CHANGING DYNAMICS OF PERI-URBAN LAND TENURE AND PINEAPPLE PRODUCTION IN GHANA: CASE STUDIES OF PINEAPPLE FARMERS IN AWUTU-SENYA AND NSAWAM DISTRICTS

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Abstract

Land Tenure changes, resulting from rapid urbanisation, population growth and contested access to land, have resulted in shrinking farming land for Ghanaian pineapple farmers. This has contributed to the conversion of traditional farming pineapple lands into non-agricultural use. Pineapple farmers are therefore confronted with the problem increased tenure access costs, land expropriation and contested tenure access rights. However, research in this area is very limited in Ghana making it difficult to understand important dynamics and implications of land tenure changes.

The research uses the example of pineapple farmers in two peri-urban areas in Ghana to examine the links between pineapple farming and land tenure. Field work data was gathered in Ghana (Nsawam district, Eastern Region and Awutu-Senya District, Central Region) using key informant interviews, household survey, and focus group discussions. The chosen context offered an excellent backdrop in which contestations over tenure access between farmers and real estate developers is contributing to increasing land scarcity. However, the research focuses attention on understanding how pineapple farmers manage and adjust to land tenure change. The study was presented in a summary and three research papers.

The results of the research provided evidence to suggest that accelerated development of land markets is driving increasing processes of tenure individualisation. This is causing land to shift gradually away from customary control. Consequently, vulnerable groups such as poorer farmers and migrant groups are finding it increasingly difficult to access arable farming land securely. Wealthier farmers such as contracted groups with assured markets and higher incomes are taking advantage of their position to claim more land while poorer farmers are increasingly driven to look outside farming to gain employment and access income.

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Chapter One: Introduction

1. Introduction

This section provides an overview of the study. The contextual background of the study is presented to highlight the circumstances under which pineapple is cultivated in the study areas. This is followed by a presentation of the research focus detailing farmers' land tenure challenges and the motivation for the study. The research objectives are then stated to show the issues identified for the research. Afterwards, the research questions are presented. The introduction is completed with a presentation of the thesis structure.

1.1 Agricultural production in Ghana and the pineapple crop sub-sector

Agriculture plays an important role towards Ghana's drive to achieve food security, household access to improved food nutrition and food crop production for commercialisation. Ghana's agricultural sector generates employment for over 45% of her labour force and contributes to an average of about 21.5% of annual Gross Domestic Product (GDP) (USAID, 2015). The food crops sub-sector accounts for an annual average contribution of 16.6% of GDP (ISSER, 2005). This translates into providing employment for some six million people or between 25% and 30% of the active works force in Ghana (USAID, 2015). Ghana remains a net importer of agricultural commodities such as sugar and rice and suffers balance of payment deficits as a consequence. It is estimated that the country must achieve an agricultural sector growth rate of 6% per annum in order to balance its agricultural sector trade. However, in spite of the implementation of several plans to arrest agricultural sector under performance, agricultural sector growth has fallen short of targeted expectations. This is also in spite of the implementation of production and farmer oriented subsidies such as the re-introduction of input and fertilizer subsidy programmes, agricultural mechanisation services centres, minimum guaranteed prices for farm produce and attempts taken to increase access to credit. While policies have not been coherently implemented, and funding has fallen short, farming practices have remained unchanged making it difficult to achieve targeted agricultural development goals. Ghana, thus, relies heavily on the Cocoa crop sector to generate agricultural revenue (ISSER, 2005).

While Cocoa continues to play a leading role as a revenue and employment generator in Ghana, over reliance on the sector and high volatility in international market prices makes it unsustainable as a secure income and revenue source (Owusu, 2011; Abban et al, 2013).

Ghana's strategy to improve agricultural production and reduce over-dependence on Cocoa is based on the strategy of crop diversification. This is expected to increase the variety of food crops produced, expand production to improve the export of high value crops and assist farmers to achieve food self-sufficiency as they take advantage of available markets to increase their household incomes and employment. A series of development plans to this effect are contained in agricultural development and export promotion drives drawn in the World Bank prescribed Economic Recovery Plans (ERP) of the 1980's, Trade and Investment Programme for a Competitive Export Economy (TIPCEE) of the 1990's (Amanor, 2010; Whitfield, 2012; Conley and Udry, 2010; Kleemann. 2011; Rolling; 2009) and, in recent times, the Ghana's Vision 2020 development agenda.

Ghana's pineapple crop sub-sector attracted the attention of policy makers and development partners as an important crop with immense prospects of contributing effectively to crop diversification as early as the 1980's (Ampadu-Agyei, 1995; Jaeger, 2008). Pineapple production accounts for nearly 60% of annual horticultural crop production (Kuwornu and Mustapha, 2013), and contributes to income, employment and livelihoods of more than 2% of Ghana's population (Lay and Schuler, 2008, Sutton and Kpentey, 2012), with farmers producing between 120,000 and 150,000 tons of pineapple annually (Kuwornu and Mustapha, 2013).

