

Effects of Urban Periodic Markets on Rural Development in Ghana: A Rural Web Analysis

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Declaration

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27 August 2021

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Signature

Date

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Dedication

I dedicate this thesis to my dear wife, Mavis Kwarteng and daughter, Roselyn Dompok Addai who are with me in Adelaide and supported me to complete my Ph.D. studies.

Abstract

Rural areas in Ghana continue to experience limited access to and participation in urban markets, poor socioeconomic linkages between rural and urban areas as well as the decreasing returns for rural products and profitability of agriculture. These problems have led to increasing poverty and especially, within villages in the northern part of Ghana. Ghana's decentralisation policy clearly defines the responsibilities of the local councils to address rural problems through the implementation of projects including urban markets. However, the local councils have not paid much attention to urban periodic markets (UPMs) as a mechanism for rural development. This thesis primarily investigates the extent to which UPMs affect the rural economy of Ghana to inform policy decisions. The thesis adopts the Rural Web analysis to explore the effects of UPMs on important dimensions in selected villages in the south and north of Ghana to comprehend the contribution of these urban markets to rural development. The dimensions include novelty production, social capital, and the governance of markets, sustainability, endogeneity, and institutional arrangements. The study finds that UPMs are a form of an institutional environment that operates effectively by engaging rural households in trading activities. First, UPMs affect institutional arrangements in rural areas through the formation of groups and institutional collaboration. Second, UPMs affect social capital through the creation of social interactions among households within and outside the villages. Third, they affect the governance of markets by increasing the direct participation of rural households in urban markets. Fourth, UPMs affect endogeneity in rural areas by encouraging the sale of food crops, livestock, and poultry in urban markets. Fifth, they affect novelty production through the sale of value-added foods in urban markets. Finally, UPMs affect sustainability by encouraging the sale of organic foods in urban markets.

The formation of producer-marketing groups on market days enables farmers to overcome the difficulty of transporting their products to UPMs. UPMs engage the local councils to pay particular attention to road infrastructure through the rehabilitation of village roads. Group selling in UPMs helps farmers to determine the prices of their products. The social interactions that are generated during UPMs connect farmers to urban and international buyers. Farmers trade in foreign currency with international buyers during market days in urban areas with the possibility that they would earn a high income. The availability of transport services in villages during market days as well as the proximity of UPMs to villages increase farmers' direct participation in these urban markets. Rural farmers sold a larger proportion of agricultural products in the UPMs. Rural farmers are encouraged to increase the sale of value-added and

organic foods at the UPMs because consumers trust these products during market days. UPMs engage farmers in numerous non-farm jobs, which provide them with additional income. The study findings are relevant for Ghana's development policies that seek to improve standards of living in rural and urban areas. The study suggests that the local councils in Ghana should incorporate the activities of UPMs into their development policies to aid in promoting rural and urban interactions, as well as rural development.

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List of Abbreviations and Acronyms

GH¢	Ghana Cedi
GSS	Ghana Statistical Service
IFAD	International Fund for Agricultural Development
MoFA	Ministry of Food and Agriculture
NGOs	Non-Governmental Organisations
NPMs	Non-periodic Markets
PfJ	Planting for Food and Jobs
REP	Rural Enterprise Project
SAPs	Structural Adjustment Programs
UPMs	Urban Periodic Markets
US\$	United States Dollar
DAs	District Assemblies

Chapter 1. Introduction

This chapter introduces the research background of the entire thesis. The chapter presents the research problem, the aim of the study, the research question, and its objectives. It then presents a summary of the research methods, the significance of the study, and the outline of the remaining chapters.

1.1 Background and Problem Statement

With more than two-thirds of agricultural households living in rural areas in developing countries, rural development has become a top priority in the developing world (FAO 2012; Acheampong *et al.* 2018). Rural development can be approached by a bottom-up, decentralised, and participatory strategy that seeks to promote rural areas by utilising rural resources (Rogerson 2009; Kini *et al.* 2020). It encapsulates a wide range of diverse rural resources and the flow of those resources into a set of activities, transactions, and interactions (Ploeg and Marsden 2008). It hinges on the combination of economic, social, institutional, and environmental resources in rural areas. Due to its scope, several rural development policies have been formulated in developing countries to empower rural households to claim ownership of and gain control over their local resources. The policies achieve this through the implementation of rural development projects by local government institutions to support the livelihoods of rural households, achieve sustainable development, and the quality of life in rural areas. Examples of these projects include agricultural intensification programs, rural diversification programs, technology advancement, and infrastructure projects (Ellis and Biggs 2001; Ashley *et al.* 2001; Proctor 2014; Ferris *et al.* 2014; Walo 2016; IFAD 2021).

Ghana's rural development policies seek to develop the agricultural sector through the implementation of projects to increase agricultural production and distribution as well as non-farm employment (Owusu and Lund 2004; Yankson *et al.* 2016; Housso *et al.* 2018). The key initiatives are the Planting for Food and Job (PfJ) program, Rural Enterprise Project (REP), and the Fertilizer Subsidy Program. Others include the Emergency Support to Rural Livelihoods and Food Systems exposed to COVID 19 and the Affordable Agricultural Financing for Resilient Rural Development Project (International Fund for Agricultural Development [IFAD] 2021). These projects help farmers to obtain farm inputs, agricultural training, and financial assistance to encourage them to increase production.

Yet, rural areas in Ghana continue to face challenges. These include farmers' limited access to and participation in urban markets, and poor socioeconomic linkages between rural and urban areas as well as the decreasing returns for rural products and profitability of agriculture (IFAD 2003; Owusu and Lund 2004; Yankson *et al.* 2016; Houssou *et al.* 2018; Acheampong *et al.* 2018). These problems have led to increasing poverty in rural areas especially, within villages in the northern part of Ghana (Ghana Statistical Service [GSS] 2014; GSS 2016). Not only does rural poverty adversely affects the quality of life in rural areas but also it exacerbates urban poverty by stimulating mass migration to urban areas (Rahman 2004). Unless there is a conscious effort to actively engage rural households in the utilisation of their resources, rural development projects may achieve abysmal results (IFAD 2003; IFAD 2021).

Increasing the demand for rural products is an essential strategy to empower rural households to utilise their resources, improve food security, and enhance sustainable livelihoods (Acheampong *et al.* 2018; IFAD 2021). To achieve this, it is important to pay attention to activities that enhance the production, distribution, exchange, or interactions within and between rural areas. Encouraging the direct supply of agricultural and non-agricultural products from rural areas through the urban marketplaces is an incentive for increasing production, participation, and the consumption of rural products (Ward and Brown 2009; Berdegue *et al.* 2014; Stobart and Damme 2016; Lynch 2018; Karg *et al.* 2019). Urban periodic markets (UPMs) have the capacity to stimulate sustainable development in rural areas and facilitate bottom-up development through the strengthening of local participation, rural-urban connections, and the distribution of rural products (Dokmeci *et al.* 2006; Ronsijn 2014; Eff and Jensen 2014; Sabet and Azharianfar 2017; Karg *et al.* 2019).

UPMs occur at a definite place with agreed regular intervals that involve face-to-face interactions between farmers on the one hand and several buyers such as wholesalers, retailers, and direct consumers on the other hand. A similar form of UPMs are the flea markets in Denmark and France; the urban night markets in Singapore, Indonesia, and Malaysia; the weekly markets in Turkey and Iran; and the farmers' markets in the United States, Australia, and some parts of Europe. The difference, however, is the structures (such as rules and regulations) as well as the source of traders. Whatever level of trading activities observed in the above-stated markets, they involve primarily, the population of the market neighbourhood. However, UPMs in sub-Saharan Africa involve traders from both within and outside the market

districts or regions (Owusu and Lund 2004; Omole 2009; GoG 2018a; GoG 2018b; Karg *et al.* 2019).

UPMs have been increasing in developing countries since the 1970s. This growth in UPMs has come amidst pessimistic views from economic historians such as Henry (1971) and Pounds (1974) who have suggested that the number and size of UPMs will decline in Asia, Africa, and South America because of modernisation. Although modernisation has given rise to the growth of modern retail services such as malls and supermarkets, UPMs have increased in size and numbers in Africa, Asia, and South America. For example, the implementation of the Periodic Markets Projects in Zimbabwe in 1988 as a way of stimulating development led to the increasing numbers of these markets between 1988 and 1993 (Rambanapasi 1997). UPMs in Ecuador increased in their numbers from 1972 to 1995 (Bromley 1998). Between 1980 and 2002, UPMs more than tripled in Turkey (Dokmeci *et al.* 2006). UPMs in Nigeria also increased in their numbers from 2002 to 2008 (Omole 2009). The trends in these countries among others show that UPMs are on the ascendency in the developing world, and they promote rural development by integrating rural villages into the urban landscape through the creation of the platform for farmers direct participation in urban markets (Sabet and Azharianfar 2017; Karg *et al.* 2019).

UPMs have increased over the past 50 years in Ghana. Between 1960 and 1969, Ghana had 155 periodic markets that operated mostly in rural areas (Fagerlund and Smith 1970). Between 2010 and 2018, periodic markets in Ghana have increased to 233 and the majority (about 74%) are in urban areas (GSS 2014; GoG 2018a; GoG 2018b). The increasing rate of urban populations and the large consumption of fresh farm products by urban consumers has led to the growth of periodic markets in urban areas in Ghana (GSS 2014). The growth of periodic markets in urban areas in Ghana can be observed as an index of modernisation reflecting a response to the process of transition (Riddell 1974; Bromley 1998; Owusu, and Lund 2004; Dokmeci *et al.* 2006). Many studies (e.g., Wertheim–Heck *et al.* 2015; Crush and Caesar 2015; Stobart and Damme 2016) have argued that the growth of UPMs constitutes a central part of the rural and urban fabric and that these markets should be given attention in the pursuit of modernisation in the arena of rural development.

In fact, in Ghana, UPMs have become important avenues for trading, job creation, and livelihood support for both the rural and urban dwellers (Angmor 2012; Yankson *et al.* 2016; Acheampong *et al.* 2018). They play an important role in trading because of their flexibility or

coverage and location in urban areas. Between 80% and 90% of smallholder farmers in rural areas in Ghana, rely on UPMs for the sale of their agricultural products (Chagomoka *et al.* 2018; Karg *et al.* 2019). Concerning their flexibility, UPMs move from place to place in response to the demand for commodities thereby increasing their numbers and trading activities. The location of periodic markets in urban areas together with the flexibility of the markets as well as the attendance of buyers from several places in the markets offers incentives for trading and the commercialisation of farm produce in these markets (Sada *et al.* 1978; Dokmeci *et al.* 2006; Haggblade *et al.* 2010; Karg *et al.* 2019). UPMs, thus, offer enormous potential for improving rural products and rural development. It is emphasised in the extant literature, that to achieve rural development, amidst other rural development strategies, UPMs should be given the necessary attention (Rogerson 1997; Rambanapasi 1997; Sabet and Azharianfar 2017; Aram *et al.* 2019).

Ghana's decentralisation policy clearly defines the responsibilities of the local councils to address rural problems through the implementation of projects, including urban markets. However, these institutions have not paid much attention to UPMs as a mechanism for rural development at the local level. For example, the activities of these markets are not included in the development plans of District Assemblies in Ghana. Robertson (1995) and Owusu and Lund (2004) suggested that the lack of focus on trading activities including UPMs within the decentralised system will undermine the effort of local institutions to achieve the objectives of development in both rural and urban areas in Ghana. This is because agriculture is the main occupation for most rural dwellers within the District Assemblies and urban areas depend on rural areas for farm products through the urban markets. Therefore, the integration of UPMs into development plans is important to contribute to agricultural development in rural areas. Therefore, there is a need for a paradigm shift in Ghana's quest to achieve the objectives of rural development, and this can be done through the activities of UPMs.

1.2 Research Aim

Several studies have argued that there is a connection between periodic markets and rural development (e.g., Frischen 1972; McKim, 1972; Asamoah, 1980; Owusu, and Lund 2004; Aryeetey and Nyanteng 2006; Dokmeci *et al.* 2006; Ehinmowo and Ibitoye 2010; Ofori 2012a; 2012b; Angmor 2012; Ofori and Asiedu 2013; Eff and Jensen 2014; Yankson *et al.* 2016; Sabet and Azharianfar 2017; Acheampong *et al.* 2018; Karg *et al.* 2019). Unfortunately, none of these studies have provided empirical evidence to show the effects of UPMs on rural

development in Ghana. The current literature on periodic markets is still in its embryonic stage. It, therefore, requires scholarly studies that will inform policymakers about the unexplored potential of UPMs. The current study thus investigates the effects of UPMs on rural development in Ghana in areas such as production, distribution, interactions, and exchange of goods and services.

1.3 Research Question and Objectives

This study hinges on the overarching question: *To what extent do UPMs affect the rural economy of Ghana in areas such as production, distribution, interactions, and exchange of goods and services?* In addressing this research question, this thesis seeks to achieve the following specific objectives:

1. To examine the socioeconomic structures of rural villages in the southern and northern regions of Ghana.
2. To explore the effects of UPMs on rural villages in Ghana.

1.4 Significance of the Study

First, sufficient data on the characteristics of periodic markets is lacking in Ghana. A few studies such as Fagerlund and Smith (1970), Frischen (1972), and McKim (1972) provided data on some features of rural periodic markets in Ghana. They found that intervals between rural periodic markets and their location were the unique characteristics that differentiated them from the other markets. Yet, the findings of these studies are now outdated. There have been changes in the forms and spaces of both rural and urban areas over the last few decades in Ghana, which have affected the operations and locations of periodic markets. For example, urbanisation in Ghana has shifted periodic markets from rural to urban areas. Also, the previous reliance on a four-day market week is declining whilst the three-day market week is increasing in Ghana (see Section 3.3.1). For this reason, the findings of the previous studies on the characteristics of rural periodic markets may not be useful for policy decisions for the current situation in Ghana.

Though Ofori (2012a) and Angmor (2012) attempted to elucidate the features of UPMs, their data is lacking in vital areas such as the distribution systems of these markets. These studies have not provided data on the characteristics of UPMs including the producer-retailer roles of farmers, the size of UPMs, and location of these urban markets and their importance. This gap

in the current literature is unfortunate because it is only when these key features of periodic markets are identified precisely can explanations of their potential be sought extensively. Further research is therefore necessary to aid in precisely and accurately ascertaining the important features of UPMs in Ghana's economic space. This current study addresses the gap in the literature by first presenting data on UPMs across the regions of Ghana, the intervals between the markets, and the distribution of agricultural products in these urban markets (see chapter 3). The study also presents data on the socioeconomic characteristics of UPMs and their effects on villages in Ghana (see chapter 7).

Second, there is a lack of data on the effects of UPMs on rural development in Ghana. Periodic markets are increasing in urban areas in Ghana, and they have become hubs for rural farmers to trade in a variety of farm and non-farm products. This requires the attention of policymakers to understand the contribution of these UPMs to rural development. The lack of empirical data hinders evidence-based academic inquiry and analysis of the effects of UPMs in Ghana and the West African sub-region. The current study addresses the literature gap by providing empirical data to show the effects of UPMs on rural development in Ghana. The data is relevant for scholarly analyses of and discourses on rural development and local economic development in Ghana and the developing world.

Third, though the previous studies (e.g., Wanmali 1980; Rogerson 1997; Rambanapasi 1997; Madi 2004) looked at periodic markets and rural development in developing countries, they largely focused on rural periodic markets and therefore overlooked the effects of these markets on rural and urban interactions and their importance in rural development. Empirical data on UPMs within the context of rural-urban interactions is relevant because such interactions generate reciprocal benefits for both the rural and urban populations. The current study addresses this gap by providing data on the inflow and outflow of commodities and information between villages and urban centres through UPMs and their benefits for rural dwellers. In addition, the above studies revealed that periodic markets create employment for farmers because they work as part-time sellers in these markets. However, other non-farm jobs created by UPMs for rural farmers are less mentioned in the literature. This study contributes to the literature by looking at the role UPMs play in engaging rural farmers in other jobs apart from selling.

Fourth, the previous studies have not employed a comprehensive theoretical framework in analysing the effects of periodic markets on rural development, and thus they have ignored

some important dimensions of these markets such as their effects on socioeconomic interaction within villages. Therefore, this study employs the Rural Web (RW) analysis to address this gap. The Rural Web (RW) analysis integrates the traditional approaches (such as the sectorial, multi-sectorial, and territorial) to rural development that help researchers to capture the new and multifunctional characteristics of rural areas. Several studies (e.g., Tisenkopfs and Lace 2010; Ventura *et al.* 2008; Horlings and Marsden 2014) have used the Rural Web analysis to understand rural development in the United Kingdom and other European countries (such as Italy, Netherlands, Finland, Latvia, Belgium, Spain, and Germany, among others). These studies revealed that the six dimensions of the Rural Web analysis (endogeneity, novelty production, the governance of markets, sustainability, institutional arrangements, and social capital) provide an understanding of the strengths and weaknesses of rural areas and ways the weaknesses can be minimised to support the quality of life of the rural population thereby promoting rural development.

However, the application of the Rural Web analysis is lacking in sub-Saharan Africa, a region with low standards of living and thus in dire need of the sort of evidence provided by the Rural Web analysis to inform local economic policies. Rural areas in Africa, in general, experience increasing levels of poverty, which affect the quality of life in these areas (IFAD 2003; Weliwita and Okpala 2004). Governments and donor agencies have implemented several projects to reduce rural poverty in Africa. The application of the Rural Web analysis in this study to capture activities, projects, and transactions in rural villages in Ghana and the effects of UPMs on villages is appropriate to understanding the importance of these urban markets. By employing the Rural Web analysis, the study looks at the effects of external initiatives such as UPMs. However, the previous studies have overly focused on internal initiatives in the application of the Rural Web analysis thereby neglecting some important networks that are created by external initiatives (Munchhausen and Knickel 2010). The study also employs quantitative methods in the application of the Rural Web analysis, which is less emphasised in the previous studies.

1.5 Overview of Research Methodology

This study aims to investigate the effects of UPMs on rural development in Ghana. The study examines the nature and dynamics of rural development in villages in Ghana by using the Rural Web analysis to capture activities, resources, networks, or transactions. The Rural Web analysis and its dimensions have been proven extensively in the literature that enables

researchers to understand rural development and the quality of life in rural areas (Ploeg and Marsden 2008; Milone *et al.* 2010; Messely *et al.* 2013; Paddock and Marsden 2015; Horlings and Kanemasu 2015; Guinjoan *et al.* 2016a; Arato *et al.* 2017). The study then explores the effects of UPMs on resources and activities in selected villages in Ghana.

A field trip to two villages in the Ejisu-Juaben Municipality and two villages in the Sissala East Municipality was carried out to collect data from several respondents including farmers, village leaders (chief), market leaders, government officials, and leaders of village associations using a questionnaire and interviews. The surveyed sites were classified as South and North to determine whether the effects of UPMs vary with the socioeconomic conditions of villages. The study used the purposive sampling method to select key informants from the villages, the Municipal Assemblies, and the Non-Governmental Organisations (NGOs) for interviews. A systematic sampling technique was also used to select households in the selected villages. The face-to-face survey together with interviews helped the researcher to cover a wide range of respondents. The study used descriptive statistics, *t*-tests, correlation, and direct quotes to analyse the primary data.

1.6 Structure of the Thesis

The remainder of the thesis is organised into nine chapters. Chapter 2 reviews the literature on periodic markets and rural development. The chapter discusses the three approaches to rural development namely, the exogenous, endogenous, and neo-endogenous rural development. It presents the limitations of these approaches and suggests a new paradigm for understanding rural development. It also presents an overview of rural development policies and initiatives in Ghana, discusses their limitations, and suggests the need to integrate UPMs as a strategy for rural development. The chapter then reviews the literature of previous studies on periodic markets and rural development.

Chapter 3 presents an overview of UPMs in Ghana. It starts by giving the typology and the periodicity of urban marketplaces. It presents the historical development of UPMs in Ghana and their operational characteristics including the distribution systems and their locations.

Chapter 4 presents the theory and applications of the Rural Web analysis within the context of rural development. It presents an overview of the Rural Web analysis and its dimensions. The chapter discusses the limitations and strengths of the Rural Web analysis. It then reviews the

literature on applications of the Rural Web analysis and identifies some gaps within the existing literature.

Chapter 5 describes the research methodology. It presents the procedure and purpose for using the Rural Web analysis in the study. The research designs, study areas, participants, and sampling techniques are described. In addition, the data collection tools, evaluation of the research findings, and data analysis procedures are presented.

Chapter 6 presents the findings on the socioeconomic characteristics of the respondents. The chapter reveals that the major activities in the villages were the production of agricultural products including food crops, livestock, and poultry, value-added products, and organic foods. This chapter also shows that the success of these activities hinges upon the importance of social relations and cooperation in supporting rural households to engage in several agricultural activities.

Chapter 7 presents the findings on the effects of UPMs on the study sites. The chapter finds that a greater proportion of a household's production of agricultural products was sold at UPMs. The evidence also reveals that rural households were involved in several other activities and interactions within and outside their villages during urban market days.

Chapter 8 presents a Rural Web analysis of UPMs. The chapter finds that UPMs are strongly connected to the dimension of institutional arrangements, which affect the other dimensions of the Rural Web analysis within the context of rural development.

Chapter 9 presents the discussion of the research findings. The chapter first presents a discussion on the socioeconomic characteristics of the study sites. It then presents a discussion of the effects of UPMs on rural development including the effects on agricultural production and distribution, market participation, cooperative marketing, rural-urban interactions, rural road infrastructure, and non-farm employment, and sustainable development.

Chapter 10 presents a summary of the research findings and the contribution of the study to the literature. It also presents the implications of the study findings, notes the limitations of the study, and provides recommendations for further research.

Chapter 2. Rural Development and Periodic Markets: Concepts, Approaches, and Initiatives

This chapter presents an overview of rural development and periodic markets. It starts by giving some definitions and expressions of rural development. It then presents the approaches to rural development by highlighting the exogenous, endogenous, and neo-endogenous views of rural development. The major limitations of these approaches are discussed followed by a discussion on new pathways for understanding rural development. It further gives an overview of Ghana's rural development policies and initiatives, discusses the limitations, and suggests the need to integrate periodic markets as a strategy for rural development. The chapter also provides a discussion of the literature on the role of periodic markets in rural development and identifies some research gaps in this literature.

2.1 Key Concepts

The term *rural* is interpreted as space, place, and society in the western world (Cloke 2006). In the developing world, it is often interpreted as an area where infrastructure and human settlement cover small patches of the habitable landscape, which is subjugated by forest, pastures, mountains, and water. It is a place for people to spend working time on farms, with relatively cheaper land but poor infrastructure (Ashley and Maxwell 2001).

The definition of *rural* can be explained in three ways. The first can be thought of as functional concepts of rurality, which identifies the functional elements of the rural landscape. In this context, *rural* is defined as areas with extensive land use for agriculture and forestry, stimulated by a way of life based on respect for the environment and behavioural qualities of living as an integral part of the rural landscape.

The second definition of *rural* is associated with social constructions of rurality (Bunce 2003). The social constructivists suggest that the importance of *rural* lies in the fascinating world of cultural and moral values associated with rural life. On this basis, *rural* is detached from the geographical functional rural space but seen as abstract signification that defines the essential nature of rural space.

The third definition of *rural* links the internal characteristic of rural areas to the dynamics of both national and international political economies. The political-economic concepts of rurality

clarify the position and nature of rural areas in terms of production, consumption, trade, and the distribution of wealth. Through this conceptual lens, it is understood that the internal dynamics of rural areas can be influenced by external factors. The shift of attention from the strictly geographical definitions of *rural* to concede the differentiation of rural space as webs of local, regional, and national supply chains is important to increase the understanding of rurality. Thus, the definitions of *rural* have been acknowledged as an important element in rural and urban debates (Marsden 2010).

The definition of rural by population gives a clear distinction between rural areas and urban areas and this has been widely accepted. A rural area is generally defined as a less densely populated area and less concentrated of activities for institutional and commercial purposes. The understanding of rural areas by population characteristics defines three forms of rurality. This ranges from a small community (more than 3000 but less than 5000 people) on the periphery of cities and towns, to isolated villages (less than 3000 people) and hamlets (less than 2000 people) (Dijkstra and Poelman 2014). However, the population criteria for classifying a place as rural differs among countries. For example, a place with a population of 5000 people is regarded as rural in India while in the Philippines it is below 1000 people. In Vietnam, a rural area is a population of fewer than 4000 dwellers (Satterthwaite and Tacoli 2003; Hodge and Monk 2004; Yarwood 2005). A locality with a population of fewer than 5000 people is classified as rural in Ghana (GSS 2014). Despite these variations in the definitions of a rural area, however, the OECD universally defines a rural area as a place with a population density below 150 people per square kilometer (Diao 2010).

In addition, the OECD program on rural development classifies rural areas as remote, intermediate, and integrated areas (Diao 2010). Remote rural areas have a very low population density with poor roads and transport services. These areas are far from urban areas. Intermediate rural areas have high population density and are relatively far away from urban areas but have easy access to cities and towns because of good roads and the availability of transport services. Integrated rural areas are usually located near urban areas with a relatively high population density and good roads.

Rural areas in developing countries including Ghana are tagged with farming, being the major economic activity. Farming covers more than half (57%) of land in rural areas in Ghana with more than two-thirds of agricultural households living in rural areas and accounting for about 95% of crop production in the country (GSS 2014). Yet, rural areas in Ghana constitute a

majority of people with low socioeconomic backgrounds. Most people in rural areas live in deplorable conditions, and have low participation rates in development projects, they lack basic infrastructure facilities such as access to urban markets, endure poor roads, and also endure the impacts of and contribute to deforestation (Badu *et al.* 2013; Dijkstra and Poelman 2014).

Rural development issues have received attention in the developing world because of the multifunctional characteristics of rural areas and the problems farmers face (AGRA 2013; Zolfani and Zavadskas 2013; Ferris *et al.* 2014). Rural development is defined as the creation of new goods and services and the development of new markets or the maintenance of existing markets (Ploeg and Marsden 2008). Ellis and Biggs (2001) defined rural development as a participatory process that empowers rural households to exercise control of and combine different resources in rural areas for a change in their livelihoods. Rural development also concerns new technologies to reduce costs in agricultural practices (Ploeg *et al.* 2000).

It should be noted that the needs and expectations of people in rural areas could be met when marketing and cost reduction strategies are re-emphasised in rural development. This follows the process that rural development involves increasing the value of agricultural products by directing their distribution to urban markets, which creates multiple interactions between farmers and urban buyers. This draws attention to connections between rural and urban resources as important elements in rural development strategies and policies. The integration of urban markets in rural development initiatives enables farmers to engage in farm diversification or multiple job holdings in addition to their primary occupation, which is farming. This ensures the sustainability of rural areas by helping small and unprofitable farms to survive with the support of income from outside farming (Giourga and Loumou 2006). This in turn keeps the rural areas attractive to urban areas through the distribution of goods and services. Thus, the objectives of rural development are not only achieved through the enhancement of rural resources in rural areas but the creation and strengthening of positive interactions between rural and urban areas (Ploeg and Marsden 2008; Munchhausen *et al.* 2010).

It should further be noted that rural development is a multi-level, multi-actor, and multi-faceted processes that is concerned with institutional integration at the local, regional, and national levels (Scott and Murray 2009). Ploeg *et al.* (2000) presented several levels of understanding the multi-level processes in rural development. First, rural development involves the interactions between agriculture and society. This informs rural development strategies that

seek to realign agriculture to meet the increasing needs of society. The strategies can be related to an overall reformation of the rural economy that may result in considerable changes in the pattern of the relationship between society and agriculture. Second, rural development signifies a new developmental approach for the agricultural sector by emphasising the synergy between different farms and non-farm activities, which includes the ecosystem, local foods, and specific goods and services. Third, rural development can be operationalised at the level of the individual farm household that redefines the practices, interactions, and networks in rural areas. At this level, the emphasis is on the allocation of family labour between different farm and non-farm activities. Fourth, rural development can be understood at the level of the countryside and its economic actors. With the declining significance of agriculture, rural areas are no longer the monopoly of farmers. Therefore, rural development is not only about interactions between agriculture and rural areas but also at the level of urban areas as well as defined social and geographic space that can generate new forms of cooperation and activities (Ploeg *et al.* 2000).

Rural development is also a multi-actor process that re-emphasises the significant role of institutions and policies (Ray 2000). A decentralised policy that focuses on the relations between the local and national institutions strengthens the multi-actor processes towards rural development. Moreover, rural development is multi-faceted in nature because it clarifies the diverse interrelated practices such as agri-tourism, landscape management, nature conservation, agricultural innovation, organic farming, and direct marketing. These practices generate new forms of social cohesion that enable farm households to combine a range of economic activities (Knickel and Renting 2000).

The discussions above have highlighted that rural and rural development concern agricultural activities, production, consumption, rural-urban interactions, exchange, distribution of wealth, and direct marketing. These characteristics of rural development provide a broader context for this thesis to examine the effect of UPMs and they form important aspect of the research questions stated in Chapter one.

2.2 Approaches to Rural Development

This section presents the various approaches to rural development. These include endogenous, exogenous, and neo-endogenous rural development.

2.2.1 Exogenous approach

The exogenous approach rests on the idea of modernisation, which involves shifting from a technologically limited state to a technologically advanced state. The attention is given to agricultural industrialisation and specialisation, economies of scale, and the encouragement of capital and labour mobility (Woods 2011). The underlying logic is that rural areas are dependent on the urban areas for their development and that the key challenge for rural areas is the long distance to urban areas. The main force for rural development is conceived as emanating from outside rural areas. Therefore, rural areas are seen as backward economies with the focus on production and distribution to meet the increasing urban demand whilst urban areas become centres for growth and development. Policymakers fulfill an important role by supporting firms to relocate into rural areas and investing in communication and transportation networks between rural and urban areas. This leads to increased employment opportunities, improved technology, communication, and infrastructure (Ward *et al.* 2005; Atterton *et al.* 2011).

However, the exogenous approach has been criticised for creating dependent, dictated, destructive, and biased development towards rural areas (Galdeano–Gomez *et al.* 2010). First, the approach encourages the dependency on investment outside the rural economy and consequently, the returns of development were often not retained in rural areas. Second, the approach promotes a distorted development because it favours single sectors and certain types of businesses of the rural economy but neglects non-economic aspects of life in rural areas. Rural policies for exogenous development, therefore, obliterate the environmental and cultural potentials and uniqueness of rural areas. Third, the approach promotes non-participatory development, which creates a democratic deficit in rural areas. Therefore, exogenous rural development does not promote sustainable agricultural development in rural areas (Ward *et al.* 2005; Lowe and Ward 2007).

2.2.2 Endogenous approach

The approaches to rural development took a different direction after the economic crises in the 1970's (which included rapid inflation and petroleum shortages that led to stagnant economic growth). The idea of territorial development emerged, which focuses on endogenous development in rural areas (summarised in Table 2.1). The European community's LEADER initiatives and reform of the Common Agricultural Policy (CAP) in 1992 acknowledged the

endogenous rural development approach by directing efforts to develop rural areas using rural resources (Barke and Newtown 1997). This approach suggests that a rural territory has its own social, cultural, technological, economic, environmental, and institutional resources with unique development potential. It assumes that these resources hold the key to sustainable development. The main purpose of this approach is to enhance the socioeconomic conditions in rural areas through the mobilisation of internal resources. The resources undergo several changes, which result in more diversified economic activities in rural areas (Ploeg *et al.* 2000; Leon 2005; Pike *et al.* 2007). This emphasises the importance of supporting rural households to depend on their local resources and use their traditional knowledge to develop these resources.

Table 2.1 A Spectrum of rural development approaches

Major areas	Exogenous approach	Endogenous approach	Neo-endogenous approach
Key principle	Economies of scale and concentration.	Harnessing local (human, social, natural, and cultural) resources.	Interactions between local resources and external forces
Dynamic force	Urban growth poles	Local initiative and enterprises	Globalisation, technological change in information and communication
The function of rural areas	Food and primary production for expanding urban areas	Diverse service economies	Dynamic participation of local actors in external networks and development
The focus of rural development	Agricultural modernisation: encourage labour and capital mobility	Capacity-building programs	Improving local capacity and actors' participation in local and external initiatives
Major rural challenge	Low productivity	Limited capacity to participate in multiple economic activities	Resource allocation and competitiveness in global environment
Major criticism	Dependent, distorted, destructive, and dictated development	Relying solely on rural resources is not practically adequate	Operates at a level of inadequate empirical evidence

Source: Adapted from Ward *et al.* (2005) and Buchenrieder *et al.* (2007).

Endogenous rural development has undergone four major transformations during the twentieth century. These include the sectoral, multi-sectorial, territorial, and local models of endogenous rural development. The sectoral approach emerged after the Second World War when there was a decline in agriculture. The decline in agriculture led to a reduction in population density that triggered policies to target agricultural activities in rural areas through the provision of basic services. The idea was that increasing agricultural activities could enhance the development of rural areas. The focus was on farm businesses and ways of increasing farm

incomes through agricultural production and distribution. The governments implemented agricultural policies to stimulate agricultural productivity, food security, and agricultural employment. However, in the middle of the twentieth century, several factors affected the success of the sectoral approach to agricultural development. The changing nature of technology in agriculture together with the application of agricultural inputs imported from outside the rural areas reduced the economic impact of agriculture. In addition, the high costs associated with the distribution of agricultural goods and the inefficiency of agricultural policies undermined the success of the sectoral approach. Moreover, the approach was narrowly focused on agriculture, which missed both the non-agricultural potentials for farm businesses and opportunities for households to engage in other sectors of the rural economy. These factors reduced the holistic importance of agriculture in the rural economy (Organisation for Economic Cooperation and Development [OECD] 2006; Hodge and Midmore 2008).

The decline in agriculture led to an alternative approach: the multi-sectoral rural development approach. The multi-sectoral approach focuses on the interrelationships between different sectors in rural areas. The objective of rural development is to create employment opportunities for rural households in the agricultural sector and other sectors. Agricultural diversifications together with economic activities including tourism, recreation, and the industrial and service sectors gained attention in rural areas. Rural farmers were encouraged to engage in several alternative sources of income such as farm labouring, the use of land and buildings for non-agricultural purposes, value addition to farm products, and other non-farm and off-farm economic activities. The emphasis on non-farm and off-farm businesses was conceded as an opportunity to generate multiple incomes for rural households. This was also seen as a strategy to improve sustainable livelihoods and the quality of life in rural areas (Hodge and Midmore 2008). However, the limitation of the multi-sectoral approach was that it focused exclusively on specific sectors in rural areas, which missed other social and environmental issues. Keeble and Tyler (1995) and North (2014), therefore, describe the approach as partially multi-sectorial that necessitated an alternative approach to tackle rural development.

The territorial approach to rural development focuses on a general analysis of the conditions and sectors in rural areas. The governments implemented rural policies aimed to promote new or emerging economic activities across all sectors of the rural economy. Policies supported new changes in rural areas beyond agricultural diversifications and farm businesses (Hodge and Midmore 2008). The new changes included the location of new businesses in rural areas and

‘counter-urbanisation’ (Midgley *et al.* 2003). These changes were characterised by diverse patterns of development and not necessarily the changes within the agricultural sector (Hodge *et al.* 2002). The major driving force behind these changes was that rural areas are attractive places to live and work, which encourages people to migrate from urban areas to settle in rural areas (hence, counter-urbanisation) which promotes the establishment of new businesses. The increased congestion in urban areas and the development of transport networks at the periphery of urban areas also contribute to the new changes in rural areas (Woods 2005). It should be noted, however, that this approach has mainly been effective in advanced countries. By contrast, counter-urbanisation for example is not an emerging issue in the developing countries because of poor and inadequate infrastructure facilities in rural areas and between rural and urban areas (IFAD 2003; Badu *et al.* 2013). Rather, the poverty situation in rural areas in developing countries has promoted out-migration affecting the sectors of the rural economy. Thus, while rural policies under the territorial approach can increase employment opportunities in advanced countries through the establishment of new businesses in rural areas, it may not be an effective strategy in developing countries.

In addition to the above, the territorial approach highlights, that rural areas experience different problems because the areas have dissimilar characteristics (Hodge and Monk 2004). An initiative implemented in one rural area may result in a positive economic impact but a negative impact on another area. One example can be seen in the rural policies in the United Kingdom where some rural areas perform relatively well in economic terms, but certain areas continue to face employment problems and low wages. The development of rural areas differs and depends on the characteristics or circumstances in the areas. However, in a rural area with employment problems and lower turnover, Lowe and Ward (2007) argue that it does not matter what sort of economic incentive is introduced in the area. Any type of new activity can generate multiplier effects on the sectors of the rural economy, which can, in turn, generates new opportunities for the rural population. Hence, even though the effect of policies differs among rural areas, rural development programs under the territorial approach may positively affect rural economies.

The territorial approach however has some limitations. First, it is difficult to identify the contribution of each sector of the rural economy because of the variety of changes and different conditions in rural areas. Rather, opportunities in rural areas depend on the local characteristics such as the topography or natural environment and the availability of employment clusters in

nearby urban areas. Second, the territorial approach does not focus on the variations in incomes and welfare among rural populations and specific local circumstances (Hodge and Midmore 2008). Third, in the territorial approach, the notion is that the provision of services in rural areas depends on the population and the demand for these services. However, other factors such as centralisation, privatisation, and increased mobility also affect the provision of services in rural areas (Stockdale 2004). Fourth, the assumption that the solution to unemployment in rural areas lies in job creation must consider several factors such as poor transportation services and inadequate skills in rural areas which can affect access to employment opportunities.

A response to the above limitations led to the introduction of an individual approach to rural development. Rural policies under the individual approach sought to address the challenges of disparity in resource distribution, and policies aimed at strengthening the distribution of resources towards specific individual problems at the local level. The objective is to connect development policies at the national level to the problems and priorities at the local level through the local government institutions (Lee *et al.* 2005). Different types of local institutions (both public and private) such as the Local Councils, Community-Based Organisations (CBOs), and NGOs are involved to ensure that there is equity in the delivery of rural development initiatives. The role of these institutions is to build social capital or networking among rural actors to facilitate the delivery of services and information and to ensure the coordination of activities. These efforts enhance the capacity to consider wide range of local experiences. The local approach to rural development highlights the importance of investing in and sustaining social capital as legitimate components of rural development (Hodge and Midmore 2008). The major criticism of this approach is the problem of participation and the notion that elites should lead the rural territory. Critics argued that with this approach, there is a tendency for endogenous development initiatives to favour powerful actors in the control of rural resources (Shucksmith 2000).

2.2.3 Neo-endogenous approach

Although the endogenous approaches (presented above) are useful in rural development, many studies (e.g., Ray 2001; Ward *et al.* 2005; Bosworth 2009; Atterton 2011; Gkartzios and Scott 2013) have argued that they do not adequately integrate the importance of external initiatives and interactions. These scholars stressed that rural development goes beyond endogenous and exogenous approaches and thus, a hybrid approach that focuses on the interrelations between

the rural economy and its wider socio-economic, institutional, and political environment is important.

The critiques of the endogenous approach to rural development led to an alternative model, the neo-endogenous rural development approach. Proponents of this approach are of the view that endogenous and exogenous approaches to rural development should be understood as ideal models that are contrasting but can never be exclusive in rural development (Ray 2006; Lowe and Ward 2007; Lowe 2012). They maintain a bottom-up, decentralised, and participatory strategy that seeks to promote rural development by utilising rural resources. Also, they argue that rural households have the capacity to initiate development for themselves; yet they acknowledge that external factors influence the endogenous development potential of rural territories (Brunori and Rossi 2007; High and Nemes 2007). The potential of rural areas depends on both the local resources and those outside rural areas (extra-local resources), and the exchanges of these resources (Weliwita and Okpala 2004; Ward *et al.* 2005; Walo 2016). The foregoing suggestions of the neo-endogenous approach have driven the approach to the forefront of rural development discourses in the literature (Murdoch 2000; Terluin 2003; Ray 2006; Lowe and Ward 2007; Tolin–Becerra *et al.* 2010; Petrick 2013; Smetkowski 2018; Canete *et al.* 2018).

The neo-endogenous approach describes the socio-economic resources in rural areas by highlighting the relations between rural enterprises and their spatial context (Atterton *et al.* 2011). This is based on the notion that the re-organisation of interventions away from individual sectors to include a variety of local territories clearly explains the social and economic resources of the rural economy. This increases the capacity of rural households to assume greater influence by re-orienting development initiatives around local resources and the integration of local values, practices, and culture. It brings to the fore the need to promote active participation in the design and implementation of local initiatives. Through these integrations and re-organisations, the needs, capacities, and status of the rural populations are identified (Ray 2006).

In addition, the approach highlights, that external interactions, and activities form essential elements in influencing the socioeconomic conditions of the rural economy. This enables the integration of many actors in the process of ensuring a participatory and bottom-up development in rural areas. The objective is to harness rural resources whilst also identifying the importance of external influences on local resources. The reason is that external interactions

generate opportunities for rural households to enhance the development and growth of local businesses through the creation of new business relations and information for innovative practices. In this context, local actors are involved in both internal and external developmental initiatives in their territory, which develop their capacity further to take advantage of external benefits. Proponents of neo-endogenous rural development, therefore, retain belief in the potential of rural resources but argue that external interactions can increase the capacity of rural areas to add value to local resources (Ray 2001; Atterton *et al.* 2011).

2.3 A New Paradigm of Rural Development

It should be emphasised that many activities and resources drive economic development in rural areas. These include land, markets, labour, the eco-systems as well as rural-urban interactions that reconfigure the way in which resources in rural areas are utilised (Ploeg and Frouws 1999; Ploeg *et al.* 2000). These rural resources have become multidimensional because they are linked with other rural and non-rural resources, which fulfil different functions at the household, local, and regional levels (Knickel and Renting 2000; Ploeg *et al.* 2000; Ventura *et al.* 2010a). The diversity of resources and activities in rural areas indicates that the areas have experienced new changes.

Contemporary rural changes have evolved multifaceted interactions and interdependence in diverse contexts. Rural development has taken on a new paradigm that defines rural areas as consumer spaces, involves agro-food systems, and includes the regeneration of the rural social scope (Guinjoan *et al.* 2016a). Rural areas are no longer a production space but a consumption space that explains the multi-functionality of the areas and the commercialisation of the rural heritage. This multi-functionality is a concept that moves beyond the rural space as simply a production space and supports the idea that the value of agriculture is based on the environmental and social benefits it generates (Atance and Tio 2000). Several studies (e.g., Murdoch 2000; Lopez 2005; Marsden and Sonnino 2008; Landini *et al.* 2017) have considered the multi-functionality of rural areas as the nucleus of the new paradigm of rural development which reconstitutes the value of agriculture to the current needs of the rural population. However, the multi-functionality occurs in a capitalist context (such as a competitive market, a price system) which can encourage the exploitation of the environmental and social benefits of agriculture. For example, culture or heritage, nature, and landscape have been transformed into goods that can be sold or bought (Ray 2001; Horlings and Marsden 2014).

Further, the agro-food systems emphasise the multifunctional agriculture in rural areas with the notion that agriculture plays a central role in the new paradigm of rural development. The growing adaptation of agricultural practices with a sustainable focus is on a complete agreement with the new paradigm of rural development and it delineates a transition from the dominant agro-industrial pattern towards a new territorial and integrated agri-food pattern (Wiskerke 2009). This draws attention to sustainability, one of the dimensions of the new paradigm of rural development. This redefinition of the agri-food system has drawn attention to the importance of quality products and the new food supply chains which form the basis of rural development strategies for increasing employment opportunities, the creation of value-added ideas, and re-building the value in the agri-food system (Marsden *et al.* 2000; Goodman 2003).

In addition, the regeneration of the rural social scope focuses on the role of social capital in rural development. This involves continual social interactions between individuals and groups that build cooperation, confidence, and social norms. Social capital is therefore regarded as important in rural development because it expedites the attainment of rural development objectives. In turn, it brings to the fore, many other conceptual contributions such as social innovations, governance, and capacity building in rural development strategies (Lee *et al.* 2005).

The multi-functionality of rural areas has led to new networks, resources, and practices, which require new rural development approaches to reflect adequately the new rural changes. An approach that focuses on the territory rather than the sectors is required for the analysis of the new multifunctional changes in rural areas (OECD 2006). Yet, it seems that the traditional approaches (as presented above) have not captured adequately these new changes. The previous approaches have taken a homogenous direction, which overlooks the diversities in the rural socioeconomic dynamics. Further, they have not been well integrated to capture the new changes and differentiated situation in rural areas thereby, making it difficult to obtain a coherent overview of what rural development is and what it involves (Saraceno 1999; Marsden and Sonnino 2008; Hodge and Midmore 2008).

This calls for the development of new comprehensive theoretical frameworks to coordinate these fragmented rural development approaches. Such comprehensive frameworks will enhance the understanding of the nature, dynamics, and heterogeneity of the current rural development processes. These new frameworks need to clarify the new rural resources and

how these are generated. It is also important for the new frameworks to explain ways the irrelevant resources in rural areas are turned into valuable resources and how, after merging the resources with others, they meet the interests and needs of the people. Moreover, the new frameworks should consider the sustainability of agriculture together with a host of other rural and non-rural activities that are important to the creation of several sources of livelihoods, without largely focusing on farming as the panacea to rural development problems (Ploeg *et al.* 2000; Knickel and Renting 2000; Bock 2016; Bosworth *et al.* 2016). By doing so, rural policies and initiatives based on the new frameworks can help to identify different factors influencing the economic resources and the new changes of the rural economy and address them accordingly.

2.4 Ghana's Rural Development Policies and Projects

Ghana has implemented several rural development policies and projects that sought to reduce poverty and enhance the opportunity for growth and development in rural areas. These are discussed as follows.

2.4.1 Changing paradigm of rural development policies in Ghana

The first people to come to Ghana in the fifteenth century was the Portuguese who traded for gold and ivory. This was followed by the arrival of the Dutch, Spanish, and English who built forts along the coast. In the seventeenth century, trading was shifted from gold and ivory to slaves because of the large demand for cheap labour by the Europeans to produce raw materials. The tackling of rural development during this time was the establishment of the Department of Social Welfare and Community Development. Ghana adopted the community development approach towards rural development, and this led to the construction of community centres, social clubs, and youth centres as the basis of welfare work. The community development approach aimed at stimulating the local population to undertake self-help projects to improve their standards of living (Nsiah-Gyabaah 1998).

Ghana has implemented several rural development strategies and policies since the 1920's (summarised in Table 2.2). A 10-year development plan was implemented between 1920 and 1930 that sought to increase the production of cash crops. The attention was given to rural areas that produced cocoa, oil palm, coffee, and rubber, and farm inputs were distributed to farmers. However, this rural policy was biased against rural development. Only farmers within the production forest belt were trained to adopt innovative practices in farming, which led to

unbalanced investments in rural areas. The production of these crops was also to serve the interests of the colonial rulers rather than developing the human potential of the rural economy. For these reasons, rural development under colonial rule in Ghana did not enhance the potential resources in rural area (Dinko 2017).

Table 2.2 Overview of Ghana's rural development policies since the 1920's.

Policy	Year of implementation	Focus
10-year development plan	1920–1930	Reliance on the export of cash crops
7-year development plan	1963–1970	Production of goods to feed the local industry
5-year development plan	1982–1987	Self-dependency to develop the agricultural and industrial sectors
Structural Adjustment Program	1983–2007	Revived the agricultural sector through diversifications and exports
Decentralisation Policy	1988 to date	Reducing rural poverty through the strengthening of rural and urban interactions

Source: Author's construct (based on the literature)

Mindful of the drawbacks of the colonial 10-year development plan, post-colonial Ghana implemented a 7-year plan between 1963 and 1970, which aimed at achieving a balance between agriculture and industry (Ghana Planning Commission 1970). This strategy focused on increasing the production of cash crops, food crops, and other non-farm goods to feed the industries. It prioritised both cash and non-cash crops with the intention to close the poverty gap between cash crop farmers in the south as well as non-cash crop farmers in the north of Ghana to achieve food sufficiency. The welfare of farmers was therefore the central idea of rural development. As such, the policy mainly considered farmers in the northern part of Ghana due to the high incidence of poverty in the region. Investments in the form of new mechanisation and extension services were provided for some villages in the Northern Region with the objective of increasing the production of vegetables, sugarcane, and groundnuts to reduce the importation of these products (Nsiah–Gyabaah 1998). In pursuit of the agenda of this policy, the idea of modernisation dominated, and industrialisation became the pivot for achieving socioeconomic development. Rural areas were motivated to produce raw materials to feed industries in the urban areas. Through this initiative, the 7-year development plan emphasised industrialisation during the late 1960's as the driver of rural development in Ghana.

The idea of self-dependence emerged and became a debate between the developed and the developing countries. The debate centered on the need for developing countries to become self-reliant. Like other developing countries, this self-dependency concept influenced Ghana's rural

development policies. Ghana, therefore, developed a 5-year development policy between 1982 and 1987 with the aim of building an independent economy through the development of the agricultural and industrial sectors (Ahiakpor 1985). This policy was different from the previous 7-year policy. Whereas the 7-year policy emphasised industrialisation as the driver of rural agricultural development under the modernisation regime, the 5-year policy presented agriculture as a prerequisite for industrial development in Ghana. In pursuit of the 5-year policy, there was a shift in policy towards financing rural agriculture. Ghana established rural community banks to finance smallholder farmers in rural areas. Commercial banks in Ghana provided 20% of their income portfolio to support the agricultural sector. Ghana achieved food sufficiency, which reduced its dependence on the importation of foods. However, the 5-year plan was fettered by the high costs of inputs. This compelled farmers to sell their farm produce below the actual market price. This led to a decline in farmers' interest in agriculture, which affected agricultural productivity and the livelihoods of the rural population (Opoku 2010).

The idea of foreign investment was accepted as means for revamping the agricultural sector in Ghana, and the self-dependency concept for achieving the objectives of rural development was rejected (Dinko 2017). Ghana embraced the neoliberal economic adjustment policies such as the Structural Adjustment Programs (SAPs) in 1983. The SAPs aimed at reviving the agricultural sector through diversifications and exports. Agricultural diversifications led to the production of goods with the highest comparative advantage. Government interference in production was limited to the provision of basic infrastructure in rural areas and a legal environment that encouraged private sector participation. The SAPs improved infrastructure services in rural areas, which translated into better standards of living for the rural population. Although the export sector expanded, SAPs increased inequality between rural areas and urban areas. The urban institutional structures syphoned the benefits from the export expansion. SAPs, therefore, ignored the multidimensional complexity of rural development in Ghana (Kraus 1991).

Ghana then implemented the Decentralisation Policy in 1988. The policy devolves political, fiscal, and administrative authority to local councils with the aim of promoting participatory democracy at the local level (Ministry of Local Government and Rural Development, 2010; Ahwoi 2010). It emphasises the need for effective interactions between urban and rural areas within a decentralised political, administrative, and planning framework. The government through the local authorities provides several projects in rural areas to develop the agricultural

sector by increasing agricultural production and distribution. The policy informs much of the drive to eradicate rural poverty and promoting rural development through agricultural modernisation. This has led to the introduction of new programs including the Medium-Term National Development Policy Framework (MTNDPF) and the Ghana Shared Growth Development Agenda 2.

2.4.2 Key rural development projects in Ghana

Ghana has implemented several rural development projects to eradicate poverty in rural areas. The projects were aimed at developing the agricultural sector, infrastructure, enterprises, and ensuring social protection in rural areas (see Figure 2.1). Within the agricultural sector, the Fertilizer Subsidy Program and the Northern Rural Growth Project were implemented in 2008 and 2009, respectively. These projects sought to increase food production, achieve food security, and reduce rural poverty.

Whereas the Fertilizer Subsidy Program encourages farmers to intensively use specific types of fertilizer such as NPK 15:15:15, NPK 23:10:05, urea, and sulphate of ammonia, the Northern Rural Growth Project increased farmers' access to loans through the formation of farmer-based organisations. As part of the Fertilizer Subsidy Program, Ghana has implemented the PfJ program in 2017, which is ongoing in almost all villages in the country. The PfJ aims to increase food production through the distribution of subsidised farm inputs (such as fertilizer and seedlings) to farmers and increase their access to market information (Ministry of Food and Agriculture [MoFA] 2017). The PfJ has supported agricultural activities and transformed rural areas to be competitive for the markets through the production of varieties of crops (Tanko *et al.* 2019; Ansah *et al.* 2020). Ghana has also implemented new ongoing projects that seek to increase food production and achieve food security. These include emergency support to rural livelihoods and food systems exposed to the impacts of the global COVID 19 pandemic in 2020 (ongoing) and the affordable agricultural financing for resilient rural development projects (IFAD 2021).

The phases 1 and 2 of the Rural Enterprise Project sought to create new businesses in rural areas to increase employment opportunities and income for the rural population. Microfinance, business advice, and new technology services have been provided for farmers. This project has helped to expand businesses in rural areas that support the main economic activity, which is farming (Yawson *et al.* 2010). Based on the performance of phases 1 and 2 of the Rural

Enterprise Project, the Ministry of Trade and Industry has extended the project (phase 3) to cover all rural districts in Ghana, by integrating it with the public and private institutional systems. The new project seeks to develop the skills of poor rural households to set-up their own businesses through their access to grants. The aim is to increase the number of rural enterprises that can generate profit, growth, and employment opportunities (IFAD 2021).

Furthermore, rural infrastructure development projects implemented in Ghana include the Village Infrastructure Project between 1998 and 2004, the Community Health Planning Systems in 1999, the Community-Based Rural Development Project in 2004, the Sustainable Rural Water and Sanitation Project in 2010, and the Millennium Village Project in 2012. These projects sought to improve infrastructure facilities for agricultural development in rural areas. Farm trucks and feeder roads have been rehabilitated, and health facilities and boreholes have been constructed in some rural areas. Wind pumps have been installed in rural areas to pump underground water for small irrigation schemes. Generally, these projects have increased rural household access to basic social amenities, thereby improving the standards of living in some rural areas (Clemen and Demombynes 2011; Send-Ghana 2013; Badu *et al.* 2013; Baah–Kumi and Yu–Feng 2016).

Moreover, social intervention projects such as the Livelihood Empowerment Against Poverty, the Ghana Social Opportunities Project, the Ghana Decent Work Project (GDWP), and the Presidential Special Initiatives (PSI) have been implemented to support rural areas since 2001. Livelihood Empowerment Against Poverty and Ghana Social Opportunities Project, for example, seeks to provide financial support to orphans, vulnerable children, extremely poor, and people above 65 years, as well as People Living with Disability in rural areas to meet their basic needs. The GDWP aims at building the capacity of the rural population to utilise their local resources through partnerships with private stakeholders facilitated by the local councils. The project has led to the establishment of statutory sub-committees at the district level which serves as a rallying unit for stakeholders at the local level. The PSI aims at developing rural areas through agricultural intensifications and diversifications. It is noteworthy that the above stated projects have all reduced the poverty level in rural areas (Yawson *et al.* 2010; Clemen and Demombynes 2011).

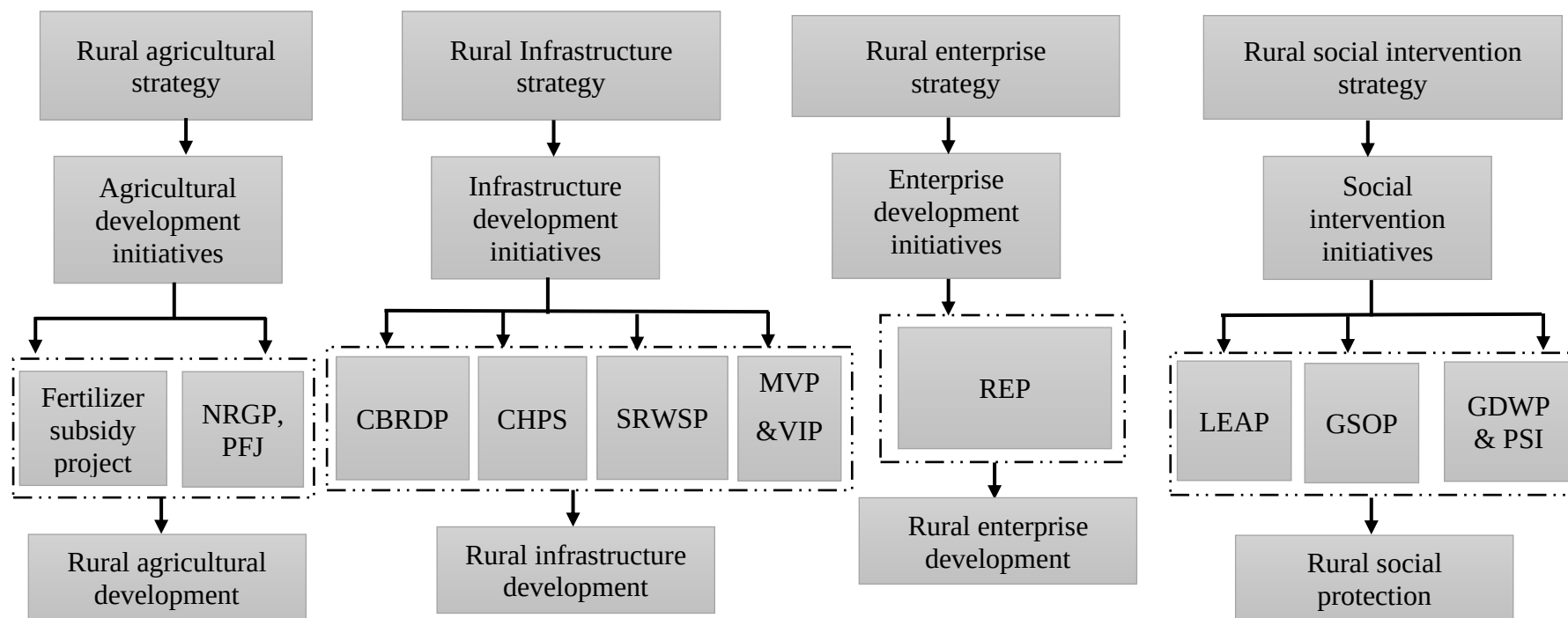


Figure 2.1 Rural development projects in Ghana

Note: Northern rural growth project (NRGP); Community based rural development project (CBRDP); Livelihood empowerment against poverty (LEAP); Community health planning systems (CHPS); Ghana social opportunities project (GSOP); Rural enterprise project (REP); Sustainable rural water and sanitation project (SRWSP); Ghana decent work project (GDWP); Millennium village project (MVP); Village infrastructure project (VIP); Planting for food and jobs (PFJ).

Source: Author's construct

2.5 Limitations of Ghana's Recent Rural Development Program

Ghana's rural development program including the Decentralisation Policy has helped to promote rural development and reduce poverty to some extent, but much still remains undone. In fact, the implementation of the policy at the local level has been informed by the exogenous approach. The local councils have taken centre stage in rural development. They plan for the rural dwellers instead of planning with them. The local institutions implement most projects in rural areas, but they have failed to actively engage rural households from the inception to the completion and management of these projects (Owusu and Lund 2004; Yankson 2008). The institutions have taken rural households as passive agents who are not capable of ensuring transformation in their own territory. The implementation of projects in rural areas has not adequately promoted local participation because the local institutions continue to manage these projects and have thereby given limited opportunities for rural households to be involved. This exclusion of rural dwellers from taking initiatives by themselves has led to their paucity of knowledge and information on the development potential of rural areas in Ghana (Baah-Kumi and Yu-Feng 2016; Dinko 2017).

In addition, partisan politics have adversely affected the implementation of the Decentralisation Policy. Dinko (2017, p.1) examined the changing faces of rural development programs in Ghana and described Ghana's Decentralisation Policy as "a human political agency crafted for capital and natural resources potential to the neglect of real potentials and capabilities of the human capital". Inadequate funds and power-dominance have also led to the failure or abandonment of several projects in rural areas under the current policy. Unless there is a strong commitment to the course of rural development and a conscious effort to actively involve rural actors, rural development projects under the current policy will achieve abysmal results.

It is important to build the human resource capacity in rural areas through training and education to enable rural households to utilise their own resources without compromising the future use of resources. This can reduce the problem of low participation among rural households that has been the case during the implementation of projects by the local councils in Ghana. In addition, it has become necessary to strengthen the interactions between rural and urban areas to encourage innovative practices in production and diversifications and transform the mindset of farmers that farming is not only a way of life but also a livelihood activity (Woods 2011; Houssou *et al.* 2018).

Farmers' access to urban markets generates interactions and encourages participation between the rural and urban areas (Owusu and Lund 2004; Yankson *et al.* 2016; Stobart and Damme 2016). As part of the approach to achieving the objectives of rural development, there is the need to integrate urban markets as a strategy for rural development (Rogerson 1997; Ploeg and Marsden 2008; Houssou *et al.* 2018). Rambanapasi (1997) argued for a more integrative rural development policy through the periodic markets system. The author stated that Zimbabwe had embraced the concept of the Periodic Markets Project as part of the government's Transitional National Development Plan to strengthen the socioeconomic linkages between the rural and urban areas. The integration of periodic markets in Zimbabwe's development policy had stimulated local participation and interactions between rural and urban areas. Yet, the implementation of Ghana's Decentralisation Policy at the local level has not paid much attention to the value of periodic markets in supporting rural development and rural livelihoods. The neglect by the local councils on periodic markets can demoralise the effort of these institutions in promoting rural development in villages (Robertson 1995; Owusu and Lund 2004). This requires the attention of researchers and policymakers.

2.6 Periodic Markets and Rural Development

This section reviews the literature on periodic markets and their importance in rural development. The gaps in the literature are discussed.

2.6.1 Conceptual review

Periodic markets involve trading in agricultural and non-agricultural products. In developing countries, agricultural products constitute the largest proportion of all products in the periodic markets (Owusu and Lund 2004; Yankson *et al.* 2016; Iormba and Adeeyo 2018). For example, Angmor (2012) found that agricultural products constituted between 70% and 80% of all goods in the Asesewa and Agormanya Periodic Markets in the Eastern Region of Ghana. Rural areas produce the majority of agricultural products traded in the periodic markets (Dokmeci *et al.* 2006; Ehinmowo and Ibitoye 2010; Eff and Jensen 2014; Sabet and Azharianfar 2017; Karg *et al.* 2019). Periodic markets, therefore, play an important role in the food supply chain in rural areas.

