UNIVERSITY OF GHANA

COLLEGE OF HUMANITIES

THE CONTRIBUTIONS OF NON-FARM ECONOMIC ACTIVITES TO POVERTY REDUCTION IN THE YILO-KROBO DISTRICT

BY

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DECLARATION

I hereby declare that this project work (long essay) is the result of my original piece of research work conducted under the supervision of Dr. Elizabeth Asante of the Institute of Statistical Social and Economic Research (ISSER).

In instances where references of other works have been cited, full acknowledgement has been given. This work has never been submitted in whole or in part in any institution for any award(s).

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DEDICATION

I dedicate this work to Allah Almighty for the light all this way, my wife and daughter, Samira and Deishini, and the entire family for their prayers.

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I acknowledge with a profound sense of gratitude the inputs of many people to the success of this work. First, my appreciation goes to Allah Almighty for His guiding light and my preservation.

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ABSTRACT

Non-farm economic activities are emerging as an important player in the rural economy notwithstanding the continuing dominance of farming. This is attributed to a multiplicity of factors.

This paper presents findings of a study on the rural non-farm economy in the Yilo-Krobo District of the Eastern Region. The study reveals a strong association between poverty at the household level and participation in the non-farm economic activites. It reveals further that some characteristics play crucial role in facilitating household participation and effectiveness in the nonfarm economy. These include higher education, household size, income directly obtained from participation in the non-farm economy as well as the number of persons from a household involved in the economy.

A set of factors of critical importance to the operations of non-farm enterprises are financial capital, labour and credit.

Household access to basic social amenities also enhances the reduction and sustenance of poverty reduction efforts. Non-farm households experience varying levels of access to health services, consumption of portable water and waste disposable facilities.

Using data obtained from the Ghana Living Standards Survey 5 plus, the study the predicted and compared incomes from farm and nonfarm economic activities and arrived at the conclusion that the latter contributes more to household income.

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CHAPTER ONE

INTRODUCTION

Non-farm activities constitute an important part of the economy of people living in rural areas. The sector is made up a variety of activities such as wage work or self-employment in activities that are not agricultural but which generate income (Davis, 2003). Barret et al, (2001) note that in rural parts of Africa, there is an extensive reliance on nonfarm activities as alternative sources of income to agriculture. This raises questions as to why in predominantly agricultural communities households are diversifying into non-farm activities such as wood carving, brewing of local alcoholic beverages, tailoring and so on. This study examines whether or not non-farm activities contribute to the reduction of household poverty in rural areas by comparing incomes of households who derive their incomes mainly from farming with those engaged in non-farm activities. It also seeks to identify the factors that facilitate rural household participation in nonfarm activities.

1.1 Background of Research

The commitment of the international community to address the issue of poverty is encapsulated in the first of the Millennium Development Goals (MDGs) namely to halve extreme poverty globally by the year 2015 (Nwonwu, 2008). Current trends in the reduction of poverty however show that enormous challenges still persist. De Janvry et al (2005) argue that since rural poverty constitutes 75% of world poverty, there is need to hasten progress in this area if the first MDG is to be achieved.

Policies that have evolved over time to address poverty have had different areas of emphasis. According to Todaro (2003) as cited in Emerah and Ogege (2013), the focus of poverty reduction policies in the past have been to ensure that the growth rate of the economy was high and sustained for a long time. The benefits of this high growth were

expected to trickle down to all sectors of the economy and to all income groups. This approach proved inadequate. Iradian (2005) points out that the growth approach is criticized due to its inability to solve unemployment and income inequality problems. Thus, there was a resort to the Basic Human Needs Strategy (1970) which laid emphasis on providing basic material needs in terms of health, education water, food, clothing and shelter. By the 1980s however, most third world economies were in decline. The IMF/World Bank advised the implementation of economic reform programmes ─ Structural Adjustment Programmes (SAPs) ─ as precondition for development assistance. The reforms were essentially to ensure macroeconomic stability, a restructured economy and restoration of growth (Aryeetey and Kanbur, 2008). The pursuit of SAPs has led to reduction in government spending on social services such as health and education, consequently raising poverty and unemployment levels (Jhingan, 2006). Krantz, (2001), has made a number of observations that sum up the loss of faith in the conventional approaches to poverty reduction. These include the generally accepted view that while economic growth may be essential for poverty reduction, there is no automatic relationship between the two because a lot depends on the capabilities of the poor to take advantage of expanding economic opportunities. Furthermore, poverty, as conceived by the poor themselves, is not just a question of low income, but also associated dimensions such as bad health, illiteracy and the lack of social services. Finally, the poor themselves often know their situation and needs and must therefore be involved in the design of policies and projects intended to improve their lot.

The search for the effective ways to deal with poverty continues to engage the attention of researchers. In recent times, the livelihood approach to poverty reduction has become quite popular. It has as its main focus the need to recognize the interconnectedness of institutions, processes and activities as a framework for analysis on poverty (Scoones &

Wolmer, 2003). It is within framework that the study examines relationship between household poverty and participation in the nonfarm economy.

1.2 Problem Statement/Research Questions

The rural non-farm economy (RNFE) is an important part of the entire rural economy. In the Yilo-Krobo district, non-agricultural economic activities engage about 42% of the total working population in the district (MTDP, 2006-2009, p 41). The sector is thus a major source of income and employment. Income growth is generally recognized as an important factor driving poverty reduction and an indicator of enhanced livelihoods, while rural industrialization is very vital in absorbing rural labour force (Haggblade et al, 2005).

Households that rely on agriculture are constrained by low rainfall, high variability and low soil fertility and further restricted by the land tenure system. Thus, agricultural intensification or expansion of farm frontiers is not a viable option for livelihood improvement (Dixon, et al., 2001). Additionally, the reduction of state subsidies does not make agriculture attractive. Under those conditions, non-farm livelihoods help to cope with a temporary crisis, minimizing risks and uncertainty.

In spite of this, the rural non-farm economy is beset with challenges that tend to undermine the realization of its full contribution to development. For example, the socio-economic infrastructures such as roads and electricity that can propel the drastic transformation of the rural area are limited in supply. Where supplied, they are concentrated on in the few urban centers. Most rural non-farm livelihoods are usual regarded as "informal" and so do not benefit from business development services often available to the organized economic activities (Lanjouw & Lanjouw, 2001). People engaged in rural non-farm economy are unable to source capital from financial institutions due to some of the conditions attached to the terms of accessing their products (Davis, 2003). This situation is

not encouraging in that it does not give the rural non-farm economic activities enough opportunity to develop.

Yet, the rural non-farm economy has potential to be a source of income and employment. It is in respect of this that this paper seeks to explore this economy by answering among others; a) what outcomes accrue to people engaged in the rural non-farm economy, b) what characteristics of households facilitate the capacity to participate in the nonfarm livelihood economy and c) what kind of social service do nonfarm households access.

1.3 Objectives of the Study

The overall objective of the study is to assess the role non-farm livelihoods play in reducing poverty at the household level. Specifically, the study intends to

(1) Establish whether or not non-farm economic activities contribute to improving household incomes.

(2) Identify the household characteristics that facilitate the participation in the nonfarm economy

3) Identify the social facilities accessed by nonfarm households.

1.4 Significance of the Study

Increasingly, it is acknowledged that non-farm economic activities have a huge potential for reducing poverty in rural areas (Kashyap & Mehta, 2007). However, studies regarding the appropriate portfolio of investments for the rural contexts, even though slowly emerging are still in their infancy. This study seeks to add to such effort so as to enrich existing knowledge in this area.

Rural development policies in the past have often focused on agriculture as the "engine of growth" of the rural areas. This emphasis is usually to neglect of the non-farm

economy. Increased research into the nonfarm economy will contribute to turning the spotlight onto this sector. Again, a significant number of women in the district engage in multiple economic activities, farm and non- farm, and it is therefore of interest to examine how they affect and are affected by the changing rural economy.

1.5 Organization of the Work

The study is divided into five chapters. The first and introductory chapter presents the background to the study, statement of the research problem/ research questions, an outline of the objectives, the significance of the study. The second chapter represents a review of related literature. It reviews the concept and measurement of poverty, and the conceptual framework and the approaches to the reduction of poverty. Chapter three describes the profile of the Yilo-Krobo. Here the study presents a summary of the geophysical setting, the major economic activities and the poverty trends in the Yilo-Krobo. The chapter also includes the methodology of the study is presented. This gives is a description of the sample, population, data and the analytical framework used in the study.

