284	-1.1	0.27
logTotemp	0.15639 ***	0.03141	4.98	0.0001
logRemittance	0.08719 ***	0.02333	3.74	0.0001
Agehead	-0.00324	0.00266	-1.22	0.22
Western Region	1.30060 ***	0.22291	5.83	0.0001
Central Region	1.19027 ***	0.22827	5.21	0.0001
Greater Accra	1.82461 ***	0.22455	8.13	0.0001
Volta Region	0.97466 ***	0.22603	4.31	0.0001
Eastern Region	1.27304 ***	0.22890	5.56	0.0001
Asanti Region	1.28845 ***	0.22352	5.76	0.0001
Brong-Ahafo Region	0.94109 ***	0.23621	3.98	0.0001
Northern Region	-0.06576	0.23905	-0.28	0.78
Upper East Region	-0.29531	0.35147	-0.84	0.40
Male	0.10574	0.07204	1.47	0.14
Urban	0.70825 ***	0.07131	9.93	0.0001
Public Sector Employ	-0.41832 **	0.17847	-2.34	0.02
Wage-Private-Formal	-0.38298 **	0.17943	-2.13	0.03
Wage-Private Informal	-0.40483 **	0.17848	-2.27	0.02
Self-agro-crop	-0.47676 **	0.18422	-2.59	0.01
Self-bus	-0.11176	0.17858	-0.63	0.53
remit_use	-0.05161	0.06929	-0.74	0.46
No qualification	-1.38129 ***	0.30036	-4.6	0.0001
MSLC/BECE	-0.28176	0.30797	-0.91	0.36
Voc.,Com,O/A level	-0.09446	0.38493	-0.25	0.81
TT/nursing/tech/prof	0.53432	0.36139	1.48	0.14
SSCE	0.20627	0.31609	0.65	0.51
_cons	9.86302 ***	0.64687	15.25	0.0001
Number of obs.	944			
F(26, 917)	47.0100			
Prob > F	0.0000 ***			
R-squared	0.5714			
Adj R-squared	0.5592			

Notes: 1) *** and ** denote 1% and 5% level of significance, respectively.

Effect of Total Employment Income: total employment income had a positive effect on educational expenditure as expected. Thus, as the household employment income increases it enables the household to have enough income for their basic needs and some of this income can be spent on education hence increasing educational expenditure. The

impact of total employment income is significant at 1% since the p-value is 0.0001. From the coefficient we can say that a one percent increase in total employment income will lead to 0.16 percentage increase in education expenditure.

Effect of Remittances: the effect of migrant remittances on the education expenditure is positive as expected. Thus, as a household receives more remittances it relieves that household from its financial responsibilities. As a result the household will have enough to spend on education. The impact of remittance on education expenditure is significant at 1% since the p-value is 0.0001. This is in line with the idea that migrants send remittances to their family and these remittances could be used to foster educational expenditure, hence having a high probability of increasing access to education, (Rapoport and Docquier (2004)). From the coefficient of remittance, we can say that a one percent increase in remittance received by a household in Ghana will lead to 0.09 percentage increase in education expenditure. This means that though remittances received into a household in Ghana increases education expenditure, the responsiveness of education expenditure to remittance received is low since there are other uses of the remittances received.

Effect of demographic characteristics of the household head: the effect of the demographic characteristics of the household head such as age and sex, on education expenditure is uncertain. In this study it was realized that the age and sex of the

household head do not significantly affect education expenditure since the p-values of these variables are greater than the levels of significance.

Effect of Geographic Location: Geographic location (that is, region) has mostly been expected to affect the level of education expenditure based on the cost of living in the region. The results of this study indicate that, all the regions in Ghana have positive effect on education expenditure with the exception of Northern and Upper East where a negative relationship was found. From the results it can be seen that Western, Central, Eastern, Volta, Ashanti, Greater Accra, and Brong Ahafo regions significantly affect education expenditure at a significance level of 1%. This is supported by evidence in the Ghanaian economy since these regions have higher costs of living than the other three northern regions.

In relation to how the level of urbanization affects education expenditure, it was realized that the urban areas have a positive impact on education expenditure. This impact is significant at a level of 1%. From Table 5.8, it can be seen that the log education expenditure of a household in an urban area is 0.71 higher than those living in rural areas. This result is consistent since the cost of living in urban areas in Ghana is higher than that of rural areas.