Trading of agricultural products in periodic markets involves both middle agents and farmers' direct supply to these markets (see Figure 2.2). Middle agents visit several villages to gather agricultural goods and transport them to UPMs (Berry *et al.* 1988; Bromley 1998), while some

farmers mobilise farm produce from their colleague farmers and sell them in periodic markets through middle agents. Further, farmers also supply farm produce directly to periodic markets. These levels of distribution systems can increase the volume of agricultural products from rural areas to the periodic markets.

The direct distribution of farm goods to periodic markets can support farmers to trade with urban buyers (Little 2004; Eff and Jensen 2014). This can enable farmers to avoid selling to middle agents only and offer them the chance to bargain the prices of goods with buyers directly in the periodic markets (Yankson *et al.* 2016). In fact, through this negotiation, farmers can obtain a better price for their produce, which can increase their profit (Ronsijn 2014; Houssou *et al.* 2018). As well, the direct distribution of farm goods to periodic markets can enable farmers to purchase other goods not produced in their villages (Bazerghi *et al.* 2016). Periodic markets can therefore boost the ability of farmers to gain control over sales and prices of their agricultural goods.

Periodic markets support the production of farm products in rural areas. It should be noted that agricultural products in rural areas are in large demand by the urban population (Oostinde *et al.* 2008). Periodic markets in urban areas involve a large pool of buyers, which is capable of increasing the demand for rural farm goods (Dokmeci *et al.* 2006; Sabet and Azharianfar 2017). Periodic markets also serve as import and export centres for rural products. These markets receive products in bulk from several places, and they are distributed to other regional or national, and international markets thereby increasing the demand for rural products (Karg *et al.* 2019). Urban demand for goods and services through periodic markets involves buyers' expectations of good quality products. This expectation can encourage the production of value-added or organic foods in rural areas and their distribution to periodic markets (Lobley *et al.* 2009; Morshedi *et al.* 2017; Kini *et al.* 2020). The large demand for agricultural goods in periodic markets is an incentive for farmers to commercialise their products in these markets.

Several studies (e.g., Masaru and Natha 2013; Ronsijn 2014; Yankson *et al.* 2016; Chagomoka *et al.* 2018; Acheampong *et al.* 2018; Karg *et al.* 2019) examined production systems in rural areas and their relationship to periodic markets. Masaru and Natha (2013) found that rural households in Vietnam increased production in response to the large population and the increased demand for goods and services in UPMs. Ronsijn (2014) argued that farmers in Belgium responded to the increasing urban demand for goods and services and the corresponding prices in periodic markets by selling a greater proportion of their products to the

markets (see also Rogerson 1997; Dokmeci 2006; Eff and Jensen 2014 for similar findings). Yankson *et al.* (2016) and Acheampong *et al.* (2018) revealed that rural households prefer to sell a larger proportion of their products at the periodic markets in the district capital (urban areas) than in non-periodic markets (NPMs) which are the daily permanent markets, because of the larger demand in these markets. This corresponds with other studies such as Jayne *et al.* (2003), Finan *et al.* (2005), Cotula *et al.* (2006), Das (2017), and Gebrehiwot *et al.* (2018) who revealed that smallholder farmers increase their farm size, produce more food crops, and sell a greater proportion of them to larger markets in urban areas.

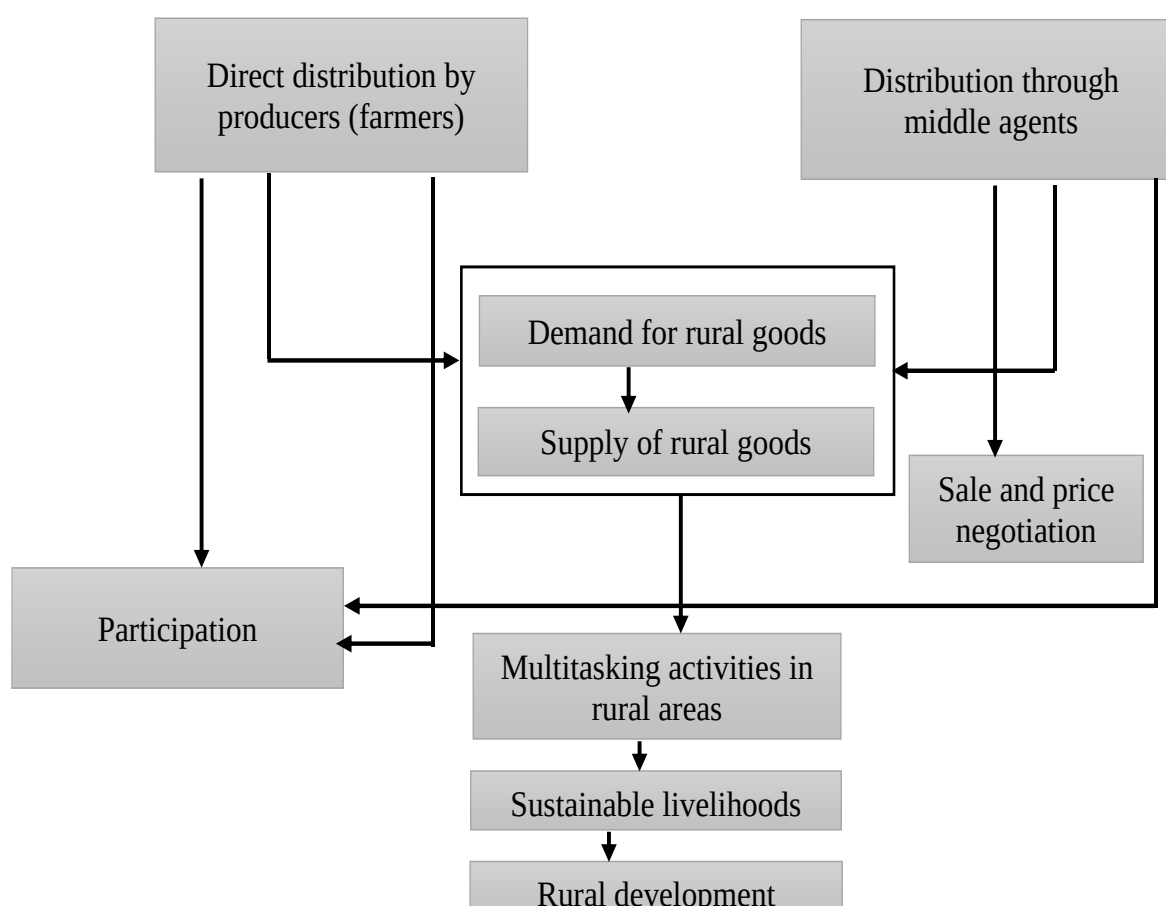


Figure 2.2 Connections between periodic markets and rural development

Source: Author's construct.

Through the exchange and distribution systems in periodic markets, there can be some forms of collaboration or cooperation within the rural areas. According to Yankson *et al.* (2016), farmers cooperate and hire buses to transport their produce to periodic markets. This mutual arrangement can help farmers to share the transport costs thereby reducing overhead costs for participating in periodic markets (Berry *et al.* 1988). Farmers can also establish new

relationships with different people when they cooperate in this way (Aram *et al.* 2019). Periodic markets can therefore support socioeconomic transactions and interactions within and between rural areas.

Direct sales in periodic markets can enable farmers to perform multiple tasks or activities. Periodic markets allow farmers to deal with wholesalers or intermediaries plus direct consumers, referred to as “producer-retailer activity”. Through the producer-retailer activity, farmers can maximise sales and profit (Ghosh 1981; Omole 2009). Further, the multiple tasks involve farmers as producers of agricultural and non-agricultural products on the one hand and their involvement in periodic markets as sellers on the other hand. Eff and Jensen (2014) found that the participation of tourist buyers in periodic markets in Guatemala encouraged farmers to diversify their farm activity by producing non-farm goods such as handicrafts for these buyers during the periodic marketing activities. Periodic markets, thus, have the capacity to intensify farming and non-farm activities in rural areas and they form part of a diversified set of activities used by farmers to sustain their livelihoods.

2.6.2 Gaps in the previous studies

There is a connection between periodic markets and rural development. However, the literature is short of empirical evidence. Only a few studies (see Table 2.3) have investigated the role periodic markets play in rural development. Wanmali (1980) investigated the spatial and temporal nature of both regulated markets (a form of government initiative for trading in agricultural goods) and periodic markets in nine villages in the Nagpur district, India, and their relevance for rural development. They found that periodic markets are more accessible to rural farmers than regulated markets. The author argued that periodic markets contribute to rural development because these markets support the distribution and marketing of diverse agricultural goods in rural areas.

Eff and Jensen (2014) used the gravity model to examine the integration of UPMs in Mayan Guatemala. The author argued that UPMs stimulate the rural economy by integrating the ecological zones of rural areas through the distribution of farm goods to the markets. Rambanapasi (1997) examined the impact of rural periodic markets on the development of rural areas in Zimbabwe. The author found that rural periodic markets facilitate rural development by reducing rural-regional disparities between communal and commercial areas and can offer employment opportunities for rural households. Rogerson (1997) studied rural

periodic markets in South Africa and revealed that these markets can be a tool for rural development because they play a major role in the agricultural distribution systems. Further, Madi (2004) examined the influence of rural periodic markets integration on the pattern of rural development in Nigeria and suggested that these markets contribute to rural development through the distribution of rural products to the markets and the ability of farmers to sell directly in the markets thereby giving them employment.

Table 2.3. A summary of studies on periodic markets and rural development

Citation	Study aim	Focus on urban or rural periodic market	Country
Wanmali 1980	Spatio-temporal characteristics of rural periodic markets	Rural	India
Rogerson 1997	The role of periodic markets in rural development planning	Rural	South Africa
Rambanapasi 1997	Evaluation of periodic markets project in rural transformation	Rural	Zimbabwe
Madi 2004	The influence of periodic markets integration on the pattern of rural development	Rural	Nigeria
Eff and Jensen 2014	The effect of periodic markets on vendor's participation	Urban	Guatemala

Source: Author's construct.

However, many of the studies (Wanmali 1980; Rogerson 1997; Rambanapasi 1997; Madi 2004) focused on rural periodic markets thereby missing important links between rural and urban areas. It should be noted that contemporary periodic markets have moved from rural to urban areas because of the increasing rate of urbanisation (Rozelle 2003; Dokmeci *et al.* 2006; GSS 2014). This paradigm shift of periodic markets can produce new insights into changes in the form and space of the rural economy. However, the previous studies have not provided enough empirical data on the spatial integration of periodic markets. That is, the role of periodic markets for integrating the rural economy into the wider context of urban and regional development is not clearly highlighted. The study of periodic markets within the context of rural and urban integration is important because such integration can create reciprocal benefits for both rural and urban populations and sustain the operations of these markets (Sabet and Azharianfar 2017). There is therefore the need for studies to focus on UPMs and the contributions of these markets to rural development.

Additionally, the previous studies have not provided extensive data to understand the effects of periodic markets on rural development. They have only provided a few indicators (such as the movement of rural products and accessibility) upon which one would comprehend the importance of periodic markets in rural development. Nonetheless, these indicators just define

the basic functions of periodic markets. It should be noted that the new paradigm of rural development goes beyond the above-stated indicators. Rural development concerns the social, economic, political, environmental, institutional, and cultural characteristics of rural areas and the interrelations between villagers. Thus, to understand the integrated role of periodic markets in rural development, it is important to consider these rural dynamics.

None of the previous studies employed a comprehensive theoretical framework to analyse the effects of periodic markets thereby limiting the role these markets play in rural development. For instance, there is less emphasis on socioeconomic interactions within rural areas during periodic marketing activities. The focus of studies on spatial variations in terms of roles periodic markets play between different regions (areas with different specialisation in production) in order to capture extensively, how their impact varies across different locations is less mentioned in the literature but is important in rural development.

The previous studies have revealed that periodic markets create jobs for rural households through direct sales. Yet, farmers' access to other non-farm employment opportunities in periodic markets is less focused. Further, the previous studies have not examined the environmental aspects of periodic markets in terms of the production and distribution of organic and value-added foods. Lastly, the effect of important characteristics of periodic markets (e.g., intervals between the markets, location, the size of the markets, and days of their occurrence) on villages is lacking in the literature. It is therefore important that this and future studies employ an integrated analytical framework to understand the holistic contribution of periodic markets to rural development in the above-mentioned areas.

Further, an important aspect of rural development is to capture the agri-food supply systems in the study of periodic markets. The previous studies have not provided sufficient quantitative data on the production, processing, and distribution of agricultural products from rural areas to periodic markets. There is also the lack of empirical data on the distribution of farm and non-farm products to villages through the periodic markets. Quantitative data on the forward and backward impact of periodic markets on rural agricultural production is appallingly inadequate. Yet, it is suggested that food security can be achieved through household production as well as having the means to buy from the marketplaces. The purchase of foods from the marketplaces is a major source of household food supply in developing countries (Gaile *et al.* 1999; Zakari *et al.* 2014; Ntakyo and Berg 2019). These data are needed to capture the importance of periodic markets to food security in terms of their availability, consumption, and the ability of farmers

to access food in these markets. Such data would help to determine how sustainable periodic markets are in supporting rural development throughout the seasonal years because according to some scholars, seasonality in agriculture can result in scarcity of some crops that can limit the distribution of agricultural products to periodic markets (Riddell 1974; Rozelle *et al.* 2003; Rosijn 2014).

2.7 Summary

This chapter has presented the academic approaches to rural development and rural development policies, strategies, and their limitations in Ghana. It has discussed the role of periodic markets in rural development and shown that while there are a variety of approaches to rural development, they have not sufficiently integrated the new multidimensional changes and differentiated situations in rural areas. A comprehensive theoretical framework is thus needed to understand the nature, dynamics, and heterogeneity of the current rural development processes. In the context of Ghana, rural development projects have taken an exogenous approach. External institutions mostly implement projects in rural areas, and they take greater control of these projects. This limits the ability of rural households to participate in these projects and initiate their own projects. In fact, rural households only perform passive and peripheral roles in most rural development projects. Further, the local councils have not been attentive to periodic markets as a tool for rural development in Ghana. Yet, the periodic markets serve as springboards for rural development. Periodic markets are capable of creating strong linkages between the rural and urban areas thereby strengthening cooperation. However, to date, no study has looked at the multidimensional effects of periodic markets on rural development in Ghana. This thesis, therefore, seeks to address the gap in the current literature.

Chapter 3. Overview of Urban Periodic Markets in Ghana

This chapter presents an overview of UPMs in Ghana. It begins with a general overview of urban markets and their periodicity. It then presents the historical development of UPMs in Ghana by looking at their origin and growth. The chapter then presents the features of UPMs regarding their distribution systems and intervals between the markets.

3.1 Periodicity of Urban Marketplaces

Between the nineteenth and twentieth centuries, urban markets have been referred to as abstract ideas of commerce and exchange, be it in cash, labour, and commodity. While they are rarely studied as actual physical marketplaces, they do operate as production and distribution systems and include objects that take up space, and they have the capacity to develop due to changes in consumption, retailing, and wholesaling. Indeed, it was projected that markets in urban spaces would cease to be of relevance because of the strong competition from non-spatial markets (Stobart and Damme 2016; Schappo and Melik 2017).

Yet, recent decades have witnessed the importance of urban marketplaces globally. Markets in urban areas continue to be an important component of the retail distribution system in London and New York (Stobart and Damme 2016). They play a part in uniting different stakeholders (municipalities, entrepreneurs, traders) in the Netherlands (Schappo and Melik 2017) and shape the economic and social relations in Spain (Fava *et al.* 2016). They also play a role in stimulating rural and urban development in developing countries (Rambanapasi 1997; Madi 2004; Dokmeci *et al.* 2006; Eff and Jensen 2014; Yankson *et al.* 2016; Karg *et al.* 2019).

Urban markets as specific places for trading in agricultural and manufactured products continue to be a vibrant activity in cities and towns. The face-to-face nature of these urban markets shape cities, which was famously described by Max Weber in his essay on *The City*. The author defines a city as essentially a marketplace for urban and rural populations where the exchange of goods and services occurs thereby satisfying the needs and wants of people through the exchange (Weber 1978). Urban market centres also form a fundamental part of Walter Christaller's explanation of the Central Place Theory that is concerned with the distribution of goods and services from a central point to surrounding market areas (Malczewski 2009). Urban markets cannot be underestimated because their significance is equally apparent in the evolving fields of urban economy, urban geography, and regional planning.

Urban markets can be categorised as daily and periodic markets based on trading patterns. Market intervals, types of market participants, and the type of economic arrangements differentiate these two types of urban markets. Trading activities continue throughout the week in urban daily markets. Sellers in the urban daily markets mostly include retailers and wholesalers. Smallholder farmers do not often participate in the urban daily markets to sell. Farmers sell through the middle agents to the urban daily markets (Yankson *et al.* 2016). However, UPMs is a physical face-to-face interaction of producers (farmers), wholesalers, retailers, and consumers at a definite place and specified time at agreed regular intervals. They occur less often than urban daily markets.

A replica of UPMs includes the flea markets, the urban night markets, farmers' markets, and weekly markets (Table 3.1). The difference, however, is the origin of participants. Participants in the above-mentioned urban markets involve primarily, the population of the market neighbourhood or district. UPMs in sub-Saharan Africa involve traders from both within and outside the market district or region. The flea markets occur in Denmark, France, and Romania. These markets operate a few days per week during the seasonal calendar (summer and spring). Examples of the flea markets in Denmark include the Guld and Rod markets, Gentofte Loppemarked (held on Sundays in summer), and Frederiksberg Loppetorv. The flea markets host people with diverse cultural backgrounds and provide relatively cheaper commodities to buyers (Petrescu and Bhatli 2013).

Table 3.1 Typology of UPMs

Type	Participants	Country	Citation
Flea markets	Within the market district	Denmark, Romania, France	Petrescu & Bhatli (2013)
Urban night markets	Within the market district	Singapore, Thailand, Indonesia, Taiwan, Malaysia, Hong Kong, Cambodia	Hulme (2017), Lee & Paerce (2019)
Farmers' market	Within the market district	United States, Australia	Elepu & Mazzocco (2010), Freedman <i>et al.</i> (2016)
Weekly markets	Within the market district	Turkey, Iran, China, Belgium, Guatemala	Dokmeci <i>et al.</i> (2006), Ronsijn (2014), Sabet & Azharianfar (2017), Aram <i>et al.</i> (2019)

Source: Author's construct.

The urban night markets occur in Singapore, Indonesia, and Malaysia, etc. These markets are open-air centres that operate a few days per week at night and provide a variety of products. (Hulme 2017). The weekly urban markets occur in Turkey, Iran, and Guatemala. These urban

markets operate a few days per week and the sellers include farmers and non-farmers. Specifically, in Guatemala, these UPMs are grouped into two namely, subsistence markets and *tipica* markets. The subsistence weekly markets involve mostly agricultural products whilst handicrafts form the majority at the *tipica* markets (Eff and Jensen 2014). The farmers' markets occur in the United States, Australia, and some parts of Europe. Agricultural products such as fresh fruits and vegetables are traded in these types of farmers' markets. The local farmers produce and supply the commodities to these farmers' markets (Freedman *et al.* 2016).

UPMs have been a part of the city for centuries (Goktas 1996). Their numbers have been increasing in urban areas in developing countries, a reflection of their capacity to function within expanding and modernising cities. The number of UPMs in Turkey more than tripled between 1980 and 2002 (Dokmeci *et al.* 2006). UPMs in Ecuador increased in their numbers from 1972 to 1995 (Bromley 1998) and from 2002 to 2008 in Nigeria (Omole 2009). They also increased in their numbers between 1988 and 1993 in Zimbabwe (Rambanapasi 1997). The increasing rate of the urban population and the larger demand for fresh farm products by urban consumers have contributed to the increasing number of UPMs (Rozelle 2003). Jones (1976) argued that UPMs occur in existing urban markets, which contribute to their increasing numbers in urban areas. Further, unemployment has pushed more people into trading in UPMs thereby expanding their functions in urban areas (Dokmeci *et al.* 2006). For example, UPMs increased in China (Sit 1987), South America (Bromley 1998), and Zimbabwe (Rambanapasi 1997) because it was the policy of the governments to create employment avenues through these markets for both the rural and urban population. Even in some developed countries such as Northern Italy and Flanders in Belgium, UPMs have gained attention as a strategy for creating employment for urban dwellers (Ronsijn 2014; Zamboni 2021). A recent study in Northern Italy that examined the role of the Cisalpine Regions of trade and cultural heritage between the Mediterranean and Central Europe revealed that for low-density areas, the creation of economic activities such as craft businesses can be facilitated through the setting-up of UPMs (Zamboni 2021).

The increasing number of UPMs is counter to the view of urban theorists, modern city theorists, and economic historians who have all argued that UPMs would disappear once a city reaches a certain level of modernity (Henry 1971; Pounds 1974; Schweiger 1984; Rosijn 2014). The growth and location of UPMs still contribute to the economic and social transformation of a city, from a rural trade pattern into an urban trade culture in the developing countries. They

play a central role within the urban fabric and form a fundamental component of the economic life of both the rural and urban populations (Dokmeci and Berkoz 1994). UPMs are an important aspect of traditional markets in developing countries (Berry *et al.* 1988; Racaud 2015). In this way, they challenge the views of economic theorists of the UPMs as somehow archaic to modernity. The increasing number and activities of UPMs are uninterrupted by modernisation and therefore these urban markets should be given the necessary attention in the pursuit of modernisation (Rozelle 2003; Dokmeci *et al.* 2006; Masaru and Badenoch 2013).

3.2 Historical Development of Urban Periodic Markets in Ghana

The first periodic market was established at the northwestern foot of the Krobo Hill in the Eastern Region of Ghana in the early sixteenth century (Addo 1988). The demand for agricultural products between villages led to the establishment of this periodic market. A village that could not produce some farm products in large volumes had to depend on other villages for those products. However, villages in those days were far from one another. So, the village leaders in consultation with some of the elders established the periodic market at a designated place where farmers from distant villages could commute to the market centre at least once a week to sell and purchase other goods. Over time, the periodic market began to expand in terms of the quantity and diversity of products traded in the market. Europeans even introduced some manufactured products to be traded in these periodic markets, thus enabling farmers to have access to foreign goods.

The periodic market also served as a meeting place for farmers to communicate and share local knowledge and experience on agricultural activities and marketing. According to Addo (1988), farmers in Manya Krobo cultivated and sold millet in the periodic market, and while they attended these markets, they participated in communications with several other farmers in the market. This resulted in eventually obtaining the knowledge about the growing of other crops such as yam, plantain, and cocoyam from other ethnic groups, in this case, the Akan and Ewe neighbours.

Farmers in the Manya Krobo village realised that their own location of the Akuse plains was not suitable for the cultivation of these newly acquired crops. They thought that it was difficult to work on the soils using cutlass and hoes. Further, the annual rainfall was very low, and the rate of evapotranspiration was high. Therefore, some farmers moved from their villages to obtain land in the nearby forest areas, which were owned by the Akan. The migration of these

farmers brought about increased distance between their original settlement and the existing periodic market. The only means of transport for farmers in the Manya Krobo at that time was walking (Addo 1988). With this, farmers found it difficult to commute to the periodic market. The migrant farmers, therefore, established new periodic markets in the early nineteenth century at Asesewa, Akomakopa, Otrokpe, Sekesua, Bisa, Anyaboni, Apimsu, and Akuse. These periodic markets were centres of the zones of large agricultural activities.

The Government of Ghana (GoG) constructed an inland port at Amedika in 1873 after a discovery of navigability of the lower stretch of the Volta River between Akuse and Ada. The inland port project was close to the Akuse Periodic Market. Trading in the Akuse Periodic Market grew larger and attracted traders from many places because of the inland port project. With time, all the established periodic markets as stated above became vibrant because the inland port project facilitated the distribution of agricultural and manufactured products in these markets. Periodic markets, therefore, attracted the attention of traditional leaders, and the leaders introduced tolls in each market centre in 1924. Traditional leaders took absolute control over the establishment of several periodic markets to raise funds to develop their villages as well as to attract people to live and farm in the villages (Addo 1988).

Between 1924 and 1950, periodic markets became popular across the other regions of Ghana. Traditional leaders collaborated with their villagers and through communal labour and support from the District Assemblies they constructed feeder roads to link their villages to the periodic markets. Since political independence from colonial rule in 1957, the transport of agricultural products to periodic markets has been mainly by trucks rather than solely walking, and there are many traders engaged in periodic markets as middle agents trading in both farm and non-farm products.

Trading activities started between the Eastern Region and the Volta Region through the periodic markets. Villagers in the Volta Region were mostly fish farmers, and the establishment of periodic markets boosted the marketing of fish. Fish were transported to the Eastern Region through the periodic markets (Gordon 1999). The government in collaboration with the District Assemblies constructed roads to link the periodic markets to small towns and cities and to encourage the distribution of fish. Gradually, periodic markets in villages moved to urban areas to serve the increasing population in these areas (Ofori 2012a).

Since the periodic markets moved to the urban areas, the District Assemblies have been involved in the management of these markets. Currently, the establishment of periodic markets in urban centres in Ghana involves collaborations between the traditional authorities and the District Assemblies. The *Local Government Act, 1993 (Act 462)* states that District Assemblies should provide basic facilities in the market centres and renovate roads connecting the markets to their periphery villages and towns.

3.3 Operational Characteristics of Urban Periodic Markets in Ghana

This section presents the characteristics of UPM in Ghana, which include their location and distribution arrangements.

3.3.1 Regional distribution of urban periodic markets and their classifications

The number of periodic markets in Ghana has been growing since the 1960s. Fagerlund and Smith (1970) identified 155 periodic markets in Ghana between 1960 and 1969 of which the majority were in rural areas. A review of the 2010 Population and Housing Census reports, the Medium-Term Development Plans, the Monitoring and Evaluation Plans, and the Annual Action Plans of 171 districts between 2010 and 2018 revealed that Ghana had 233 periodic markets of which the majority (about 74%) were in urban areas (GSS 2014). UPMs occurred at least 270 times per week (Table 3.2 and see Appendix 5).

As shown in Table 3.2, the Volta Region had the largest number of periodic markets, with the majority (62%) in urban areas, which operated at least 51 times per week. The majority of these markets were on the Eastern and Western Shores of the Volta Lake. The Ketu North, the Kpando, the Kadjebi, the Nkwanta North, and the Krachi West Districts occupied the largest number of the periodic markets in the Volta Region. The Keta-Krachie Periodic Market in the Krachi West District is the oldest in the Volta Region (Ofori 2012a). The Central Region was the second largest with 32 periodic markets with the majority (69%) in urban areas that operated 36 times per week. The Agona West, the Upper Denkyira West, and the Komenda-Edina-Eguafo-Abirem Districts had a large proportion of the periodic markets in the Central Region.

In addition, the Brong Ahafo Region was the third largest with 27 periodic markets and almost all the markets (93%) were in urban areas, which occurred 29 times a week. The Asutifi North, the Kintampo North, and the Tano South Districts had the majority of the periodic markets in

the Brong Ahafo region. The Ashanti Region came fourth with 26 periodic markets with about 92% of the markets in urban areas that operated 29 times per week. The Asante Akim North, the Ejisu-Juaben, the Sekyere Central, and the Atwima Nwabiagya Districts had the majority of the periodic markets in the Ashanti region. The Upper West Region also had 20 periodic markets with the majority (85%) in urban areas. These periodic markets are in the Sissala East, Wa, and Lawra Districts.

Table 3.2 Regional distribution of UPMs in Ghana from 2010 to 2018

Region \ Market	Number of PMs		Total (both urban and rural)	Number of major UPMs	Number of market days per week	Population of the region based on the 2010 PHC
	Urban	Rural				
Volta	26	16	42	7	51	2,188,252
Central	22	10	32	7	36	2,201,863
Brong Ahafo	25	2	27	10	29	2,310,983
Ashanti	24	2	26	9	29	4,780,380
Western	16	11	27	8	28	2,376,021
Northern	17	7	24	6	25	2,479,461
Upper East	11	8	19	5	29	1,046,545
Upper West	17	3	20	3	21	702,110
Eastern	10	1	11	5	13	2,633,154
Greater Accra	5	0	5	3	9	4,010,054
Total	173	60	233	63	270	24,728,823

Note: The GSS (2014) defines urban areas as a population of more than 5000 inhabitants and rural areas as less than 5000 people

Source: Compilation from the various development plans of district assemblies

Figure 3.1 shows the location of major periodic markets with the largest attendance of traders. In terms of UPMs with the largest attendance of traders, the Ashanti Region had nine major UPMs. These UPMs were in Ejisu, Agogo, Nyinahin, Abofour, Ejura, Tepa, Jacobu, Mampong, and Effiduase. The Brong Ahafo Region had ten UPMs located at Sampa, Bechem, Sunyani, Berekum, Wenchi, Techiman, Drobo, Atebubu, Yeji, and Kintampo. The Western Region had eight UPMs located at Elubo, Asankragua, Prestea, Half-Assin, Mpohor, Shama, Bibiani, and Sefwi-Bekwai. The Volta Region accommodated seven UPMs, which include the Kadjebi, Kpando, Ho, Aflao, Agormanya, Juapong, and Kasseh markets. Other major UPMs included the Tamale, Damongo, and Salage markets in the Northern Region; the Bawku, Bolgatanga, and Navrongo markets in the Upper East Region; and Wa, Tumu, and Lawra in the Upper West Region.

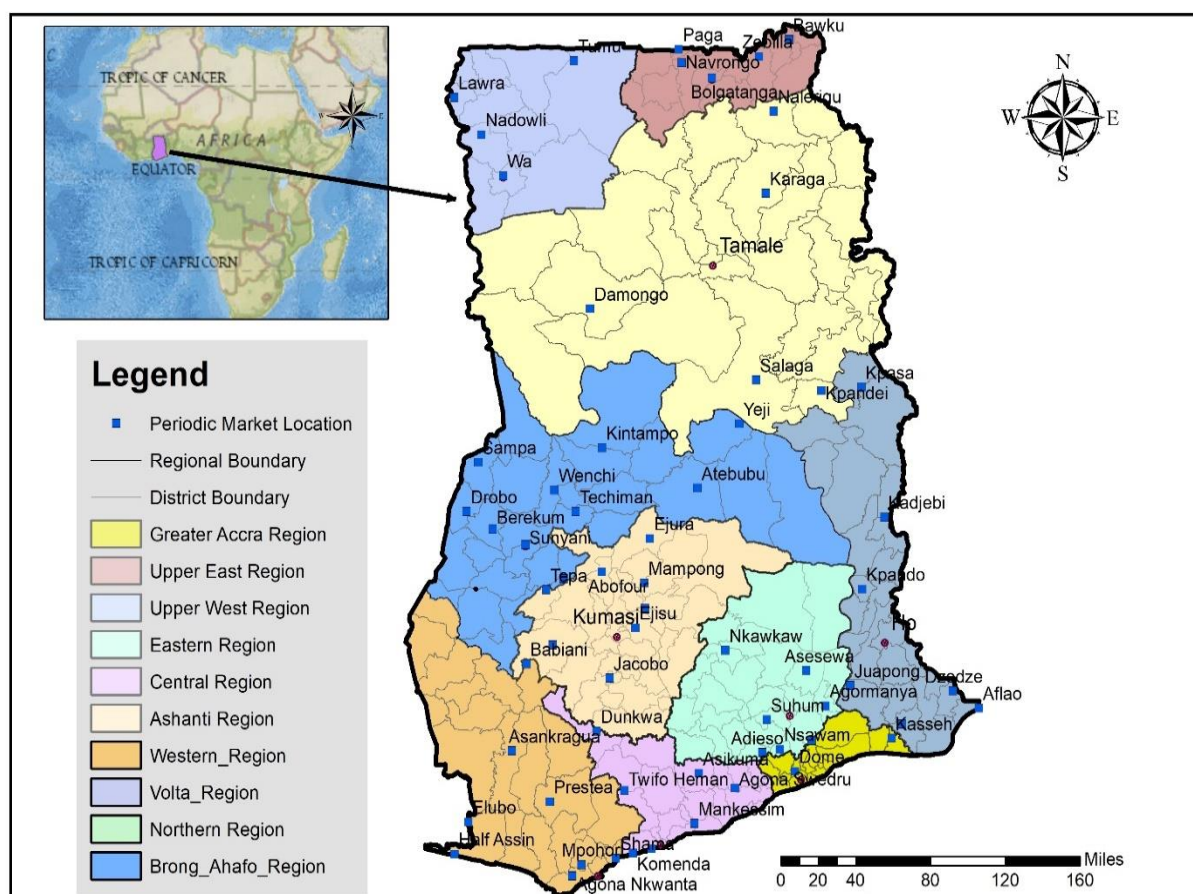


Figure 3.1 Location of major UPMs in Ghana

Source: Adapted from the GSS (2014).

The above stated UPMs are in the large cities, district capitals, and small towns which can be classified as regional markets (e.g., Tamale and Sunyani), central markets (e.g., Bolgatanga, Bawku, and Yendi), and intermediate markets (e.g., Drobo, Atebubu), respectively (see Table 3.3).

Table 3.3 Hierarchical classifications of UPMs in Ghana

Classification	Location	Dominant function	Example of urban periodic market
Regional markets	Cities at the regional level	Major wholesaling functions	Tamale, Techiman, Kintampo, Sunyani, Ejura etc
Central or district markets	District capital	Collection and distribution of manufacturing and agricultural goods	Bolgatanga, Bawku, Yendi, Ejisu, Tumu, Berekum, Sampa etc
Intermediate markets	Small towns	Attract traders and goods from the central markets	Drobo, Atebubu, Yeji, Berekum, Lawra etc

Source: Adapted from Mckim (1972).

According to Mckim (1972), the regional periodic markets have major wholesaling functions. For instance, the Tamale Periodic Market is located on the south-north route, being the main route connecting the south and north of Ghana and therefore performing major wholesaling activities. The central periodic markets are located at strategic places such as on transportation routes. They serve as collection and distribution centres for agricultural and manufactured goods. The intermediate markets interlink to larger villages and cities.

A well-known feature of UPMs is their periodicity of occurrence. Buyers and sellers converge at a given location every second, fourth, sixth, or seventh day a week (Table 3.4). The 7-day markets dominate in Ghana. This is the case for all the regions except the Upper East Region (UER) and the Upper West Region, where the 3-day and the 6-day market week is quite widespread. The prevalence of the 7-day market interval in Ghana is attributed to the foreign missionaries who introduced it to enable people to observe religious activities (Hill and Smith 1972).

Table 3.4 Intervals between UPMs in Ghana

Market interval	Between 1960 and 1969	Between 2010 and 2018
Two-day	19	36
Four-day	31	0
Six-day	0	4
Seven-day	105	193
Total	155	233

Source: Author's construct.

Some scholars (e.g., Jones 1976; Goktas 1996) have raised issues about the rate at which periodic markets are increasing, especially in the urban areas in sub-Saharan Africa including Ghana. They argue that it is likely that with time activities of the UPMs would increase thereby reducing the intervals between these urban markets. The reduction of intervals between the UPMs can cause these markets to operate throughout the week. In this sense, it is also likely that UPMs may become permanent urban markets. However, it is suggested that UPMs are firmly established, and they continue to increase because their activities occur within urban permanent markets (Plattner 1976; Owusu and Lund 2004). The GSS (2014) report showed that a greater number of UPMs in the district capitals and big cities in Ghana occur in existing central markets. These include those presented in Table 3.3 above.

3.3.2 Distribution of commodities in urban periodic markets in Ghana

Table 3.5 shows the major source of agricultural products traded in UPMs in Ghana. The UPM for example receives large quantities of maize, groundnut, shea nut, and soya bean from villages such as Kong, Kowie, Sakai, Bujan, Walembelle, and Bugubelle in the Sissala East Municipality. The Ejisu UPM receives large volumes of plantain, rice, and cassava from villages such as Timeabu, Korase, Boamadumase, Achiase, and Adumasa all in the Ejisu-Juaben Municipality. The Agogo UPM also receives large volumes of plantain from villages including Woraponso, Hwidiem, Agogo-Onyimso, Domeabra, and Menam in the Asante Akim North Municipality. Villages, including Naturi, Tumpondi, Galinkuka, Kudani, and Sangbana supply large volumes of white maize, soya bean, and rice to the UPM at Chereponi. Further, the UPM at Techiman receive large volumes of citrus, processed cassava (locally called *gari*) from villages such as Hansua, Nsuta, Twimia-Nkwanta, New-Techiman, and Sansama in the Techiman Municipality.

Table 3.5 Major source of agricultural products in UPMs in Ghana

Location of UPMs	A major source of farm produce from villages	Name of district
Tumu	Kong, Kowie, Sakai, Bujan, Walembelle, Bugubelle	Sissala East
Ejisu	Timeabu, Korase, Boamadumase, Achiase, Adumasa	Ejisu-Juaben
Agogo	Woramponso, Hwidiem, Agogo-Onyimso, Domeabra, Menam	Asante Akim North
Chereponi	Naturi, Tumpondi, Galinkuka, Kudani, Sangbana	Chereponi
Techiman	Hansua, Nsuta, Twimia-Nkwanta, New-Techiman, Sansama	Techiman
Ejura	Amanteng, Sarakyikora, Kyenkyenkura, Kasei, Frante	Ejura-Sekyedumase
Bawku	Bador, Gozesi, Zamasa, Tambalugo, Zuku	Bawku
Hamile	Tizze, Han, Ping, Gbare, Sabuli	Jirapa
Kintampo	Kadelso, Kawompe, New-Longoro, Dawadawa, Bosuama	Kintampo North
Abofour	Samproso, Kokote, Aboasu, Amoawi, Anyinasuso	Offinso
Tatale	Gbandi, Woribogu, Kukpaligu, Kuntumbiyili, Subruni	Zabzugu-Tatale

Source: Author's construct.

There is also the distribution of agricultural products across UPMs. The Tumu UPM in the Upper West Region supplies cereals and groundnuts to the UPMs in the Ashanti Region and the Brong Ahafo Region. Plantain and beans are mostly from UPMs in the Ashanti Region to UPMs in the Upper West Region and the Upper East Region. UPMs in the Brong Ahafo Region (e.g., the Techiman Periodic Market) supply large volumes of corn dough and processed cassava (locally called *gari*) to the UPMs in the Ashanti Region. UPMs in the Northern Region (e.g., Chereponi) supply red onions to the UPMs in the Ashanti Region. Yam is from UPMs in the Brong Ahafo Region (e.g., Techiman Periodic Market) to UPMs (e.g. Ejisu and Abofour Periodic Markets) in the Ashanti Region. Livestock is mostly from UPMs in Upper West

Region and the Upper East Region to the UPMs in the Ashanti Region and the Brong Ahafo Region.

The annual reports of the MoFA (2019) indicate that the above-stated UPMs received 180,170 tonnes of food crops in 2018 (Table 3.6). The major crops supplied to these UPMs were cereals, fruits and vegetables, and root and tuber. These crops constituted about 39%, 33%, and 25% of the total food crops in UPMs in 2018, respectively. Maize is the dominant crop, which accounted for 97% of cereals imported into these UPMs in 2018. Onion constituted 54% of vegetables in the UPMs. Plantain represented about 79% of root and tubers in the UPMs.

Table 3.6 Volume of commodities distributed to UPMs in 2018

Commodity	Tonne	%
Cereals	70,567	39.2
Fruits & vegetables	60,123	33.4
Root & tuber	45,445	25.2
Legumes	4,035	2.2
Total	180,170	100.0

Source: Monthly reports from market managers in 2018.

The above stated UPMs import some food crops from other West African countries. Burkina Faso supplies tomatoes to the UPMs at Tumu, Ejisu, and Konongo from January to April or July to August every year. Niger, Burkina Faso, Cote D'Ivoire, and Mali supply white onion, chili pepper, and okra to the Ejura and Techiman UPMs from January to February, March to April, and June to August. Chad supplies saltpetre to the Techiman UPM, and they constituted about 20,000 tonnes in 2018 (MoFA 2019).

Table 3.7 shows the volume of agricultural products exported from UPMs in Ghana (from 2015 to 2018) to other West African countries. The UPMs in Ghana exported about 439,868 tonnes of agricultural products from 2015 to 2018. These products were worth about GH¢ 757 million (USD 178 million). The export products were 65,259 tonnes in 2015 but more than doubled (about 141% increase) in 2018. Root and tuber constituted more than one-third (38%) of the export products in the UPMs in Ghana. Fruits and vegetables, as well as cereals, also represented about 29% and 21% of the export goods, respectively. The export-destination countries were Burkina Faso, Cote D'Ivoire (Ivory Coast), Nigeria, Togo, Benin, and Niger (see Figure 3.2).

Table 3.7 Volume of agricultural products exported from UPMs in Ghana to West Africa countries (2015–2018)

Product \ Year	2015	2016	2017	2018	Total	Market value (GH¢ in millions)	Market value (US\$ in millions)
Root & tuber	18,542	31,962	51,777	66,689	168,970	324.7	76.7
Fruits & vegetables	18,661	28,453	38,459	41,729	127,303	170.7	39.1
Cereals	17,779	17,235	24,204	32,308	91,525	117.0	27.7
Legumes	6,257	6,125	9,400	10,157	31,939	76.5	18.1
Processed foods	4,020	4,745	5,373	5,994	20,131	67.8	16.2
Total	65,259	88,520	129,213	156,877	439,868	756.7	177.8

Source: Compilation from reports of the MoFA (see Appendix 6).

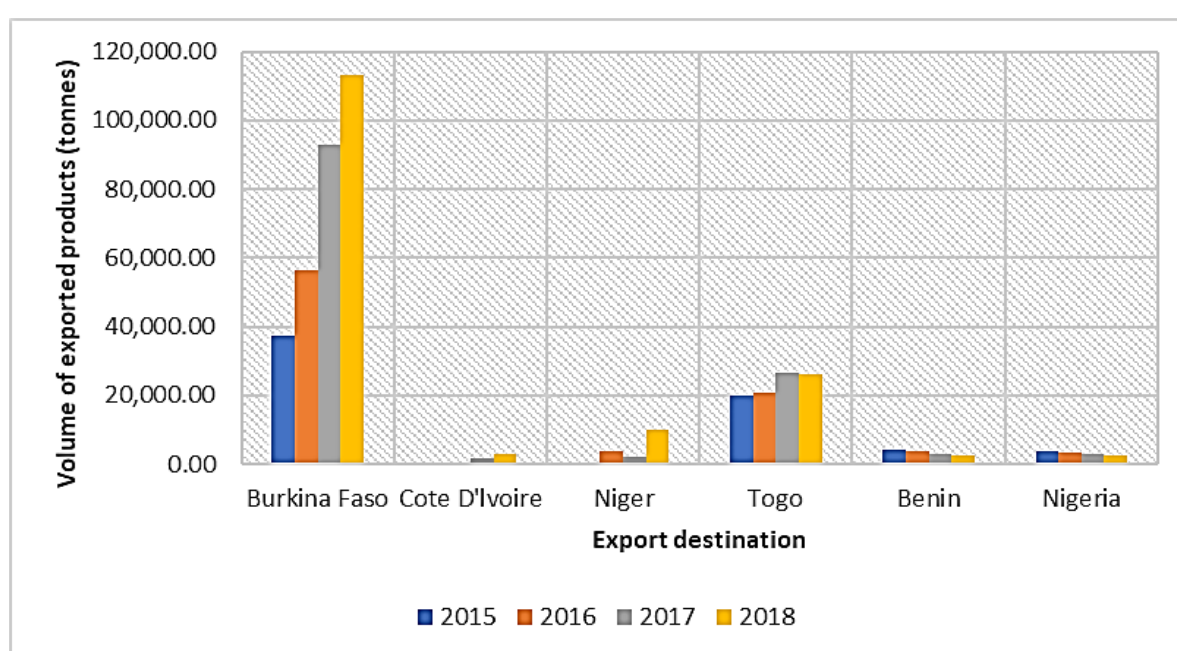


Figure 3.2 Export-destination of agricultural products from UPMs in Ghana (2015–2018)

Source: Author's construct, based on data from the MoFA (see Appendix 7).

UPMs in the south of Ghana exported 320,958 tonnes of agricultural products from 2015 to 2018 to the West African countries. These UPMs were at Agogo, Kintampo, Offinso (Abofour), Techiman, and Ejura (Figure 3.3). The main export crops were roots and tubers as well as fruits and vegetables. The Offinso (Abofour) UPM, being the largest exporter of agricultural products (111,683 tonnes) in the South, exported large volumes (45,202 tonnes) of banana to Burkina Faso, which constituted about 40% of products that moved from all the UPMs in the South from 2015 to 2018. The Agogo UPM exported larger volumes (104,730 tonnes) of plantain to Burkina Faso and Togo. Of the total volume of plantain (141,562 tonnes)

exported from all the UPMs in the South, the Agogo UPM contributed to the majority (about 74%).

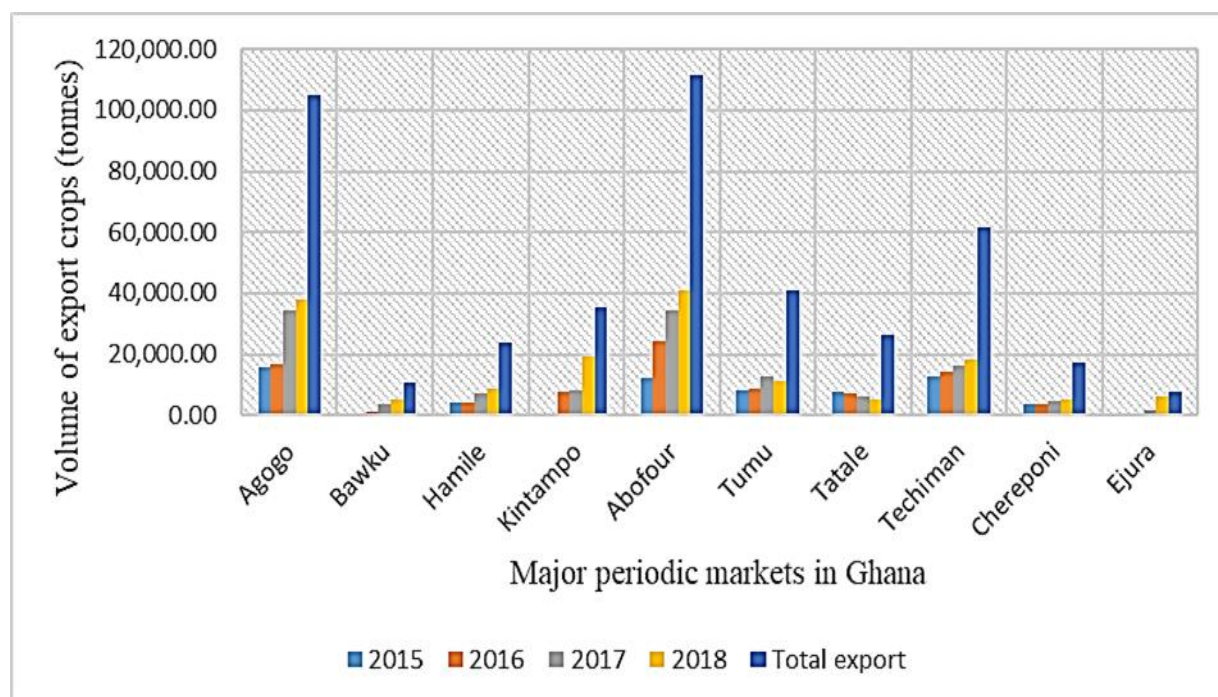


Figure 3.3 Export UPMs in Ghana (2015–2018)

Source: Author's construct, based on data from the MoFA (see Appendix 6).

UPMs in the north of Ghana exported 118,909 tonnes of farm products from 2015 to 2018 to the West African countries. These UPMs were the Tumu, Techiman, Bawku, Hamile, and the Chereponi markets. They exported major crops such as cereals and legumes. The Tumu UPM, being the largest exporter of agricultural products in the North (40,825 tonnes) exported larger volumes (18,183 tonnes) of maize to Burkina Faso, Togo, Nigeria, and Cote D'Ivoire, which represented about 45% of products that moved from all the UPMs in the North from 2015 to 2018. The Tatale UPM exported large volumes (23,172 tonnes) of groundnut to Burkina Faso, Benin, and Nigeria. The Hamile UPM exported 23,916 tonnes of cowpea and sorghum to Burkina Faso, Cote D'Ivoire, and Togo. The Chereponi UPM also exported 17,135 tonnes of rice to Togo, Benin, and Burkina Faso. Further, the Bawku UPM exported 2,666 tonnes of cabbage and chili pepper to Burkina Faso.

UPMs in both the south and north of Ghana exported similar crops such as maize. However, cabbage, rice, green chili pepper, groundnut, and sorghum were exported from the UPMs in the North only. Plantain, yam, and banana were exported from the UPMs in the South only.

The export of diverse agricultural products from these UPMs to other West African countries signifies that these urban markets play a central role in cross-border trading.

3.4 Summary

This chapter has given an overview of the historical development of UPMs in Ghana. The chapter has also described the characteristics of UPMs by looking at their location, growth, and distribution of agricultural products in these markets. UPMs in Ghana evolved out of the demand for agricultural products between villages. As the population increased, the consumption of certain products became large which led to the formation of many UPMs. The migration of people also contributed to the establishment of UPMs which import farm produce from the surrounding villages and beyond, and export agricultural products to some other West African countries such as Burkina Faso, Togo, Cote D'Ivoire (Ivory Coast), Nigeria, Mali, and Niger, thus establishing an international trade.

Chapter 4. Theory and Applications of Rural Web Analysis in Rural Development

Chapter 2 above revealed that rural development involves multifunctional dimensions of networks, resources, activities, and practices, and to understand these changes a comprehensive theoretical framework is needed to provide extensive evidence on the significance of UPMs for rural development. The Rural Web analysis is a suitable analytical framework to explore the multifunctional dimensions of rural development. Therefore, this chapter presents an overview of Rural Web analysis, beginning with a description of its dimensions, and applications, as well as its strengths and limitations.

4.1 Overview of the Rural Web Analysis

The Rural Web analysis was developed from a research project ‘Enlarging the Theoretical Understanding of Rural Development’, which analysed over 60 rural development projects in 16 European countries to explore the multiplicity of interactions within rural territories. The Rural Web analysis incorporates evolving bodies of theories and enables researchers to overcome the limitations of other rural development approaches. The Rural Web analysis shifts attention from the exogenous approach to rural development and focuses on local resources. It emphasises that the value of agriculture is embedded in the social, economic, and environmental characteristics of the rural economy. It identifies the multi-functionality of agriculture and explains that rural areas are both production and consumption spaces and acknowledges that a multi-functionality of agriculture generates multiple and multilevel interactions and interrelations, which increases the understanding of the quality of life in rural areas (Ventura *et al.* 2008a; Ploeg and Marsden 2008). Many studies have argued that the Rural Web analysis thus modifies the modernisation paradigm, and it is widely acknowledged as a new theoretical framework with which the objectives of rural development can be achieved (e.g., Marsden and Sonnino 2008; Messely *et al.* 2013; Paddock and Marsden 2015; Guinjoan *et al.* 2016a).

The Rural Web analysis is applicable to rural areas with diverse characteristics. This includes areas where agriculture is highly specialised, declining, and or growing (Ventura *et al.* 2008a; Kitchen and Marsden 2009). It considers the available resources in rural areas and the resources that have been given less attention. It is enunciated on a key concept, the *web*, explained as an

assemblage of activities, resources, and individuals that interact with each other to develop the economic, social, and environmental potentials in rural areas (Ventura *et al.* 2010a).

The Rural Web analysis also stresses the relevance of rural development within the context of urban and regional development. This involves the strengthening of interactions within and outside rural areas and the extent to which the interactions affect the velocity and pathway for development. These interactions lead to the creation of conditions that fortify the attractiveness and liveability of rural areas. It also identifies development potentials and weaknesses in rural areas through a comparison of different development paths between the rural and urban areas. This sets a benchmark for determining the impact of development initiatives on rural territories (Buchecker *et al.* 2003; Castells 2010; Marsden 2010; Ventura *et al.* 2010a; Messely *et al.* 2013).

4.2 Dimensions of the Rural Web Analysis

This section discusses the six dimensions of the Rural Web analysis. These are endogeneity, novelty production, social capital, the governance of markets, new institutional arrangements, and sustainability (see Figure 4.1).

4.2.1 Endogeneity

Endogeneity within the context of rural development delineates the extent to which rural areas depend on the mobilisation of local resources (Bowler 1999; Marsden 2010). It defines sets of activities and sectors of rural economies that include agriculture, forestry, and nature conservation. These resources are mostly evidenced in the tenets around the production of local foods that are driven by the ambition to provide economic and social benefits to rural areas. Local food means food that is produced, consumed, and distributed which is also integrated into the historical, natural, and cultural assets of rural areas (Ploeg and Marsden 2008).

Endogeneity determines the capacity to utilise and exchange rural resources. This, however, depends on the availability of the resources, the volume to export and import. The ability of rural areas to import relatively few resources and export more of them indicates that a high degree of endogeneity is achieved (Bowler 1999). This signifies that endogeneity is not restricted to local resources only but extra-local resources and the exchange between the two. Extra-local resources are the resources that may not be available in rural areas, yet constitute a component of the economic, social, and environmental needs of the rural population. These

external influences determine the capacity of rural actors to gain control over the utilisation and distribution of their resources (High and Nemes 2007; Marsden 2010). Endogeneity also involves the retention of wealth from the utilisation and exchange of rural resources thereby increasing the endogenous potentials of rural areas. Endogeneity, therefore, fosters the development of rural resources and enables rural areas to take a leading role in managing their resources (Woods 2011).

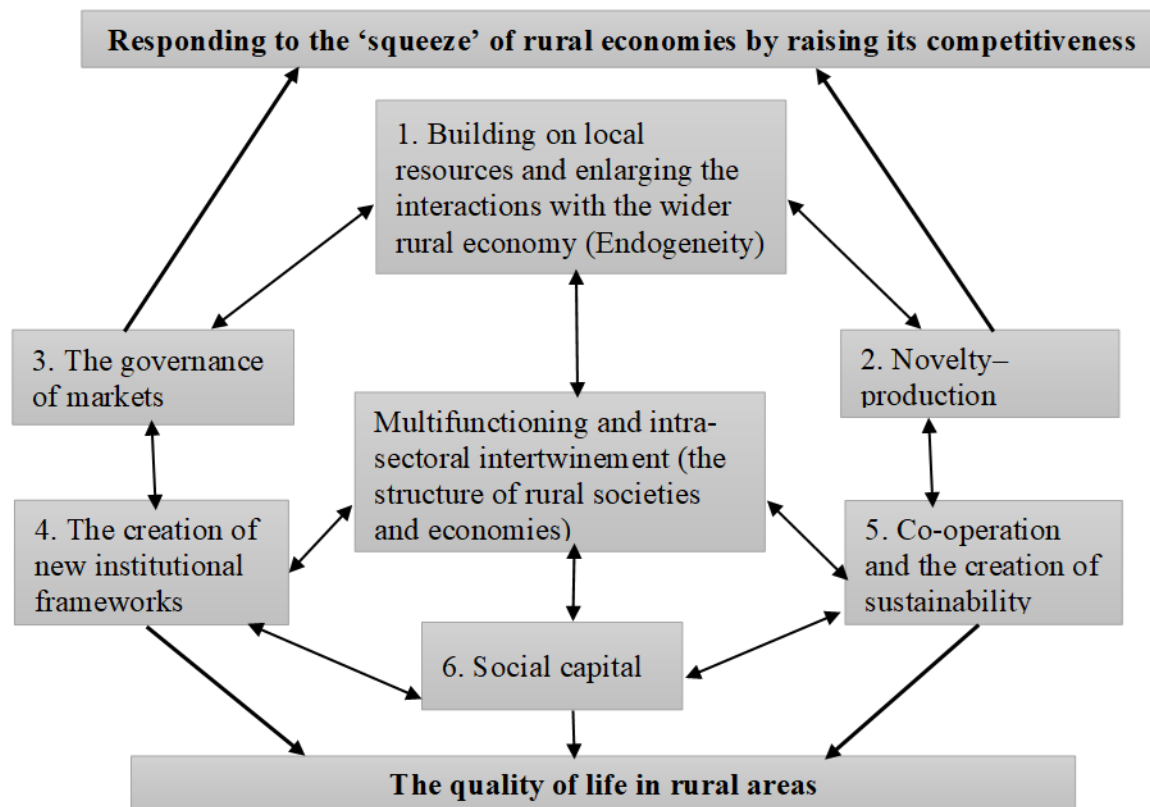


Figure 4.1 The dimensions of the Rural Web analysis within the context of rural development

Source: Ploeg and Marsden (2008, p. vii).

4.2.2 Novelty production

While endogeneity specifies the source and mobilisation of resources, novelty production refers to the capacity to add value to these resources. This involves the combinations of technology, accumulated skills, and practices to advance the process of production. Novelty production constitutes an essential element of rural development by increasing value addition and the capacity of rural areas to be attractive for the markets. The continuing unfolding of novelties in rural areas supports agricultural diversifications and increases the understanding of competitive advantages (Wiskerke and Ploeg 2004; Groot *et al.* 2007).

Contextual knowledge is also an essential component of novelty production. Contextual knowledge is defined as the mobilisation of knowledge within a territory. An increased and deeper contextual knowledge of a rural area enables more production of novelty goods and services (Oostindie and Broekhuizen 2008). Contextual knowledge is enhanced through socialisation (sharing local knowledge), externalisation (transforming local knowledge into codified knowledge), recombination (reuse of local and codified knowledge) and internalisation (absorbing external knowledge and transforming it into local knowledge) (Gazolla 2012). This highlights that novelty production consists of not only the local knowledge in production but external knowledge that helps rural households to meet the demand for certain products or services (Ward *et al.* 2005).

4.2.3 The governance of markets

The governance of markets is defined as the ‘capacity to control and strengthen existing markets or to construct new ones’ (Ploeg and Marsden 2008, p. 11). Horlings and Marsden (2014) explain the existing markets as the improvement and marketing of existing products for the markets, which involve activities that sustain the production of local foods and the ability of rural households to participate directly in the markets. Collective marketing activities, rural tourism, and urban markets are examples of such activities. They also explain the construction of new markets as the production and marketing of local foods for new markets. This involves activities that encourage rural households to identify new groups of consumers or buyers for their produce. This may include factories, schools, restaurants, hotels, as well as urban or international buyers. Farmers’ connections with these new consumers create several marketing outlets in rural areas, which can assist them to determine the sale and different prices of their produce (Arato *et al.* 2017). The governance of markets further includes the role of institutions and regulations that supports rural households to gain access to markets for their produce (Ploeg and Marsden 2008).

The governance of markets influences the specific ways in which products from different sectors of the rural economy are marketed. This encourages the production of quality products required to make rural areas competitive and responsive to the increasing urban demand for rural products. This generates a high value for agricultural products, creates employment opportunities, income, and sustains rural livelihoods (Vihinen and Kroger 2008).

4.2.4 Social capital

Social capital is defined as the norms and networks that enable people to act collectively (Woolcock and Narayan 2000). It is the capacity of individuals or groups of people to engage in networks and use social relations characterised by high levels of mutual trust in the exchange of goods and services (Lee *et al.* 2005; Ventura *et al.* 2010b). These networks and social relations are developed through a favourable atmosphere of interactions, connectedness, and values among individuals, groups, and institutions (Camagni 2017).

Social capital is also understood as bonding, bridging, and linking social relations. Whereas bonding social capital refers to the relations among similar actors such as family members or members of ethnic groups, bridging social capital involves different or heterogeneous actors. Linking social capital refers to the relations among actors outside a rural territory (Schuller 2007; Milone *et al.* 2010).

Social capital contributes to rural development in several ways. First, it possesses the capacity to retain relations in rural areas. The retaining of relations generates social and economic benefits such as access to markets and improved income. Second, it contributes to problem-solving through mutual trust and expedites the attainment of objectives that would otherwise be impossible to achieve. Third, it encourages capacity building, governance, and social innovative activities (Guinjoan *et al.* 2016a). Many scholars have argued that social capital represents a key influential element in rural development (e.g., Kull *et al.* 2010; Messely *et al.* 2013; Horlings and Marsden 2014; Horlings and Kanemasu 2015).

4.2.5 Institutional arrangements

Whereas social capital defines the social relations and networks in a territory, institutional arrangements strengthen social relations. Institutional arrangements are defined as the supporting structure that solves rural problems through cooperation or collaboration (Ploeg and Marsden 2008). The supporting structure may include the establishment of local action groups, village or producer associations, NGOs, the local council, village committee groups, and contract farming. It may also include the norms or traditions that govern individual behaviour and actions. These structures reduce transaction costs and coordination problems by increasing participation, new networks, and access to basic services (Broekhuizen and Oostindie 2010; Esparcia 2014).

Institutional arrangements play a role in rural development through the empowerment of the local people to gain control over their resources. Activities that support this course increase the multilevel social networks in rural areas and the extent to which such networks enhance resource mobilisation and utilisation. This has the tendency of increasing employment and generates a new source of livelihood for the rural population (Knickel *et al.* 2008; Tisenkopfs *et al.* 2008).

4.2.6 Sustainability

The term *sustainability* has largely been promulgated by the industrialised nations in the context of global environmental processes and concerns. It has received attention on the relationship between economic growth and the natural resource on which this depends (Redclift 1987). Even though the term has been used in various ways (e.g., Murdoch *et al.* 1994; Langhelle 2000; Lockie *et al.* 2006), broadly speaking, the idea is the existence of social and ecological conditions necessary to support human life at a certain level of well-being through future generations (Earth Council 1994). The key principle underlying the notion of sustainability is that environmental conservation and economic development should become interdependent and mutually reinforcing goals. Through sustainable development, ‘the often-competing needs of economy, society, and nature can be met, with special attention to the requirements of economic growth, social justice, ecological protection, and inter-generational equity’ (Kitchen and Marsden 2006, p. 11).

It should be emphasised that sustainability is a key element in the pursuit of rural development goals. Sustainability from the perspective of rural development has revolved around agriculture. It is defined as the territory-based development that reconceptualises nature by re-emphasising production, consumption, and distribution. Sustainability reasserts the economic, social, and environmental roles of agriculture as a major factor in supporting the life of humans (Ploeg and Marsden 2008; Guinjoan *et al.* 2016a). Agriculture is a key source of livelihood to a majority of the rural population especially, in developing countries (FAO 2012; AGRA, 2013). It also integrates the social and cultural life of people rather than mere occupational life. For instance, agricultural activities are mostly family-run businesses, which is essential in the creation of cultural assets and ensures the permanency of farming businesses (Pretty and Hine 2000; Marsden and Sonnino 2008). Agricultural activities involve the exploitation of the natural environment, which integrate the social and cultural life of people rather than a mere occupational life (Pretty and Hine 2000; Marsden and Sonnino 2008).