The fourth chapter is a presentation of the findings of the study. It takes a specific look at the demographic characteristics of respondents and the contributions the non-farm economy makes to poverty reduction at the household level. In addition the chapter presents a discussion of the findings. This is done with the conceptual framework as a guide.

The last and fifth chapter of the study makes conclusions and recommendation on how the policy could better be shaped by the findings.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews existing literature on the study topic and the contextual use of key terms. It looks at the concepts and measurement of poverty, the approaches to the reduction of poverty and the resultant trends as reported in the fifth Ghana Living Standards Survey (GLSS 5). The chapter closes with a review of the nonfarm livelihood economy.

2.1 Concept and measurements of Poverty

Poverty does not lend itself to a single definition. Perceptions, contexts, meanings and usages of the concept differ between societies and observers, and also change over time. Yet a clear definition of who constitute the "poor" is necessary for the formulation of policies that seek to address the poverty challenge (Akindola, 2009). In defining poverty, distinction is usually made between the monetary uni-dimensional and the multidimensional approaches (Bellù & Liberati, 2005).

The monetary concept of poverty is an economic approach (Hulme, & McKay, 2013). Economists conventionally measure poverty in terms of the income or expenditure needed to sustain a minimum standard of living in a particular country; this is known as poverty line. People whose consumption levels fall below the line are considered poor. Appiah et al, (2000) state that the poverty line is the means by which the poor can be distinguished from the non-poor. The monetary concept and for that matter the poverty line suggests that poverty exist when consumption falls below a certain level. However, Fukuda-Parr (2006) observes that "poverty is a complex set of deprivations" which include the presence of hunger, joblessness, homelessness, illness and disease, lack of voice and many other factors that altogether debase the value in human life. This broader sense of viewing

poverty is usually termed the multi-dimensional approach. Again according to Appiah et al (2000) "poverty affects virtually all aspects of quality of life and welfare, including life expectancy, health nutrition, literacy, and access to social and economic services, political participation and so on. Therefore a comprehensive definition of poverty should encompass these dimensions as well." (Appiah et al 2000, p 304)

The various measurement of poverty usually sparks contentious discussions even with the introduction of a poverty line. This is largely due to the multi-dimensional nature of poverty (Gerbery & Filčák, 2014). However, a number of measurement approaches that command consensus among policy makers are the head count index which only indicates the proportion of poor people in the studied population living below the poverty line, and the income gap which measures the shortfall of income needed to bring the poor to the poverty line (Squire, 1993). There are many other measurement approaches but the objectives of one's study however inform the approach that may be adopted.

The measurement of poverty in spite of controversies that beset the process is important for determining the kind of intervention that will be needed to lift the poor out of poverty and to sustain those who are not. It is equally important in this regard to choose a combination of concepts and measures that are efficient, in that they employ both uni-dimensional and multi-dimensional approaches.

2.2 Approaches to Poverty Reduction

The economic conception of poverty has had enormous influence on policies formulated to address it. In the 1950s and 1960s, addressing poverty focused for the most part on the trickledown effect of the increase in the growth rate of the economy (Watts, 1969).

This approach produced unsatisfactory result especially, its inability to solve unemployment and income inequality problems. Economic thinking in the 70s turned to the Basic Human Needs strategy which laid emphasis on providing basic material needs in terms of health, education water, food, clothing and shelter, (Iradian, 2005). The economic down turn witnessed by most Third World Countries in the 1980s made them to accept the prescriptions of the Bretton Woods Institutions. These prescriptions were in two phases in the case of Ghana, stabilization in the first, and adjustment in the second, as a means of breathing new life into the Ghanaian economy (Aryeetey & Kanbur, 2008, p 6).

The implementation of Poverty Reduction Strategy Papers (PRSPs) has since replaced the stabilization and adjustment policies. Internationally, the perception about poverty has changed from the implementation of prescription to the search for home grown solutions (Hagenaars, 2009). Now, with the support of donors, most Third World Countries (TWCs) have prepared PRSPs spelling out the vision and goals of development and the key decision that will be taken as well as resources needed to achieve the stated goals.

In line with this new global view of poverty reduction, Ghana has been implementing a PRSP known as Ghana Poverty Reduction Strategy I and II (GPRS, 2006). The objectives of the GPRS are to bring poverty reduction policy closer to local level priorities and circumstances. This is a tacit admission of the need for development policy to reflect the priorities of the people for whom development is intended. These strategic processes are characterized by popular consultations to solicit the inputs of stakeholders. Decentralized governance has become an essential catalyst for the implementation of the PRSPs (Crock, 2003).

Ghana's PRSPs is in its second face of implementation. In the first, five main thematic areas were identified for action (cited in Whitfield, 2005). These include

1. The Macro Economy
2. Production and Gainful Employment
3. Human Resource Development and Basic Services
4. Special Programme for the Vulnerable and Excluded
5. Good Governance

This sets the broad framework of the Ghanaian governments approach to the reduction of poverty. It has facilitated greatly the monitoring of progress at both the national and local levels so as to identify the areas that require special focus. For this study, all the thematic areas are of great significance because their prospects for the development of the rural areas of the Yilo-Krobo are high. Besides, current rural development policies reflect the overall national development goals.

2.3 Poverty Trends in Ghana1

The trends in the fight against poverty in Ghana should be analyzed within the context of the standards set by Ghana Statistical Service. The poverty line as indicated earlier is the minimum income below which poverty is said to exist. According to the Service, the lower and upper poverty lines for Ghana are Gh¢288, 47 and Gh¢ 370, 90 respectively per adult equivalent per year (GLSS5, 2007).

In terms of these lines, the incidence of poverty declined from51.75% in 19991/92 to about 40% in 1998/99 and plummeted further to 28.5% in 2005/06. The rural and urban incidences also indicated a downward trend, falling from 50 and 19 percent in 1998/99 to about 39 and 11 per cent in 2005/06 (GLSS5, 2007). These trends generally hold positive prospects for development and the march towards the eradication of poverty in Ghana even though the incidence for the rural areas is still high. For instance, the incidence of poverty

[1] This section is drawn heavily from the fifth report of the Ghana Living Standards Survey (GLSS5) of 2007 undertaken by the Ghana Statistical Service (GSS)

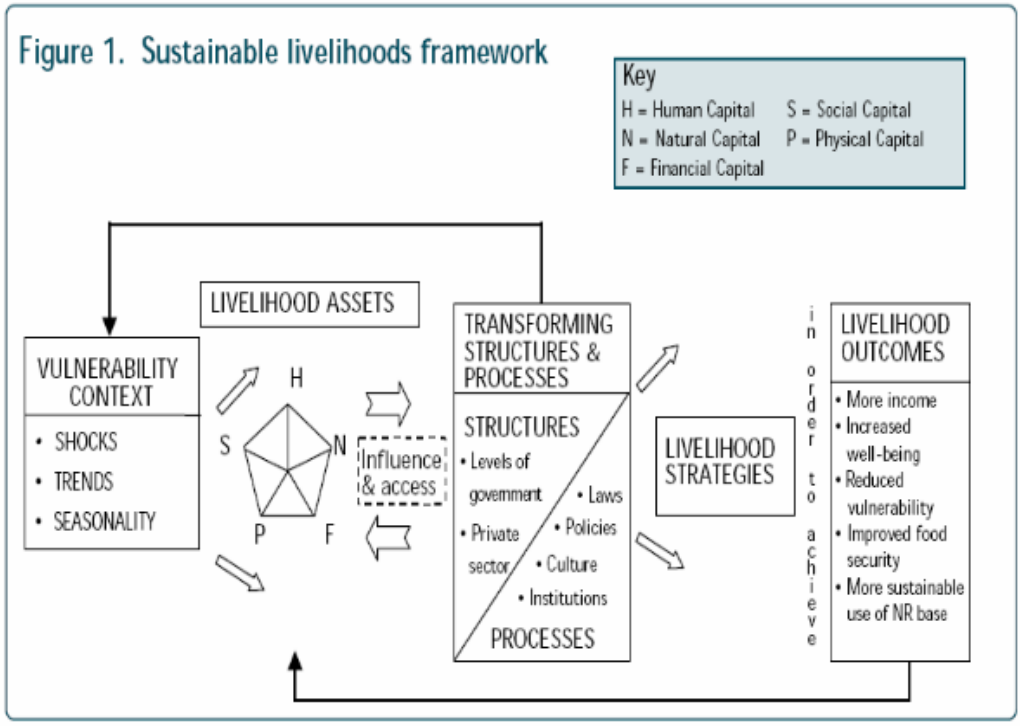
in rural savannah was still as high as 60% in 2005/06. When looked at in terms of the occupation people engage in, the report mentions food crop farmers as the poorest as they constituted 46% in 2005/06. Poverty is also high among private informal sector wage employees and the nonfarm self-employed, the report notes (GLSS5, 2007).