Effect of sector of employment: the sector in which an individual works has an effect on the income of the individual hence affecting education expenditure. In relation to this study, it was realized that the sector in which the household head is employed has a

negative effect on education expenditure and this is significant at the 5% level. Thus, the education expenditure of a household head employed in the public sector, wage-private formal, wage-private informal and self agro crop is 0.42, 0.38, 0.4 and 0.48 respectively, lower than those in the self agro export employment.

Effect of education: in relation to the effect of the educational level of the household head on education expenditure, it was realized that only those with no educational qualification had impact on education expenditure. Thus, household heads with no educational qualification had negative impact on education expenditure and this was significant at the 1% level. From the table 5.8, the coefficient of those with no educational qualification portrays that the log education expenditure of household head with no educational qualification is 1.38 less than those with degree. This might be from the fact that household heads with degree would like to provide quality education for the children in that household than the household whose head has no education. And since quality education is expensive it implies that education expenditure of household head with no educational qualification will be lesser than those with degree.

5.4 Relationship between Migration and Educational Attainment

In carrying out a chi-squared computation to find out whether there is a relationship between migration status and highest educational attainment in the periods 1998/99 and 2005/06, it was realized that migration status is associated with highest educational attainment. From Table 5.9 and Table 5.10, in 1998/99 the Pearson Chi-Square calculated

was 20.398 with a p-value of 0.001 and in 2005/06 the Pearson Chi-Square calculated was 242.32 with a p-value of 0.001. This implies that the migration status of Ghanaians is linked to their highest educational attainment for the periods 1998/99 and 2005/06. This is in line with the work by Caldwell (1968).

Table 5.9: Chi-Square Tests [Migration Status & Highest Educational attainment for 1998/99]

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.398 ^a	4	.000
Likelihood Ratio	20.447	4	.000
N of Valid Cases	6608		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 127.74.

Table 5.10: Chi-Square Tests [Migration Status & Highest Educational attainment for 2005/06]

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	242.32 ^a	4	.000
Likelihood Ratio	246.813	4	.000
N of Valid Cases	17748		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 373.77.

5.5 Summary

The chapter focused on estimation and discussion of results. Using the chi-squared statistics we realized that an individual's migration status is associated with his/her educational attainment. As a result there is a relationship between migration and education. In examining the impact of education on migration, we addressed the issue of selectivity bias by using the Heckman's two stage procedure. We also realized from the study that an individual's educational attainment positively affects his/her decision to migration. Further, it can be seen that the variables that significantly affect an individual's migration status in Ghana are the household size, age squared, younger adult, region, ethnicity, locality, sex and anticipated welfare gain.

In examining whether migration-education linkages vary for the different types of migration, we compared the structural migration decision for individuals with urban or rural as their destination. It can be realized that though education affects the migration decision in both urban and rural areas, its significance varies for the different stages of educational attainments. An Ordinary Least Squares (OLS) technique was used to examine the impact of remittances on education expenditure. It was realized that migrant remittances positively affect educational expenditure and other factors like locality, region, total employment income and the sector of employment significantly affect educational expenditure.

CHAPTER SIX

CONCLUSION AND POLICY RECOMMENDATIONS

6.0 Introduction

This chapter will summarize the findings of this study and based on these findings an appropriate policy would be recommended.

6.1 Summary of Findings

The main objective of this study was to examine the linkages between migration and education. The dataset for the study were the 2005/06 and 1998/99 rounds of Ghana Living Stand Survey which are called GLSS 5 and GLSS 4 respectively. The following research questions were answered;

- i. What is the effect of education on migration?
- ii. What is the effect of remittances on educational expenditure?
- iii. Are there any differences in migration-education linkages for the different types of migration?
- iv. What is the relationship between migration status and educational attainment?

Heckman's two stage method was used in examining the impact of education on migration; however the Ordinary Least Squares (OLS) estimation was used to find the impact of migrant remittances on education expenditure. The relationship between migration and education was also examined by using the chi-square test.