Several studies (e.g., Hediger and Knickel 2009; Wiskerke 2009; Kanemasu *et al.* 2010; Ventura *et al.* 2010b; Paddock and Marsden 2015) found that sustainability can be linked to sustainable agriculture, which involves sustainable farming practices. These practices include environmental preservation, practice of polyculture, mulching, and organic farming. These scholars argued that sustainable agricultural practices ensure the production of quality products, preservation of the natural environment, rebuilding of confidence in the agri-food systems, and the creation of employment opportunities in rural areas. The aim is to improve the quality of life by conserving the natural and cultural heritage in rural areas, which fortifies the economic, social, and environmental development of the areas. Agriculture, therefore, plays an important role in three domains of sustainability (Munchhausen *et al.* 2010).

4.3 Interrelations within the Rural Web Analysis

These six dimensions of the Rural Web analysis (as discussed above) all interact together (see Figure 4.2). Endogeneity, sustainability, and social capital interact in diverse ways. Endogeneity represents a precise trajectory towards sustainability in rural areas for which agriculture plays an essential role. Sustainability, in turn, embraces practices such as organic farming that enriches the endogenous resources in a sustainable way. Endogeneity interacts with social capital through new forms of cooperation, strategies, and collective actions. The relationships of trust in cooperation and the shared vision of groups of people often lead to the implementation of development initiatives. The endogeneity of development initiatives in turn fosters the shared vision of people, which further supports networking or cohesion in sustainable practices (Kanemasu *et al.* 2010; Marsden 2010).

Social capital interacts with institutional arrangements, which affects endogeneity and novelty production. Social capital contributes to institutional arrangements through cooperation among associations or institutions. Institutional arrangements also influence social capital through the development of values. The cooperation facilitates local and regional networks as well as collaborations. This supports endogenous resources such as local food production and cultural heritage. It is worth noting that novelty production, in terms of quality, manifests itself in networks, initiatives, and practices. Social capital facilitates the sharing of ideas and knowledge through associations, which supports innovative practices (Flora *et al.* 2006).

The governance of markets, endogeneity, and novelty production interrelate. The governance of markets in connection with novelty production determines successful local, regional, and

international marketing. Novelty in the form of new production systems results in the creation of alternative or new markets that is, new buyers or consumers. The governance of markets interacts with endogeneity. The endogeneity of one area can mean mostly the development and control of local food markets based on the territory's identity. It also represents non-food markets such as public goods. The governance of markets influences endogeneity through the supply chain systems (Vihinen and Kroger 2008; Kanemasu *et al.* 2010).

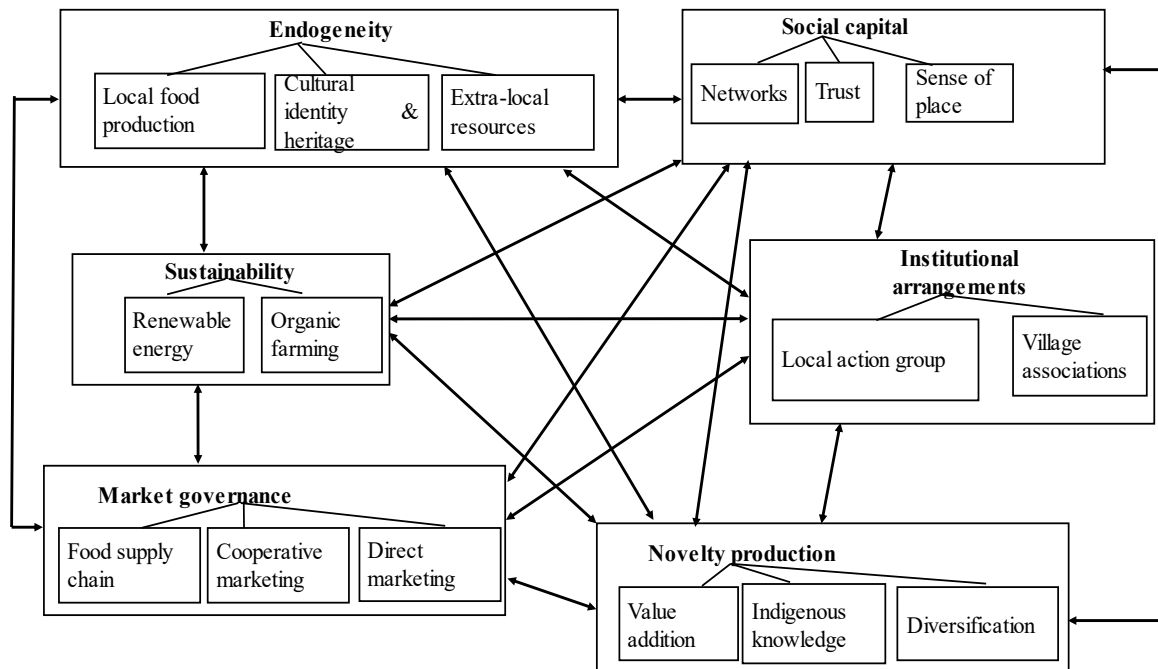


Figure 4.2. Interactions among the six dimensions of the rural web analysis

Source: Adapted from Ploeg and Marsden (2008).

Sustainability, the governance of markets, and novelty production interact in differentiated rural areas. Rural areas are increasingly differentiated in the sense that agriculture plays different roles in rural development. In a rural area, agriculture can play a major role whilst in other areas it can be economically insignificant. The different roles of agriculture create new connections with different markets and these connections are linked to the types of goods produced locally. The diversity of market governance is of importance in differentiated rural areas, especially from the perspective of sustainability. The differentiation of agriculture supports novelty production by widening the interactions between the environment and agriculture through diversifications and on-farm activities (Tisenkopfs *et al.* 2008). Rural diversifications combine agricultural and non-agricultural goods and services within the

regional markets, which can support the economic, ecological, and social sustainability in rural areas (Vihinen and Kroger 2008).

Additionally, novelty production interacts with social capital, the governance of markets, and institutional arrangements. The development of novelty practices depends on trust among rural households. Rural areas with a strong social capital are more likely to, and more successful at, using new ideas to increase local production (Vihinen and Kroger 2008). The trust among rural households in social relations creates strong cooperation, which enables them to address many of the market problems they face. Through cooperation, rural households can increase their chances to sell products and develop new technologies and experiences in marketing. The cooperation also enables rural actors to transport their products to distant markets and collectively share the cost of transport. Several scholars have argued that when novelties are developing in rural areas, the existence of both bonding and bridging social capital is important to support the governance of markets (e.g., Derkzen *et al.* 2008; Tisenkopfs *et al.* 2008; Asheim *et al.* 2011; Guillaume and Doloreux 2011; Esparcia 2014).

The institutional arrangements interact with novelty production and the governance of markets. The institutional arrangements interact with novelty production by increasing the capacity for knowledge sharing, ensure effective locally-based innovation such as value addition, and access to finance. It should be noted that the ability of rural people to recognise the potential of emerging innovations in rural areas is entrenched in both formal and informal institutional arrangements. Institutional arrangements can be considered a central element of the governance of markets (Vihinen and Kroger 2008). For instance, institutions are intervening actors between the inputs and outputs markets, which influence actors' preferences and choices of goods and services. The incorporation of markets in a locally controlled institutional framework improves regional market structures, develops the institutional capacity to control and strengthen markets, and provides assurance of quality and production standards of goods and services (Horlings and Marsden 2010).

Further, sustainability, social capital, institutional arrangements, the governance of markets, and endogeneity interact to stimulate rural development. Social capital in the form of a strong sense of place facilitates the process of building networks in a territory. Sustainability is linked to strong social relations that support cooperation through the formation of new relationships among groups of rural households and between them and institutions. Institutional frameworks such as the formation of local associations or groups strengthen coordination across the food

chain and also foster the creation of new relationships and markets for certain types of goods and services. This in turn supports endogeneity by developing the capacity of rural households to control their resources (Kanemasu *et al.* 2010).

4.4 Applications of the Rural Web Analysis in Rural Development

The following discussion provides an overview of the applications of the Rural Web analysis to examine the agri-food systems in rural areas and rural landscapes and their diversification, institutional roles, and rural innovations.

4.4.1 Agri-food systems and eco-economic development

Some studies have applied the Rural Web analysis to understand the role of agri-food initiatives in rural development, and the type of pathways and strategies for eco-economic development. Kanemasu *et al.* (2010) for example employed a qualitative method to explore the process by which rural development creates and depends upon the construction of a web of interactions and exchanges in Devon (UK). The authors described Devon's rural development process as embedded in organic farming, high-quality food production, and the creation of short food supply chains that followed a multifunctional path of rural development with the emphasis on sustainable use of local resources. Marsden (2010) examined the pathway and drivers of eco-economic initiatives in Devon and Shetland in the UK using data from interviews. The author found that rural development in these two regions revolved around the agri-food chains, which formed a part of the more, rooted, and synergistic process of eco-economic development to create sets of production and consumption chains that can lead to new economic activities. Marsden *et al.* (2011) explored the agri-food chains in rural areas in the Anji District of China using a qualitative research method. These authors revealed that production and consumption constituted the eco-economic development rural regions.

In addition, Horlings and Marsden (2014) evaluated the strategies and pathways for eco-economic development by analysing 62 project cases in rural regions in six countries including the UK, Germany, The Netherlands, Italy, Latvia, and Finland. These authors explained the rural development process of the rural regions as comprising agri-food networks and a gradual shift from an agricultural-based development to a more integrated development including a wide range of non-agricultural actors. Paddock and Marsden (2015) examined the importance of agri-food in rural development in rural regions of Devon and Shetland in the UK using interview data. They found that the agri-food networks continued to play a circumferential role

in rural development but argued that agricultural output was diversified towards value-added goods and services. Horlings and Kanemasu (2015) revealed a similar finding. These authors studied the changes in rural areas on the Shetland Islands in the UK and their implications for eco-economic development. They discovered that although Shetland's agriculture constituted an important traditional sector, it had declined between 2008 and 2010. They explained that this decline, coupled with the small population and limited internal markets, forced rural areas to rely more on urban markets for the sale of farm products. Lastly, Arato *et al.* (2017) assessed the food supply chains of agribusiness in three rural areas of the Chihuahuan desert in Mexico. The authors relied on data from interviews and questionnaires and pointed out that the production of candelilla wax constituted the major food supply chain in villages and this had progressed through a pattern of interactions and exchanges among farmers and external actors.

These studies as presented above concluded that endogeneity and sustainability were the primary dimensions that served as initiators of the agri-food systems and eco-economic development. The institutional arrangements, social capital, and novelty production were the facilitators of the primary dimensions. They identified the governance of markets as the outcome of the agri-food chains and eco-economic development.

4.4.2 Rural landscape and diversifications

Many studies (e.g., Ventura *et al.* 2010b; Broekhuizen and Oostindie 2010; Munchhausen and Knickel 2010) applied the Rural Web analysis to understand the nature of rural landscape and diversifications. Ventura *et al.* (2010b) looked at the role of agriculture in rural development in the Upper Tiber Valley in Italy using interview data. They revealed that the rural landscape revolves around tobacco farming as a major source of employment and family income. According to these authors, tobacco farming attracted the attention of many institutions that supported farmers to contribute significantly to landscape management through agricultural diversifications. Broekhuizen and Oostindie (2010) focused on the role of the dimensions of the Rural Web analysis in re-connecting rural and urban development and the associated construction of new rural-urban relationships in Laag-Holland in the Netherlands. They discovered that farming constituted an integrated component of nature and landscape management and argued that the proximity of villages in Laag-Holland to urban areas offered the possibilities for diversification and the creation of new economic activities. Munchhausen and Knickel (2010) carried out a comparative analysis of six countries (UK, Germany, the Netherlands, Italy, Latvia, and Finland) to explore the dynamic processes of rural development.

They concluded that the landscape of rural regions such as Kittila (Finland), Smiltene Novads (Latvia), Devon (UK), Odenwald (Germany), Laag-Holland (the Netherlands), and High Tiber Valley (Italy) illustrated first, the importance of farming and second, the effect of non-farming activities on the rural development trajectory.

Social capital and institutional arrangements were the initiators of rural landscapes and diversifications in the Upper Tiber Valley, Kittila, Smiltene Novads, and Laag-Holland. The governance of markets served as the facilitator to this whilst sustainability, endogeneity, and novelty production were the outcomes. Contrary to this, endogeneity, sustainability, and novelty production were the driving force of rural landscapes and diversifications in the Odenwald region. Social capital, the governance of markets, and institutional arrangements were the lubricants or facilitators of rural landscapes and agricultural diversifications in the region.

4.4.3 Evaluation of stakeholders and institutional roles

Some studies (e.g., Kull *et al.* 2010; Tisenkopfs and Lace 2010; Messely *et al.* 2013) applied the Rural Web analysis to evaluate the role of stakeholders and institutions in rural development. Kull *et al.* (2010) examined the role of institutional arrangements in rural areas in the Kittila Municipality (Finland) using interview data and found that activities of local action groups constituted the major institutional arrangements that supported the development of the municipality. They suggested that endogeneity and institutional arrangements were initiators of rural development. Social capital and sustainability were facilitators whereas the governance of markets and novelty production constituted the outcomes of rural development. Tisenkopfs and Lace (2010) described the growth and development of the Smiltene town and adjacent rural communities in Latvia. The authors found that local institutions such as sports clubs and dance groups stimulated development in rural areas by increasing participation. They argued that social capital was the initiator of rural development. Institutional arrangements, novelty production, and sustainability were the outcomes, and endogeneity being the lubricant or facilitator of rural development. Messely *et al.* (2013) employed participatory action research and relied on interviews and focus group discussions to engage stakeholders in reflecting on the development of four rural areas including Vlaamse-Ardennen, Meetjesland, Leie, and Schelde in Flanders, Belgium. They found that stakeholders such as researchers and project coordinators were actively involved in collaboration with rural actors and shared a common knowledge about the development of the areas. The authors suggested that

endogeneity was the initiator of rural development. Novelty production, the governance of markets, and sustainability were the outcomes whereas social capital and institutional arrangements were the facilitators of rural development.

4.4.4 Rural innovations and local network of knowledge

The Rural Web analysis has been used to examine the importance of innovation projects and local networks of knowledge in rural development. Esparcia (2014) analysed the contribution of innovation projects to the development of six countries. The author found that innovation projects enabled rural actors to increase food production through the sharing of local and expert knowledge and the establishment of interactions between them and several other actors.¹ According to this author, the important dimension was novelty production followed by sustainability, institutional arrangements, endogeneity, and the governance of markets in their order of importance. Munchhausen *et al.* (2010) examined the innovative characteristics of rural areas in the Odenwald Region using interview data and found that rural entrepreneurs portrayed rich knowledge and innovative spirit, which increased their adaption of renewable energy technologies. These authors identified that endogeneity, sustainability, and novelty production constituted the major driving force of rural development in the region. Social capital, institutional arrangements, and the governance of markets were the facilitators of rural development.

4.4.5 Gaps in the literature on the application of rural web analysis

Despite the wide application of the Rural Web analysis, within the context of rural development much remains unexplored. From the studies discussed above and summarised in Table 4.1 below, it is clear they have predominantly utilised a qualitative research method. Thus, they have provided in-depth data about the role of the dimensions of the Rural Web analysis in rural development. Yet, the dynamics and changes in rural areas can obstruct a clear illustration of the dimensions thereby making their predictions difficult or unclear (Broekhuizen and Oostindie 2010; Munchhausen *et al.* 2010). For this reason, Paddock and Marsden (2015) and Guinjoan *et al.* (2016b) suggested that the application of the Rural Web analysis using both qualitative and quantitative data collection and analysis techniques is important to aid in accurately describing and predicting the dimensions. These authors stressed that quantitative

¹ These were the Eco-fruit project in Bulgaria; the AlpEnergy wood project in France; the Eco-compatible Agriculture project in Italy; the 3N network of renewable resources in Germany; the Organic Food Valley in Poland; and the Eco-farm La Peira project in Spain.

method for example can increase the degree of uniformity of the dimensions that can in turn determine the specific transition paths in rural areas. Arato *et al.* (2017) used a questionnaire but analysed the questionnaire data qualitatively. Ventura *et al.* (2010b), Tisenkopfs and Lace (2010), Kull *et al.* (2010), and Esparcia (2014) employed quantitative analysis but used simple descriptive statistics such as percentages. Researchers are yet to apply inferential analysis to the application of the Rural Web analysis.

Table 4.1 Summary of the rural web studies within the context of rural development

Research study	Dimension focus	Data collection tool	Type of analysis	Focus on impact of external projects	Country of study
Kanemasu <i>et al.</i> (2010)	Endogeneity	Interview guide	Qualitative	No	UK
Marsden (2010)	General	Interview guide	Qualitative	No	UK
Broekhuizen & Oostindie (2010)	Endogeneity	Interview guide	Qualitative	No	Netherlands
Munchhausen & Knickel (2010)	General	Interview guide	Qualitative	No	*Six countries
Ventura <i>et al.</i> (2010b)	General	Interview guide	Qualitative & quantitative	No	Central Italy
Kull <i>et al.</i> (2010)	New institutional framework	Interview guide	Qualitative & quantitative	No	Finland
Munchhausen <i>et al.</i> (2010)	General	Interview guide	Qualitative	No	Germany
Tisenkopfs & Lace (2010)	Social capital	Interview guide	Qualitative & quantitative	No	Latvia
Marsden <i>et al.</i> (2011)	General	Interview guide	Qualitative	No	China
Messely <i>et al.</i> (2013)	General	Interview guide	Qualitative	No	Belgium
Horlings & Marsden (2014)	General	Interview guide	Qualitative	No	*6 Countries
Esparcia (2014)	Novelty production	Interview guide & questionnaire	Qualitative & quantitative	No	**6 countries
Paddock & Marsden (2015)	General	Interview guide	Qualitative	No	UK
Horlings & Kanemasu (2015)	Endogeneity and institutional arrangements	Interview guide	Qualitative	No	UK
Arato <i>et al.</i> (2017)	General	Interview guide & questionnaire	Qualitative	No	Mexico

Note: * They are United Kingdom, Germany, The Netherlands, Italy, Latvia, and Finland.

** They are Bulgaria, France, Germany, Poland, Italy, and Spain.

The previous studies have overlooked the importance of external initiatives in the application of the Rural Web analysis. It should be noted that despite internal or local initiatives, rural areas continue to experience power differentials, social exclusion, and deprivation leaving many rural households marginalised or vulnerable (Kanemasu *et al.* 2008; Oostindie and Broekhuizen 2008; Dahlberg and Mckee 2018). These problems limit the capacity of rural

households to identify the potentials in their territory because the problems pose challenges to equitable access to local resources. Overly focusing on internal initiatives also excludes the important contribution of external initiatives and opportunities to rural development. Rural development should also be understood as a process of re-building the interactions between the rural and urban areas (Broekhuizen and Oostindie 2010). Connecting rural development to external initiatives can generate new networks that perhaps are unidentified or hidden within rural areas (Munchhausen and Knickel 2010). For instance, by responding to the increasing urban demand for rural products, the incorporation of external initiatives in the application of the Rural Web analysis would be relevant to comprehending their potential for curtailing some rural development problems. New applications of the Rural Web analysis thus need to re-orient their focus to incorporate external initiatives and opportunities offered by the urban landscape for rural development.

Additionally, the previous studies applied the Rural Web analysis largely in rural regions in Europe. Only two studies (Marsden *et al.* 2011; Arato *et al.* 2017) focused on developing countries such as China and Mexico, respectively. None of the studies has used the Rural Web analysis in sub-Saharan Africa. Several researchers (e.g., Weliwita and Okpala 2014; Walo 2016; Yankson *et al.* 2016; Acheampong *et al.* 2016; Houssou *et al.* 2018) have looked at the development process in rural areas in Africa and suggested that new theoretical frameworks are needed to extensively explore the resources and activities in these areas in order to increase understanding of the quality of life of the rural population.

There are no geographical limits to the applications of the Rural Web analysis (Vihinen and Kull 2010). It can be applied to rural areas with diverse socio-economic features. It, therefore, requires that the framework be applied in Africa and other parts of the developing world for practical and methodological reasons. On the one hand, applying the Rural Web analysis in African countries including Ghana is crucial to increase the significance of its theoretical dimensions to Ghana's rural development policies. On the other hand, its application in Ghana can aid the formulation of a more comprehensive policy recommendation to address rural development problems.

4.5 Strengths and Limitations of the Rural Web Analysis

The Rural Web analysis has some strengths and limitations. The dimensions of the Rural Web analysis are perceived as too difficult to be comprehended, especially when applying them at the local level (Munchhaussen and Knickel 2010; Messely *et al.* 2013; Arato *et al.* 2017). Its complexity cautions researchers to operationalise the definitions of the dimensions. Messely *et al.* (2013) suggests that a basic knowledge of the case study area is important to aid in operationalising the dimensions. The involvement of the local people to translate the dimensions of the Rural Web analysis into a common and shared language that can be understood by all is also crucial (Hermans *et al.* 2011). Further, presenting the meanings of the dimensions in the form of itemised questions using simple words is relevant for their comprehension (Guinjoan *et al.* 2016b). Although these actions seem to be cumbersome, complex, and time-consuming (Gedikli 2009), they exhibit a practical way of engaging rural actors that can also avoid a top-down approach to rural development.

The application of the Rural Web analysis helps researchers to document detailed descriptions of rural areas. Analysis of the dimensions has been proven extensively in the literature to assist researchers to understand the effect of initiatives on rural development (Tisenkopfs and Lace 2010; Marsden 2010; Ventura *et al.* 2010; Kull *et al.* 2010; Kanemasu *et al.* 2010; Marsden *et al.* 2011; Guinjoan *et al.* 2016a). These dimensions also give more insight into the quality of life in rural areas (Ploeg and Marsden 2008; Milone *et al.* 2010; Munchhausen *et al.* 2010; Messely *et al.* 2013; Paddock and Marsden 2015; Horlings and Kanemasu 2015; Arato *et al.* 2017).

4.6 Summary

This chapter has given an overview of the Rural Web analysis and its dimensions. Rural development involves the interactions among six dimensions that explain the quality of life in rural areas. It has been widely applied to analyse rural development processes in most European countries in areas such as agri-food systems and eco-economic development, in rural landscapes and their diversification, innovations, and the various stakeholders' roles in rural development. The above review of this literature identified some research gaps including the lack of integration of external initiatives and quantitative methods to the application of the Rural Web analysis. In addition, the Rural Web analysis is yet to be applied to understand the effect of external projects on rural development in sub-Saharan Africa including Ghana.

Chapter 5. Research Methodology

This chapter provides a detailed account of the methods used to collect data to achieve the aims of the study. The chapter first presents the analytical framework for the study by outlining its methodological procedures and the justification for its adoption. The chapter then presents a description of the research design adopted in the study. A description of the study areas, participants, and sampling techniques is given. Data collection tools such as the questionnaire and the interview guide are also described. In addition, the chapter gives the procedure for evaluating the research findings and the data analysis technique used in the study. Finally, the procedure for the ethics application and concerns sought from the participants are presented.

5.1 Procedure of the Rural Web Analysis Adopted in the Study

The researcher adopted the Rural Web analysis to achieve the aims of this study. The Rural Web analysis provides a robust practical method for researchers to understand the nature and dynamics of rural development of rural areas by offering a logical and precise way of collecting a wide range of data (Ventura *et al.* 2008). It integrates the traditional approaches (such as the sectorial, multi-sectorial, territorial) to rural development that help researchers to capture the new and multifunctional characteristics of rural economies through its dimensions. It explains how rural resources are linked to initiatives or projects, which offers a better understanding of the potential and limits of the effects of these initiatives on rural development processes (Ploeg and Marsden 2008; Guinjoan *et al.* 2016a; 2016b). This is in line with the aims of the current study, which seeks to examine the effects of UPMs on rural areas by looking at how these urban markets affect activities, interactions, or transactions in villages. A Rural Web approach to the study thus enables a detailed explanation of the effects of UPMs on rural development.

The methodological procedure of applications of the Rural Web analysis involves two steps to understand the impact of initiatives on villages. The first step is for researchers to describe the internal characteristics of rural areas (Ploeg and Marsden 2008; Milone *et al.* 2010; Messely *et al.* 2013) using its six dimensions as described above in Chapter 4. This current study applied the first step through the collection of data on each dimension of the Rural Web analysis, which constitutes the socioeconomic characteristics of the study sites. These included household production and distribution, social relationships, marketing outlets and strategies, and institutional initiatives that support cooperation or collaboration (to be discussed further in Chapter 6).

The second step in the application of the Rural Web analysis was to examine the impact of projects on its six dimensions (Tisenkopfs and Lace 2010; Kull *et al.* 2010; Esparcia 2014). The Rural Web analysis assumes that when activities and resources in rural areas perform better, they expand and connect to other activities outside the areas. It also considers that activities outside rural areas have a strong impact on the areas (Ploeg and Marsden 2008). More importantly, external factors caused by urbanisation such as the movement of an activity from one area to other areas have been noted to play a central role in rural development (Horlings and Marsden 2010; Berdegue *et al.* 2014; Paddock and Marsden 2015; Arato *et al.* 2017). This is particularly important for the current study, which aimed to examine the effects of UPMs on rural development. Chapter 3 revealed that periodic markets in Ghana have moved from rural areas to peri-urban and urban areas because of the increasing rate of urbanisation. This change in rural areas can affect the development of the areas. The study, therefore, analysed the effects of UPMs on villages by applying the Rural Web analysis (see Figure 5.1).

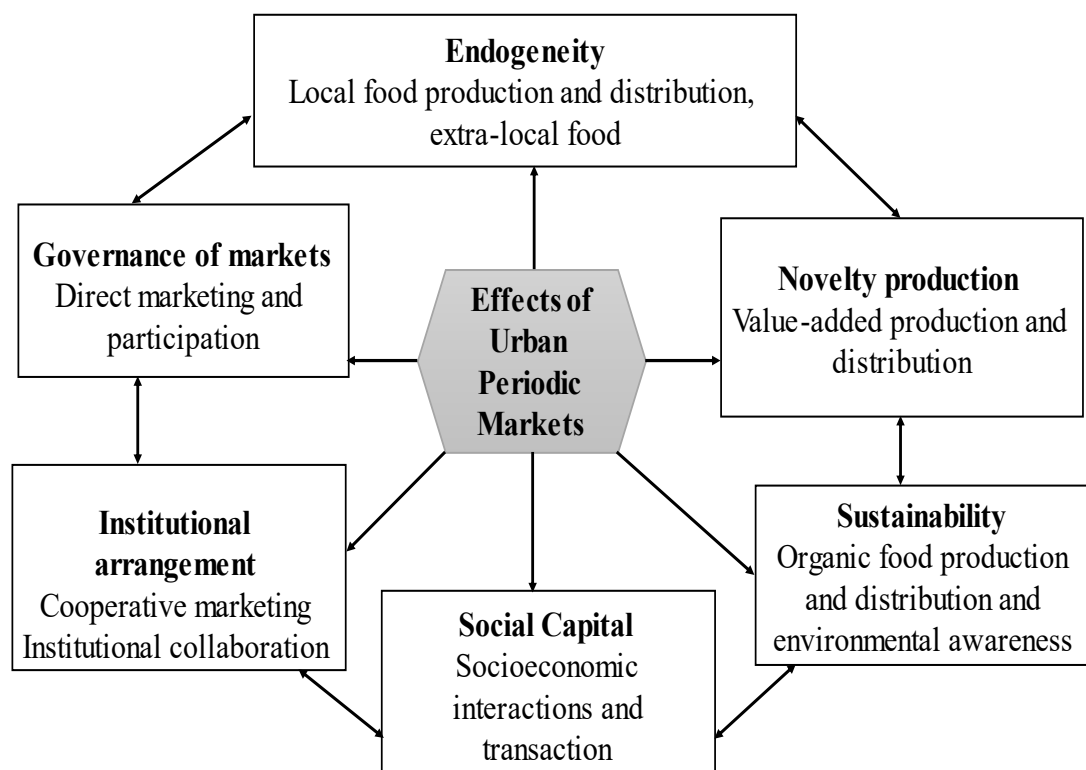


Figure 5.1 An overview of the effects of UPMs

Source: Authors' construct.

The application of the Rural Web analysis in this study helped the researcher to understand the effects of these UPMs on the integration of important elements of the study sites. It also helped

the researcher to determine the effects of the UPMs in creating sets of interactions in villages. The key characteristics of UPMs identified in the literature are summarised in Table 5.1. The researcher measured these characteristics against each dimension of the Rural Web analysis, and this is presented in more detail in Chapters 7 and 8.

Table 5.1 Description of key characteristics of the UPMs

Features	Definition
Market intervals	Interval between periodic markets.
Market growth	The number of periodic markets and their days of occurrence.
Market size	The population of traders in periodic markets.
Producer-retailer	Farmers' ability to deal with middle agents and direct consumers during periodic marketing activities.
Part-time marketing	Farmers' engagement as part-time workers in periodic markets.
Market location	The location of periodic markets in urban areas.
Exchange of information	Farmers' access to information in periodic markets.

Source: Authors' construct.

5.2 Research Design

A research design provides the framework within which data is collected, interpreted, and analysed. The selection of a research design is dependent on the objective the researcher seeks to achieve. A researcher may seek to generalise findings to a larger population, understand the behaviour of a phenomenon within its context, or establish casual relationships (Bryman 2012). This research is primarily interested in UPMs and their effects on villages and rural development. The aims of the study and the theoretical framework required mixed-methods research using both quantitative and qualitative designs.

Mixed-methods research enables researchers to collect multiple sources of data and to cover a wide range of respondents. Creswell and Clark (2007) and Creswell (2009) pointed out that data from multiple sources enhance the consistency of research findings and give a more in-depth picture of the research problem. Researchers who employ mixed-methods research can enhance the credibility of findings because the limitations of one technique are neutralised by the strength of the other (Creswell 2011). The adoption of mixed-methods research in this study was important to collect sufficient data to broaden evidence on the scope of the effects of UPMs.

The main concerns for using mixed-methods research relate to the timing and combination of qualitative and quantitative data (Creswell 2009). This present research considered this concern and followed the procedures as suggested by Onwuegbuzie and Collins (2007), Bazeley (2009),

Sandelowshi *et al.* (2009), Tashakkon (2009), and Leech *et al.* (2011) that involved a concurrent nested mixed method in data collection and analysis. Using the concurrent nested methodology, the quantitative and qualitative data were simultaneously collected. The study puts weight on the quantitative survey method, which involved the gathering of data from a sample of individuals to explain the characteristics and intentions of a large population (Fink 2002; Creswell 2011; Babbie 2013; Fowler 2014; Rindfuss *et al.* 2015). This was considered appropriate for this research study because the study aimed to investigate the effects of UPMs on rural development. This required a large group of respondents to be involved during the data collection to give detailed empirical evidence and to be able to generalise respondents' views to a larger population. Thus, there was a limited focus on qualitative methods in the application of the theoretical framework adopted in this study because the quantitative method was considered more appropriate to collect the required data to examine the issues, and also ensure the research would close the methodological gap as evidenced in Chapter four.

5.3 Description of the Study Sites and Participants

The study sought expert opinions at the regional and district levels for the selection of villages (see Figure 5.2). This helped the researcher to gain a basic knowledge of the villages.

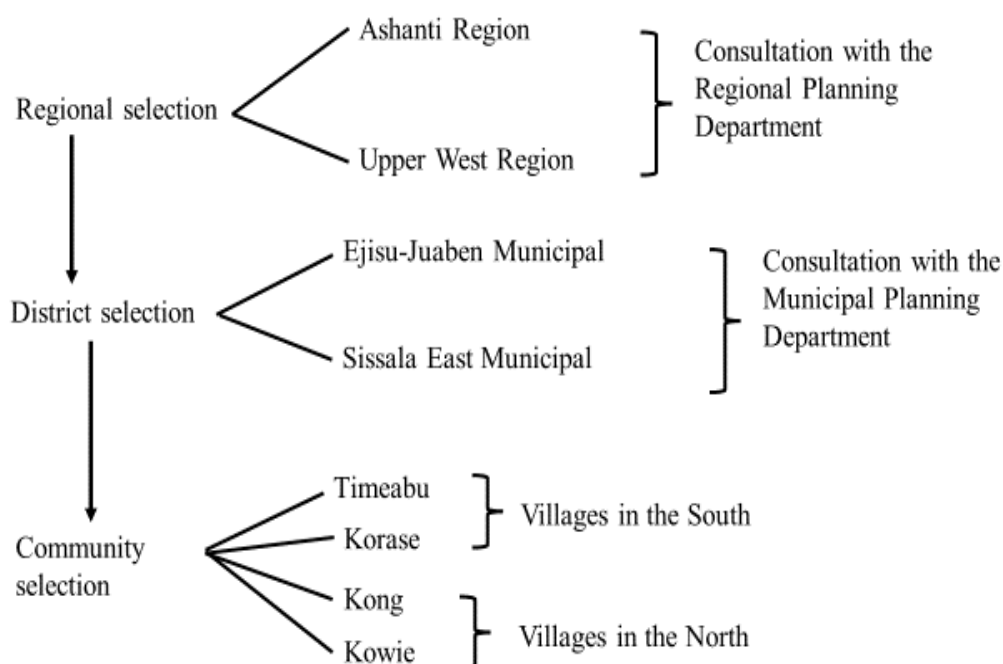


Figure 5.2 Structure of procedures for choosing the study sites

Source: Author's construct.

At the regional level, the Upper West Region was selected because it is the poorest region in the north of Ghana. The region experiences limited economic activities and a high incidence of poverty (GSS 2014). The region's economic situation has attracted several donor projects that aim at supporting livelihoods in rural areas. The Ashanti Region was selected because it is a relatively developed region compared to the Upper West Region (GSS 2014). The Ashanti Region is in the central part of Ghana and the centre for the transport of goods and services to the Upper West Region.

At the district level, the Sissala East Municipality in the Upper West Region and the Ejisu-Juaben Municipality in the Ashanti Region were selected because they are pilot areas for government and donor projects. These municipalities are also known to have several villages that engage in agricultural activities to feed the district and beyond (GoG 2018a; GoG 2018b).

At the local or community level, four villages were selected, two in the Ejisu-Juaben Municipality (Timeabu and Korase) and two in the Sissala East Municipality (Kong and Kowie) (Figure 5.3). Both Timeabu and Korase as well as Kong and Kowie are homogenous villages regarding their socioeconomic characteristics such as the landscape, culture, ethnicity, among others. These villages were selected because they are the nearest to the UPMs. The villages are also areas for the implementation of pilot projects in their respective districts because of their proximity to the district capital. For example, recently, Timeabu and Korase benefited from several projects provided by a donor organisation (GoG 2018a). NGOs have also implemented several agricultural projects in Kong and Kowie (GoG 2018b). The selection of these villages helped to ascertain the distinctive contribution of UPMs to the resources, activities, and interactions amidst other initiatives implemented in the villages. The villages were classified as South (Timeabu and Korase) and North (Kong and Kowie). This classification enabled the researcher to compare the villages in the South to those in the North to understand the spatial variations regarding the importance of UPMs between a developed region (villages in the South) and a less developed region (villages in the North).

The population of the study was households in the selected villages and respondents from both NGOs and the Municipal Assemblies. The total number of households in the four villages was 853. This consisted of 145 households in Timeabu, 163 households in Korase, 370 households in Kong, and 175 households in Kowie. The list of households was obtained from the village register available in each village and this constituted the sample frame. Respondents from the Municipal Assemblies were selected from the Department of Rural and Urban Planning,

Community Development Department, Market Information Department and Agricultural Extension Department of the Ministry of Food and Agriculture, and the Works Department. Respondents from seven NGOs were also selected. These local institutions were included in the study because they implement and supervise projects in villages.

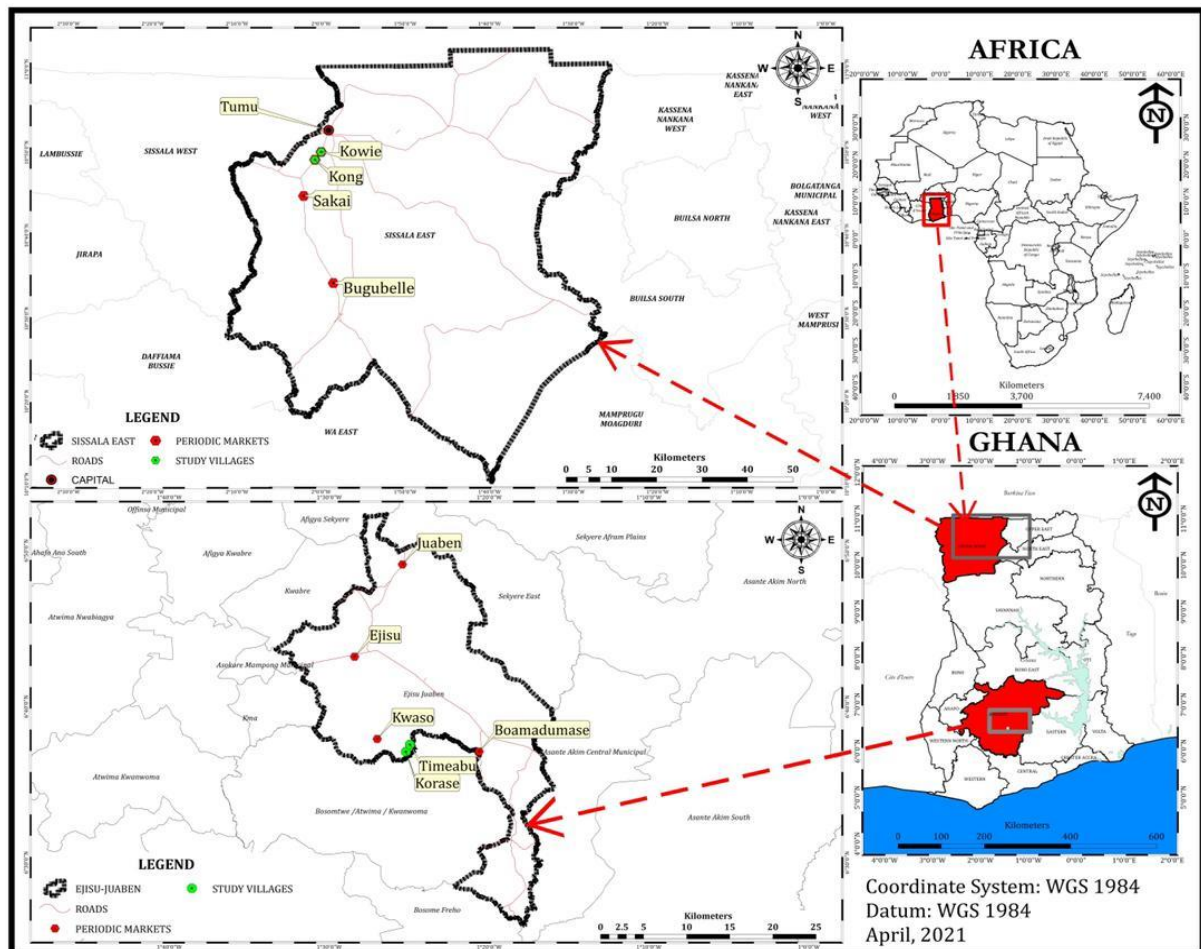


Figure 5.3 Location of the study sites

Source: Authors' construct.

5.4 Sampling Procedures

Sampling is important in research because it is almost impossible for a researcher to cover the entire population of a study. The researcher examined a portion of a larger household population. This permitted a reduction in the number of respondents from the larger population without biasing the findings of the study (Neuman 2014). Of the 853 households in the four study sites, the study selected 400 households, which represented about 47% of the total household population. One hundred households were selected from each village. Equal

numbers of households were selected from each village to increase the precision of estimates from the sample frame and to make a comparison of different sites (Fowler 2014)

The study employed a systematic sampling method to select the 400 households from the sample frame. Systematic sampling is mostly used in quantitative research when the sample frame is known (Rea and Parker 2014). The equiprobability method was used in the selection process. It started by selecting a household from the sample list at random and then for every two intervals other households were chosen. This method was applied in each village. Using this procedure, each participant in the population had a known and equal probability of being selected. The units of analyses were household heads. The sample interval was obtained using the model:

$$K=N/n, \text{ where } n \text{ is the sample size and } N, \text{ the population.}$$

The category of people that needs to be interviewed depends on the intention of the researcher and the type of data to be collected. In qualitative research, sampling is usually purposeful. The study adopted a purposive sampling to select respondents. Purposive sampling involves the researcher selecting key informants who represent the group to be studied (Marshall 1996). This technique is more suitable for the qualitative aspect of the current study because the researcher aims to select qualified people or seek experts' opinions.

The study selected 40 village participants (10 from each village) for interviews using purposive sampling techniques with the aim to selecting qualified informants or seek expert(s) opinions. These respondents comprised market leaders, village leaders (chiefs), leaders of village associations, and ethnic groups as well as local council representatives (locally called *assembly members*) (See Table 5.2).

Table 5.2 Category of respondents selected from villages

Respondent	Timeabu	Korase	Kong	Kowie
Market leaders	2	2	2	2
Village leaders (Chiefs & Elders)	1	1	1	1
Leaders of village association	3	3	3	3
Local council representatives	1	1	1	1
Leaders of ethnic groups	3	3	3	3

Source: Authors' construct.

These respondents were selected because they held some positions in their respective villages and their roles are geared more towards ensuring the welfare of villagers. For instance, market

leaders coordinate marketing activities in villages by connecting farmers to buyers. Village leaders and the local council representatives lobby for projects to be implemented in their villages or engage villagers to initiate self-help projects. Their inclusion in the study, therefore, helped to identify activities that occur in UPMs.

The study also selected five key informants each from the Ejisu-Juaben Municipal Assembly and the Sissala East Municipal Assembly. These informants were heads of the various departments in the two assemblies (See Table 5.3). They were selected because they implement development policies through the provision of projects within the municipalities. In addition, five respondents from NGOs in the Sissala East Municipality and two NGOs from Ejisu-Juaben Municipality were selected. These respondents were coordinators of various projects implemented by NGOs in the municipalities.

Table 5.3 Category of respondents selected from the local councils

Department	Ejisu-Juaben Municipal Assembly	Sissala East Municipal Assembly
Rural and Urban Planning	1	1
Community Development	1	1
Market Information	1	1
Agricultural Extension	1	1
Works Department	1	1

Source: Authors' construct.

5.5 Data Collection Methods

The data collection instruments used in this study are described as follows.

5.5.1 Village household survey questionnaire

5.5.1.1 Rationale for using a questionnaire

The study used a survey questionnaire to collect data from the 400 sampled households (See Appendix 3). Chapter 4 reveals that the survey questionnaire was not the traditional tool used by many researchers who applied the methodology of the Rural Web analysis. For example, Ventura *et al.* (2010b), Tisenkopfs and Lace (2010), Kull *et al.* (2010), and Esparcia (2014) examined the impact of internal projects on the dimensions of the Rural Web analysis using interviews. These internal projects, however, benefited a few groups of people who were directly involved in the implementation of the project which necessitated the use of interviews as the main tool for data collection. This current research investigated the effects of UPMs

(being external projects) on villages. It should be noted that UPMs are not confined to specific groups of people. Instead, they are opened to all of the village population. This, therefore, required many households to be invited to participate in the research, which otherwise could not be readily accessed (Creswell 2009; Bryman 2012).

5.5.1.2 Development of the questionnaire

Due to the limited use of survey questionnaires in the application of the Rural Web analysis, the researcher could not locate an existing instrument for data collection. More importantly, the nature of the research problem and the fact that there are limited studies on UPMs necessitated the design of a new questionnaire. The use of a questionnaire was essential to collect the views of a large group of village households to determine the effects of UPMs on the study sites. Therefore, the researcher followed the procedures used by scholars for developing a survey questionnaire (Mitchell and Carson 1989; Neuman 2014; Rea and Parker 2014). These scholars suggested that several factors need to be considered in designing a reliable and robust questionnaire. The researcher must consider the key variables in the study when developing a questionnaire. This current study used the definitions of key variables from the Rural Web analysis that explain rural development (including endogeneity, novelty production, market governance, sustainability, institutional arrangements, and social capital) to aid in developing a questionnaire. Some key variables that explain the features of UPMs were also considered.

The type of questions is also important for developing a good questionnaire. This may include closed, open-ended, or mixed questions (Neuman 2014). This study used mostly closed-ended questions to increase response rate and to achieve uniformity of responses (Fowler 2014; Nardi 2014). Some questions use the 7-point Likert scale (ranging from completely disagree coded as 1 to completely agree as 7) to quantify respondents' opinions on the effects of UPMs. The Likert scale, in general, allows respondents to respond to questions to a degree of agreement to help them to answer questions with ease (Brown 2001; Bishop and Herron 2015). However, closed-ended questions can force respondents to answer questions they are not comfortable answering (Rea and Parker 2014). To ensure the comfort of respondents in answering questions, the researcher introduced a 'Don't know' option to some questions. This option guaranteed a collection of valid responses from households. Where the options given for a specific question were regarded not to be exhaustive, the researcher added 'others: please

specify’ to the options in the survey questionnaire to enable respondents to give answers that precisely represent their thoughts (Mitchell and Carson 1989).

Additionally, the order of questions is important for developing a good survey questionnaire. The study carefully arranged the questions to increase the response rate, reduce the time for administering a questionnaire, and to develop the confidence in respondents (Chadwick *et al.* 1984). The questionnaire begins with household farm characteristics such as economic activities, land ownership, and farm practices, among others. Questions about age, gender, and income are placed in the end of the questionnaire. The purpose was to engage respondents in the research and develop their interest in answering subsequent questions (Vogt *et al.* 2014). Respondents were also given the chance to select one or more than one option from multiple of questions to reduce nonresponse to some important questions (Babbie 2013; Nuno and John 2015).

The questionnaire is grouped into two major sections. The first section captures the economic and social characteristics of villages. The second section looks at the effects of UPMs on villages. Some questions under this section ask respondents to give the volume of agricultural goods they produced and distributed to UPMs and goods they purchased from the same markets within a period of one year (from January 2018 to December 2018). This enabled the researcher to examine the forward and backward effects of UPMs.

5.5.1.3 Standards of Data Quality

Evidence-based research involves the conscious effort of the researcher to ensure the quality of the study. Reliability and validity remain suitable standards for data quality in both quantitative and qualitative research (Morse *et al.* 2002). The current study used several procedures to ensure that the data collected are valid and reliable for analysis. The choice of representative samples from a larger population and the gathering of data from different respondents enhance the validity and reliability of research data (Nardi 2014). The combination of survey and interviews (triangulation) to collect data from the same groups of respondents with similar responses also helps to achieve validity and reliability (Babbie 2013).

An extensive literature review is widely recommended as one of the approaches for improving the reliability and validity of research findings (Fowler 2014; Punch 2014). This current researcher reviewed the literature to conceptualise the definitions of key variables in a way that is most suitable to respondents. The questionnaire and interview guide were screened several

times to filter out unnecessary questions and included questions that can help in getting valid and reliable data (Mitchell and Carson 1989). The wording of questions was simplified and tailored to the specific vocabulary of respondents. Technical variables such as ‘endogeneity’, ‘the governance of markets’, ‘novelty production’, ‘social capital’, ‘sustainability’ and ‘new institutional arrangements’ were explained clearly and in simple terms in the form of specific questions in both the questionnaire and the interview guide.

The questionnaire was pretested to minimise response errors because of the possibility of respondents’ misinterpretation of questions, which are mostly found in survey research (Babbie 2013; Nardi 2014). The questionnaire pre-test involved 16 village households, an acceptable pre-test sample size in the literature (Frankfort–Nachmias and Nachmias 1996; Brown 2001). During the pilot study, some questions were revised in consultation with leaders in the surveyed villages (see Table 5.4). The revision of questions helped respondents to understand the meanings of complex terms and provided their views on them.

Table 5.4 Revision of pilot questions for the actual village survey

Original pilot question	Revised question for the actual survey
Question 10. Which of the following channels do you use to sell your produce?	Question 10. Which of the following was the main source of selling products in your household?
Question 34. What is your highest educational attainment?	Question 34. What is your highest educational attainment?
() No formal education	() University or college
() Adult education	() Secondary
() Primary	() Middle school
() Secondary	() Primary
() University	() No education
() Others	
Question 3. Do you or any of your household have farmland? If yes, what is the total size..... (in plots)	Question 3. Do you or any of your household have farmland? If yes, what is the total size..... (in acres)
Question 12. If you sell directly in the periodic markets, what distance do you cover to visit the market? (miles)	Question 12. If you sell directly in the periodic markets, what distance do you cover to visit the market? (kilometres)
Question 28. What is your level of agreement on the effects of periodic markets on social interactions?	Question 28. What is your level of agreement of the effects of periodic markets on interactions within and outside this village?
Question 26. What is your level of agreement of the effects of periodic markets on novelty production?	Question 26. What is your level of agreement of the effects of periodic markets on the production and sale of value-added goods?

Source: Author’s Construct

5.5.1.4 Administration of the survey questionnaire

The survey questionnaire was administered through face-to-face communication with respondents. This occurred at a convenient public place in the study sites. Face-to-face administration was the appropriate strategy to achieve a higher response rate because the researcher was able to probe further on a particular question (Fink 2002; Fowler 2014). The lack of computer skills among rural households, unstable internet, and telephone services, and the illiteracy rate in villages in Ghana (GSS 2014) precluded the use of self-administered questionnaires and online interviews.

However, biases during interviews and unintentional mistakes are some problems for using face-to-face surveys (Nardi 2014; Rea and Parker 2014). A face-to-face survey can influence respondents' responses to questions in several ways. These include misinterpretation of questions, failure to record exactly what the respondent says, or wrong recording of questions (Chadwick *et al.* 1984; Babbie 2013). To overcome this, questions that can result in multiple meanings were avoided. The perceptions of respondents on the social and economic status of interviewers can bias responses to particular questions (Neuman 2014). The researcher adopted a community entry approach which involved meeting leaders (chief) in each village to understand the cultural perceptions of people and acted accordingly during the fieldwork. Another problem with using a face-to-face survey is that interviewees can give answers to satisfy interviewers depending on the social desirability of the question (Mitchell and Carson 1989). The researcher addressed this limitation by explaining to interviewees that whatever answers or opinions they give are accepted as right and there are no wrong answers.

The researcher informed respondents that their responses are confidential, and the response will be combined with the other respondents during the data analysis stage. The questionnaire is devoid of information that can identify a respondent thereby making their responses confidential (see Ethical Considerations below Section 5.7 and in Appendices 1a, 1b, and 1c). The questionnaires and interviews were administered in English Language in the surveyed areas because many of the participants speak English. However, in a situation where a participant does not understand English, the researcher translated the questionnaires in Akan (Twi), which is a common language in the surveyed villages in Ghana.

5.5.2 Document and literature review

The researcher compiled information from the 2010 Population and Housing Census reports, the Medium-Term Development Plans, the Monitoring and Evaluation Plans, the National Market Survey Report, and Annual Action Plans of 171 district assemblies across all the regions of Ghana to capture the characteristics of UPMs. These include 27 districts in the Ashanti Region, 22 in the Brong Ahafo Region, 21 in the Eastern Region, 20 in the Northern Region, and 18 in the Volta Region. The others were 17 districts in the Central Region, 17 in the Western Region, 11 in the Greater Accra Region, 9 in the Upper East Region, and 9 in the Upper West Region. The information from the documents includes the distribution system in UPMs concerning the export of commodities to West African countries. It also involves the spatial distribution of UPMs across the regions of Ghana, intervals between UPMs, and the number of days or times UPMs occur. Reports about the quantity of commodities transported to the ten major UPMs were taken from market managers and market leaders of each UPM. From there, it was possible to identify the operational functions of UPMs in Ghana. Additional information was also obtained from reviewing a large body of literature on UPMs.

5.5.3 Semi-structured interviews

Close-ended questions may restrict respondents to give answers within a range of options, which can limit their ability to explain their concerns better (Yin 2017). The researcher prepared a semi-structured interview guide that involved a checklist of open-ended questions to collect qualitative data from respondents (See Appendix 4). This data collection tool enables respondents to give answers that exactly represent their opinions. The tool helps researchers to collect rich and in-depth data. It also allows researchers to probe further responses that deem relevant and exciting (Bryman 2012).

The major limitation of interviews is the inability of the researcher to cover a larger respondent and to generalise findings (Creswell *et al.* 2003; Creswell 2009; Creswell and Clark 2017). To address this limitation, the study focused on one issue (effects of UPMs) and collected interview data from different respondents at different sites (South and North) for comparison. Further, the combination of the interview data with the survey data helps to ameliorate the problem of lack of generalisation (Creswell 2007).

Interview sessions were held with selected respondents in the study sites. The session was organised for individual respondents at the agreed time and place within the villages. The

meeting involved dialogues between the researcher and respondents. Pertinent issues discussed in the meetings were the socioeconomic backgrounds of the households and activities in the villages. Issues on activities that occur in villages during the market days were discussed.

Interviews were held with selected officers from the Municipal Assemblies and NGOs. The interviews took place in the conference rooms of these institutions. Issues that were discussed during the interviews include projects implementation in the study sites and the effect of UPMs on the sites. The interviews were audio-recorded with the prior approval of the respondents (See Appendices 1b and 1c). The recording was carried out to capture all issues discussed during the conversations and it was transcribed and analysed later by the researcher and compared with notes taken during the interviews.

5.6 Data Analysis

The procedures for analysing the survey and interview data are described as follows.

5.6.1 Survey data

The researcher analysed the quantitative survey data by coding all the 400 questionnaires. The researcher assigned a code to each questionnaire to differentiate responses. The researcher edited the data several times to minimise the entry of wrong responses. After editing, the researcher entered the data into the statistical software package, IBM SPSS version 21. The SPSS database was meticulously checked and edited to ensure that the exact responses for each question are entered correctly. The SPSS database was used to generate tables and figures. The results were presented using descriptive statistics such as percentages, mean, and standard deviation where applicable. The study used Spearman's rank order correlation to analyse the relationships between the effects of UPMs among the dimensions of the Rural Web analysis. The paired sample *t*-test was used to compare the statistically significant difference between food crops sold and purchased by households in UPMs in the South as well as the North. The researcher estimated the effect size of the paired sample *t*-test to examine the magnitude of the differences between the South and North. The formula is shown as follows:

$$\frac{\sqrt{t^2}}{t^2 + df}$$

where *t* = *t*-statistics and *df* = degree of freedom (Rosenthal 1991).

The study also used the Mann–Whitney *U*-test to determine the statistically significant difference between the South and North concerning (a) household perception on the six dimensions of the Rural Web analysis and (b) the effects of UPMs on the six dimensions of the Rural Web analysis (see Appendix 8 for the results). The effect size for the Mann–Whitney *U*-test was calculated as follows:

$$r = \frac{z}{\sqrt{N}}$$

where *r* = effect, *z* = *z*-score, and *N* = number of respondents (Rosnow and Rosenthal 2005)

The guideline for interpreting the eta-square was followed which indicates that an effect size of 0.10 signifies a small effect; 0.30 as a moderate effect; and 0.50 as a large effect (Cohen 1988; Sullivan and Feinn 2012; Field 2013). Statistical significance for these techniques was set at a *p*-value of 0.05 (Babbie 2013; Nardi 2014).

5.6.2 Interview data

Much of the interview data analysis started during the data collection period on the field. This approach was necessary since it guided the researcher to cross-examine new issues that evolved during the data collection and to involve the interviewees in authenticating the data collected (Ezzy 2002). The initial analysis of the interview data involved making summary notes after every interview and from observations made in the field. The audio-recorded data from the interviews were transcribed during the fieldwork. Based on the theoretical framework used as well as the aim of the study, emerging themes were developed using NVivo 10 software and refined as the fieldwork progressed. The qualitative data were presented in a narrative form and direct quotes were used where appropriate (Clandinin and Connolly 2001).

5.7 Ethical considerations

The Human Research Ethics Committee (HREC) of the University of Adelaide, South Australia, granted ethics approval for the conduct of the fieldwork in Ghana, and a corresponding and relevant Research Permit was granted in Ghana from the GSS (see Appendices 1 & 2). The process of ethics approval involved a review of data collection procedures and instruments of the research based on the requirements of the Australia Code for Responsible Conduct of Research. Copies of the ethics approval letter were made available to the appropriate institutions to support the data collection. My connections with the GSS made

it easy for the researcher to access respondents in the case-study villages. The GSS made contacts with respondents in the surveyed villages and the list was given to me to contact them for the formal interviews and face-to-face interactions. The consent of respondents was also sought before administering the questionnaires and organising the interviews. Participants were informed of the purpose of the study, the relevance of the data collection, and the confidentiality of their responses (see Appendices 1b, 1c, 3 & 4). To ensure the anonymity of responses, names of respondents were not collected during the data collection and reporting of results. If participants did not consent, they were not included in the research.

5.8 Summary

This chapter has explained the methodological procedures used for this study. The study draws largely from the Rural Web analysis to achieve its aims. A survey questionnaire and qualitative interviews were the main data collection tools used to collect data. The researcher used a questionnaire to collect data from 400 respondents in four villages. The random sampling method was used to select these respondents. The researcher used an interview guide to collect data from some key informants during interviews. Purposive sampling was also used to select these informants. The procedures adopted to evaluate the research findings are explained in the chapter. The survey data were analysed using descriptive and inferential statistics. The interview data were also analysed using direct quotes. This chapter has thus justified the methods and procedures used to collect and analyse the primary data to achieve the aim of the study.

Chapter 6. Socioeconomic Characteristics of the Surveyed Respondents

This chapter presents the findings on the socioeconomic characteristics of the surveyed households. The chapter starts by presenting the socio-demographics of households. It follows this by presenting the findings on household production and sale of food crops, livestock, and poultry, and value-added foods. The findings on organic farming and organic food production as well as household awareness of the environment are presented. The findings on the various marketing outlets available for households are also presented. Further, the chapter presents the findings on social interactions existing within the villages and their benefits to households. In addition, it presents the findings on initiatives that support cooperation through the effort of institutions within and outside the villages.

6.1 Characteristics of Respondents

The socio-demographics of the respondents in the South (Timeabu and Korase) and North (Kong and Kowie) are presented in Table 6.1. Most respondents were males which comprised 60% in Timeabu, 76% in Korase, 67% in Kong, and 54% in Kowie. The age disparities of respondents indicate that a large proportion was within the economically active age cohort of 25–54 years with the mean age of 42 years in Timeabu, 45 years in Korase, 41 years in Kong, and 40 years in Kowie. Most of the respondents (74%) had a household size of more than six members with an average of 8 members in Timeabu, 9 in Korase, 11 in Kong, and 10 in Kowie. The household size suggests a larger number compared to the district figures (Four in the Ejisu-Juaben and six in the Sissala East Municipalities) (GSS 2014). Slightly more than two-thirds (67%) of household heads had some level of education (basic to tertiary) that comprised 62% in Timeabu, 69% in Korase, 67% in Kong, and 69% in Kowie. This level of education comprised about 69% males and 58% females in the South and 70% males and 65% females in the North., which shows that the majority were educated. The respondents were predominantly northerners including 47% in Timeabu, 58% in Korase, 99% in Kong, and 99% in Kowie. The ethnic composition of households in the South (Timeabu and Korase) does not reflect the district figure where Akan are the majority (82%) (GSS 2014). This is because most of the respondents (88%) in the South were migrants.

Table 6.1 Sociodemographic of respondents

Socio-demographics	South (n = 200)	North (n = 200)	Total (n = 400: %)
Gender			
Male	136	121	257(64.3)
Female	64	79	143(35.7)
Age cohort (years)			
25–29	12	19	31(7.8)
30–34	17	43	60(15.0)
35–39	55	37	92(23.0)
40–44	38	35	73(18.0)
45–49	24	27	51(12.8)
50–54	23	16	39(9.8)
55–59	22	13	35(8.8)
60–64	3	5	8(2.0)
>65	6	5	11(2.8)
Household size			
2–6	59	45	104(26.0)
7–11	109	77	186(46.5)
12–16	32	47	79(19.8)
17–21	0	17	17(4.2)
22–26	0	11	11(2.7)
>27	0	3	3(0.8)
Education			
Tertiary	4	20	24(6.0)
Secondary	8	35	43(10.8)
Basic	119	81	200(50.0)
No education	69	64	133(33.2)
Ethnicity			
Akan	60	1	61(15.2)
Northerners	105	198	303(75.8)
Ewe	33	1	34(8.4)
Ga-Adangbe	1	0	1(0.3)
Guan	1	0	1(0.3)
Farm size			
1–10	175	83	258(64.7)
11–20	22	65	87(21.8)
21–30	2	33	35(8.8)
>31	0	19	19(4.7)
No land	1	0	1(0.25)
Employment status (multiple responses)			
Farmer	199	200	399(99.8)
Agricultural labourer	71	24	95(23.8)
Professional worker	11	46	57(14.3)
Others (shop keepers, drivers)	10	19	29(7.3)
Annual income: Ghana Cedi (USD)			
<1000 (<191)	3	2	5(1.2)
1001–2000 (191–382)	14	2	16(4.0)
2001–3000 (191–573)	46	5	51(12.8)
3001–4000 (191–764)	49	8	57(14.2)
4001–5000 (764–954)	34	16	50(12.5)
5001–6000 (954–1,145)	20	13	33(8.2)
6001–7000 (1,145–1,336)	14	11	25(6.3)
7001–8000 (1,336–1,527)	7	14	21(5.2)
8001–9000 (1,527–1,718)	5	11	16(4.0)
9001–10000 (1,718–1,908)	2	25	27(6.8)
>10000 (>1,908)	6	93	99(24.8)

Source: Village survey (2019).

Almost all the households had a farm with the majority (87% in Timeabu, 89% in Korase, 51% in Kong, and 32% in Kowie) having between 1 and 10 acres. The number of households who were farmers constituted 99% males and 100% females in the South and 100% males and 100% females in the North. The average farm size per household was 5.7 acres in Timeabu, 5.8 acres in Korase, 14.4 acres in Kong, and 20.5 acres in Kowie, which also constituted 5.8 acres (2.3 hectares) per household in the South (Timeabu and Korase) and 17.5 acres (7.1 hectares) in the North (Kong and Kowie). The average farm size comprised 5.7 acres for males and 5.6 acres for females in the South and 19 acres for males and 14 acres for females in the North. The average farm size per household in the South was large compared to the district figure of 1.2 acres. This may be due to the increasing number of youths in farming through government projects on agriculture in the Ejisu-Juaben Municipality (GSS 2014).