2.4 Conceptual Framework

The conceptual framework guiding this research is the livelihoods approach. According to Ellis, (1999) this approach has its origins in the 'assets/processes/activities' perspective and is increasingly becoming topical in the development debate especially when it concerns rural development. Some institutions which have found the livelihood approach useful and have adopted and encouraged its use include CARE International, the United Nations Development Programme (UNDP) and the British Department for International Development (DFID).

This study adopts the DFID Sustainable Livelihood Framework (See Figure 1). This framework focuses on how local people use the resources available to them to sustain their livelihood. "A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base" (Scoones, 1998).

Figure 2.1: Sustainable livelihoods framework



Source: Adopted from DfID Sustainable Livelihood Framework

The framework shows a variety of assets or capital households employ in building their livelihoods. The major components of the framework are explained below.

Natural capital -These are natural resources found in the environment of household given free by nature.

Human capital - This refers to the knowledge and skills of people acquired through formal and informal education or training. Human capital is of exceptional importance because of its capacity to be modified.

Physical capital -This refers to tangible material created or acquired for the purposes of production. This study looks at these to include structures put up to provide the space for work such as sheds and stalls as well as equipment used in operations.

Financial capital -This is the money a household has access to and can use in initiating a livelihood from which it hopes to derive some returns. Financial capital may be raised from the sale of household property or savings and banks.

Social capital-This refers to social connections or relations shared by individual within a household or between households.

Scoones (1998) notes that,

> *"Given a particular context (of policy setting, politics, history, agro-ecology and socio-economic conditions), a household may opt for a combination of livelihood resources (the different types of 'capital') resulting in its ability to follow a particular combination of livelihood strategies (agricultural intensification/extensification, livelihood diversification and migration) with a certain resultant outcome(s). Of particular interest in this framework are the transforming structures and processes (embedded in a matrix of formal and informal institutions and organizations) which mediate the ability to carry out such strategies and achieve (or not) such outcomes"* (Scoones, 1998, p 3).

For the purposes of this work, the livelihood approach will serve two roles. It will facilitate the appreciation of the socio economic conditions of households engaged in nonfarm activities especially how those conditions affect the decision to participate in the nonfarm economy and the outcome that are expected flow those choices.

2.5 The Non-farm Livelihood Economy

The non-farm livelihood economy has emerged as an important part of the rural economy. A major feature that distinguishes this sector from all other activities in the rural area is its non agricultural nature. The main activities within the sector are the provision of services such as education, health and transportation; the processing of agricultural or forest related products and trading. In a study by Janowski (2003) a number of factors were identified that facilitate participation in nonfarm livelihood activities in rural areas. The first is relational capital which refers to the ties that people share with kinsfolk, friends and ethnic groups; the second is education which raises the capacity for an individual to diversify from

purely agricultural livelihood into businesses that are nonfarm; positive attitudes to entrepreneurship which promote the growth of enterprises and formal loans providing institutions in rural areas (Janowski 2003). Davis, (2003) has also noted that the expansion of the nonfarm economy is greatly influenced by factors such as the nearness to resources, infrastructural availability and guaranteed markets for products from the enterprises within that economy (Davis, 2003).

CHAPTER THREE

STUDY AREA[2] AND METHODOLOGY

3.0 Introduction

The chapter presents a profile of the Yilo-Krobo district. It looks at the geophysical characteristics and the major economic activities in the district. In addition, it discusses the poverty scenario in terms household incomes, expenditure and access to social services.

3.1 Study area

3.1.1 Location and Size

The Yilo Krobo District is located in Ghana's Eastern Region and lies between latitude 6^0 .00'N and 0^0 .30'N and between longitude 0^0 .30' and 1^0 .00'W. The district is bounded to the north and east by Manya Krobo District, to the South, Akwapim North and Dangme Districts and on the West by New Juaben, East Akim and Fanteakwa Districts. Its land area is estimated at 805sq.km making up 4.2 percent of the total area of the Eastern Region. These surrounding districts are potential source of market which could be exploited for the development of the Yilo-Krobo district.

3.1.2 Climate and Vegetation

The District lies within the dry equatorial climatic zone. This region experiences two seasons of rain, May – June and September – October. Rainfall values range between 750mm p.a. in the southeast and 1600mm p.a. on the slopes of the ranges in the northwest. Agriculture output can be increased if the rainfall from the two seasons is properly harnessed.

[2] This is summarized from the Medium Term Development Plan (2006-2009) of the Yilo-Krobo District

The vegetation of the district shows a semi-deciduous rain forest and the dry semi-deciduous coastal savanna. This makes the vegetation suitable for crops such as palm and mango as well as neem, ceiba and cassia trees.

3.1.3 Topography, Soil and Drainage

The Yilo-Krobo district is predominantly mountainous with deep valleys in between. The landscape is therefore undulating. On the average, the height of the highlands in the district ranges between 300 and 500 metres above sea level. On the southeastern part of the district is the Krobo Mountains from where it is believed the Yilo people migrated to the present area.

The predominant soils in the district are those developed over sandstone found north-west of Huhunya right to the border between the district and Fanteakwa District. The major rivers in the district are the River Volta and the Ponpong River. These rivers can be developed serve as tourist attractions to generate additional revenue for the district.

3.1.4 Demographic Characteristics

The district total population according to the 2000 population was 86,107 signifying a 4.1% increase over the population in 1984. With a growth rate of 2.6%, the district's population is currently estimated at 97,898. The 2000 population census gave a sex ratio of the district as 96 indicating the presence of more females than males. Average household size for the district is 4.9 persons. (MTDP, 2006-2009, p 28).

Table 3.1*:* Population of the Yilo-Krobo District (1970-2000)

Year	1970	1984	2000
Total Population	52,521	82,707	86,107
Population Increase in %	-	39	4.1

Source: Ghana Statistical Service

3.1.5 Economic Activity

The economic activities found in the district are mainly agriculture, services, and trading and small scale industries. Farming is the major source food and income for the district as evidenced by the 58% of the population engaged in the sector. The farmers cultivate mainly food crops for domestic purpose as well for sale on the local market. The cultivation of non-traditional export crops is also being encouraged in the district through the Ministry of Food and Agriculture. The service sector consists predominantly of Government sector employees. The main trading activity in the district is the sale of provisions and hardware. Trading in agricultural produce especially foodstuff is also common and great number of the people who trade in foodstuff sell fish from Volta and Greater Accra regions. Table 3.2 shows a summary of the economic activities.

Table 3.2: Main Economic Activities in the Yilo-Krobo District

Economic Activity	Percentage
Agriculture	58%
Services	18.1%
Commerce	12.9%
Industry	7.2%

Source, MTDP, 2006-2009

3.1.6 Poverty Scenario in the Yilo-Krobo District3

The Yilo-Krobo District Medium Term Development Plan (2006-2009) projects its population to stand at 97,898. Fifty-eight per cent of the working population is engaged in agriculture producing mainly food crops.

An estimated total income for the 388 households interviewed was Gh¢1, 71.45. This gives an average household income of Gh¢ 4, 41.88. Based on the average household

[3] Data used under this section were drawn mainly from the Reviewed Medium Term Development Plan (2006-2009) of the Yilo-Krobo District

size of 4.9, the average per capita income for the district was estimated at Gh¢ 90.2 per annum. The Development Plan also indicates an expenditure pattern of characteristic of low income groups. Food constitutes the highest household expenditure item. It constitutes 39 percent of total household expenditures. Expenditure on water is the next highest. It constitutes 6.4 percent and expenditure on health constitutes 6.1 percent. On the average more is spent on clothing (5.6%) than on education (5.1%). Expenditure on liquefied petroleum gas (LPG) is the least expenditure item. It constitutes 0.6 percent of the total expenditure. In spite of the generally low incomes in the district, inequalities in the distribution of income are however moderate as indicated by a Gini concentration ratio of 0.27. (MTDP 2006-2009, p 43).