Pineapple is predominantly produced along the Akwapim hills and Togoland ranges in Ghana (Ghana.gov, 2017). This is a narrow belt of ridges and hills that extend for about 200 miles from Atlantic coast near Accra to the boarder with the Republic of Togo. Thus, the area stretches though parts of the Greater Accra Region, Central Region, Volta Region and Eastern Region of Ghana. The area has a mix of forest and savanna type soil that makes it suitable for cultivating many different crops. However, in areas of the Eastern Region such as the Akwapim hills and parts of the central region, farmers searching for new lucrative income opportunities shifted into pineapple cultivation in the 1960's when 'swollen shoot' disease caused large tracts of Cocoa farms to be strategically burned (Ampadu-Agyei,1995; Obeng, 1994). According to the Government of Ghana, majority of the

residents of these areas (54%) draw their livelihood from farming and related activities with pineapple being the most produced crop (Ghana.gov, 2017).

Majority of pineapple farmers in Ghana cultivate crops on small to medium size farms with average farm sizes ranging between 0.5 and 5 hectares (Takane, 2004; Danielou and Ravry, 2005; Whitfield, 2012; Kuwornu and Mustapha, 2013). Large scale producer-exporting companies also own some farming land. However, many of these companies have either ceased production or reduced their direct involvement in cultivating pineapple, choosing instead to offer production contracts to smallholders for pineapple supplies (Achaw, 2010; Fold and Gough, 2008; Fold, 2008).

As a foreign exchange earner, pineapple exports from Ghana peaked at 72,000 tons in 2003 (Whitfield, 2012) but fell to an average of 17,000 tons between 2004 and 2007 (UNCTAD, 2012). The slump in pineapple exports is attributable to the introduction of a new pineapple variety to world markets by an international rival in 2003 (Fold and Gough, 2008; Whitfield, 2012). This caused farmers to lose substantial portions of their household income and plunged the pineapple crop sector into a period of learning until 2008 when exporting figure rose again to 42,000 tons (Kleeman, 2011). Between 2008 and 2009, pineapple export earnings increased 45% (Kuwornu and Mustapha, 2013) and in 2009 it contributed 7% of export revenue in Ghana (Sutton and Kpentey, 2012). Overall, Ghana maintained its position as the second leading exporter of pineapple in Africa after Cote d'Ivoire and the fourth leading exporter of pineapple to the European Union (UNCTAD, 2012). This makes pineapple an important crop with immense potential for poverty alleviation in Ghana (Sutton and Kpentey, 2012).

The pineapple crop subsector has made significant production gains in the years since 2008 with farmers achieving record production figures (Table 1). However, yields remain lower compared with leading producers in the world. For example; although Indonesia, Cost Rica and Ghana were the top three leading producers of pineapple in the world in 2014 in that order, both Indonesia and Costa Rica are managing to produce higher pineapple quantities by relying on smaller land area compared with Ghana (Table 1.1; FAOSTAT, 2017). This makes pineapple yields comparatively lower and links Ghanaian pineapple productivity closely with expansion in land size. As a strategy for expanding

pineapple production, this is limiting because farmers cannot raise production to meet growing demand when faced with conditions of land scarcity.

Table 1.1: Pineapple yield, area harvested and production compared: World top three producers, 2014

Country	Area Harvested (Ha)	Yield (hg/ha)	Production (Tonnes)
Indonesia	16, 000	1, 147, 182	1, 835, 491
Costa Rica	40, 000	719,496	2, 877,982
Ghana	105, 000	630, 000	661, 500

Source: Faostat, 2017

Several factors account for the comparatively low pineapple yields in Ghana. These factors can be classified in two main ways both of which fall within farmer side constraints. Firstly, farmers suffer direct constraints that relate with their lack of technical and technological capabilities (Kleeman, 2011). While farmers lack access to technical assistance such as extension and advisory services, they also lack the technology such as experience and management skills of employing yield improving resources to produce efficiently. Secondly, farmers suffer indirect constraints that are contextually generated. In particular, farmers generally lack access to finance capital, sustainable markets, and good infrastructure. In addition, farming lands are not generally protected by enforceable regulatory frameworks. Thus, for example; when faced with the prospects of losing control of their land, farmers are left with very few avenues for seeking redress. While arbitration at the courts is generally fraught with prolonged bureaucracies and excessive costs, parties who demonstrate that they have spent more money towards developing the land tend to be granted the right to retain control. Consequently, competing claimants such as real estate developers usually adopt the strategy of encroaching on land and quickly investing in developing the land with the hope of gaining a favourable decision at the courts. There are also reported cases of customary authorities receiving monetary handouts from competing claimants in order to subvert long standing customary arrangements to offer communal land to non-qualifying claimants (Gough and Yankson, 2000).

