

**CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE**

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**Migration and Agriculture: Case Study of Brong**

**- Ahafo Region of Ghana**

**MASTER'S THESIS**

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## **Declaration**

I hereby declare that this thesis entitled “**Migration and Agriculture**” was done by myself in my own words under the supervision of doc. Ing. Miroslava Bavorová, Ph.D. All other sources have been appropriately cited and acknowledged in accordance with academic ethics and that of Czech University of Life Sciences Prague, FTA citation rules.

15/04/2022

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## **Abstract**

Migration leads people to settle outside their place of origin temporary. Migration leads to shortage of agricultural labour and migrants also sent remittances which can enhance investment in agriculture. This study analyses the effect of migration on agriculture in the Brong-Ahafo Region of Ghana. Different sources of literature were gathered to understand history of migration in Ghana, patterns of migration in Ghana and to provide overview of migration and agricultural production, and impacts of migration on agriculture.

The study has three sets of objectives, and all were aimed at studying the impact of migration on agriculture. Objective 1 accessed the impact of migration on agricultural investment where key variables to arrive at this objective were the main remittances received from migrants and the percentage spent on agriculture. Objective two analysed the impact of migration on agricultural output. Key variables in achieving this objective were the accessibility to financial and extension services, sources of financial services, the extent of impact of remittances on agricultural development. The third objective which analysed the impact of migration on agricultural labour was achieved by ascertaining the number of people working in farms, number of farmers who have migrated, effects of migration on production volume and change in cost of labour over a period of time.

The study design used for the research was quantitative approach, and a sample size of 150 households was gathered. Both simple random sampling and purposive sampling was employed for selection of eight districts and the respondents respectively. The data was analysed with Microsoft excel and SPSS with the help of statistical tools such as bar graphs and pie charts.

The study results revealed that money was the highest form of remittance households receive as compared to other commodities such as farm inputs, clothes, and food items. The first objective however showed that, about 63.3% of households do not invest any of the money received as remittances from migrants in agriculture which is the main source of income. Objective two revealed that even though the amount of remittances tends to be small, it remains a crucial financial resource for improving household living standards. It is also reliable and frequent,

providing a steady income. The third objective showed that 770 workers have worked on household farms for the past eight years. Out of this number, 219 workers have migrated over this period recording a total migration percentage of 28.4% and respondents representing 59.3% of respondents declared that migration has affected production volume.

The study views investment in agriculture to be mostly based on the availability and accessibility to financial and extension services. It is therefore recommended that there should be an increase in financial accessibility to farmers through enhanced financial infrastructure. The study also recommends that there must a greater avenue for economic growth since the resultant effect of remittances on the income and hence on agricultural investment of the general populace, particularly agricultural households will be sustained only by a robust economy driven by entrepreneurial activities.

**Key words:** Migration, Agriculture, Remittances, Rural areas, Investment in agriculture

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## **Abbreviations**

NADMO – Natural Disaster and Management Organization

GLSS - Ghana Living Standards Survey

NELM - New Economics of Labour Migration

CPP- Convention Peoples Party

NRC - National Redemption Council

SMC - Supreme Military Council

# CHAPTER ONE

## 1.0 General Introduction

### 1.1 Introduction

Since the dawn of human history, migration of population has been a continual development, though its form has modified but remains a dominant within the world scheme. In often, individuals migrate from underdeveloped areas to the developed ones in search of better employment and opportunities. For the past decade, the scale and rate of international migration have risen (Adams 2003), and as such have there are severe consequences of this migration on agriculture and agricultural landscapes.

The influence of migration on production is complicated by the fact that, migration of household members alters the labour endowment of the household. Tabutin and Schoumaker (2004) in their study observed that, increasing urbanization in Africa creates obvious inequalities between the urban and rural areas which necessitate an understanding of migration patterns.

In the 2010 census, the Ghanaian population recorded was 24.2 million, a 28% increase from preceding census in 2000 with an inter-census growth rate of 2.4% per annum (Ghana Statistical Service. Accra 2011). The urban population has steadily increased from 23% to 32% and to 52% in the years 1960, 1984 and 2000 respectively (Ghana Statistical Service, 2002).

In many rural regions of the developing world, both migration and agriculture are key livelihood strategies. Agriculture continues to provide most rural incomes in most developing countries, but there is also a clear cross-national pattern of household diversification into non-farm employment, including labour migration (Reardon et al. 2001; Sana 2008). Non-agricultural

sources of income can improve household well-being and provide a buffer against agricultural shocks (e.g., drought, commodity price changes) (Ellis 2000)

Migration from rural areas is a common livelihood strategy and an important form of population redistribution. Within the research community, a long-running debate has weighed the implications of this process for human development and environmental conservation in origin areas of migration. “Migration pessimists” have argued that out-migration weakens traditional rural livelihoods and social institutions by eliminating the young, healthy, and educated from native populations. They also charge that migrant remittances mostly spent on things beyond farming activities. (Reichert 1981; Binford 2003). Migration experts respond that remittances can reduce poverty in household and contribute to family welfare, with multiplier effects across communities (Durand et al. 1996; Taylor et al. 2003). Meanwhile, conservationists have hypothesized that rural outmigration can lead to land abandonment and reforestation as part of a “forest transition” (Rudel et al. 2005), but large-scale examples of this process from the developing world are relatively few (Perz 2007)

## **1.2 Problem Statement**

In Ghana, as in other parts of Africa, migration is predominantly informal and undocumented, making accurate data on the phenomenon scarce (Awumbila et al. 2013). However, migration is the critical population issue of our time, from both an analytical and a policy point of view.

Despite the technological advancement in the twenty-first century (C 21<sup>st</sup>) resulting from science, agriculture especially in the developing countries is still labour intensive (Xiang Xi & Zhu Ming 2011). However, the young, energetic, or virile population expected to be engaged in agriculture continue to emigrate to the urban centres, ostensibly to seek greener pastures.

Emigration has been a recurrent phenomenon in developing countries. The Brong-Ahafo region of Ghana, now divided into three regions of Ahafo, Bono and Bono East were recorded the nation's region with the highest number of irregular migrants, statistics of illegal migration for 2017 (Ghana News Agency 2019). Between 26<sup>th</sup> of February 2011 when repatriation of Ghanaians from Libya began to July 2012 when the process officially ended, 18,455 migrants were air lifted to Accra (NADMO 2012) and about 1,500 migrants returned by their own means (Kleist & Bob-Milliar 2013). Among the total number of returnees, 51.6% were natives of Brong Ahafo region constituting a total number of 9,520 (NADMO 2012). This total number of people could have made a positive impact on the agriculture sector but returned with no income.

Consequently, agricultural output or production is gradually on the decline and the quality of products is also reducing because of lack of labour force. Again, the emigration of the youth, some of whom are skilled or semi-skilled in technical and vocational fields, to the urban centres discourages industrialists from establishing agro-based industries in the rural areas to supply the farmers with the required farming inputs such as fertilizers, pesticides, and herbicides among others at reasonable and affordable prices (Kleist & Bob-Milliar 2013). The industrialists entertain the fears that they will be confronted with lack of labour force. The farmers must buy imported Agrochemicals at very high prices. Owing to financial constraints, quite several of them are compelled to stick to the traditional methods of farming, resulting in low productivity and low quality of products. In effect, shortage of labour force emanating from emigration has consequences on agriculture. Also, immigration that can bring in its trail investment and modern technology to boost agricultural production is not common a phenomenon. The benefits derived from immigrants such as direct investment in agriculture and the introduction of improved variety of seeds, seedlings and breeds for agriculture have been minimal.

### **1.3 Justification of the Study**

There has been extensive research on issues regarding the theories of migration (Lall et al. 2006; Ghatak et al. 1996), patterns of migration (Taylor & Martin 2001), determinants of migration (Hay 1980; Barber & Milne 1988; & Hoddinott 1994), as well as studies examining the welfare impacts of these population movements on migrants in Ghana (Litchfield & Waddington 2003; Boakye – Yiadom & McKay 2007). However, these studies have not yielded in establishing a consistent relationship between agriculture and migration, especially assessing the effect migration has on agricultural output and production in Ghana.

It has been unconcealed that nearly five hundred of rural households in African nations such as Ghana must be compelled to rent labour, principally for farming activities that includes land preparation, weeding/spraying, and harvesting (Ghana Statistical Service 2008). The critical question raised is with respect to the extent and direction of the impact of rural-urban migration on agricultural production and its policy implication. Growth in agricultural sector is viewed as an essential factor in realizing sustainable development and a means of reducing poverty in developing countries such as Ghana.

The effect of rural-urban migration and agriculture could be either negative or positive reckoning on the rural market functionality (De Brauw 2007). Several studies have stressed the need for growth in agriculture which is the source of employment for majority of the rural population as means of raising the income of the rural poor and a means to lessen rural to urban migration (Sabot 1979; Todaro 1980). Although it has been justified theoretically that migration could affect agricultural production, little research has examined the direct relationship between migration and agricultural output or productivity (De Brauw 2007). Based on these facts, this

study seeks to bring out the empirical evidence of the effect of migration on agriculture in the Brong Ahafo Region.

#### **1.4 Research Questions**

The study seeks to answer the following research questions.

1. What is the impact of remittances on investment in agriculture?
2. What is the impact of remittance on agricultural output?
3. What are the impacts of migration on labour in agriculture?

#### **1.5 Objectives**

The general objective of the thesis is to study migration and agriculture in Brong-Ahafo Region of Ghana. The general objective of the study is expressed in the following specific objectives

1. To analyse the impacts of remittances on investment in agriculture in the study areas
2. To analyse the impact of remittance on agricultural output in the study areas
3. To determine the impacts of migration on agricultural labour in the study areas

#### **1.6 Scope of the Study**

##### **1.6.1 Contextual Scope**

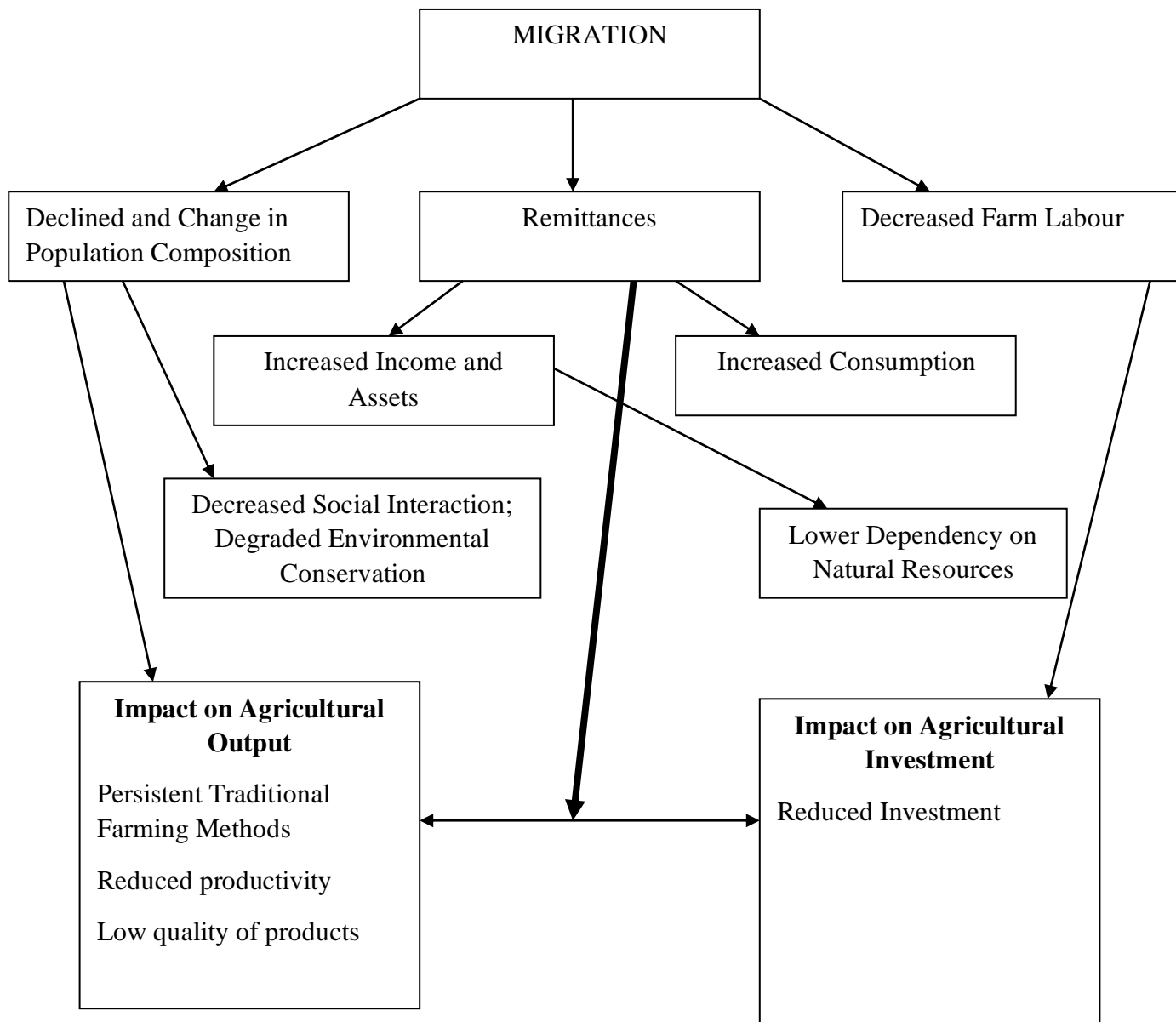
In context, the study covers the impacts remittances on the investment in agriculture, the impacts of migration on labour as well as accessibility to relevant technical, financial, and technological services in agricultural development in the study area.

##### **1.6.2 Geographical Scope**

Geographically, the study spans through eight notable districts in the Brong Ahafo region where critical information can be attained on the impacts of migration on agriculture. Precisely the districts studied are Asutifi South, Berekum, Dormaa, Jaman North Nkoranza South, Sunyani West, Tano South and Wenchi.