The access to social services such as education, health, and housing characteristic of households help to appreciate the noneconomic shades of poverty. Educational participation rate in the district declines as one ascends higher the educational ladder. School participation rate at the secondary level is very low. This may be due to the high cost of secondary education. It may also mean that a lot of children in this age group are unable to qualify to the secondary school levels due to poor performance. (MTDP 2006-2009, p 69)

In terms of health, infrastructure is seriously challenged while very little can be said about equipment and service condition. There are three (3) Private Clinics, Nine (9) reproductive/child health/family planning (MCH) clinics, one (1) chest clinic (Government), four (4) CHPS centers, three (3) private midwives maternity homes and seventy-two (72) trained traditional birth attendants in the district serving a population of 97,898. These facilities are inadequate. (MTDP 2006-2009, p 75)

3.2 Methodology

The methodology is built on the idea developed by De Javry et al (2005) in their study entitled *The Role of Non-farm Incomes in Reducing Rural Poverty and Inequality in China.* What their study basically sought to do was to compare and determine the contribution of farm and nonfarm incomes to specific household income and generally to poverty reduction. This study adopts a similar idea (and modifies the model in view of the objectives, scope and data structure available for this study).

This study focuses on the households engaged mainly in non-farm economic activities in the Yilo Krobo district of Ghana. However, households engaged in farming will equally be studied.

3.2.1 Data

The data for the study is mainly secondary. It was obtained from the Ghana Living Standard Survey Five Plus (GLSS5+) - 2008 at the Institute for Statistical Social and Economic Research (ISSER). This is a cross-sectional data which covers all aspect of lives of the selected households across Ghana. Sections of the data relevant to this study were selected. Of obvious interest was data on incomes of households from economic activities such as nonfarm enterprises.

3.2.2 Sampling

For this study, a sample of 711 individuals in 212 households engaged in non-farm livelihood activities or enterprises was selected for detailed examination. The selection criteria were based on a household operating one or more nonfarm enterprises or livelihood activities consistently and derived it main income from that enterprise for the whole twelve months before the survey.

3.2.3 Population

The focus of the study is households engaged mainly in non-farm economic activities. However, households engaged in farming will equally be studied as control. The rural non-farm economy is home to a highly heterogeneous collection of trading, agro processing, manufacturing, commercial, and service activities. The scale of activity varies enormously, from part-time self-employment in household-based cottage industries to large-scale agro processing and warehousing facilities operated by state institutions and large multinational firms. Women constitute a large number of people in this sector of the rural economy.

3.2.4 Model Specification

The models for study are three and presented as equations.

(1) Farm income model

(2) Enterprise (nonfarm) income model

(3) Total income model

$F^*_t=\beta_o +\beta_t X_t+ U_t$ ---------- (1)

Where

The dependent variable, F^*_t, is the vector of observed income of respondents involved in farming,

β_0 is the constant parameter

β_t is a vector of parameters for the explanatory variables

X_t is a vector of explanatory variables.

U_t is a normal distributed error term with zero mean and constant standard error.

$E^*_t=\beta_o + \beta_t X_t+ U_t$ ---------- (2)

Where

E^*_t is a vector of observed income of households engaged in non-farm enterprises.

The parameters and the variables in equation (2) are similar to those of equation (1).The only difference in the variables in the model is that farm per capita income changes to nonfarm (enterprise) per capita income.

A final model is specified as

$$Y^*_t=\beta_o +\beta_t X_t+ U_t \text{----------} (3)$$

Where

Y^*_t denotes the observed total income of households involved in both farming and non-farming economic activities.

3.2.5 Selection of Variables and a Priori Expectations

The dependent variable in this study is household income and the independent variables are household size, education, per capita income and number of workers. Farm households in rural areas rely on household labour for production. A large household is therefore expected to have a positive effect on household income derived from engaging in either economic activity.

This theory applies to per capita income as well.

Education increases productivity through exposure to innovative management practices and increased access to information that can be used to manage either farms or nonfarm enterprises. This variable is equally expected to have a positive effect on income. Higher education will therefore have greater effect on income. The direction of effect the

number of workers on the farm or nonfarm enterprise may have a negative or positive effect on income.

After the estimation of this regression models, simulations are applied to predict the expected income for each of the models for the various categories in this study. Comparison of mean differences between the incomes of the employment categories is applied to ascertain the degree of variability of the incomes. This approach allowed the following hypothesis to be tested.

3.2.6 Hypotheses

The main hypothesis of the study is that nonfarm livelihoods contribute more to household income than farm livelihoods. Specifically, the research hypothesizes that household size, education of both mother and father, number of household members working and per capita income affect the level of income of the household. From models (1), (2) and (3), three null hypotheses are generated. The first is that household size, per capita income from farm activity, number of workers and education do not affect the level of income of households engaged in purely farm activities. For the second model, the null hypothesis is similar except that per capita income is from nonfarm enterprise. In the third and final model which tests the effect of the independent variables on the dependent variable, the null hypothesis is that all the variables do not affect household income.

3.2.7 Limitations of the Study

A major challenge faced in the study is the inability of the Institute of Statistical, Social and Economic Research (ISSER) to provide the data on the original study topic. Though this is not surprising in the field of research, the delayed transmission of this information nearly jeopardized this study. This development necessitated the widening of the scope of the study to include other nonfarm economic activities.

Another challenge faced in this study is the structure of the data at time request for it was granted. Some modules in the questionnaire were inappropriately merged during the processing. Results obtained in some cases were therefore unrealistic. It became necessary to return to the officers and other officials who processed the data for clarification. Some variable which could have been added were not readily available.

The problem of finance and time proved extremely insurmountable. The study required logistics such as paper, printer and means of transport which could not be financed solely from personal savings. Time was inadequate and so a lot of the work was done under stressful conditions. All the same the study proved exciting and enlightening.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

4.0 Introduction

This chapter presents findings of the study. The first part presents findings on basic characteristics of households. The second part presents the results of the three regression models which were generated for the direct effects of the independent variables on the dependent variable. The study sought to predict and compare the incomes of households engaged in farming on one hand and nonfarm economic activities on the other. A 0.05 % significance level was set. The data was analysed using the STATA 10. The rest of the chapter covers the nonfarm economy in the district and the social services accessed by nonfarm households.

4.1 Sample Characteristics

4.1.1 Population Structure by Age and Sex

The people engaged in the non-farm economy are youthful in age. The age cohorts 10-14 up to 30-34, represent about 65 % of the population of people engaged in the sector. The data also indicates both males and females are actively involved in the non-farm economy across all age groups. Table 4.1 shows the population and age structure of the population under study.

Table 4.1: Population Structure by age and sex

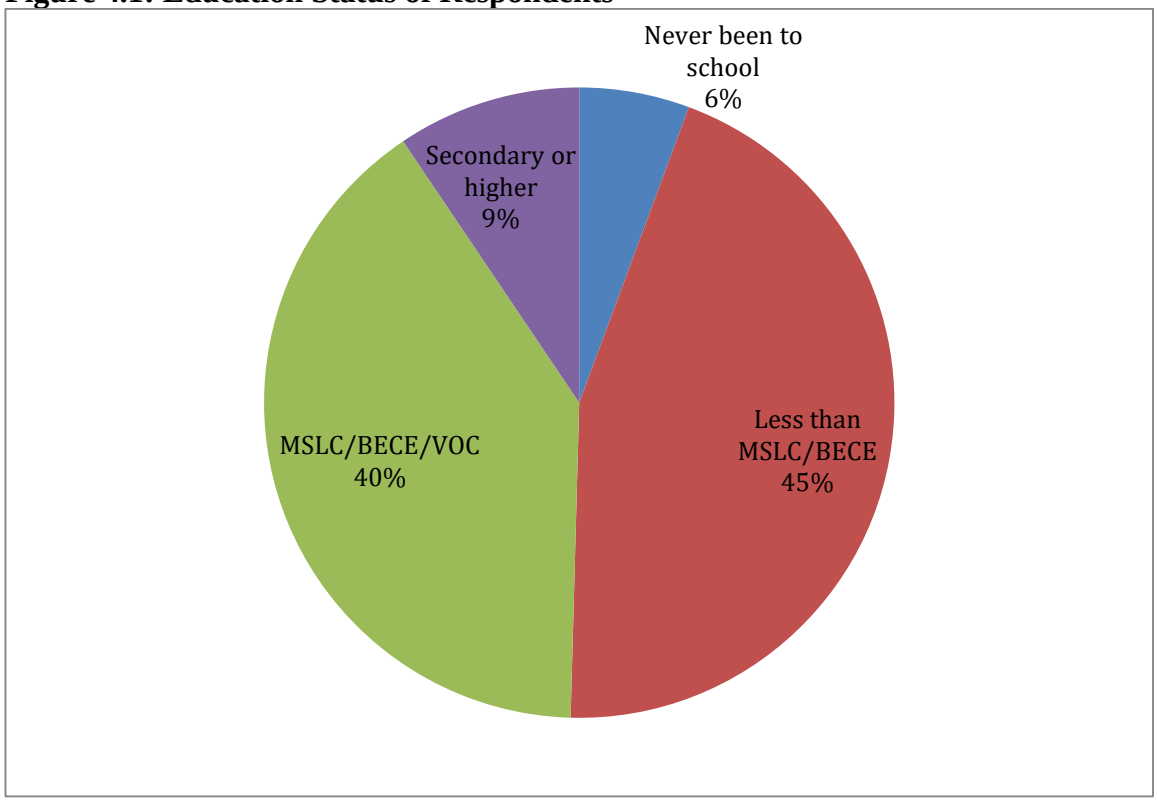
Age Group	Male	Female	Percentage
10-14	20.0	16.2	17.7
15-19	14.4	13.4	13.8
20-24	8.0	10.7	9.6
25-29	8.8	11.4	10.4
30-34	12.7	13.7	13.3
35-39	9.2	6.7	7.7
40-44	7.4	6.9	7.1
45-49	4.4	4.4	4.4
50-54	4.4	7.6	6.3
55-59	2.9	3.2	3.1
60-64	3.6	1.1	2.1
65+	4.4	4.8	4.7
Total	100.0	100.0	100.0