Farming was the major economic activity among households in all the surveyed villages, which is the case in the Ejisu-Juaben Municipality (90% farmers) and the Sissala East Municipality (81% farmers) (GSS 2014). The majority of the households in both South and North were farmers. Only one household in Timeabu was not a farmer. According to the household head, they had just migrated to the village not long ago. Households were also engaged in other economic activities as agricultural labourers (comprising 36% in the South and 12% in the North), professional workers (about 6% in the South and 23% in the North), shopkeepers, and drivers (about 5% in the South and 10% in the North).

The average annual gross income per household was GH¢3,712 (US\$650) in Timeabu, GH¢5,523 (US\$967) in Korase, GH¢23,617 (US\$4,135) in Kong, and GH¢ 11,152 (US\$1,953) in Kowie with per capita income of GH¢1,141.00 (US\$200.0) annually for all the 400 households.² The average annual gross income per household was GH¢4,618 (US\$809.0) in the South (Timeabu and Korase) and GH¢17,385 (US\$3,044.0) in the North (Kong and Kowie) with 35% and 27% of households earning more than this, respectively. In addition, the average monthly income per household in both South and North was GH¢917.00 (US\$161.00), which is less compared to the upper poverty line of GH¢1,314.00 (US\$230.00) in Ghana (GSS 2014).

The researcher asked households to give their opinions on the sale income earned from UPMs and NPMs and the responses are presented in Table 6.2. According to a majority of households (including 58% in Timeabu, 75% in Korase, 82% in Kong, and 63% in Kowie), farmers who

² Exchange rate: GH¢5.7105 to US\$1 (Bank of Ghana, BoG Friday 28 November 2020).

sell in UPMs earn higher income compared to NPMs, which also represented about 67% of households in the South and 73% in the North.

The study sought to know why UPMs provide higher income than NPMs. The interview participants at Timeabu and Korase shared a similar view that households meet buyers who are in the medium to high classes in UPMs, and they could thus negotiate a better price with them. The interviewees at Kong and Kowie also mentioned that households could sell to foreign buyers, and exchange foreign currency, thus they thought that the opportunities in the UPMs were more than in the NPMs, which contributed to higher income in UPMs than NPMs.

Table 6.2 Comparison of sales income earned from UPMs and NPMs

Comparison	South	North	Total	%
Lower sale income in UPMs than NPMs	21	11	32	9.3
Similar sale income in UPMs and NPMs	25	37	62	18.0
Higher sale income in UPMs than NPMs	122	127	249	72.6
Total	168	175	343	100.0

Source: Village survey (2019).

6.2 Environmental Characteristics of the Village Districts

The mean annual temperature in Timeabu and Korase in the Ejisu-Juaben Municipality was between 25°C (begins in August) and 32°C (begins in March) with moderate relative humidity (GoG 2018b). The district experiences a bi-annual rainfall pattern from March to mid-November. March to July is the major rainfall period with average annual rainfall between 1200mm and 1500mm per annum. The two villages had different species of fauna and flora with differing levels of game and wildlife. The topography is undulating with altitudes ranging between 240m and 300m above sea level. Precambrian rocks of the Birimian and Tarkwaian formations constituted the geographical landscape of the villages, which is suitable for agriculture (GoG 2018b). Timeabu and Korase have a river (locally called *Bankrogya*), which was used to water plants, especially during the dry season (summer).

Kong and Kowie in the Sissala East Municipality experience a single rainy season. Squalls occur during March and April, followed by occasional rain until April and September. The mean annual temperature in the two villages was between 21°C and 32°C (GoG 2018a). The temperature rises to its maximum (42 °C) in March, just before the onset of the rainy season, the highest in the Upper West Region. The topography is gentle undulating and characterised by latitudes between 330m and 365m above sea level. The major types of soils were terrace,

savanna *ochrosols*, and tropical brown earth soils. These soil types (especially, savanna *ochrosols*) are poor in nutrients and organic matter due to overgrazing and Swedish agriculture in Kong and Kowie (GoG 2018a).

The interview data revealed that the soil in the North (Kong and Kowie) does not support the planting of some crops. The interviewees in Kong and Kowie thought that the high temperature in the district had made the soil too dry, thereby losing its nutrients. The chief in Kong reported that:

The soil in this village is not fertile. This is even worse during the prolonged harmattan (summer) from early November to March, thereby leaving the land cracked. Farmers must rely heavily on fertilizer to grow crops. In fact, without fertilizer, it is difficult for a farmer in this village to cultivate even a 50 Kg bag of maize (Interview, 2019).

6.3 Household Production and Sale of Agricultural Products

This section presents the findings on volumes of food crops, value-added and organic foods, livestock, and poultry produced and sold by households in 2018.

6.3.1 Production of agricultural products

The study sought to know the types and volumes of food crops produced by households. Households in the South (Timeabu and Korase) and North (Kong and Kowie) harvested a variety of food crops in 2018 (Table 6.3). A majority of households produced food crops comprising 94% in Timeabu, 99% in Korase, 100% in Kong, and 100% in Kowie. The production of crops was 280 tonnes in Timeabu, 178 tonnes in Korase, 1,218 tonnes in Kong, and 708 tonnes in Kowie, which also comprised a total crop production of 458 tonnes in the South and 1,926 tonnes in the North. The average production of crops per household in 2018 was 2.3 tonnes in the South and 9.6 tonnes in the North. Of the remaining households who did not produce in 2018, only one had no land and the rest had just begun to prepare their land for planting.

Table 6.3 Household production of food crops in 2018

Crop	South	North	Total
Food crop (tonne, total)	458	1926	2384
Cereals	252	1554	1806
Legumes	13	330	343
Root and tuber	171	40	211
Fruits and Vegetables	22	2	24
Food crop (tonne, per household)	2.3	9.6	6.0

Households produced cereals in large volumes than the other crops. Cereals constituted 55% and 81% of the total household production in the South (Timeabu and Korase) and North (Kong and Kowie), respectively. The average production of cereals per household in 2018 was 1.3 tonnes in the South and 7.8 tonnes in the North. Maize was the major cereals produced by households with a total volume of 131 tonnes in the South and 1,529 tonnes in the North that represented 52% and 98% of all cereals, respectively.

The study sought to understand why cereals were the major crop produced in the South and North. A leader of a village association in Kong said that:

Cereals (particularly, maize, millet, sorghum) are staple food for people in this village. We are among the villages in the Sissala East Municipality that harvest large volumes of maize. NGOs support farmers in various means, which also help them to produce more cereals (Interview data, 2019).

Another participant interviewed in Timeabu added that:

Our soil is good for farming maize. Maize is the largest crop we grow after cocoa (Interview data, 2019).

The study sought to know the different types of value-added products produced by households (Table 6.4). About 60% of households in Timeabu, 78% in Korase, 89% in Kong, and 79% in Kowie, produced value-added foods, which also represented about 69% of households in the South and 84% in the North. Households in Timeabu produced 84 tonnes of value-added products, followed by 243 tonnes in Korase, 235 tonnes in Kong as well as 155 tonnes in Kowie, which also constituted a total production of 327 tonnes and 390 tonnes of value-added products in the South (Timeabu and Korase) and North (Kong and Kowie), respectively.

Table 6.4 Household production of value-added products in 2018

Food crop	South	North	Total
Value-added product (tonne, total)	327	390	717
Charcoal	131	314	445
Palm oil	95	0	95
Brooms	31	23	54
Local alcohol bitters	34	0	34
Processed cassava (<i>gari</i>)	33	0	33
Peanut paste	0	33	33
Shea butter	0	16	16
Others (e.g., local soap, craft)	3	4	7
Tonne per household	1.6	2.0	1.8

Source: Village survey (2019).

The data revealed that some value-added products were produced in the South (both Timeabu and Korase) only. These were palm kernel oil, local alcohol bitters, and processed cassava (locally called *gari*). These products constituted a total volume of 162 tonnes. Value-added products such as peanut paste and shea butter were also produced in the North only and they represented a total of 49 tonnes. According to the households, they had inadequate access to raw materials, which limited the production of some value-added products in the South (Timeabu and Korase) and North (Kong and Kowie). For instance, the oil palm tree was not grown in the North and therefore households in Kong and Kowie could not produce palm kernel oil. Shea butter tree was also not grown in the South and thus, households in Timeabu and Korase did not carry out the extraction of shea butter.

Some value-added products were common in the South and North. These included brooms and charcoal. Households in the South used palm nut leaf to make brooms whilst those in the North used elephant grass. Charcoal was produced in larger volumes compared to the other value-added products. It constituted 40% and 81% of the total household production of value-added products in the South and North, respectively.

The interview data were consistent with the survey data, which revealed that charcoal is the major commodity produced by households. A market leader interviewed in Kowie said that:

Many households in this village produce charcoal for themselves. They use firewood to make charcoal and firewood is easy to get on the farm, especially during the dry season (Interview data, 2019).

Charcoal, palm oil, shea butter, and cassava processing were carried out as family businesses in the villages. These businesses were largely inherited, and they have been in operation for more than a decade. Charcoal production was a lucrative business for some households in the North, specifically in Kong. Two family charcoal businesses were found in Kong. Family members collaborate to operate the businesses. According to owners of the businesses, charcoal was the main source of fuel for cooking in the district. This encouraged them to produce charcoal for sale. A leader of a village association who was the owner of a charcoal business narrated the traditional method for making charcoal and how it is marketed.

We gather logs of wood from our farm during the dry season (summer) when the wood had lost water. The logs are heaped at one place. We dig the ground and use the soil together with grass to cover the logs. We set the logs on fire and then leave them for several days to enable the fire to burn the wood. We

sell charcoal to buyers who visit our village on market days (Interview data, 2019).

Two shea butter family businesses were found in Kong and one in Kowie. Households (owners of the businesses) gathered shea butternuts from their farms and purchased some from other households. Household heads involved their members in making shea butter because according to them, it is labour-intensive. A leader of an ethnic group who was also the owner of a shea butter business in Kowie described the traditional method of producing shea butter and how it is marketed:

After sorting the shea nuts to remove unwanted materials, we wash and dry them in the sun. We carry the nuts to the crushing mill for grinding. The crushed nuts are roasted on fire and after that, we dry them in the sun for a few days. We then grind them into a paste and mix them with warm water. We separate the butter from the warm water and boil it. We allow the boiled paste to dry in the sun. We distribute a greater proportion of shea butter to supermarkets in the district capital (Interview data, 2019).

Two palm oil businesses were found in Korase. Owners of the businesses explained that because the family operates the businesses, they received more hands from family members, which helped them to produce large quantities of palm oil. They purchased palm nut fruits from individual households in the village. The traditional method for producing palm kernel oil was described as follows: (a) boiling the palm nut fruit, (b) pounding them in warm water, (c) squeezing them to separate fibre and nuts from the oil mixture, and (d) using a strainer to filter out the fibre and the nuts.

Additionally, two households in Timeabu had a small cassava processing enterprise that processed raw cassava into powder (locally called *gari*). Owners of the business cultivated cassava from their farm, and they bought some from individual households. The processing of cassava was through the traditional method. A market leader who was the owner of a cassava processing business in Korase explained the processing of cassava.

We peel off the cassava, wash it, and cut them into pieces. We carry the pieces of cassava to the crushing mills in the nearby village to grind. We then dry the milled cassava in the sun for a few days to remove water content. We roast the milled cassava on fire to remove excess water content and after that; we use a strainer to sieve it. We normally sell *gari* at the district market (Interview data, 2019).

It is obvious from the interviews that no advanced input was used to produce value-added products. This was identified as a major challenge for households which limited their ability to

produce large quantities of value-added products. A leader of an association interviewed in Kong stated that:

Shea butter production is a good business in this village. We make original shea butter, and we sell them at many places including the large market at the district capital. However, we do not get support from the government to enable us to produce the butter in large quantities (Interview data, 2019).

Another leader of a village association in Korase pointed out that:

We use the traditional method to produce palm oil. We are not able to produce large volumes of oil. This traditional method is not helpful. We need support from somewhere to enable us to expand the production of palm oil and create jobs for people (Interview data, 2019).

The study sought to know whether households practiced organic farming. It was found that two households in Korase produced organic rice. Also, four households in Kong produced organic millet. Organic foods were not produced in Timeabu and Kowie. Organic farmers used poultry manure on their farms. Organic rice farmers in Korase said that they harvested three tonnes of organic rice in 2018. Those in Kong mentioned that they cultivated four tonnes of organic millet in 2018.

The farmers said that they did not harvest more crops from their organic farms. According to them, it was difficult to get organic fertilizer. However, they discovered that organic fertilizer is the best option to retain the soil nutrients and the value for organic foods is higher than inorganic foods. This, therefore, motivated them to produce organic foods. A market leader who was also an organic rice farmer in Korase shared his experience on why it is so important to produce organic foods.

I think inorganic fertilizer is not the best to preserve the land for future use. I used chemical fertilizer on my farm in the previous years, but I realised that the fertilizer made my land so hard, leaving cracks on the land, especially during the dry season (summer). Some NGO officers visited this village and I explained to them the situation I had gone through for using chemical fertilizer. They advised me to use poultry manure to help the soil regain its nutrients. I was encouraged by the conversation I had with the officers to use poultry manure on my farm (Interview data, 2019).

It was found that associations in Kong and Kowie jointly established an organic farm for millet, which occupied an area of three acres. The purpose for doing this was for them to use the farm as a demonstration site for farmers. Members of the association organised forums from time to time to educate farmers on the importance of practicing organic farming. They took farmers to

the organic farm and explained to them the differences between growing organic and inorganic crops and the higher economic value attached to organic food production. A leader of a village association in Kong narrated the implementation of the organic demonstration farm and its benefits.

An NGO organised a workshop for leaders of the village associations in Kong. We were told to team up with farmers to initiate an organic farm. We started the organic farm in 2015 with support from the village leaders (chiefs) and the NGO. The chief at Kong gave us land for this project and we received organic fertilizer from the NGO. Since we started, we have produced over 60 tonnes of millet. We hope that individual households in this village would be encouraged to practice organic farming (Interview data, 2019).

It seems that households were willing to produce organic foods, but the interviews revealed that they had access to limited support. The interviewees reported that the support they received from extension officers and NGOs is not enough to encourage the production of organic foods. A leader of a village association in Kong stated that:

My son, how does it work when an NGO or the local councils seek to encourage farmers to produce organic foods in this village yet, supply chemical fertilizer to farmers? This is why a small number of farmers are practicing organic farming in this village (Interview data, 2019).

The study also sought to understand the problems organic farmers themselves go through. A leader of an ethnic group who was also an organic farmer in Kong said that:

It is difficult for us to get a lot of poultry manure. Even when we get some, it is not enough. Because they are scarce, we must pay extra to get them (Interview data, 2019).

The researcher asked the village interview participants whether farmers had a certificate for producing organic foods. The chief in Korase, out of ignorance responded that:

What is certification? I do not know anything about obtaining a certificate to produce organic foods. No one has whispered into my ears that such certification is available. Where do I get a certificate? I wish I had one (Interview data, 2019).

The above statements were confirmed during interviews with an NGO officer in the Sissala East Municipality.

We have provided agricultural training to farmers in Kong and Kowie and encouraged them to practice organic farming. We explained to them that the intensive use of chemical fertilizer is not the best way for sustaining farming.

Yet, there is still much for us to do to help farmers to practice organic farming. It is difficult for us to reach farmers with organic fertilizers (Interview data, 2019).

Additionally, households produced livestock and poultry (Table 6.5). Households, including 35% in Timeabu, 26% in Korase, 68% in Kong, and 70% in Kowie produced livestock, which also represented about 31% of households in the South and 69% in the North. The production of livestock was 520 head in Timeabu, 334 head in Korase, 654 head in Kong, and 831 head in Kowie, which also comprised a total production of 854 livestock in the South and 1,485 in the North.

Table 6.5 Household production of livestock and poultry in 2018

Product	South	North	Total
Poultry (head)	2708	2386	5094
Livestock (head)	854	1485	2339

Source: Village survey (2019).

The interviewees mentioned that sheep and goats were the common livestock produced by households in all the study sites. Cattle was produced in the North only. The chief in Kong said that:

The major livestock reared in this village is sheep, goat, and cattle. Those in the middle-or high-class income generally rear cattle (Interview data, 2019).

A leader of an ethnic group in Timeabu also said that:

Sheep and goats are the major livestock kept in this village. The majority of farmers who migrated from the northern part of Ghana to this village rear livestock. I have not seen anyone keeping cattle here (Interview data, 2019).

Households in the study sites produced poultry. Households that produced poultry comprised 56% in Timeabu, 43% in Korase, 54% in Kong, and 64% in Kowie, which also represented about 50% of households in the South and 59% in the North. The production of poultry was 1,739 head in Timeabu, 969 head in Korase, 1,414 head in Kong and 972 head in Kowie, which also constituted a total production of 2,708 poultry in the South and 2,386 in the North. Chicken and duck were the major poultry produced by households in the study sites.

6.3.2 Sale of agricultural products by households

The study sought to ascertain the volume of agricultural products sold by households in 2018 and the data is presented in Table 6.6. Most households sold food crops, including 93% in

Timeabu, 99% in Korase, 99% in Kong, and 97% in Kowie. Households in Timeabu sold 248 tonnes of food crops, followed by 142 tonnes in Korase, 920 tonnes in Kong, and 600 tonnes in Kowie, which also comprised a total sale of 390 tonnes and 1,520 tonnes of crops in the South (Timeabu and Korase) and North (Kong and Kowie), respectively. The average sale of food crops per household in 2018 was 1.95 tonnes in the South and 7.60 tonnes in the North. Only a few households (about 3%) in all the study sites did not sell crops, producing a small quantity of food to feed their family only. The main food crops sold was cereals, which constituted 56% and 82% of the total sale in the South (Timeabu and Korase) and North (Kong and Kowie), respectively.

Table 6.6 Sale of agricultural products by households in 2018

Product	South	North	Total
Food crop (tonne, total)	390	1520	1910
Cereals	218	1247	1465
Legumes	9	237	246
Root and tuber	144	35	179
Fruits and Vegetables	19	1	20
Food crop (tonne, per household)	1.95	7.60	4.78
Poultry (head)	1241	455	1696
Livestock (head)	308	247	555

Source: Village survey (2019).

The study sought to examine the proportion of the total production of crops sold by households in 2018 (see Figure 6.1). The data revealed that households sold a larger proportion of the total production of crops, and this proportion constituted 89% in Timeabu, 80% in Korase, 75% in Kong, and 83% in Kowie. Households in the South (Timeabu and Korase) and North (Kong and Kowie) sold 85% and 79% of their crops, respectively.

Livestock was sold by 32% of households in Timeabu, followed by 16% in Korase, 29% in Kong, and 33% in Kowie, which also comprised 24% of households in the South (Timeabu and Korase) and 31% in the North (Kong and Kowie). Households in Timeabu sold 213 head of livestock, 95 head in Korase, 127 head in Kong, and 120 head in Kowie, including a total sale of 308 and 247 livestock in the South and North, respectively. The average sale of livestock per household in 2018 was three head in the South and four head in the North. Sheep and goats were the major livestock sold by the households in all the study sites.

About 42% of households in Timeabu, 39% in Korase, 24% in Kong, and 36% in Kowie sold poultry, including 41% of households in the South (Timeabu and Korase) and 30% in the North

(Kong and Kowie). Households in Timeabu sold 828 head of poultry in Timeabu, followed by 413 head in Korase, 257 head in Kong, and 198 head in Kowie, which also constituted a total sale of 1,241 poultry in the South and 455 in the North. The average sale of poultry per household in 2018 was 11 head in the South and five head in the North. Chicken was the main poultry sold by households in all the study sites.

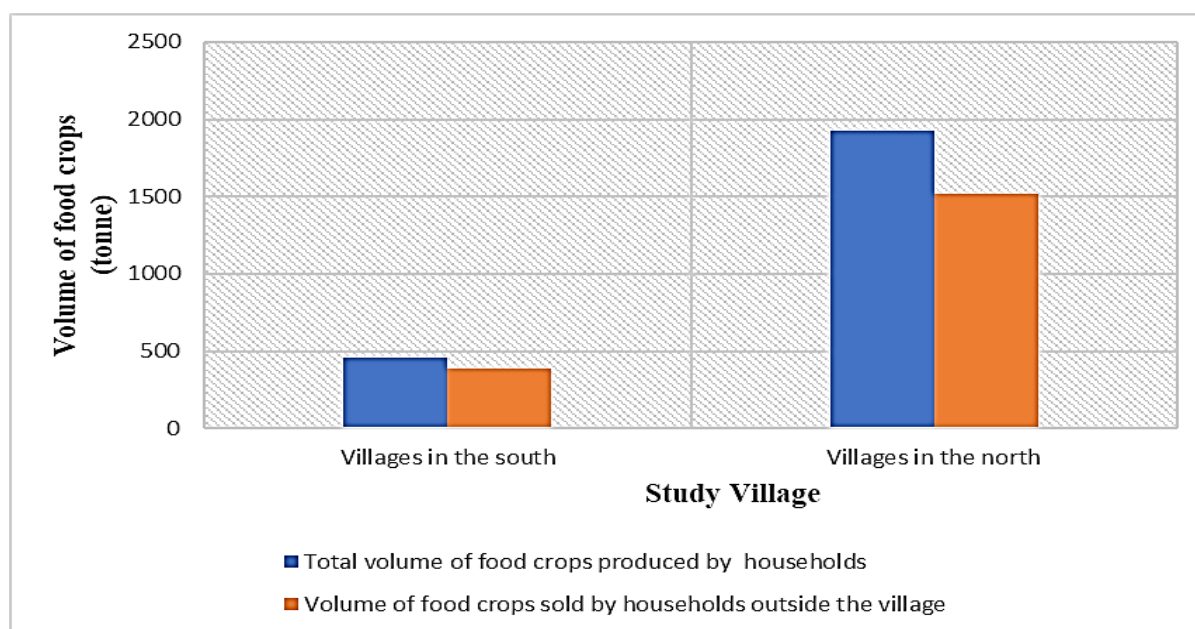


Figure 6.1 Proportion of the total production of crops sold by households in 2018

Source: Village survey (2019).

6.4 Purchasing of agricultural products by household

Table 6.7 presents the findings on the volumes of agricultural products purchased by households in 2018. Households bought different types of food crops in 2018 including 31% in Timeabu, 96% in Korase, 80% in Kong, and 95% in Kowie, which also constituted 64% and 88% of households in the South (Timeabu and Korase) and North (Kong and Kowie), respectively. The purchasing of crops by household was 15 tonnes in Timeabu, 159 tonnes in Korase, 32 tonnes in Kong and 115 tonnes in Kowie, which represented a total purchasing of 174 tonnes of crops in the South and 147 tonnes in the North. The average purchasing of food crops per household in 2018 was 0.87 tonnes in the South and 0.73 tonnes in the North.

The data show that households in Korase and Kowie purchased a larger volume of crops than those in Timeabu and Kong. The reason was that households in Korase and Kowie produced less of some food crops, and they had to buy them. The chief in Korase stated that:

We experienced a huge flood in the beginning of April 2018, which destroyed some crops. Rice farmers in this village were mostly affected. We had to purchase rice from the nearby village or town (Interview data, 2019).

Likewise, the chief in Kowie indicated that:

We experienced fungal disease that affected some crops such as soya bean. Farmers in this village had to purchase soya bean from the other villages and during market days (Interview data, 2019).

Table 6.7 Purchasing of agricultural products by households in 2018

Product	South	North	Total
Food crop (tonne, total)	174	147	321
Cereals	25	48	73
Legumes	16	21	37
Root and tuber	109	66	175
Fruits and Vegetables	24	12	36
Food crop (tonne, per household)	0.87	0.73	0.80
Poultry (head)	195	1562	1757
Livestock (head)	12	248	260

Source: Village survey (2019).

Households also bought livestock in 2018. Only a few of the households comprising 2% in Timeabu, 5% in Korase, 25% in Kong, and 31% in Kowie purchased livestock. The purchasing of livestock was five in Timeabu, seven in Korase, 189 in Kong and 59 in Kowie, which also represented a total purchasing of 12 livestock in the South (Timeabu and Korase) and 248 in the North (Kong and Kowie) (see Table 6.7).

In addition, 13% of households in Timeabu, followed by 39% in Korase, 52% in Kong, and 54% in Kowie bought poultry, which comprised 26% of households in the South and 53% in the North. The purchasing of poultry was 41 head in Timeabu, 154 head in Korase, 353 head in Kong, and 1,209 head in Kowie, which also included a total purchasing of 195 poultry in the South (Timeabu and Korase) and 1,562 in the North (Kong and Kowie).

The data indicate that households in the North purchased larger numbers of poultry and livestock than the South. A leader of an ethnic group interviewed in Kong pointed out that:

Farmers purchase young guinea fowl (keets), lamb, and kid during market days and nurture them for a higher value. Being among those who do this, I can confirm that we get them for a relatively cheaper price in the markets (Interview data, 2019).

6.5 Environmental Awareness of Households

The study sought to understand household awareness about the environment through their farm activities and practices (see Table 6.8). Only a few of the households including 2% in Timeabu, 12% in Korase, 50% in Kong and 32% in Kowie mentioned that they put grass on the topsoil on their farms. According to these households, they thought that putting grass around crops helps to keep the roots of plants moist. As well, 83% of households in Timeabu, 71% in Korase, 10% in Kong, and 21% in Kowie said that they planted different crops on the same parcel of land.

Table 6.8 Households farming practices

Practice	South	North	Total	%
Leaving grass, leaves, on topsoil	14	82	96	24
Growing different crops	154	31	185	46

Note: Multiple responses, percentages were calculated based on N = 200 households in the South and 200 households in the North.

Source: Village survey (2019).

The interviews support the survey data, by revealing that farmers practiced polyculture because their grandparents taught them this technique. A leader of a village association interviewed in Timeabu pointed out that:

My grandparents thought me the importance of growing different crops on my land. I learnt that growing different species of crops on the same plot of land could help to make the soil rich and to support the growth of plants. At least, there is still something to harvest if one crop fails (Interview data, 2019).

The survey revealed that households were aware of the importance of using organic fertilizer (see Table 6.9). About 43% of households in the South (Timeabu and Korase) and 55% in the North (Kong and Kowie) stated that they were taught about the importance of using organic fertilizer. According to them, they learnt that organic fertilizer such as poultry manure makes the soil fertile and rich to support the growth of crops and to preserve the farmland.

Table 6.9 Household awareness of the importance of organic farming

Training	South	North	Total	%
Aware	86	109	195	48.8
Not aware	114	91	205	51.2
Total	200	200	400	100.0

Source: Village survey (2019).

6.6 Marketing Outlets Adopted by Households

The researcher asked the respondents to mention their main outlets for selling farm products and the responses are presented below in Table 6.10. A majority of households chose direct selling at the markets as their main outlet, including 85% in Timeabu, 89% in Korase, 40% in Kong, and 70% in Kowie, which also comprised about 87% of households in the South and 55% in the North. A few of the households (9% in Timeabu, 12% in Korase, 57% in Kong, and 26% in Kowie) chose middle agents as their main outlet, which constituted about 11% of households in the South (Timeabu and Korase) and 42% in the North (Kong and Kowie). The analysis shows that the majority of households in the North dealt with middle agents. However, a few of the households in the South traded with these agents.

Table 6.10 Main outlets used by households

Outlet	South	North	Total	%
Selling directly in the markets	170	110	280	70.8
Selling through middle agents	22	84	106	26.8
Selling to schools and restaurants	2	1	3	0.8
Selling to factories	1	5	6	1.5
Total	195	200	395	100.0

Note: Five households in the South did not sell at all

Source: Village survey (2019).

The interviews revealed that the involvement of middle agents for food crops was new in the South. A market leader interviewed in Timeabu explained that:

The work of middle agents in this village begun a few years ago, somewhere 2015 when some households who migrated to this village bought crops from farmers and transported them to the nearby markets. However, most farmers are not used to this type of marketing arrangement. They prefer to carry their produce directly to the markets (Interview data, 2019).

However, interviews with market leaders in the South (Timeabu and Korase) revealed that farmers sell cash crops (e.g., cocoa) to middle agents only. These agents, usually called ‘Purchasing Clerks’ are registered with cocoa purchasing companies. One of the interview participants in Timeabu described the cocoa supply chain as follows:

The marketing of cocoa is entirely in the hands of cocoa purchasing companies through the agents (purchasing clerks). The agents have their warehouse to store cocoa beans and they purchase cocoa from farmers at a fixed price, determined by the Ghana Cocoa Board. The agents distribute the cocoa to the purchasing companies (Interview data, 2019).

Coupled with the above, a few of the households including only 2% in the South and 3% in the North chose schools, restaurants, and factories as their main outlets.

A leader of a village association in Kong explained that:

After the establishment of the School Feeding Program in this village, some farmers began to sell foodstuffs such as maize and palm oil to the caterer. Also, there is a new restaurant in the district capital, and I have noticed that a few of the farmers carry their produce to the restaurant (Interview data, 2019).

A market leader at Timeabu also added that:

I have been supplying maize to a poultry company near the town, Kwaso (Interview data, 2019).

6.6.1 Reasons for choosing the marketing outlets

The study sought to identify reasons why households used the above-stated outlets. Several reasons were given, and the key ones were access to good prices, market information, the increasing sale of products, and a reduction in the interference of middle agents (see Table 6.11).

Table 6.11 Reasons for using marketing outlets

Reason	Direct selling				Others (e.g., agents, schools, factories)			
	South (n = 170)	North (n = 110)	Total (n = 280)	%	South (n = 25)	North (n = 90)	Total (n = 115)	%
Enjoy a good price	131	99	230	82.1	5	45	50	43.5
Access to information	84	83	167	59.6	1	36	37	32.2
Increasing sale	86	65	151	53.9	3	24	27	23.5
Enhancing negotiation ability	67	56	123	43.9	1	28	29	25.2
Reduce interference of middle agents	82	65	147	52.5	0	0	0	0
Purchasing of urban goods	75	58	133	47.5	0	0	0	0
Reducing transport cost	0	0	0	0	20	54	74	64.3

Note: Multiple responses

Source: Village survey (2019).

Most households, including 49% in the South (Timeabu and Korase) and 75% in the North (Kong and Kowie) preferred to sell directly in the markets so that they can have access to market information. Just 4% of households in the South and 40% in the North mentioned that they preferred to sell to middle agents, schools, or factories because they can have access to information about the prices of commodities.

Households, including 77% in the South and 90% in the North stated that they could enjoy good prices of their products when they choose to sell directly in the markets. However, about 20% of households in the South and 50% in the North stated that selling to restaurants, schools, and factories gives them good prices for their products.

Further, households, including 51% in the South (Timeabu and Korase) and 59% in the North (Kong and Kowie) stated that selling directly in the markets enables farmers to increase the sale of their products. About 12% of households in the South and 27% in the North also thought that selling to schools, restaurants, factories, or middle agents increases the sale of farm products.

In addition, 48% of households in the South (Timeabu and Korase) and 59% in the North (Kong and Kowie) thought that selling directly in the markets helps farmers to minimise the interference of middle agents. Yet, most households, including 80% in the South and 60% in the North mentioned that selling to schools, restaurants, factories, or middle agents reduces the costs of transport to the markets.

The interviews revealed that although choosing to sell through middle agents can reduce transport costs to the markets, the major problem, however, was the inability of households to bargain the prices of products with middle agents. A market leader at Timeabu stated that:

Negotiation of prices with middle agents has always not been in our favour. Middle agents carry their prices in their pocket, and they intend to offer us lower prices than what we can receive for selling directly in the markets (Interview data, 2019).

6.7 Social Relationship among Households

This section presents the findings on social relations among households. The research found that social relationships involved the family and ethnic groups and were often encouraged during communal activities.

6.7.1 Family relations

The data revealed that several activities among households demonstrate the degree of social relationships within the family. One of them is access to land. The analysis showed that households obtained land through several means (see Table 6.12). A few of the native households in the South (17% in Timeabu and 7% in Korase) inherited land. However, a

majority of native households (84% in Kong and 77% in Kowie) in the North inherited land. The large difference between the South and North regarding the inheritance of land among native households was because migrants dominated the villages in the South. As the tradition goes, migrants are not entitled to inherit the land. They obtain land mostly through purchase or renting. For example, almost two-thirds (65%) of migrant households in the South obtained land by renting and 33% of households also purchased land.

Table 6.12 Source of obtaining farmland

Source	South		North		Total	%
	Native	Migrant	Native	Migrant		
Inheritance	24	0	161	0	185	46.4
Gift	3	8	22	7	40	10.0
Purchase	4	66	0	32	102	26.6
Rent	12	130	1	1	144	36.1
Average land per household (in acres)	6.9	5.5	17.9	15.6	–	–

Note: Multiple responses, percentages were calculated based on N = 199 households in the South and 200 households in the North.

Source: Village survey (2019).

Table 6.12 indicates that most households inherited land. Interviews with leaders in all the villages revealed that the bond and norms within the family enabled household members to inherit a parcel of land and or receive land as a gift. The interviewed households understood that the relations within the family are manifested when a family member needs land to farm. The bond within the family is that the head of the family is obliged to give family land to its members. In a situation where land is not available, the head must support members to purchase one. It is worth noting that according to the interviewees in all the study sites, family members were willing to give out a portion of land to a member or team up with a member to farm a parcel of land. They thought that such a norm in the family demonstrates a strong relationship that binds family members together and enables them to obtain land. The village chief in Timeabu provided a clear explanation of the strong bonds within the family.

Land in this village is a family property. The local council has little control over the land in this village. As heads of the family including myself, one major duty required of us is to protect family land against encroachment and where necessary, give portions to family members when they need them to farm (Interview data, 2019).

Likewise, a leader of an ethnic group interviewed in Kong said that:

We, the tribe of *Dagombas* preserve land purposely for our children. We hardly sell land to foreigners thinking that when our children grow to be adults they would need to survive on the land (Interview data, 2019).

The statements above buttress the fact that relations and norms within the family enable households to obtain land through inheritance. Thus, through land inheritance, it was found that the family unites and works together to achieve a common goal, which is farming.

However, the interviews revealed that women in Kong and Kowie were given smaller parcels of land compared to men. Women were also restricted to the planting of specific crops. According to the interview participants, the heads of the family, mostly men, determine the size of land to be allocated to family members and the heads believe that the greater portion should be given to men. The reason was that their tradition does not allow women to compete with men on the size of land. One of the leaders interviewed in Kowie reinforced this:

You know something my son, as a leader of my family it is my greatest responsibility to provide for the family and not women providing for the family. Therefore, I oversee all the land we have. There is no need that I divide my land and give half to women in my family or even to my wife, what for? Women must help men in the family to harvest from the land. This is the tradition of my tribe (Interview data, 2019).

However, a leader of a village association in Kong said that:

It is unfair that women are limited to the size of land for farming. Women have the right to obtain land and farm on it without depending on the head of the family (Interview data, 2019).

The data also revealed that financial support within the family shows the degree of social relations among households. Table 6.13 presents the various sources of financial support to households. Of the 400 sampled households, a few of them (including 9% in Timeabu, 17% in Korase, 32% in Kong, and 10% in Kowie) received financial assistance. Of those who received financial assistance, 73% in the South (Timeabu and Korase) and 86% in the North (Kong and Kowie) had it from relatives. This indicates that the majority of households obtained financial assistance from their relatives than government grants or non-relatives.

Table 6.13 Sources of financial assistance to households

Source	South	North	Total	%
Relatives within the village	7	14	21	30.9
Relatives outside the village	9	19	28	41.2
Relatives both within and outside the village	3	3	6	8.8
Government support (grant)	5	6	11	16.2
Non-relatives	2	0	2	2.9
Total	26	42	68	100.0

Source: Village survey (2019).

The interviews with households in all the surveyed sites revealed that social relations are connected to the willingness of family members to support one another financially. The interviewees explained that when a family member is facing a genuine financial problem, the head of the family mobilises money from members to support without a refund. They thought that the willingness to support one another in this way illustrates that there is a good relationship among members of the family, and this unites them. The head of an ethnic group interviewed in Timeabu stated that:

Nowadays, money is hard to come by. If a family is willing to contribute money to help a member, I think this demonstrates good relationship within the family (Interview data, 2019).

The above data reinforces the fact that relations within the family enable households to obtain financial support.

The engagement of household members in farm activities was found to demonstrate social relationships within the family. Table 6.14 presents the findings on the number of household heads who involved their family members in farm activities. About 83% of household heads in Timeabu, 93% in Korase, 93% in Kong, 97% in Kowie engaged their family members on their farm for several activities, which also comprised 88% of households in the South (Timeabu and Korase) and 95% in the North (Kong and Kowie). Household members supported the household heads in land preparation, application of fertilizer, seed planting, harvesting, and the transport of products from the farm to the house.

Table 6.14 Household engagement of family members in farm activities

Involvement	South	North	Total	%
Total	200	200	400	100.0
Yes	176	190	366	91.5
No	24	10	34	8.5
Average household size	8.3	9.6	9.0	-

Source: Village survey (2019).

The study sought to understand the reason why family members were involved in farm activities. Interviews with village participants revealed that relations within the family strongly supported this course. The interviewees stated that social relationship is manifested when family members work together on the farm. They explained that when a family member cultivates a new parcel of land, the head involves members to clear the land and plant the seeds. According to them, the heads of households are able to cultivate large acres of land when they

receive support from family members in this way. They also do not incur a huge cost of labour for engaging family members. A leader of an ethnic group in Korase explained the involvement of family members in farm activities.

Prior to the planting season that is, early February to early March, family heads organise meetings with their family members, and they plan the activities that need to be done on the farm. This sometimes involves additional acres of land to cultivate for the year. The family schedules time and date for members to clear the land and plant seeds, which is in early April (Interview data, 2019).

Likewise, a leader of a village association in Kowie stated that:

I have a large family size of 25 members, and we jointly cultivate a total farm size of more than 50 acres. I meet members of the family and discuss how each person can help to prepare the land for planting after every harvesting season (Interview data, 2019).

Also, during bumper harvest for cocoa, the family heads in Timeabu team up with members to harvest cocoa beans and transport them to the house. The village chief in Timeabu pointed out that:

Harvesting of cocoa occurs in the major (October to March) and minor (April to September) seasons. During this season, it is clear to see strong relations among the family. Members of the family help one another by breaking cocoa pods with a machete and carrying them from the farm to the house (Interview data, 2019).

The interview participants thought that the above arrangements existing among households indicate that there is a high degree of good relations within families.

6.7.2 Relations within ethnic groups

A majority of households in the South (83% in Timeabu and 93% in Korase) were migrants (see Table 6.15). More than half (53%) of migrant households in the South belonged to diverse ethnic groups such as the ‘Dagbani’, the ‘Dagomba’, the ‘Gurunsi’, the ‘Frafra’, the ‘Kootokoli’, and the ‘Dagaare’.

Table 6.15 Residential status of households

Status	South	North	Total	%
Native	24	161	185	46.3
Migrant	176	39	215	53.7
Total	200	200	400	100

Source: Village survey (2019).

The study sought to understand the relations within these ethnic groups, especially for migrant households in the South. Through interviews, it was found that the above-stated ethnic groups belonged to a larger group called the ‘northerners’ meaning they are migrants from the northern parts of Ghana who have settled in the South (Timeabu and Korase). Each ethnic group had a leader, and they meet to discuss development issues about the village. The leaders mobilise members from each ethnic group to carry out activities (e.g., provision of labour services) to help one another. During meetings and activities, villagers socialise with others. The interview participants thought that without good relations among ethnic groups, these activities mentioned above would not have happened.

Relations within the ethnic groups encouraged some relatives of the same groups to move from the northern part of Ghana to join their family members in the South (Timeabu and Korase) and to support the family to farm. This contributed to the large numbers of migrants in Timeabu and Korase. These migrants introduced the cultivation of millet, the keeping of livestock (e.g., goat) and poultry (e.g., guinea fowl) in the South. The chief in Timeabu narrated how migrants settled in the village.

The first migrant household settled in this village in the late 1970s to farm cocoa. With time, they invited their relatives to join them. One thing I have observed about migrants in this village is that wherever they go, they try to move with the entire family. I think this is their tradition that ties them together (Interview data, 2019).

Notwithstanding the above results, there were leadership problems in the North (both Kong and Kowie). The problem was between two ethnic groups competing for land and leadership positions. According to the interview participants, this problem caused friction between the two ethnic groups thereby affecting relationships among households who belonged to either group. A leader of an ethnic group at Kong reinforced this:

No one talks about leadership in this village. Leadership is a big problem that has not been resolved for many years. It is even prohibited for a person in one ethnic group to marry from the other group (Interview data, 2019).

All the interview participants in Kong and Kowie confirmed that social relationships among households were weak because of the leadership problems in the villages.

6.7.3 Communal relations

The interview participants in all the study sites understood communal relations as the relations that are manifested when the needs of a society are provided through communal labour activities. The interviewees revealed that communal labour was organised every month in Timeabu and Korase but not frequent in Kong and Kowie due to leadership problems. During communal labour, many households work in groups to clear bushes, tidy the environment and rehabilitate public toilet facilities. Particularly in Timeabu, during this event, they visit the communal farm to weed and apply fertilizer. Women sweep the compound and dispose rubbish.

The village chief mentioned that communal labour is governed by rules. Each group had a leader who instructs members to do the right thing. No one is allowed to go to the farm or elsewhere unless the activity is over. Those who absent themselves from the activity without permission are asked to pay a fine. According to the interview participants, communal labour truly enables households to socialise and to become aware of the need to keep their environment clean and tidy.

Communal labour was followed by sporting and cultural events. The men in Timeabu for instance organised a football match with the nearby village, Korase and the women also organised a cultural exhibition. Those in Korase also do the same by inviting people from Timeabu for a football match. Dance groups in Timeabu demonstrate their cultural values through dancing. These activities enable households to interact and build good relationships with many people. In addition, the events provide the platform for households to understand the importance of unity that can help to achieve a common goal. The chief in Timeabu said that:

We attach significance to sporting and cultural activities in this village because they bring many villagers from different places together. During the events, people form new friends, interact among themselves, and learn the value of their culture and beliefs. Being the Chief of this village, I am also able to communicate with my village people during these events (Interview data, 2019).

6.8 Activities that Support Cooperation and Collaboration among Households

This section presents the findings on activities, projects, and arrangements that enable households to cooperate.

6.8.1 Initiatives by village committees

The interviews revealed that the villages in the South (Timeabu and Korase) had village committees, but this was not identified in the North (Kong and Kowie). The membership comprised seven people for each village that include leaders from the various ethnic groups. The committee settles disputes and engages villagers in activities. Activities and projects implemented by these committees are described as follows.

Timeabu and Korase had a Water Management Committee that handles issues related to the water supply. It was not indicated during the interviews that Kong and Kowie had such a committee. Officers from the Water and Sanitation Department at the local council train the committee members from time to time. Activities of this committee include repair and maintenance of boreholes and ‘wells’ water as well as the general assessment of water quality. They also mobilise funds from individual households to fix major problems associated with water supply. Matters beyond the committee are discussed with the district water and sanitation officers. A leader of an ethnic group interviewed in Timeabu said that:

The Water Management Committee supervises three functional boreholes and wells in this village. It regulates the time a person can fetch water and ensures that the boreholes are handled carefully to avoid frequent breakdowns (Interview data, 2019).

It was noticed from the interviews that the village committee formed Parents and Teachers Associations in Timeabu as well as Korase in collaboration with the head teacher at the school and officers at the Ghana Education Service. These associations comprised the membership of six people each in Timeabu and Korase, which include the head teacher at the school, the village chief, and some leaders of ethnic groups. The Ghana Education Service provided training for members of the Parents and Teachers Association on matters they must deal with. Activities performed by the Parents and Teachers Association were the collection of school dues from parents, keeping records of school properties, and education of parents on the need to send their girl-child to school. They cooperated with the school administrators to ensure that activities in the school are properly organised for every school term. Further, members of the associations liaise with the Ghana Education Service to provide school items for the school when appropriate. The Parents and Teachers Association in Timeabu and Korase organise meetings twice every school term that is, at the beginning and closure of the term. The meeting involves the head teacher and teaching staff at the school as well as all parents who have their wards in the school. Issues discussed at meetings mostly include the performance of pupils,

accountability of school dues, behaviour, and attitudes of pupils, teachers, and parents, among others. The chief in Korase explained an activity of the Parents and Teachers Association that attracted the attention of stakeholders.

We organised our first speech and prize-giving day for schoolchildren in 2017. We invited many people from other schools, the local council, Ghana Education Service, and the chiefs of other villages to participate in the activity. We engaged children to exhibit their talents through poem recitation, dancing, and drama. We raised huge money from the speech and prize-giving day, and the money was used to support the needy but brilliant students in the school (Interview, 2019).

6.8.2 Activities by village associations

All the four study sites had village associations that comprised seven associations in the South (five in Timeabu and two in Korase) and six in the North (three in Kong, and three in Kowie). Table 6.16 presents the number of households who joined village associations. About 52% of households in Timeabu were members of the village associations, followed by 44% in Korase, 55% in Kong, and 45% in Kowie, which also constituted about 48% of households in the South and 50% in the North. The village associations in both Timeabu and Korase met once a week whilst those in Kong and Kowie met once per fortnight.

Table 6.16 Household membership with village associations

Membership	South	North	Total	%
Members	95	100	195	48.8
Non-members	105	100	205	51.2
Total	200	200	400	100.0

Source: Village survey (2019).

Households were asked to mention the benefits they received for being members of the village associations and the responses are shown in Table 6.17. About 58% of households in Timeabu, 74% in Korase, 51% in Kong, and 73% in Kowie received information on prices of commodities, which also represented 66% of households in the South (Timeabu and Korase) and 62% in the North (Kong and Kowie).

The interviews revealed that farmers' access to market information through the village associations was useful. A market leader who was also a member of an association in Kong noted:

Information about the prices of commodities we receive from the leaders of the village associations has helped us to know the changes in prices over the years. We can plan ahead of time, the market value of our harvested crops (Interview data, 2019).

Table 6.17 Benefits households received for engaging with village associations

Benefit	South	North	Total	%
Access to market information	63	62	125	64.1
Fertilizer application	49	64	113	57.9
Encouragement in farming specific crops	25	40	65	33.3
Financial advice, mobilisation, and loan acquisition	15	8	23	11.8
No benefit	3	4	7	3.6

Note: Multiple responses, percentages calculated based on N = 95 households in the South and 100 households in the North.

Source: Village survey (2019).

Another benefit the households received from the village associations was the importance of engaging in farming some specific crops, which was said by 26% of households in the South (Timeabu and Korase) and 40% in the North (Kong and Kowie) including 34% of households in Timeabu, 18% in Korase, 38% in Kong, and 42% in Kowie.

The interviews revealed a similar finding concerning the advice households received on the importance of engaging in farming specific crops. It was found that members of the village associations in the South received education on the need to increase the production of cocoa because of the high value for cocoa. Households in the North were taught to grow more maize and soya bean because the demand for these crops is large in the markets. Further, the interviewees in the North mentioned that members of the village associations were supported to increase the cultivation of land. Women, in particular, were motivated to farm large acres of land. A leader of a village association in Kong explained this further by stating that:

Women empowerment is what we seek to achieve. We cooperate with the Gender Department at the local council to educate heads of the family to allow women to obtain large acres of land to farm certain types of crops (Interview data, 2019).

A market leader, who is a woman in Kong, shared her experience.

I had a small parcel of land for millet only. The leader of my association spoke with my partner to allow me to cultivate a large acre of land so that I can support the family with income. Through several meetings between the association and my husband, I was allowed to farm an additional acre of land (Interview data, 2019).

Notably, the survey revealed that some households including 16% in the South (Timeabu and Korase) and 8% in the North (Kong and Kowie) mentioned that they received financial information services from the associations.

The interviews revealed that this financial assistance involved loans and financial contributions among members of the association. The interviewees in the North stated that they contribute money to hire tractors to plough their farms. This observation is well reflected in the following comment by a market leader in Kong who benefited from the tractor service.

This is the first time I have collaborated with an association to hire a tractor to plough my farm. It has been a great help because I cannot afford to hire a tractor from my pocket. I cultivated an additional acre of land in 2018 for using a tractor to prepare my land (Interview data, 2019).

In addition, it was found that all the associations in Timeabu operated a village savings scheme project. The remaining associations did not embark on this type of project. The village savings scheme projects involved the mobilisation of money from members of the association per week. The money from each member of the association is recorded and kept in a sealed box. Members were entitled to obtain loans and pay them back with interest at a given time. At the close of the year, members share the money according to the amount each person contributes and start new savings afterward. A leader of an ethnic group who was also a member of a village association in Timeabu explained the process he went through to obtain a loan.

I contribute money every week to my association, and this enabled me to apply for a loan. I spoke to the leader of the association during our weekly meetings, that I need money to purchase fertilizer and hire labour. The leader went through my records to show that I have been contributing consistently. After this, it was discussed at meetings and members of the association accepted that the loan should be given to me (Interview data, 2019).

6.8.3 Initiatives by NGOs and the Municipal Assembly

It was found that NGOs (two in Timeabu, one in Korase, seven in Kong, and three in Kowie) operated in the study sites. The Municipal Assemblies also carried out some activities in the villages. Table 6.18 shows the distribution of fertilizer by NGOs and the Municipal Assemblies to households in 2018. Only 3% of households in Korase, 43% in Kong, and 35% in Kowie received fertilizer.

None of the households in Timeabu mentioned that they received fertilizer in 2018. Households in Korase received 48 bags of fertilizer and those in Kong and Kowie received 888 bags and

935 bags, respectively. The average bag of fertilizer received per household in 2018 was less than one in the South but nine in the North.

Table 6.18 Distribution of fertilizer to households in 2018

Fertilizer received	Number of households		Bags received	
	South	North	South	North
Total	200	200	48	1823
Yes	6	78	48	1823
No	194	122	0	0
Average fertilizer per household (in bags)	-	-	0.20	9.2

Source: Village survey (2019).

The interviews revealed that the distribution of fertilizer by NGOs to households in the North (Kong and Kowie) was part of an arrangement between members of the village associations and the NGOs that after harvest, it is either beneficiaries use their harvest crops to pay for the fertilizer or sell the crops and pay in cash. This arrangement was carried out annually to increase farmers' access to fertilizer and to help them to produce more crops (specifically, maize and soya bean).

An NGO officer in the Sissala East Municipality said that:

We distribute bags of fertilizer to farmers through the associations in Kong and Kowie. Last year for instance (2018), more than three thousand bags of fertilizer were distributed to households in these two villages. Our record indicates that there was about a 33% increase in the supply of fertilizer to these villages. Farmers also increased their output of crops in 2018 compared to 2017 and I believe that their access to fertilizer contributed to this (Interview data, 2019).

As well, the distribution of fertilizer by the Municipal Assemblies was part of the government project, PfJ, which assists farmers to obtain fertilizer at a subsidised price. This project sought to increase crop production in rural areas (MOFA 2017). All the study sites (except Timeabu) benefited from this project. An agricultural extension officer at the Ejisu-Juaben Municipal Assembly explained the procedure for the distribution of fertilizer.

The government of Ghana supplies us with bags of fertilizer for distribution to villages at a subsidised price, of which Korase is a beneficiary. We engage some input dealers to do the distribution. Farmers go to the input dealers to buy the fertilizer. There is a limited number of fertilizers a farmer can purchase (Interview data, 2019).

The interview respondents were asked about some benefits of the above-stated fertilizer distribution project. It was found that more importantly; the distribution of fertilizer was helpful for households in Kong and Kowie. This was well emphasised in statements some participants made. For instance, the leader of an association in Kong said that:

We do not have good soil. The supply of fertilizer to farmers in this village is therefore helping them a lot to produce many bags of maize. The subsidised price of the fertilizer also encourages farmers to buy them (Interview data, 2019).

A local council representative (assembly member) in Kowie added that:

I received more than 30 bags of fertilizer in 2018 from the Planting for Food and Job project because of the large acres of my land. This was the largest number I had ever received since 2017. I produced more than 50 tonnes of maize in 2018, compared to the 35 tonnes I harvested in 2017 (Interview data, 2019).

In addition to the fertilizer distribution project, the survey found that 54% of households in Timeabu, 36% in Korase, 55% in Kong, and 60% in Kowie received agricultural training from NGOs and the Municipal Assemblies, which also included 45% of households in the South and 58% in the North.

The study sought to know the type of agricultural training these households received, and the responses are shown in Figure 6.2. About 52% of households in Timeabu, 30% in Korase, 40% in Kong, and 54% in Kowie were taught the importance of controlling weeds and the application of fertilizer, which also comprised 41% of households in the South and 47% in the North, respectively.

Similar responses regarding household access to training on weed control and fertilizer application were identified during the interviews. A leader of an association in Kowie stated that:

NGO officers are more concerned about weed control and fertilizer application. They taught us that without proper control of weeds, crop yield can be reduced irrespective of the type of fertilizer we apply to our crops. The officers taught us that in addition to weed control, it is relevant to apply fertilizer at the right time such as, in the mornings (around 7.30 am) or evenings (around 5.30 pm) when the sun has not risen (Interview data, 2019).

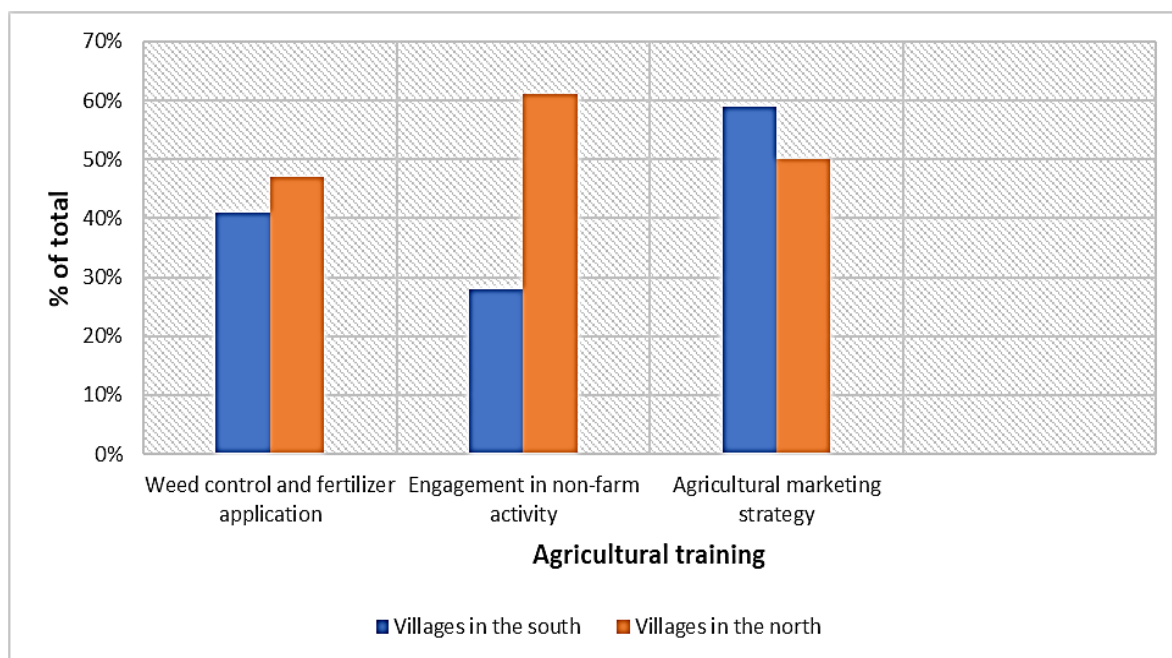


Figure 6.2 Agricultural training accessible to households

Source: Village survey (2019).

A similar remark was given during the interviews with some NGO officers in the Sissala East Municipality.

We have observed that farmers in Kong and Kowie do not pay much attention to weed control and the appropriate time to apply fertilizer, which is our major concern. We have embarked on several learning activities to draw farmers attention to these things (Interview data, 2019).

About 24% of households in Timeabu, 33% in Korase, 36% in Kong, and 85% in Kowie said that the NGO officers encouraged them to engage in non-farm activities to support farming, which represented 29% of households in the South (Timeabu and Korase) and 61% in the North (Kong and Kowie).

The interviewees explained the type of non-farm activities the officers advised farmers to engage in. A leader of a village association interviewed in Timeabu said that:

We were encouraged to do other works in addition to farming so that we can support our family financially. The NGO officers have trained farmers in this village on soap making. After the training, the officers supplied us with ingredients to make soap. As a leader of my association, I gathered some members, and we made a lot of soap and shared them among ourselves. Some members have been producing soaps and they sell them during market days at the district capital (Interview data, 2019).

Another interview participant in Kowie pointed out that:

An NGO has introduced beekeeping to farmers in this village. According to the NGO officers, beekeeping is one of the lucrative businesses because the consumption of honey is increasing, and the economic value is higher (Interview data, 2019).

Further, 57% of households in Timeabu, 61% in Korase, 29% in Kong, and 68% in Kowie were taught the strategies to increase sales and the prices of farm products, which represented 59% and 49% of households in the South (Timeabu and Korase) and North (Kong and Kowie), respectively.

The interviews revealed that households were taught the importance of cooperative marketing and value addition to agricultural products as ways for increasing sales, prices, and profit. A market leader in Kong explained that:

Some farmers in this village have been taught that for them to make more profit, it is important to add value to crops. The market information officers at the Sissala East Municipality have consistently informed farmers that value-added foods such as groundnut paste and shea butter are in large demand, especially during market days at the district capital, which involve many people (Interview data, 2019).

A leader of an association in Timeabu mentioned that:

Market information officers from the Ejisu-Juaben Municipal have advised farmers in this village to increase the production of value-added foods such as *gari* (processed cassava). They told us that value-added foods could last for long compared to some crops because it is non-perishable (Interview data, 2019).

An NGO officer interviewed in the Sissala East Municipality also pointed out that:

We organise pre-season and post-season forums for farmers in some villages and Kong is part of this. The sessions usually involve input dealers, beverage companies, district officers, and market leaders from the regional areas. Farmers are educated on several ways of marketing crops, and they are connected to some buyers who participate in the forums (Interview data, 2019).

It was discovered during the interviews that all the study sites had the government School Feeding Program. According to the district officers, this program was introduced in 2005 by the government of Ghana to provide meal for children in basic schools, especially in remote villages. The Ghana Education Service in collaboration with the Municipal Assemblies

supervises this project. The chief in Timeabu explained the implementation of the government School Feeding Program and its benefits.

We wrote proposals to the Municipal Assembly asking them to implement the School Feeding Program in this village. We had to do communal labour to build a kitchen so that food can be prepared there and to show the Municipal Assembly that we were prepared to receive the project. We took pictures of the kitchen to the Municipal Assembly and in 2008 the School Feeding Program was implemented in this village. The project has given jobs to people who are cooks. Some food items are also bought from farmers in this village to prepare food for children (Interview data, 2019).

Likewise, the Chief in Korase explained how the School Feeding Program was introduced and its benefits:

The local council representative (assembly member) petitioned the Municipal Assembly to implement the School Feeding Program, which was implemented in 2010. The caterers and cooks for this project were recruited in this village (Interview data, 2019).

The Chief in Kong and Kowie shared a similar view about the implementation of the School Feeding Program.

This project was implemented in this village in 2012 to provide meals for schoolchildren. Caterer and cooks for the project were employed in this village (Interview data, 2019).

In addition, Timeabu benefited from a School Feeding Program provided by an NGO in 2017. According to an NGO officer, the project sought to increase enrolment in basic schools and decrease lateness through the provision of corn porridge for schoolchildren, precisely, kindergarten and pupils in primary one. This School Feeding Program encouraged the village committee in Timeabu to establish a communal farm for maize that covered about one hectare (ha) of land. The NGO supported this farm initiative by providing maize seeds and fertilizer. The purpose of the farm initiative was to increase the production of maize to support the NGO School Feeding Program and to use proceeds from selling the maize to provide educational items for the school. The Chief in Timeabu explained why the farm initiative commenced.

We had a high level of truancy and lateness in our basic school here and the cause of this problem was that parents had to cook in the morning for their wards before allowing them to come to school. The committee, therefore, decided to do a communal farm to provide corn to support the NGO School Feeding Program and to avoid the time pupils waste in the house looking for food before coming to school (Interview data, 2019).

Another important initiative found in Kong and Kowie was contract farming arrangements between households and NGOs through village associations. An interview with an NGO officer in the Sissala East Municipality revealed that the NGO preferred to use village associations to engage farmers into contract farming agreement so that they can do proper monitoring through leaders of the associations. Interviews with leaders of the village associations in Kong and Kowie revealed that 54 members of the associations (including 38 in Kong: 23 females and 15 males and 16 in Kowie: seven females and nine males) entered into a contract farming agreement with the NGO. The leaders of the associations signed a memorandum of understanding (MoU) with the NGO on behalf of members. The NGO review the contract yearly to include and exclude some farmers depending on whether they have followed the agreed terms and conditions. The contract involves the provision of fertilizer and a tractor for farmers under the contract every planting season. Farmers only pay for fuel and allowance to the driver who use the tractor. Other costs associated with the tractor is taken by the NGO. Farmers also pay a discount price for bags of fertilizer provided by the NGO. The price of fertilizer is even given to some farmers on credit. Farmers pay during the harvesting period either with their harvested maize or monetary terms. The contract states that the farmers who enter contract with the NGO must sell an agreed quantity of their produce (specifically, maize and soya bean) to the NGO at an agreed price. According to the leaders, during harvesting, members of the association carry their agreed quantity of maize to them, and they stored the maize in a warehouse provided by the NGO. Leaders of the association leaders stated that the NGO transports the maize to their factory for processing into corn dough.

6.9 Summary

This chapter has presented the empirical data on the socioeconomic characteristics of the surveyed respondents. Most households had a large parcel of land for farming. The land was obtained through either inheritance, purchase, or hire. Households produced several types of agricultural products, including food crops, organic and value-added foods as well as livestock and poultry. The largest area of household production was food crops. Households benefitted from their family members supporting production on their farms, which saved on labour costs. Access to fertilizer, contract farming, and agricultural training was all incentives for households to improve production. Households sold a large proportion of food crops. The major outlet for farm produce was direct selling, followed by the involvement of middle agents as well as schools and restaurants.