### **1.7 Conceptual Framework**

The conceptual framework illustrated in figure 1.1 describes the impact of migration on agriculture with remittances as the primary factor. The framework shows that while migration improves remittances, it affects rural populations by declining and changing the composition and decrease farm labour. Resultantly, the impact on agricultural output and investment is enormous. Since there is a significant decrease in farm labour, investment in agriculture is adversely affected and as a result, traditional techniques in farming persist which obviously affect quality and volumes of output.



**Figure 1.1: Conceptual Framework for the study**

**Source: Author, 2022**



## **2.0 Literature Review**

By appropriately analysing the current state of scientific knowledge both empirical and theoretical, it was essential to identify which studies are available in connection with the subject matter. Despite this, conclusions by some authors, educators and researchers both globally and locally were systematically reviewed. Areas covered under this chapter are organised into the following sub-headings: the history of migration in Ghana, patterns of migration in Ghana, overview of migration and agricultural production, impacts of migration on agriculture

### **2.1 Agriculture sector in Ghana**

Agriculture sector in Ghana continues to be the major contributor to the country's Gross Domestic Product, accounting for 34.7% (Ghana Statistical Service, Ghana in figures: Ghana Statistical Service, Accra, 2008) and the principal source of employment for most of the populace (62.2%) who are inhabitants of rural areas. Agriculture is Ghana's most important economic sector, employing over 56% of its total labour force on a formal and informal basis (CIA World Fact Book 2014). The performance of Ghana's economy thus depends to a very large extent on the performance of the agricultural sector. High agricultural productivity is therefore imperative in stimulating growth in other sectors of the economy. The country produces several varieties of crops in different climatic zones which range from dry savannah to wet forest and run in east west bands across the country. Agricultural crops comprising yams, grains, cocoa, timber, oil palms, kola nuts, and cashew, form the base of Ghana's economy.

Ghanaian agricultural output has steadily fallen since the 1960s. Beginning with the decline of commodity prices in the late 1960s, farmers have been faced with fewer incentives to produce as well as with a several destruction of assets and onthers. Farmers have also had to deal with

increasingly expensive inputs, such as fertilizer, seedlings, and difficulty in obtaining credit facilities. Food production has dropped as well, with its associated waning in the food self-sufficiency ratio from 83 percent in 1961-66 to 71 percent in 1978-80, coupled with a four-fold rise in food imports in the decade prior to 1982. By 1983, when drought hit the country, food shortages were widespread, and export crop production reached an unprecedented low.

## **2.2 Migration**

### **2.2.1 The History of Migration in Ghana**

There is a protracted history of migration (both internal and international) in Ghana (Peil 1995).

What is also certain is that formerly, much of the migration within the 1960s was within the borders of the country and involved groups and individuals of various ethnic groups stepping into others in search of security during the period of internecine warfare, and for new land safe for settlement and fertile for farming (Boahen 1975; Wyllie 1977). This came to be termed as rural-urban, rural-rural, and urban-rural migrations during the post-independence period (Addo 1981; Twumasi-Ankrah 1995; Simon et al. 2004). Many farmers and farm employees moved internally from their natal regions into other regions (Addo 1971; Addae-Mensah, 1985). From years immemorial as indicated by Addae-Mensah, farmers migrated in search of empty land for the cultivation of both food crops and cash crops. The introduction of cocoa in the late 19<sup>th</sup> century resulted in unprecedented migration of farmers around Ghana (Hill 1963). Such migrations led to socio-economic change. According to Addo (1968) migrants influenced socio-economic change by availing their skills where they were highly needed, by introducing new sense of values and new economic behaviour approaches into established enterprises, by bringing up new skills into the economic life of the receiving areas, and occasionally by opening

the prospect of lucrative investment in the areas where they lived. Addae-Mensah (1983) further contributed that, migrants' influence in making changes in their destinations. He suggested by pin-pointing the case of farmers in Wassa-Amenfi district that, they commanded control over property particularly of large farms of cash crops and other foodstuffs in the locality. Other migrants from the Brong-Ahafo, Ashanti, Volta, as well as Gas, Akwapims and Fantis in the Sefwi area either owned farmlands purchased from the Sefwi chiefs and family heads or worked as sharecroppers (Adu 2005).

Many studies have explored North-South migration in Ghana (Pellow 2001; Sulemana 2003; Mensah-Bonsu 2003; Kubon 2004; Meier 2005; Kwankye et al. 2007 & Castaldo 2007). In recent times, the studies on the north-south migration phenomenon in Ghana have diverted to the study of emerging trend of the youth specifically young females from the Northern parts of the country to the Southern cities, predominantly Accra and Kumasi to engage in menial jobs (Whithead & Hashim 2005; Awumbila & Ardayfio-Schandorf 2008). Despite the obvious dominance of internal migration in the early period, international migration also occurred, although at a minimal level. Even though migration out of Ghana constitute few people, mostly students and professionals to the United Kingdom because of colonial ties (Anarfi & Kwankye 2005) and other English-speaking countries such as Canada (Owusu 2000), migration to Ghana was visible and clear and its documentation trace back to the pre-colonial period.

Rouch (1954) for example mentions Wangara migrants in Ghana in the 15<sup>th</sup> and 16<sup>th</sup> centuries while (Peil 1974) also highlights migrant workers who came into the country with the development of cocoa farming, mines and railways in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. Peil also argued for instance that 'at one period, British boats stopped regularly on the Kru coast of Liberia to pick up workers for the Gold Coast harbours and mines' (Peil 1974). The outcome of

these was that, in the case of commerce, traders of foreign origin were well established in market centres of Ghana's north and in Kumasi during the early stage of the colonial era. Sutton (1983) supports Peil's assertion and argues that, with very little from the North of Ghana and nearly none from the South, much of the labour force in Ghana's mines in the early 20<sup>th</sup> century was from neighbouring West African countries of Liberia, Sierra Leone, and Nigeria (Beals & Menezes 1970; Harvey & Brand 1974).

After its independence, Ghana's relative wealth compared to her neighbours continued to attract migrants (Antwi-Bosiakoh 2008). An increase in job opportunities, industrial development, and higher wages, particularly in urban areas, made the Ghanaian economy attractive and therefore encouraged not only rural urban migration, but sub-regional migration as well. This migrant-receiving status was reinforced by Nkrumah's foreign policy which, among other things was back-gearred towards the promotion of Pan-Africanism. This made Ghana conscious of her role in the independence of the rest of Africa (Brydon 1985).

According to Brydon, several African freedom fighters and pan-Africanists entered the country, describing it as 'a haven' and 'Nkrumah's declaration of a country-wide policy of universal primary education at that time, earned the country a status of a civilized state' (Brydon 1985). In the 1960 census for instance, immigrants accounted for 12% of the computed population. On the international level, Peil (1995) recognized Ghana's economy and educational system as basic causes of the large-scale emigration of Ghanaians and contended that, the situation in Ghana offered limited opportunities for the then rising population. But various reasons including employment, education and training inspire much of Ghanaian migration to other West African states, as well as to Europe and North America (Nuro 1999). Moreover, Fosu (1992) identified

that political instability can also be attributed to the rise in Ghana's international out-migration in the late 1970s and early 1980s (Fosu 1992; Anarfi et al. 2003).

Nevertheless, the period of large-scale emigration commenced in the 1970s and 1980s. The Convention Peoples Party (CPP) had upheld a liberal immigration policy given the party and government's pan-Africanist ideological orientation and the concern to make Ghana the leader and front runner of African unity (Dzorgbo 1998). This was cut short by the promulgation of the Aliens' Compliance Order in 1969 which saw the expulsion of many immigrants in Ghana in the same year. The order required of all aliens in the country to be in possession of residence permit if they did not already have it or to obtain it within a two-week period.

The order earned the then Busia-led administration the displeasure of some West African governments especially Nigeria, Togo, Benin, Mali, Niger, Ivory Coast and Burkina Faso whose nationals were highly affected by the expulsion. Besides, the 1969 Order also affected Ghana's reputation in mainland Africa and the rest of the world (Dzorgbo 1998). It must however be pinpointed that, in West Africa, Ghana was barely alone in the expulsion of alien populations. Adepoju (2005) provides examples of some West African countries which also expelled nationals of foreign origin including Ivory Coast in 1958 and 1964, Senegal in 1967, Sierra Leone in 1968 and Nigeria in 1983 and 1985. These examples clearly demonstrate that, several West African countries resorted to expulsion as an option for dealing with immigrants.

In the Ghanaian case, the expulsion 'had a mild ameliorative effect on the temper of Ghanaians' and arguable economic advantage for Ghana (Brydon 1985). Truly, Brydon interprets the expulsions in Ghana in contrary terms since, 'aliens took with them capital, and in addition, a large part of the Ghanaian trading nexus was destroyed' (Brydon 1985). Following the Order in 1969, the economic policies pursued in the 1970s by the National Redemption Council (NRC)

and the Supreme Military Council (SMC) (1972-1978) and the frequent variations in government as well as the non-continuity of policies (Addo 1981), created an economic decline in Ghana. The country's inflation, unemployment, and underemployment figures rose; and there was devaluation of the Nation's currency (Dzorgbo 1998). There was a general lack of confidence in the economy of Ghana. The outcome of these was that, for some Ghanaians, a close option of exit through migration was pursued.

According to Manuh (2001), migration emerged as a 'tried and tested strategy' for dealing with the 'deteriorating economic and social conditions. This set the centre stage for large-scale emigration of Ghanaians to African countries and the world at large which is still in existence.

### **2.2.2 Migration flows in Ghana**

Generally, statistics show that a higher percentage of the migrants are temporary migrants while the permanent migrants are of a lower percentage (Ghana Statistical Service 2008). The age and gender differentials in the statistics have also shown that young people between the ages of 25 to 29 years are more mobile. This brings out the reasoning that older people with children who are still in school, and dependent are less likely to migrate. More males of the lower age range of 10 to 24 tend to engage in permanent migration but most of the females rather involve in temporary migration and do so at the late ages of 20 to 34 years (Ghana Statistical Service 2008). In Ghana, about 67% of migration decisions are based on family reasons while about 22% of these decisions are based on employment reasons which are the main determinants aside reasons of education, religious and political, natural disasters such as flood and drought as well as war (Ghana Statistical Service 2008).

Research which used event history logit models with primary data from residents at the coast of Ghana to examine interregional migration within Ghana showed that, more educated persons, persons not married; urban residents and previous migrants had a higher probability of migrating. The research also indicated people employed and have more than one child in school are less likely to migrate (Reed et al. 2005). The studies exposed that access to road networks and communication networks by rural folks encourages rural to urban migration as it helps with information transfer for people to compare their relative social and economic deprivations and make decisions to migrate because people are always in expectation of higher wages and a better life according to the principle of comparative advantage. It is also revealed that when policies such as food policies tend to discriminate against agriculture and the rural areas, people are encouraged to migrate from rural areas to urban areas (Anarfi et al. 2003).

### **2.2.3 Patterns of Migration in Ghana**

Migration patterns are complex; vary greatly between countries and depend on stages of structural transformation, as well as household and individual characteristics (Deotti & Estruch 2016). Seasonal internal migration in west Africa, particularly north-south migration, has been an important movement pattern since colonial era (Anarfi et al. 2003). In Ghana, migration is very common, with at least one migrant in more than 43% of all households in 2005/06 (Ackah & Medvedev 2012). For centuries, due to its central location, Ghana occupies a key crossroad of important migration routes in West Africa related to nomadic movements and traders. As a result, studies examining migration patterns, determinants, and impacts date back to the 1960's (Ackah & Medvedev 2010). In recent years, migration routes have been supplemented by increasing rural-to-urban migration, as cities in Ghana, such as Accra and Kumasi, became magnets for not only traders, but also young migrants searching for work and academic

opportunities (Adepoju 2003; Anarfi et al. 2003). For instance, a study by Ackah and Medvedev (2010) using a sample of 4,000 Ghanaian households taken from the 8,687 households which participated in the 2005/06 round of Ghana Living Standards Survey (GLSS 5) showed that more than 80 percent of Ghanaian migrants stay in Ghana and among them, 70 percent go to urban areas.

At the regional level, the greater Accra and Ashanti regions attract more than half of all internal migrants and migrants make up a substantial share of the population in these regions (Ackah & Medvedev 2010; GSS 2014). On the other hand, the southern regions of Ghana - Western, Central, Eastern, greater Accra, Volta, and Ashanti - accounts for 88% of all internal migrants, while the Northern and the two Upper regions together account for only 5% of the total destinations. Considering that the greater Accra and Ashanti regions are the most urbanized regions in Ghana (Songsore 2009), it is not surprising that they serve as attractive destination for migrants. Urban areas globally, and Ghana, serve as a hub of educational, social, and economic development and therefore serve as a natural destination for migrants particularly from rural regions (Songsore 2009; UN-Habitat 2014). Most parts of Africa including Ghana is urbanizing rapidly and as urbanization proceeds in a country, the city and the countryside become differentiated in many ways and understanding the migration patterns among these two areas becomes progressively important (Tabutin & Schoumaker 2004).

In west Africa many studies on migration have consistently focused on rural-urban migration (Anarfi et al. 2003). However, over the past two decades, there has been a growing interest among scholars on examining in detail the socio-demographic characteristics of migrants, particularly differences in terms of sex and how it affects their migration patterns (Reed et al. 2010). Historically, both men and women in Ghana have been relatively mobile (Ackah &



Medvedev 2010). The coast and the forests regions have historically drawn labour, primarily men, to the fishing and logging industries and to the cocoa farms. Larger market towns and cities, including Accra and Kumasi have drawn market traders who may be men, but are more often women. Despite these, research on migration has traditionally been sex-biased, in that men were often the only migrants studied or conceptualized (Curran et al. 2006). Although Ackah & Medvedev, (2010) suggest that this bias is somewhat being corrected by more recent scholars, they further contend that much of this newer scholarship is qualitative and even when quantitative methods are used, there are still relatively few studies of internal migration (rather than international migration) that focus on sex differences, particularly in the developing world, and few studies in sub-Saharan Africa. For instance, until recently, many assumptions about internal migration in Africa, were based on empirical evidence from censuses or surveys (like the Demographic and Health Surveys). Although censuses are essential, they tend to be broad and not focus specifically on migration and have limited usefulness. These suggest that there is the need for more empirically based studies focused on internal migration and the patterns thereof.