It was realized from the study that the welfare levels of both migrants and non-migrants are significantly affected by household size, educational attainment, marital status, sex, region and locality of the individual. It was revealed that majority of the internal migrants in Ghana moved from either a rural area to another rural area or from an urban area to a rural area. Though majority of migrants have MSLC/BECE as their highest educational attainment, a greater proportion of individuals with a degree (1st degree and higher) were migrants in 1998/99 and 2005/06.

It was also realized from the study that an individual's educational attainment positively affects his/her decision to migrate. Further, it was noted that other factors like the household size, age squared, younger adult, region, ethnicity, locality, sex and anticipated welfare gain also affect migration decisions.

Using the chi-squared statistics we realized that an individual's migration status is associated with his/her educational attainment. As a result, there is a relationship between migration and education.

In examining whether migration-education linkages vary for the different types of migration, we compared the structural migration decision for individuals who are urban-based and those who are rural-based. It was seen that the effect of education on migration decision in both urban and rural areas varies for the different stages of educational

attainments. In relation to the urban structural estimation, it was realized that those with basic, secondary and higher education do significantly affect migration decision. In the rural structural estimation, basic and higher education do not significantly affect migration decisions, however secondary education significantly affect migration decision.

It was realized that remittances positively affect educational expenditure at the 1% significance level. Thus, if we assume that migrants send remittances to their place of origin, then an increase in the rate of migration will increase remittances hence increasing educational expenditure. In addition, other factors like locality, region, total employment income and the sector employment significantly affect educational expenditure.

6.2 Policy Recommendations

In formulating policies in relation to migration, one has to carefully consider the situation at hand; whether the migration has led to excess labour or pressure on social amenities at the area of destination, or migration has led to the loss of labour or reduction in productivity at the area of origin. In a situation where labour is in excess supply migration should be encouraged. However, migration should be discouraged in situations where labour is not in excess. The productivity loss in the origin of the migrant and the productivity gain in the destination of the migrant should also be considered. In situations where the migrant sends remittances to the area of origin, both productivity loss in the origin and the gain to the origin through remittances received should be considered before deciding whether to encourage migration or to discourage it.

It was realized from this study that education attainment positively affects an individual's decision to migrate and the educational attainment of Ghanaians is not evenly distributed across the country. As a result, the educational system should be improved in the entire ten regions. This can be done by encouraging individuals to acquire higher education through subsidies, provision of appropriate infrastructures and qualified instructors. Since educational attainment has a greater impact on migration decision for individuals with the urban locality as their destination than those with rural as their destination, it suggests that favorable conditions in the form of employment opportunities, educational opportunity and social network exist in the urban sector more than the rural sector. This implies that policies should be put in place to close urban-rural education gap. In such a way, the level of inequality will be reduced in the country. As a result, the level of anticipated welfare gain will also be reduced.

Significant coordination and market failures in education and skills require public intervention. This can be done by building appropriate education and training programmes that link in with the trade structure of the Ghanaian economy. Good quality schooling is the best basis for this. But after this, measures or institutions are required to include the private sector in planning and executing training programmes. This can be done by operationalizing the involvement of the private sector in skills development institutions; and using the tax and incentives system in line with the development of the economy and the level of skills. Since the cost of education in the urban areas is higher than that in the rural areas, the subsidization scheme will help reduce the cost of

education in both the rural and urban areas hence encouraging higher educational attainment.

Also, government should design investment policies in tune with human resource development. In some countries, the education sector is already open for private firms, local and foreign. Foreign providers of education might help in economic development but may not account for education of (most of) the locals.

If we assume that migrants send remittances home and these remittances positively affect the educational expenditure of the household, then households without migrants may be facing some financial constraint. This is because those households receiving the remittances are relieved of their financial obligations while the households without migrant are not. This implies that policies should be put in place to create a smooth functioning credit market in the country to provide financial support to households which do not receive remittances. Also, policies should be put in place to create employment opportunities in both rural and urban areas in order to generate income for individuals and some of this income will be spent on education.

6.3 Areas for Further Studies

Since migration is multi-dimensional, further studies can be carried out to examine how migration through the other channels (that is, networking, technology transfers, exposure, etc.) affects education. Also, future studies can investigate how education can impact on migration through information, income and any other factors not considered in this study.