Source: Author's Estimation

4.1.2 Educational Status

The educational level respondent is low. About 45% of the respondents have had education below Middle School Leaving Certificate (MSLC) and Basic Education Certificate (BECE) while 40% have had education up to MSLC/BECE and Vocational Training. This adds up to 95% of respondent not attaining higher education. Figure 4.1 below is a diagrammatic presentation of the discussion.

Figure 4.1: Education Status of Respondents



4.1.3 Marital Status

The marital statuses of respondents indicate that 45% have never married, 28% married and 17% in consensual union. The rest of the results are presented in the table below.

Table 4.2: Marital status of respondents

Marital Status						
Married	**Consensual Union**	**Separated**	**Divorced**	**Widowed**	**Never married**	**Total**
201	117	7	18	47	321	711
28%	**17%**	**1%**	**3%**	**7%**	**45%**	**100%**

Source: Author's Estimation

4.1.4 Household Size

The population under study also reveals house sizes ranging from a single member household to a twelve member household. Five person household is the largest constituting 23%.

Table 4.3: Household size

Household size	Frequency	Percentage
1	97	14%
2	78	11%
3	84	12%
4	**82**	12%
5	166	23%
6	**79**	11%
7	28	4%
8	**30**	4%
9	36	5%
10	**6**	1%
11	10	1%
12	**15**	2%
Total	711	100%

Source, Author's Computation

4.1.5 Household Farm Income Prediction

In the first model, the predicted income of households engaged in purely farm activities is Gh¢ 468.71. This is higher than their observed income (Gh¢ 378.45). The results show that the independent variables- household size, years of education of father and per capita income had statistically significant effect ($p<0.01$) on the dependent variable - household income. Based on this, the null hypothesis that there is no association can be rejected except for the number of workers and number of years of education of mother. Table 4.4 presents a summary of results for farm income model. (Detailed results in appendix 1&2).

Table 4.4: Farm income prediction results

Explanatory variables	Coefficient	t	p
Household size	0.682576	3.48	0.001
Per capita farm income	.0018853	41.43	0.000
Number years of education of father	.0534763	5.23	0.000
Number of workers	.0032319	0.13	0.895
Number of years of education of mother	.0010815	0.19	0.847

Source, Author's computation

4.1.6 Household Nonfarm Income Prediction

The second model predicted nonfarm households' income as Gh¢ 553, which is higher than their observed incomes (Gh¢ 378.45). The results as shown in table 4.5 indicate that apart from the number of years of education of mother, a significant association exists between household income and number of workers, household size, per capita income and number of years of education of father. Since the p-values of all the independent variables are below the level of significance set ($p < 0.05$), the hypothesis of no association can be rejected. All the independent variables show a positive association with the dependent except household size (coefficient = -0.583511, t = -2.14). The detailed results of this model are attached as appendix 2.

Table 4.5: Nonfarm income prediction results

Explanatory variables	coefficient	t	p
Number of household members working	.1420411	4.36	0.000
Household size	-0.583511	-2.14	0.033
Income per capita	.0005225	4.08	0.000
Number years of education of mother	.0184808	2.31	0.21
Number of years of education of father	.0011744	0.19	0.851

Source, Author's computation

4.1.7 Total Household Income Prediction

Generally, rural household participated in both farm and nonfarm economic activities. The third model predicted the income for a household engaged in farm and nonfarm activities. This gives a combined income of Gh¢ 547.7. The hypothesis that there is no association between total house incomes (total income obtained from farm and nonfarm activities) and the number of household members working, household size and per capita income from farming can be rejected. The association of these independent variables and the dependent variables show strong statistical significance as can be noticed from table 4.6. The detailed results of this model are attached as appendix 3.

Table 4.6: Total income prediction

Explanatory variables	coefficient	t	p
Number of household members working	-.0918325	-3.79	0.000
Household size	.1213356	4.65	0.000
Income per capita	.0012661	28.55	0.000
Number years of education of mother	.0019536	0.68	0.494
Number of years of education of father	.0018924	0.49	0.622

Tests of variance in the three categories of incomes show statistically significant differences. The result for the test involving farm income and nonfarm income shows a t-value of -74.4054 and a p-value of 0.0000. For farm income and total income, their respective *t* and *p* values are -60.6164 and 0.0000.

4.2. Characteristics of the Rural Non-Farm Economy in the Yilo-Krobo District

The non-farm economy comprises a wide range of activities that can be grouped into three namely, manufacturing, service and trade. The manufacturing sector include activities such brewing of local alcoholic beverage, baking, jewelry making and charcoal burning, while the service sector has such activities as sale of drugs and operation of schools. The

activity with majority of participants is trade (62%), followed by manufacturing and service, 28% and 10% respectively. Agro-processing constitutes less than 1 per cent. There are also a large number of females involved in the sector. Apart from manufacturing where male population is higher (33%), females dominate both trade (65%) and service (11%) sectors.

Table 4.7: Non-farm economic in the Yilo-Krobo District

Main activities	Percentage
Manufacturing	28%
Trade	62%
Service	10%
Total	100%

Source: Author's Estimation

4.2.1 Mode of Entry

The rural non-farm economy can be described as a 'free market'. The sector is highly diverse in terms of economic activities. While specialized skills and professional training are no pre-requisites for entry, capital, labour and credit constitute important assets that an interested person needs to initiate an enterprise and to be effective upon entry into the sector.

4.2.2 Capital Mobilization

Capital is crucial to the establishment of nonfarm enterprises. The main sources of capital available to rural households are the banks, money lenders, remittances and personal savings. Household savings account for 79% of all sources. Out of this 86% is obtained as self-financed investment, 52% as a gift and 14% as a loan.

Table 4.8: Source of capital

Main source of capital	Nature of capital			
	Loan	Gift	Self-financed	Total
Household savings	14.1%	56.2%	86.1%	79.0%
Bank	26.5%	*	*	1.9%
Remittances from abroad	*	*	*	*
Proceeds from family	0.7%	5.8%	6.8%	6.3%
Proceeds from family(what)	*	2.3%	2.4%	2.3%
Income from family property	10.6%	4.2%	*	1.0%
Church assistance	*	*	0.8%	0.7%
Money lenders	18.5%	*	*	1.3%
Relatives/friends	14.4%	31.4%	3.0%	5.7%
Other	15.2%	%	0.7%	1.7%
Total	100.0	100.0	100.0	100.0

Source: Field Survey * Less than 0.5 percent

4.2.3 Source of Credit for Financing Operations

Credit forms an important part of the operations of nonfarm enterprises. Access to credit is however limited. Ninety-one per cent of those households operating non-farm livelihood enterprises have not taken credit to finance their operations. Those who obtained credit from banks constitute less than 5%.

Table 4.9: Source of credit

Main sources of credit	Percentage
No credit used	91.2
Bank	3.4
Other financial agency	0.6
Cooperatives	0.6
Money lender	0.4
Family/friend	1.5
Proceeds from other enterprise	0.1
NGO	0.6
Other	1.6
Total	100.0

Source: Author's Estimation

4.2.4 Labour Supply

The household constitute the primary labour for the nonfarm enterprise. Looking at the ages of workers within the sector, it will be observed most of the participants are youthful. Although all age categories play a part in the operation of nonfarm enterprises, the age groups 5-9 (16%), 10-14 (15%) and 15-19 (12%) are most dominant in the supply of labour. From table 4.10 on the next page, male household members are higher than females in the first two age brackets. The situation reverses as age increases to (55-59).