### **2.3 Overview of Migration and Agricultural Production**

A couple of major effects establish the link between migration and agricultural production. First, the loss of labour through migration which may tighten the labour constraint for agricultural production and second, the earnings in the form of remittances from migrants which may loosen credit constraints and help with investments in agricultural production. These two effects in terms of agricultural income may be positive, negative or may take different dimension by offsetting each other. A positive effect would suggest that migration complements agricultural production while a negative effect would imply that the loss of labour caused by migration

reduces agricultural productivity. However, the finding of a significant effect is evident in support of New Economics of Labour Migration (NELM) (Rozelle et al. 1999). Since migration has been part of the economy, traced from the supply and demand theories of Harris and Todaro (1970) and theories of rationality of the individual of Todaro and Maruszko (1987), it is obvious that migration is not a new thing of the century. It is expected that agricultural households which have lost labour to migration will be able to adapt to shortage of labour. Existing methods of adaptation include transitioning to less labour-intensive farming methods such as less labour-intensive crops and mechanization (Jokisch 2002). Mechanization has however been found to be inefficient in situations of decentralised small plots- which is the case in most parts of Africa- causing agricultural labour productivity to be below potential (White 2005). The existing studies of the relationship that lies between migration and agricultural household at origin of migration have brought to bear different views. Rozelle et al. (1999) studied the relationship between migration, remittances and agricultural production and their findings showed that migration has a significantly negative impact on yields and that remittances are a positive function of migration which is in support of the NELM theory. However, the negative effect on agricultural production should be a disincentive for labour migration.

Lucas (1987) and Taylor (1992) in their works had a contrary result showing that migrants acted as financial intermediaries by sending remittances to loosen the constraints on agricultural investments which had a significantly positive effect on agricultural production indicating that the future incentives of the household to partake in migration would be large in this case. Another study with evidence from Kenya using panel data from rural households also agrees with the NELM theory that migration is related with negative labour loss effects on crop income but does not find any evidence that the labour lost effects are partially or fully offset by

remittances from migrants (Sindi & Kirimi 2006). The work of Mendola (2008) sought to investigate if migration aided in the investment in new technologies by the rural household at origin and identified that international migration which was “high-return” had a positive effect on the household’s investment into new agricultural technologies but domestic migration - including both temporary and permanent migration - had a negative effect on investment and productivity in agriculture.

Considering the empirical studies which have shown a negative impact of domestic rural to urban migration on agricultural production of rural households, the use of the remittances received is then an open question. A couple of thoughts arise, the remittances are either not enough to offset the lost labour effects or they are channelled into other uses other than agriculture. Appleyard (1989) in his submission on the negative impacts of migration on the output of the agricultural household which receive remittances argued that remittances cause the rest of the household to make a substitution of leisure for work which results in increased cost of labour and lands lying fallow. The use of remittances as payment for education of the future generation of the household as argued by Mendola (2006), is a very common practice which would pass as a long run investment to enhance agricultural production, however in the short run it may be seen as a misdirected investment. Likewise, other studies have found positive effects of remittances of migration on education, household consumption and expenditure (Adams & Cuecuecha 2010; De Brauw & Rozelle 2003; McKenzie & Rapoport 2004). No long run impacts on agricultural production can be established by directing remittances into housing and household consumption. However, when the households need on consumption and other expenditures have been fully met, the household may invest remittances into agriculture as well to enhance productivity in cases of extended length of migration period (Cohen 2005).

Research by Jokisch (2002) which involved an agricultural survey administered in two communities in Ecuador to ascertain land-use and agricultural production of migrant and non-migrant households realised that contrary to most reports on the subject, migration had neither led to a decline in agricultural production nor have remittances been dedicated to agricultural improvements. The conclusion was that land use and agricultural production of migrant households are not significantly different from non-migrant households. Cohen (2004) also had similar results which revealed no changes in the production of agricultural households at origin even though they received remittances from migrants. Turner et al. (1993), employed a methodology that uses “natural experiments” by analysing dynamism in agricultural inputs and outputs and the role that external productive forces have played in these changes to discover whether population growth in densely settled areas of rural Africa has led to the intensification of agriculture. Their findings revealed that remittances are rarely used for investments in agriculture and there was no tendency of migration stagnating agricultural intensification.

### **2..1 Impacts of Migration on Agriculture**

Previous studies have revealed diverse impacts of out-migration and remittances on agriculture in origin areas, ranging from dis-intensification and land abandonment to intensification and investment. The most common assumption in the human–environment literature is that out-migration will lead to agricultural dis-intensification (e.g., the use of fewer inputs per unit area) and potentially to land abandonment (Rudel et al. 2005). This could occur due to a decline in available household labour, thereby leading to the adoption of labour-saving strategies, the abandonment of labour-intensive strategies, or an overall decrease in agricultural activities (Zimmerer 1993). The receipt of migrant remittances could also have this impact by substituting for agricultural production (Reichert 1981). Additionally, out-migration and receipt of

remittances at the community level could further these impacts by reducing the number of potential agricultural labourers and raising the cost of such labour (Taylor & Dyer 2006). Multiple qualitative studies have supported these hypotheses, including three from the Andes. In the Peruvian Andes, Brown (1987) found that out-migration led to labour shortages and the decline of traditional reciprocal exchanges of agricultural labour. Using an ethnographic approach, Zimmerer (1993) identified labour shortages due to out-migration, along with the abandonment of traditional soil conservation techniques and increased participation of women in farm work. In the Bolivian Andes, research by Preston et al. (1997) demonstrated that out-migration resulted in a fall in the number of cattle and a consequent expansion of shrub lands, consistent with the hypothesis of disintensification.

Moreover, a handful of studies adopting approaches from biological ecology have also investigated the effects of out-migration for land use. Consistent with forest transition theory (Rudel et al. 2005), these researchers have identified positive effects of out-migration on the growth of secondary vegetation in Albania (Muller & Sikor 2006), Puerto Rico (Rudel et al. 2000), Mexico (Lo'pez et al. 2006), and consistent with vegetative recovery following land abandonment. Together these studies support the common assumption of the negative effects of out-migration on agriculture, although only the study by Muller and Sikor (2006) accounts for variation in migrant remittances. Muller and Sikor (2006) found not only positive effects of out-migration on area in shrub lands, but also positive effects of migrant remittances on cropland, indicating the presence of countervailing effects as described below. Among qualitative studies, a contrasting group has found neutral or even positive impacts of out-migration and remittances on agricultural production, including intensification (the use of more inputs per unit area) and extensification (an increase in the area used). Migrant remittances can buffer or counteract the

effects of the loss of labour to out-migration by allowing investment in agriculture and encouraging participation in the cash economy (Hull 2007). In the Ecuadorian highlands, both Preston and Taveras (1980) and Jokisch (2002) found few effects of out-migration on smallholder agriculture despite large flows of out-migrants, and Black (1993) revealed mixed effects of out-migration on agriculture in rural Portugal. Two other studies found net positive effects of migration and remittances on agricultural activities. Taylor et al. (2006) showed that remittances led to an expansion of cattle ranching in North-western Guatemala, and De Haas (2006) found a similar effect on irrigated agriculture in Southern Morocco. The origin of the contrasting results from these three sets of studies is unclear, but variation in overall suitability for agriculture, particularly for the expansion of commercial agriculture, is likely to be part of explanation. An additional set of studies has used quantitative methods to examine the effects of out-migration and remittances on agriculture. These studies provide potential explanations for the variation in results obtained by the case studies described above by accounting for countervailing effects between migration and remittances, as well as for heterogeneity in the gender and destination of out-migrants. Survey-based studies by Lucas, Taylor and collaborators have provided the foundation for this approach. Lucas (1987) used aggregate data to show that crop production in four southern African countries decreased in the short-term with out-migration but increased in the long-term with cumulative migrant wages, suggesting a short-term negative effect from lost labour but a long-term positive effect from investment of remittances. For rural China, Taylor et al. (2003) noted that farm income and yields decreases with the number of out-migrants but increased with remittances, demonstrating that out-migration and remittances had countervailing effects. Additional studies by Taylor and colleagues have revealed that international out-migration has a negative effect on agricultural income in rural

Mexico but that remittances have no effect (Mora 2005), and that international out-migration had a negative effect on income from staple crops but no effect on cash cropping in Burkina Faso (Wouterse & Taylor 2008). With strong interest, Pfeiffer, and Taylor (2007) found that outmigration of men had negative effects on participation in non-staple crop production in rural Mexico, but that out-migration of women had positive effects, perhaps because of women's larger remittances or previously lower participation in agricultural work. Together, these studies suggest that out-migration tends to have negative effects on agricultural production but that remittances often have a positive countervailing effect.

A final set of quantitative studies, including studies by McCarthy, Hull, Gray, and Mendola, has further extended this approach by analysing effects of migration on additional measures of agricultural activities beyond agricultural income, including effects on the use of land, labour, and chemical inputs in agriculture. In common with the qualitative case studies described above, these studies provide a broader perspective on agricultural transformation following migration, encompassing environmental and social dimensions of agriculture in addition to economic ones. Yet these studies are too few and disparate to provide a comprehensive picture of the consequences of migration for agricultural systems, but they suggest that outmigration and remittances might commonly lead to agricultural commercialization. McCarthy et al. (2006) specifically examined several dimensions of agriculture following international migration in rural Albania and found that out-migration led to declines in multiple traditional agricultural activities but to increases in the number of livestock and associated agricultural sales. Hull (2007) investigated labour allocation for the rice harvest in North-eastern Thailand and found that households with both out-migrants and remittances were more likely to hire agricultural labour, another form of agricultural commercialization. Mendola (2008) focused on adoption of

high-yielding crop varieties in Bangladesh and found that international out-migration led to increased adoption, likely because of remittances, but that internal and temporary out-migration led to decreased adoption, likely because of lost labour.

Finally, a study by Gray et al. (2008) provides a counterexample in which the receipt of remittances was associated with smaller cultivated areas by indigenous households in the Ecuadorian Amazon, perhaps due to their remoteness from agricultural markets. Together these studies reveal that migration and remittances can influence different dimensions of agriculture in different ways, suggesting that, rather than outright abandonment or expansion of agriculture, migration is more likely to lead to more subtle adaptations to the limitations of lost labour and the opportunities provided by remittances. This article builds on the strengths of the above body of research by examining the influences of multiple measures of out-migration and remittances on various aspects of smallholder agriculture in the southern Ecuadorian Andes. New to this literature, the analyses presented here account for both migrant gender and the internal or international character of remittances, key factors given strong gender norms influencing participation in agriculture and the great gap in remittances transferred by internal and international migrants. Several of the studies cited above also suggest that it is important to account for migrant heterogeneity in the form of destination (Mora 2005; Mendola 2008; Wouterse & Taylor 2008) and gender (Pfeiffer & Taylor 2007). In addition, the analyses presented here consider the impacts of migration and remittances on a variety of agricultural dimensions including area planted in maize and beans; use of reciprocal, hired, and female household labour; use of chemical inputs; maize production; and number of varieties planted of common beans (a measure of agro diversity). The analyses thus provide a holistic view into the



consequences of migration for the agricultural system, including social, economic, and environmental aspects of agriculture.

## **2.4 Migrant Remittances**

Migrants Remittances are realized as very critical to the production prospects of developing nations with potentially positive impacts (Ratha 2007). According to Addison (2004), remittances can be defined generally as ‘that portion of migrants’ earnings sent from the migration destination to the place of origin’. Even though ‘remittances’ can also be in kind, it is frequently restricted to monetary and other cash transfers from migrants to their families and communities residing home. Likewise, the reverse flow of resources can also occur from relations in source areas to migrants in destination areas to support them mostly in times of anguish in their early days of settlement. Primavera (2005) made a distinction between three forms of remittances which includes financial, food or goods and social remittances. According to her, financial remittances are usually money earned by migrants within the region of destination, which they convey or send to the family or friends in the place of origin. She further explained that this type of remittance could be spent directly on food and can also be saved or invested in property. For remittances in the form of food or goods, it could be in the form of foodstuffs exclusively for consumption of those items that can be sold or used by relations at the place of origin. Social remittances, however, have been referred to by Levitt (1998), as the ideas, behaviours, identities, and social capital that flow from receiving to sending country communities and the reverse is true. Ratha (2003) concluded by saying that remittances increase the level of consumption of rural households, which might have considerable multiplier effects, because they are more likely to be spent on domestically manufactured goods.

Giuliano and Ruiz-Arranz (2005) had worked on data set of more than 100 developing countries from years 1975–2002 and found that remittances can enhance economic growth only in less financially developed countries. The positive developmental effects of remittances primarily concentrates on the multiplier effects of consumption, development of the financial sector that handle remittance disbursements, usage of remittances as foreign exchange, and the role of remittances as an alternate to debt that aids in individuals credit alleviation problems among nations where micro-financing is not widely available.