Appendix

Table A.1: Gender Distribution of Migrants

Sex	Share of Migrants (%) 2005/06	Share of Migrants (%) 1998/99
Male	45.81	41.41
Female	54.19	58.59
Total	100	100

Source: Author's computation based on GLSS 4 and GLSS 5

Table A.2: Age Distribution of Migration Status for 1998/99 and 2005/06

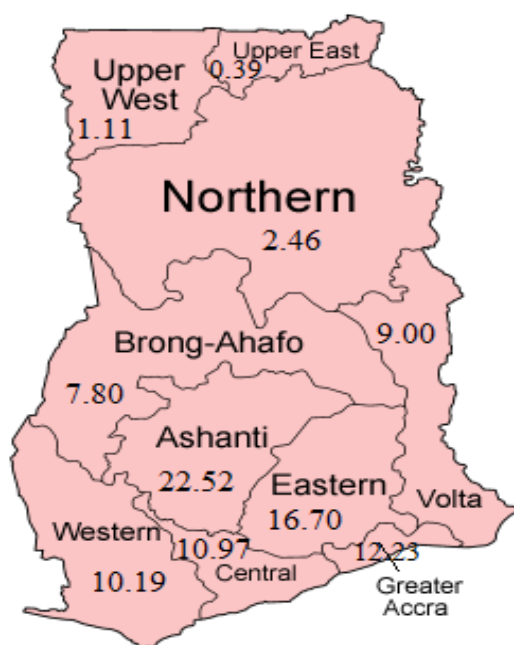
Age Group	Migrants (%) 2005/06	Non-migrants (%) 2005/06	Migrants (%) 1998/99	Non-migrants (%) 1998/99
15<Age<25	22.47	45.30	26.63	35.04
25<Age<35	23.03	19.24	21.47	16.13
35<Age<45	20.60	13.67	14.90	12.95
45<Age<55	16.04	9.98	11.54	11.95
55<Age<65	8.88	5.50	9.81	9.56
Age at least 65	8.98	6.30	15.65	14.36
Total	100	100	100	100

Source: Author's computation based on GLSS 4 and GLSS 5

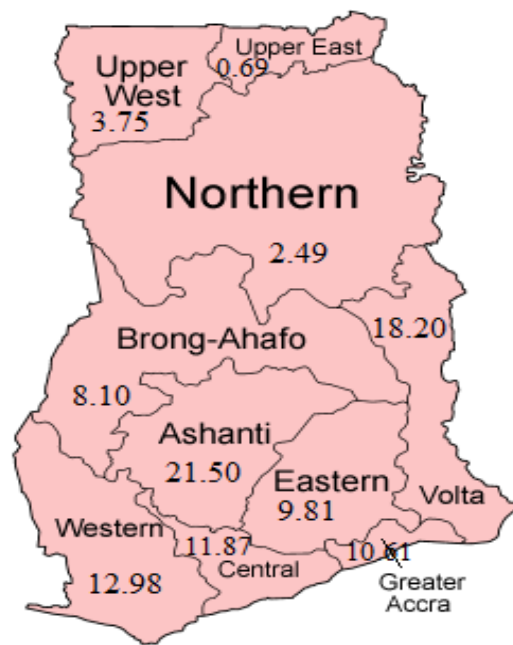
Table A.3: Marital Status of Migrants & Non-migrants

Marital Status	Migrants (%) 2005/06	Non-migrants (%) 2005/06	Migrants (%) 1998/99	Non-migrants (%) 1998/99
Married	53.31	37.52	37.78	35.44
Informal Relationship	9.71	5.11	11.60	7.94
Divorce/Separated	7.27	4.72	11.54	9.59
Widowed	6.93	5.61	11.24	10.27
Never Married	22.78	47.04	27.83	36.76
Total	100	100	100	100

Source: Author's computation based on GLSS 4 and GLSS 5



*Origin of Migrants(% of Migrants)