Chapter 7. Effects of Urban Periodic Markets on the Surveyed Sites

This chapter presents the findings on the effects of UPMs on the surveyed sites. It starts by presenting the effects of UPMs on agricultural activities including household production and distribution of farm products as well as the incentives for these activities. The chapter then presents the effects of UPMs on household market participation and price settings of commodities. The effects of UPMs on social interactions as well as cooperative activities are also presented. The chapter reveals that UPMs create the platform that encourage the production and sale of agricultural products, including organic and value-added foods. They create social and economic interactions within the surveyed villages and between farmers and middle agents. Further, UPMs increase farmers direct participation in urban markets, encourage cooperation and collaborations.

7.1 Effects of Urban Periodic Markets on Household Production, Sale and Purchasing

This section presents effects of UPMs on household production, sale and purchasing of agricultural products. Section 7.1.1 presents the sale of food crops, livestock, and poultry at UPMs. It was found that the volume of agricultural products sold at UPMs was greater than the volume sold at non-periodic markets in villages in the South and North. Section 7.1.2 presents the sale of value-added products at UPMs. This section found that larger volumes of value-added products were sold at UPMs than non-periodic markets. Section 7.1.3 presents the sale of organic foods in UPMs. Section 7.1.4 presents the purchasing of agricultural and non-agricultural at UPMs. This section found that larger volumes of agricultural products were purchased at UPMs than non-periodic markets. Section 7.1.5 presents effects of UPMs on balance of trade for agricultural products in the surveyed villages. This section revealed that the quantities of agricultural sold at UPMs was larger than the volumes purchased at UPMs. The rationale of this section is to understand the extent to which UPMs contribute to agricultural food production in the surveyed villages in Ghana.

7.1.1 Sale of food crops, livestock, and poultry in urban periodic markets

Households sold different types of agricultural products in UPMs in 2018 (Table 7.1). About 89% of households in Timeabu, 93% in Korase, 87% in Kong, and 92% in Kowie sold food crops in UPMs, including 91% of households in the South and 90% in the North. Households

in Timeabu sold 177 tonnes of crops in UPMs, followed by 137 tonnes in Korase, 916 tonnes in Kong, and 534 tonnes in Kowie, which also constituted a total sale of 314 tonnes and 1,450 tonnes of crops in UPMs in the South and North, respectively.

Table 7.1 Volume of food crops sold by households in UPMs and NPMs in 2018

Product	Urban periodic markets			Non-periodic markets		
	South	North	Total	South	North	Total
Food crop (tonne, total)	314	1450	1764	76	70	146
Cereals	157	1191	1348	61	56	117
Legumes	7	223	230	2	14	16
Root and tuber	131	35	166	13	0	13
Fruits and Vegetables	19	1	20	0.1	0	0.1
Food crop (tonne, per household)	1.58	7.25	4.42	0.38	0.35	0.37

Source: Village survey (2019).

Cereals were the major crops sold by households in UPMs. Cereals constituted about 50% and 82% of the total crops sold in UPMs in the South and North, respectively. Maize was the leading crop sold in UPMs in 2018 with an average sale of 0.47 tonnes and 4.24 tonnes per household in the South and North, respectively.

The study sought to compare the volume of crops sold in UPMs and NPMs and the results are shown in Figure 7.1.

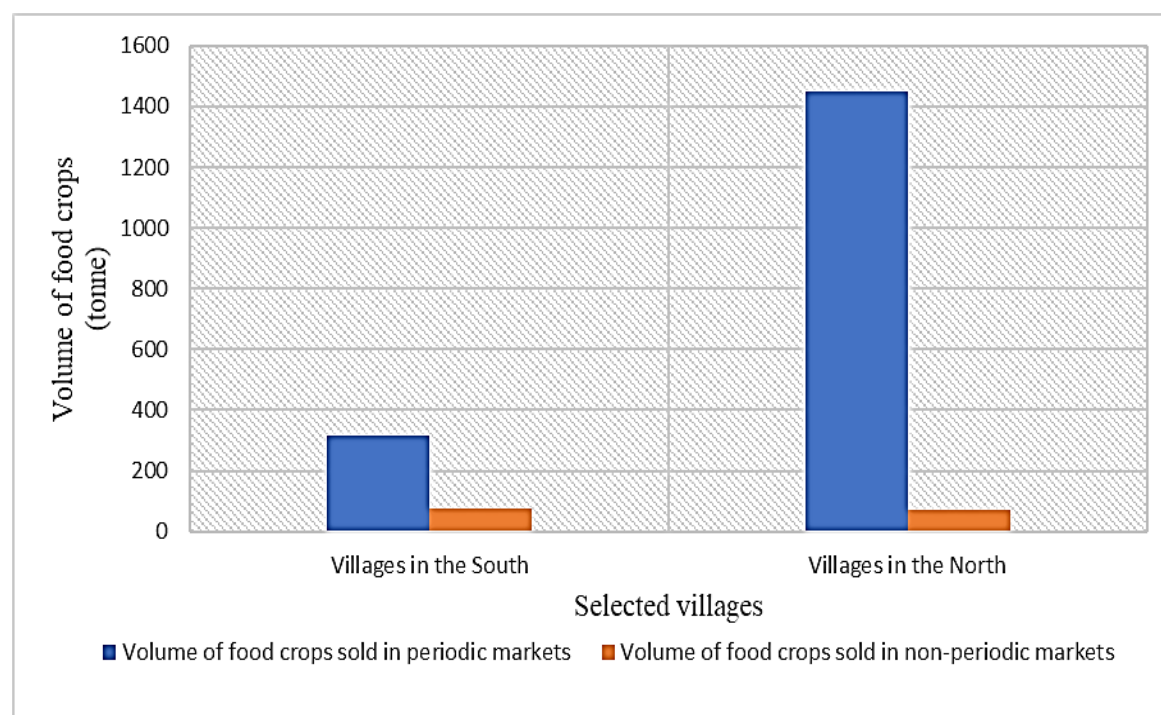


Figure 7.1 Food crops sold in UPMs and NPMs in 2018

Source: Village survey (2019).

Households sold larger volumes of crops at UPMs than NPMs. The average sale of crops per household in UPMs in 2018 was 1.58 tonnes in the South and 7.25 tonnes in the North. However, the average sale of crops per household in 2018 in NPMs was just 0.38 tonnes in the South and 0.35 tonnes in the North. Crops sold by households in the South and North in UPMs were 76% and 95%, larger than the volumes sold in NPMs, respectively. Further, the study sought to compare the proportion of the total household production of crops sold in UPMs (Figure 7.2). A larger proportion of the total production of crops was sold in UPMs including 63% of the proportion in Timeabu, 77% in Korase, 75% in Kong, and 75% in Kowie, which also represented a proportion of 70% in the South and 75% in the North.

Figure 7.3 presents the proportion of the total household sale of food crops sold in UPMs in 2018. A larger proportion of the total sale of food crops by households was sold in UPMs including 71% of the proportion in Timeabu, 96% in Korase, 99% in Kong, and 89% in Kowie, which also represented 84% and 94% of the proportion in the South and North, respectively.

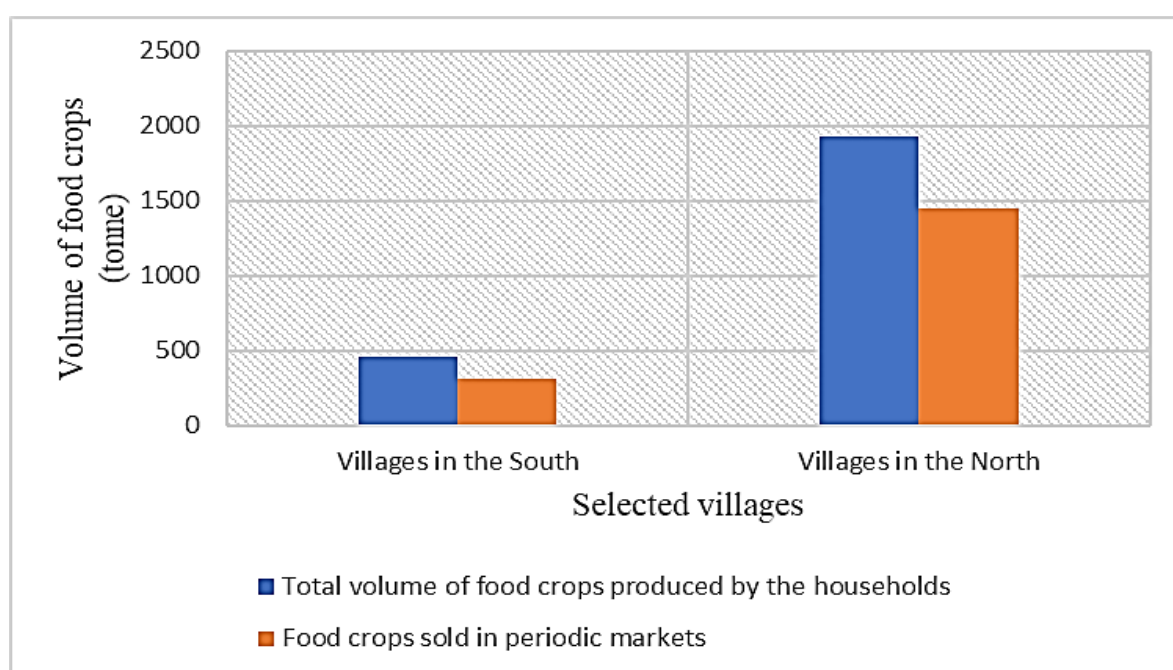


Figure 7.2 Proportion of total production of food crops sold in UPMs in 2018

Source: Village survey (2019).

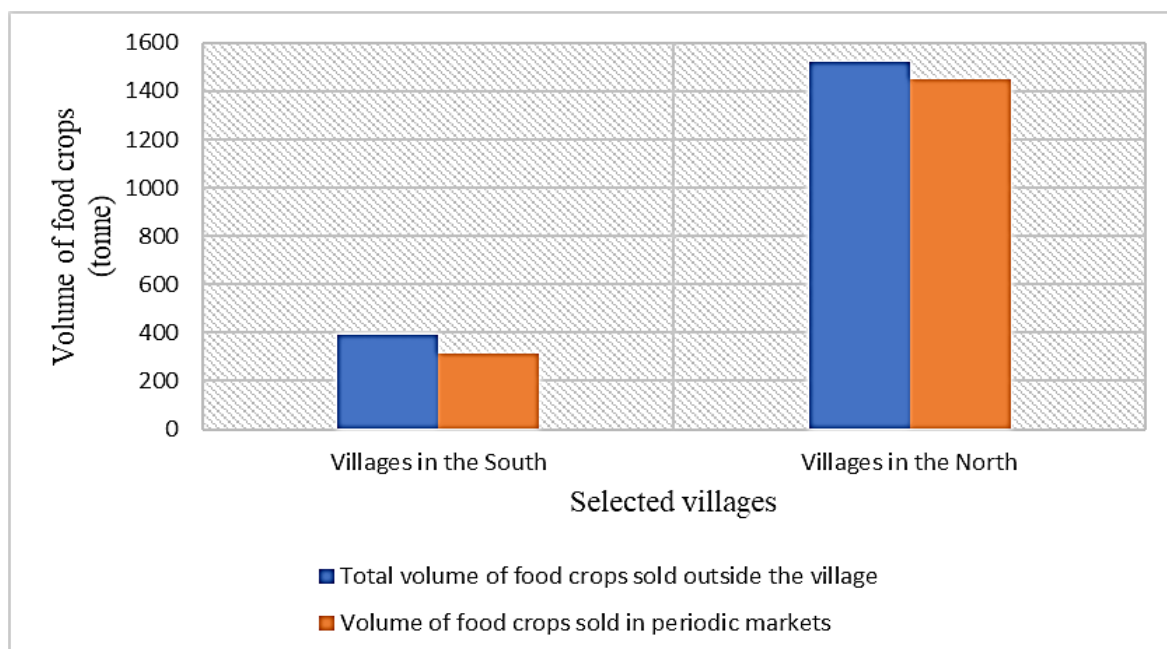


Figure 7.3 Proportion of total household distribution of food crops sold in UPMs in 2018

Source: Village survey (2019).

Table 7.2 shows the total number of poultry and livestock sold by households in UPMs in 2018. About 31% of households in Timeabu, 15% in Korase, 29% in Kong, and 32% in Kowie sold livestock in UPMs, including 23% of households in the South and 31% in the North. Households in Timeabu sold 211 head of livestock in UPMs, followed by 94 head in Korase, 126 head in Kong, and 119 head in Kowie, which also represented a total sale of 305 and 245 livestock in UPMs in the South and North, respectively. The analysis revealed that the sale of livestock in UPMs constituted 36% of the total household production in the South and 16% in the North.

Table 7.2 Sale of livestock and poultry in UPMs and NPMs in 2018

Product	Urban periodic markets			Non-periodic markets		
	South	North	Total	South	North	Total
Poultry (head)	1240	451	1691	1	4	5
Livestock (head)	305	245	550	3	2	5

Source: Village survey (2019).

About 39% of households in Timeabu, 38% in Korase, 22% in Kong, and 36% in Kowie sold poultry in UPMs, including 39% of households in the South and 29% in the North. Households in Timeabu sold 828 head of poultry in UPMs, followed by 412 head in Korase, 255 head in Kong, and 196 head in Kowie, which also constituted a total sale of 1,240 and 451 poultry in

UPMs in the South and North, respectively. The sale of poultry in UPMs represented about 46% of the total household production in the South and 19% in the North.

The researcher asked the households to indicate their level of agreement on the effects of UPMs on the sale of food crops (responses summarised in Table 7.3). About 98% of households in Timeabu, 87% in Korase, 81% in Kong, and 90% in Kowie agreed that UPMs do not occur as frequently as the NPMs, and they, therefore, had time to gather crops on the farm and transport them to the urban markets. The mean level of agreement was 6.20 in the South and 5.91 in the North (Table 7.3) signifying that a majority of households (including 93% in the South and 86% in the North) strongly agreed that intervals between UPMs are an incentive for households to sell crops in these markets.

The interviews revealed a similar finding to support the survey results. A market leader at Korase stated that:

The Kwaso Periodic Market occurs once a week. I have observed that farmers in this village go to the farm, gather fresh crops bit by bit, and keep them in their house until the next market day. They have time to package and sort out the crops before selling them in the Kwaso Periodic Market (Interview data, 2019).

A leader of a village association at Kong mentioned that:

I visit the UPMs once a week. Before the next market day, I go to my farm regularly to collect some crops. Then, I take my time to separate the good crops from the bad ones before selling them in the Tumu Periodic Market (Interview data, 2019).

Households including 77% in Timeabu, 63% in Korase, 84% in Kong, and 97% in Kowie agreed that farmers meet direct consumers and intermediaries in UPMs and according to them this encourages the sale of crops in these markets. The mean level of agreement was 5.32 in the South and 6.03 in the North, which indicates that a majority of households (70% in the South and 91% in the North) strongly agreed that the opportunity for farmers to meet direct consumers, as well as middle agents in UPMs, is a motivation for sale of crops in the markets (Table 7.3).

Similarly, the interviews revealed that UPMs enable households to meet middle agents as well as direct consumers, which is a motivation for farmers to sell crops in these markets. A market leader who was a plantain farmer at Timeabu reinforced this:

I have learnt that middle agents who attend the Ejisu Periodic Market buy plantain from farmers and supply them to other markets. This encourages me to sell plantain in this particular market because I know that I will certainly get people to buy my plantain (Interview data, 2019).

Table 7.3 Household response of the effects of UPMs on production, the sale, and purchasing of food crops

Effect	South	North	Total	Percent of agreement	
	Mean	Mean	Mean (Std. Dev)	South	North
Meeting middle agents and direct consumers in UPMs encourage the sale of crops.	5.32	6.03	5.68(1.42)	140(70.0%)	181(90.5%)
The population of buyers in UPMs encourages the sale of crops.	5.95	5.88	5.92(1.11)	186(93.0%)	172(86.0%)
Intervals between UPMs encourage the sale of crops.	6.20	5.91	6.06(1.18)	185(92.5%)	171(85.5%)
The specific days UPMs occur encourage the sale of crops.	5.94	4.91	5.43(1.88)	16(83.0%)	121(60.5%)
The location of periodic markets in urban areas encourages the sale and purchase of crops.	6.17	5.21	5.69(1.42)	186(93.0%)	132(66.0%)
Communication in UPMs encourages the sale of crops	6.39	6.01	6.20(1.20)	187(94.0%)	171(85.5%)
Part-time nature of UPMs encourages the sale of crops.	5.90	5.19	5.50(1.50)	176(88.8%)	134(67.0%)

Source: Village survey (2019).

A market leader at Kong also added that:

The UPM at Tumu involves middle agents and direct consumers. Middle agents transport some crops from the Tumu Periodic Market to the neighbouring country (Burkina Faso). Direct consumers from Burkina Faso also visit the Tumu Periodic Market. I know that meeting these buyers at the Tumu Periodic Market give me hope to sell my crops in this market. Even in the absence of direct consumers, I can still sell to middle agents in the Tumu Periodic Market (Interview data, 2019).

The location of periodic markets in urban areas was also seen as encouraging the sale of crops, as stated by 98% of households in Timeabu, 88% in Korase, 68% in Kong, and 64% in Kowie. The mean level of agreement was 6.17 in the South and 5.21 in the North which shows that most households (including 93% in the South and 86% in the North) strongly agreed that the location of periodic markets is an incentive for the sale of crops in these markets (see Table 7.3). As well, most households, including 93% in the South and 86% in the North agreed that UPMs attract many buyers from different places, which is not the case in NPMs. They considered this as a motivation for farmers to produce and sell in these UPMs.

According to the interviewees, the location of UPMs in the district capital is attractive to traders. Therefore, there is a large number of buyers in these markets and these buyers are

mostly from big towns or cities within and outside the district. They explained that the good roads (compared to their village roads) from UPMs to the surrounding towns and cities make it possible for many buyers to visit these markets. They expressed their confidence that when farmers send their crops to UPMs in the district capital, there is a large demand for them. A market leader at Timeabu noted that:

None of the periodic markets in the Sissala East District is at the village but the distance from this village to the urban markets is also not far. Because the periodic markets are in urban areas, many people go there to purchase food items. I prefer to carry my crops to these UPMs because that is where I can sell a large proportion of my crops (Interview data, 2019).

The interviews further revealed that supermarkets absorb some farm products sold by farmers in UPMs. They thought that this also increases the demand for crops in the urban markets thereby encouraging farmers to sell there. A market leader at Timeabu explained the large demand for fruits and vegetables in the Ejisu Periodic Market.

The Ejisu Periodic Market supplies foodstuffs to smaller shops and supermarkets close to the market. During the market day, storekeepers visit the Ejisu Periodic Market to purchase some food items. Fruit and vegetables are largely purchased by these storekeepers on market days at Ejisu (Interview data, 2019).

The survey revealed that about 96% of households in Timeabu, 70% in Korase, 54% in Kong, and 67% in Kowie agreed that the specific day for UPMs encourages farmers to sell crops in these markets. The mean level of agreement was 5.94 in the South and 4.91 in the North, which suggests that most households, including 83% in the South and 61% in the North agreed that specific day for UPMs is an incentive for the sale of crops in these markets.

The interviewees explained that UPMs on certain days attract more buyers than the other days and according to them, it is an incentive to sell on those days. The interviewees in the South said that the Ejisu market day, for instance, occurs on Thursdays and Sundays every week. They thought that the Sunday market attracts many buyers than the Thursday market. Their reason was that religious activities occur on Sundays, which attract more buyers to the market. They, therefore, preferred to visit the Sunday market so that they can sell a large proportion of their crops. A leader of a village association at Timeabu pointed out that:

I have observed that many people visit the Sunday market than the Thursday market at Ejisu. On Sundays, several religious activities occur in Ejisu. People from different places meet at Ejisu to worship. The UPM at Ejisu occurs at the centre of the district, which is closer to many churches. After

church activities, a large congregation moves to the Ejisu Periodic Market to buy foodstuffs before going to their homes (Interview data, 2019).

Similarly, the interviewees in the North pointed out that UPMs in their district occur at the interval of six days per week. When the market falls on Sundays or Fridays, they could sell most of their crops than the other days. This is because according to them, there are several religious activities on these two days, which attract many people to the market. A market leader in Kong explained that:

The big mosque or masjid (a place of worship for Muslims) is at Tumu, the district capital. On Fridays, many people from different places (villages, towns, cities) meet at the mosque to worship. After their activities, most of them visit the Tumu Periodic Market on Fridays to buy foodstuffs (Interview data, 2019).

7.1.2 Sale of value-added products in urban periodic markets

The study sought to know the number of households who sold value-added products in UPMs, and the responses are presented in Table 7.4. About 58% of households in Timeabu, 74% in Korase, 79% in Kong, and 68% in Kowie sold value-added foods in UPMs, which also represented about 66% of households in the South and 74% in the North.

Table 7.4 Number of households who sold value-added foods in UPMs and NPMs

Sale	South	North	Total	%
Urban Periodic markets	128	147	275	69.6
Non-periodic markets	67	53	120	30.4
Total	195	200	395	100.0

Note: Five households in the South did not sell at all.

Source: Village survey (2019).

The researcher asked the households to indicate their level of agreement on the effects of UPMs on the production and sale of value-added products and the responses are presented in Table 7.5. About 96% of households in Timeabu, 87% in Korase, 72% in Kong, and 83% in Kowie agreed that UPMs do not operate often, which provide farmers with ample time to produce value-added foods and sell them in those markets. The mean level of agreement was 6.31 in the South and 5.83 in the North, which suggests that most households, (including 92% in the South and 78% in the North) strongly agreed that farmers get enough time to prepare and sell value-added foods in UPMs because of intervals between these markets.

Table 7.5 Household response of the effects of UPMs on production, and the sale of value-added foods

Effect	South	North	Total	Percent of agreement	
	Mean	Mean	Mean (Std. Dev)	South	North
Selling to direct consumers in UPMs encourages the sale of value-added food.	5.74	4.90	5.32(1.92)	157(78.5%)	121(60.5%)
The population of buyers in UPMs encourages the sale of value-added food.	5.90	5.55	5.73(1.34)	177(88.5%)	154(77.0%)
Intervals between UPMs offer time to produce value-added food	6.31	5.83	6.07(1.31)	184(91.5%)	156(78.0%)
The number of UPMs and days of their occurrence encourage the sale of value-added food.	5.85	4.85	5.35(1.56)	170(85.0%)	114(57.0%)
The location of periodic markets in urban areas encourages the sale of value-added food.	5.76	4.78	5.27(1.57)	168(84.0%)	112(56.0%)
Communication in UPMs encourages the sale of value-added food.	5.76	5.67	5.72(1.93)	170(85.0%)	151(75.5%)
Part-time nature of UPMs offers time to produce and sell value-added food.	6.01	5.27	5.64(1.40)	180(90.0%)	140(70.0%)

Source: Village survey (2019).

The interviews also revealed a similar finding to support the survey. According to the interviewees, it takes a longer time to prepare some value-added products such as palm kernel oil, shea butter, and processed cassava (*gari*), and since the UPMs do not operate throughout the week, farmers get ample time to prepare them and sell in these markets. A market leader interviewed in Korase reported that:

I prepare *gari* every week and sell to my customers during market days at Ejisu. Intervals between the Ejisu Periodic Market is three days per week. This means I get three days every week to prepare the *gari* for sale in this market (Interview data, 2019).

About 95% of households in Timeabu, 82% in Korase, 65% in Kong, and 89% in Kowie agreed that UPMs involve several buyers, which is a motivation for farmers to produce and sell value-added foods in those markets. The mean level of agreement was 5.90 in the South and 5.55 in the North, which implies that a majority of households, representing 89% in the South and 77% in the North strongly agreed that the large pool of buyers during UPMs is an incentive for production and sale of value-added foods (Table 7.5).

The interviewees explained that the large number of buyers in UPMs, especially the one in the district capital could increase the preference for varieties of goods and services including value-added foods. According to them, on market days, buyers preferred to buy specific value-added foods from villagers or farmers themselves. It was noted that buyers in the North mostly

purchase peanut paste and shea butter from farmers during the market day at Tumu. Likewise, buyers in the South buy palm oil and *gari* from farmers at the Ejisu Periodic Market. According to the interviewees, buyers perceived that a farmer produces higher quality value-added foods than middle agents. They thought that this is a motivation for farmers to produce and sell value-added foods in these UPMs.

About 91% of households in Timeabu, 79% in Korase, 65% in Kong, and 86% in Kowie also agreed that UPMs are meeting places to exchange information with several people, and this is a source of encouragement for farmers because they become aware of the type of value-added foods to produce and sell in those markets. The mean level of agreement was 5.76 in the South and 5.67 in the North, which suggests that most households representing about 85% in the South and 76% in the North strongly agreed that UPMs provide useful information for farmers to know the specific value-added foods that meet the demand of urban buyers.

A further explanation was given during the interviews to support the survey responses. According to the interviewees, farmers who sell in UPMs know that some value-added products are largely purchased by students and caterers, especially during the reopening of schools and the enrolment of new students. They stated that farmers' access to information about the timing for increasing demand for value-added in UPMs is a motivation for them to increase the sale of these products in the urban markets.

7.1.3 Sale of organic foods in urban periodic markets

Of the three tonnes of organic rice produced by households in Korase, about 33% (1 tonne) was sold in UPMs. Likewise, organic farmers in Kong sold half (50%) of organic millets in UPMs in 2018. A market leader who was also an organic farmer in Kong pointed out that:

I usually sell organic millet to a group of villagers from the neighbouring country (Burkina Faso) whenever I visit the Tumu Periodic Market. These villagers told me that they use organic millet to make medicine. I have been selling to them in the UPMs for many years and established a good rapport with them (Interview data, 2019).

Another interviewee who was an organic farmer in Korase stated that:

I sell organic rice at the Ejisu Periodic Market. Those who purchase organic rice from me are mostly nursing mothers. What I realised is that these buyers mix the cooked organic rice with breast milk and give it to their babies. I always sell my organic millet to these buyers whenever they visit the Ejisu Periodic Market (Interview data, 2019).

The researcher asked the households to indicate their level of agreement on the effects of UPMs on the production and sale of organic foods. As shown in Table 7.6, households thought that the population of buyers in UPMs, location of periodic markets in urban areas, and communication between farmers and buyers in these urban markets were an incentive for the sale of organic foods in these markets. Among these factors, the analysis revealed that communication during market days received the greatest score as noted by 85% of households in the South and 87% in the North. The mean level of agreement was 5.81 in the South and 5.86 in the North, indicating that a majority of households strongly agreed that communication or exchange of information in UPMs encourages the sale of organic foods in those markets.

The interviews also revealed that on market days in Ejisu, workers from the local council give information to traders and they encourage them to produce organic foods to attract a higher price for these foods. In addition, through communication between farmers and buyers in the Ejisu Periodic Market, some farmers were motivated to produce organic foods. This observation is well reflected in the following comment made by a market leader interviewed in Kong.

I sell maize and soya bean in the Tumu and Bugubelle Periodic Markets. On many cases, buyers ask me whether I sell natural foods. By natural foods, they meant foods that are grown with less or no chemicals. Some buyers are concerned about their health, and they believe that farmers sell natural foods in the Tumu and Bugubelle Periodic Markets but not the middle agents. The conversation I have with buyers during market days draws my attention to inquire more about how to produce organic foods (Interview data, 2019).

It can be noted from the statement above that those farmers who do not sell organic foods may have an idea about buyers who prefer to buy these foods during market days. This can actually encourage them to produce organic foods.

The study sought to identify the challenges farmers go through for selling organic foods in UPMs. The interviews revealed that although buyers were willing to pay a higher price for organic foods, sometimes, they doubted whether the food farmers sell in UPMs was truly organic. According to the interviewees, some buyers had the perception that because organic foods are expensive, farmers may pretend that their products are organic just to get a higher price. Organic farmers then must convince the buyers that their food being sold in the UPMs is purely organic. The interviewees mentioned that the doubt some buyers have about the sale of organic foods in UPMs can discourage some farmers from producing these foods or farmers may sell organic foods using different outlets.

Table 7.6 Household response of the effects of UPMs on the production, and sale of organic foods

Effect	South	North	Total	Percent of agreement	
	Mean	Mean	Mean (Std. Dev.)	South	North
The population of buyers in UPMs encourages the sale of organic foods	5.68	4.91	5.29(1.57)	160(80.0%)	118(59.0%)
The number of UPMs encourages the sale of organic foods	5.83	5.51	5.67(1.35)	74(37.0%)	21(10.5%)
The location of periodic markets in urban areas encourages the sale of organic foods	5.57	4.74	5.16(1.56)	159(79.5%)	103(51.5%)
Communication in UPMs encourages the sale of organic foods	5.81	5.86	5.84(1.31)	170(85.0%)	173(86.5%)

Source: Village survey (2019).

7.1.4 Purchasing of farm and non-farm products in urban periodic markets

Table 7.7 presents the volume of food crops purchased by households in UPMs in 2018. About 30% of households in Timeabu, 94% in Korase, 78% in Kong, and 95% in Kowie bought food crops in UPMs, which represented about 62% of households in the South and 87% in the North. Households in Timeabu bought 15 tonnes of crops in UPMs, followed by 147 tonnes in Korase, 31 tonnes in Kong, and 110 tonnes in Kowie, which also constituted a total purchasing of 162 tonnes in the South and 141 tonnes in the North.

Table 7.7 Purchasing of food crops by households in UPMs and NPMs in 2018

Food	Urban Periodic markets			Non-periodic markets		
	South	North	Total	South	North	Total
Food crop (tonne, total)	162	141	303	12	6	18
Cereals	13	45	58	12	3	15
Legumes	16	20	36	0.02	0.5	1
Root and tuber	109	65	174	0.05	0.95	1
Fruits and Vegetables	24	11	35	0.04	0.96	1
Food crop (tonne, per household)	0.81	0.72	0.77	0.1	0.02	0.06

Source: Village survey (2019).

The interviews revealed that households purchased large quantities of roots and tubers as well as cereals in UPMs than the other crops. Households in the South (Timeabu and Korase) mostly purchased cocoyam and sorghum in UPMs. Those in the North (Kong and Kowie) purchased plantain and cassava in UPMs. These crops were not produced in the surveyed villages and therefore households bought them in UPMs. A leader of a village association in Korase reinforced this with a statement that:

Farmers in this village do not grow cocoyam and sorghum because the soil does not support the planting of these crops. We buy them at UPMs since these markets involve many sellers from different places who bring different foodstuffs to sell on market days (Interview data, 2019).

A leader of an ethnic group interviewed in Kong also said that:

We do not grow cassava and plantain in this village. In fact, they are not the traditional crops in the northern part of Ghana. We buy them at the UPMs where sellers from the southern part of Ghana bring these crops to sell at the Tumu Periodic Market (Interview data, 2019).

The study sought to compare the volume of crops purchased by households in UPMs and NPMs in 2018 between the South and North (see Figure 7.4). The analysis revealed that households bought a greater proportion of crops in UPMs than NPMs. The average volume of crops purchased per household in 2018 in UPMs was 0.81 tonnes in the South and 0.72 tonnes in the North. However, the average quantity of crops purchased per household in 2018 in NPMs was 0.1 tonnes in the South and 0.02 in the North. Crops purchased by households in the South and North in UPMs were 92% and 96% larger than the quantity bought in NPMs, respectively.

Figure 7.5 also shows that a larger proportion of the total purchasing of crops by households in 2018 was obtained in UPMs. The proportion of household purchasing crops in 2018 obtained in UPMs constituted about 92% in Timeabu, 93% in Korase, 97% in Kong, and 95% in Kowie, which also represented about 93% of the proportion in the South and 96% in the North.

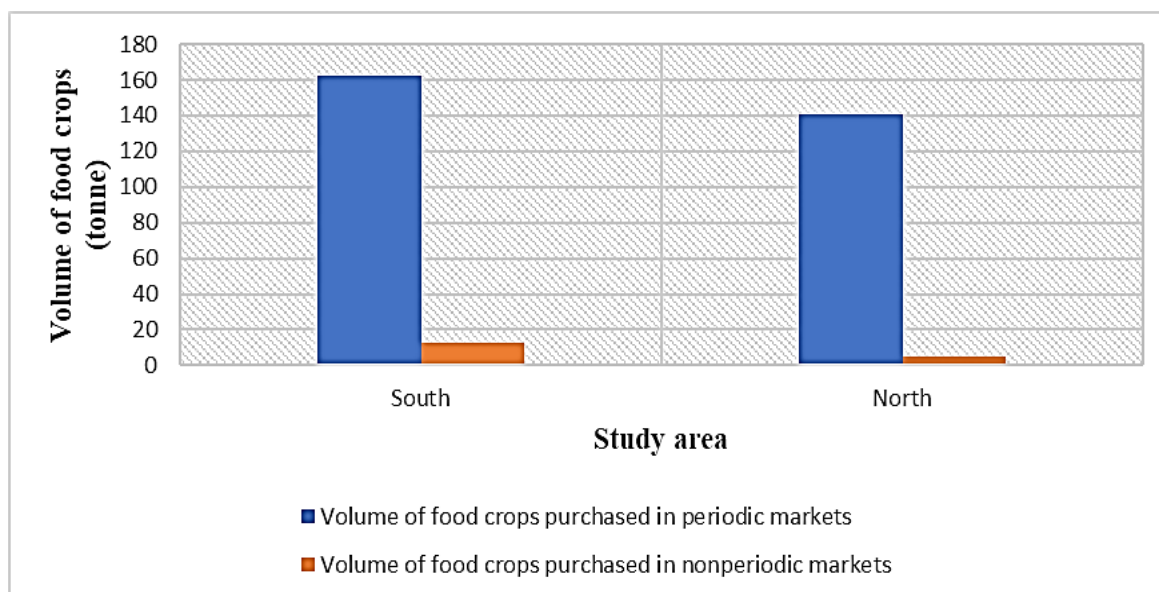


Figure 7.4 Volume of food crops purchased in UPMs versus NPMs in 2018

Source: Village survey (2019).

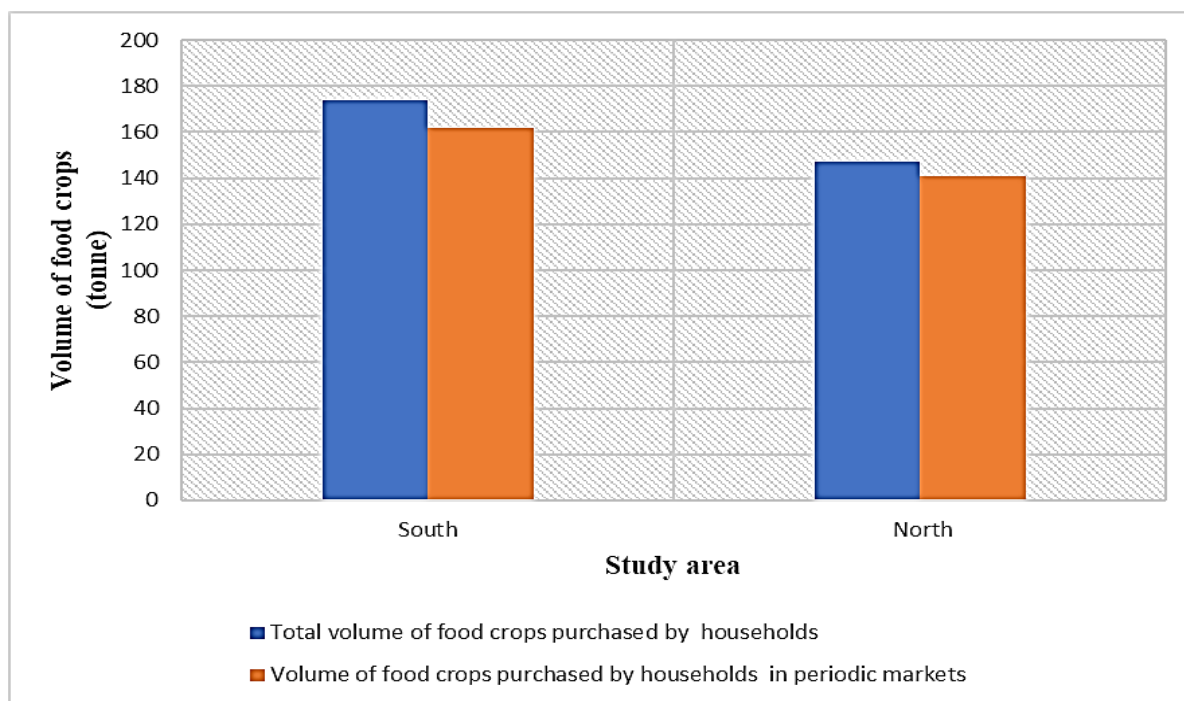


Figure 7.5 Proportion of household purchasing of food crops obtained in UPMs in 2018

Source: Village survey (2019).

Households were asked whether they purchased value-added products in UPMs, and the responses are shown in Table 7.8. The data revealed that about 45% of households in Timeabu, 89% in Korase, 85% in Kong, and 96% in Kowie bought at least one value-added product in UPMs, which also represented 67% of households in the South and 91% in the North. Only a few of the households including 33% in the South and 10% in the North bought value-added products in NPMs.

Table 7.8 Purchasing of value-added products by households in UPMs and NPMs

Purchasing	South	North	Total	%
Urban periodic markets	134	181	315	78.8
Non-periodic markets	66	19	85	21.2
Total	200	200	400	100.0

Source: Village survey (2019).

In addition, the data revealed that households purchased livestock and poultry in UPMs in 2018 (see Table 7.9). A few of the households, including 2% in Timeabu, 4% in Korase, 21% in Kong, and 27% in Kowie purchased livestock in UPMs. The number of livestock purchased by households was three head in Timeabu, six head in Korase, 155 head in Kong, and 30 head in Kowie, which also represented 9 livestock in the South and 185 in the North. Livestock

purchased by households in the North in UPMs was 76%, larger than the number bought in NPMs.

The survey further revealed that households, comprising 10% in Timeabu, 35% in Korase, 47% in Kong, and 49% in Kowie purchased poultry in UPMs. Households in Timeabu purchased 39 poultry in UPMs, followed by 150 in Korase, 348 in Kong, and 1,201 in Kowie. The number of poultry purchased by households in the South and North in UPMs was 96% and 99% larger than the number obtained in NPMs.

Table 7.9 Purchasing of livestock and poultry by households in UPMs and NPMs in 2018

Number	Urban periodic markets			Non-periodic markets		
	South	North	Total	South	North	Total
Poultry (head)	189	1549	1738	6	13	19
Livestock (head)	9	185	194	3	63	66

Source: Village survey (2019).

The study sought to know whether households purchased manufactured products in UPMs, and the responses are presented in Figure 7.6. According to a majority of households, comprising 45% in the South and 86% in the North, they purchased farm inputs in UPMs. The inputs were fertilizer, weedicide, cutlass, hoe, and maize seeds. Further, about 59% of households in the South and 73% in the North bought educational items in UPMs that include school bags, exercise books, pens, and pencils.

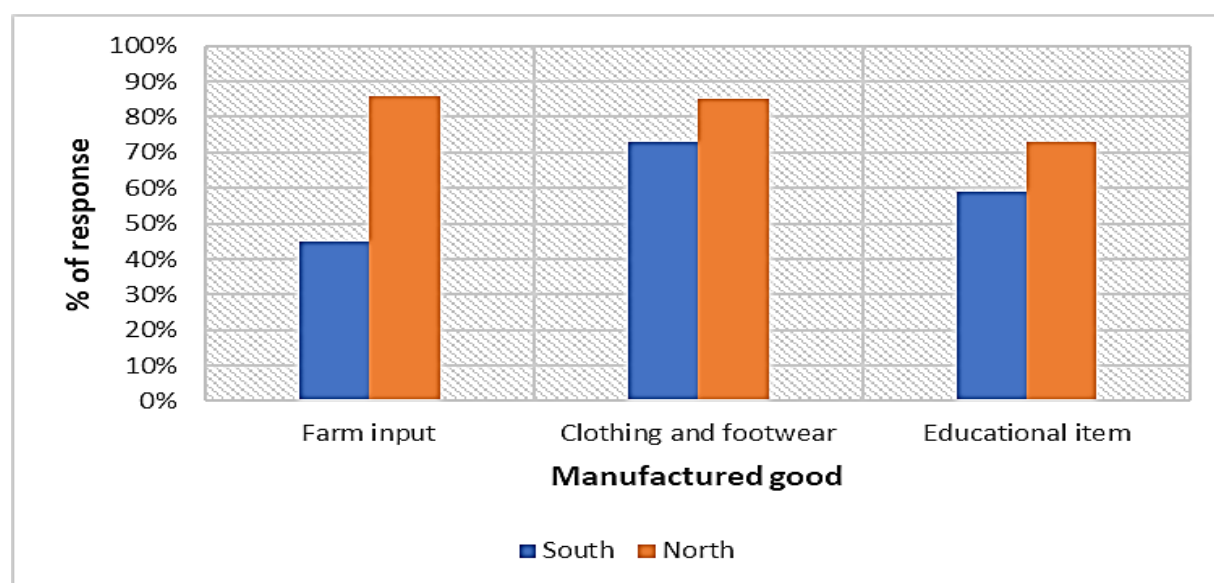


Figure 7.6 Manufactured products purchased by households in UPMs in 2018

Source: Village survey (2019).

The reasons why households preferred to purchase the above-mentioned items in UPMs were discussed during the interviews. The consensus was that households purchased these items at the UPMs because they are relatively cheaper, and households had to sell their crops at the UPMs in order for them to get money to purchase these items at the UPMs. The local council representative (assembly member) in Timeabu stated that:

Most households think that manufactured goods such as agricultural inputs and school items are relatively cheaper in UPMs than in NPMs. They usually buy these items whenever they visit the periodic market at Ejisu, Kwaso, or Juaben (Interview data, 2019).

The Chief at Kong also mentioned that:

We have a few shops in this village that sell school items. Yet, I have realised that most households prefer to purchase these items in the Tumu Periodic Market. Households think that items sold by shop owners in this village are obtained in this periodic market and therefore it is better for them to buy these items whenever they visit the markets (Interview data, 2019).

A market leader in Kowie added that:

Farmers, including myself, prefer to purchase school items and farm inputs at the Tumu Periodic Market. This is when we are able to sell our crops, get money and use it to purchase these items in the market (Interview data, 2019).

7.1.5 Urban periodic markets and the balance of trade for agricultural products

The study sought to determine the difference between farm products sold and purchased by households in UPMs in 2018 between the South (Timeabu and Korase) and North (Kong and Kowie). The analysis revealed that households in Timeabu sold a larger quantity of crops in UPMs than the volume of crops they bought from the same markets, which constituted about 92% difference. However, households in Korase bought more crops in UPMs than the quantity they sold in the same markets, which represented about a 7% difference. Households in Kong and Kowie sold a greater quantity of crops in UPMs than the quantity they bought from the same markets, which represented about 97% and 79% difference, respectively. The difference between crops sold and purchased in UPMs was a trade surplus of 152 tonnes in the South and 1,309 tonnes in the North (see Table 7.10).

Table 7.10 Difference between the sale and purchasing of farm produce in UPMs in 2018

Product	South	North	Total
Food crop (tonne, total)	152	1309	1461
Cereals	144	1146	1290
Legume	-9	203	194
Root and tuber	22	-30	-8
Fruits and vegetables	-5	-10	-15
Poultry (head)	1051	-1098	-47
Livestock (head)	296	60	356

Source: Village survey (2019).

The study used the paired sample *t*-test to estimate the statistically significant difference between crops sold and purchased by households in UPMs with the null hypothesis that there was no statistically significant difference. Table 7.11 shows that the significant values were less than 0.05 and therefore the null hypothesis is rejected. The study concludes that there was a significant difference between crops sold and purchased by households in the South ($p < 0.05$) and North ($p < 0.05$) in UPMs. Using the guidelines for interpreting effect sizes, the eta squared value of 0.29 indicates a moderate difference for South, and 0.67 signifies a large difference for North. These results indicate that the volume of crops sold by households in the South and North in UPMs was significantly larger than the volume purchased from the same markets.

Table 7.11 Mean difference for the sale and purchasing of food crops in UPMs in 2018

Result	South	North	Both
Average difference per household	0.76	6.54	3.65
<i>t</i> -statistics	4.23	12.77	11.86
Significant level	0.000 ^a	0.000 ^a	0.000 ^a
Effect size	0.29	0.67	0.51

^a. Level of significance at 0.05.

Source: Village survey (2019).

The survey revealed that households in Timeabu and Korase sold larger numbers of livestock in UPMs than the quantity they bought in the same markets, which represented about 99% and 94% difference, respectively. However, households in Kong bought larger numbers of livestock in UPMs than the quantity they sold in the same markets, which also constituted about 23% difference. Households in Kowie sold larger numbers of livestock in UPMs than the quantity they bought in the same markets, which represented about a 75% difference. The difference between livestock sold and purchased by households in UPMs was a trade surplus of 296 head in the South and 60 in the North.

In addition, households in Timeabu and Korase sold larger numbers of poultry in UPMs than the quantity they bought in the same markets, which represented about 95% and 64% difference, respectively. Households in Kong and Kowie purchased larger numbers of poultry in UPMs than the quantity they sold in the same markets, which constituted about 36% and 512%, respectively. The difference between poultry sold and purchased by households in UPMs was a trade surplus of 1,051 head in the South but a deficit of 1,098 in the North (as presented in Table 7.10 above).

7.2 Effects of Urban Periodic Markets on Market Participation and Price Setting

This section is presented in three areas. Section 7.2.1 presents the findings on effects of UPMs on household participation in UPMs. This section reveals that UPMs increase the participation of village households in those markets. Section 7.2.2 presents the findings on effects of UPMs on price settings and arrangements during market days. This section finds that rural farmers negotiate prices with direct consumers. Section 2.2.3 presents the findings on effects of UPMs on incentives and difficulties for household participation in urban periodic markets. This section finds that the intervals between UPMs, the population of buyers in UPMs, and the location of these markets encourage households' participation in UPMs.

7.2.1 Household participation in urban periodic markets

The study sought to know the number of households who participated directly in UPMs as sellers and the responses are presented in Table 7.12. The majority of households, including 74% in Timeabu, 94% in Korase, 87% in Kong, and 88% in Kowie participated in UPMs as sellers, which also represented about 84% of households in the South and 88% in the North. Households who participated in UPMs represented 67% males and 33% females in the South and 60% males and 40% females in the North.

Table 7.12 Number of households who participated directly in UPMs

Participation	South	North	Total	%
Sellers in urban periodic markets	168	175	343	85.8
Non-sellers in urban periodic markets	32	25	57	14.2
Total	200	200	400	100.0

Source: Village survey (2019).

The direct participation of households in UPMs constituted 85%, within the economically active cohort (25–54 years) in the South and 89% in the North. The findings indicate that most households have direct access to urban marketplaces, through the UPMs. These findings also show that UPMs provide jobs to a majority of households because they were sellers during market days.

The study sought to find out why a large number of households participated in UPMs. The interviews revealed that there were no market centres in the study sites. The interviewees said that the lack of market centres in the villages is among the reasons why many farmers visited UPMs in the nearby town or the district capital. According to them, it is also easier and more convenient for farmers to access UPMs than NPMs. They explained that farmers must secure a permanent store or stall in order for them to sell in NPMs that is, the daily or central markets in urban areas, but this was not the case during market days. According to the interviewees, during market days in urban centres, farmers are not supposed to rent permanent stores before they can sell in the markets. Market days, therefore, encouraged farmers to increase their direct participation in UPMs.

An interview with a market leader in Timeabu said that:

My son, all the sellers in the urban permanent markets own a stall or store to sell their items every day. If a farmer wants to sell in the urban daily markets, he or she has to rent a store. We do not have money to rent these urban stores because they are expensive for us. We only get the chance to visit these urban markets to sell during market days (Interview data, 2019).

Similarly, a market leader interviewed in Kowie said that:

If a farmer wants to sell in the urban permanent market during non-market days, he or she would need to see the authorities and rent a store. I think it would be difficult for farmers in this village, including myself to hire a store at these markets because they are very expensive. We are lucky that during market days, the authorities do not ask us to rent a store before participating in these urban markets to sell our products (Interview data, 2019).

According to the interviewees, households visit more than one UPM. Within the district, households in the South participate in four UPMs located at Ejisu, Kwaso, Juaben, and Boamadumase in the Ejisu-Juaben Municipality. Households in the North also participate in three UPMs that include Tumu, Bugubelle, and Sakai in the Sissala East Municipality. In addition, households in Kong and Kowie travel to the Leo Periodic Market in Burkina Faso. Those in the South participate in the Ejura, Konongo, and Agogo Periodic Markets, which are

outside the Ejisu-Juaben Municipality. The market leader at Korase noted that households who produce starchy foods such as plantain visit the Agogo and Konongo Periodic Markets. According to them, these markets are hubs for shipping large quantities of plantain across the regions in Ghana. A market leader in Kong explained how farmers cross the border to Burkina Faso.

On market days at Leo in Burkina Faso, some farmers in this village go there to sell. The immigration officers request their identification cards and allow them to enter through the border to the Leo Periodic Market (Interview data, 2019).

The average visit to UPMs per household per month was five times in the South and two times in the North. The analysis of the data revealed that 46% of households in the South participated more than five times per month in UPMs (see Figure 7.7a).

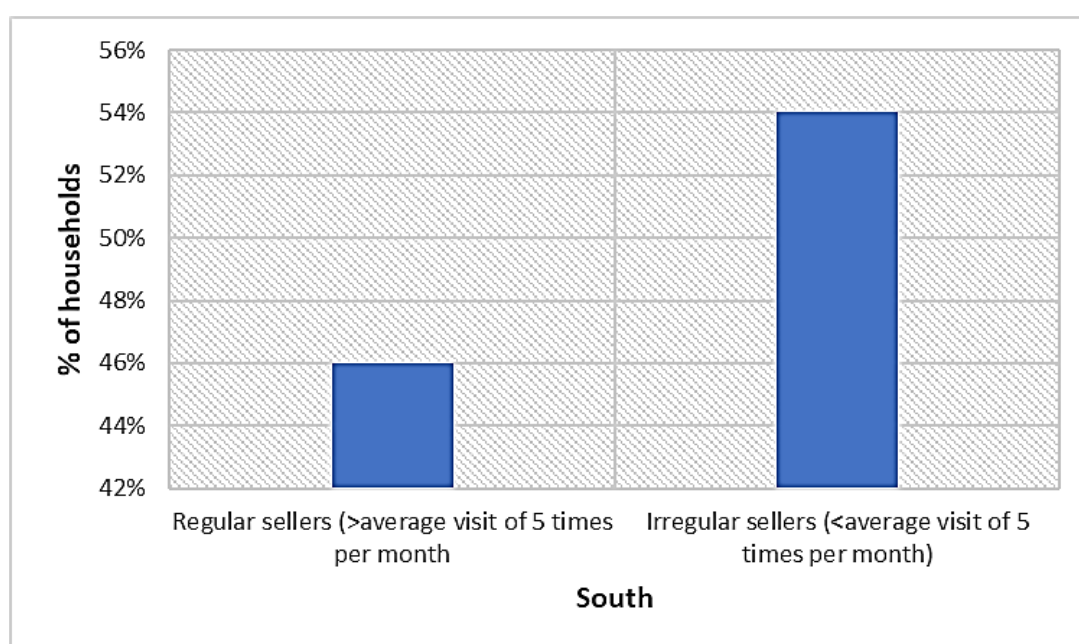


Figure 7.7a Frequency of visits to UPMs per month in the South

Source: Village survey (2019).

Likewise, 41% of households in the North participated more than two times per month in UPMs (Figure 7.7b). These households can be classified as regular sellers in UPMs because the number of times they visit the UPMs exceed the average visits per month.

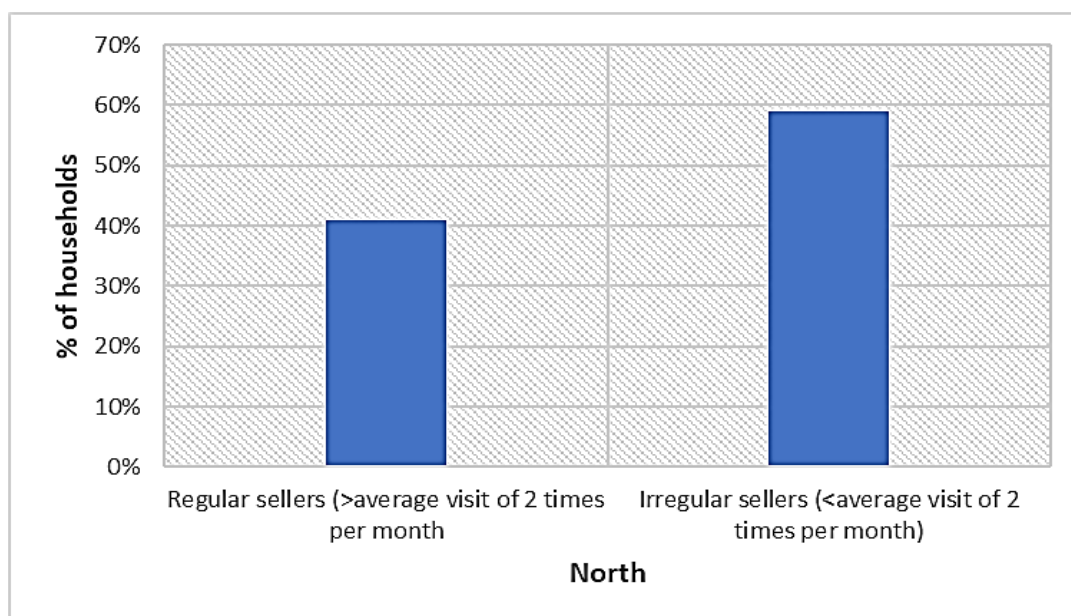


Figure 7.7b Frequency of visits to UPMs per month in the North

Source: Village survey (2019).

Households were asked to indicate the distance they cover by bus to sell in UPMs, and the responses are presented in Table 7.13. Households, comprising 27% in Timeabu, 39% in Korase, 72% in Kong, and 89% in Kowie travelled less than 10 Km by bus to sell in UPMs, which also represented 33% of households in the South and 81% in the North. The average distance to UPMs was 11.5 Km per household in the South and 10.6 Km in the North. More than half of households travelled less than this average distance to UPMs. Only a few households, including 8% in the South and 22% in the North travelled between 20 and 50 Km to UPMs.

The interview revealed that households in Timeabu and Korase walk to the nearby UPM at Kwaso. This mode of transport signifies the proximity of villages to some UPMs thereby encouraging participation among households. The interviewees at Kong and Kowie also said that during market days, villagers (especially, women) use their own donkey carts and tricycles (locally called *aboboyaa*) to commute to the Tumu Periodic Market. Owners of these transport modes also used them to convey people to the Tumu Periodic Market and they earned money for doing this.

The chief in Timeabu stated that:

I know that more than 10 people in this village have tricycles. On market days, they use the tricycles to transport farm products to the periodic market at Kwaso and Ejisu. Some farmers prefer to hire tricycles because the transport fare is relatively lower than a minibus. The lower fare for tricycles increases the hiring of tricycles during market days (Interview data, 2019).

Table 7.13 Distance to UPMs

Distance (Km)	South	North	Total	%
Total	168	175	343	100.0
Less than 10	53	141	194	56.6
10–19	101	12	113	32.9
20–29	11	8	19	5.5
30–39	2	5	7	2.0
40–49	1	4	5	1.5
More than 50	0	5	5	1.5
Average distance per household (Km)	11.5	10.6	11.1	-

Source: Village survey (2019).

A market leader interviewed at Kowie also said that:

Households who have donkey carts give them out for hiring during market days. This helps some farmers to transport their crops to the UPMs and pay less price than hiring a minibus (Interview data, 2019).

7.2.2 Price setting

The interviewees were asked to explain the negotiation of the prices of commodities between farmers and buyers during UPMs. It was discovered that sellers give the price and buyers bargain with them. Both parties reach a consensus before the buyer purchases the commodity. Farmers did not use weighing devices and price tags to advertise the prices of commodities. The market leaders in the South and North said that price quotes on commodities depend on the specific place for selling within the urban markets, the quality and freshness of the commodity, as well as the timing of the market day (i.e., whether mornings, afternoons, or evenings). The interviewees stated that fresh and quality commodities attract a good price. One of them in Kwaso clarified that:

What I know is that to bargain a good price of commodities with buyers, farmers need to sort the good quality or fresh commodities. I know that farmers in this village collect foodstuffs bit by bit at the farm and select the good ones to sell on market days (Interview data, 2019).

The interviewees at Timeabu and Korase revealed that farmers who sell close to the main highway during market days at Ejisu attract higher prices for their products. They explained

that private and commercial drivers stop at the Ejisu Periodic Market to purchase foodstuffs. These drivers are always in a hurry and usually do not spend time bargaining the prices of commodities. Farmers, therefore, take advantage of this and give a higher price to these buyers. A market leader interviewed in Timeabu said that:

I sell close to the Kumasi-Accra highway during market days at Ejisu. Buyers, with high socioeconomic status who travel from Accra (capital city of Ghana), stop at the Ejisu Periodic Market, and buy foodstuffs from sellers close to the main road (Interview data, 2019).

Further, the interviews revealed that farmers enjoyed a higher price of commodities in the mornings. However, they reduce the prices in the evenings. A market leader in Kong provided a clear explanation for this.

Farmers meet a large pool of buyers in the UPMs in the morning and these buyers offer good prices of commodities to farmers in the morning. However, in the evening, the number of buyers in the UPMs reduces, and so sellers reduce their prices to enable them to sell quickly (Interview data, 2019).

According to the interviewees, farmers commute early to UPMs so that they can sell most of their foodstuffs and enjoy good prices.

7.2.3 Incentives and difficulties for household participation in urban periodic markets

Using Likert scale questions, households were asked to indicate their level of agreement on the effects of UPMs on participation, and their responses are given in Table 7.14. About 99% in Timeabu, 79% in Korase, 66% in Kong, and 80% in Kowie agreed that the location of UPMs is attractive for farmers to visit there, including 89% of households in the South and 73% in the North. The mean level of agreement was 6.25 in the South and 5.41 in the North (Table 7.14), indicating that a majority of households strongly agreed that the location of UPMs actually encourages participation among rural households.

The interviews revealed similar findings to support the survey. It was discovered during the interviews that households in the South regularly participate in the Ejisu Periodic Market than the other periodic markets such as those at Kwaso or Juaben. This is because the Ejisu Periodic Market is at the district capital and its activities occur in a permanent urban market with good infrastructure compared to the other periodic markets. Though the other periodic markets also occur in permanent urban markets, except the Juaben Periodic Market, facilities in these

markets were not adequate compared to the Ejisu Periodic Market. The Ejisu Periodic Market is also close to the major road linking the two large cities (the Kumasi and Accra cities) and institutions (Universities and large companies), which attract several buyers including both private and commercial drivers who use the road. The interviewees in the North also pointed out that farmers frequently visit the Tumu Periodic Market. According to them, this market is in the district capital and close to the Leo Periodic Market in Burkina Faso, which enables farmers to meet foreign buyers. Another reason why households preferred to visit the Ejisu and Tumu Periodic Markets was that they could have access to many goods and services that are hard to find in the other periodic markets. Examples of these services include the servicing of mobile phones, mobile phone accessories, and other electrical appliances.

Table 7.14 Household response of the effects of UPMs on direct market participation

Effect	South	North	Total	Percent of agreement	
	Mean	Mean	Mean (Std. Dev.)	South	North
Meeting middle agents and direct consumers in UPMs encourages participation	6.15	5.80	5.97(1.28)	184(92.0%)	162(81.0%)
The population of buyers in UPMs encourages participation	5.86	5.59	5.73(1.35)	177(88.5%)	154(77.0%)
Intervals between UPMs encourage participation	6.03	5.09	5.56(1.42)	184(92.0%)	120(60.0%)
The number of UPMs and the specific days they occur encourage participation	5.88	5.33	5.60(1.33)	178(89.0%)	134(67.0%)
The location of UPMs encourages participation	6.25	5.41	5.83(2.82)	178(89.0%)	146(73.0%)
Communication in UPMs encourages participation	5.94	5.24	5.59(1.47)	176(88.0%)	133(66.5%)
Part-time nature of UPMs encourages participation	5.90	5.31	5.61(1.42)	176(88.0%)	138(69.0%)

Source: Village survey (2019).

Households, including 84% in Timeabu, 85% in Korase, 70% in Kong, and 92% in Kowie agreed that because farmers meet direct consumers as well as middle agents in UPMs, they could discover different prices of commodities, and this encourages participation in those markets. The mean level of agreement was 6.15 in the South and 5.80 in the North signifying that the majority of households, comprising 85% in the South and 81% in the North strongly agreed that the involvement of both direct consumers and middle agents in UPMs encourages the participation of farmers in these markets.

It was observed during the interviews that farmers, who choose to sell to direct consumers, as well as middle agents in UPMs, were able to know the different prices offered to these buyers. According to the market leaders interviewed at Timeabu, Korase, Kong, and Kowie, farmers who participate in UPMs have the opportunity to compare prices they receive from direct consumers to the other buyers including middle agents. The interviewees thought that this practice in UPMs enables farmers to bargain a satisfactory price with buyers through the

comparison of different prices. This was also an encouragement for farmers to participate in UPMs. One of the market leaders in Kong stated that:

I sell crops to direct consumers and retailers or wholesalers in the Juaben Periodic Market. The prices we negotiate differ among these buyers. I am able to estimate a price that will give me more profit by comparing the prices of foodstuffs I offer to these different buyers. In case, I do not receive a good price from wholesalers, I can get it from direct consumers. Because of this, I am motivated to sell in the Juaben Periodic Market (Interview data, 2019).

Additionally, about 95% in Timeabu, 81% in Korase, 74% in Kong, and 59% in Kowie agreed that information farmers share with several people (e.g., market associations, institutions, companies) in UPMs, help them to know the different prices of commodities and they thought that this is a motivation for farmers to participate in UPMs. The mean level of agreement was 5.94 in the South and 5.24 in the North, signifying that a majority of households, including 88% in the South and 67% in the North strongly agreed that information sharing with many people during market days encourages farmers' participation in these markets (as presented in Table 7.14 above).