## **2.5 Remittances and Investment in Agriculture**

Understanding of how remittances from migrants affect rural communities has been a debatable issue for years. Bohning (1975) presents one viewpoint. According to him, doubts have been raised with respect not only to the relief of unemployment but also to the purely beneficial nature of remittances, and some observers have considered emigration detrimental to the development of developing countries. Contrary to this, Griffin (1976) argued that: Internal migration is likely to improve distribution of income in rural areas and hasten the formation of capital and technical modification on minor peasant farms. In effect, migration enables the peasantry to overcome the imperfections of the rural credit market by creating better opportunities to accumulate financial capital in the urban areas for successive investment in agriculture. Stark (1976) reviews the research and agrees that migration creates favourable conditions for rural development. Rempel and Lobdell's (1981), upon review of literature and research in Kenya posited the opposite by saying that, there is little evidence that urban-rural remittances have been a substantial avenue to rural economic development. Their research suggests that regardless of massive remittances, agricultural development is trivial. Wood and McCoy (1986) and Griffith (1985) concur that remittances have contributed little to local agricultural development. In their research on

Caribbean migrants, monies were earmarked for maintenance; few were invested. Other studies have begun to clarify the role of remittances in household economics and the conditions for agricultural investment.

## **2.6 Household Utilization of Remittances**

Migrants' remittances constitute a major portion of rural household monetary income (Deere & Dejanvry 1979). For many, only a small proportion of the overall monetary income is from remittance sources (Oberai & Singh 1980). Pioneering research suggests that consumption values, substitute investment possibilities, and factor endowment (example, access to productive resources) influence the utilization of remittances (Arizpe 1981; Reichert 1981). Consumption values clearly favour improved housing. Almost fifty percent of remittances is spent on house construction, whereas only 9 percent is invested in land acquisition (Stanton Russell 1986). Consumption values, however, correlate with the production possibilities of households. Households from the onset restricted in productive resources and capacity to purchase more spend most of their remittances on daily food needs or consumable goods (Stuart & Kearney 1981). Affluent households, which have a higher initial consumption level, spend outside income on housing or land acquisitions but not necessarily on the improvement of agricultural production (Rhoades 1978). Land is mostly acquired as a savings hedge against inflation rather than investment in productive activities. Given a steady ecological condition and a favourable resource endowment, a household may identify the return on their investment in land and improved technology desirable if; market demand for farm products is adequate and persistent and there are no weakening distortions or imperfections in the market; productive land is available at realistic prices; adequate capital is accessible, and a farmer has the basic skills and knowledge.

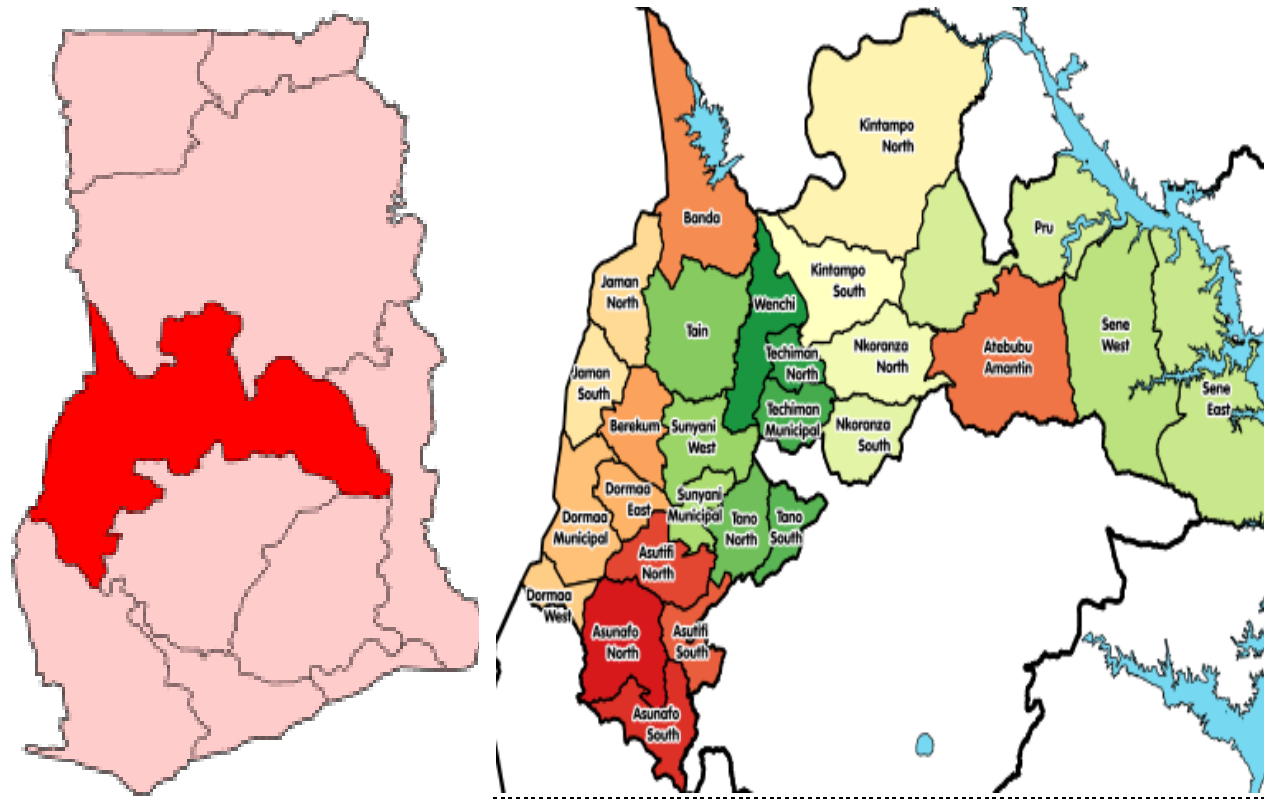
### **3.0 Research Methodology**

#### **3.1 Study Areas**

The study was conducted in Brong Ahafo Region of Ghana. It was a region in southern Ghana bordered to the north by the Black Volta river and to the east by the Lake Volta, and to the south by the Ashanti, Eastern and Western regions. The capital of Brong-Ahafo was Sunyani. It had an international boundary to the West which it shared with La Côte d'Ivoire. The region was formed in 1959 from the then Western Ashanti and named after the dominant and native inhabitants, Akans, Brong and Ahafo. It was one of the ten regions of Ghana until 2019 the region was divided into three, namely Bono, Bono East and Ahafo regions, and ceased to exist. The region was made up of 27 districts which included 8 municipal and 19 ordinary districts. It occupied a total land area of 39,557 km<sup>2</sup> (15,273 sq. mi) and ranked the second largest region in Ghana. It had a population of 2,310,983 according to the 2010 population census of Ghana. It lies within longitude 0° 15'E to 3° W and latitude 8° 45"N to 7° 30'S. Brong Ahafo is known for its large cocoa production and other agricultural activities. The region has two types of climates, namely moist semi-deciduous forest, and the guinea savanna woodland, which is conducive for production of a variety of cash and food crops. Majority of the population are engaged in agriculture. The farmers are mostly engaged in crop farming, livestock rearing, fish farming, tree growing and produce a substantial amount of food to feed the region and the beyond being considered as the breadbasket of country. Attractions of Brong-Ahafo include Kintampo, with its waterfalls (Kintampo waterfalls) and nature reserves; Fiema, one of the communities which is home to the Boabeng-Fiema Monkey Sanctuary (a short distance outside Sunyani); national parks, Bui National Park and Digya National Park.

## GHANA

## BRONG AHAFO REGION



 Study Area

Figure 3.1: Map of the Study Area

Source: Ghana Statistical Service, 2014

### 3.2 Research Design

A research design is the plan for collecting data that explains the basic structure of the study to answer research questions. It offers the procedural outline for the conduct of the study (Amedahe 2004).

The research design used for the study was quantitative approach. According to Newman (2003), survey systematically asks subjects the same questions about a situation or a programme and measure several variables for purposes of gaining insights about previous behaviours, experiences, or characteristics. Some benefits of this method are that numerous people produce responses within a short period of time, responses obtained from respondents are easily analysed and can help determine the status of the phenomena that is the status of the population in relation to the selected variables. It is also less expensive in terms of funding (Leedy et al. 2010). Both the qualitative and quantitative research method was chosen as the most appropriate design for the study.

The survey questionnaire was designed in simple English language for easy interpretation and in clear language to encourage participants to offer the candid and unbiased information. Moreover, the participants were notified of the purposes, significance of the research and translated in local language for participant who could not read and write.

### **3.3 Target Population**

Population refers to the complete set of individuals having common characteristics in which the researcher is interested (Fraenkel & Warren 2002). The target population are all households that have migrant members in the Brong Ahafo Region of Ghana. They were chosen because it was the main subject for the research.

### **3.4 Sample Size**

According to Sarantakos (2005), a sample consists of a carefully selected unit of the population for a particular study. The sample size for a given study can be obtained by considering the population size of that study. The main function of a sample is to enable researchers conduct a

study to individuals from the population so that the results of their study can be used to draw statistical inference about the population. The sample size must be representative of the population from which it was drawn to warrant statistical analysis. Due to limitations such as time and other financial resource constraints, a sample size of one hundred and fifty (150) rural household heads with migrant members in 8 districts was selected for the study. Eighteen (18) respondents were selected from 7 districts, 24 respondents from 1 district. Table 3.1 shows how the question was shared among the respondents and the number of responses received in percentage (%)

**Table 3.1: Statistics on How Respondents Answered the Questionnaires**

<b>District/Municipality</b>	<b>Sample Size</b>
Asutifi South District	18
Berekum Municipal	18
Dormaa Municipal	24
Jaman North District	18
Nkoranza South District	18
Sunyani West Municipal	18
Tano South District	18
Wenchi Municipal	18
<b>Total (n)</b>	<b>150</b>

**Source: Author's Construct, 2022**

### **3.5 Sampling Technique**

Sampling is the process of selecting a portion of the population to represent the entire population in the study (Amedahe 2004). The study employed both simple random sampling and purposive sampling technique. Simple random sampling method was used to select 8 districts in the region

which include Berekum Municipal, Asutifi South, Tano South, Sunyani West, Wenchi Municipal, Nkoranza South, Jaman North and Dormaa Municipal. Based on the objective of the study, a non-probability sampling technique known as convenient sampling was employed to select the respondents. In this sampling technique there are no other criteria to the sampling method except that people are available and willing to participate. This type of sampling method does not require that a simple random sample is generated, since the criteria is whether the participant agree to participate (Saunders et al. 2012). One disadvantage of this sampling method is that it is highly vulnerable to selection bias and influence beyond the control of the researcher. However, it can be facilitated in a short duration of time. When time is of essence, many researchers turn to convenience sampling for data collection, as they can swiftly gather data and begin their calculations (Wright et al 2002).

### **3.6 Data Collection**

For empirical analysis, data was obtained from two main sources: primary sources and secondary sources. Primary data were collected from target respondents using questionnaires whiles

#### **3.6.1. Secondary Data Sources**

The secondary data was obtained from books, journals, and websites. Most of the relevant papers and related literature were searched from the following sources: Google scholar, JSTOR, Science Direct, the Web of Science and semantic scholar. The journal sources included Journal of agricultural and development economics, International Journal of Population research, international journal of Educational Development, World Development, Food and Agriculture Organisation (FAO), World Bank, International Migration Review, and Journal of Development



Economics. Statistical data from government department was obtained from the Ghana Statistical Service.

### 3.6.2. Primary data sources

The survey was conducted in ten (10) days and all 150 respondents participated fully. None of the questionnaire was rejected. As part of the data collection process, a pre-test was done to evaluate the reliability and validity of the survey instruments prior to their final distribution. The data was collected by four (4) experienced enumerators who were trained intensely to achieve the study objectives. Presentation, analysis, and conclusion of the study were therefore based on 150 questionnaires administered personally by the researcher.

**Table 3.2 Data Requirements of the Study**

<b>Research Objective</b>	<b>Variable(s)</b>	<b>Source</b>	<b>Tool</b>
To analyse the impacts of remittances on investment in agriculture in the study areas	Main remittances received from migrants, percentage spent on agriculture,	Household heads	Interview schedule
To analyse the impact of remittance on agricultural output in the study areas	Accessibility to financial and extension services, sources of financial services, the extent of impact of remittances on agricultural development	Household heads	Interview schedule
To determine the impacts of migration on agricultural	Number of people working in farms, Number of farmers who have migrated, effects of migration on production volume,	Household heads	Interview schedule

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labour in the study areas	change in cost of labour
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Source: Author, 2022

### **3.7 Data analysis**

- i. Objective one was analysed by comparing household that receive remittance with those who did not receive remittance in terms of investment in agriculture. Five-point Likert scale was used to capture the farmers perception with 1 been the lowest level perception and 5 been the highest level of perception. Also, to triangulate the analysis, T-test was used to compare the total amount of investment by the household who received remittance and those who did not receive remittance.
- ii. Objective two was analysed by using probit regression model to analyse the impact of the remittance on agricultural production. The dependent variable for the probit regression model was output which was measured as 1 for high output and 0 for low output.

The independent treatment variable for the probit regression model was access to remittance which was measured as a dummy (1 for yes and 0 for no). There were other variables included in the model to serve as a control variable. The independent control variables were gender of household head, age of household head, years of education, household size, marital status and access to government extension, farm size, radio extension access, farmer-to-farmer extension, and household labour.