The consequences of the contestations and challenges faced by farmers have contributed to land tenure changes evidenced in increasing land related risks such as land litigation, multiple and competing claims. This has also contributed to increasing costs associated with tenure access with the

implication that poorer farmers and migrant groups are increasingly no longer guaranteed cheaper access to land (Gough and Yankson, 2000). This also contributes to lowering perception of tenure security and reduces the incentive to invest.

As discussed by the study participants during a preliminary field visit, farmers were concerned that costs and risks associated with land tenure was causing some farmers to exit farm production with others failing to develop the necessary confidence to invest in pineapple production. Some of the farmers preferred instead to produce a mix of crops claiming that such practices would guarantee returns from producing short term crops in the event of land loss. This is concerning as it defeats the objectives of developing the pineapple crop sector as an income and revenue source in Ghana.

Studies conducted to understand pineapple sector in Ghana have focused a lot of attention on the transaction costs and benefits of pineapple production (Ninson, 2012), and many other studies have examined the structure of the pineapple industry including its value chain processes (Whitfield, 2012; Fold and Gough, 2008; Fold, 2008). However, considering the importance of land as a resource for improving pineapple productivity in Ghana, it is surprising that no land tenure studies have been conducted to understand the characteristics of the current land tenure with respect to pineapple farming. This leaves gas in our understanding of the land tenure characteristics, including how land is distributed and whether the current distribution provides incentive to invest.

Accordingly, this study was designed to fill these gaps by examining the land tenure that provides access to arable land for pineapple farmers. Considering the importance of the pineapple crop sub-sector as a revenue and income source for government and farmers in Ghana, this research sets its objective to examine the characteristics of land tenure to determine whether pineapple production can be sustained into the future. Two further objectives are set to examine the links between perception of tenure and investment; and compare the distribution of land and its implications for land rights for the two main groups of pineapple farmers, contracted and independents.

1.2 The Research Focus

Contestations over access to arable lands are causing farming lands to shrink in many areas of SSA (Jayne et al, 2014). These contestations are driven primarily by urban expansion and population

growth (Jayne et al, 2014, Otsuka and Place, 2001; 2015; Wehrmann, 2008; Cotula and Neve, 2007). As a consequence, farmers who previously accessed land within the framework of customary tenure are being challenged over access by non-farming interests, especially real estate developers (Adam, 2014 a; Adam, 2014 b). This problem is predicted to worsen with a projected half of sub-Saharan Africans expected to live in urban areas by the year 2030 (UN-Habitat, 2010) and raises difficult questions about land rights, farming investment, and security of tenure for both farmers and non-farmers (Adam, 2014 c; Holden and Otsuka, 2014; Mougeot, 1998; Nugent, 2000).

These general trends are replicated in Ghana where farmers are increasingly being challenged over tenure access by urban land claimants. Pineapple farmers are challenged over tenure access by real estate developers who employ 'land gangs', groups of unemployed youth, as sub-agents to drive farmers away from the land. Real estate developers also connive with customary authorities to expropriate land from farmers by cutting short their tenancies. In some cases, customary authorities are encouraged to truncate existing land distribution arrangements by denying tenure access rights to vulnerable groups such as migrant farmers. Added to these problems are farmers struggle to discourage sand 'winners' from digging up sand from farm lands. Sand winners are groups of unemployed people who dig up sand to load tipper trucks that supply real estate developers and other urban land users with sand.

While current processes are resulting in the shrinking of arable land in peri-urban areas, it also serves to drive increasing land conflict, land encroachment and multiple claims (Kasanga and Kotey, 2001; Owusu and Agyei, 2007; Owusu, 2008; Jayne et al, 2014). The problem is compounded by the existence of land markets which, although provides alternative tenure access opportunities to customary tenure, tends to favour access for wealthy and powerful claimants (Holden and Otsuka, 2014; Amanor, 2010; Aryeetey et al, 2007; Gough and Yankson, 2000; Maxwell et al, 1998).

Against this backdrop, Ghana's pineapple farmers expect to draw their income and livelihoods from production while contributing to food crop diversification to satisfy increasing demand, both locally and internationally. However, under current conditions of peri-urbanisation and increasing tenure access challenges, some farmers are beginning to lose control of their land while others are

withholding investment for fear of future land loss. Under such conditions of increasing land scarcity, it is conceivable that farmers will find it increasingly difficult to access land for sustained pineapple production unless they take proactive steps to address emerging issues. However, despite the important role that land plays for pineapple production, no known studies have been conducted focused exclusively on land tenure and pineapple production in Ghana. Thus, the design of this study.