The interviews also revealed similar findings to support the survey. The interview village participants mentioned that during market days, agricultural extension officers from the local council visit the UPMs to give information to traders about the changes in the prices of commodities. The interviewees thought that the information farmers receive from the officers on market days helps them to learn different prices of commodities, which also motivates them to participate in those markets.

About 93% of households in Timeabu, 85% in Korase, 73% in Kong, and 75% in Kowie agreed that several periodic marketing activities occur per week in the district, which can increase farmers' participation. The mean level of agreement was 5.88 in the South and 5.33 in the North indicating that most households (including 89% in the South and 74% in the North) strongly agreed that the many activities of UPMs increase farmers' direct participation in those markets.

The interviews revealed that periodic marketing activities occurred five times per week in the Ejisu-Juaben Municipality and three times per week in the Sissala East Municipality. The interviewees thought that the number of market days per week could increase the direct participation of farmers in these markets. The market leaders in the four villages shared a similar view that:

When there are a number of market days, it gives farmers options to choose when and which market to visit. At the end of the week, the majority of farmers participate in the markets. We think that the more the market days, the more farmers would increase their attendance (Interview data, 2019).

Moreover, the interview participants said that the prices of commodities in one UPM could differ from the other market. They thought that farmers' ability to visit different UPMs can help them to know the variation in the prices of commodities, which is also a motivation to visit these markets.

The study sought to identify the problems households encounter when participating in UPMs. The interviews revealed that the major problem was the deplorable condition of the village roads to UPMs, which were not sealed and developed potholes and uneven surfaces. The interviewees stated that the bad roads limited the movement of vehicles to the villages, and drivers charge high transport costs because of the bad roads. The chief in Timeabu said that:

In fact, our road is not good which discourages drivers from coming to this village. Even when drivers manage to drive to this village, they charge high transport prices because of the poor road (Interview data, 2019).

However, the interview participants pointed out that the difficulty for households to access buses was reduced during market days. They highlighted that there was frequent movement of minibuses on market days. This is because many farmers participate in the UPMs, which motivate drivers to move their buses to the villages irrespective of the bad roads. Households have access to multiple transportation services on market days. The chief in Kong mentioned that:

My village people do not often travel except on market days. Market days are the appropriate time for most farmers to travel because they easily get access to buses. Farmers, therefore, plan their weekly travel schedules keeping in mind, the market days with the hope that they will get transport. They would not want to miss the market day. However, it is sad to say that when the market day is over, we hardly see drivers in this village (Interview data, 2019).

A market leader interviewed in Korase explained that:

Because of the bad road, vehicles do not come to this village frequently. The number of vehicles that come to this village would not be more than three per day during non-market days. When drivers drive to this village, it is either someone who has called the person, or a trader had come to the village with the driver to pick some crops from a farmer. However, on market days, it is possible to see more than ten vehicles commuting to this village. This is because many villagers commute from this village on market days to the

town or city and drivers know that when they come, they would get more people to board the bus to the town and take people from the town to the village (Interview data, 2019).

The chief in Kowie also mentioned that:

Our road is not tarred and dusty. Drivers do not want to drive to this village and even if they do, they charge a high price because of the bad road. However, the UPMs attract many drivers to come to this village. They carry products from the markets to the village and from the village to the markets. Because they get more people to board the bus on market days, they do not increase the price despite the bad road (Interview data, 2019).

Further, a local council representative (assembly member) interviewed at Kong added that:

This village is not far from the district capital but because of the bad road, it is difficult for drivers to drive here. Less than five vehicles commute to this village during non-market days. The market days at Tumu encourage drivers to come here. On market days, we see many buses here; I think more than 15 of them (Interview data, 2019).

Interviews with the local council officers revealed that these marketplaces become overpopulated during market days and therefore the existing facilities do not cope with the volume of trade and the intensity of trading activities. A similar finding was noted during the interviews with the village participants. The market leaders in the four surveyed villages stated that farmers had to put their crops on a mat and display them on the ground during market days. Some had to hire tables and put their products on them. They stated that crops were exposed to direct sunlight which caused them to spoil. One of the market leaders in Korase explained further.

When foodstuffs such as leafy vegetables are exposed to the sunlight, they turn brownish or yellowish. Farmers are compelled to sell the leafy vegetables at a lower price because they lose value for being in the sun (Interview data, 2019).

Apart from this, according to the households, the market toll they pay for visiting the Ejisu and Tumu Periodic Markets was higher than what they pay for visiting the Kwaso, Sakai, or the Bugubelle Periodic Markets. A market leader interviewed at Timeabu said that:

We pay a minimum of GH¢ 6.00 (USD 1.05) as tax when we sell at the Ejisu Periodic Market and GH¢ 5.00 (USD 0.88) at the Juaben Periodic Market. However, the tax we pay during the market day at Kwaso is GH¢ 3.50 (USD 0.61) and GH¢ 3.00 (USD 0.53) at Boamadumase (Interview data, 2019).

Similarly, a market leader at Kowie mentioned that:

The tax we pay when we visit the Tumu Periodic Market to sell is a minimum of GH¢ 4.00 (USD 0.70), which is higher than the amount we pay at the Sakai Periodic Market (GH¢ 2.50: USD 0.43) and the Bugubelle Periodic Market (GH¢ 2.00: USD 0.35) (Interview data, 2019).

7.3 Effects of Urban Periodic Markets on Household Interactions

The study findings are presented in two sections. Section 7.3.1 presents the findings on effects of UPMs on interactions among households. This section finds that UPMs increase interactions among households and within the surveyed villages in the South and North. Section 7.3.2 also presents the findings on effects of UPMs on interactions between the surveyed villages. This section finds that UPMs create interactions between households and middle agents. The rationale of this chapter is to understand the extent to which UPMs contribute to socio-economic interactions of the surveyed villages.

7.3.1. Interactions among households on market days

Households were asked to indicate their level of agreement on the effects of UPMs on interactions within and between the villages (responses summarised in Table 7.15). About 94% of households in Timeabu, 83% in Korase, 70% in Kong, and 89% in Kowie agreed that there are multiple interactions among villagers, between them and middle agents during market days. The mean level of agreement was 5.93 in the South and 5.61 in the North, indicating that a majority of households, including about 89% in the South and 80% in the North who strongly agreed that UPMs stimulate interactions among households.

The village interviewees mentioned that several interactions occur in their villages when there is a market day. Such interactions take the form of exchange or trading as well as social contact and communication. The interviewees explained that households carry other people's crops to UPMs. In the South, for instance, households who could not visit the UPMs or had a few crops preferred to give them to a colleague farmer to sell in the markets. In the North, the interviewees stated that within the family, one could collect farm products from several members and take them to the UPMs. They thought that these interactions show that there is a good relation among households and the UPMs contribute to this. In addition, on market days households gather at the bus station and interact among themselves before boarding a bus to the UPMs. Interactions at the bus station led to a farmer carrying the products of a colleague farmer to the UPMs. A market leader interviewed at Timeabu stated that:

UPMs certainly create several interactions in this village. On market days at Kwaso, households interact and help one another by collecting crops from their colleagues to sell for them in the UPMs. This type of transaction in this village does not usually happen during non-market days (Interview data, 2019).

Table 7.15 Household response of the effects of UPMs on social interactions

Effect	South	North	Total	Percent of agreement	
	Mean	Mean	Mean (Std. Dev)	South	North
Market days increase interactions among farmers and between them and middle agents	5.93	5.61	5.77(1.32)	177(88.5%)	159(79.5%)
The population of buyers in UPMs encourages interactions	6.27	5.99	6.13(1.18)	182(91.0%)	174(87.0%)
Intervals between UPMs encourage interactions	5.57	4.48	5.02(1.81)	149(74.5%)	94(47.0%)
The number of UPMs and the specific days they occur create a wide range of interactions	5.84	5.13	5.49(1.53)	170(85.0%)	127(63.5%)
The location of UPMs encourages interactions	5.82	5.09	5.46(1.54)	170(85.0%)	124(62.0%)
Communication in UPMs encourages interactions	5.81	5.33	5.57(1.43)	168(84.0%)	141(70.5%)
Part-time nature of UPMs encourages interactions	5.80	5.47	5.64(1.42)	167(83.5%)	148(74.0%)

Source: Village survey (2019).

According to 75% of households in the South and 47% in the North, UPMs do not operate throughout the week, which gave farmers ample time to attend other social functions such as communal labour, funeral, naming and marriage ceremony, and sporting events. The mean level of agreement was 5.57 in the South and 4.48 in the North (Table 7.15), suggesting that a majority of households moderately agreed that intervals between UPMs provide enough time for farmers to engage themselves in other activities. They thought that having the time to attend these events enables villagers to establish relations with many other people.

The interviews also revealed that on market days, middle agents from the nearby villages commute to Timeabu and Kong to interact and trade with farmers. For instance, households in Timeabu interact with middle agents in Korase on market days. Likewise, households in Kong interact with middle agents in Kowie. According to the interviewees, Kong produces large quantities of maize, which attracts middle agents from Kowie to visit there. The large volume of plantain produced in Timeabu also attracts middle agents from Korase. They thought that such interactions on market days could bring good personal relations between the villages.

7.3.2 Interactions between households and middle agents on market days

The interviews further revealed that farmers interact with middle agents who are from the district or regional areas when there is a market day. Middle agents within the study sites also interact with these external agents on market days. A leader of a village association in Kong explained further.

I have observed that anytime the Tumu Periodic Market is imminent, market leaders (middle agents) from Techiman market (a regional market) visit this village and interact with farmers and they transport maize to the Techiman market (Interview data, 2019).

A market leader interviewed in Korase added that:

A leader of the plantain market association at the Agogo market has connections with some farmers in this village. The leader usually visits this village on market days to interact with farmers and transport plantain to the Agogo market (Interview data, 2019).

The interviewees thought that external middle agents interact with farmers because Timeabu and Kong were among the other villages in the district that produce the majority of some food crops. They explained that when these external middle agents visit the Ejisu Periodic Market, people tell them about villages in the district that supply the markets with a large proportion of some crops. Knowing this, they visit villages, which include Timeabu and Kong to interact with middle agents and farmers, especially on market days. The interviewees thought that the UPMs provide the platform for these interactions to occur because middle agents preferred to visit these two villages on market days since the market day is when most farmers sell some specific crops. According to the interviewees, these interactions have generated good rapport between farmers and intermediaries to the extent that some farmers received help from intermediaries. A market leader interviewed in Korase pointed out that:

If I can remember, I know more than five people who received financial support and farm inputs (fertilizer and cutlass) from external middle agents to encourage them to sell plantain to these agents (Interview data, 2019).

Households agreed that the population of buyers in UPMs, the specific days the UPMs occur, their location, and communication during market days spur interactions outside the villages. Among these factors, the analysis revealed that the population of buyers in UPMs had the largest score as noted by 91% of households in the South and 87% in the North. The mean level of agreement was 6.27 in the South and 5.99 in the North signifying that a majority of

households strongly agreed that the large pool of buyers during market days increases interactions among farmers.

According to the village interviewees, because a large pool of buyers attends UPMs than NPMs, farmers interacted with many people with diverse socioeconomic backgrounds. These include people from the traditional council (the chief and elders), the security department (i.e., Ghana Police Service), and the local council, the Universities as well as health professionals. These categories of people participate in UPMs to educate traders and interact with them. According to the interviewees, such a platform in UPMs enables farmers to socialise, share their experiences with the groups and learn from them. A market leader interviewed in Timeabu explained further:

What I have noticed during the market days at Ejisu is that the type of participants in the market quite differs from non-periodic markets. People within and outside the district attend the Ejisu Periodic Market, but this is not the case in the non-periodic markets. The participation of many different buyers in the Ejisu Periodic Market is an opportunity for farmers to interact with a wide range of people, which is able to help them to build connections with these buyers in terms of trading (Interview data, 2019).

Another interviewee in Kowie stated that:

Interactions with international buyers on market days at Tumu is something great which does not happen when there is no market day. Farmers interact with these buyers and learn foreign cultures, languages, and have access to new varieties of crops such as maize, cowpea, and sorghum (Interview data, 2019).

The statements above indicate that UPMs indeed are a place for farmers to socialise, which can lead to trust-building. For instance, the interviewed market leaders mentioned that farmers develop good relationships with buyers to the extent that buyers always look for the farmers anytime they visit the markets. A market leader in Timeabu said that sometimes, farmers receive money from regular buyers to purchase other food items on their behalf. A market leader in Timeabu shared her experience with buyers in the Ejisu Periodic Market.

I have more than ten regular customers in the Ejisu Periodic Market. When the buyers visit the Ejisu market on market day, and I am not available, they look for me or leave a note. These customers always purchase cassava and plantain from me on market days at Ejisu (Interview data, 2019).

7.4 Effects of Urban Periodic Markets on Cooperative Activities

The findings of this research are classified into six sections. Section 7.4.1 presents the findings on effects of UPMs on family engagement in those markets. This section finds that UPMs promote cooperation within families. Section 7.4.2 presents the findings on effects of UPMs on cooperation among households. This section finds that UPMs create cooperative marketing within the surveyed villages. Section 7.4.3 presents the findings on effects of UPMs on households with village associations. Section 7.4.4 presents the findings on effects of UPMs on group formation during market days in the surveyed villages. Further, Section 7.4.5 presents the findings on effects of UPMs on cooperation between farmers and institutions during market days. Finally, Section 7.4.6 presents the findings on effects of UPMs on road infrastructure in the surveyed villages.

7.4.1 Family engagement in urban periodic markets

Households were asked whether they involved members of their families in trading activities during market days (responses presented in Table 7.16). About 36% of households in Timeabu, 50% in Korase, 21% in Kong, and 57% in Kowie involved at least one family member in UPMs, which also represented about 43% of households in the South and 39% in the North.

Table 7.16 Household engagement of family members in UPMs

Members' engagement	South	North	Total	%
Yes	86	78	164	41.5
No	109	122	231	58.5
Total	195	200	395	100.0

Source: Village survey (2019).

According to the village interviewees, household heads involved their family members in transporting farm products to UPMs. Household members assisted the household head in loading crops on a bus and unloading them on arrival at the UPMs at no fee or cost. Members also assisted the household heads by selling some crops in the markets. Members of the households work as porters in UPMs. Households thought that by engaging members in this way, they could reduce the cost of loading, sell quickly, and return to their villages early. They mentioned that through this engagement on market days, family members interact among themselves. A market trader interviewed in Timeabu stated that:

We are a family of fifteen members. On market day at Kwaso and Ejisu, I am able to engage more than five of my family members by asking them to help me to transport crops to these markets. Some of my family members work at the market as head porters and they earn money to support the family financially (Interview data, 2019).

A market leader at Kong explained that:

I engage some members of my family to help me to visit the Tumu Periodic Market when I have large quantities of crops to sell in the market. They help me to load the crops on my tricycle and accompany me to the market. They also help me to sell some of the crops in the market (Interview data, 2019).

The assembly member in Korase gave a similar response:

On market days, many households cooperate with their family members and the family members help the households to transport crops to the markets. Whilst some members help the family head to sell in the market, the others work as head porters (Interview data, 2019).

7.4.2 Formation of producer-marketing groups on market days

Table 7.17 shows household response to cooperative activities that occur on market days. About 91% of households in Timeabu, 51% in Korase, 46% in Kong, and 76% in Kowie agreed that the intervals between UPMs encourage cooperative activities within the villages, which also comprised 71% of households in the South and 61% in the North. The mean level of agreement was 5.30 in the South and 5.01 in the North signifying that most households moderately agreed to this.

Table 7.17 Household response of the effects of UPMs on cooperative activities

Effect	South	North	Total	Percent of agreement	
	Mean	Mean	Mean (Std. Dev)	South	North
The population of buyers in UPMs encourages cooperative activities.	5.76	4.76	5.26(1.56)	168(84.0%)	112(56.0%)
Intervals between UPMs encourage cooperative activities.	5.30	5.01	5.16(1.63)	142(71.0%)	122(61.0%)
The number of UPMs and the specific days they occur encourages cooperative activities.	5.71	4.93	5.32(1.54)	163(81.5%)	120(60.0%)
The location of periodic markets in urban areas encourages cooperative activities.	5.76	5.19	5.47(1.47)	166(83.0%)	135(67.5%)
Communication in UPMs encourages cooperative activities.	5.51	4.60	5.06(1.62)	152(76.0%)	96(48.0%)
UPMs encourage part-time selling in groups.	5.14	5.17	5.15(1.71)	139(69.5%)	133(66.5%)

Source: Village survey (2019).

The interviews conducted in all the surveyed villages revealed that because UPMs do not operate throughout the week, farmers could get time to organise themselves and plan ahead for the next market day. The interviewees reported that prior to UPMs, farmers move to houses and ask those who would go to the market. They cooperate to hire minibuses to the marketplaces. Farmers from nearby villages joined the bus to the markets. They had a permanent driver who always transports their crops to UPMs. According to the interviewees, this arrangement involved many farmers.

Farmers formed new producer-marketing groups in villages on market days. The interview village participants mentioned that leaders of these groups announce the arrival time of buses on market days and record the names of those who board the bus. They also arrange for the bus to take them from the marketplaces to their villages. Farmers share the transport costs. The following remarks from market leaders in Timeabu provide a clear explanation of why the new producer-marketing groups were formed.

This village face a big problem with poor road. We formed new groups so that we can cooperate and engage a driver who can conveniently transport our crops to the UPMs at a relatively cheaper transport cost (Interview data, 2019).

Another participant interviewed in Kowie explained the importance of forming groups on market days.

When we form groups, we are able to increase our numbers to the UPMs. This is because we cooperate and hire vehicles to take us to the markets (Interview data, 2019).

The Chief in Korase also explained how the marketing groups were formed:

Leaders of village associations move from house to house and talk to farmers who are willing to visit the UPMs based on the marketing calendar per week. They compile a list of these farmers so that they can know how many of them would visit the market. After this, they negotiate the time and day for drivers to pick them to the UPMs (Interview data, 2019).

7.4.3 Household cooperation with village associations

It was noted during the interviews that leaders of village associations in Kong and Kowie cooperated with farmers, and they engaged market leaders from the district and regional periodic markets to purchase crops from the farmers in the villages. These regional market leaders visited the villages with their vehicles to load bags of maize. These market leaders

transported maize to the regional periodic markets. A leader of village association in Kong stated that:

Members of my association come to tell me to find buyers for them. I have a list of buyers who contact me when they want to purchase maize. Some buyers are leaders of market groups at the district and regional periodic markets (e.g., Techiman and Ejura Periodic Markets). I invite these buyers to this village when I get farmers who want to sell their maize through me. I also help farmers to negotiate the prices of commodities with the buyers (Interview data, 2019).

7.4.4 Group selling at urban periodic markets

About 86% of households in Timeabu, 53% in Korase, 56% in Kong, and 77% in Kowie agreed that UPMs provide the platform for selling in groups, which also represented about 70% of households in the South and 67% in the North. The mean level of agreement was 5.14 in the South and 5.17 in the North, which shows that most households moderately agreed that farmers can sell in groups in UPMs.

The interviews revealed a similar finding where the village participants specifically mentioned that the Ejisu and Tumu Periodic Markets are more organised in terms of the arrangements of sellers. The interviewees explained that the Ejisu and Tumu Periodic Markets involve several groups of sellers for different foodstuffs such as fruits and vegetables, roots and tubers, and cereals. Farmers belong to any of these groups depending on the type of crops they sell at the markets. Each group had a leader who ensured that sellers get a space to sell in the markets. The group leaders report essential activities that occur on market days to the market manager. They also inform members about changes in the prices of commodities. According to the market leaders interviewed in the four surveyed villages, the groups in the UPMs meet and discuss the prices of commodities to be offered to buyers. They explained that within the same group, the price for a crop a seller gives to a buyer is similar to the price given by another seller. However, they stated that this pricing arrangement does not work all the time because the crops farmers sell is different in terms of their quality and freshness.

The interviewees were asked to describe the procedures a farmer must go through to become a full member of the groups in UPMs. Market leaders in both the villages in the South (Timeabu and Korase) and North (Kong and Kowie) shared a similar view as follows.

In fact, membership of the market groups in the Tumu and Ejisu Periodic Markets is more flexible. Sellers do not have to go through any strict

procedure to become a member of the group. Sellers who sell a particular foodstuff have to be among those selling similar products in these UPMs. The leader of a group writes the contact details of sellers (names and mobile numbers) in that particular group. Members of these smaller groups are part of a bigger market association headed by the market manager (Interview data, 2019).

7.4.5 Cooperation between farmers and institutions during market days

About 90% of households in Timeabu, 62% in Korase, 47% in Kong, and 49% in Kowie agreed that communication in UPMs encourages cooperation between farmers and some institutions, which also represented 76% of households in the South and 48% in the North. The mean level of agreement was 5.51 in the South and 4.60 in the North, which suggests that a majority of households moderately agreed that information sharing or communication during market days encourages collaboration.

The interviews also revealed that during market days, agricultural extension officers from the local council visit UPMs to collect information. Sellers (farmers, retailers, and wholesalers) provide information about the selling prices of commodities to these officers. In addition, the officers collect information from sellers about the source of commodities, the distance covered to visit the UPMs, and the transport costs for visiting these markets. Interviews with agricultural extension officers at Ejisu and Tumu revealed that it was convenient for them to collect this information on market days other than non-market days. One of the officers at Ejisu reinforced this with a statement that:

It would be difficult for us to collect adequate market information in NPMs because of the absence of farmers or producers during non-market days. During market days, sellers from different places (within and outside) the district meet at Ejisu to trade. This helps us to cover a wide range of information about the prices, sources, and destination of commodities as well as the transport costs. We are able to get the farmgate, retail, and wholesale prices of commodities when we collect information during market days. We disseminate the information about the prices of commodities to traders on market days (Interview data, 2019).

Further, the interviewees stated that workers from financial institutions and telecommunication companies visit UPMs. Workers from financial institutions educate farmers about the importance of savings. Telecommunication companies advertise their services and encourage farmers to register with them. According to the interviewees, some farmers in Timeabu and Kowie opened bank accounts with the financial institutions, and they deposit money into the accounts every market day. Some farmers also registered with the telecommunication

companies, and they were subscribed to weather updates and information about agricultural safety and health. The interview participants thought that it would be unlikely for farmers to communicate with these institutions without the market day. They considered these arrangements as cooperation because farmers assist the institutions by giving them relevant information, become clients to the institutions, and in return, they learn many things from the institutions during UPMs.

7.4.6 Fixing village roads linking to urban periodic markets

It was discovered during the interviews that the chiefs at Timeabu and Korase had a meeting with the local council officers and complained that their village roads are in bad conditions. As part of the reasons for a petition to the local councils to fix the roads, the chiefs stated that on market days it is difficult for farmers to transport farm products to the markets. The chiefs also stated that they explained to the local council executives that the UPMs were the major outlets, and many farmers visit these markets to sell their products and therefore it is important that the executives fix their village roads. With several meetings between the chiefs and the local councils, their village roads were fixed several times. Yet, the interview participants said that the village roads were still untarred, and it seems that their problem had not been addressed. The village committee at Timeabu organise communal labour with households and they gather gravels to fill potholes to ease the difficulty in transporting products to UPMs. The chief in Timeabu explained further:

I had a meeting with my elders to discuss ways to improve our road condition. We have been organising communal labour from time to time to improve the condition of the road but that is not enough. We wrote a letter to the Municipal Chief Executive (MCE) of the Ejisu-Juaben Municipal Assembly to assist us to improve the condition of the village road. We complained to the MCE that many farmers face problems accessing the village road to the Kwaso and Ejisu Periodic Markets and therefore we need support. The Ejisu-Juaben Municipality Assembly in collaboration with myself and some people in this village has led to the fixing of the village road more than four times in the past two years (Interview data, 2019).

The chief in Kwaso also said that:

The parliamentary candidate for Ejisu visited this village to have a meeting with us. We told the candidate that the village road is in a bad condition and farmers find it difficult to use the road to visit the Ejisu and Kwaso market, especially during market days. The parliamentary candidate collaborated with the Ejisu-Juaben Municipal Assembly, and they have repaired this village several times (Interview data, 2019).

7.5 Summary

This chapter has presented detailed findings to understand the effects of UPMs on villages in Ghana. UPMs stimulate the socioeconomic development of villages in several ways. The markets encourage the production and sale of diverse agricultural products, including food crops, organic foods, value-added foods, livestock, and poultry. A significant proportion of these products were sold in the UPMs than the NPMs. Furthermore, UPMs supplied a larger quantity of agricultural and manufactured goods to the villages. Rural households cooperated among their colleagues and transported products to the UPMs. This cooperation enabled them to form new producer-marketing groups anytime the UPMs are imminent. They also interacted with several middle agents on market days that enabled them to form good relations with many people within and outside the villages.

Chapter 8. Rural Web Analysis of Urban Periodic Markets in Ghana

This chapter presents the findings of the effects of UPMs within the six dimensions of the Rural Web analysis of the study sites. The chapter firstly begins by presenting the household perceptions on the importance of the six dimensions of the Rural Web analysis. Secondly, the chapter presents the household perceptions on the effects of UPMs on the institutional arrangements, which involve household engagement in cooperative activities. Thirdly, the chapter presents the household perceptions on the effects of UPMs on social capital in terms of the ability of households to engage in multiple interactions in the exchange of goods and services. Fourthly, the household perceptions on the effects of UPMs on the governance of markets regarding the ability of households to participate directly in urban markets are presented. Fifth, the chapter presents the household perceptions on the effects of UPMs on endogeneity, which involves the ability of households to produce a variety of local foods for sale and the purchasing of other products. Sixth, the household perceptions on the effects of UPMs on novelty production concerning the ability of households to produce and sell value-added foods are presented. Finally, the household perceptions on the effects of UPMs on sustainability in terms of the ability of households to produce and sell organic foods are presented. The chapter explains the interactions among these dimensions (Figure 8.1).

This chapter reveals that UPMs is an institutional arrangement that increase social interactions, cooperation, access to urban markets, production, and sale of agricultural products, including organic and value-added foods. It was found that the effects of UPMs on social capital increase access to urban markets and the sale of agricultural products. Further the effects of UPMs on the governance of markets increase the sale of agricultural products in the surveyed villages.

8.1 Household Perceptions on the Importance of the Dimensions of the Rural Web Analysis

The study sought to examine household perceptions on the importance of the six dimensions of the Rural Web analysis between the selected villages in the South and North using the Mann-Whitney test based on a seven-point Likert scale. The null hypothesis was that there is no statistically significant difference between the South and North regarding the importance of the dimensions. The results in Table 8.1 shows that the null hypothesis of household responses on

the importance of institutional arrangements, social capital, endogeneity, and sustainability can be rejected because the significant values were less than 0.05. However, the null hypothesis of household responses on the importance of the governance of markets and novelty production can be accepted because the significant values were more than 0.05.

In terms of the institutional arrangements, the majority of households (76%) agreed that they were motivated to form cooperative groups, engage in associations, and collaborate with the local councils, NGOs or village associations, and this agreement varied significantly ($p < 0.05$) among households in the South and North ($U = 16477$; $M.R = 182.9$). Concerning social capital, 81% of households agreed that they were able to engage in several interactions among themselves and with the village associations or NGOs, which supported their farming activities, and this agreement varied significantly ($p < 0.05$) among households in the South and North ($U = 15180$; $M.R = 176.4$) (see Table 8.1).

Table 8.1 Household perceptions on the importance of the dimensions of the Rural Web analysis

Variable	Description*	South		North		<i>U</i>	<i>z</i>	<i>r</i>	Sig. (<i>p</i>)
		Md	M.R	Md	M.R				
Institutional arrangements	Ability to cooperate or form groups	6.0	218.1	6.0	182.9	16477	-3.47	0.17	0.001 ^a
Social capital	Ability to engage in several interactions	6.0	224.6	6.0	176.4	15180	-4.60	0.23	0.000 ^a
Market governance	Ability to use many outlets and bargain the prices of products	6.0	206.1	6.0	194.9	18877	-1.13	0.06	0.259
Endogeneity	Ability to produce a variety of farm products	6.0	218.5	6.0	182.5	16408	-3.63	0.17	0.000 ^a
Novelty production	Ability to produce value-added foods	6.0	207.8	6.0	193.3	18549	-1.36	0.07	0.173
Sustainability	Ability to practice organic farming	6.0	221.5	6.0	179.5	15807	-3.95	0.20	0.000 ^a

^a. Level of significance at 0.05

Notes: *U* = Mann–Whitney test statistic, *z* = Z score, *r* = effect size, Md = Median, M. R = Mean Rank, *response scores on a 7-point Likert scale ranging from 1 (completely disagree) to 7 (completely agree)

Source: Village survey (2019).

The study sought to examine the intensity of cooperation or relations between households and the village associations, District Assemblies (DAs) as well as NGOs in terms of the role of these institutions in supporting agricultural activities in the villages (see Table 8.2). The interviewees in both South and North rated the cooperation and relations between households

and village associations as strong. They mentioned that the leaders of the village associations organise frequent meetings with their members that help them to share ideas. They said that farmers do not only benefit from joining the associations but their family members, who are non-members. The non-members benefit from the associations through their collaboration with the leaders of the village associations in the marketing of crops, especially during the bumper harvests.

Table 8.2 Household assessment of cooperative support

Village \ Institution	NGOs	District Assembly	Village association
Kong	**	*	**
Kowie	**	*	**
Timeabu	*	*	**
Korase	*	*	**

Note: **strong cooperation; *weak cooperation

Source: Village data (2019).

The interviewees in Kong and Kowie rated the cooperation and relations between households and the NGOs as strong. They stated that NGOs frequently visit their villages to give them agricultural information services, and the NGOs connect farmers to buyers. However, the interviewees in Timeabu and Korase rated the cooperation and relations between households and NGOs as weak because they thought that NGOs that operate in these two villages do not focus largely on farming and therefore their attention was less on farmers. Likewise, the cooperation and relations between households and the DAs were rated as weak in both South and North. According to the interviewees, the DAs were reluctant in supporting agricultural activities in their villages. They thought that the DAs had relied on NGOs to support farming activities in their villages.

Regarding endogeneity, 87% of households agreed that they were supported to increase the production of local foods (e.g., food crops, livestock, poultry), and this agreement was statistically significant ($p < 0.05$) between households in the South and North ($U = 16408$; $M.R = 182.5$). In terms of sustainability, 69% of households agreed that they were motivated to practice organic farming through the dissemination of agricultural information by the village associations and NGOs. There was a significant difference ($p < 0.05$) in this agreement across the study sites as 85% of households in the South agreed that farmers were motivated to produce organic foods followed by 54% in the North. These significant differences (stated above) show that the type of incentive for group formation and collaborations among households

(institutional arrangements), social relationships or interactions (social capital), local food production (endogeneity), and organic farming (sustainability) were not the same in the South and North because of perhaps, the disparities in the socio-cultural or economic characteristics of the study sites.

However, there are no statistically significant ($p > 0.05$) differences between the South and North concerning a household agreement to the importance of the dimensions of the governance of markets and novelty production (see Table 8.1). Regarding the governance of markets, the majority (85%) of households including 90% in the South and 81% in the North agreed that there were several outlets, which helped them to sell their products and they were inspired to fix the prices of their products. The involvement of middle agents, NGOs, schools, restaurants, as well as direct selling in the markets constituted the many outlets for households. Similarly, in terms of novelty production, 78% of households comprising 74% in the South and 82% in the North agreed that they were motivated to produce varieties of value-added foods. Though the level of agreement of households on novelty production did not differ between the South and North, perhaps due to the similarity in the volume of value-added production, it was found that they produced different value-added foods. For example, whereas shea butter was produced by households in the North only, palm oil was produced in the South only.

8.2 Urban Periodic Markets as a Form of an Institutional Arrangement

The analysis revealed that farmers were well-informed about activities that occur at UPMs. They knew the fixed location of UPMs, when and which UPMs to visit, the category of people to meet at the markets, and the commodity with the largest demand. The category of people who participate in UPMs for example includes those from big institutions (the Banks, the Universities, the Telecommunication Companies, and the District Assemblies). These institutions provide numerous services to farmers during UPMs. The District Assemblies (DAs) for instance, provided agricultural advisory services to farmers on market days. UPMs also provided important information to the DAs. The DAs collected data from sellers on the farmgate, wholesale, and retail prices of commodities as well as the source and destination of commodities traded at UPMs. The DAs use the data collected from the UPMs to prepare their

fee-fixing resolution rate for tax collection.³ UPMs also involved market groups or associations and they institute rules in the markets to govern individual behaviour and actions.

Sellers, including rural farmers, pay tax in the form of market toll to the DAs during market days. Even in some UPMs in the Northern Region of Ghana traders, pay tax to both the DAs and the local traditional authorities (Prichard and Boogaard 2017). The amount of tax farmers pay depends on the location of UPMs and the quantity of commodities sold per seller at the markets, as well as the space occupied by the seller in the markets. UPMs at the district capital attracted high taxes compared to the other UPMs far from the district capital. The tax increases for sellers who sell large quantities of commodities (GoG 2018a; GoG 2018b). In some UPMs in the northern part of Ghana, the DAs decide the amount of tax according to the space the seller occupies (Prichard and Boogaard 2017). UPMs are the source of revenue to the DAs in Ghana. They contribute a larger proportion of the total market revenue to the DAs because these markets attract a larger attendance of traders, and activities on market days are larger than non-market days (Owusu and Lund 2004). In fact, UPMs are an institutional environment that is capable of operating effectively by engaging rural farmers in trading activities. This supporting structure or mechanism of UPMs encouraged collaboration among farmers in the exchange of goods and services.

8.2.1 Perceptions of Urban Periodic Markets and Institutional Arrangements

The analysis revealed that UPMs have a great effect on the dimension of institutional arrangements in the villages, in the form of the engagement of households in cooperative activities, which was perceived by 70% of households. The perceived effects of UPMs on institutional arrangements was statistically significant ($p < 0.05$) between households in the South and North ($U = 13488$; $M.R = 167.9$) (see Table 8.3).

The engagement of households in cooperative activities on market days include the cooperation among family members, the formation of groups in villages, group selling, and institutional collaborations at UPMs. For instance, UPMs engaged households to form producer-marketing groups that supported trading activities within and between the villages. They also engaged members of the family to support one another during market days. These engagement roles of

³ By Section 97 of the Local Government Act, 1993, (Act 462), District Assemblies are empowered to prepare a tax plan at the end of each financial year. The plan has a tax rate for all properties and economic activities that are carried out within the district.

UPMs were found to connect with the other dimensions of the Rural Web analysis (summarised in Figure 8.1 and Table 8.4).

Table 8.3 Household perceptions on the effects of UPMs on the dimensions of the Rural Web Analysis

Variable	Description*	South		North		U	z	r	Sig. (p)
		Md	M.R	Md	M.R				
Institutional arrangements	Cooperative activities on market days	6.0	233.1	5.0	167.9	13488	-5.64	0.28	0.000 ^a
Social capital	Social interactions on market days	6.0	235.8	5.0	165.2	12932	-6.13	0.31	0.000 ^a
Market governance	Direct participation in UPMs	6.0	232.9	5.0	168.1	13511	-5.63	0.28	0.000 ^a
Endogeneity	Production and sale of local food in UPMs	6.0	235.4	6.0	165.6	13022	-6.01	0.30	0.000 ^a
Novelty production	Production and sale of value-added food in UPMs	6.0	247.5	5.0	153.5	10605	-8.14	0.41	0.000 ^a
Sustainability	Production and sale of organic food in UPMs	6.0	228.3	5.0	172.7	14446	-4.83	0.24	0.000 ^a

^a. Level of significance at 0.05

*Response scores on a 7-point Likert scale ranging from 1 (completely disagree) to 7 (completely agree)

Source: Village survey (2019).

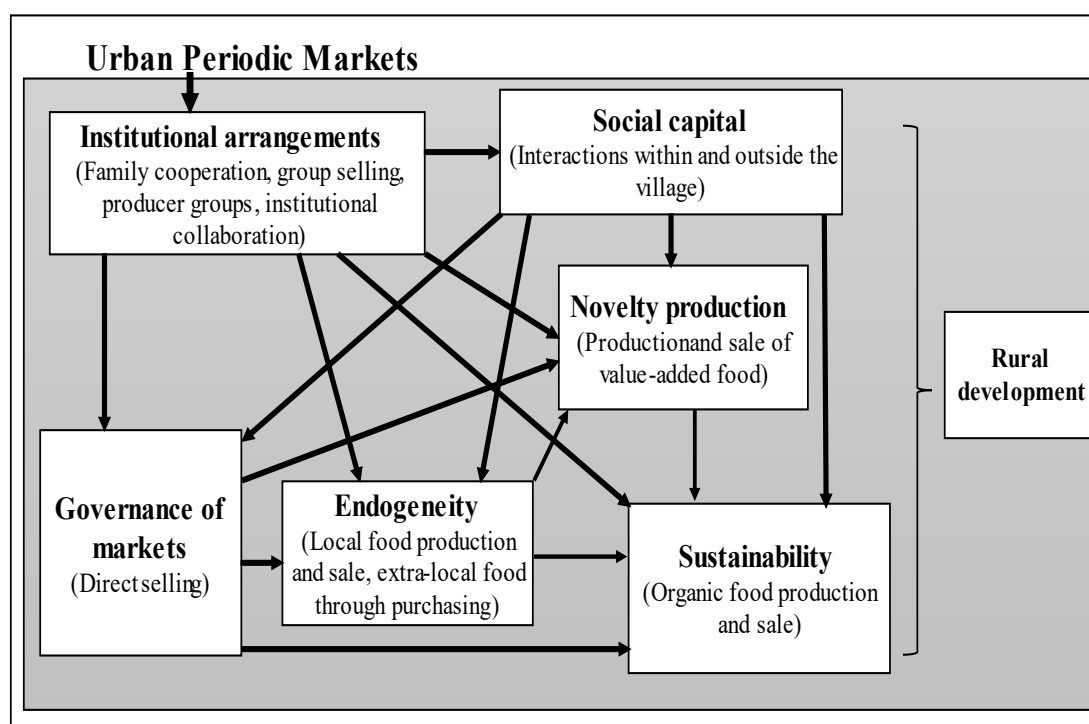


Figure 8.1 A Rural Web analysis of effects of UPMs on the study sites

Source: Author's Construct (2021).

Table 8.4 Correlation analysis of household perceptions of the effects of UPMs among the dimensions of the Rural Web analysis

Variable	InstARNG	SocCPT	GovtMk	EnDO	NovPRD	Sust
InstARNG	1.000					
SocCPT	0.682***	1.000				
GovtMk	0.593***	0.579***	1.000			
EnDO	0.373***	0.332***	0.393***	1.000		
NovPRD	0.597***	0.483***	0.593***	0.562***	1.000	
Sust	0.613***	0.585***	0.603***	0.434***	0.583***	1.000

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$, the governance of markets (GovtMkt), novelty production (NovPRD), sustainability (Sust), social capital (SocCPT), endogeneity (EnDO), and institutional arrangements (InstARNG)

Source: Village survey (2019).

The perceived effects of UPMs on institutional arrangements such as the formation of groups on market days was found to be significantly correlated with the effects on novelty production, ($r = 0.597$; $p < 0.05$) in terms of the sale of value-added foods. The result indicates that group formation enabled farmers to increase the transportation of value-added foods to UPMs.

The perceived effects of UPMs on institutional arrangements, which took the form of group selling as well as institutional collaboration were significantly correlated with the effects on social capital ($r = 0.682$; $p < 0.05$) through the creation of social interactions (see Table 8.4).⁴ The positive correlation shows that these forms of institutional arrangements during market days increased social interactions among farmers. The cooperation between farmers and some institutions at UPMs increased farmers' interactions with workers from the banking institutions. Farmers, irrespective of their socioeconomic background had access to financial information services through their interactions with workers from the banking institutions. Access to financial information services at UPMs can enable farmers to discover the benefits of investing in their farm or trading activities. Group selling at UPMs increased farmers' interactions with their colleague sellers. Through these interactions, farmers shared information about changes in the prices of commodities. They were engaged in setting the prices of commodities within the groups. They were aware that on market days, the prices of commodities increase in the mornings through to the afternoons but reduce in the evenings. These changes in the prices of commodities were attributable to the low attendance of buyers in UPMs during the evenings and their large attendance in the mornings. Knowing this, farmers visited UPMs in the mornings

⁴ r represents the correlation coefficient.

intending to increase sales, prices, and income. Farmers were also aware of agricultural products transported from UPMs to the other regions and the West African countries through their interactions with colleagues in the groups and workers from the DAs. They were able to know where to obtain certain foods in some seasons when there is a shortage of foodstuffs.

The study found that the perceived effects of UPMs on institutional arrangements in the form of group formation during market days were significantly correlated with the effects on the governance of markets ($r = 0.593$; $p < 0.05$) through the facilitation of farmers' direct participation in UPMs. Through the group formation on market days, farmers were able to increase their participation in UPMs. The participation involved both men and women as well as those within the economically active cohort (25–54 years). This exemplifies the capacity of UPMs to empower young and active farmers to participate in trading activities (Yankson *et al.*, 2018).

There was a significant relationship between the perceived effects of UPMs on institutional arrangements, in the form of groups formation and family cooperation on market days with the effects on endogeneity ($r = 0.373$; $p < 0.05$) by encouraging the sale of local foods. Likewise, the perceived effects of UPMs on institutional arrangements such as group formation on market days were significantly related to the effects on sustainability ($r = 0.613$; $p < 0.05$) in terms of the sale of organic foods in UPMs (see Table 8.4). These results indicate that through group formation or family cooperation, farmers were able to overcome the problems of travelling to the markets by enabling them to collectively transport local foods and organic products to UPMs with less transport costs.

8.3 Perceptions of Urban Periodic Markets and the Creation of Social Capital

About 77% of households agreed that UPMs influence social capital through the creation of several interactions, and this agreement was statistically significant ($p < 0.05$) between households in the South and North ($U = 12932$; $M.R = 165.2$) (see Table 8.3). UPMs were the platform to engage farmers in interactions with several buyers. Through the interactions, farmers exchanged goods and services with these buyers and established relationships with them. In addition, UPMs created social interactions among different households within the villages. These interactions took the form of a farmer assisting a colleague farmer by carrying products on behalf of the farmer to UPMs. These interactions are promising by the trust they had each other, which develops over time and through several years of friendship. This seems

reasonable because the two parties can agree to share the costs of transport. These interactions on market days enable farmers to socialise among their peers and support one another in trading.

The perceived effects of UPMs on social capital in the form of social interactions among households on market days were significantly related to the effects on the governance of markets ($r = 0.579$; $p < 0.05$) through the facilitation of farmers' direct participation in UPMs. The positive correlation indicates that interactions among households on market days encouraged direct participation in UPMs. The direct participation of farmers in UPMs engaged them in cross-border trading. The closeness of UPMs to Ghana's border with Burkina Faso provided the avenue for farmers to interact with foreign traders. This created cross-border interactions between rural farmers and Burkina Faso. The flexibility of the border restrictions on market days contributed to these cross-border interactions by enabling traders from Burkina Faso to visit UPMs in the Sissala East Municipality. The cross-border interactions encouraged the sale of new varieties of crops in the UPMs thereby enabling farmers to learn to plant or trade in some crops not locally produced through their exchange of these products with foreign traders. Farmers could learn foreign cultures and languages through their interactions with foreign traders. This indicates that there is a knowledge sharing between farmers and foreign traders during market days.

The study findings above are similar with Karg *et al.* (2019) who found that UPMs in Ghana have the capacity to connect farmers to regional and international markets through the distribution of farm products. These researchers found that villages in Ghana supplied agricultural products through UPMs at the district level. Intermediaries transported the products from the district UPMs to the regional periodic markets and from there to the other West African countries. They suggested that UPMs promote international trading through these distribution systems.

There was a significant relationship between the perceived effects of UPMs on social capital in the form of social interactions among households and the effects on endogeneity ($r = 0.332$; $p < 0.05$). This result shows that interactions among households on market days encouraged the gathering of food crops from many households and their subsequent transportation to UPMs. There was also a significant relationship between the perceived effects of UPMs on social capital, in the form of social interactions and the effects on novelty production ($r = 0.483$; $p < 0.05$). This suggests that social interactions or trust between farmers and buyers at UPMs encouraged the sale of value-added foods in these markets. In addition, the perceived effects of

UPMs on social capital, in the form of social interactions, were significantly related to the effects on sustainability ($r = 0.585$; $p < 0.05$) in terms of the sale of organic foods in these markets. The positive correlation indicates that interactions between farmers and buyers during market days can spur the sale of organic foods in UPMs.

8.4 Perceptions of Urban Periodic Markets and the Governance of Markets

About 81% of households agreed that UPMs affect the governance of markets through the encouragement of direct selling among farmers, and this agreement was statistically significant ($p < 0.05$) between households in the South and North ($U = 13511$; $M.R = 168.1$). UPMs exhibited more form of flexibility than NPMs. The NPMs such as the daily markets in urban areas compelled farmers to rent or purchase stalls as a requirement for them to sell in these urban markets. As noted by Yankson *et al.* (2016) the renting of an urban store or stall is expensive for a poor farmer in Ghana. Considering the poor socioeconomic background of the surveyed households (GoG 2018a; GoG 2018b), this restriction may prevent their direct participation in urban markets.

However, on market days, this restriction was not implemented, which gave farmers a great opportunity to participate in urban markets. Certainly, UPMs provided open and accessible venues for the poor farmer, and these markets operated with less interference from local groups or the local councils as well as middle agents. Masaru and Badenoch (2013) describe this flexibility of UPMs as exhibiting a high level of freedom. With this flexibility, the poor farmer can attend multiple UPMs. Coupled with this is also the intervals between UPMs that gave farmers options to visit a particular market several times or different UPMs. An UPM that operates at intervals of two to three days per week can increase multiple attendances among farmers because farmers would be able to attend the marketplaces two or three times per week. A six-day market interval can also enable farmers to have ample time to move around several different UPMs. Multiple attendances to UPMs can increase market participation as well as social interactions among farmers. However, it should be noted that the degree of freedom in UPMs is not devoid of rules and regulations. The study revealed that the DAs, security departments, market associations, and the traditional authorities govern activities of UPMs and they ensure that sellers follow some rules and regulations. For example, sellers, depending on the type of crops they sell were instructed to sell at a designated place during the UPMs. The security officers also provide security services to traders on market days.

The perceived effects of UPMs on the governance of markets, in terms of direct selling in UPMs significantly correlated with the effects on endogeneity ($r = 0.393$; $p < 0.05$). The positive correlation indicates that farmers' ability to participate directly in UPMs can increase the sale of local foods in these markets. There was a significant relationship between the perceived effects of UPMs on the governance of markets, in the form of direct selling, and the effects on novelty production ($r = 0.593$; $p < 0.05$). This suggests that the direct selling in UPMs encouraged the sale of value-added foods in these markets. Further, the perceived effects of UPMs on the governance of markets such as direct selling in the markets were found to be significantly correlated with the effects on sustainability ($r = 0.603$; $p < 0.05$) through the direct sale of organic foods to buyers in UPMs.

8.5 Perceptions of Urban Periodic Markets and the Enhancement of Endogeneity

The majority of households (83%) agreed that UPMs affect endogeneity through the engagement of farmers in the production and sale of local foods as well as the purchasing of crops in these markets. This agreement on the effects of UPMs on endogeneity was statistically significant ($p < 0.05$) between households in the South and North ($U = 13022$; $M.R = 165.6$). The study found that the volume of food crops sold at UPMs was significantly larger than the quantity purchased in the same markets. This shows a high degree of endogeneity because households could buy relatively few crops and sold more of them at UPMs. Bowler (1999) and High and Nemes (2007) describe this high degree of endogeneity through UPMs as a tool to encourage the commercialisation of local foods in these markets. On the one hand, the number of UPMs a farmer may visit or the sale of different varieties of products by a farmer at UPMs can facilitate the commercialisation of local foods in these markets. On the other hand, farmers may sell some specific products that have a large demand at UPMs. This study revealed that farmers sold a larger proportion of cereals at UPMs than the other crops. A large proportion of cereals was exported from UPMs to the West African countries, which increased the demand for them in these markets (see Chapter 3). The large demand for these crops among others in UPMs encouraged farmers to specialise in the sale of specific local foods with the hope of getting large demand for them in these markets.

It should be noted that the purchasing of other foodstuffs by farmers at UPMs contributed to the availability of local foods in the villages. This indicates that farmers have access to other foods at UPMs, which are not locally produced. Some products were not largely available in NPMs except market days where sellers from outside the district or region visit UPMs with

different types of agricultural products. The purchasing of foods by farmers at UPMs has its cultural significance depending on where these foods are coming from. In fact, farmers with different cultural and ethnic backgrounds produce local foods available in UPMs (Masaru and Badenoch 2013). The survey found that households in the South (Timeabu and Korase) did not produce sorghum, but they bought it from the UPMs in the Ejisu-Juaben Municipality in the Ashanti Region of Ghana. Similarly, households in the North (Kong and Kowie) did not produce cassava and plantain, but they bought them from the UPMs in the Sissala East Municipality, in the Upper West Region. According to the GSS (2014), only farmers in the Ashanti Region produce plantain, and cassava and sorghum are produced in the Upper West Region only. Through UPMs, these crops were available and accessible to farmers in the South and North. Thus, through the exchange of different crops at UPMs, studies (e.g., Masaru and Badenoch 2013; Eff and Jensen 2014; Karg *et al.* 2019) suggested they integrate different cultural groups of farmers through the food supply chain associated with these markets.

The analysis revealed that the perceived effects of UPMs on endogeneity, in the form of production and sale of local foods was significantly correlated with the effects on novelty production ($r = 0.562$; $p < 0.05$). The positive correlation suggests that the sale of local foods in UPMs can encourage rural households to add value to these foods and sell them in these markets. It also suggests that the purchasing of farm products in UPMs includes value-added foods. Further, there was a positive correlation between the perceived effects of UPMs on endogeneity and the effects on sustainability ($r = 0.434$; $p < 0.05$). This also suggests that the sale of local foods in UPMs can encourage rural households to produce some organic foods and sell them in these markets. It also suggests that the purchasing of farm products in UPMs includes some organic foods.

UPMs provided other non-farm products to farmers at a relatively cheaper price compared to the prices offered by the smaller shops in their villages or at NPMs. In addition to the low prices, farmers were usually empowered financially to buy manufactured goods when they sell their products at UPMs. It can be said that UPMs serve as a place for poor farmers to convert their products into cash to enable them to purchase daily necessities.

8.6 Perceptions of Urban Periodic Markets and Novelty Production

The sale of agricultural products at UPMs involves consumers' expectations of high-quality foods. These expectations can be attributable to the changing lifestyle, taste, and income of

consumers especially, in urban areas. Rural farmers can be encouraged to respond to consumers' expectations by adopting new techniques or apply their traditional knowledge in production such as adding value to raw products (Vaswani *et al.* 2005). About 78% of the households agreed that UPMs affect novelty production through the engagement of farmers in the production and sale of value-added foods, and this agreement was statistically significant ($p < 0.05$) between households in the South and North ($U = 10605$; $M.R = 153.5$). The analysis found that the processing of value-added products was labour-intensive, and it involved a lot of time. This perhaps was attributable to farmers' adoption of traditional methods for producing these products. The production and sale of value-added foods at UPMs, therefore, depend on labour availability and time (Osei-Acheampong *et al.* 2012). Intervals between UPMs offered ample time for farmers to prepare and sell value-added foods in these markets.

Value-added foods such as *gari* and palm oil had large demand at UPMs because of the large attendance of buyers in these markets. The reopening of schools and the enrolment of new students increased the consumption of these products sold by farmers at UPMs. Students mostly use *gari* and they preferred to purchase this food from rural farmers themselves in UPMs. Caterers also preferred to purchase palm oil directly from farmers on market days. These buyers preferred to purchase these products at UPMs because that is where they can meet farmers. These buyers perceived those farmers from villages sell original value-added foods without additives. Although middle agents sell similar value-added foods in UPMs, buyers considered these products from the agents as not original or inferior quality. Middle agents in Ghana tamper with products they buy from farmers to increase their quantities before selling them to buyers due to their desire for abnormal profit, thereby diminishing the quality of the products (Yankson *et al.* 2016). Farmers, therefore, received a large demand for the sale of value-added foods in UPMs because consumers trusted these products from the farmers themselves. Consumers' trust for these products can create strong interactions between farmers and buyers and farmers may be encouraged to increase the sale of value-added foods to these buyers in UPMs. The analysis revealed that there was a significant positive correlation between the perceived effects of UPMs on novelty production and the effects on sustainability ($r = 0.583$; $p < 0.05$). This suggests that consumers trust for value-added foods during market days can encourage rural households to produce organic foods as well and sell them in these markets.

8.7 Perceptions of Urban Periodic Markets and Environmental Sustainability

About 61% of households agreed that UPMs affect sustainability through the encouragement of farmers in the sale of organic foods at these markets, and this agreement was statistically significant ($p < 0.05$) between households in the South and North ($U = 14446$; $M.R = 172.7$). The consumption of organic foods through the short food supply chains such as UPMs is increasing globally and in Ghana as well, being considered as a mechanism to improve the sustainability of food systems. The increasing consumption of organic foods through UPMs has provided incentives for farmers to sell these foods at the markets. Farmers' direct sales of organic foods at UPMs show the importance of these markets within the three aspects of sustainability, in connection with the food supply chain (Forssell and Lankoski 2014). These include social, economic, and environmental sustainability.

The sale of organic foods by farmers in UPMs can be related to environmental sustainability. It should be noted that organic food production and consumption are globally related to the creation of awareness about the environment (Sriniegn and Thapa 2018). Environmental awareness can be done through several means including an educational campaign carried out by the local councils. These campaigns can take place everywhere including the UPMs. The study found that DAs provided information that includes environmental awareness program to farmers during market days. The DAs informed farmers about the importance of practicing organic farming. They carried out these programs in UPMs because these markets attract the largest attendance of traders including farmers from villages. Likewise, Owusu and Lund (2004) found that as part of the local council's outreach programs in Ghana, the Upper Denkyira District mostly carried out environmental education campaigns in UPMs to create awareness on the need to practice organic farming. Farmers' access to these environmental awareness programs on market days helps them to become aware of their responsibility to protect the environment and ensure sustainable farming through the practice of organic farming.

UPMs also contributed to social sustainability through farmers' direct contact with buyers at the markets. It was found that through interactions in UPMs farmers were connected to new consumers, such as those from the border country (Burkina Faso). These foreign buyers purchased organic foods from farmers on market days and used them for medication. Because farmers always sell organic foods to these buyers, there were cordial relationships between them and the buyers. The relationships between organic farmers and the buyers can likely generate strong collaboration to the extent that the buyers may sign an agreement with the

farmers to encourage farmers to produce and sell organic food to these buyers in the UPMs (Kini *et al.* 2020).

Further, UPMs contributed to economic sustainability by offering the demand for organic foods through the relationships between organic farmers and buyers at the markets. The relationship between farmers and buyers generates consumers' trust for purchasing organic foods from the organic farmers at UPMs. Trust and relationships between organic farmers and buyers at UPMs can also encourage buyers to pay a premium price for organic foods. Certainly, organic foods have a high price in UPMs, and farmers can increase their income by selling them in those markets (Kini *et al.* 2020). The direct sale of organic foods in UPMs in anticipation of high prices shows that these markets can sustain the livelihoods of rural farmers.

8.8 Summary

This chapter has presented a Rural Web analysis of the effects of UPMs in Ghana. The chapter presents household perceptions on the importance of the six dimensions of the Rural Web analysis and the effects of UPMs on these dimensions. UPMs affect institutional arrangements in villages through the formation of groups on market days, family cooperation, institutional cooperation, and group selling. They affect social capital in villages through the creation of social interactions among households. UPMs affect the governance of markets in villages by encouraging direct selling in urban markets. In addition, UPMs affect endogeneity in rural villages by encouraging the sale of food crops, livestock, and poultry in these markets. They affect novelty production in villages through the sale of value-added foods in the markets. Finally, UPMs affect sustainability in rural villages by encouraging the sale of organic foods in these urban markets. The effects of UPMs on institutional arrangements in the villages were found to contribute to the other dimensions of the Rural Web analysis. Institutional arrangements such as the formation of marketing groups on market days contributed to endogeneity, novelty production, and sustainability through the collective transport of food crops, value-added foods, and organic foods to the UPMs, respectively. These groups also contributed to the governance of markets by increasing farmers' direct participation in UPMs. Further, institutional arrangements in the form of group selling on market days contributed to social capital by increasing interactions among households. The analysis in this chapter suggests that UPMs can stimulate rural development through their integration of the institutional, economic, environmental, and social dimensions of rural villages.

Chapter 9. Discussion

This chapter is a discussion of the study's findings as presented in Chapters 6, 7, and 8 above. The socioeconomic characteristics of the study sites will firstly be discussed, and the focus will turn to household production and other factors that determine this. The second section will discuss the effects of UPMs on rural development, in particular on direct market participation, road infrastructure services, and cooperative marketing, and household production and distribution of agricultural products. The effects of UPMs on rural and urban interactions and non-farm employment will then be discussed including a focus on their contribution to sustainable development. This chapter will answer the principal research question posed in this thesis, 'to what extent do UPMs affect the rural economy of Ghana?'

9.1 Household Production of Agricultural Products

The principal objective of Ghana's rural development projects is to increase agricultural production and distribution (IFAD 2003; GSS 2014; IFAD 2021). This objective has influenced agricultural activities in many villages to the extent that food crops such as cereals and legumes have been the major products produced in rural areas in Ghana (Houssou *et al.* 2018). This present study found a similar characteristic in the surveyed villages. The socioeconomic characteristics of the surveyed villages portrayed an agricultural diversified activity with the engagement of farmers in the production of varieties of agricultural products, including food crops, value-added and organic foods, livestock, and poultry. These agricultural activities were the main source of livelihood for the majority of the surveyed households, which is consistent with the literature that more than half of Ghana's population is into farming, and it is the major occupation in rural areas (FAO 2012; GSS 2014). The production of organic foods together with the practice of mulching and polyculture among households (see Sections 6.3.1 and 6.5) signifies, that households are aware of the importance of sustainable farming practices, and in carrying out their farm activities; they would have the impression that the environment should be protected. The production of value-added foods also indicates that households have the knowledge to convert raw products into finished goods.

Households produced cereals as the major food crop followed by root and tuber crops as well as legumes. The production of these diversified agricultural products is of immense benefits to the surveyed households in terms of food availability and the marketing of surpluses from production (Njeru 2013; Mango *et al.* 2014). In fact, the production of a variety of crops coupled

with the keeping of livestock and poultry creates strong connections between farmers and the urban markets, which increases the supply of rural products to the urban markets (Munchhausen and Knickel 2010; Ventura *et al.* 2010b). It is not surprising that the surveyed households were able to sell a larger proportion of their farm products outside the villages including the UPMs.

Agricultural activities in the study sites are similar to the Devon Region in the United Kingdom, (UK) where local food production constituted the major activity (Kanemasu *et al.* 2010) but differ from the Kittila (Finland), Odenwald (Germany), and Meetjesland (Belgium) Regions (Kull *et al.* 2010; Munchhausen *et al.* 2010; Messely *et al.* 2013). The major activities in Kittila, Odenwald, and Meetjesland were small and medium-scale enterprises, mining, and tourism. The differences in livelihood activities can be attributable to the socioeconomic disparities within the study areas. As suggested by Ventura *et al.* (2008) and Kitchen and Marsden (2009), the socioeconomic characteristics of an area vary according to the landscape: whether the area is declining in agriculture or becoming highly specialised in it. They also depend on the objectives of rural development policies. Policies that seek to increase the use of advanced technology can lead to a shift from agriculture thereby affecting the development trajectory of the area (Munchhausen *et al.* 2010). These account for the differences in activities between the surveyed villages in Ghana on the one hand and rural areas in advanced countries such as Finland, Germany, and Belgium on the other hand.

9.1.1 Incentives for household production

Several factors contributed to the production of agricultural products in the study sites. Social relationships within the family encouraged access to land. The majority of households inherited farmland. The custom and relations within the family facilitated access to land by which heads of the family were obliged to give inherited land to their family members, which enabled households to acquire land within the extended family (see section 6.7.1). Farmers' access to land through inheritance can inspire them to increase the production of agricultural products. The average landholding per household was five hectares and according to Das *et al.* (2013), farmers with more than two hectares (ha) of land in developing countries are considered as large landholding. Large landholding signifies a large producing household (Cotula *et al.* 2006; Lowder *et al.* 2016). Further, through family succession or inheritance, farmers learn family farm values and norms about how to farm certain crops. Family succession also ensures continuity of farming in the sense that the surveyed households may inherit cultivated land (Mann *et al.* 2013; Joosse and Grubbstrom 2017). In addition, as revealed in this current study,

the bond within the extended family enabled households to inherit innovative businesses, which encouraged them to cooperate in sustaining the progress of the businesses as well as producing different types of value-added foods (see Section 6.3.1). The study also found that the average farm size per household in the South was two hectares and almost two and a half tonnes of crops were produced per household. Also, the average landholding per household in the North was seven hectares and ten tonnes of crops were produced per household. The data indicate that households can increase production when they have reliable access to land. Certainly, relations within the family are an incentive for households to obtain land, farm business, and increase the cultivation of crops (Mann *et al.* 2013), which is a strategy to reduce rural poverty in developing countries (Cotula *et al.* 2006; Lowder *et al.* 2016). The study findings are consistent with Marsden (2010) and Kull (2010) who found that strong relations were the main characteristics of social capital in Devon and Kittila regions, respectively that encouraged farmers to engage in farm and non-farm activities. Yet, none of these studies relates social relations to access to land.

However, households experienced inequity in access to family land. Women, in particular, faced challenges in accessing land and they were restricted to farm certain crops. The tradition in some ethnic groups in the North does not allow women to farm on a large parcel of land but to support the men or the husband on the farm (see Section 6.7.1). Women's restriction to land is a major problem in the northern part of Ghana as well as rural areas in many sub-Saharan Africa, which make them vulnerable groups (Cotula *et al.* 2006; Bose *et al.* 2017; Bose 2017; Dib *et al.* 2018). However, this present study revealed that the involvement of local institutions (e.g., village associations or women empowerment groups) in the education of heads of the family can be a mechanism for addressing the limited opportunities women have in accessing family land (see Section 6.8.2).