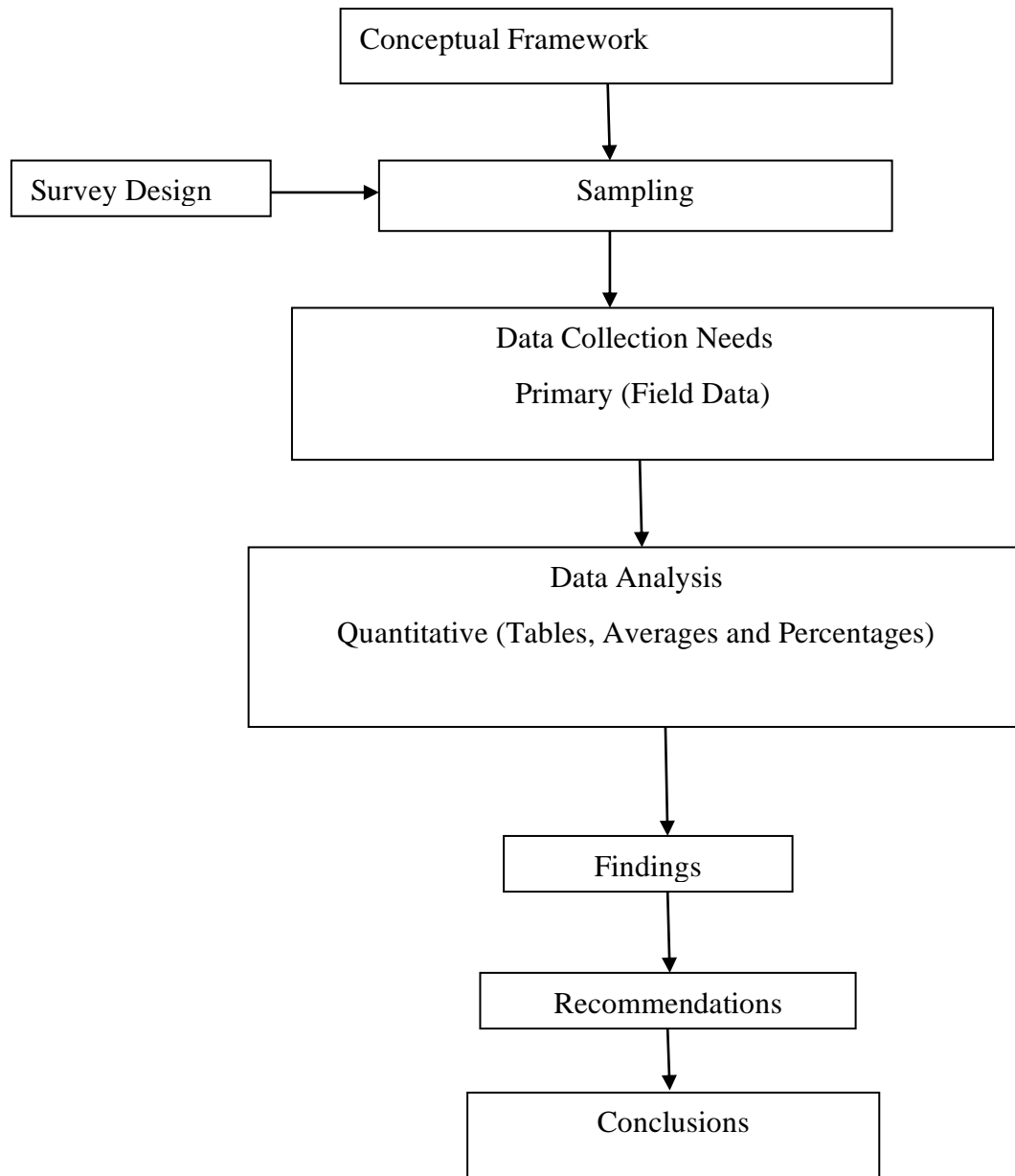


Figure 3.2: Data Analysis and Reporting Framework

Source: Author, 2022

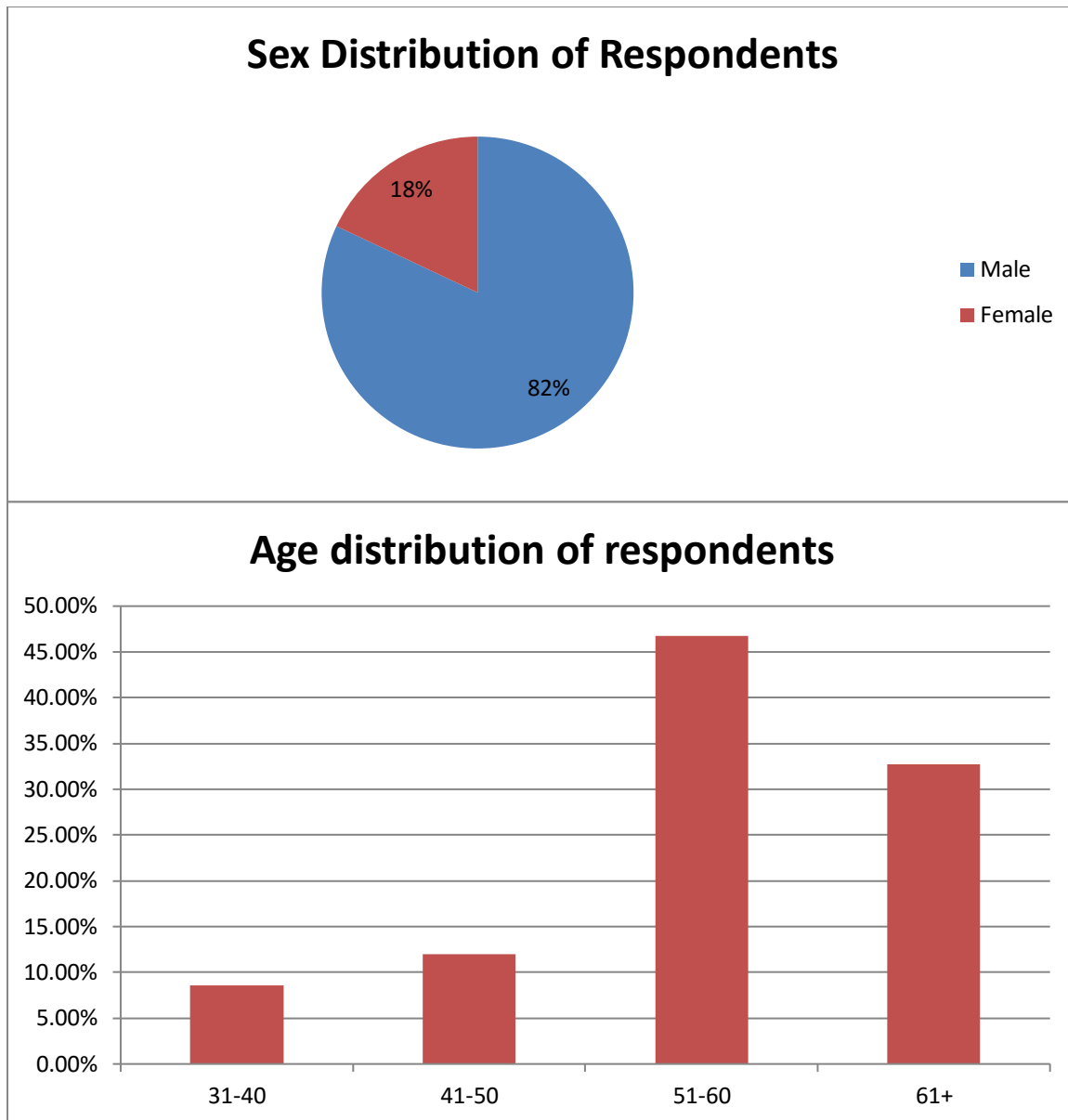
## **4.0 Results**

This chapter presents the results on the selected variables of the study that including socio-economic characteristics of households, remittances and investment in agriculture, remittances and investment in agriculture, impact on migration on labour as well as access to extension and other sources of finance. The chapter concludes with a summary of the analysis and discussion.

### **4.1 Socio-economic characteristics of household heads**

The socio-economic characteristics of respondents capture the age, gender, educational background, occupation, religion and ethnicity of the people interviewed. The idea of collecting socio-economic data in this study is to draw inferences in terms of the relationship between socio-demographic factors and effects of migration on agriculture. Subsequent sub-sections will discuss the various components of socio-demographics at length and present their implications.

The data from figure 4.1 signifies that majority of household heads interviewed are within the ages of 51 to 50 and they accounted for 46.7% of the sample size. Staggeringly, none of the household heads fell below 30 years of age. Again, 32.7% of the respondents were more than 61 years which is also quite significant.



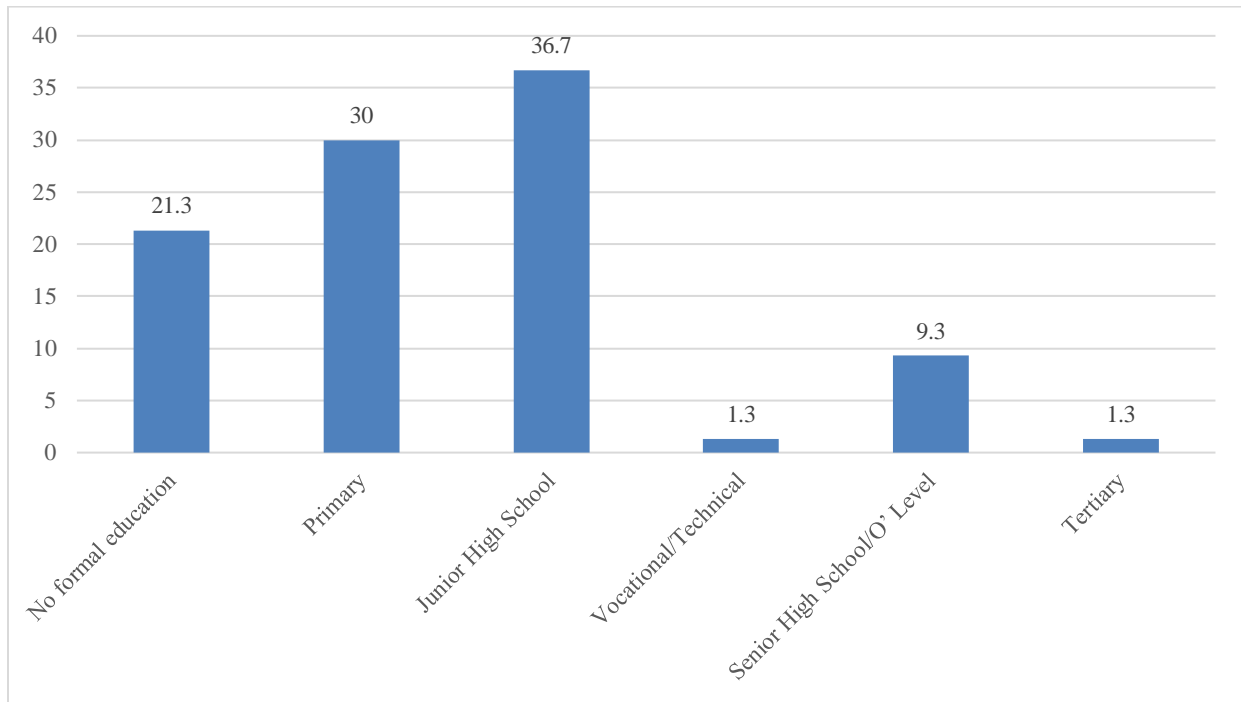
**Figure 4.1 Sex and Age Distribution of Respondents**

**Source: Author, 2022**

Furthermore, the educational level of respondents is presented based on the highest level of qualification obtained. It is evident that the most prevalent level attained by household heads is junior high school making up 36.7%. It was recorded that a total of 32 respondents have not

attained any form of formal education which is predominant in rural households in Ghana.

Figure 4.2 presents the educational distribution of respondents of the study.



**Figure 4.2 Education distributions of respondents**

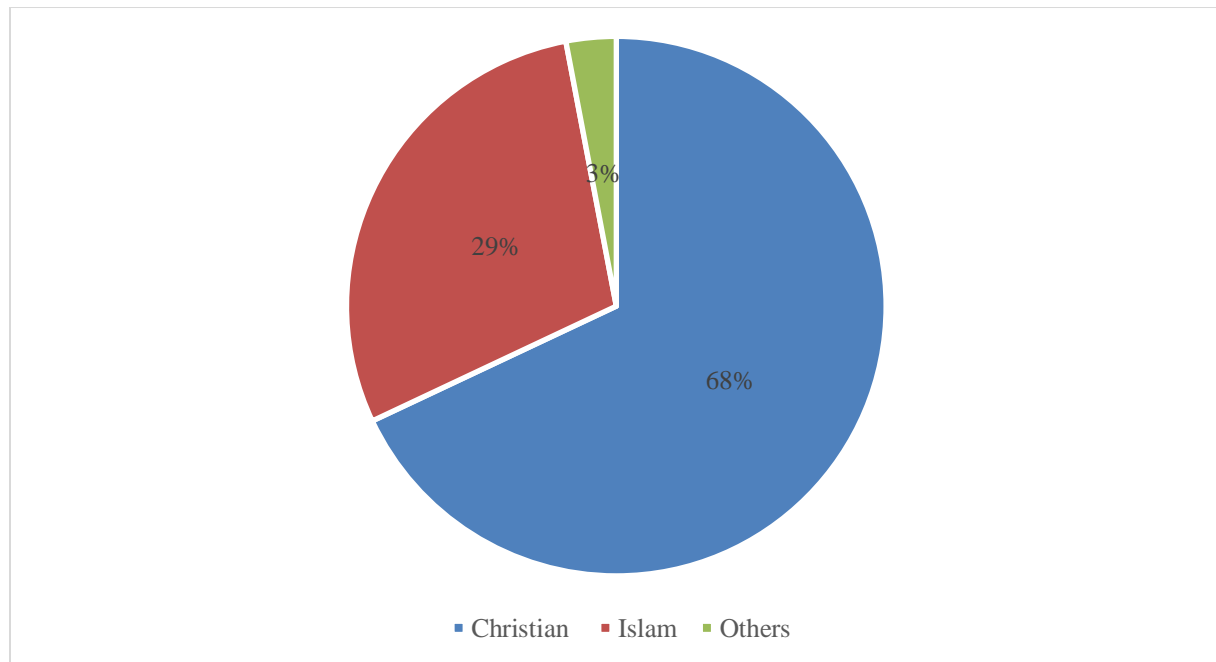
**Source: Author, 2022**

From Table 4.1 which presents the average years of education of the respondents, 54 respondents were recorded to have three years of education with a mean of 2.57 where two indicated that they have been educated for six years which is the highest years of education a respondent in the study areas have attained. This data again signifies that education level is low for rural households in developing countries (UNESCO, 2019). The figures attained in the years of education also have direct correlation with the educational levels indicated in 4.1, revealing that a greater percentage (36.7%) of respondents have Junior High School education as their highest level of education obtained.