Table 4.10: Labour supply

Age Group	Male	Female	Total
5-9	46.39	48.09	94.47
	18.81 %	13.45%	15.64%
10-14	40.19	48.88	89.07
	16.3%	13.68%	14.75%
15-19	28.51	42.12	70.63
	11.56%	11.79%	11.69%
20-24	15.99	33.21	49.20
	6.48%	9.29%	8.15%
25-29	17.29	34.67	51.96
	7.01%	9.7%	8.6%
30-34	25.45	43.13	68.58
	10.32%	12.07%	11.35%
35-39	18.51	20.05	38.56
	7.51%	5.61%	6.38%
40-44	14.79	21.10	35.89
	6%	5.9%	5.94%
45-49	8.88	13.70	22.59
	3.6%	3.83%	3.74%
50-54	8.79	23.79	32.58
	3.56%	6.66%	5.39%
55-59	5.79	9.92	15.72
	2.35%	2.78%	2.6%
60-64	7.14	3.56	10.71
	2.9%	1%	1.77%
65+	8.88	15.17	24.05
	3.6%	4.24%	3.98%
Total	246.59	357.41	604.00
	100	100	100

Source: Author's Estimation

4.2.5 Expenditure and Revenue Estimate

Generally, households operate non-farm enterprises to make additional income to meet their needs. An estimate of costs of operations and revenue give an indication of the profitability or otherwise of the enterprises. The mean expenditure and revenue for non-farm enterprises are shown in table 4.11 below. In two weeks operation an enterprise incurs on average cost of Gh¢ 54.00 and average revenue of Gh¢ 207.00. The net profit of the average non-farm enterprise over the same period is Gh¢153.

Table 4.11: *Mean Expenditure and Revenue in Non-farm* **Enterprises**

Mean expenditure (2 weeks)				
Expenditure	**Mean**	**Std. Err.**	**[95% Conf. Interval]**	
	54.00	249.4717	911.6195	1892.599
Mean revenue (2 weeks)				
Revenue	**Mean**	**Std. Err.**	**[95% Conf. Interval]**	
	207.0736	14.94203	177.7791	236.368

Source: Author's Computation

4.3. Housing Characteristics and Access to Social Services

The characteristics of households' dwelling places and their access to essential social service generally enhance the gains in made in household income. The section describes the housing characteristics and proportion of households with access to portable water, toilet facilities, health facilities and electricity.

4.3.1 Construction and Roofing Material

The houses are mainly compound type built of mud/mud brick, burned brick and cement/sandcrete block. A large number of the houses are roofed with iron roofing sheets. Table 4.12 shows the main construction and roofing material for the dwellings of households captured in this study.

Table 4.12: Construction Material and Roofing Material

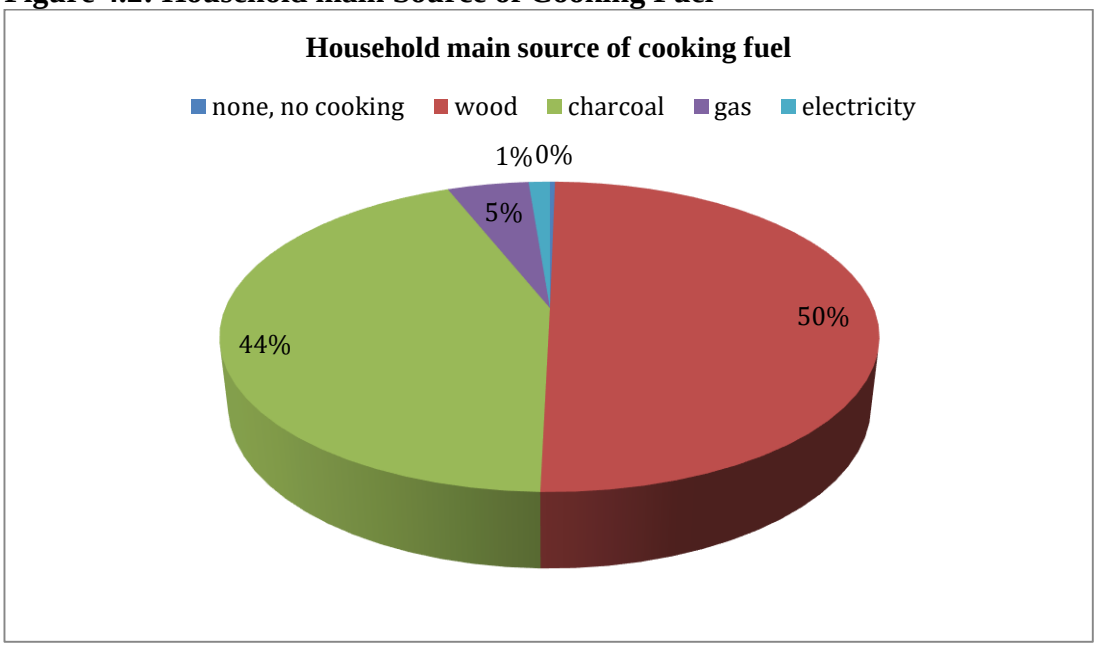
Main material for outer wall	Frequency	Percentage
Mud/mud brick	310	43.7
Stone	17	2.3
Burned brick	4	0.6
Cement/sandcrete block	380	53.4
Total	711	100.0
Main roofing Material		
Palm leaves/raffia/thatch	9	1.2
Wood	19	2.6
Corrugated iron sheets	656	92.6
Cement/concrete	11	1.5
Asbestos/slate	7	0.9
Roofing tiles	9	1.3
Total	711	100.0

Source: Author's Estimation

4.3.2 Cooking Fuel

The major source of cooking fuel are wood and charcoal as they each account for 50% and 44% respectively. Figure 4.2 presents the domestic fuel picture of households under the study. This picture has implication for the forest cover of the district.

Figure 4.2: Household main Source of Cooking Fuel



Source: Author's Estimation

4.3.3 Lighting

Kerosene, candles/torches and electricity are the common sources of lighting available in the district. Out of the 711 individuals surveyed, only 51.3 % use electricity in their homes. Nearly half live without electricity in their homes.

Table 4.13: Source of Lighting

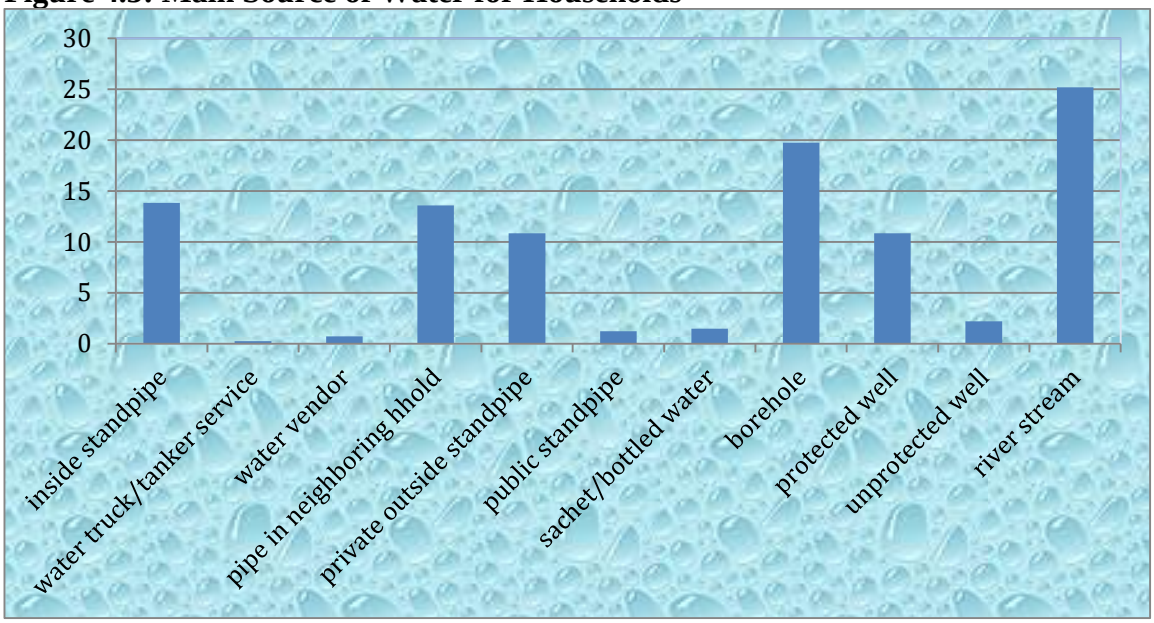
Main source of lighting in homes	No of Household	Percentage
Electricity (mains)	365	51.3
Kerosene	338	47.5
Candles/torches	6	0.9
No light	2	0.3
Total	711	100.0

Source: Author's Estimation

4.3.4 Access to Water

A variety of water sources are available to households participating in the non-farm economy. They range from piped borne water, boreholes, wells to surface water. The major suppliers of water in the district are the Ghana Water and Company Limited (GWCL) which is managed by Aqua Viten Rand Ltd and the Community Water and Sanitation (CWS). It noticeable from figure 4.3 (on the next page) that 25% of respondent consumes water from rivers and streams while pipe-borne sources account for less than 15%.