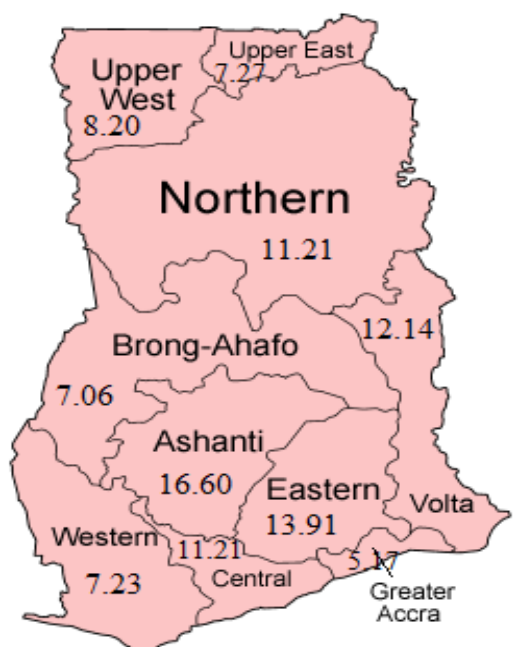


Destination of Migrants(% of Migrants)

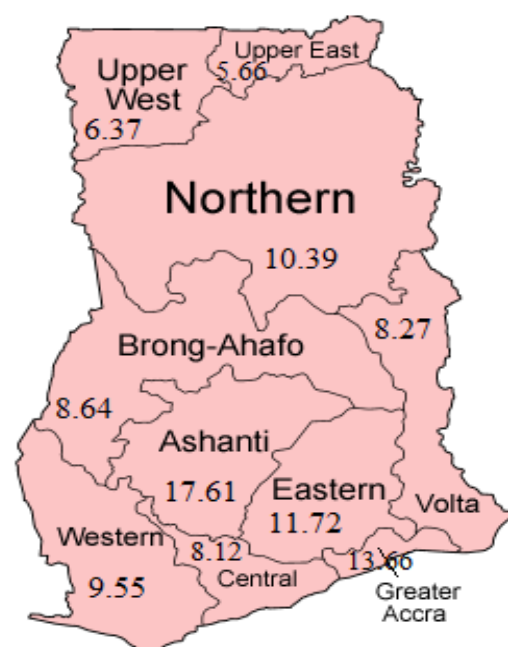
Source: Author's computation based on GLSS 4

* means foreigners consist of 6.63%

Figure A.1: Origin & Destination of Migrant for 1998/99



Origin of Migrants (% of migrants)



Destination of Migrants (% of migrants)

Source: Author's computation based on GLSS 5

Figure A.2: Origin & Destination of Migrant for 2005/06

Table A.4: Reasons for Migration

Reasons	2005/06	1998/99
Job Transfer	4.58	
Seeking Employment	12.19	
Own Business	5.90	15.56
Spouse Employment	2.90	5.57
Accompany parents	11.92	
Marriage	15.36	14.07
Other family reasons	37.16	49.27
Political/religious Reasons	0.48	
Education	2.49	3.38
War	0.54	1.13
Fire	0.06	
Floor/famine/drought	0.72	
Other	5.68	11.02
Total	100	100

Source: Author's computation based on GLSS 4 & GLSS 5

Table A.5: Regional Distribution of Migrant & Non-migrant

Region	Migrant 2005/06 (%)	Non-migrant 2005/06 (%)	Migrant 1998/99 (%)	Non-migrant 1998/99 (%)
Western Region	9.55 [64.42]	7.29 [35.58]	12.98 [50.76]	12.83 [49.24]
Central Region	8.12 [69.86]	4.84 [30.14]	11.87 [50.64]	11.79 [49.36]
Greater Accra Region	13.66 [59.48]	12.86 [40.52]	10.61 [46.76]	12.31 [53.24]
Volta Region	8.27 [61.52]	7.14 [38.48]	18.20 [57.26]	13.84 [42.74]
Eastern Region	11.72 [71.74]	6.38 [28.26]	9.81 [44.67]	12.31 [55.33]
Asanti Region	17.61 [61.30]	15.37 [38.70]	21.50 [54.07]	18.61 [45.93]
Brong Ahafo Region	8.64 [57.15]	8.95 [42.85]	8.10 [52.84]	7.36 [47.16]
Northern Region	10.39 [53.38]	12.55 [46.62]	2.49 [33.33]	5.06 [66.67]
Upper East Region	5.66 [38.49]	12.51 [61.51]	0.69 [37.10]	1.19 [62.90]
Upper West Region	6.37 [42.13]	12.10 [57.87]	3.75 [45.29]	4.61 [54.71]