**Table 4.1: Years of Education of Household Heads**

Years of education	Mean	N	Std. Deviation
1	2.15	33	1.202
2	2.67	45	1.225
3	2.57	54	1.039
4	1.50	2	.707
5	2.79	14	1.626
6	2.50	2	.707
<b>Total</b>	<b>2.51</b>	<b>150</b>	<b>1.197</b>

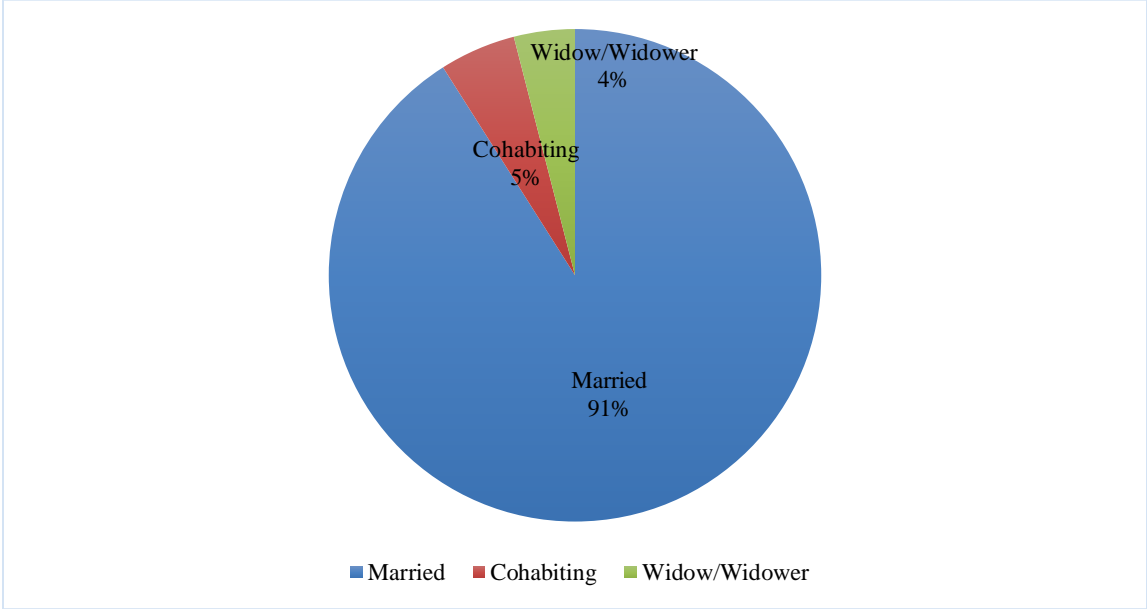
In Ghana, majority of the population are Christians (Ghana Statistical Service, 2010). The study area is no different from the evidence from national religious statistics. From figure 4.3, a total of 102 respondents (68%) practice Christianity as a religion while 44 (29.3%) of them are into the Islamic religion. Other forms of religion accounted for 2.7% (4 respondents recorded).



**Figure 4.3 Religious Backgrounds of Respondents**

**Source: Author, 2022**

Married household heads summed up to 137 representing 91.3% while 4.7% are cohabiting. The data reflects the statistics on the age brackets where all respondents are above the age of 31. It is obvious that household heads within this cohort are married or have companions in most Ghanaian communities.

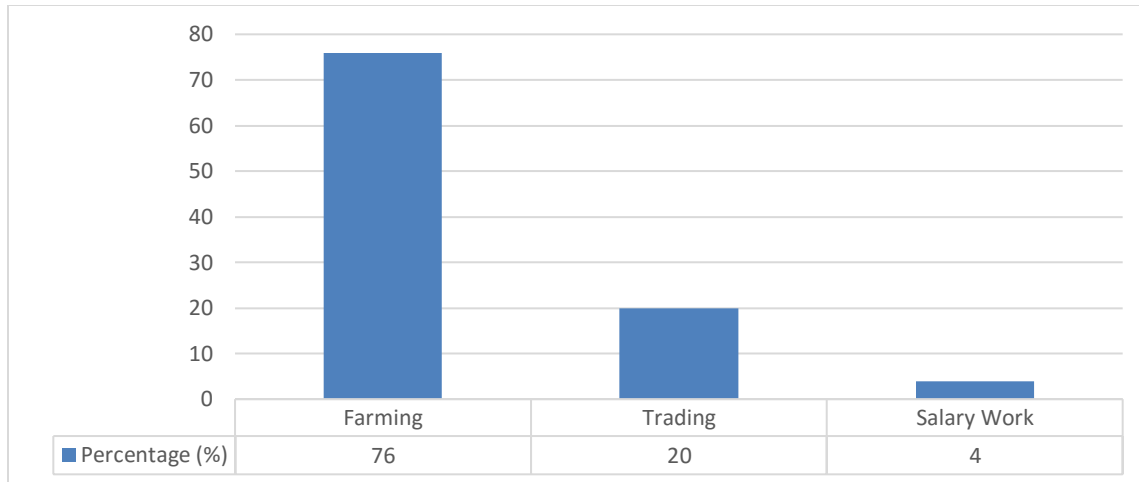


**Figure 4.4: Marital Status of Respondents**

**Source: Author, 2022**

The major occupation of the respondents is farming with a total of 114 people representing 76% as compared to respondents who are into other off-farm activities such as trading and commercial activities (20%) and salary workers (4%).



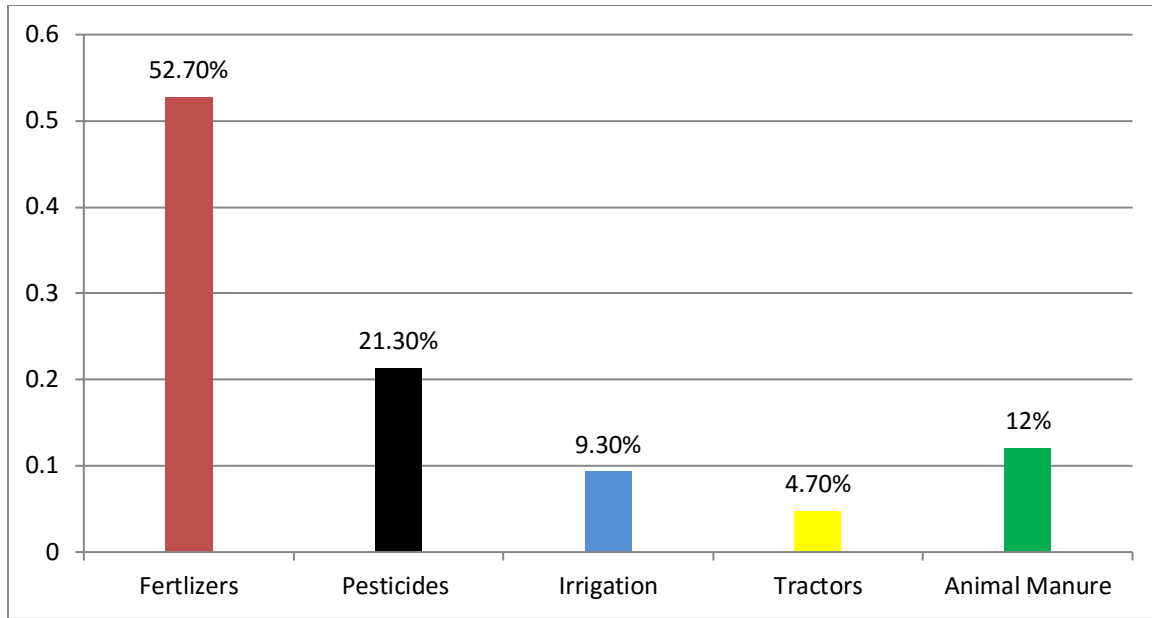


**Figure 4.5: Occupational Characteristics of Respondents**

**Source: Author, 2022**

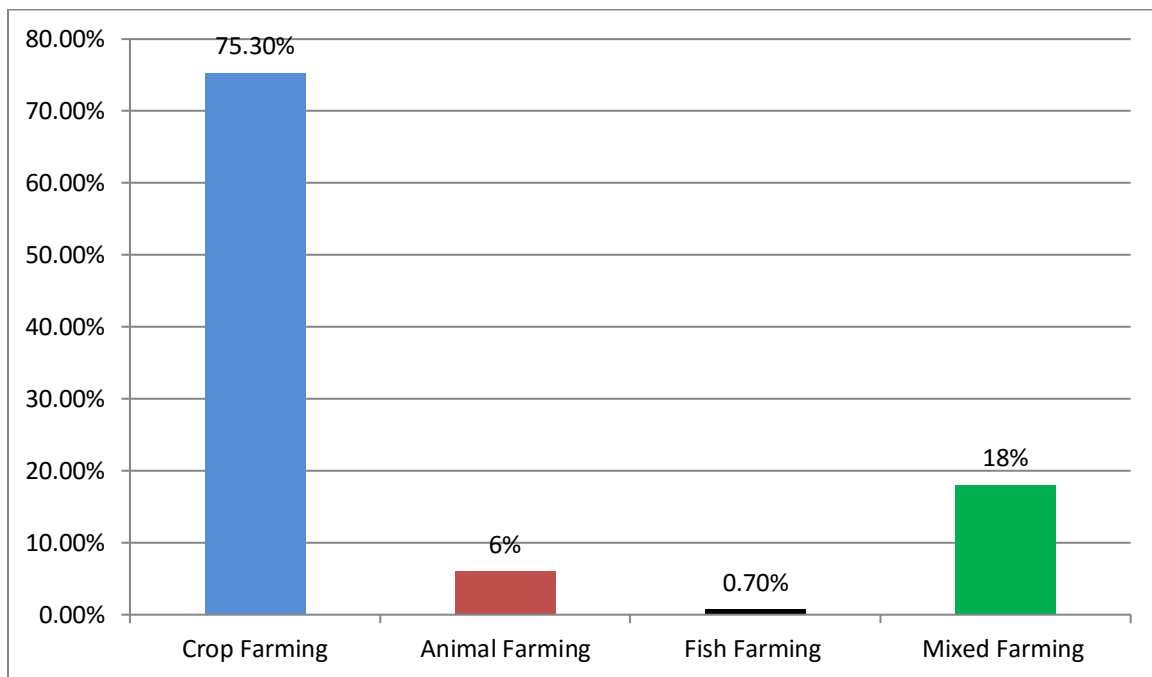
#### **4.2 Agricultural and Migration Characteristics of Households**

Data from respondents indicated that fertilizers are used by 52.67% farmer while pesticides are used by (21.33%) and animal manure (12%). Again, 4.6% and 9.33% of farmers use tractors and irrigation technologies respectively. This data is however in line with the type of farming practices households are involved in where a significant percentage of respondents (75.33%) declared that they practice crop farming only. In crop farming, the use of fertilizers and pesticides are regarded as the commonest inputs to yield large outputs. Also, respondents who are into mixed mostly use animal waste as one of the easily accessible manures for their crops giving a 12% usage of animal manure. Again, technologies such as tractors and irrigation machinery are noted to be capital intensive ones with associated cost of maintenance and operations. Even though a significant percentage of households (68%) declare that agriculture is their main source of income, there is still less investment in agricultural activities in terms of technologies such as irrigation and machinery.



**Figure 4.6: Farm Inputs and Technology used by farmers**

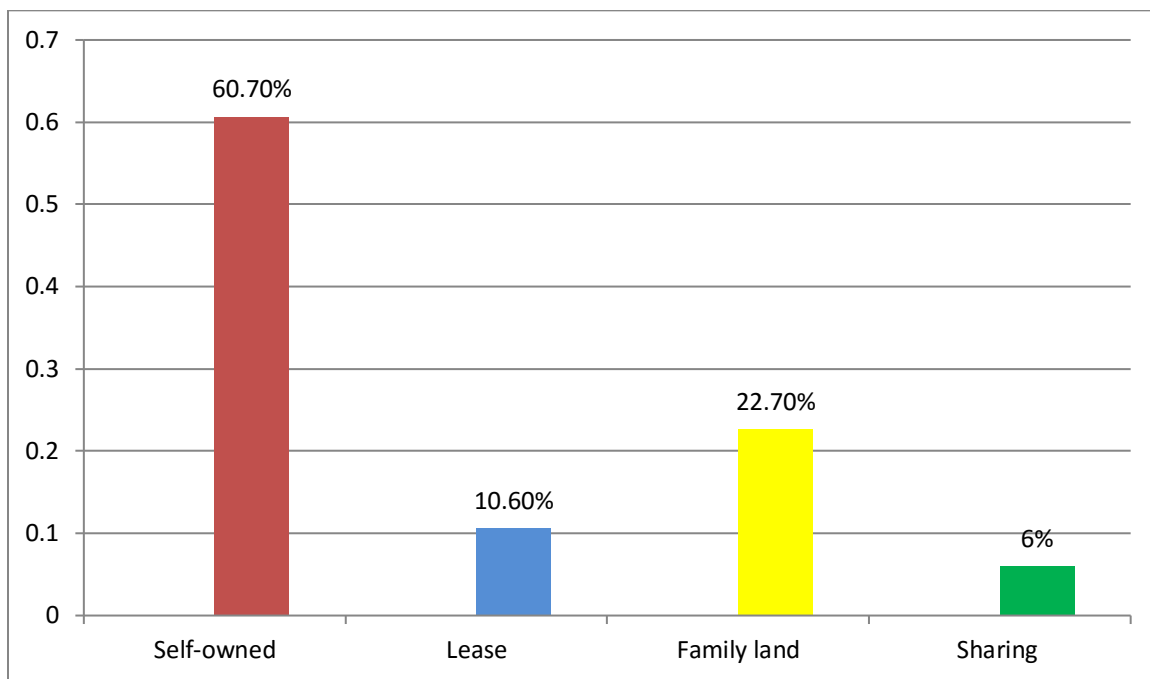
**Source: Author, 2022**



**Figure 4.7: Farming practices adopted by households**

**Source: Author, 2022**

In total, 75.33% of households practice crop farming which represent the major farming practice of households in the study area. Aside crop farming, 18% of respondents is into mixed farming which is a combination of crop farming and animal rearing. For this study, fish farming has been made distinct from other forms of animal farming (including poultry and other types of livestock). Few households are therefore involved in animal rearing only with 6% practicing animal farming and 0.66% being into fish farming which is very insignificant.