1.3 The Research Objectives

The objective of the study was to examine the land tenure that provides access to pineapple farming in the study areas. Given the current context of pineapple production in Ghana where farmers are engaged in commercial pineapple production, it is important to understand ways by which they can be supported to sustain production. To sustain production and enhance their chances of securing their income from pineapple production, farmers must either apportion more land, or retain control of their existing lands. However, very little research has been conducted to highlight the important linkages between land tenure and pineapple production. In particular, no research has been conducted to characterise the land rights of pineapple farmers in Ghana. As a consequence, the little is known about how pineapple farmers negotiate tenure access under changing conditions of peri-urbanisation and increasing land scarcity. This research tries to fill this gap by examining the characteristics of pineapple farming land tenure. The expectation is that this will provide insights into how pineapple farmers access and use land, highlighting the nature and extent of land rights in the process. This is followed by an examination of the links between perceived tenure security and the likelihood of investment on pineapple farming land. This is expected to inform our understanding about the motivation behind the decision to invest on pineapple farms given the risks associated with land tenure. Finally, a comparative analysis of the current distribution of land and its impact on tenure access rights for different groups of pineapple farmers, contracted and independent groups was conducted. This was expected to provide insights into equity issues with respect to changing land rights with the objective of understanding whether individualisation of tenure under conditions of land scarcity shifts the concentration of arable farming land to different groups. To achieve the objectives set for the study, a household survey was conducted in the study areas (Described in chapter three of

the thesis).This was complemented with focus group discussions and key informant interviews. The study objectives are stated as follows:

a. To characterise the land tenure that provides access to pineapple farming in the research areas

b. To examine the links between perception of tenure and investment

c. To examine the equity effects of land distribution for contracted and independent pineapple farmers

1.4 Research Questions

Following on from the research objectives, the three research questions were developed for further exploration. These are stated as follows:

1. How is Land Rights Characterised for Pineapple Farmers in the Peri-Urban Research areas? *This question is addressed along with its related issues in chapter four*.

2. How do current perceptions of tenure impact on investment types for pineapple farmers? *This question is addressed along with its constituent considerations in chapter five.*

3. How are Contracted and Independent Pineapple farmers differentiated with respect to Land Rights distribution? *This question is addressed along with its constituent sub-questions in chapter six*

1.5 Thesis Structure and Outline of papers

The thesis consists of an introduction, methodology and methods, and conceptual chapter. These are followed by three research papers that aim to each answer specific research questions generated about land tenure and pineapple farming in Ghana. The thesis is completed with summary chapter in which the main contributions of the research and recommendations for future research are presented.

Following this introduction, the data collection methodology and methods are described in Chapter two. This is followed by a presentation of a contextual framework for the study. Afterwards, the next three chapters of the thesis are structured into three research papers (chapters four, five and six). The three chapters are completely structured with their own focus and research objectives, methodologies and methods, analytical or theoretical frameworks as well as findings and conclusions. Their focus

and purpose are drawn from the main thesis objectives and research questions. Afterwards, a summary of the contribution of the research, conclusions, recommendations and suggestions for future research are presented in chapter seven to complete the study. This is followed by the list of references and appendices.

A summary of the three research papers is presented as follows:

a. **Chapter four:** '*Land rights and pineapple farming in a peri-urban context: case study of pineapple farmers in Nsawam and Awutu-Senya districts of Ghana':*

Drawing on the background of the pineapple sector described in the thesis introduction, this chapter begins by identifying some of land tenure challenges that farmers in peri-urban are facing and its effects on tenure access. The importance of the pineapple sector is also highlighted to show the need to understand the characteristics of land tenure that provides access to pineapple farming. Furthermore, the literature is reviewed to reveal an existing research gap and the contribution of the current research to closing that gap. The results of the study is presented to show that while customary tenure has remained the most common form of tenure access, an acceleration in the development of land markets is encouraging customary authorities and land owning groups to sell and lease out land. As a consequence, older forms of tenure access reserved for outsiders such as migrant farmers are no longer practiced. Land markets was also identified as a major reason behind land loss for poor farmers because land owners often reneged on their contracts and preferred instead to transfer land to wealthy real estate agents and other urban land use claimants. Although farmers in more traditional areas have not begun feeling the effects of land tenure changes, they are fully aware of current changes happening elsewhere near the fringe areas of the city limits. Most farmers also identify the action of real estate developers and urban sand winners as the major cause of arable land loss and look forward to soft forms of policy level intervention to rescue the situation. Urban Sand Winners are groups of people who fetch sand illegally from fallow lands for urban use purposes and cause damage to farming lands in the process.