Source: Author's computation based on GLSS 4 & GLSS 5

Values in parentheses are expressed as a percentage of migrants & non-migrants in each category

Table A.6: Highest Educational Attainment for Urban and Rural

Highest Attainment	Urban 2005/06 (%)	Rural 2005/06 (%)	Urban 1998/99 (%)	Rural 1998/99 (%)
No Qualification	27.24 [32.85]	55.11 [67.15]	33.51 [32.73]	48.14 [67.27]
MSLC/BECE	44.58 [54.55]	36.77 [45.45]	45.79 [42.62]	43.09 [57.38]
VOC./COMM.	7.39 [81.35]	1.68 [18.65]	6.14 [62.09]	2.62 [37.91]
TT./Nursing/prof.	7.39 [76.20]	2.28 [23.80]	11.95 [65.67]	4.37 [34.33]
SSCE	10.85 [74.60]	3.66 [25.40]	2.06 [48.10]	1.56 [51.60]
Degree	2.20 [85.80]	0.36 [14.20]	0.11 [66.67]	0.04 [33.33]
Other	0.35 [70.59]	0.14 [29.41]	0.43 [61.54]	0.19 [38.46]

Source: Author's computation based on GLSS 4 & GLSS 5

Values in parentheses are expressed as a percentage of urban & rural in each category

Table A.7: Marginal Effects of the reduced form migration estimation

Regressand: Migstatus2	dy/dx	Std. Err.	z	X
Agesq	0.0001 ***	0.00	4.37	1441.0
Basic Education^	0.0103	0.02	0.6	0.4464
Secondary Educat^	0.0495 **	0.02	2.02	0.1042
Higher Education^	0.1206 ***	0.03	4.04	0.0829
15<age<35^	0.1484 **	0.07	2.04	0.5298
36<age<60^	0.1168 **	0.06	2.08	0.4369
Western Region^	0.2812 ***	0.04	6.74	0.1095
Central Region^	0.3014 ***	0.04	7.67	0.0929
Greater Accra^	0.3316 ***	0.04	7.87	0.2031
Volta Region^	0.1787 ***	0.07	2.72	0.0725
Eastern Region^	0.3363 ***	0.04	9.1	0.1674
Asanti Region^	0.2464 ***	0.05	5.13	0.1953
Brong-Ahafo ^	0.1930 ***	0.05	3.75	0.0890
Northern Region^	0.0702	0.06	1.19	0.0380
Upper East^	-0.1231 **	0.06	-1.97	0.0162
Other relationship^	0.0092	0.02	0.45	0.2346
Never Married^	-0.1545 ***	0.02	-6.92	0.2445
Agricultural^	-0.2500 ***	0.09	-2.84	0.4071
Manufac^	-0.1379	0.10	-1.41	0.1386
Service^	-0.1238	0.09	-1.44	0.4469
Male^	0.0309 **	0.01	2.37	0.5396
Other Akan Tribe^	-0.0354	0.08	-0.45	0.2564
Asante^	0.0008	0.08	0.01	0.2000
Fante^	0.0508	0.08	0.66	0.1329
Ga Adangbe^	-0.1651 **	0.08	-2.04	0.1083
Ewe^	0.0009	0.08	0.01	0.1546
Northern Tribe^	0.0583	0.08	0.78	0.1334
Urban^	-0.1303 ***	0.03	-4.44	0.4851

Notes: 1) ***, **, and * denote 1%, 5% and 10% levels of significance, respectively.