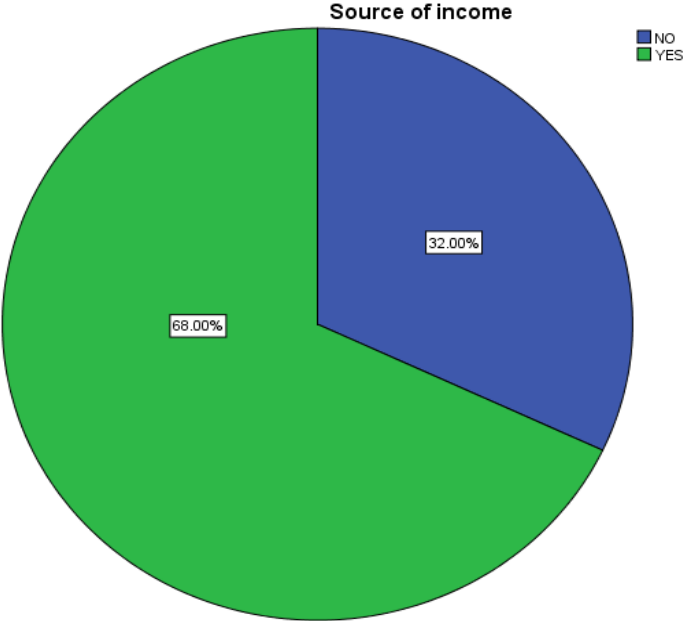


**Figure 4.8: Tenancy Agreement of Farmers on farmlands**

**Source: Author, 2022**

The type of ownership of land for agricultural activities is demonstrated in figure 4.8. From the frequency distribution, 60.67% of farmers have self-owned lands which they use for their agricultural activities. Next to this form of ownership is that of farmers working on family lands to serve their farming needs and it accounted for 22.6%. While greater proportions are in use of their own lands and lands belonging to their families, 6% of farmers interviewed are sharing.

Sharing in this context means that, farmers have obtained the land from owners and are cultivating crops and or rearing animals of which the will at the end of the year be shared with original owners, usually in a ratio of 1:2 (abunu) or 1:3 (abusa), depending on the type of sharing arrangement. The idea is not to lease the land totally for some years, but to share the outcome of the produce within a period. However, 10.67% of interviewers declared that their farming lands are being leased to them for varied periods.



**Figure 4.9: Source of Household Income (Agriculture and Non-agriculture)**

**Source: Author, 2022**

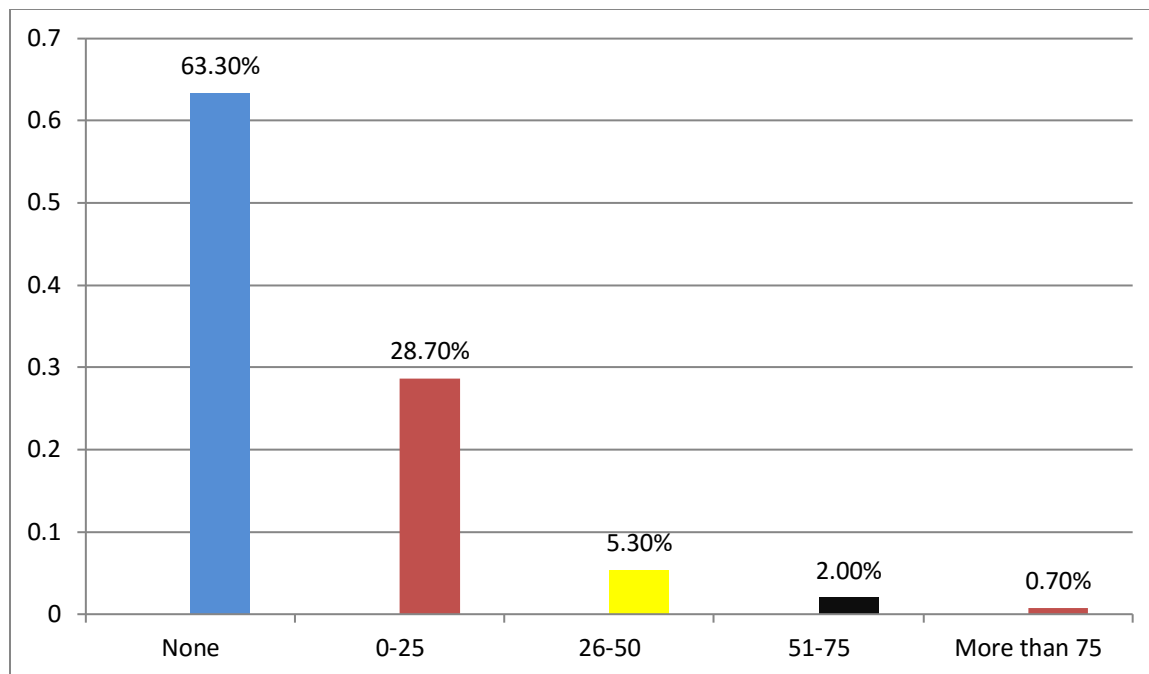
Figure 4.8 indicates that 68% of the households have agriculture as their main source of income. On the other hand, 32% of household heads declared that their main household incomes originate from other economic activities such as trading and working for salaries at government and private companies.

**Table 4.2: Type of remittances received**

Type of Remittance	Mean		Std. Deviation	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
Money	1.42	.122	1.494	.585	.198	-.957	.394
Farm Inputs	1.20	.108	1.321	.776	.198	-.681	.394
Clothes	1.11	.100	1.221	.891	.198	-.202	.394
Food Items	1.11	.105	1.291	1.032	.198	-.138	.394
Others	1.05	.099	1.214	1.129	.198	.519	.394

**Source: Author, 2022**

From table 4.2, money has been identified as the highest form of remittances received by households with an average mean of 1.42. Farm inputs such as pesticides and fertilizers are the next form of remittances with a mean of 1.20. The figures are evidently consistent with Cohen (2005) which suggested that monetary remittances are greatly received by households in Africa to enhance household consumption and offset other expenditures, especially when there is an extended length of migration period. Food items and clothes all have a mean of 1.11 signifying same volumes of remittances received by households.



**Figure 4.10: Proportion of income from remittances spent on agricultural activities**

**Source: Author, 2022**

It is evident from figure 4.9 that 63.3% constituting the majority do not spend any of their remittances on agricultural activities. Also, 28.67% of respondents spend less than 25% of remittances received on farm inputs while 5.3% of them spend between 26% and 50% of remittances on clothes. Agricultural activities are portrayed to be the main sources of income of households in the study area (see figure) with 68% of respondents being engaged in varied forms of production. However, the data presents a desecrated indication that monetary remittances are not significantly invested in agricultural production.

**Table 4.3: Remittance received and investment in agriculture**

<b>Variable</b>	<b>N</b>	<b>Mini.</b>	<b>Maxi.</b>	<b>Sum</b>	<b>Mean</b>	<b>Std. Deviation</b>	
	<b>Stats.</b>	<b>Stats.</b>	<b>Stats.</b>	<b>Stats.</b>	<b>Stats.</b>	<b>Stats.</b>	
					<b>Std. Error</b>		
Amount invested on farm (Ghs)	150	200	7485	405498	2703.32	116.085	1421.750
Amount received as remittance (Ghs)	150	893	19000	860554	5737.03	313.784	3843.050
Valid Number (N)	150						

**Source: Author, 2022**

The mean amount received per household in the year was 5737.03. As compared to the mean amount invested in agriculture, which is 2703.32, there is less than half (47.1%) of the remittance amount invested in agriculture. This implies that 52.9% of the average amount of money received as remittances are not invested in agriculture which is the major source of income for households in the study areas. This again signifies the low level of investment in agriculture. The data is consistent with Boakye-Yiadom & McKay (2007) who established that remittances promote welfare of households but most households in developing economies do not invest remittances into agricultural activities which are obviously not on large scale in rural areas.

#### **4.3 Remittances and Investment in Agriculture**

The spearman correlation model was identified as the appropriate equation in ascertaining the effects of remittances (both internal and international) on agricultural investment and productivity. The variables included remittances enabled improved farming; farm expanded if household members did not migrate; farm inputs increased because of remittances received and investment in agriculture reduced due to money being channeled to other business ventures. The test was run to establish the relationship between the main occupation of respondents (be it farming or not) and all other factors that relate to the impact of remittances on investment in

agriculture. The respondents were asked their level of agreement of the variables presented and as such were grouped on a 5-point Likert scale. Table 4.4 therefore gives the results of the correlation analysis.

**Table 4.4: Relationship Between Variables**

		<b>If money, (%) spent on agric</b>	<b>Amt invested on farm (Ghs)</b>	<b>Amt received as remittance (Ghs)</b>
<b>If money, (%) spent on agric</b>	Pearson Correlation	1	.241**	.162*
	Sig. (2-tailed)		.003	.047
	Sum of Squares and Cross-products	83.440	38,128.960	69,482.080
	Covariance	.560	255.899	466.323
	N	150	150	150
<b>Amt invested on farm (Ghs)</b>	Pearson Correlation	.241**	1	.193*
	Sig. (2-tailed)	.003		.018
	Sum of Squares and Cross-products	38128.960	301184504.640	157145590.720
	Covariance	255.899	2021372.514	1054668.394
	N	150	150	150
<b>Amt received as remittance (Ghs)</b>	Pearson Correlation	.162*	.193*	1
	Sig. (2-tailed)	.047	.018	
	Sum of Squares and Cross-products	69482.080	157145590.720	2200585703.893
	Covariance	466.323	1054668.394	14769031.570
	N	150	150	150

\*\* . Correlation is significant at the 0.01 level (2-tailed).

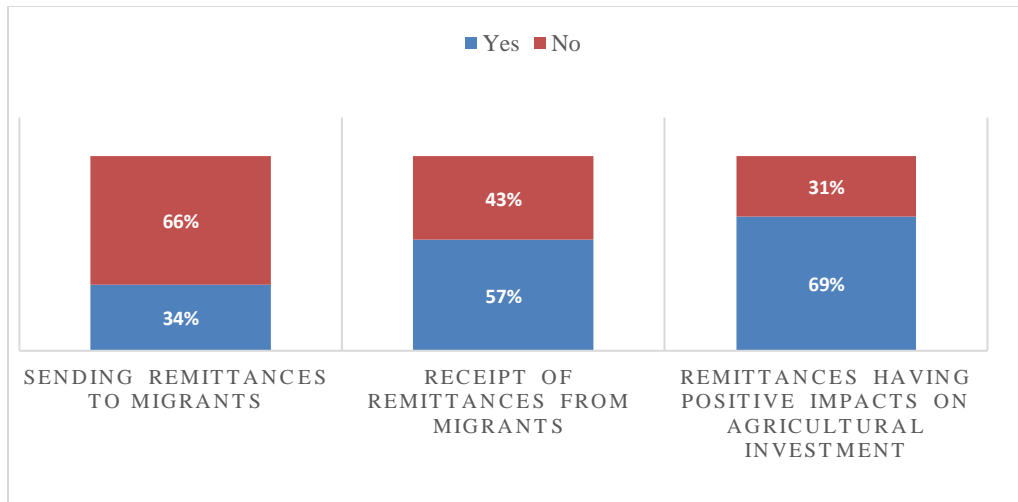
\* . Correlation is significant at the 0.05 level (2-tailed).

**Source: Author, 2022**

Where the significant values are less than 0.05, then there appears to be a significant correlation between the variables. Again, the bivariate correlation analysis expresses the strength of association between the two variables in a single value which is between (-1 and 1). A positive correlation coefficient signifies a positive relationship between the two variables whereas a negative coefficient indicates a negative relationship. The results indicate that, there are very strong relationships between the occupation of respondents and the impacts of remittances on agricultural investment. From the table 4.4 majority of respondents believe that Investment in



agriculture has reduced because of money to do other business with a high sig of 0.997. This is followed by respondents who reveal that remittances enabled them to improve their farm giving sig of 0.989 in the spearman correlation analysis. Respondents who think that they could have expanded my farm if members had not migrated recorded sig of 0.871 while respondents who suggest that farm inputs increased because of remittances pulled sig of 0.633. On the other hand, correlations between remittances enabling farmers to improve their farm and farm inputs increasing because of remittances as well as investment in agriculture reducing money to do other businesses and remittances enabling farmers to improve their farms recorded a 0.000 sig (lesser than 0.001), therefore correlation between these set of variables is significant. The results on a whole indicate that, remittances have a strong impact on agricultural investment.



**Figure 4.10.1: Respondent view on remittances and investment in agriculture**

**Source: Author, 2022**

The results indicate that 34% of households send remittances to migrants while 66% do not send remittances. Comparing this to the number of households who receive remittances from migrant members away from home (57.3%), there is a clear indication that the receipts of remittances exceed the transfer of remittances to migrant members. This data again supports the finding from

(Taylor & Dyer 2006) who argues that out-migration receipt of remittances at the community level supersedes that of sending of remittances and could further have impacts on agricultural investment if managed appropriately. However, there is an adverse impact of migration on agriculture in the sense that, it reduces labour available to support production. Also, 68.7% of household heads consented to the fact that remittances they receive have positive impacts on the investment in agriculture, although the data suggests that there is low level of investment with remittances in monetary form.