b. **Chapter five:** *'Perception of tenure and Investment: Likelihood estimates of risk perception, perceived security of tenure and investment likelihood'*

This chapter examines the links between perceived security of tenure and investment on pineapple farms. A questionnaire was used to gather farmer perceived probability of investments given their current valuations of tenure security as moderated by endogenous land risk factors. The analysis focused on understanding the effects of perceived security of tenure on the likelihood of completing short, medium and long term investments. The odds ratio of the non-parametric logistic regression models produced results to show that risks associated with land tenure were important considerations in the decision to invest in pineapple farms regardless of tenure types. Farmers who had a low perception of risks associated with land tenure were more likely to invest in long and medium term farming practices compared with farmers who had a high perception of land tenure risks. However the differences between farmers with respect to short term farming practices was found to be insignificant. The implications of the results show that pineapple farmers are more likely to increase their investment under conditions where risks associated with tenure access are reduced.

c. **Chapter six:** **'***Distributional effects of changing land rights for pineapple farming under conditions of peri-urbanisation and farm commercialisation: emerging challenges for contracted and independent pineapple farmers in Nsawam and Awutu-Senya in Ghana'*.

This paper considers the view that under conditions of peri-urbanisation, contracting serves to exacerbate inequitable distribution of land between smallholders (Yaro et al, 2016; Cotula et al, 2009; Smalley, 2013). In particular, contracting serves as a platform on which contracted farmers can access higher income with which to insulate themselves against tenure access problems. However, very little research has been conducted in this area to compare within farming groups. Given the contextual background of pineapple farming in Ghana, large scale producer-exporting firms offer production contracts to smallholders as out growers for pineapple supplies. At the same time smallholders have continued production as subsistence farmers or independent groups who take advantage of existing markets to sell their excess produce. Correlation analysis and Mann-Whitney U-tests were conducted

to compare the two groups with respect to land tenure. The results were presented to show that due to their enhanced access to higher income from contracts and guaranteed markets, contracted farmers were better positioned to insulate themselves against land tenure challenges. Contracted farmers were found to access more land, own extra land in other areas outside the research areas and held more registered titles over land compared with independents. Contracted farmers were also better placed negotiate land purchases at the market making the likely group to seize control of more land for pineapple farming. The mixed implications of the findings are presented to show that while contracted farmers demonstrate the capacity to retain control of pineapple production under conditions of land increasing scarcity; independent farmers are susceptible to land loss and eventual elimination from participating in farm production.

Chapter Two

2. Methodology and Methods

2.1 Introduction

In this section, the methodological considerations employed for gathering and analysing data for the study are presented. The research process was organised into three main stages. In the first stage, the literature was reviewed to understand the land tenure issues affecting farmers. This was followed by a field visit to the study areas to gather preliminary data. The data provided insights into the peri-urban background of the research areas and was used as the basis for designing the study questionnaire and questions. In the second stage, the data was gathered with the assistance of fieldwork assistants. This involved the administration of questionnaires, focus group discussions and key informant interviews in different villages across the study areas. In the third stage, the data was analysed with the aim of writing the three research papers.

2.2 The Research Design

Research design provides a means by which methods of data collection and analysis are structured to make the research process meaningful and understandable within particularly tried and tested approaches (Denscombe, 2014). The methods employed for conducting the research were a Case Study. This included a household survey, Key Informant Interviews and Focus Group Discussions. As the research questions have focussed on understanding the actions of farmers with respect to land tenure, and their individual experiences and opinions within a defined social setting, a case study methodology was deemed appropriate.

A case study highlights and brings to understanding the actions of study subjects making it possible to draw conclusions and generalisations that can be compared with theory to generate meanings (Yin, 1994). This affords the researcher an opportunity to report research findings in an objective and

impartial manner (Yin, 1994; 2006). However, as a researcher who has strong attachments with pineapple farmers, and expects to see an improvement of their plight, the likelihood of presenting a subjective report of their experiences, even when attempting to be objective, can be high. As it is important to present information about the research objectively, the case study approach provides opportunity to conduct the investigations by forwarding the opinions and experiences of the research participants while maintaining my distance.

2.3 Mixed Methods Case Studies

Case studies are empirical investigations into current and ongoing phenomena. When employed, it enables the unravelling, and logical interpretation of complex and multi-dimensional issues embedded within individual lived experiences (Yin; 1994; Denscombe, 2014). In particular, case studies are very useful when the question under consideration relates to the 'why' and 'how' events were constructed so that the researcher is able to gather data and report them as a passive observer using multiple methods of data presentation (Yin, 1994).