Social relations within the ethnic groups encouraged the cultivation of new crops through the acquisition of new knowledge. Relations within the ethnic groups motivated relatives to migrate from the northern part of Ghana to settle in the villages in the South. Migrant households introduced new varieties of crops and livestock in the South. Households in the South obtained external knowledge that enabled them to learn how to plant new crops and diversify poultry and livestock rearing (see Section 6.7.2). This type of knowledge transfer can equip rural households with the necessary skills in farming and boosts their production ability. During economic recessions where resources are limited, knowledge transfer enables farmers to share

ideas, adopt some technologies, and increase production. This suggests that the intensification of knowledge transfer can support farmers to produce varieties of agricultural products. It also indicates that knowledge transfer brings a new form of relations and local knowledge transformation within villages through the collective exchange of ideas and information (Cawley *et al.* 2019).

Cooperative activities encouraged the production of agricultural products among households. The bond within the extended family enabled households to cooperate by involving family members to support one another during the planting and harvesting seasons (see Section 6.7.1). Through cooperation in this way, households interact among themselves, which is an incentive for them to increase farm size (Jayne *et al.* 2003; Finan *et al.* 2005). The study revealed that the average household size in the South was eight members, and two tonnes of crops were produced per household. Similarly, the average household size in the North was eleven members and ten tonnes of crops were produced per household. The data shows that a large household size coupled with good relations can help to strengthen cooperation within the family, which is also possible to encourage households to increase crop production (Cotula *et al.* 2006).

Cooperative arrangements in the form of contract farming between farmers and NGOs encouraged the production of food crops (see Section 6.8.3). Through contract farming, households sold their farm products to the NGO. They were able to cultivate large farms through their access to agricultural machinery (such as tractors for ploughing farms). Households also received fertilizer through the contract farming arrangement, and this is very helpful for villages in the North (Kong and Kowie) since the soil in these villages does not support the growth of many crops. Cooperative arrangements in the form of contract farming in sub-Saharan Africa increase farmers' access to farm inputs and it is a mechanism for increasing crop production (Maertens and Velde 2017). Porter and Phillips–Howard (1997) have identified that contract farming poses problems for many of the more disadvantaged groups in associated rural communities, including gender conflict in Africa. However, this depends on who is contracting with farmers. The involvement of non-profitable organisations such as NGOs in contract farming safeguard farmers in the contract agreement. The aim of NGOs is to ensure that the livelihoods of poor farmers are improved and their involvement in contract farming with farmers is assumed to reduce poverty in rural areas.

Additionally, households operated village savings and loans schemes through their membership and cooperation with members of the village associations. The village savings and loans

schemes encouraged farmers who were members of the associations to mobilise money and use it to provide loans to those who need financial assistance. Beneficiaries of the loans used the money to purchase fertilizer and hired labour. Access to loans through the village savings and loans schemes reduces the cash burden on farmers and increases investment in agricultural activities (Brannen and Sheehan–Connor 2016; Dawuni *et al.* 2021). Through this financial assistance, households can increase crop production (Kuwornu *et al.* 2018).

Collaborations among farmers within the village associations also encouraged the establishment of a communal organic farm for millet. This communal organic project enabled households to establish relations with many farmers through forums they organise from time to time. Through these relations, households exchange ideas and information, which are also possible to encourage the practice of organic farming and organic food production.

9.2 Urban Periodic Markets as a Mechanism for Direct Participation in Urban Markets

Among the factors contributing to household production, several studies (e.g., Yankson *et al.* 2016; Acheampong *et al.* 2018; Houssou *et al.* 2018) mentioned that farmers' direct participation in the markets play a major role. This study revealed that UPMs increase direct market participation with the majority of rural households participating in these urban markets than NPMs (see Section 7.2.1), which is consistent with the literature. Afukaar *et al.* (2019) found that nearly all farmers in villages in the Asunafo North District in the Brong Ahafo Region (BAR) of Ghana participated directly in the UPM at the district capital, but a few attended the NPMs. This current study suggests that the lack of market centres in the surveyed villages may contribute to the increasing participation of farmers in UPMs. This study finding concurs with Plattner (1976) and Horlings and Kanemasu (2015) who found that rural areas with no marketplaces increase farmers' participation in urban markets. In addition, Yankson *et al.* (2016) found that farmers in the Twifo Atti Morkwa District in the Central Region of Ghana preferred to attend marketplaces in their villages because of their proximity to these markets than the other daily markets in smaller towns. This may suggest that the surveyed households would have attended a local daily market in their respective villages had they existed and thus reduce their participation in UPMs.

However, many studies have suggested that village markets do not necessarily reduce farmers' participation in UPMs (e.g., Dokmeci *et al.* 2006; Eff and Jensen 2014; Sabet and Azharianfar 2017). This current study supports this assertion by revealing that the effects of local permanent

markets (had they existed in the surveyed villages) on farmers' participation in UPMs would have been marginal. First, the location of periodic markets in urban areas is one of the main reasons why farmers participate in those markets. The less restriction of entry into urban markets on market days is a motivation to increase the direct participation of farmers in UPMs (see Section 8.4). Second, the UPMs have a larger urban population of buyers than the NPMs (e.g., daily markets including those in villages and smaller towns) with differing socioeconomic backgrounds including those from middle and high-income households. These urban buyers have a relatively high purchasing power, and they offer attractive prices of farm products in UPMs (Byker *et al.* 2012; Elepu and Mazzocco 2010; Aram *et al.* 2019). It should also be noted that farmers visit UPMs not to sell only but purchase other items not locally produced and they had the financial means to do this after selling in these markets. Third, UPMs provide the opportunity for farmers to trade in foreign currency whilst meeting buyers from Burkina Faso in the markets, which further increases their possibilities to earn a higher income. Fourth, the UPMs occur in existing permanent markets with good infrastructure, which makes the markets attractive for farmers to visit there. Fifth, the surveyed villages were closer to UPMs. Farmers could even walk to the nearby UPMs (see Section 7.2.1). This particular finding of the study is similar to other countries such as Iran (rural areas in Tehran) where UPMs were closer to many villages, and households visit the UPMs on foot (Sabet and Azharianfar 2017). Finally, the amount of information accessible to farmers during market days can also encourage direct participation in UPMs (see Section 8.2). These factors (stated above) among others are a strong motivation for farmers to increase their direct participation in UPMs had village markets existed.

Yankson *et al.* (2016) argued that the involvement of middle agents in the food supply chain affects farmers' direct participation in UPMs. This present study found that activities of middle agents were emerging in the South but prominent in the North. Whereas direct selling was the main outlet for the majority of households in the South, it constituted fewer households in the North (see Section 6.6). This study finding suggests that the increasing involvement of middle agents can affect farmers' direct participation in UPMs, as revealed by Yankson *et al.* (2016).

Yet, this current study found that middle agents offer lower prices for commodities. That is, the farmgate prices offered by middle agents are lower than that obtained during UPMs, which is consistent with other studies (e.g., Fafchamps and Hill 2005; Ronsijn 2014; Eff and Jensen 2014; Abu *et al.* 2016; Piabuol *et al.* 2020). Although farmers engagement of middle agents

can reduce the transport costs to UPMs, more than half (54%) of the households stated that they sell directly in UPMs to minimise the involvement of these agents. In fact, middle agents take advantage of farmers regarding pricing (see Section 6.6.1). Thus, though the increasing involvement of middle agents in the food supply chain may reduce direct participation, this thesis found that the lower prices offered by middle agents rather motivates farmers to directly participate in UPMs because direct participation helps farmers to avoid the interference of middle agents (see Masaru and Natha 2013; Velayudhan 2014 for similar findings). Farmers' ability to avoid the interference of middle agents enables them to compare prices received from direct consumers during UPMs to the prices from the other buyers including middle agents. The comparison of different prices helps farmers to determine the suitable prices for their products. Farmers are therefore encouraged to increase their participation in UPMs other than selling at the farmgate or to middle agents.

It should be noted that the above study findings on the increased participation of farmers in UPMs are contrary to some assertions in the literature that the participation of smallholder farmers in the markets is low in developing countries (IFAD 2003; Badu *et al.* 2013; Gebrehiwot *et al.* 2018). These researchers argued that rural farmers in developing countries (e.g., Ghana and Ethiopia) face major problems such as poor roads and transport services as well as lengthy travel to the markets. These problems limit farmers' ability to participate in the markets. Similarly, this current thesis discovered that the roads from villages to UPMs were in poor conditions, which reduced the frequency of buses to the villages (see section 7.2.3). Travelling on the bad roads to UPMs sometimes leads to crop damage (crops falling from vehicles) at a cost to the farmer (Angmor 2012). However, the current study revealed that the bad roads did not prevent farmers to increase their participation in UPMs.

This thesis found that drivers were willing to ply the roads on market days because most villagers commuted to the city or town on these days. Therefore, buses were more frequent in villages on market days than non-market days. Further, households had access to different means of transport during market days including tricycles and donkey-carts. This is consistent with Afukaar *et al.* (2017) who found that vehicles were frequent to many villages in the Asunafo North District during the periodic market at Goaso. These scholars observed that during market days, minibuses operated an average of six trips per day in the villages (such as Odumase and Anwianwia). However, the average trip of minibuses per day was reduced to four during non-market days. Even in remote villages such as Kyenkyenhenekrom and Gyasikrom

in the Asunafo North Municipality and Hatorgodo in the Keta Municipality, farmers had access to different means of transport on market days, which is not so on non-market days (Afukaar *et al.* 2019). UPMs thus enable rural households to get access to transport thereby motivating them to increase their participation in these markets.

Poor roads can cause transport costs to rise significantly, especially in rainy seasons, which affect farmers' participation in UPMs (Badu *et al.* 2013; Acheampong *et al.* 2018). This current study found that UPMs do not occur throughout the week as the case with NPMs and thus, farmers were not so regular to UPMs. From this, it can be said that the payment of transport fare by farmers to visit UPMs a few days per month may not be a major financial barrier to their participation in these markets. Besides, households seek to profit from selling. Comparatively, the majority of households mentioned that more profit is earned for trading in UPMs than NPMs (see Section 6.1). Yet, the degree of profit may depend on the location of UPMs (Ghosh 1981; Houssou *et al.* 2018). Farmers usually choose to participate in UPMs especially those in the district capital that offer higher returns to cover transport costs. Moreover, institutional arrangements such as group formation on market days were found to increase farmers' direct participation in UPMs because they were able to reduce transport costs to UPMs by collectively sharing the costs (see Section 8.2.1). For these reasons (as stated above), this current study argues that transport costs were not a major barrier to reduce farmers' direct participation in UPMs.

Though poor roads, high transport costs, and long distance to markets are problems for many farmers in developing countries, this present thesis suggests that they did not discourage farmers to increase their direct participation in UPMs. This current study is not alone concerning this suggestion. In fact, several other studies have made similar conclusions. Bardhan (2012) suggested that although long distance or poor roads can reduce the intensity of farmers' mobility to markets, once they decide to sell at UPMs, it does not significantly affect their level of participation. Dorward *et al.* (2006) compared the cost of travelling to central markets and UPMs in Africa, East Asia, and Latin America, and identified that the transport costs to UPMs were lower than the costs to the central markets. They explained that UPMs are increasing in developing countries, which make them closer to villages thereby reducing distance and transport costs. Chagomoka *et al.* (2018) also found that more than half of farmers in villages (e.g., Jimle, Pong-Tamale, Tolong, Zosali, and Digma), travelled a long distance to the city periodic markets two to three times a week because they found them to be vibrant

thereby providing opportunities for farmers to meet a large group of buyers. Thus, the nature of UPMs motivates farmers to visit these markets irrespective of the long distance or high transport costs (Owusu and Lund 2004; Dokmeci *et al.* 2006; Ehinmowo and Ibitoye 2010; Ofori 2012a; Sabet and Azharianfar 2017; Karg *et al.* 2019). It should be noted that the increasing direct participation of farmers in UPMs contributes to poverty reduction in rural areas by enabling farmers to increase production and sale as well as profit (Layade *et al.* 2017; Houssou *et al.* 2018).

9.3 Urban Periodic Markets as a Conduit for the Provision of Road Infrastructure

It has been the consensus in the literature that rural farmers in developing countries including Ghana face major problems with road infrastructure. Indeed, bad roads affect agricultural activities, especially in rural areas (Acheampong *et al.* 2018). Several programs and activities have drawn the attention of local and international organisations to address this problem. These include agricultural policies, the nature of economic activities in rural areas, and the population of rural dwellers (Badu *et al.* 2013). This current thesis adds that UPMs are some of the activities that can draw the attention of government institutions to the infrastructural needs in rural villages.

The study found that UPMs engaged the village leaders and the local councils to support development activities in the villages. The village leaders explained to the executives of the Ejisu-Juaben Municipal Assembly that their roads are in bad conditions and the construction of the roads can facilitate the transportation of farm products to UPMs (see Section 7.4.6). Through cooperation between the village leaders and the executives of the District Assembly, they have upgraded the roads from time to time. The village leaders also organise communal labour to maintain the village roads by filling the potholes and weeding side by side, especially prior to market days. Though this is not a permanent solution to resolving transport problems (because the roads were still not sealed); at least UPMs have raised the awareness of road infrastructure problems in villages.

A similar finding was revealed by Karg *et al.* (2019) who studied grain marketing and trade flows concerning transport infrastructure in five linked towns (Savelugu, Katinga, Kumbungu, Nyankpala, and Tampion) of a periodic market. According to these authors, grain from rural areas in northeastern Ghana flowed through small towns to regional markets and then to national markets. Concurrently, infrastructure services developed in small towns adjacent to

rural areas. The authors explained that infrastructure services grew in these five areas owing to the presence of UPMs that attracted many people who lived longer and cooperated to do businesses in the communities. The longer stay resulted in an increased population, which led to the provision of infrastructure services such as roads, school facilities, and health centres. These services were provided to cater to the needs of the increasing population resulting from the influence of UPMs. Angmor (2012) also found that the establishment of UPMs at Asesewa and Agormanya in the Lower Manya Krobo District in Ghana led to the construction of roads linking the UPMs to the surrounding towns and villages. UPMs are therefore a channel for the provision of infrastructure services in rural areas.

9.4 Urban Periodic Markets as a Form of Motivation for Cooperative Marketing

The importance of UPMs as an incentive for cooperative activities within villages has been given less attention by scholars who are preoccupied with economic ideas in their study of UPMs (Storr 2008; Masaru and Badenoch 2013). This present thesis revealed that cooperative activities within villages on market days provide numerous benefits to rural farmers.

UPMs engaged households to cooperate with many people within their villages. The cooperation occurred within the households, between them and other farmers as well as middle agents. As presented in Figure 9.1, individual households cooperated with buyers from the regional or district periodic markets. Households entered into informal agreements with these agents. These buyers sometimes pre-finance the farm activities of farmers in return for access to their products after harvesting. After harvesting, farmers then sell to sponsoring buyers (the priority buyers) who transport the plantain to the Agogo Periodic Market, which is the largest exporter of plantain (in the Ashanti Region of Ghana) to Burkina Faso and Togo. This is the case in most African countries, where rural farmers who face limited access to formal credit depend on buyers for support (Bah *et al.* 2003; Tacoli 2016; Yankson *et al.* 2016).

UPMs engaged leaders of the village associations who acted as intermediaries between farmers and buyers, who were from the district and regional periodic markets. The leaders negotiate the prices of products with these buyers on behalf of farmers. The involvement of village associations in setting the prices of products helps farmers to get a good deal than individual farmers who negotiate the prices directly with middle agents (Yankson *et al.* 2016).

There were also routine arrangements between heads of the family and their members during market days, which involved the engagement of family members in supporting the

transportation of farm products to UPMs. This engagement shows the concerns family members had for one another during market days. This task may vary across the socioeconomic background of household members. Young adult women in particular are more engaging during market days through their high commitment to help heads of the family (Owusu and Lund 2004). No cost was associated with these services thereby reducing the overhead costs of farmers to UPMs (Berry *et al.* 1988). These family arrangements on market days were found to encourage interactions within the extended family (see Section 7.4.1). It can be said that UPMs stimulate family relations and strengthen social ties through family cooperation (Aram *et al.* 2019), which exemplifies bonding social capital because these interactions involved members within the same family or ethnic group (Milone *et al.* 2010). The creation of social capital within or among the family through family cooperation was found to stimulate direct participation in UPMs (see Section 8.3).

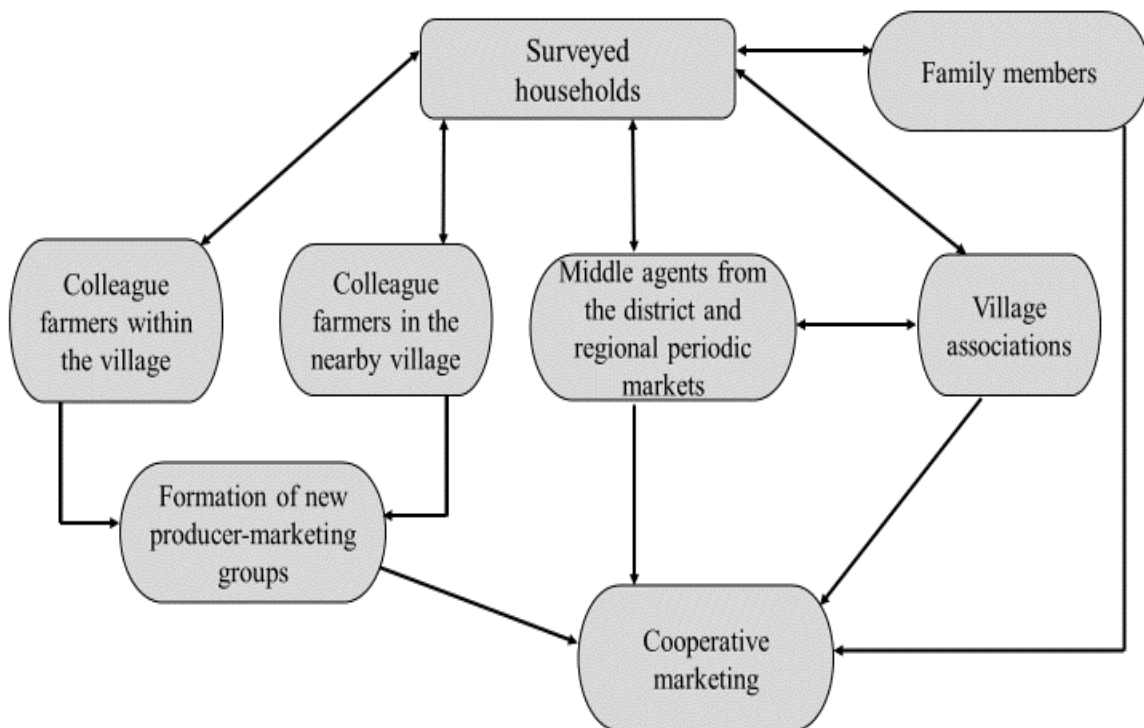


Figure 9.1 Cooperative activities during UPMs

Source: Author's construct (2021).

Household size plays a major role in the formation of cooperative activities among family members on market days (Fischer and Qaim 2011). This study revealed that the household size was large, which connotes the availability of more household members at the disposal of household heads. With a large family size, it is likely that household heads can receive

cooperative support from many of their able family members to transport products to UPMs. However, as the number of family members increases, it is also possible that the family unit will consume a large proportion of crops. This can affect the quantity of crops available, and the involvement of family members in, UPMs (Gebrehiwot *et al.* 2017; Mango *et al.* 2018; Kyaw *et al.* 2018; Megerssa *et al.* 2020). In this situation, households may adopt alternative means of cooperating.

The study found that households cooperated with their colleagues during market days, which involved those from the nearby villages. This was possible because UPMs do not operate throughout the week and thus gave households ample time to cooperate with the other farmers. The cooperation involved the collective transport of products to UPMs through the hiring of minibuses. This cooperative strategy is a form of security for farmers because they collaborate to participate in UPMs and as such, the difficulty of a farmer not getting a vehicle to travel back to the village is minimised. Moreover, through this cooperation, households form an acquaintance with many people, thereby helping them to build rapport with their neighbouring villages. Consequently, for farmers who might have little opportunity to interact with many people or participate in UPMs, market days were suitable for them to engage in multiple interactions and cooperation in trading activities with the other colleague farmers from the nearby villages (Ram *et al.* 2019). This signifies bridging or linking social capital because cooperation and interactions that are generated on market days involve different villages (Schuller 2007).

Through cooperative activities as discussed above, farmers formed several producer-marketing groups (Figure 9.1) on market days. These groups were active and more engaging, especially during market days. Group formation is found not to be peculiar only to Ghanaian smallholders but in some developing countries such as Ethiopia, Kenya, and Guatemala. Farmers from these countries understand themselves and collectively rent trucks to transport products to UPMs with the hope of reducing transport costs (Eff and Jensen 2014; Ronsijn 2014; Stifel and Minten 2017; Piabuo *et al.* 2020). Although this form of cooperation in the surveyed villages on market days may seem to be informal, it is pivotal in mobilising farmers to participate in UPMs as it reduces challenges related to access to transport services thereby increasing market participation (see Section 8.2.1). It is likely that with time, these marketing groups would become stronger, leveraging on their collective strengths to negotiate better prices for their products.

9.5 Urban Periodic Markets as a Form of Incentive for Agricultural Production

UPMs encouraged the distribution of agricultural products in villages. Chapter 7 of this thesis revealed that the majority of households sold their agricultural products at UPMs. Food crops sold at UPMs constituted a larger proportion of household production and this proportion was larger than products sold at NPMs (see Section 7.1). This finding resonates with the literature, which indicates that food crops constituted a larger proportion of products sold by farmers at UPMs. For example, Karg *et al.* (2019) found that about 90% of households in the Northern Region of Ghana sold more than half of at least one food crop in UPMs. In developing countries such as Turkey, Nigeria, Guatemala, and Cameroon, smallholder farmers who harvest large volumes of food crops prefer to sell them directly in UPMs than NPMs (Dokmeci *et al.* 2006; Ehinmowo and Ibitoye 2010; Eff and Jensen 2014; Piabuo *et al.* 2020). The sale of a larger proportion of crops at UPMs indicates that the majority of farmers do not produce only for subsistence. It can be said that UPMs absorb larger volumes of food crops in villages, and thus promote large-scale production of crops in surrounding villages.

Root and tuber crops (plantain and cassava) in the South and cereals (maize and rice) in the North constituted the largest proportion of crops sold by households at UPMs. These crops are the staple foods for both the South and the North. Many villages in the south and north of Ghana prefer to sell these crops at UPMs (Yankson *et al.* 2016). Karg *et al.* (2019) found that 92% of households in the north of Ghana sold large quantities of cereals at UPMs because of the high value of these crops during market days. This current study argues that although UPMs make similar and significant contributions to the sale of agricultural products, the types and volumes differ markedly. This signifies that rural households substantially depend on UPMs for the sale of large quantities of some specific crops. It should be noted that this specialisation in the sale of crops in UPMs increases production or commercialisation in the markets (Masaru and Badenoch 2013). In addition, the sale of specific crops by the surveyed households together with livestock and poultry at UPMs provide substantial returns to farmers (Scholtz *et al.* 2011; Gyanendra *et al.* 2017; Gultekin *et al.* 2018; Ates *et al.* 2018).

The study revealed that several factors increased the sale of farm products at UPMs. First, the proximity of UPMs to the surrounding villages was a motivating factor. The surveyed villages were close to UPMs, and this serves as motivation for rural households to consume little of their produce and sell a larger proportion of the surplus at these markets. This is expected because farmers' closeness to UPMs enables them to easily transport their crops to these

markets in anticipation of higher prices. This study finding is consistent with Karg *et al.* (2019) who found that farmers who were close to UPMs at Tamale and Savelugu in the Northern Region of Ghana increased the sale of agricultural products in these markets.

Second, the location of periodic markets in urban areas motivated farmers to sell their produce at these markets. The UPMs involved a large pool of buyers. The roads linking the UPMs to the surrounding communities were sealed which serve as attractive places for many buyers to visit these UPMs. Moreover, many of the buyers in UPMs were international exporters, middle agents, caterers (chefs), and shopkeepers. The international buyers, for instance, transport the bulk of agricultural products from UPMs to other West African countries, including Burkina Faso (see Section 7.1.1). This study finding reiterates the findings of a report from the Statistics, Research, and Information Directorate of the MoFA in Ghana. The report found that between 2015 and 2018, international exporters exported 18,183 metric tonnes of maize from the Tumu Periodic Market to the other West African countries such as Burkina Faso, Togo, Benin, Nigeria, and Niger (see Table 3.7). Middle agents also transport bulk of products sold by farmers at UPMs to the other districts and regional periodic markets as well as NPMs. In addition, smaller shops close to UPMs absorb a proportion of agricultural products sold by farmers at these markets. The large pool of these buyers in UPMs, therefore, increase the demand for agricultural products sold by farmers at the markets. Farmers were confident that they have a ready market for their products at UPMs because even in the absence of direct consumers, there are many other buyers to purchase the surplus produce. Farmers were also assured of good prices for dealing with urban buyers thereby motivating them to commercialise agricultural products at UPMs. Such an opportunity for farmers to meet international buyers and to deal with several other buyers is less likely to be offered by NPMs (Wanmali 1980).

Similar findings are reported in the literature (see Masaru and Natha 2013; Eff and Jensen 2014; Yankson *et al.* 2016; Karg *et al.* 2019). These studies revealed that the city periodic markets attracted a larger number of buyers than NPMs. The larger attendance of buyers in the city periodic markets created a large demand for specific agricultural products supplied by rural farmers (Dokmeci *et al.* 2006; Housson *et al.* 2018). Plattner (1976) explained the larger demand for products in UPMs. The author pointed out that consumer demand for different goods varies with time. The demand cycle for food is short, either weekly or daily. Consumer demand for clothing is seasonal and that of some manufactured items are annual or even longer. In all cases, since daily markets are generally open most of the time, the little restriction is

placed on the consumers' purchasing schedule. However, in UPMs, products (especially, food crops) are not available in a place for a longer time, causing the demand to accumulate during periods when sellers are absent or when there are no UPMs. This accounts for the larger demand for food crops in UPMs than NPMs. Further, Stine (1962) and Skinner (1964) used the central place theory to understand the distributive systems in UPMs. They found that UPMs are central places that supply a large variety of goods and services to their residents and the hinterlands, thereby creating a large demand for farm products supplied by villages to these markets. This current study argues that rural farmers respond to the increasing demand in UPMs by producing and selling a large proportion of agricultural products in those markets. This supports the long-stated view, that farmers are willing to increase production when they are confident that they have attractive demand for their products (Jones 1976).

Third, UPMs attracted more buyers on certain days than some other days. Sunday and Friday markets were more attractive to farmers than the other market days because these two days attracted the largest attendance of buyers (see Section 7.1.1). Sunday and Friday are the official meetings for most religious people and after their religious activities, they move in large numbers to UPMs. Farmers preferred to sell their products on these two market days (Sundays and Fridays) in the hope of meeting many buyers. This finding is consistent with the consensus in the literature that activities in UPMs are concentrated on Fridays, Saturdays, and Sundays (Bromley 1976; Owusu and Lund 2004; Little 2004). Owusu and Lund (2004) found that UPMs in Dunkwa and Twifo-Praso in the Central Region of Ghana attracted the biggest attendance of buyers on Fridays than on Mondays because several activities occur on Fridays. The activities include Fridays being the first day of funerals, the day before the climax of festivals, and the day before weddings. Host of these activities feed their guests and thus visit UPMs on Fridays to buy foodstuff for these important events. Bromley (1976) also examined the average number of temporal trading stalls for each market day concerning the size of UPMs in Ecuador. The author found that UPMs on Sundays constituted about 72% of the weekly total stalls and attracted a larger pool of buyers than the other market days. Little (2004) also found that UPMs on Saturdays and Sundays in Guatemala attracted the greatest number of vendors because this was when most tourists visit the markets. According to these authors, the majority of farmers commute to UPMs that occur on Sundays, Fridays, and Saturdays to sell their products. The specific day of UPMs is therefore a great incentive to stimulate production and sale of agricultural products among rural farmers.

Finally, the time intervals between UPMs encouraged the production and sale of agricultural products. As UPMs do not operate every day, farmers had the time to go to their farms, gathered crops, and stored them to prepare for the next market day. They had ample time to clean and sort out the high-quality crops before selling at UPMs. This finding resonates with Yankson *et al.* (2016) who examined factors influencing smallholder farmers to sell farm products at the markets. They found that farmers sorted and stored their crops and waited for market days, which occur at the district capitals of the Twifo Atti Morkwa and Twifo Hemang Lower Denkyira Districts in the Central Region of Ghana. In this case, farmers may not be in a hurry to sell their products at the farmgate but wait on market days. Farmers who usually clean and sort out quality crops before selling can brand them to meet the already known taste of their customers at UPMs (Plattner 1976).

This present study acknowledges that the incentive for farmers to produce cannot be attributable only to the availability of UPMs. As discussed in Section 9.1.1, farmers' access to farm inputs and land boosts food production. A recent study in the Northern Region of Ghana revealed that the PFJ program, which assists farmers to obtain fertilizer at a subsidised price, increased rice production in 2018 (Tanko *et al.* 2019). There is also ample evidence in the literature that farmers' increasing use of fertilizer at the appropriate time of the year and the proper application of the fertilizer increases crop production (Larson and Frisvold 1996; Nkebiwe *et al.* 2016). Several studies (e.g., Jayne *et al.* 2003; Finan *et al.* 2005; Cotula *et al.* 2006; Das 2017; Gebrehiwot *et al.* 2018) revealed that in areas where farming is the main economic activity, access to land is a fundamental factor influencing a poor farmers' ability to increase production and sale in the markets. Accordingly, increasing farmers' participation in UPMs, coupled with their access to farm inputs and land can enable them to commercialise their products at UPMs. The current author is of the view that with continuous support to rural households, subsistence farming may become less important, and farmers would increase food production and sale in UPMs.

9.5.1 Challenges encountered in urban periodic markets

Although farmers were motivated to sell their products at UPMs, they also faced some challenges. The study revealed that farmers faced challenges for selling organic foods at UPMs. Urban buyers had doubts about the sale of organic foods at UPMs (see Section 7.1.3), which affect their purchasing decisions including issues of trust for these foods. These buyers perceived that the prices of organic foods are relatively higher, and farmers may pretend that

they sell organic foods just to increase their sale income. This study finding reflects that of Kini *et al.* (2020) who studied organic vegetables demand in urban areas in Burkina Faso. According to the authors, urban consumers preferred to purchase organic foods directly from farmers on their farms instead of meeting them at the markets. The urban buyers perceived that it is difficult to know if the food sold at the markets is truly organic. This current researcher is of the view that the sale of organic foods in UPMs may require farmers to obtain a certificate. This can build buyers' trust for organic foods sold at UPMs.

Another challenge was farmers sold outside the booths, put their crops on mats and displayed them on the floor. This is commonly known in UPMs in developing countries, including Nigeria (Omole 2009), Vietnam (Masaru and Badenoch 2013) and some parts of Ghana (Owusu and Lund 2004; Angmor 2012; Ofori 2012a; Ofori and Asiedu 2013). Owusu and Lund (2004) described the Dunkwa Periodic Market as the largest market in the Upper Denkyira District in the Central Region of Ghana, but the market lacked facilities. These researchers explained that the Dunkwa UPM is overpopulated and therefore the existing facilities could not cope with the intensity of trading activities. This current study found that selling outside the market booths expose crops to the direct sunlight thereby causing them to lose the market value (see Section 7.2.3). Farmers may be compelled to sell their crops at a lower price because consumers may think that crops displayed on the ground at the markets or exposed to the sunlight are of low quality.

9.5.2 Urban periodic markets as a centre for surplus food trade

The balance of trade for trading in UPMs showed a large surplus for agricultural products (see Section 7.1.5). This large surplus for trading at UPMs indicates that food is available at the household level for consumption and sale. A household is food secure if there is not only sufficient food for them to feed their family but to sell a surplus (Cock *et al.* 2013; Mango *et al.* 2014; Abdullah *et al.* 2019). The availability of food at the household level requires that food should be sufficient in two ways. First, by the household production, and second, having the means to purchase at the markets (Zakari *et al.* 2014; Ntakyo and Berg 2019). As revealed in this study, farmers sell a larger proportion of their products at UPMs. In addition, a greater variety of food is available at UPMs and accessible to farmers. Coupled with the fact that the sale of foods by farmers at UPMs add to food availability in the markets, they are able to purchase the foods needed in these markets. Through these constant outflows and inflows, UPMs help to ensure food sufficiency at the local village level.

It should be noted however that, the availability of agricultural products in UPMs is seasonal and the continuous trading of products all-year-round in UPMs is largely dependent on farmers' adoption of advanced technology (Riddel 1974; Rosijn 2014). The low adoption of advanced technology by farmers results in scarcity of certain food items in certain seasons of the year. For this reason, it is suggested that the seasonality in smallholder agriculture results in scarcity of crops that can limit their availability at UPMs (Rozelle *et al.* 2003). This current thesis argues that the effects of seasonality on the availability of agricultural products at UPMs is more likely to be marginal in the study areas. This is because though the supply of some types of commodities may reduce at some point in the year, it happens that only the prices of these commodities would be affected not their availability. The involvement of a large number of traders from different places in UPMs ensures that commodities are available all the time. However, in seasons where particular commodities are hard to find in nearby villages, intermediaries travel to distant places where these products are available, buy and supply them to UPMs at obviously higher prices. Thus, though some commodities are seasonal, their seasonality does not affect their availability at UPMs but the monetary value.

9.6 Urban Periodic Markets as an Impetus for Rural-Urban Interactions

Figure 9.2 shows farmers' interactions with buyers at the local, district, and regional levels of trading during UPMs. UPMs play important role in supporting the linkages between rural villages and urban centres through the food supply chain associated with these markets. Rural farmers sell agricultural products at UPMs. Urban consumers have access to food supplied by rural farmers through UPMs. Indeed, urban areas rely on rural areas to meet their demand for food through UPMs (Eff and Jensen 2014; Karg *et al.* 2017). This is expected because Ghana is an agrarian economy with the majority of agricultural products produced by smallholder farmers in rural areas and they are distributed to urban areas through UPMs (GSS 2014; Chagomoka *et al.* 2018). This study finding seems to support the notion that rural areas are the centres for the consumption of agricultural products by the urban population through the distribution of these products from villages to UPMs (Weliwita and Okpala 2004; Oostinde *et al.* 2008; Ventura *et al.* 2010b; Das 2017). Rural farmers also benefit from urban centres through their participation in UPMs. They could access a wide range of goods and information in UPMs.

Certainly, there are interactions between rural farmers and urban consumers through the exchange of goods and services in UPMs. These interactions shorten the food supply chain by

bringing farmers close to urban buyers as well as international buyers. The shortening of the food supply chain through UPMs is an incentive for new rural-urban linkages and integrations (Douglass 1998; Partridge *et al.* 2007; Ibrahim and Geert 2007; Horlings and Marsden 2010; Berdegue *et al.* 2014; Forster and Escudero 2014), which engage farmers in cross-border trading (see Section 8.3). In this case, UPMs create stable connections between the rural and urban areas.

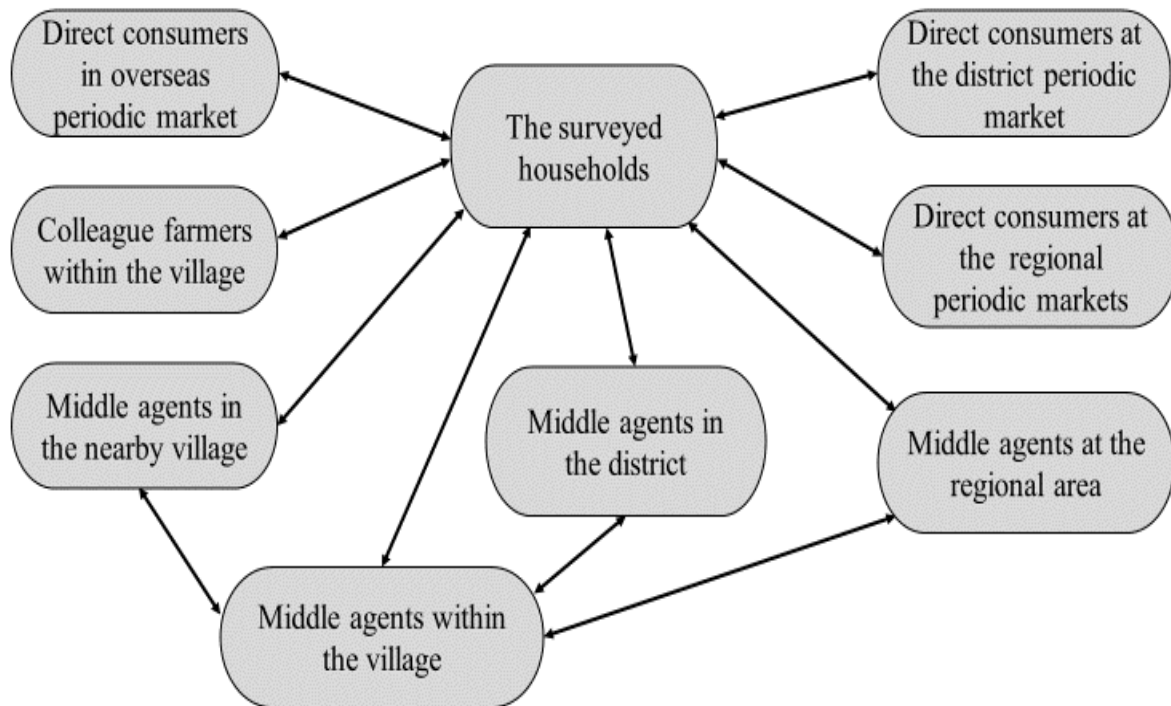


Figure 9.2 UPMs and rural-urban interactions

Source: Author's construct (2021).

The study findings above support the idea that there is an interdependency between rural areas and urban areas in the arena of rural development, especially regarding the short food supply chain associated with UPMs (Evans 1992; Weliwita and Okpala 2004). This is because the study found that the supply of agricultural products from villages to urban consumers through UPMs and the opportunity for rural farmers to purchase urban goods and services from these UPMs create interdependence that helps to reduce perennial food insecurity, which usually plague urban and peri-urban areas in developing countries. This rural-urban interdependence towards circumventing the food security conundrum through UPMs is revealed by other studies. For instance, Chagomoka *et al.* (2018) examined the food supply chain systems about household food and nutrition insecurity between rural, peri-urban, and urban areas in Northern

Ghana using the Household Food Insecurity Access Scale and the Women's Dietary Diversity Score. They found that households in urban areas in Ghana were more food insecure in terms of food production and consumption compared to those in peri-urban and rural areas. They stated that a large proportion of crops were supplied from rural areas to UPMs (see also Coates *et al.* 2007; Mvula and Chiweza 2013 for similar findings). The food insecurity in urban areas was caused by competing land uses for infrastructure development that limited agricultural activities and food production in urban areas. In addition to this, rapid population growth in urban areas in African countries including Ghana is likely to increase food consumption and with other factors such as land problems, urban dwellers usually face food insecurity than rural areas (Lee-Smith 2010). This situation encouraged urban dwellers to move to the nearby rural villages, such as Yobsheri-Kuraa in the Northern Region of Ghana to farm during the rainy season and sell their products to urban consumers through the UPMs at Tamale and Aboubu (Chagomoka *et al.* 2018). This phenomenon is not only peculiar to Ghana but also common in other West and Central African countries where urban dwellers farm in rural areas and supply farm products to the urban markets (Porter 2005; Kuuire *et al.* 2013). This rural-urban interdependence through UPMs, thus stresses the importance of rural-urban interactions as a mechanism in the food supply chain. UPMs strengthen the weak linkages between rural and urban areas and promotes rural development (Weliwita and Okpala 2004).

9.7 Urban Periodic Markets and Rural Non-Farm Employment

UPMs engaged households in several non-farm jobs. Apart from selling at UPMs, households worked as head porters, intermediaries between farmers and other middle agents, and used their assets such as tricycles and donkey-carts for renting on market days. These non-farm jobs provide additional income for rural households (Opare 2003; Owusu and Lund 2004; Agyei *et al.* 2016; Nyarko and Tahiru 2018). Income inequality is noted as a major problem in rural areas (IFAD 2003; Vaswani *et al.* 2005; Roser and Ortiz-Ospina 2013; Berdegue *et al.* 2014; GSS 2016). NGOs and the local councils have carried out several measures to help reduce poverty among rural farmers, but much remain undone. The study found that NGOs provided farm inputs to farmers to enable them to increase crop production as well as to produce some specific value-added products and the subsequent sale of these products at UPMs. In this sense, it can be said that UPMs have become a springboard for achieving donor objectives in the beneficiary areas.

The above findings on non-farm employment reflect those of Sit (1987) and Bromley (1998). According to Bromley (1998), UPMs in South American cities were the policy of the governments to engage rural farmers in livelihood activities and to create marketing opportunities in poorly served urban centres. Sit (1987) also found that urban fairs in China functioned as UPMs to reduce rural and urban unemployment in 1978 and these markets have since developed into sizeable retailing subsystems (Masaru and Natha 2013). Rural farmers' engagement in agricultural marketing outlets including, UPMs as non-farm workers in developing countries provides more than half of the proportion of income earned by farmers (Ellis and Biggs 2001; IFAD 2011). This proportion is projected to be 34% in Africa, 51% in Asia, 60% in South Asia, and 51% in Latin America (Reardon *et al.* 2007). There is thus a consensus in the literature that farmers' access to non-farm activities such as trading in UPMs is part of a survival strategy that can reduce seasonal unemployment and poverty among smallholder farmers (Haggblade *et al.* 2010). For this reason, Ellis and Freeman (2004) concluded that the livelihoods of smallholder farmers in sub-Saharan Africa rely on their direct access to UPMs. It can be said that in the absence of UPMs, smallholder farmers may face difficulties in selling some farm products, which may affect their livelihoods.

9.8 Urban Periodic Markets and Sustainable Development

The findings from this thesis have shown that UPMs are indeed, an institutional framework that contribute to sustainable development in rural areas. In terms of economic sustainability, it can be said that UPMs are a source of livelihood for a majority of rural dwellers. The UPMs are economic assets for poor farmers to realise the benefits from their farming activities through the production and sale of varieties of agricultural products in the urban markets. Certainly, UPMs provide the opportunity for poor farmers to convert their farm products into cash to enable them to purchase other products in those markets. The sale of value-added products for example, in UPMs enables smallholder farmers to obtain a large proportion of the value of agricultural products (Gyanendra *et al.* 2017). In addition to this, farmers are capable of engaging in other forms of economic activities during market days that provide them with substantial income. These economic potentials provided by UPMs to rural villages are able to support farmers to reduce economic hardships or financial stress. Farmers are also capable of improving their wellbeing through their financial ability to attain some necessities through UPMs (Wiskerke and Ploeg 2004; Groot *et al.* 2007; IFAD 2013; Gautam and Andersen 2016).

UPMs contribute to social sustainability in rural areas through the creation of a wide range of networks and collaboration. The type of cooperative activities and interactions that are generated during UPMs are overwhelming. Though rural areas are seen as isolated from urban areas in terms of their long distance to urban areas coupled with poor road infrastructure (Weliwita and Okpala 2014), the findings in this research have revealed that UPMs are capable of integrating isolated villages into the urban landscape because of the great benefits these urban markets offer to rural farmers. On the one hand, this integration involves the capacity of UPMs to engage the local councils in the provision of road infrastructure services to link villages to periodic markets in urban centres. It also includes the availability of several transport services in villages on market days. On the other hand, the integration involves the weekly commuting of large numbers of rural farmers and the transportation of rural products to urban areas through UPMs. These social benefits from UPMs offer a great opportunity for rural farmers to engage in multiple interactions at the local, regional, and international levels in the exchange of goods and services. Through these interactions, farmers can establish relationships with many people on market days, including the extended family, colleague farmers from the nearby villages as well as middle agents and the local councils. The engagement of rural farmers in these interactions on market days can help them to be part of the global trading activities through the exchange of goods and services with international or foreign buyers.

UPMs also contribute to environmental sustainability in rural areas through the creation of the platform for the marketing of natural and organic foods. The study revealed that UPMs provide the incentive for rural farmers to practice organic farming through the sale of organic foods such as millet and rice to urban buyers on market days. The incentive includes the demand for these organic foods during market days, the high premium attached to these foods, and the connections these urban markets create between organic farmers and new consumers including those from Burkina Faso. In addition, the UPMs serve as the place for the creation of environmental awareness through environmental education campaigns carried out by the local councils on market days. These study findings draw attention to the sale and consumption of organic foods through the short food supply chains such as the UPMs, which is considered as a mechanism for improving farmers' income and the sustainability of food systems in rural areas (Lobley *et al.* 2009; Park 2009; Forssell and Lankoski 2014; Kini *et al.* 2020).

9.9 Summary

This chapter has discussed the contribution of UPMs to rural development in Ghana. UPMs motivate farmers to increase their participation in urban markets. The availability of transport services during market days and the possibility of earning a higher income in these markets encourage the majority of farmers to visit those markets. UPMs serve as a channel for provision of road infrastructure in villages. They engage farmers to form cooperative groups to enable them to overcome transport problems for participating in urban markets. Further, UPMs are incentives for the sale of large proportions of agricultural products in these urban markets. The intervals between UPMs, their location in urban areas, the larger pool of buyers on market days, as well as the large demand for products in these urban markets motivate farmers to produce and sell at these markets. In addition, UPMs create interactions between villages and urban centres by shortening the food supply chain associated with these markets. Farmers are engaged in several non-farm jobs on market days, which is capable of increasing their income and improve their living conditions. UPMs, therefore, have the capacity to promote sustainable development in rural areas.

Chapter 10. Conclusion

The main research question driving this thesis was “to what extent do UPMs affect the rural economy of Ghana in areas such as production, distribution, interactions, and exchange of goods and services?” The two main research objectives were to examine the socioeconomic structures of rural villages in the south and north of Ghana, and the effects of UPMs on rural villages. This chapter, therefore, concludes this research by firstly summarising the major findings of the study concerning the socioeconomic characteristics of the surveyed sites and the effects of UPMs on villages and household outcomes. Secondly, the contribution of this study to the literature will be reviewed, and the implications of the findings will be discussed. The limitations of the study as well as some suggestions for further research are presented. The thesis will conclude with some final remarks.

10.1 Summary

Chapter 6 found that the socioeconomic characteristics of the study sites involve agricultural activities, including production, consumption, and distribution. Social relations and cooperative activities contribute to these activities. The study found that farming is the main activity among households in the surveyed villages. This entails the production of food crops, livestock, and poultry. The major crops produced in villages in the South are roots and tubers as well as fruits and vegetables. Plantain and cassava are the main staple foods for households in the South. Households in the North largely produce cereals and legumes, and maize constitutes the staple food. Households are specialised in the production of large quantities of specific food crops. The type of soil differs between villages in the South and North, which has accounted for the specialisation or differences in food production between the two regions.

Some food crops are processed into finished goods. These include the processing of cassava into flour, plantain into baked chips, peanut into peanut paste, and palm nut fruits into palm oil. Some households engage in cassava and palm oil processing and operate them as small-scale businesses. Households also practice sustainable farming. They produce organic millet and rice. Households practice organic farming because according to them, it helps to retain the nutrients in the soil and that the economic value of organic foods is higher than inorganic foods. These practices suggest that households have the traditional knowledge in adding value to their local products.

Several factors contribute to agricultural production in the villages. Relations and norms within the family are strong contributing factors that encourage the cultivation of land. The majority of households obtain land through inheritance. The average landholding per household was considered large, which signifies large producing farm households. Access to land through inheritance coupled with relations within the family increase household access to land thereby enabling them to increase crop production.

Households also inherited some businesses from their predecessors, which encourages the production of value-added foods. The relation or bond within the family provides the opportunity for households to inherit these businesses. Because they are family-owned businesses, heads of the family cooperate with their members to operate these businesses. The running of these businesses brought family members together thereby strengthening their relations. The cooperation and relations within the family are the motivation for households to increase the production of value-added products.

The diverse ethnic groups in the study sites encourage the production of certain types of food crops. The study found that relations and norms among ethnic groups motivate relatives to migrate from the northern part of Ghana to settle in villages in the South (Timeabu and Korase). Migrant households, therefore, constitute the majority in the South. The migrants introduced the growing of some crops in the South. This enables farmers in the South to learn new knowledge in farming thereby adopting the planting of new varieties of crops.

Chapter 6 found that strong family relations motivate households to cooperate in cultivating large acres of land. Members of the family support one another during the planting and harvesting seasons. Households with large members receive greater support, which encourages them to increase the cultivation of farmland. Additionally, household access to agricultural inputs and machinery enables them to increase the cultivation of land. The study revealed that contract farming arrangements between households and NGOs increase farmers' access to tractors, which enables them to plough larger farms. Fertilizer distribution projects such as the PfJ program increase farmers' access to fertilizer. Their access to these services or items assists them to increase food production.

Activities by village associations and the District Assemblies led to the implementation of communal farms. It was found that village associations initiated an organic farm for millet. This farm is used as a demonstration project to increase awareness of the importance of practicing

organic farming. The association organise forums from time to time to educate and encourage farmers to practice organic farming and increase organic food production.

Moreover, households used several marketing outlets which encourage the sale of agricultural products. These include selling through middle agents, to schools, restaurants, small companies, and urban markets. The majority of households adopted direct selling as the main outlet because they get to know different prices of commodities when they visit the markets themselves. Some used middle agents so that they can reduce transport costs for participating directly in the markets. Others chose to sell their products to schools or restaurants to enjoy better prices.

Additionally, Chapter 7 and 8 revealed that UPMs contribute to rural villages in many ways. These include their effects on cooperative activities, participation, production, and distribution, as well as rural-urban interactions, non-farm employment, and sustainable development. UPMs engage rural households in cooperative activities, collaboration, and interactions through the formation of new producer-marketing groups on market days. These groups involve different households who live in the villages and those from nearby villages. The groups carry out major activities such as organising transport services for farmers during market days. Members of the groups mutually negotiate transport prices with drivers. Farmers had a good deal with drivers, and they are able to cut down the transport costs by collectively sharing the costs. This type of arrangement during market days enables farmers to visit UPMs on time and return to their villages to carry out other activities. It is also a source of security for farmers because the driver takes them back to the village and as such, the challenge of a farmer finding it difficult to get a vehicle is curtailed. In addition, members of the family cooperate in transporting farm products to UPMs. This involves loading and unloading farm products on a bus. This cooperation during market days enables farmers to reduce the cost of loading and unloading.

On one hand, the formation of new groups during market days portrays a social relation that supports cooperation in the sale of agricultural products. Family cooperation on market days indicates that there is a good relation within the family that encourages them to cooperate. On the other hand, the groups enable households to meet and communicate thereby creating interactions and friendships among them. Therefore, on market days, it is possible to see many farmers who socialise and support one another in carrying out some trading activities.

The majority of households were able to participate directly in UPMs. The frequent movement of vehicles to the villages on market days as well as the formation of groups encourage farmers' direct participation in UPMs. Through the producer-marketing groups, farmers can overcome the difficulty of transporting agricultural products to UPMs. The study revealed that a significant proportion of household production was sold at UPMs. These products include food crops, livestock, poultry, value-added and organic foods. The sale of value-added and organic foods for example in UPMs, increases the possibility of farmers increasing the value of their products. The sale of these products at UPMs connects farmers to international buyers and enhances the relationship between farmers and buyers. The location of periodic markets in urban areas, the attendance of a large pool of buyers in these markets, intervals between the markets, and their proximity to the villages are strong motivations for households to increase their participation and sale of agricultural products in these markets.

Through UPMs, farmers avoid selling to only middle agents since they (middle agents) generally offer lower prices for products. Farmers' direct participation in UPMs increases their access to information about the prices of commodities through their colleagues in UPMs, traders' groups, and the local council workers. Farmers are informed about variations in prices and the demand for commodities during the mornings, afternoons, and evenings at UPMs. This enables them to negotiate good prices with buyers based on their knowledge of different prices. Their access to this information also enables them to determine the appropriate time to visit UPMs to increase the sale of farm products and profit.

Farmers are informed about transport costs to the various UPMs in the district and the source and destination of farm products traded in these markets. This helps them to know the types of agricultural products (e.g., maize, plantain, rice) that are distributed from UPMs to the other marketplaces including those exported outside Ghana. They are encouraged to produce those products to get large demand at UPMs. They are also aware of transport costs for attending different UPMs within and outside the districts. Farmers can therefore plan their production and returns for accessing this information at UPMs.

Farmers' direct participation in UPMs, their dealings with direct consumers and the sale of agricultural products in these markets create interactions between them and urban buyers. This enables farmers to engage in multiple interactions outside their villages on market days. Rural farmers have access to farm products at UPMs, which are not locally produced. The exchange

of goods and services between the villages and urban areas through UPMs closes the rural and urban gaps.

These connections between the villages and the urban centres through UPMs offered several non-farm employments to farmers. Most farmers are part-time sellers in UPMs. Some households work as agents between their colleague farmers and intermediaries from the district and regional periodic markets. Further, household members work as head porters on market days. Village shopkeepers rely on UPMs to stockpile their shops with different types of goods. Households use their assets such as tricycles and donkey carts for renting on market days. These findings indicate that UPMs engage rural farmers in both farm and nonfarm activities, thereby improving the livelihoods of farmers.

10.2 Contribution of the Study to the Literature

The study contributes to the application of the Rural Web analysis in many ways. This study is the first academic attempt to apply the methodology of the Rural Web analysis in sub-Saharan Africa, precisely Ghana. Its adoption in this study has provided adequate empirical data that describes the socioeconomic characteristics of rural areas as agricultural production, consumption, and distribution or exchange, which are reinforced by social relations, cooperative arrangements, and actors involved in the marketing of goods and services. Using the Rural Web analysis, the research findings attest to the fact that rural areas are both the production and distribution economy that involve an array of interrelations thereby depicting the characteristics of multi-functionality in agriculture. These characteristics do not differ much between less and more developed rural regions. The data from this study provide more insight into the multiple activities within rural areas and their benefits for comprehending the potentials and challenges in the areas. This type of data and analysis is not sufficiently documented in the literature. Yet, they are relevant for DAs, NGOs, and Community-Based Organisations to plan their activities towards improving the livelihoods of the rural population. The potential of social relations in supporting farmers' access to land and the problem women face in accessing land because of traditions are examples for these institutions to inform their programs and policies on rural development.

The previous studies that applied the Rural Web analysis largely focused on qualitative data collection and analysis involving a few participants, especially experts. This current research contributes to the methodology of the Rural Web analysis by using a questionnaire survey to

collect and analyse quantitative data. This method of data collection is useful considering the circumstances surrounding villages in Ghana concerning the participation of villagers in research and development projects. There is a long history of poor involvement of villagers in projects that concern them (Ministry of Local Government and Rural Development, 2010; Ahwoi 2010; Dinko 2017). The study sought to investigate the effects of UPMs on rural development. This necessitated the involvement of a wide range of actors because a large number of villagers participate in UPMs. Only focusing on a few individuals would have excluded potential respondents for this research project and limited the scope of the effects of UPMs. The study complements the qualitative data with data from a representative random sample of villagers to involve large numbers of households in this research project. By doing so, it draws attention to the importance of quantitative methods for examining the effects of initiatives on rural areas.

This research contributes to the Rural Web analysis by the integration of external initiatives such as UPMs. The previous studies applied the Rural Web analysis by focusing mainly on the impact of internal projects on rural areas. Overly focusing on internal projects may exclude external opportunities that can contribute to rural development thereby limiting the ability to identify new networks or hidden resources in rural areas (Munchhausen and Knickel 2010). The findings in this study highlight, that external initiatives such as UPMs enhance rural products through the creation of connections between villages and urban centres. By introducing UPMs in the application of the Rural Web analysis, the study identifies new networks and cooperation between farmers and international buyers. The study also finds that UPMs introduce new ideas and knowledge that are relevant for farmers to adopt in farming.

In addition, the study contributes to the literature on UPMs and rural development. The literature on UPMs is still in its embryonic stage and their significance remains unexplored. No study has investigated the effects of UPMs on rural development in Ghana. This present study makes a novel contribution to the literature by examining the effects of UPMs on rural development. By employing the Rural Web analysis, the study has demonstrated that UPMs affect rural development by the integration of important elements of rural villages into sets of interactions or networks. This type of analysis is lacking in the literature.

There has been increasing debate on addressing the rural and urban divide in the developing world as a mechanism for achieving rural development (Vaswani *et al.* 2005; Scott and Murray 2009; Sabet and Azharianfar 2017). The consensus is that the linkages between rural and urban

areas are weak and rural areas face the major consequences (Weliwita and Okpala 2004; Tacoli 2016; Tacoli and Agergaard 2017). Several suggestions have been made to address the rural and urban divide but there is less attention to UPMs. This current study contributes to the literature by drawing attention to the role UPMs play in stimulating rural development through the creation of intra-rural and rural-urban interactions. This is premised on the study findings that UPMs shorten the food supply chain whereby rural farmers are connected to urban markets and offer them the opportunity to trade directly with urban and international buyers. Although the previous studies explained these international interactions through UPMs (see for example, Karg *et al.* 2019), they have not pointed out whether rural farmers transact directly with international buyers. UPMs, thus, can integrate isolated villages into the urban landscape through the linkages the markets create between villages and urban areas, thereby contributing to sustainable rural development.

There is a growing concern in the literature on the need to address the limited opportunity for farmers to gain access to and participate in urban markets. The literature mentions that rural villages in developing countries lack access to markets. The lack of transportation services and strict restrictions of entry into urban markets have been cited as major contributing factors in sub-Saharan Africa including Ghana (Angmor 2012; Badu *et al.* 2013; Yankson *et al.* 2016; Houssou *et al.* 2018; Afukaar *et al.* 2019). These assertions have been demonstrated in this current study to be true. Yet, this study contributes to the literature by arguing that UPMs, increase farmers' direct participation in urban markets. UPMs provide several transport services to farmers. Their flexibility also provides less restriction for farmers to enter the urban markets. These positive outcomes from UPMs, address the limited market participation among smallholder farmers but this evidence is less documented in the literature.

Several factors are noted in the literature as incentives to agricultural production and distribution among smallholder farmers in developing countries. Among these, farmers' access to markets, land, and agricultural inputs are the major factors in Ghana (Aryeetey and Nyanteng 2006; Yankson *et al.* 2016; Acheampong *et al.* 2018; Tanko *et al.* 2019). This study has provided empirical evidence to show the authenticity of these findings. In addition, the study contributes to the literature by revealing important motivating factors that can increase the commercialisation of agricultural products in rural areas. These include the exportation of agricultural products in UPMs, intervals between UPMs, the proximity of UPMs to villages,

their location, and the large pool of buyers in these markets. These contributions of UPMs to agricultural production are not adequately documented in the literature.

Moreover, there is the general agreement in the literature that rural areas in developing countries face increasing income poverty and especially, within villages in Ghana (GSS 2014; GSS 2016). Studies (e.g Owusu and Lund 2004; Sabet and Azharianfar 2017; Karg *et al.* 2019) argued that UPMs engage farmers as part-time sellers and therefore the markets contribute to income poverty reduction through their earnings in these markets. However, these studies have not mentioned other economic benefits provided by UPMs. This current research contributes to the literature by providing adequate data to show that UPMs can address income poverty reduction in many ways. First, UPMs provide the opportunity for smallholder farmers to trade in foreign currency. Second, they provide non-farm employment to farmers other than selling. Third, they engage farmers in agricultural diversification activities such as the sale of livestock and poultry as well as value-added and organic foods. Fourth, farmers have access to financial support from middle agents through UPMs. Certainly, UPMs are livelihood strategies that can help rural farmers to lift themselves out of poverty by earning a substantial amount in these markets. The additional income UPMs provide for farmers can compensate for the decreasing remittances to rural areas. The engagement of farmers in several non-farm activities on market days provides incentives for them to remain in their villages, which can then reduce out-migration. Because access to financial services is limited in rural areas, the quick rate of income from UPMs compared to farming can reduce income poverty (Perry 2000).

10.3 Implications

Chapter 7 revealed that agricultural products supply from villages to UPMs are mostly food crops. Food crops constitute a larger proportion of all products at UPMs, and rural areas have a major share of the proportion (Owusu and Lund 2005; Ofori 2012a, 2012b; Angmor 2012; Ofori and Aseidu 2013; Karg *et al.* 2019). Agricultural activities in rural areas support the operations of periodic markets through the distribution of food crops from villages to these markets while the location of these markets in urban centres is attractive to rural farmers. Whereas rural farmers participate in UPMs to sell products to urban buyers, these markets also provide urban goods and services to farmers. This generates interactions and exchanges between rural farmers and urban consumers through the food supply chains associated with UPMs. These interactions support the social interdependency theory, which provides an important framework to understand the mutual benefits that emerge from the relation or

cooperation between two areas to inform practical policy decisions (Pevehouse 2004). The interdependency between rural areas and urban centres through the activities of UPMs draws attention to the integration of development plans of both the rural and urban areas in Ghana. This could be manifested through a balance allocation of infrastructural services such as the construction of village roads to connect villages with UPMs as well as the maintenance of urban markets to accommodate rural farmers.

By responding to the above recommendations, the local councils have a major role to play. The *Local Government Act, 1993* (Act 462) mandates the local councils to ensure development at the local level through the implementation of projects or programs. The proximity of UPMs to villages calls for urgent actions to fix the deplorable conditions of the village roads. The local councils need to ensure that the village roads are sealed. They should collaborate with the Departments of Feeder Roads and Urban Roads to carry out this task because these departments are legally responsible for improving the conditions of roads in the districts. By improving the conditions of roads, farmers will get reliable and continuous transport services to commute to UPMs. This can increase farmers' participation in several UPMs and facilitate their interactions with urban and international buyers. Access to good roads indeed increases market integration by enabling smallholder farmers to transport a greater proportion of their farm products to urban markets (Acheampong *et al.* 2018), the income from which it can be used to intensify agricultural activities. Improved roads also contribute to the effective operations of UPMs to serve both the urban and rural populations (Sabet and Azharianfar 2017). By doing so, the connections between rural and urban areas through UPMs will be strengthened, thereby providing sustainable development in rural areas.