Figure 4.3: Main Source of Water for Households



Source: Author's Estimation

4.3.5 Health, Waste and Sanitation

The major forms of waste generated from household activities in the district are mainly liquid and solid waste. Facilities available for the disposal household liquid waste include flush toilet pit latrines, KVIP pan/bucket, public toilet, toilet in neighbour's house and bush visits. The rest of the population use unsafe methods as can be observed from table 4.14 below.

Table 4.14: Household Toilet Facilities

Toilet facility	Frequency	Percentage
Flush toilet	25	3.5
Pit latrine	250	35.2
KVIP	144	20.2
Pan/Bucket	5	0.7
Public Toilet(flush/bucket/kvip)	266	37.4
Toilet in another house	3	0.4
No toilet facility (bush/beach)	18	2.6
Total	711	100.0

Source: Author's Estimation

Regarding household refuse, the method of disposal involves dumping, burning, and burying. The Assembly is responsible for providing and managing sites for the disposal of refuse. As can be seen in table 4.15, about 47% of respondents dispose their refuse at public dumping site, 41% use any available space and only 5% of households bury the refuse generated from their homes.

Table 4.15: Methods of Disposal of Refuse

Disposal of refuse	Frequency	Percentage
Public dump	334	47.0
Dumped elsewhere	294	41.4
Burned by household	48	6.8
Buried by household	34	4.9
Total	711	100.0

Source: Author's Estimation

Common illnesses reported by households include fever, cold/coughs and watery diarrohea. Fever is a leading cause of illness households as it accounts for nearly 56% all illnesses within the fourteen days before enumeration. For those who reported illness, about 53% of them attended hospital, while 33% visited the clinic for medication. Out of the number who attended hospitals and clinics due to illness, 59% were seen by a medical doctor, 8% drug/chemical sellers and 5% traditional healers. Tables show the type of facilities accessed by household members and the practitioners who attended to them.

Table 4.16: Common illness, Medical Practitioner Consulted and place of consultation

Type of illness	Frequency	Percentage
Fever	30	55.8
Watery diarrohea	1	1.6
Cold / cough	2	3.3
Other	21	39.3
Total	53	100.0
Practitioner consulted	**Frequency**	**Percentage**
Doctor	24	59.2
Dentist	1	2.2
Nurse	8	21.0
Midwife	1	2.6
Pharmacist	1	2.5
Drug/chemical seller	3	7.7
Traditional healer	2	4.8
Total	40	100.0
Place of Consultation	**Frequency**	**Percentage**
Hospital	21	52.5
Clinic	13	32.5
Pharmacy	2	5.1
Chemical store	2	5.1
Consultant's home	1	1.9
Other	1	2.9
Total	40	100.0

Source: Author's Estimation

4.4 Discussion of Findings

It is important to recap here that the primary concern of the study was to establish whether or not nonfarm activities contribute to raising the incomes of households. The study was situated within the sustainable livelihood framework. The following discussion is therefore presented against this backdrop.

4.4.1 Household Income

The income of households engaged in nonfarm economic activities is higher than the income of purely farm households. A comparison of these incomes shows nonfarm households earn Gh¢ 553, 46 per annum while their farming counterparts earn Gh¢ 468, 71.

In both cases, these income levels are higher than their observed incomes. As noted earlier these difference incomes are statistically significant. A nonfarm household has stronger purchasing power in the district than a farm household. The superiority of nonfarm incomes remains unchanged even when compared to total income (Gh¢ 547.70.) earned from participating in farm and nonfarm economic activities.

In line with the livelihood approach, the possession of assets greatly influences the outcomes that accrue to a particular household. Some of these assets include education, finance and social networks.

4.4.2 Household size and Income

Household size exerts a strong influence on the economic activities from which member earn their income. In rural areas where agriculture is less mechanized, farm households depend on family members for labour to undertake production. Such families therefore show preference for large families through polygamous marriages or encouraging other members of the extended family to move in into common residence. The argument for household size applies similarly to nonfarm households except that here, the direction of effect may be negative or positive. This is because some members of the household may not be directly contributing to total output of the enterprise. They may in fact be surplus labour but as family enterprise those they cannot be laid off.

4.4.3 Household Income per capita

Naturally, rewards possess a motivating effect. Households engage in economic activities to earn income so that they can spend on goods and services from which satisfaction can be derived. Per capita income for both farm and nonfarm households causes output to rise so that total income can rise. Note that the per capita income is only a fraction

of the total income. Where households derive high per capita incomes their resource will to those more productive areas.

4.4.4 Education and Income

Education is an indispensable tool for developing the requisite human resource needed for improving human welfare. The results of the study clearly indicate that education of the father is crucial to the incomes of farm households as is education of the mother to the incomes of nonfarm households. For the two groups of households' heads, the capacity to manage effectively, use resources efficiently, identify opportunities and apply innovative approaches to farm and enterprise can be attributed to the level of education they attained. The educational characteristic of households is however low. The mean number of years spent in education for father and mother is 5 and 3 respectively while the highest level of education attained for 85% of respondents is MSLC/BECE/VOC (see figure 4.2). Since it is today children who become tomorrow's adults, it is important educational access for the former group to be increased in addition to ensuring that enrolled children stay in school. This will contribute significantly towards equipping people with assets that they need to construct their livelihoods.

4.4.5 Income and the Poverty Line

To determine the contribution of nonfarm livelihoods to poverty reduction, we compare the nonfarm incomes with the estimated poverty line for the Yilo-krobo district. The upper poverty line for the district is Gh¢ 475.55 while the lower line is Gh¢ 372. 21. Using the lower poverty line, both farming and non-farming households cannot be described as poor since both household categories earn annual incomes of Gh¢ 553, 46 (nonfarm) and Gh¢ 468, 71(farm). When the upper poverty line is used, farm household can be said to be poor since their earnings can only maintain minimum subsistence living. They can afford only life supporting necessities such as food. The annual income of nonfarm household is

higher than the upper poverty. This implies that nonfarm households are not poor. The household consuming at this can be considered able to purchase enough food to meet their nutritional requirements, and to be able to meet their basic non-food.

4.4.6 Rural Non-farm Economic Activities

Non-farm economic activities are differential as trade (62%), manufacturing (28%) and service (10%). An important function the sector plays is the distribution of goods and services in rural areas. Capital, credit and labour are essential requirements needed to initiate and operate an enterprise successfully. Financial capital is capital needed to purchase equipment and materials to establish an enterprise. Once established, credit is essential for sustenance and expansion of a non-farm enterprise. These may be obtained as a loan, gift or personal savings from household savings, banks, remittances, money lenders and so on. However, access to credit facilities is limited. A large number of those households operating non-farm enterprises have not taken credit to finance their operations. Some of the financial institutions such as banks, financial agencies, and cooperatives do not structure their products to meet the needs of these enterprises. Moreover, the informal nature of the nonfarm economy makes it a high risk sector.

Labour is an important component of economic activities in rural area. This is due to poorly diffused technology in those areas. Technology and labour are substitutable; where more labour is used technology is underutilized. The data suggest that the underutilization of technology has implications for children's time use. The less the technology the more likely children will be used intensely in executing activities.

Nonfarm activities are however profitable to operate. The mean expenditure and revenue for non-farm enterprises for two weeks shows an average cost of Gh¢ 54.00 and

average revenue of Gh¢ 207.00. The net profit of the average non-farm enterprise over the same period is Gh¢153.