However, most of the questions and issues affecting the research were related to dynamic changes in experiences of land tenure within an increasingly competitive and conflictive social-institutional and economic context. The processes of change were complex and multi-dimensional and required the use of different data gathering and measuring tools to generate meanings. This made it expedient to adopt a mix of both quantitative and qualitative methods to analyse and report the findings, making the adoption of a mixed methods case study design a suitable design strategy (Yin, 2006; Creswell et al, 2003, Cresswell, 2013; Denscombe, 2007).

The research can also be considered as a critical realist investigation as it provides new opportunities to investigate complex organisational problems while relying on the breadth of different factors to explain causation (Easton, 2010; Wynn Jnr and Williams, 2012). Thus, specific methodologies and methods were used to gather, analyse and report the findings for the three interrelated research questions.

2.4 The study Areas

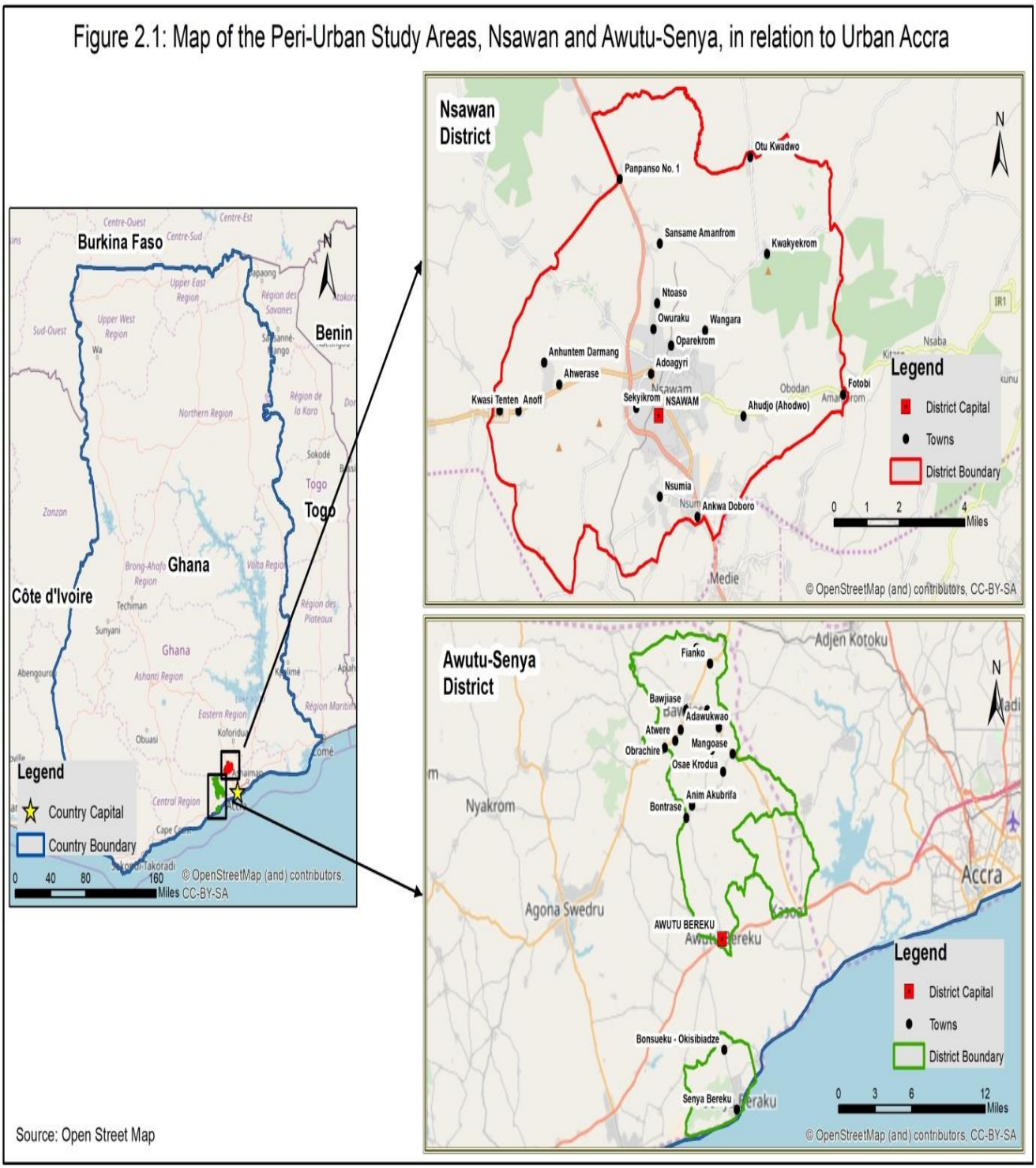
Two study areas located in the Eastern and Central Regions of Ghana were selected for the study (Figure 2.1). The first study area, Nsawam district (formerly Akwapim South District) in the Eastern Region, is a hub of pineapple production and has played a central role in the development of pineapple exports from Ghana to European markets. The second study area, Awutu-Senya District in the Central Region, is also an important pineapple producing areas and has contributed immensely in supplying pineapple to local markets. Both study areas have large scale producer-exporting firms and pineapple processing companies who offer production contracts to farmers for pineapple supplies. The two study districts are both located in Southern Ghana within easy reach of the large markets of the capital, Accra, major towns, main ports and harbours, and have good roads networks linking the areas to other parts of the country. In total, 135 households were surveyed through questionnaires. Also, 15 focus group discussions and 12 key informant interviews were conducted. The fieldwork data was collected in Ghana between the 5th of April and the 7th of September 2014.