**Table 4.5: Impacts of remittances on investment in agriculture**

			M. occupation	Remittances enabled me improve farm	farm expanded if mem hav'nt mgtd	farm inputs increased because of remittances	Investment in agric has reduced because of money to do other business
Spearman's rho	M. occupation	Correlation Coefficient	1.000	.005	-.013	-.039	.000
		Sig. (2-tailed)	.	.948	.871	.633	.997
		N	150	150	150	150	150
	Remittances enabled me improve farm	Correlation Coefficient	.005	1.000	-.102	.354**	.671**
		Sig. (2-tailed)	.948	.	.216	.000	.000
		N	150	150	150	150	150
	farm expanded if mem hav'nt mgtd	Correlation Coefficient	-.013	-.102	1.000	-.101	-.023
		Sig. (2-tailed)	.871	.216	.	.219	.784
		N	150	150	150	150	150
	farm inputs increased because of remittances	Correlation Coefficient	-.039	.354**	-.101	1.000	.264**
		Sig. (2-tailed)	.633	.000	.219	.	.001
		N	150	150	150	150	150
Investment in agric has reduced because of	Correlation Coefficient	.000	.671**	-.023	.264**	1.000	
	Sig. (2-tailed)	.997	.000	.784	.001	.	

	money to do other business	N	150	150	150	150	150
**. Correlation is significant at the 0.01 level (2-tailed).							

Source: Author's Construct, 2022

The likert scale for agreement or disagreement of identified factors to improve agricultural output was on a five-point scale. The correlation was between main occupation of household heads and their level of agreement to factors that inform agricultural output. The variables were remittances received enabled in improving upon farm; farm could have been expanded if members had not migrated; acquisition of farm inputs increased due to received remittances; reduced investment in agriculture to undertake other businesses. With a significance level of 0.01, the results indicate that there was a significant positive correlation between participants ratings of remittances enabling them to improve their farms in relation to farm inputs increasing because of remittances and investment in agriculture reducing because of money being used to do other businesses (sig. 0.000). It was evident that, there is positive correlation between main occupation and remittances enabling farmers to improve their farms with a correlation coefficient of .005. On the other hand, there were negative correlations between main occupation and farm expanded if members did not migrate (-0.013) and farm inputs increased because of remittances (-0.039) while there was no correlation between main occupation and investment in agriculture has reducing because I now have money to do other business (0.000).

#### **4.4 Accessibility to Extension and other financial sources**

Finance and accessibility to extension services are crucial aspects of rural agricultural development. Due to the limited supply of such resources in developing economies, it has become very vital that efforts are made to increase their supply to aid efficiency in the

agricultural sector. The regularity of use of extension services in the past year and financial accessibility of farmer households is demonstrated in table 4.6 and figure 4.10 respectively.

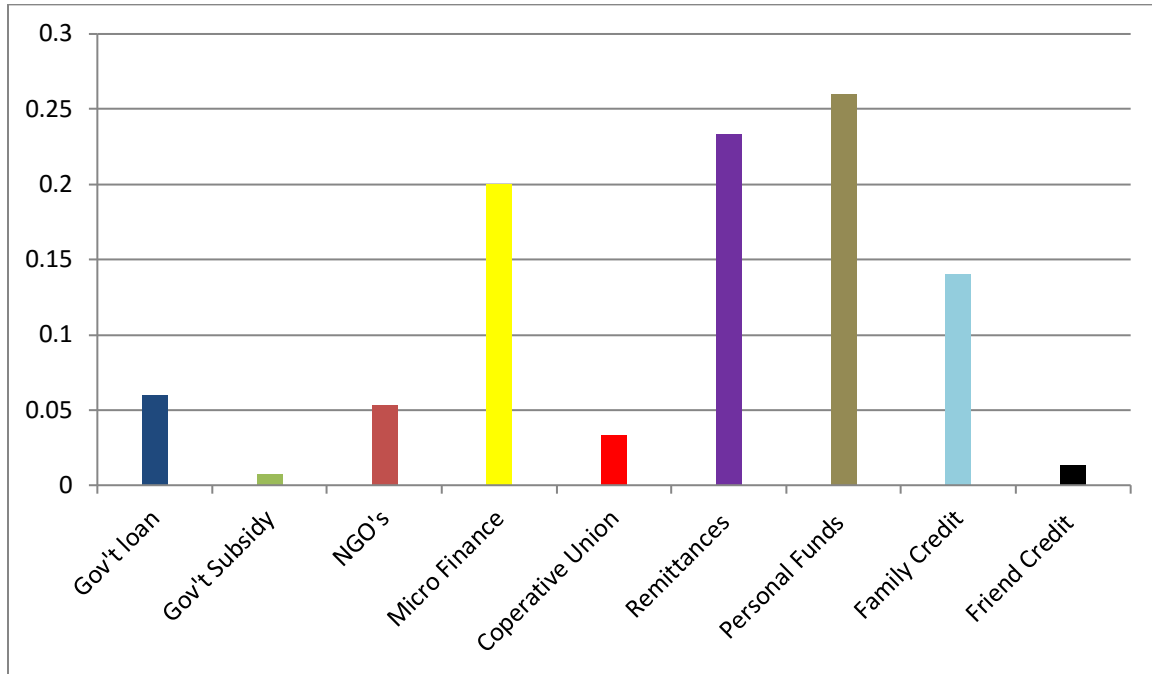


Figure 4.10.2: Financial Sources for agriculture production

Agricultural development cannot be effectively managed without adequate financing. An important aspect of this study looked at the financial avenues exposed to rural farmer-households and the ones which are heavily utilized. Indicatively, a multiple bar chart is used to pictorially depict the sources of finance to farmers in percentage form. In all, respondents declare that there are nine (9) different sources of financial assistance to their farming activities. Personal funds are majorly recorded as the highest form of finance available to farmers indicating 26%. Subsequently, 23.33% of households stated remittances as the main source of financial backing

to their agricultural activities. There is therefore an indication that, though remittances play a crucial role in agricultural financing, it comes next to personal means used by farmers in running their farming activities, hence remittance is not the chief source of financing agriculture in the study area. Another significant source of finance is that of quick credit from micro-finance institutions, recording 20% of the total financial sources. Micro-finance institutions are viewed as thriving well in rural communities where farming is predominant due to their reduced form of bureaucracy in accessing loans as compared to well established banks which have several prerequisites and conditions attached as far as financial accessibility is concerned. There is a very low government subsidy provision for farmers in terms of financial support (0.667%). This confirms the finding from Taylor (1992) where it was asserted that government support to farmers in developing regions is quite minimal and governments fail to commit intensively in monetary financing of rural agriculture which are usually not in large scales. A few farmers (6%) who have suitable collaterals and can stand the rigorous nature of accessing government loans obtain them to finance their farming activities.

#### **4.5 Impacts of Migration on Labour**

The one-way sample test conducted as indicated in Table 4.7 show that household size and total migrants in the last eight years all have significant impacts on the labour of households in undertaking agricultural activities with a sig (.000), backing the idea of Taylor and Dyer (2006). In their study, it was realized that though migration may improve agricultural investment whereby remittances are sent back to original habitats of migrants, it has the adverse effect of reducing the farmer household size and consequently reducing the labour hands in those households. The finding from this very study is clearly in conformity with that.

Table 4.7: One-Sample Test of household size and total migrants in last eight (8) years

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Household Size	35.637	149	.000	6.180	5.84	6.52
Total migrants last 8yrs	13.408	149	.000	1.613	1.38	1.85

#### 4.6 Effects of Remittances on Agricultural Output

Money has been evidently recorded as the highest form of remittances that households receive. According to Primavera (2005) who made a distinction between three forms of remittances (financial, food or goods and social remittances), financial remittances are the most earned by households due to its capacity of being spent on food or goods and can also be used for social investment into a property. Therefore, this section provides an account of the effect of monetary remittances on agricultural output.

Table 4.9: Effects of remittances on household agricultural output

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1435.355	831.432		1.726	.086
	Age	-99.494	116.587	-.062	-.853	.395
	Level of education	-56.460	86.609	-.048	-.652	.516
	Marital status	-39.362	172.957	-.017	-.228	.820
	HH Size	191.588	48.910	.286	3.917	.000
	Source of income	10.743	226.733	.004	.047	.962
	Received item from mgrts	1280.933	216.397	.447	5.919	.000
	Yrs of education	42.112	86.860	.036	.485	.629
	M. occupation	-71.618	194.954	-.027	-.367	.714
	Production output	-19.376	137.188	-.011	-.141	.888

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a. Dependent Variable: Amt invested on farm (Ghs)

The results show that two variables included in the linear multiple regression model; household size and the item received from migrants were significant determinants of agricultural output in the study area. From the table, the dependent variable is the amount invested in agriculture having sig. of 0.086. With positive coefficient (0.00) item received from migrants the result shows that an increase of real per capita remittances will cause production to increase. Therefore, we reject the null hypothesis and accept the alternative hypothesis that migrant remittances have significant positive effect on farm households' production output.

## **5.0 Summary, Recommendations and Conclusion**

The concluding chapter gives account of the summary of the findings from the field as presented in chapter four, the recommendations that the study presents in relation to the findings and the conclusion to the study.

### **5.1 Summary of Findings**

Remittances are greatly considered as a mechanism in development financing and a welfare strategy in developing countries, particularly rural agricultural economies. The current rising trends been proven by evidence in literature and many empirical findings. Primarily, this research investigated the effects of migrant remittances on the agricultural investment and output on farm households in Brong Ahafo Region of Ghana. In all, eight (8) districts were studied, and a sample population of 150 people was interviewed to come out with the desired results. Again, the financial and agricultural extension services available to households were considered to ascertain the extent of local support and institutional arrangements to farmer households in terms of agricultural development.

To realize the stated objectives, the detailed interview schedule for respondents included household migration records, type of agricultural activities households is involved in, the main sources of income, remittance information (the type of remittances, regularity of receipt and percentage spent on agricultural activities) and their impacts on investment in agriculture. Again, information was attained on the impact of migration on farm labour and the use of inputs and technologies.



### 5.1.1 Impacts of remittances on investment in agriculture in the study areas

Under this objective, the questionnaires to respondents sought to determine the main remittances received from migrants to households; the monetary expenditure on agricultural activities against the amount received; respondent knowledge on the impact of remittances received and the extent to which the remittances sent to migrants (emigrants) affect household investment in agriculture. From the data gathered, it was clear money was the highest form of remittance households receive as compared to other commodities such as farm inputs, clothes and food items. However, about 63.3% of households do not invest any of the money received as remittances from migrants in agriculture which is the main source of income for 68% of the households interviewed. Next to this were households who spend up to 25% of monetary remittances on agriculture. In all, remittances did not result in higher capital formation in agriculture and had no effect on farming pattern.

### 5.1.2 Impact of remittance on agricultural output in the study areas

From the field data, money was identified as the highest form of remittances received by households with an average mean of 1.42. Over the years, the number of migrants is seen to have informed output in agriculture. Even though the number of remittances tends to be small, it remains a crucial financial resource for improving household living standards. It is also reliable and frequent, providing a steady income. On the other hand, it was seen that there has been no remarkable labour deficit because of migration. Better management of household labour allocation enables rural households to release family members to migrate to urban areas to earn cash income and at the same time extend agricultural production in rural areas.

### 5.1.3 Impacts of migration on agricultural labour in the study areas

The study comprehensively analysed the impacts of migration on agricultural labour. Using the questionnaire for households, respondents were interviewed on the number of workers on their farmlands for the past 8 years as compared to those who have migrated, the effects of migration on production volumes and how the cost of labour has changed over the years due to migration. The results indicated that personal funds are the highest form of finance available to farmers indicating 26%. Also, 23.33% of households stated remittances as the main source of financial backing to their agricultural activities. Even though remittances are recorded as the second source of agricultural investment capital, they insignificantly affect agricultural output in the study area.

## **5.2 Recommendations**

Financial infrastructure and services supporting remittances will have to be increased and existing ones further strengthened. This will even-out remittances thereby quelling its potential effect on income and welfare disparity. For example, improving access of all potential recipients and senders irrespective of status or location to banking facilities will not only suppress income disparity through better remittances distribution, it will also further financial deepening in rural Ghana.

Investment in agriculture is mostly based on the availability and accessibility to financial and extension services in the study area. Commercial banks can leverage on the services of microfinance and credit unions (because of their greater presence) for banking the unbanked households in the rural area thereby fostering financial accessibility for agricultural investment.

Again, the resultant effect of remittances on the income and hence on agricultural investment of the general populace, particularly agricultural households will be sustained only by a robust

economy driven by entrepreneurial activities. For example, non-remittance recipient households can enjoy their share of total remittance income into the country by rendering a service or product, or else they remain relatively poor. Also, the remittance recipient may fall back into poverty when remittances stop or become relatively poor even while still receiving remittances because he has no product or service to offer to enjoy the multiplier effect of remittances.

Recognition of the important role that internal migration and remittances can play in rural household livelihoods is imperative to the development of migration and agricultural policies. Future research on the impact of internal remittances should acknowledge the difficult situation of migrant workers.

Moreover, the implication of this research is that migration can potentially be promoted as a development strategy especially in regions which are limited in non-farm business practices. Although migration has certainly contributed to agricultural change, it is also clear that its potential has not yet been fully realised, which would be a promising venue for future research into its impacts on agricultural expansion in rural economies.

### **5.3 Conclusion**

Remittances distribution among farm households were skewed with relatively richer, more educated, smaller, urban, and rainforest-based households receiving more remittances than their respective poorer, less educated, larger, rural based households. Increased remittances contributed almost a proportionate increase in output and productivity of farm households, even though most monetary remittances were not invested into agriculture. Importantly, the results showed that lower portion of remittances goes into the farm households' consumption.

The accessibility to financial services remains low in rural households in Ghana. With majority of households being involved in agricultural production and many having self-owned farmlands, the main funding avenues available to households to finance agricultural activities are through personal means. This has greatly affected agricultural investment and hence agricultural output. In all, remittances, including those from abroad were not a significant factor in household agricultural inequality, though they could have contributed to income disparity.

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