(^)dF/dx is for discrete change of dummy variable from 0 to 1

Table A.8: Reduced Form Probit Migration Estimation for Urban & Rural

Regressand:migstatus	Urban		Rural	
	Coef.	Std. Err.	Coef.	Std. Err.
Agesq	0.0002 ***	0.0001	0.0002 ***	0.0001
Basic Education	0.0842	0.0738	-0.0186	0.0572
Secondary Educat	0.0741	0.0841	0.2976 **	0.1424
Higher Education	0.2498 **	0.1081	0.4937 ***	0.1806
15<age<35	0.2844	0.2490	0.4607	0.2926
36<age<60	0.2412	0.2042	0.3697 *	0.2202
Western Region	0.2355	0.3076	1.2026 ***	0.2106
Central Region	0.5153	0.3206	1.1526 ***	0.2266
Greater Accra	0.6304 **	0.2842	0.7819 ***	0.2721
Volta Region	-0.1805	0.3443	0.7911 ***	0.2719
Eastern Region	0.6647 **	0.3123	1.1591 ***	0.1911
Asanti Region	0.2339	0.3019	1.0176 ***	0.2009
Brong-Ahafo	0.1735	0.3091	0.7511 ***	0.2142
Northern Region	-0.0565	0.3121	0.2241	0.2018
Upper East	-0.4953	0.3626	-0.3319	0.1783
Other relationship	-0.0619	0.0738	0.1593 **	0.0764
Never Married	-0.2510 ***	0.0783	-0.5419 ***	0.0800
Agricultural	-0.6623 **	0.2648	-5.9878 ***	0.4549
Manufac	-0.1669	0.2834	-5.7596 ***	0.4650
Service	-0.1545	0.2444	-5.7497 ***	0.4613
Male	0.1848 ***	0.0448	-0.0480	0.0517
Other Akan Tribe	0.1013	0.2896	-0.3615	0.2759
Asante	0.2447	0.3029	-0.4324	0.2762
Fante	0.1914	0.2909	0.0187	0.2885
Ga Adangbe	-0.5369 *	0.2978	-0.0944	0.2872
Ewe	0.1719	0.2970	-0.1815	0.2692
Northern Tribe	0.0701	0.2839	0.1978	0.2746
_cons	-0.6439	0.5288	4.8556	.
No. of obs	3340		3636	
F	9.28		537.21	
Prob > F	0.0000		0.0000	

Notes: 1) ***, **, and * denote 1%, 5% and 10% levels of significance, respectively.

Table A.9: Welfare Estimation for Migrant & Non-migrant

	Urban				Rural			
	Migrant		Non-Migrant		Migrant		Non-Migrant	
LnW	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
hhsz	0.1430 ***	0.01	0.1174 ***	0.01	0.1134 ***	0.01	0.087 ***	0.01
Basic educ	0.1387 ***	0.03	0.1860 ***	0.04	0.1316 ***	0.04	0.0953 ***	0.03
Second. Edu	0.2616 ***	0.05	0.4066 ***	0.06	0.3355 ***	0.07	0.3619 ***	0.09
Higher Edu	0.6026 ***	0.06	0.6130 ***	0.09	0.4427	0.07	0.4359 ***	0.13
15<age<35	-0.1043	0.09	-0.0957	0.12	-0.0510	0.05	-0.0661	0.11
36<age<60	-0.1483 *	0.08	-0.0587	0.12	0.0463	0.05	-0.0434	0.11
Western Reg	-0.0892	0.39	0.1579	0.55	1.2254 ***	0.15	0.8075 ***	0.18
Central Reg	0.1700	0.39	0.3686	0.56	1.0173 ***	0.15	0.7849 ***	0.22
Greater Acc	0.3180	0.38	0.3828	0.55	1.1252 ***	0.15	0.9362 ***	0.19
Volta Reg	-0.0746	0.39	0.1231	0.55	0.7955 ***	0.13	0.5146 ***	0.18
Eastern Reg	0.0153	0.38	0.3005	0.55	1.0922 ***	0.14	0.8673 ***	0.22
Asanti Reg	0.1526	0.38	0.3003	0.54	1.0440 ***	0.14	0.6290 ***	0.18
Brong-Ahafo	0.0992	0.38	0.0968	0.55	0.8246 ***	0.13	0.6237 ***	0.18
North. Reg	-0.3928	0.41	-0.0326	0.56	0.8410 ***	0.16	0.5471 ***	0.19
Upper East	-0.2103	0.45	-0.3523	0.57	0.2687	0.18	0.0254	0.19
Other relatio	-0.1787 ***	0.03	-0.1748 ***	0.04				
Never Marri	-0.1535 ***	0.05	-0.1630 ***	0.06	1.0460 **	0.19	0.6805	0.24
Agricultural	-0.2852 **	0.14	-0.4700 ***	0.17	1.0997 **	0.20	0.7105	0.26
Manufac	-0.1185	0.13	-0.2923 *	0.15	1.1533 **	0.21	0.7405	0.27
Service	-0.1298	0.13	-0.3042 **	0.15	1.2070 **	0.23	0.7705	0.28
Male	-0.1229 ***	0.02	-0.1691 ***	0.03	1.2606 **	0.24	0.8005 ***	0.29
Selectivity	-0.0827	0.12	-0.0539	0.13	1.3143 **	0.25	0.8305	0.30
_cons	16.5447 ***	0.42	16.5267 ***	0.58	1.3679 **	0.26	0.8605 ***	0.32
No. of obs	1962		1378		2111		1525	
F	28.46		16.22		19.76		.	
Prob > F	0.0000		0.0000		0.0000		0.0000	
R-squared	0.4297		0.346		0.3683		0.3429	