Both study areas were chosen because they shared many commonalities. For example; most of the residents were *village peri-urban* households which qualifies them under the definition of peri-urban chosen for the study. Also, farmers in both areas were increasingly accessing land through a combination of customary tenure and other marketed forms such as leasehold and land rental, meaning that most of them no longer enjoyed the guarantees over tenure access accorded them under customary tenure. Competition and contested claims over tenure access rights with multiple claimants including real estate developers were also high leading to changes in land tenure arrangements. Thus, farmers were challenged in accessing arable farming land, their decision to complete farm investment and their ability to retain control over land to support their household needs.

Besides, both study areas have recorded high incidences of land disputes, land seizures by 'land gangs', and loss of land by poor and most vulnerable farmer groups, making the question of land tenure access, farm investments and equitable distribution of land for farming issues of paramount concerns for farmers. Both study areas also jointly negotiated the shift from Cocoa production in the 1960's to pineapple production in recent times, making them interesting case study areas for

understanding farmers can similarly negotiate changes caused by peri-urbanisation to sustain farming activities.

Figure 2.1: Map of the Peri-Urban Study Areas, Nsawan and Awutu-Senya, in relation to Urban Accra



2.5 Research Population and Fieldwork Protocols

Research Population

The research population or study participants, comprised pineapple farmers in the study areas, key personnel and agricultural extension service workers who operate in the areas, local residents and customary authorities in the areas. The fieldwork protocols leading up to the identification and selection of respondents are described in the fieldwork protocols below.

Fieldwork Protocols

In setting out the fieldwork procedures, meetings were held with pineapple growers' associations, local residents, and community leaders to explain the scope and establish protocols for conducting the research. Training was provided to a sizeable team of research assistants drawn from tertiary institutions in the area.[1] The pineapple growers associations were particularly helpful in providing lists of pineapple growers and smallholders within particular locations. This made it possible to use a proportionally representative stratified random sampling frame to identify and select smallholders for a household survey. Smallholders were then identified under contracted and independent groups.

Communication

English and the local Akan language were the standard mediums of communication. Sometimes respondents also spoke 'Broken' English. Researcher is familiar with either or all the languages. Trust was easily developed between researcher and participants and information was easily exchanged. There was always a two-way flow of information. Participants did appreciate that their voices were being heard. Lead research assistant is from the area and doubled up as an interpreter where required.

Infrastructure, Health and safety

There were no threats to the research team's safety. Poor road networks aside, all the research districts were free to visit at any time during the day. A West Africa wide Ebola threat caused health concerns but no such cases were recorded in Ghana at the time. Mobile phone networks cover all the study areas and made it possible to establish continued communication within the team.

[1] A sizeable team of 10 students from tertiary institutions in the area were recruited and trained to assist with data collection. Academic and support staff were on strike in request of better pay and remuneration and this resulted in a prolonged closure of their institutions. The students were therefore free to participate fully in the research.

Research assistants and training

The research team consisted of 10 research assistants and 2 supervisors. All research assistants were conversant in English and the local languages. Each supervisor was responsible for 5 research assistants and was required track down and complete at least one interview each per day subject to the setting of a confirmed meeting with smallholders. Research assistants were selected based on their knowledge of some research protocols, knowledge of the study terrain and their flexibility to meet smallholders at short notice. A three day field training and piloting day was provided in April 2014 at Fotobi, following which pamphlets were handed out detailing fieldwork procedures and protocols. The training involved understanding the purpose of the fieldwork, learning about the questions and questionnaire design, and understanding how to approach smallholders and the interview process.