UPMs have inadequate facilities such as market booths (Chapter 7). This situation needs urgent attention. The local councils should collaborate with the market managers and the leaders of market groups or associations to provide temporal booths for farmers during market days. Because UPMs are overpopulated than NPMs, the study also suggests that the local councils should consider the provision of an additional place for trading activities on market days to reduce the number of traders in just one marketplace. The local councils should provide adequate facilities at the new market centre to avoid selling in the sun. However, the proposed marketplace should not be far from the previous market so that farmers would be encouraged to participate in the new marketplace. This practical suggestion has been implemented in Latin American cities, including Brazil and Mexico (Bromley 1998) with successful outcomes. The

local councils in Brazil and Mexico created new marketplaces to accommodate the activities of UPMs. This initiative attracted many traders to the new marketplace, increased employment, and reduced problems farmers faced in the markets.

In addition to the limited facilities in UPMs, farmers faced challenges in selling organic foods in the markets (Chapter 7 and 8). The local councils can address this problem by assisting organic farmers to obtain a certificate. This could be done through their collaboration with the leaders of village associations to organise training sessions for farmers and provide them with certificates afterwards. The certificate will identify farmers as organic food producers. This can clear doubt buyers have about organic foods sold at UPMs. The issuance of the certificates is also a motivation for farmers to practice organic farming.

These suggestions given above require the local councils to access sufficient funds to implement them. According to the *Local Government Act, 1993* (Act 462), the central government disburses funds to DAs to implement development projects. The DAs also have the constitutional right to raise funds both internally and externally (Ahwoi 2010). As revealed in this study, DAs collect tax from traders during UPMs. UPMs provide a substantial source of market revenue to DAs (Owusu and Lund 2004). The DAs can utilise a proportion of the funds to support the provision of road infrastructure in villages as well as to improve facilities in UPMs.

To ensure the sustainable implementation of the above recommendations, DAs must consider incorporating projects that support activities of UPMs in their Medium-Term Development Plans, Annual Action Plans, and the Composite Budget Plans. The addition of UPMs Project in these development plans is necessary because DAs receive funds from the central government and the other local and international donors based on projects or activities stated in these plans. As a reference to this, the government of Zimbabwe established a network of periodic markets in the Makoni District in the Manikaland Province to facilitate the provision of services to rural areas and reduce rural-urban disparity. These Periodic Markets projects achieved great success through their integration into the Zimbabwe Government's Transitional National Plan. The integration of Periodic Markets projects into Zimbabwe Government's Transitional National Plan ensured effective implementation of the project through support from several stakeholders and investors that helped to improve living conditions in rural areas (Rambanapasi 1997). Zimbabwe's approach to implementing Periodic Markets projects is a good example for Ghana to follow.

Additionally, the collection of market data during UPMs by the local councils is useful to attract the attention of agribusiness companies that aim at investing in agriculture as well as large marketing groups or poultry farmers' associations. The market data report should be available to these agencies through its publication in the Ghana Business Financial online or the district websites. The publication of the data will help the agencies to know the farm gate, wholesale, and retail prices of major agricultural products traded at UPMs, the source of these products, and their destinations through the markets. This can encourage the agencies to support farmers to produce certain crops and facilitate the marketing of the crops at the local and regional periodic markets.

Another issue that needs attention is the degree of dependency of farmers on UPMs for the sale of a greater proportion of some agricultural products. In a situation of a pandemic where social distancing must be observed and a ban is put on social gatherings, farmers may not meet buyers face-to-face at UPMs to sell their produce. This problem may be aggravated for farmers in the South because the study found that marketing arrangements such as contract farming for food crops were non-existing. As part of the government's PfJ program, the study suggests that the central government through the DAs should encourage the supply of crops from villages to support the School Feeding Programs implemented in the respective districts. The DAs should encourage the production of cocoa in the South and cattle in the North because farmers sold these products through different outlets. New marketing platforms through social media should also be provided for farmers to connect them with regional and international buyers. This will create a long-lasting relationship between farmers and these buyers. Farmers would be able to advertise and sell their products to these buyers through the platform during UPMs. These buyers may then visit farmers in their villages to purchase products on market days. The DAs should collaborate with leaders of village associations and market associations to support farmers to supply farm products through these associations to middle agents at the district and regional periodic markets. The implementation of these suggestions can make the UPMs more responsive and resilience to shocks. This can create new marketing outlets for farmers in addition to their direct participation in UPMs. This is also likely to create new forms of socioeconomic interactions and cooperation between villages.

10.4 Limitations of the Study

The study examined the effects of UPMs by only focusing on four villages. This is because of the limited period for data collection, which necessitated the selection of a few villages.

However, the integration of many villages would have helped to cover a wide range of villagers and issues, and this could provide a detailed picture of the effects of UPMs. Yet, though the study relied on only four villages, it sampled 400 households, which represented close to half of the total household population in the villages. This suggests that the research covered many villagers from the sample frame and the data is representative of the household population of the study sites. Additionally, a comparison of the effects of UPMs between villages in two different sites (South and North) provided sufficiently detailed data to understand the effects of these markets. It is therefore believed that the number of villages notwithstanding, the study has provided sufficient empirical data to comprehend the effects of UPMs on rural development.

The bad roads leading to the study sites made the research time-consuming and expensive to undertake. Although the researcher was able to reach all the villages considered in this research, it was difficult to board a bus to the villages. The researcher had access to buses on market days. In most cases, the researcher must wait on market days to get a bus to the villages. Even with this, most farmers were not available in the villages on market days to answer the survey questions. The researcher had to hire a taxi from the city to the villages during non-market days, which was expensive. This challenge notwithstanding, the researcher met many farmers on time, administered all the 400 questionnaires, and conducted all interviews.

10.5 Further Research

This study used self-reported data to analyse production and distribution of agricultural products from villages to UPMs within one year (2018). This analysis revealed the forward and backward effects of UPMs on agricultural production. Further research could attempt to collect data for more than a year to allow for the comparison of the trends of production and distribution in villages. For more complex quantitative analysis, future research can adopt other techniques such as the social accounting matrix to measure the flow of resources that take place within villages. This analysis was not possible under the current study because of limited time and resources.

The principal aim of this current research was to investigate the effects of UPMs on the rural economy of Ghana using the Rural Web analysis. However, it should be noted that other factors could contribute to the development of rural areas. This may include government policies and projects such as the recent PfJ program and the School Feeding Program. These areas can be

explored to understand their effects on rural areas using the methodology of the Rural Web analysis.

The thesis revealed that women involvement in the transportation of goods to periodic markets play essential role in rural development. However, much needs to be known on the health implications of this task carried out by women. It is suggested that further studies should employ the Rural Web analytical approach to examine the health and cost implications of women and children involvement in the marketing of farm produce in villages in Ghana.

10.6 Concluding Remarks

This thesis has made a significant contribution to the current literature by analysing the effects of UPMs on rural development. Activities of the UPMs have proven to stimulate rural development by bridging the rural and urban divide, increasing farmers' access to and participation in urban markets as well as employment opportunities, and encouraging participation and collaboration. UPMs generate local, regional, and international interactions between farmers and buyers. Farmers have access to services, information, and goods that travel from far places into UPMs. This draws attention to the importance of UPMs in this era of localisation and globalisation because goods traded in these markets meet the needs of not only people within the market districts but those from the other regions and the neighbouring country, Burkina Faso. In this sense, it can be said that through activities of UPMs, smallholder farmers are not left out of the activities and benefits of the globalisation of trade. The benefits from UPMs are similar in villages in the south and north of Ghana. This signifies those UPMs are able of supporting rural villages in more developed and less developed regions. Indeed, UPMs contribute to poverty reduction and the quality of life of the rural population through the connections the markets create between villages and urban centres and the engagement of rural farmers in numerous non-farm jobs. It is therefore important to consider UPMs as a strategy for achieving rural development objectives.

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Appendices

Appendix 1a: Ethics Approval Letter



RESEARCH SERVICES
OFFICE OF RESEARCH ETHICS, COMPLIANCE
AND INTEGRITY
THE UNIVERSITY OF ADELAIDE
LEVEL 4, RUNDLE MALL PLAZA
50 RUNDLE MALL
ADELAIDE SA 5000 AUSTRALIA
TELEPHONE +61 8 8313 5137
FACSIMILE +61 8 8313 3700
EMAIL hrec@adelaide.edu.au
CRICOS Provider Number 00123M

Our reference 33342

03 December 2018

Dr Jungho Suh
School of Social Sciences

Dear Dr Suh

ETHICS APPROVAL No: H-2018-264
PROJECT TITLE: Sustainable Rural Economic Development and Periodic Markets in Ghana: A Rural Web Analysis.

The ethics application for the above project has been reviewed by the Low Risk Human Research Ethics Review Group (Faculty of Arts and Faculty of the Professions) and is deemed to meet the requirements of the *National Statement on Ethical Conduct in Human Research (2007)* involving no more than low risk for research participants.

You are authorised to commence your research on: 03/12/2018
The ethics expiry date for this project is: 31/12/2021

NAMED INVESTIGATORS:

Chief Investigator:	Dr Jungho Suh
Student - Postgraduate	Mr Godfred Addai
Doctorate by Research (PhD):	
Associate Investigator:	Dr Douglas Bardsley

CONDITIONS OF APPROVAL: Thank you for your emails and responses to the matters raised. The revised application provided on 03/12/18 has been approved.

Ethics approval is granted for three years and is subject to satisfactory annual reporting. The form titled Annual Report on Project Status is to be used when reporting annual progress and project completion and can be downloaded at <http://www.adelaide.edu.au/research-services/oreci/human/reporting/>. Prior to expiry, ethics approval may be extended for a further period.

Participants in the study are to be given a copy of the information sheet and the signed consent form to retain. It is also a condition of approval that you immediately report anything which might warrant review of ethical approval including:

- serious or unexpected adverse effects on participants,
- previously unforeseen events which might affect continued ethical acceptability of the project,
- proposed changes to the protocol or project investigators; and
- the project is discontinued before the expected date of completion.

Yours sincerely,

Dr Anna Olijnyk
Convenor

The University of Adelaide

Appendix 1b: Consent Form

Human Research Ethics Committee (HREC)

CONSENT FORM FOR THE RESPONDENTS

I have read the attached Information Sheet and agree to take part in the following research project:

Title:	Effects of Urban Periodic Markets on Rural Development in Ghana: A Rural Web Analysis
Ethics Approval Number:	H-2018-264

1. I have had the project, so far as it affects me, and the potential risks and burdens fully explained to my satisfaction by the research worker. I have had the opportunity to ask any questions I may have about the project and my participation. My consent is given freely.
2. I have been given the opportunity to have a member of my family or a friend present while the project was explained to me.
3. Although I understand the purpose of the research project, it has also been explained that my involvement may not be of any benefit to me.
4. I agree to participate in the activities outlined in the participant information sheet.
☐ Household Survey
☐ Interview
5. I agree to be:
☐ Audio recorded
6. I understand that as my participation is anonymous, I can withdraw any time up until submission of the survey/completion of the interview.
7. I have been informed that the information gained in the project may be published in a PhD thesis, book chapter, journal article and conference papers.
8. I have been informed that in the published materials I will not be identified and my personal results will not be divulged.
9. I agree to my information to be shared on an online digital repository.
Yes ☐ No ☐
10. My information will only be used for the purpose of this research project, and it will only be disclosed according to the consent provided, except where disclosure is required by law.
11. I am aware that I should keep a copy of this Consent Form, when completed, and the attached Information Sheet.

Participant to complete:

Name: _____ Signature: _____ Date: _____

Researcher/Witness to complete:

I have described the nature of the research to

(print name of participant)

and in my opinion she/he understood the explanation.

Signature: _____ Position: _____ Date: _____

Appendix 1c: Participant Information Sheet



PARTICIPANT INFORMATION SHEET FOR HOUSEHOLD SURVEY

PROJECT TITLE: Effects of Urban Periodic Markets on Rural Development in Ghana: A rural web analysis

HUMAN RESEARCH ETHICS COMMITTEE APPROVAL NUMBER: H-2018-***

PRINCIPAL INVESTIGATOR: Dr Jungho Suh

STUDENT RESEARCHER: Godfred Addai

STUDENT'S DEGREE: Doctor of Philosophy (PhD)

Dear Participant,

You are invited to participate in the research project described below.

What is the project about?

The research investigates the effects of urban periodic markets on the rural economy of Ghana by applying the rural web analysis technique.

Who is undertaking the project?

This project is being conducted by Godfred Addai. This research will form the basis for the degree of Doctor of Philosophy (PhD) at the University of Adelaide under the supervision of Dr Jungho Suh and Dr Douglas Bardsley.

Why am I being invited to participate?

The participants for this research are all household heads residing in this village. You are being invited to participate in this research because you reside in this village and your details are found in the village register.

What am I being invited to do?

You are being invited in this study to answer some questions pertaining to your economic activities and the effects of the urban periodic markets on activities and interactions in this village. You will be free to express yourself and ask questions you find to be confusing or do not understand.

How much time will my involvement in the project take?

The face-to-face survey is expected to take between 30 and 35 minutes. The interview is expected to take between 15 and 30 minutes.

Are there any risks associated with participating in this project?

We do not anticipate any risk to you for participating in this research. However, you may consider some questions as sensitive or private. You are free to discuss with the researcher if you are not comfortable about a question.

What are the potential benefits of the research project?

This research involves participants and village leaders. It also involves officials from the municipal assembly and non-governmental organisations (NGOs). The response from you together with response from other officials may help to incorporate your needs into the medium-term development plans prepared by the assembly.

Can I withdraw from the project?

Participation in this project is completely voluntary. If you agree to participate, you can withdraw from the study at any time. There will be no side effects of you withdrawing from this project. If you decide to withdraw from the project, your response will not be included in the research.

What will happen to my information?

The information you will provide will be non-identifiable and aggregated with that of other participants for analyses. The information will be stored on a computer with a password and locked cabinet at the University of Adelaide for five years. The researchers of this project will have access to the information. After five years, the information will be deleted from the computer. The research findings will be published as journal articles and conference papers. A

Version #####

Date updated: #####

1

summary report of the research findings will be given to the district assembly for interest participants. Your information will only be used as described in this participant information sheet and it will only be disclosed according to the consent provided, except as required by law.

Who do I contact if I have questions about the project?

Please, if you have any questions or comments about this research project, feel free to contact Dr Jungho Suh, Room G20, Napier Building, School of Social Sciences, the University of Adelaide, SA 5005, by phone on +61 88313 3014 or by email at Jungho.suh@adelaide.edu.au. You can also contact

Dr Douglas Bardsley, Room G27, Napier Building, School of Social Sciences, the University of Adelaide, SA 5005, by phone on +61 883134490 or by email at douglas.bardsley@adelaide.edu.au and

Godfred Addai, Room G38, Napier Building, School of Social Sciences, the University of Adelaide, SA 5005, by email at Godfred.addai@adelaide.edu.au.

What if I have a complaint or any concerns?

The study has been approved by the Human Research Ethics Committee at the University of Adelaide (approval number H-2018-xxx). This research project will be conducted according to the NHMRC National Statement on Ethical Conduct in Human Research (2007). If you have questions or problems associated with the practical aspects of your participation in the project, or wish to raise a concern or complaint about the project, then you should consult the Principal Investigator. If you wish to speak with an independent person regarding concerns or a complaint, the University's policy on research involving human participants, or your rights as a participant, please contact the Human Research Ethics Committee's Secretariat on:

Phone: +61 8 8313 6028

Email: hrec@adelaide.edu.au

Post: Level 4, Rundle Mall Plaza, 50 Rundle Mall, ADELAIDE SA 5000

Ghana Contact: Godfred Addai

PhD student, Department of Geography, Environment and Population

The University of Adelaide

Email: Godfred.addai@adelaide.edu.au

Mobile: .Any complaint or concern will be treated in confidence and fully investigated. You will be informed of the outcome.

If I want to participate, what do I do?

You will need to sign a consent form to agree to participate in the research. Afterwards, we will ask of your availability to start the survey and interview. When a convenient day is scheduled, we will go through the questions and interview and conduct the face-to-face survey. You will be asked questions and you will give answers orally to the questions.

Yours sincerely,

Dr Jungho Suh: Principal Supervisor and Investigator

Dr Douglas Bardsley: Co-Supervisor

Godfred Addai: PhD Candidate

Appendix 2: Research Permit from the Ghana Statistical Service

Fax: 03220-34304

Cables: GHANASTATS

Tel: Kumasi 03220-24746

*In case of reply the number
and date of this letter
should be quoted*

Our Ref. No: GSS/ASH/DAT/139

Your Ref. No.....



1 February 2021

REPUBLIC OF GHANA

**STATISTICAL SERVICE
P.O. BOX 1854
ASHANTI**

The Secretary,
Human Research Ethics Committee
Office of Research Ethics, Compliance, and Integrity
Research Branch
Level 7, 115 Grenfell Street
The University of Adelaide, Adelaide, SA 5005
South Australia

Dear Sir/Madam,

LETTER OF APPROVAL AND SUPPORT FOR GODFRED ADDAI RESEARCH PROJECT

This is to inform your outfit of our willingness to act as a contact institution, and to support and facilitate the access to relevant data and participants during the period of fieldwork for Godfred Addai in Ghana. The Ghana Statistical Service (GSS) is a Government Institution responsible for the efficient production and management of quality official statistics based on international standards using competent staff for evidence-based decision-making in support of national development.

We are therefore glad to assist Godfred Addai with the necessary information, provide guidelines and advice to make his fieldwork a success. Godfred has worked with us as on many occasions as a researcher. He is one of the writers of the 2010 Population and Housing Census Analytical Report for the Ejisu-Juaben Municipal Assembly. We have no doubt about his capacity and knowledge of sustainable development in rural and urban areas in Ghana.

Please do not hesitate to contact me if you have any queries or you need further clarifications regarding this letter.

Yours faithfully,

Kobina Abaka Ansah, Regional Statistician, Ashanti Region

Appendix 3: A Village Household Survey Questionnaire



A Village Household Survey Questionnaire (VHSQ)

Effects of Urban Periodic Market on Rural Development in Ghana: A Rural Web Analysis

Godfred Addai

Department of Geography, Environment and Population

The University of Adelaide

Name of Village.....
District.....
Region.....
Date of interview.....
Start time.....
End time.....
Code.....

1. Which of the following is your occupation? (Select as many as applicable)
 - ☐ Farmer
 - ☐ Agricultural labourer
 - ☐ Government worker (e.g teacher, nurse, government representative etc.)
 - ☐ Working in a private company (e.g hospital, factory, bank etc)
 - ☐ Seller in the periodic markets
 - ☐ Seller in non-periodic markets
 - ☐ Unemployed
 - ☐ Others (specify).....
 - ☐ I don't want to answer
2. Do your household receive money (e.g. remittances) from elsewhere?
 - ☐ Yes ☐ No ☐ I don't want to answer
 - If yes, where does the money come from?
 - ☐ Relatives within this village
 - ☐ Relatives outside this village
 - ☐ Relatives both within and outside this village
 - ☐ Government/non-governmental organisations in the form of grant
 - ☐ Other non-relatives
 - ☐ Others
3. Do you or any of your household members have a farmland?
 - ☐ Yes ☐ No ☐ I don't want to answer
 - If yes, what is the total size of farmland?.....(in acres). (Four plots of land are equivalent to 1 acre of land)
4. How did your household obtain the farmland? (Select as many as possible).
 - ☐ Through inheritance
 - ☐ Given as gift
 - ☐ Purchase
 - ☐ Rent
 - ☐ I don't want to answer
5. Did your household receive agricultural training from NGOs or the Local Council in 2018?
 - ☐ Yes ☐ No
 - If yes, what was the training about? (Select as many as applicable).
 - ☐ The importance of using organic fertilizer
 - ☐ The importance of controlling weeds and fertilizer application
 - ☐ The need to do other non-farm activities
 - ☐ Ways of increasing sale
 - ☐ The need to join associations
 - ☐ Others (specify).....
6. Did your household receive farm inputs (e.g. fertilizer, spraying machine or seedlings) from non-governmental organisations (NGOs), the local authority or any other organisations in 2018?
 - ☐ Yes ☐ No
 - If yes, how many of the farm inputs did your household receive?.....
7. Do you frequently involve your family members in any activity you do?
 - ☐ Yes ☐ No.

If yes, which of the following activities do you usually involve your households to do?

- ☐ Land preparation
- ☐ Seed planting
- ☐ Fertilizer applications
- ☐ Crop harvesting
- ☐ Involvement in periodic markets
- ☐ Others (specify).....

8. Have you or any of your household member taken a loan or credit before?

- ☐ Yes ☐ No ☐ I don't want to answer

If yes, where was the location of the lender?

- ☐ In this village
- ☐ Outside this village
- ☐ Both within and outside this village

If yes, what did you use the loan for?

- ☐ Paid bills (e.g electricity, fees, health etc.)
- ☐ Purchased farm items (e.g cutlass, mattock, livestock, seedlings etc.)
- ☐ Started a new business or expanded my existing business
- ☐ Attended social functions (e.g naming ceremonies, funeral etc.)
- ☐ Paid hired labour
- ☐ Others (specify).....

9. Which of the following items did you or your household frequently buy in 2018 and where do your household usually buy these items? Choose the main source.

Items purchased	Bought from farm gate	Bought directly from periodic markets	Bought from intermediaries	Bought from the village	Bought from factories/NGOs	Bought from restaurants/schools	Bought from shopping malls	Others (specify)
Building materials (e.g cement, roofing sheet)								
Consumer durable goods and services (e.g phones, home appliances, furniture, computer etc)								
Clothing and footwear								
School items (e.g bags, textbooks etc								
Agricultural inputs (e.g fertilizer, livestock dung, improved seedlings, insecticide/weedicide, spraying machine, cutlass, hoe, seedlings)								

10. Which of the following is the main source of selling in your household?

- ☐ Selling at farm gate
- ☐ Selling directly in the markets
- ☐ Selling through intermediaries
- ☐ Selling in the village through village agents
- ☐ Selling to factories or NGOs
- ☐ Selling to schools or restaurants
- ☐ Selling to shopping malls
- ☐ Others (specify).....

11. What are the reasons for choosing the channel of selling (refer to question 10)? (Select as many as applicable)
- ☐ We can have access to information.
 - ☐ We can better prices
 - ☐ We can develop good negotiation skills
 - ☐ It reduces the interference of middle agents
 - ☐ We can sell more of our goods
 - ☐ We can buy urban goods
 - ☐ It reduces transport costs
 - ☐ Others (specify).....
12. If you sell directly in periodic markets, what distance do you cover to visit the markets?.....(Km)
13. If you sell directly in periodic markets, how many times do you visit the markets per month?.....
14. Did you or any of your household members add value to farm goods? ☐ Yes ☐ No
15. If yes, how much of the following value-added goods did your household produce in 2018?

Product	Total production (Litres)
Palm oil	
Shea butter	
Soap making	
Processed cassava flour	
Fried plantain	
Alcohol	
Brooms	
Cane sticks	
Charcoal	
Others (specify).....	

16. If your household sold some value-added product, which of the following has been their marketing channel? (Select as many as applicable)
- ☐ Selling at farm gate
 - ☐ Selling directly in periodic markets
 - ☐ Selling through intermediaries (e.g cooperatives, wholesalers)
 - ☐ Selling in the village through village agents
 - ☐ Selling to schools or restaurants
 - ☐ Selling to shopping malls
 - ☐ Others (specify).....
 - ☐ Did not sell
17. If your household bought some value-added goods, which of the following has been their marketing channel? (Select as many as applicable)
- ☐ Bought on the farm gate
 - ☐ Bought directly in periodic markets
 - ☐ Bought through intermediaries
 - ☐ Bought in this village
 - ☐ Bought from factories
 - ☐ Bought from schools or restaurants
 - ☐ Bought in shopping malls
 - ☐ Others (specify).....
 - ☐ Did not sell

18. Which of the following activities do you practice on your farm?
- ☐ Leaving grass, stems, leaves, and root on the top soil
 - ☐ Using organic fertilizer
 - ☐ Rearing animals and growing crops on the same farm
 - ☐ Growing different crops on the same farm
 - ☐ Controlling pests and diseases on the farm
 - ☐ Others (specify)
19. How did you learn to do the activities you have mentioned above? (Select as many as applicable)
- ☐ Leant from family members
 - ☐ Leant from formal or informal education
 - ☐ Leant from friends/ or neighbours
 - ☐ Leant from non-governmental organisations (NGO) programs
 - ☐ Leant from district agricultural officers
 - ☐ Leant from other sources (e.g., social media/tv/radio).
 - ☐ Others (specify).....
20. Are you a member of an association in this village?
- ☐ Yes ☐ No ☐ I don't want to answer
21. What benefit(s) have you received from joining the associations? (Select as many as applicable)
- ☐ I learn how to use fertilizer on my farm
 - ☐ I learn how to market my goods
 - ☐ I receive financial advice and have access to loans
 - ☐ I learn the importance of farming new crops
 - ☐ Others (specify).....
 - ☐ It has not improved my innovative capacity or skills in anyway
22. The information in the table below is to know your views about important areas of development in your village. These are presented using a 7-point Likert scale. You are to show your agreement or disagreement to the questions in the table by ticking the appropriate option.

Statement	Don't Know	Completely Agree	Strongly Agree	Moderately agree	Neither disagree nor agree	moderately disagree	Strongly Disagree	Completely disagree
This household has the ability to produce food crops, livestock, and poultry within and outside the village.								
This household has the ability to add value to agricultural produce								
This household has several options to market farm produce and access to market information								
This household has the ability to engage in multiple relations								
This household has the ability to form cooperative groups								

This household has the ability to practice organic farming								
--	--	--	--	--	--	--	--	--

23. Provide information about the major agricultural goods your household produced, bought, and sold in 2018.

Major Crop (Kg)	What is the volume (tonne) of goods produced and bought by your household in 2018?								What is the volume (tonne) of goods sold by your household in 2018?						
	Produced by the household	Bought at the farm gate	Bought directly from the periodic markets	Bought in this village	Bought from factories outside the villages	Bought from schools	Bought from shops outside the village	Others (specify)	Sold at farm gate	Volume sold in periodic markets	Sold directly through external middle agents	Sold in the village through village agents	Sold to factories/NGOs	Sold to restaurants/schools	Sold to shopping malls in cities
Maize															
Cassava															
Yam															
Groundnut															
Plantain															
Millet															
Rice															
Beans															
Palm nut fruit															
Fruits and vegetables															

Organic foods															
Cattle															
Sheep															
Goat															
Pig															
Chicken															
Guinea fowl															
Turkey															
Duck															

24. What is your level of agreement for effects of periodic markets on production and sale of local crops?

Statement	Completely disagree	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree	Completely agree	Don't know
Meeting middle agents and direct consumers in periodic markets encourage supply of food crops								
The population of buyers in periodic markets encourages supply of food crops								
Intervals between periodic markets offer time to gather food crops								
The number of periodic markets and days of their occurrence encourage supply of food crops								
The location of periodic markets encourages supply and purchase of food crops								
Communication in periodic markets encourages supply of food crops								
Part-time nature of periodic markets encourages the gathering of food crops								

25. What is your level of agreement for effects of periodic markets on market participation?

Statement	Completely disagree	Strongly Disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree	Completely agree	Don't know
Meeting middle agents and direct consumers in periodic markets encourage participation								
The population of buyers in periodic markets encourage participation								
Intervals between periodic markets encourage participation								
The number of periodic markets and days of their occurrence encourage participation								
The location of periodic markets encourage participation								
Communication in periodic markets encourage participation								
Part-time nature of periodic markets encourages participation								

26. What is your level of agreement for effects of periodic markets on production and sale of value-added goods?

Statement	Completely disagree	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree	Completely agree	Don't know
Selling to direct consumers in periodic markets minimises the interference of middle agents in supplying value-added products								
The population of buyers in periodic markets encourage the supply of value-added products								
Intervals between periodic markets offer time to produce value-added products								
The number of periodic markets and days of their occurrence encourage the supply of value-added products								
The location of periodic markets encourages the supply of value-added products								
Communication in periodic markets encourages the supply of value-added products								
Part-time nature of periodic markets offers the time to produce and supply value-added products								

27. What is your level of agreement for effects of periodic markets on production and sale of organic foods?

Statement	Completely disagree	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree	Completely agree	Don't know
The population of buyers in periodic markets encourages sale of organic foods								
The number of periodic markets encourages sale of organic foods								
The location of periodic markets encourages sale of organic foods								
Communication in periodic markets encourages sale of organic foods								

28. What is your level of agreement for effects of periodic markets on interactions within and outside this village?

Statement	Completely disagree	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree	Completely agree	Don't know
Market days increase interactions among farmers and between them and agents								
The population of buyers in periodic markets increase interactions								
Intervals between periodic markets increases interactions								
The number of periodic markets and days of their occurrence create a wide range of interactions								
The location of periodic markets increases interactions								

Communication in periodic markets increases interactions								
Part-time nature of periodic markets increases interactions								

29. What is your level of agreement for effects of periodic markets on cooperative activities?

Statement	Completely disagree	Strongly Disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree	Completely agree	Don't know
The population of buyers in periodic markets encourages cooperation.								
Intervals between periodic markets encourage cooperation.								
The number of the periodic markets and days of their occurrence encourages cooperation.								
The location of periodic markets encourages cooperation.								
Communication in periodic markets encourages cooperation.								
Periodic markets involve part-time selling in groups.								

30. What is your gender?
☐ Male ☐ Female
31. What is your residency status?
☐ Native ☐ Migrant
32. How many members do you have in this household (including yourself)?
33. How many members are under 18 of age in your household?.....
34. What is your age (in years)?.....
35. What is your highest educational attainment?
☐ University or college
☐ Secondary education (Senior high school/vocational school)
☐ Middle school or junior high school
☐ Primary
☐ No formal education
36. Which of the following ethnic group do you belong?
☐ Akan
☐ Northern
☐ Ewe
☐ Ga-Adangbe
☐ Guan
☐ Mole-Dagbani
37. How many years have you lived in this village?.....
38. How many of your households relocated permanently to another village or city in 2018?.....
39. How many visitors did you receive to your household in 2018? months?.....
40. How much was the total income of your household earned from household economic activities in 2018 before tax?.....(in Ghana cedis)
41. How would you compare the income your household earned from selling in periodic markets and non-periodic markets in 2018?
☐ Income from periodic market is much lower than non-periodic markets
☐ Income from periodic markets is a little lower than non-periodic markets
☐ Income from periodic markets is the same as non-periodic markets
☐ Income from periodic markets is a little higher than non-periodic markets
☐ Income from periodic markets is much higher than non-periodic markets

Thank you.

Your time is very much appreciated.

Appendix 4: Interview Guide



Interview Guide for Village Participants

(Chief, market leaders, leaders of village association, local council representatives & leaders of ethnic groups)

A. Socioeconomic characteristics of villages

1. Describe the development changes that have taken place over the past 10 year in this village.
2. Tell me about farming activities in this village (the size of farm, nature of soil, type of crops produced, farming practices).
3. How do farmers obtain land in this village and what problems are associated with this?
4. Describe the various channel of marketing or selling, their importance and challenges for farmers in this village?
5. Do farmers in this village produce value-added goods? If so, how are they produced?
6. What type of livestock and poultry are kept in this village?
7. Do farmers engage in contract farming? If yes, what is it about?
8. Tell me about activities of villages associations in this village and the benefits to villagers.
9. Do the village benefit from NGOs and government projects? If so, what are they and their benefits to villagers?
10. What projects and activities support cooperation and collaboration in this village? (e.g. sports, communal labour, festival etc).
11. Tell me about the nature of relations within and among households in this village.
12. Give accounts of people or visitors who have come to this village or left in the past 10 years.
13. How would you assess the cooperation between this village and institutions such as NGOs, the District Assemblies, and Village Associations?

B. Effect of Periodic Markets on Villages

1. Give a brief account of the periodic markets in this district (the number, their location, activities in the markets, sitting arrangement, type of participants etc).
2. What activities occur in this village during periodic marketing activities?
 - a. Which periodic markets do farmers mostly visit?
 - b. Which products are sent to periodic markets and why?

- c. Which goods are bought from periodic markets and why?
 - d. How do farmers transport goods to periodic markets?
 - e. How far is this village to the periodic markets?
 - f. What challenges do farmers face for participating in the periodic markets?
 - g. Without the periodic markets, how do you anticipate the distribution or marketing of goods in this village?
 - h. From the periodic markets, where are the goods transported to? Give the places, institutions etc.
3. Describe the type of interactions and cooperation that occur in this village during periodic marketing activities?
 4. How do these activities differ during non-periodic markets?
 5. How do the following features of the periodic markets affect cooperation, distribution, interactions, production, and participation?
 - a. Intervals between the periodic markets
 - b. Increased population of market participants
 - c. Location of the periodic markets
 - d. Number of periodic markets and their days of occurrence
 - e. Communication in periodic markets
 - f. Producer and retailer relations in the periodic markets

Interview Guide for Local Government Authorities and NGOs

A. Socioeconomic characteristics of villages

1. Give accounts of the social (population, in-migration, out-migration), economic (viability of economic activities, distribution, production, marketing), cultural and environmental (soil condition, ethnicity) dynamics of Timeabu, Korase, Kong, and Kowie in the past 10 years.
2. What projects have been implemented by your institution or considered for implementation in the villages?
3. How would you assess the cooperation between your institutions and others in the effort of implementing projects in the village?

B. Effects of Periodic Markets

4. Give a brief account of activities in periodic markets in the district concerning commodity flow, exchange of goods and services, participants etc.
 - a. Which products are mostly traded in periodic markets?
 - b. What type of people are involved in the periodic markets?
 - c. Where are the major sources of agricultural goods to periodic market centres?
5. What roles do institutions play on periodic market days in this district?
6. What challenges are encountered on periodic market days?
7. How do you see the importance of periodic markets towards the development of villages?
8. Without the periodic markets, how do you anticipate the distribution and marketing of goods and services in this district?
9. How is the market governed?

10. Do the district assembly benefit from the periodic markets? If yes, how?
11. What challenges do farmers face for participating in the periodic markets?

Appendix 5: Regional Distribution of Urban Periodic Markets in Ghana

Appendix 5: Regional Distribution of Periodic Markets in Ghana

Region	Metropolitan/ Municipality/ District (MMD)	Residence population for each district	Number of periodic markets	Location of periodic market centre	Resident population for each market area	Day of the market per week	Market Interval per week	Number of periodic market meetings per week	Household Population		
									Total population in the Region	Urban Population in the Region	Rural population in the region
Ashanti Region	Ejisu- Juaben Municipality	143762	4	Ejisu	12898	Sundays and Thursdays	3-day	2	4,780,380		
				Kwaso	7427	Tuesdays	seven-day	1			
				Boamadumase	5236	Fridays	seven-day	1			
				Juaben	9085	Tuesdays	seven-day	1			
	Atwima Nwabiagya	149025	2	Nkawie	5552	N/A	3-day	2			
				Barekese	5286	N/A	3-day	2			
	Asante Akim North	69186	4	Obogu	10000	N/A	seven-day	1			
				Agogo	32196	Fridays	seven-day	1			
				Ofoase	7512	N/A	seven-day	1			
				Adomfe	6785	N/A	seven-day	1			
	Atwima Mponua	119180	3	Nyinahin	9577	N/A	seven-day	1			
				Otaakrom	6243	N/A	seven-day	1			
				Mpasatia	4243	N/A	seven-day	1			
	Offinso Municipality	76895	3	Anyinasuso	6936	N/A	seven-day	1			
				Abofour	10,071	Thursdays	seven-day	1			
				Kokote	8498	N/A	seven-day	1			
	Ejura Sekyedumase	85446	1	Ejura	34414	Not specified	6-day	1			
	Ahafo Ano North	94285	1	Tepa	17758	Thursdays	seven-day	1			
	Amansie Central	90741	1	Jacobu	10,725	N/A	seven-day	1			
	Mampong Municipal	88051	2	Mampong	32,411	Wednesdays	seven-day	1			
				Kofiase	4437	Fridays	seven-day	1			
	Sekyere East	62172	1	Effiduase	20546	Sundays	seven-day	1			
	Sekyere Central	71232	4	Nsuta	8494	Thursdays	seven-day	1			
				Birem	6693	Sundays	seven-day	1			
				Jeduako	7089	Tuesdays	seven-day	1			
				Kwamang	7499	Sundays	seven-day	1			

Central Region	Komenda-Edina-Eguafo-Abirem	144705	4	Elmina	23013	Not specified	3-day	2	2,201,863		
				Eguafo	7432	Saturdays	seven-day	1			
				Komenda-Jometia	6754	Not specified	3-day	2			
				Komenda	14754	Saturdays	seven-day	1			
	Mfantseman Municipality	144332	1	Mankessim	38313	Not specified	3-day	2			
	Cape Coast Metropolitan	169894	1	Cape Coast	108374	Sundays	seven-day	1			
	Gomoa West	135189	3	Dawurampom	2228	N/A	seven-day	1			
				Kyiren Nkwanta	4543	N/A	seven-day	1			
				Apam	23588	N/A	seven-day	1			
	Agona East	85920	4	Mankrong Junction	4584	N/A	seven-day	1			
				Asafo	4122	N/A	seven-day	1			
				Mensakrom	6500	N/A	seven-day	1			
				Duakwa	3930	N/A	seven-day	1			
	Agona West Municipal	115358	6	Agona Swedru (Mandela market)	54417	N/A	seven-day	1			
				Nyakrom	18745	N/A	seven-day	1			
				Bobikuma	8457	N/A	seven-day	1			
				Abodom	4732	N/A	seven-day	1			
				Kwaman Ahomadonko	7800	N/A	seven-day	1			
				Jukwafum	4552	N/A	seven-day	1			
	Asikuma-Odobrenbrakwa	112706	3	Asikuma	16,159	Tuesdays	seven-day	1			
				Anhwiam	6229	Sundays	seven-day	1			
				Brakwa	10219	Thursdays	seven-day	1			
	Twifo-Hemang-Lower District	55131	2	Twifo Heman	9342	Tuesdays	seven-day	1			
				Twifo Breaman	5045	Fridays	seven-day	1			
	Upper Denkyira East	31559	1	Dunkwa-on-Offin	31559	Not specified	3-day	2			
	Upper Denkyira West	60054	7	Nkotomso	2955	N/A	seven-day	1			
				Diaso	6492	N/A	seven-day	1			
				Dominase	5993	N/A	seven-day	1			
				Anyanfun	5660	N/A	seven-day	1			
				Treposito	5069	N/A	seven-day	1			
				Aniatenten	3425	N/A	seven-day	1			
				Asuadei	2341	N/A	seven-day	1			

Brong Ahafo	Jaman North District	83059	1	Sampa	15119	Monday s	seven-day	1	2,310,983		
	Asutifi North District	52259	6	Gambia No.2	831	Wednes days	seven-day	1			
				Ntotroso	5703	Thursda ys	seven-day	1			
				Kenyasi No.2	5347	N/A	seven-day	1			
				Kenyasi No.1	5200	Thursda ys	seven-day	1			
				Goamu Camp	815	N/A	seven-day	1			
				Ntotroso Resettlemen t	5002	N/A	seven-day	1			
	Tano South District	78129	3	Derma	9669	Tuesday s	seven-day	1			
				Bechem	16370	Tuesday s	seven-day	1			
				Techimantia	14874	Monday s	seven-day	1			
	Sunyani Municipality	123224	1	Sunyani (Nana Bosoma Market)	75366	N/A	seven-day	1			
	Berekum Municipality	129628	1	Berekum	56414	Thursda ys	seven-day	1			
	Wenchi Municipality	89739	2	Wenchi	32950	Thursda ys	seven-day	1			
				Subinso	6451	Fridays	seven-day	1			
	Techiman Municipality	147788	1	Techiman	31412	Not specified	Not specified	3			
	Jaman South District	92649	1	Drobo	12753	Monday s	seven-day	1			
	Dormaa East District	50871	1	Wamfie	5736	Fridays	seven-day	1			
	Atebubu Amantin	105938	1	Atebubu	36997	Thursda ys	seven-day	1			
	Sene West District	57734	1	Kwame Danso	9014	Wednes days	seven-day	1			
	Sene East District	61076	1	Kajaji	5528	Thursda ys	seven-day	1			
	Banda District	20282	1	Banda	5077	Fridays	seven-day	1			
	Pru District	129248	1	Yeji	28515	Fridays	seven-day	1			
	Kintampo North District	95480	5	Kintampo	42957	Wednes days	seven-day	1			
				Babator kum a	6168	Saturday s	seven-day	1			
				Dawadawa	5369	Fridays	seven-day	1			
				Gulumpse	5000	Saturday s	seven-day	1			
				New Longoro	5671	Saturday s	seven-day	1			
Easter Region	Upper West Akyem	87051	1	Adieso	7090	N/A	seven-day	1	„633,154		
	Akuapem South Municipality	37501	1	Nsawam	44522	N/A	seven-day	1			
	Suhum Municipality	90358	1	Suhum	33722	Not specified	3-day	2			
	Lower Manya Krobo	89246	1	Agormanya	15618	N/A	seven-day	1			

	Municipality										
	Upper Manya Krobo District	72092	3	Akateng	7527	N/A	seven-day	1			
				Sekesua	8546	N/A	seven-day	1			
				Asesewa	9189	N/A	seven-day	1			
	Kwahu West District	93584	4	Nkwakaw	47968	N/A	seven-day	1			
				Jamasi No.2	1950	N/A	seven-day	1			
				Ekowsu	6508	N/A	seven-day	1			
				Madina	6543	Sundays & Thursdays	3-day	2			
Greater Accra	Ada East District	71671	2	Kasseh	10213	Not specified	3-day	2	4,010,054		
				Ada-Foah	5659	Not specified	3-day	2			
	Shai Osudoku Municipality	51913	2	Dodowa	12070	Not specified	3-day	2			
				Agomeda	7837	N/A	seven-day	1			
	Ga East Municipality	147742	1	Dome	39,868	Tuesdays & Saturdays	3-day	2			
Volta Region	South Tongu District	87950	2	Dabala	5000	N/A	seven-day	1	2,188,252		
				Sogakope	11310	N/A	seven-day	1			
	Ketu South Municipality	160756	3	Denu	6051	N/A	seven-day	1			
				Agbozome	5529	N/A	seven-day	1			
				Aflao	37350	N/A	seven-day	1			
	Ketu North District	99913	5	Dzodze	22862	Not specified	3-day	2			
				Keta	Rural	Not specified	3-day	2			
				Afife	2590	Not specified	3-day	2			
				Penyi	6078	Not specified	3-day	2			
				Tadzewu	6465	Not specified	3-day	2			
	North Tongu	89777	2	Juapong	16552	N/A	seven-day	1			
				Battor	8474	N/A	seven-day	1			
	Adaklu District	36391	1	Adaklu-Waya	1236	N/A	seven-day	1			
	South Dayi District	46661	3	Kpeve	1323	Not specified	3-day	2			
				Dzemeni	6220	Not specified	3-day	2			
				Peki Dzaka	1582	Not specified	3-day	2			
	North Dayi District	39913	2	Anfoega	2260	N/A	seven-day	1			
				Vakpo	5621	N/A	seven-day	1			
	Kpando Municipality	53736	5	KpandoTorkor	5767	N/A	seven-day	1			
				Fesi	1811	N/A	seven-day	1			

				Agbenoxoe	973	N/A	seven-day	1			
				Wusut Kpede	Rural	N/A	seven-day	1			
				Kpando	23791	N/A	seven-day	1			
	Biakoye District	65901	3	Tapa Abotoase	3117	N/A	seven-day	1			
				Kwamekrom	5001	N/A	seven-day	1			
				Bumbule	659	N/A	seven-day	1			
	Jasikan District	59181	2	Kute	6616	N/A	seven-day	1			
				New Ayoma	2527	N/A	seven-day	1			
	Kadjebi District	59303	5	Kadjebi	10663	N/A	3-day	2			
				Poase-Cement	2676	N/A	seven-day	1			
				Dodo Amanfrom	5019	N/A	seven-day	1			
				Ahamansu	2880	N/A	seven-day	1			
				Dodi Papase	2969	N/A	seven-day	1			
	Krachi West District	49417	4	Kete-Krachi	8966	N/A	seven-day	1			
				Ehiamankyre	2137	N/A	seven-day	1			
				Bommoden	5349	N/A	seven-day	1			
				Ntewusae	5836	N/A	seven-day	1			
	Nkwanta North District	64553	5	Kpassaa	18127	N/A	seven-day	1			
				Sibi Hill top	5326	N/A	seven-day	1			
				Damanko	6771	N/A	seven-day	1			
				Nabu	6705	N/A	seven-day	1			
				Tinjase	5069	N/A	seven-day	1			
Western Region	Shama District	81966	2	Shama	11031	Mondays	seven-day	1	2,376,021		
				Beposo	982	Fridays	seven-day	1			
	Sekondi-Takoradi Metropolis	559548	1	Apremdo	6792	N/A	seven-day	1			
	Jomoro District	150107	4	Half Assin	16938	Not specified	seven-day	1			
				Elubo	17410	Not specified	seven-day	1			
				Jewi Wharf	4626	Not specified	seven-day	1			
				Tikobo No.2	4128	Not specified	seven-day	1			
	Bia East District	27393	5	Adabokom	5468	Not specified	seven-day	1			
				Kaase	1035	Not specified	seven-day	1			
				Assemnyina krom	2715	Not specified	seven-day	1			
				Kojo Fosukrom	1964	Not specified	seven-day	1			
				Campus 15 Junction	1905	Not specified	seven-day	1			
	Sefwi Bibiani	123272	2	Bibiani	18517	Fridays	seven-day	1			

	Anhwiaso Bekwai District			Bekwai	10607	Wednesdays	seven-day	1			
	Sefwi-Wiaso Municipality	139200	1	SefwiDwense	7109	Tuesdays	seven-day	1			
	Ahanta West	106215	1	AgonaNkwanta	2578	Wednesdays	seven-day	1			
	Prestea/Huni Valley District	159304	3	Bogoso	6625	Saturdays	seven-day	1			
				Prestea	26927	Fridays	seven-day	1			
				Akotom	3618	Thursdays	seven-day	1			
	Ellembelle District	87501	2	Anyinaasi	3112	Not specified	3-day	2			
				Asasetre	6115	N/A	seven-day	1			
	Sefwi Akontombra District	123272	2	Nsawora	3865	N/A	seven-day	1			
				Akontombra	7287	N/A	seven-day	1			
	Wassa Amenfi East	83478	1	Wassa Akropong	5750	Thursdays	seven-day	1			
	Amenfi West District	92152	2	Asankragwa	19657	N/A	seven-day	1			
				Samreboi	12968	N/A	seven-day	1			
	Mpohor District	42923	1	Mpohor	10826	N/A	seven-day	1			
North ern Regio n	West Gonja District	41180	1	Damongo	20735	Saturdays	seven-day	1	2,479,461		
	East Gonja District	135450	1	Salaga	25302	N/A	seven-day	1			
	Kpandai District	108816	5	Kpandai	10824	N/A	seven-day	1			
				Kumdi	5921	N/A	seven-day	1			
				Kitare	6807	N/A	seven-day	1			
				Katiejeji	6100	N/A	seven-day	1			
				Jamboai	5546	N/A	seven-day	1			
	Tatale-Sanguli District	60039	9	Kpalbutabo	5074	N/A	seven-day	1			
				Nyojaalo	2305	N/A	seven-day	1			
				Sangban	4058	N/A	seven-day	1			
				Yaehado	5033	N/A	seven-day	1			
				Kubalim	2089	N/A	seven-day	1			
				Nkpaaini	1598	N/A	seven-day	1			
				Takorod	1489	N/A	seven-day	1			
				Bulikpal	1098	N/A	seven-day	1			
				Naachamba No.1	894	N/A	seven-day	1			
	Karaga District	77706	1	Karaga	15581	N/A	seven-day	1			
	Saboba District	65706	5	Saboba	6209	N/A	seven-day	1			
				Gbagbapong	5232	N/A	seven-day	1			
				Kpalba	5247	N/A	seven-day	1			

				Sambuli	6035	N/A	seven-day	1			
				Wapuli	5776	N/A	seven-day	1			
	East Mamprusi Municipality	121009	1	Nalerigu	14927	Not specified	3-day	2			
	Sawla-Tuna-Kalba District	99863	1	Sawla	8129	Mondays	seven-day	1			
Upper East Region	Kasena Nankana East		1	Navrongo	29993	Not specified	3-day	2	1,046,545		
	Kasena Nankana West		7	Chiana Asunia	1038	N/A	seven-day	1			
				Paga	9875	N/A	seven-day	1			
				Sirigu	3897	N/A	seven-day	1			
				Kandiga Akuka	5729	Not specified	3-day	2			
				MiriguTikonso	2998	Not specified	3-day	2			
				Nakolo	1950	Not specified	3-day	2			
				Kayoro	2178	Not specified	3-day	2			
	Bolgatanga Municipality		1	Bolgatanga	65549	Not specified	3-day	2			
	Talensi District		3	Duusi	6101	Not specified	3-day	2			
				Tongo	5413	Not specified	3-day	2			
				Winkongo	6817	Not specified	3-day	2			
	Bongo District		4	Soe Soboko	6794	N/A	seven-day	1			
				Zoko Goo	1764	N/A	seven-day	1			
				Bongo	5169	N/A	seven-day	1			
				Beo	1239	N/A	seven-day	1			
	Bawku West District		2	Zebilla	8628	N/A	seven-day	1			
				Binaba	2174	N/A	seven-day	1			
	Bawku Municipality		1	Bawku	60755	Not specified	3-day	2			
Upper West region	Wa East District	72074	6	Funsi	5311	N/A	seven-day	1	702,110		
				Kundugu	5325	N/A	seven-day	1			
				Bulenga	5793	N/A	seven-day	1			
				Loggu	5180	N/A	seven-day	1			
				Kpaglaki	1124	N/A	seven-day	1			
				Kulkpong	5759	N/A	seven-day	1			
	Sissala East District	56528	3	Tumu	11086	Not specified	6-day	1			
				Bugubelle	6761	Not specified	6-day	1			
				Sakai	6426	Not specified	6-day	1			

	Nadowli-Kaleo District	61561	3	Sankana	6639	Not specified	seven-day	1			
				Nadowli	5085	Not specified	seven-day	1			
				Tangasia	1230	Not specified	seven-day	1			
	Sissala West District	49573	4	Gwollu	5854	Not specified	seven-day	1			
				Fielmua	6995	Not specified	seven-day	1			
				Zini	2810	Not specified	seven-day	1			
				Jeffisi	5321	Not specified	seven-day	1			
	Lawra District	54889	2	Lawra	6451	Not specified	seven-day	1			
				Babile	5061	Not specified	seven-day	1			
	Wa West	81348	1	Nyoli	1697	Sundays	seven-day	1			
	Wa Municipality	107214	1	Wa	71340	Not specified	3-day	2			

Appendix 6: Foodstuff exports by periodic markets outside Ghana (2015-2018)

MARKET/COMMODITY	2015	2016	2017	2018	Total (tonne)
AGOGO	15,620.65	16,989.10	34,418.13	37,702.14	104,730.02
PLANTAIN	15,620.65	16,989.10	34,418.13	37,702.14	104,730.02
BAWKU/Grand total	814.00	1,288.00	3,495.00	5,264.23	10,861.23
CABBAGE/GREEN PEPPER	271.00	547.00	976.00	872.00	2,666.00
RICE	229.00	399.00	769.00	786.00	2,183.00
WHITE MAIZE	314.00	342.00	819.00	916.00	2,391.00
CHEREPONI	3,624.65	3,544.10	4,850.73	5,119.80	17,139.28
YAM	-	-	0.00	275.28	275.28
YELLOW MAIZE	-	-	931.00	2,414.95	3,345.95
HAMILE/Grand total	3,993.70	4,218.20	7,061.60	8,642.90	23,916.40
COWPEA	204.40	218.10	606.60	754.30	1,783.40
GROUNDNUT	445.80	493.30	1,004.70	1,159.60	3,103.40
SORGHUM	265.20	306.20	678.60	979.20	2,229.20
SOYA BEANS	311.20	365.00	839.50	1,162.90	2,678.60
WHITE MAIZE	1,468.90	1,528.70	2,034.00	2,427.60	7,459.20
YELLOW MAIZE	1,298.20	1,306.90	1,898.20	2,159.30	6,662.60
KINTAMPO/Grand total	-	7,864.14	8,407.40	19,156.38	35,427.93
YAM	-	7,864.14	8,407.40	19,156.38	35,427.93
OFFINSO/Grand Total	12,217.02	24,207.44	34,557.67	40,701.12	111,683.25
BANANA	4,917.30	9,744.95	13,944.98	16,412.70	45,019.93
CITRUS/ORANGE	969.15	1,941.36	2,778.33	3,275.29	8,964.13
GINGER	486.46	975.75	1,401.53	1,653.50	4,517.24
PALM FRUITS	678.43	1,356.68	1,945.41	2,293.58	6,274.10
PALM OIL	652.81	1,308.50	1,875.11	2,206.50	6,042.92
PAWPAW	456.46	866.16	1,244.66	1,465.20	4,032.48
PLANTAIN	4,056.41	8,014.04	11,367.65	13,394.35	36,832.45
TUMU/Grand total	8,380.30	8,683.10	12,584.80	11,176.40	40,824.60
BANANA	603.10	699.80	1,091.50	627.80	3,022.20
CITRUS/ORANGE	451.40	574.40	947.30	730.70	2,703.80
COW PEA	484.00	580.30	871.60	830.10	2,766.00
GARI	767.60	791.80	1,171.60	1,136.90	3,867.90
SORGHUM	356.70	402.40	764.80	603.20	2,127.10
SOYA BEANS	833.50	755.10	1,367.20	919.10	3,874.90
WHITE MAIZE	1,849.50	1,846.30	2,435.40	2,512.90	8,644.10
YAM	914.10	976.70	1,227.80	1,160.60	4,279.20
YELLOW MAIZE	2,120.40	2,056.30	2,707.60	2,655.10	9,539.40
TATALE/Grand total	7,905.00	7,285.00	6,002.00	4,980.00	26,172.00

GARI	1,470.00	1,573.00	1,361.00	980.00	5,384.00
GROUNDNUT	1,872.00	1,807.00	1,382.00	1,164.00	6,225.00
RICE	2,227.00	1,926.00	1,630.00	1,422.00	7,205.00
WHITE MAIZE	2,336.00	1,979.00	1,629.00	1,414.00	7,358.00
TECHIMAN/Grand total	12,532.90	14,480.70	16,302.10	18,087.90	61,403.60
CITRUS/ORANGE	9,827.60	11,746.80	14,130.10	14,398.20	50,102.70
GARI	1,130.00	1,071.40	964.80	1,670.20	4,836.40
YAM	1,575.30	1,662.50	1,207.20	2,019.50	6,464.50
CHEREPONI					
WHITE MAIZE	1,798.00	1,810.00	2,216.00	2,308.00	8,132.00
SOYA BEANS	1,053.00	953.00	1,362.00	1,359.00	4,727.00
RICE	944.00	741.00	1,272.00	1,319.00	4,276.00
Grant total for Chereponi	3,795.00	3,504.00	4,850.00	4,986.00	17,135.00
EJURA					
YELLOW MAIZE	0.00	0.00	931.00	2,415.00	3,346.00
WHITE MAIZE	0.00	0.00	0.00	2,174.00	2,174.00
YAM	0.00	0.00	0.00	275.00	275.00
COWPEA	0.00	0.00	604.00	1,315.00	1,919.00
Total for Ejura	0.00	0.00	1,535.00	6,179.00	7,714.00
OVERALL TOTAL	65,258.57	88,519.68	129,213.70	156,876.07	439,868.03

Appendix 7: Export Destination of Food Crops in Periodic Markets in Ghana (2015-2018).

Commodity	2015	2016	2017	2018	Total (tonne)
BURKINA FASO	37,504.92	56,624.44	92,835.17	113,159.16	
BANANA	5,520.40	10,444.75	15,036.48	17,040.50	48,042.13
CABBAGE/GREEN PEPPER		547.00			547.00
CITRUS/ORANGE	11,248.15	14,262.56	17,855.73	18,404.19	61,770.63
COW PEA	688.40	798.40	1,478.20	2,806.84	5,771.84
GARI	1,897.60	1,863.20	2,136.40	2,807.10	8,704.30
GINGER	486.46	975.75	1,401.53	1,653.50	4,517.24
GROUNDNUT	445.80	493.30	1,004.70	1,159.60	3,103.40
PALM FRUITS	678.43	1,356.68	1,945.41	2,293.58	6,274.10
PALM OIL	652.81	1,308.50	1,875.11	2,206.50	6,042.92
PAWPAW	456.46	866.16	1,244.66	1,465.20	4,032.48
PLANTAIN	4,056.41	8,014.04	26,460.65	33,986.35	72,517.45
RICE	229.00	399.00	769.00	786.00	2,183.00
SORGHUM	621.90	708.60	1,443.40	1,582.40	4,356.30
SOYA BEANS	1,144.70	1,120.10	2,206.70	2,082.00	6,553.50
WHITE MAIZE	3,470.40	3,528.00	4,828.40	7,526.70	19,353.50
YAM	2,489.40	6,575.20	8,543.00	12,544.30	30,151.90
YELLOW MAIZE	3,418.60	3,363.20	4,605.80	4,814.40	16,202.00
IVORY COAST			1,535.40	2,766.73	4,302.13
COW PEA			604.40	92.70	697.10
YAM			0.00	259.08	259.08
YELLOW MAIZE			931.00	2,414.95	3,345.95
NIGER		3,928.14	2,299.40	9,808.38	16,035.93
YAM		3,928.14	2,299.40	9,808.38	16,035.93
TOGO	19,848.65	17,178.10	20,760.73	16,311.80	70,304.28
CABBAGE/GREEN PEPPER	271.00		976.00	872.00	2,119.00
PLANTAIN	15,791.00	16,949.00	20,255.00	19,666.00	49,731.00
RICE	943.50	740.70	1,272.40	1,318.80	4,275.40
SOYA BEANS	1,052.80	953.30	1,362.00	1,492.60	4,860.70
WHITE MAIZE	1,790.35	2,039.10	2,676.33	2,812.40	9,318.18
BENIN /Grand total	4,099.00	3,733.00	3,012.00	2,586.00	26,172.00
GROUNDNUT	1,872.00	1,807.00	1,382.00	1,164.00	6,225.00
RICE	2,227.00	1,926.00	1,630.00	1,422.00	7,205.00
NIGERIA/Grand total	3,806.00	3,552.00	2,990.00	2,394.00	12,742.00
GARI	1,470.00	1,573.00	1,361.00	980.00	5,384.00
WHITE MAIZE	2,336.00	1,979.00	1,629.00	1,414.00	7,358.00

Appendix 8: Calculation of Spearman correlation and Mann-Whitney

Table 8.1 Results from the correlation analysis on the effects of periodic markets on the dimensions of the rural web analysis

		InstUPDATE	SocCap	GovtMKT	Endo	Novelty	Sust
InstUPDATE	Correlation	1.000	.676	.584	.376	.600	.611
	Coefficient						
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	400	400	400	400	400	400
SocCap	Correlation	.676	1.000	.577	.326	.480	.601
	Coefficient						
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	400	400	400	400	400	400
GovtMKT	Correlation	.584	.577	1.000	.389	.589	.604
	Coefficient						
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	400	400	400	400	400	400
Endo	Correlation	.376	.326	.389	1.000	.561	.393
	Coefficient						
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	400	400	400	400	400	400
Novelty	Correlation	.600	.480	.589	.561	1.000	.556
	Coefficient						
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	400	400	400	400	400	400
Sust	Correlation	.611	.601	.604	.393	.556	1.000
	Coefficient						
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	400	400	400	400	400	400

Table 8.2 Results from the Mann-Whitney test on the dimensions of the rural web analysis

	Region	N	Mean Rank	Sum of Ranks
Endogeneity	Southern villages	200	218.46	43691.50
	Northern villages	200	182.54	36508.50
	Total	400		
Novelty production	Southern villages	200	207.76	41551.00
	Northern villages	200	193.25	38649.00
	Total	400		
The Governance of Markets	Southern villages	200	206.11	41222.50
	Northern villages	200	194.89	38977.50
	Total	400		
Social Capital	Southern villages	200	224.60	44919.50
	Northern villages	200	176.40	35280.50
	Total	400		
New Institutional Framework	Southern villages	200	218.12	43623.00
	Northern villages	200	182.89	36577.00
	Total	400		
Agricultural Sustainability	Southern villages	200	221.47	44293.00
	Northern villages	200	179.54	35907.00
	Total	400		

Table 8.3 *t*-statistics for Mann-Whitney test on the dimensions of the rural web analysis

	Endogeneity	Novelty production	The Governance of Markets	Social Capital	New Institutional Framework	Agricultural Sustainability
Mann-Whitney U	16408.500	18549.000	18877.500	15180.500	16477.000	15807.000
Wilcoxon W	36508.500	38649.000	38977.500	35280.500	36577.000	35907.000
Z	-3.632	-1.362	-1.130	-4.604	-3.470	-3.946
Asymp. Sig. (2-tailed)	.000	.173	.259	.000	.001	.000

a. Grouping Variable: Region

Table 8.4 Results from the Mann-Whitney test on the effects of periodic markets on the dimensions of the rural web analysis

	Region	N	Mean Rank	Sum of Ranks
SocCap	Southern villages	200	237.32	47464.50
	Northern villages	200	163.68	32735.50
	Total	400		
Endo	Southern villages	200	233.73	46746.00
	Northern villages	200	167.27	33454.00
	Total	400		
GovtMKT	Southern villages	200	232.74	46547.00
	Northern villages	200	168.27	33653.00
	Total	400		
Sust	Southern villages	200	230.54	46107.50
	Northern villages	200	170.46	34092.50
	Total	400		
Novelty	Southern villages	200	247.12	49424.50
	Northern villages	200	153.88	30775.50
	Total	400		
InstUPDATE	Southern villages	200	237.35	47469.50
	Northern villages	200	163.65	32730.50
	Total	400		

Table 8.5 *t*-statistics for Mann-Whitney test on the effects of UPMS on the dimensions of the rural web analysis

	SocCap	Endo	GovtMKT	Sust	Novelty	InstUPDATE
Mann-Whitney U	12635.500	13354.000	13553.000	13992.500	10675.500	12630.500
Wilcoxon W	32735.500	33454.000	33653.000	34092.500	30775.500	32730.500
Z	-6.374	-5.752	-5.581	-5.207	-8.070	-6.378
Asymp. Sig. (2-tailed)	.000	.000	.000	.000	.000	.000

a. Grouping Variable: Region