Notes: 1) ***, **, and * denote 1%, 5% and 10% levels of significance, respectively.

Table A.10: Marginal Effect of reduced form for Urban & Rural

variable	URBAN				RURAL			
	dy/dx	Std. Err.	Z	X	dy/dx	Std. Err.	z	X
Agesq	0.0001 ***	0.00	3.44	1480.45	0.0001 ***	0.00	3.06	1403.87
Basic Educ^	0.0322	0.03	1.14	0.4826	-0.0071	0.02	-0.33	0.4123
Second.Edu^	0.0282	0.03	0.89	0.1605	0.1079 **	0.05	2.23	0.0512
Higher Edu^	0.0926 **	0.04	2.4	0.1300	0.1703	0.05	3.14	0.0386
15<age<35^	0.1087	0.09	1.15	0.5049	0.1756	0.11	1.59	0.5533
36<age<60^	0.0920	0.08	1.19	0.4684	0.1389 *	0.08	1.72	0.4071
West. Reg^	0.0871	0.11	0.8	0.0683	0.3594 ***	0.04	8.47	0.1484
Central Reg^	0.1793 *	0.10	1.85	0.0667	0.3413 ***	0.04	7.77	0.1175
Greater Acc^	0.2324 **	0.10	2.36	0.3794	0.2474 ***	0.06	3.85	0.0369
Volta Reg^	-0.0705	0.14	-0.52	0.0428	0.2572 ***	0.07	3.79	0.1003
Eastern Reg^	0.2270 **	0.09	2.54	0.1244	0.3654 ***	0.04	8.13	0.2079
Asanti Reg^	0.0875	0.11	0.8	0.2023	0.3273 ***	0.05	6.61	0.1887
Brong-Aha ^	0.0649	0.11	0.58	0.0798	0.2466 ***	0.06	4.43	0.0977
North. Reg^	-0.0218	0.12	-0.18	0.0260	0.0824	0.07	1.16	0.0493
Upper East^	-0.1954	0.14	-1.38	0.0070	-0.1305 *	0.07	-1.84	0.0249
Other relati^	-0.0238	0.03	-0.84	0.2427	0.0599 **	0.03	2.11	0.2269
Never Marr^	-0.0975 ***	0.03	-3.17	0.2396	-0.2109 ***	0.03	-6.8	0.2492
Agricultural^	-0.2593 **	0.10	-2.57	0.1238	-0.9510 ***	0.02	-60.67	0.6739
Manufac^	-0.0648	0.11	-0.58	0.1735	-0.8175 ***	0.02	-45.96	0.1056
Service^	-0.0586	0.09	-0.64	0.6895	-0.9398 ***	0.01	-71.22	0.2184
Male^	0.0708 ***	0.02	4.1	0.5227	-0.0183	0.02	-0.93	0.5554
Other Akan^	0.0385	0.11	0.35	0.2570	-0.1404	0.11	-1.3	0.2559
Asante^	0.0915	0.11	0.83	0.2184	-0.1690	0.11	-1.55	0.1827
Fante^	0.0717	0.11	0.68	0.1458	0.0071	0.11	0.07	0.1208
Ga Adangb^	-0.2109	0.12	-1.82	0.1302	-0.0364	0.11	-0.33	0.0877
Ewe^	0.0645	0.11	0.59	0.1268	-0.0703	0.11	-0.67	0.1807
North Tribe^	0.0266	0.11	0.25	0.1090	0.0737	0.10	0.74	0.1563

Notes: 1) ***, **, and * denote 1%, 5% and 10% levels of significance, respectively.

(^) dF/dx is for discrete change of dummy variable from 0 to 1

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