4.4.7 Access to Social Services

Increasing access to essential services contributes to sustaining the gains made in the income front. From the findings, access to basic social services such as water, electricity and liquefied petroleum gas is poor. The distribution of these services largely rests with state institutions charged to do so. Poor access to water has implication for the health of the pupil and their productivity. The health of the district risks being jeopardized looking at the grim picture captured in the statistics. Streams, rivers and other open water sources cannot be described as safe to consume. The surface water and open wells are prone to water borne diseases and their consumers suffer the risks of imbibing these diseases into their system.

In term of solid and liquid waste management the facilities available for dealing with these wastes are generally poor. The common method of disposing liquid waste is pit latrines, KVIP pan/bucket, public toilet, toilet in neighbour's house and bush visits. Flush toilets which guarantee a certain level of safety for it users are not widely used. Only about 4% of households enjoy this type of toilet facility.

The situation increases the public's susceptibility to the outbreak of epidemics should they occur. Flush toilets are quite expensive to construct and require piped water to operate. This could explain why they are not widely used. The use of safe method is essential to ensure sound health of the population.

Regarding household refuse, the method of disposal involves dumping, burning, and burying. The Assembly is responsible for providing and managing sites for the disposal of refuse. The management of these sites by way of regular burning or outright clearing therefore poses a challenge to the local authorities. The sight of mountains of refuse is common in the district especially the district capital and other urban centres. While efforts

by Zoom Lion Limited, a private waste management company engaged by the district is yielding some positive results, the lack of change of attitude on the part of residence of the district and weak enforcement of the Assembly's sanitation bye-laws are undermining progress chalked.

Poor health has the potential of derailing efforts at increasing productivity and reducing poverty. Common illnesses reported by households include fever, cold/coughs and watery diarrohea. Of particular concern is the fact that the illnesses reported are communicable and so urgent steps need to be taken to forestall the occurrence of pandemic.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

Nonfarm livelihoods are a major source of income in the Yilo-Krobo district. The annual income of households that engaged in the non-farm economy is higher than the incomes of those in the farm economy. Nonfarm household are therefore better off in terms of the ability to enjoy a variety of goods and services.

Nonfarm households earn incomes which place them above the upper and lower poverty lines estimated for the district. Thus such household cannot be described as poor. Their income is capable of meeting the household food as well as nonfood needs.

The various nonfarm activities are trade, manufacturing and service. Though access to capital for initiating and operating an enterprise is generally inadequate, the sector is profitable. The average cost of operating an enterprise is lower than the revenue earned. The growth of this sector of the rural economy is contributing to the transformation of the rural economy through the creation of opportunities for livelihood diversification and employment creation.

Education improves the capacity to diversify into other sectors of the economy. The education female in the nonfarm economy affects their income. It helps improve the knowledge to identify opportunities and threats to business. With education, a household stands a better chance to do well. Yet, nonfarm households have low educational attainment.

Household productivity reduces with the use of time consuming home management equipment and services. Nearly half of households live without electricity in their homes and more than that number has no access to the use to liquefied petroleum gas. Considering

the large number of women involved in the sector, the degree to which these are provided impacts on productivity of the household.

The state of public in the district does not paint a good picture. Most household dispose of solid and liquid waste improperly. While at the same time water is largely obtained from unprotected sources such as streams, rivers and ponds. Moreover, a common illness that affect nonfarm household is fever. This has the tendency to reduce the productivity of the enterprise through absenteeism and increased medical bills.

5.2 Recommendation

A major thinking in modern development discourse is the reduction of poverty especially in the rural areas. In spite of rapid urbanization, the rural areas are still home to a large number of people in the developing world. In this light the following recommendations are made.

Rural development is necessary for reducing poverty. This can be achieved through increasing the opportunities for diversifying the rural economy. The nonfarm sector holds a huge potential for reducing poverty and should be exploited. The Ministry of Local Government and Rural Development should make conscious efforts in this regard as it implements policies aimed at rural development.

Education is essential in the management of nonfarm enterprises. It is therefore important educational opportunities in the rural areas are increased so that a lot more people can have access. This must be supported by appropriate incentives to ensure continuity as pupils climb up the educational ladder. For those operating in nonfarm economy capacity building exercises is required enable them manage their enterprises effectively, especially in terms the resource use decisions.

Facilitating access financial capital is crucial to the continuous expansion of the nonfarm economy. Looking at the various forms of capital that one needs to initiate an livelihood activity, financial capital is the most essential and most hard to access. The banks and other financial institution will be required to develop and tailor their products to meet the needs of people involved in the nonfarm economy.

Productivity is closely linked to the health status of individuals. The high incidence of communicable diseases must be reduced through awareness creation on the need to maintain sound environment health. Waste management institutions charged with the collection and disposal of refuse should rise to the responsibility placed on them.

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APPENDICES

Appendix 1

reg logfarmincome nomwork hhsize ipercapitalf yeduf yedum yedf2

```
      Source |       SS       df       MS              Number of obs =    4105
-------------+------------------------------           F(  6,  4098) =  292.25
       Model |  3000.27194     6  500.045324            Prob > F      =  0.0000
    Residual |  7011.85315  4098  1.71104274            R-squared     =  0.2997
-------------+------------------------------           Adj R-squared =  0.2986
       Total |  10012.1251  4104  2.43960163            Root MSE      =  1.3081

------------------------------------------------------------------------------
logfarminc~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    nomwork |   .0032319   .0245995     0.13   0.895    -.0449965    .0514604
     hhsize |   .0682576   .0196288     3.48   0.001     .0297745    .1067406
ipercapitalf |   .0018853   .0000455    41.43   0.000     .0017961    .0019745
      yeduf |   .0534763   .0102232     5.23   0.000     .0334333    .0735194
      yedum |   .0010815   .0055909     0.19   0.847    -.0098798    .0120427
      yedf2 |  -.0049514   .0007222    -6.86   0.000    -.0063673   -.0035354
      _cons |   4.191593   .0447443    93.68   0.000      4.10387    4.279316
------------------------------------------------------------------------------
```

summary statistics of expected income of households enguaged infarming
summarize estat

```
    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
       estat |      5245    4.687107    .7814401    3.49181   19.94813
```

Appendix 2

reg logentincome nomwork hhsize ipercapitalf yeduf yedum

```
      Source |       SS       df       MS              Number of obs =    2152
-------------+------------------------------           F(  5,  2146) =   11.03
       Model |  112.674119     5  22.5348237            Prob > F      =  0.0000
    Residual |  4384.43217  2146  2.04307184            R-squared     =  0.0251
-------------+------------------------------           Adj R-squared =  0.0228
       Total |  4497.10628  2151  2.09070492            Root MSE      =  1.4294

------------------------------------------------------------------------------
logentincome |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     nomwork |   .1420411   .0325715     4.36   0.000      .078166    .2059162
      hhsize |  -.0583251   .0272887    -2.14   0.033    -.1118402     -.00481
ipercapitalf |   .0005225   .0001281     4.08   0.000     .0002712    .0007738
       yeduf |   .0011744   .0062403     0.19   0.851    -.0110632     .013412
       yedum |   .0184808   .0079997     2.31   0.021     .0027928    .0341688
       _cons |   5.260507   .0626834    83.92   0.000     5.137581    5.383434
------------------------------------------------------------------------------
```

summary statistics of expected income of households enguaged nonfarm enterprice
summarize estat2

```
    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
     estat2 |      5245    5.534624    .2643096   5.136314   9.843372
```

Appendix 3

reg logtotincome nomwork hhsize ipercapitalf yeduf yedum hhsize2

```
      Source |       SS       df       MS              Number of obs = 4674
-------------+------------------------------           F(  6,  4667) = 143.92
       Model |  1408.69721     6  234.782869            Prob > F      = 0.0000
    Residual |  7613.63719  4667  1.63137716            R-squared     = 0.1561
-------------+------------------------------           Adj R-squared = 0.1550
       Total |   9022.3344  4673  1.93073709            Root MSE      = 1.2773

------------------------------------------------------------------------------
logtotincome |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     nomwork |  -.0918325   .0242174    -3.79   0.000    -.1393101   -.0443549
      hhsize |   .1213356   .0260858     4.65   0.000     .0701952    .1724761
ipercapitalf |   .0012661   .0000444    28.55   0.000     .0011792    .0013531
       yeduf |   .0018924   .0038334     0.49   0.622    -.0056228    .0094075
       yedum |   .0072529   .0050555     1.43   0.151    -.0026582    .0171641
     hhsize2 |   .0019536   .0028533     0.68   0.494    -.0036403    .0075475
       _cons |   5.084291   .0550998    92.27   0.000     4.97627    5.192313
------------------------------------------------------------------------------
```