Permissions

There are no definable authorities who grant permission for research covering the entire areas. Arrangements were made to inform the local agricultural extension offices and the district education authorities as a formality. Specific permissions were sought from the customary leaders of each village as custom demands. In their traditional roles, customary leaders do not have the power to exclude residents from participation. They act instead as facilitators who encourage everyone to participate so long as they determine the research to be in the interest of the community. Their subjects would then be informed to pave way for contacting and seeking permission from individual participants. The local pineapple producer associations were also able to grant permission once their members have been informed. A letter from the researching university and proof of identification, and sometimes backed by the issuance of a complimentary card was usually sufficient to establish trust and receive permissions.

General observations

The cost of traversing between two study areas in two different regions was high. So also was the cost of recruiting, training and maintaining a team of research assistants. While he time allowed for data collection was adequate, the research team was motivated and interested in the research objectives.

Selection of participants

Household survey: Participants were smallholders aged 18 and over who were either independent pineapple producers or were contracted to producer-exporting firms. A proportionally representative stratified random sampling frame based on the total numbers of contracted and independent smallholders was adopted. In total, there were 188 contracted and 352 independent smallholders in the study areas. A proportional sampling fraction of one quarter or 25% of each stratum was randomly selected thereby providing a proportionally representative sample of 47 contracted and 88 independent smallholders.

This approach is generally effective when (a) variability within groups is low (b) variability between groups are high and (c) there is a strong association between the sub-groups and the dependent variable. These conditions were met in the data and made the approach suitable for drawing inferences about contracted and independent smallholders. As a result, efficient, independent and more focused statistical estimates about the different sub-groups could be generated. This made it possible to use different analytical methods to analyse the data. Although a case could be made for oversampling contracted smallholders since they were in the minority, it was decided that this would bias the sample and skew potential measurements which would require adjustments in the final results to correct.

The population was drawn from lists provided by local cooperative associations. The local cooperative associations keep records of all pineapple farmers in the local areas. All pineapple farmers have access to mobile phones and those who were selected were tracked by phone to arrange interviews. Using phone numbers to generate population lists and tracking them by phone to arrange face to face interviews is a costly but effective method of guaranteeing that smallholders would be available for interview at pre-arranged times. While costs can be incurred from establishing initial telephone conversations to arrange interviews, the eventual interviews themselves are guaranteed reducing non-response rates.

Response rates were also encouraged by stating the study objectives clearly from the beginning and what financial or other benefits are on offer. This helped reduce the temptation for smallholders to seek financial rewards for participation. Especially so when smallholders tended to expect financial reimbursements for participation and were incensed that previous researchers had promised and

reneged financial rewards for participation. By stating the funding status of the research clearly and providing accurate information about the reasons for not offering financial rewards, greater understanding, cooperation and trust was generated to encourage smallholders to willingly participate in the research.

Key Informant Interviews: Respondents for the key informant interviews were adults aged over 18 years' associations who had either official or private association with the pineapple industry. These were also individuals who had insightful knowledge of the industry through experience, study, direct participation, by assignment or as interested local residents. The list was composed of junior, middle and senior level manager and employees of producer-exporting firms, agriculture extension officers or horticulturists, community heads and opinion leaders, and individual residents of the areas.

Purposive sampling frame was used for data collection with the research questions in mind. Variances between respondents were assumed to be unequal because they were assumed to have insightful knowledge of the industry based on their capacity as professionals, experts or individuals with distinct experience of the industry. Despite the differences in respondent positions, most of the information they gave in response to questions were similar and provided a firm basis for triangulating data from the Household Survey. Snowballing method was used to which require respondents to suggest desirable candidates to be selected for further questioning. Snowballing effectively enabled interviewees to recommend highly qualified candidates who provided very useful answers to the key questions.

However, the process of arranging interviews was costly and time consuming. Most selected respondents were either away on official duties and would be unavailable for interview within the timeframe allocated for them. Once tracked down, interviews could be interspersed by periods of long stoppages because interviewees may have received a sudden telephone phone call, a visitor or colleague has suddenly walked in to make enquiries or that they needed to suddenly rearrange the interview due to sudden work commitments. In most instances interviews arranged could not take place on the day because the interviewee was either in a meeting or away from work that day. Besides, access to, especially, senior level personnel tended to be very difficult to arrange. Arranging interviews sometimes required booking an appointment which could take weeks to gain approval and

poor road networks in some parts made it difficult to pursue more than one interview per day. The associated transport costs could be high especially when travelling with a sizeable team.

Focus Group Discussions: Focus group discussions consisted of between 6 to 9 participants who comprised selected smallholder and local residents. A moderator with detailed knowledge of the research goals and participant viewpoints was trained by the researcher and assigned the role of facilitator. The researcher's role was to observe interactions and note salient points while recording the discussions. There were occasions when it was necessary to seek clarifications to particular viewpoints.

Focus group discussions provided an opportunity to gather responses while observing the dynamics of interactions between participants. Thus, specific data about decision making processes in the industry were gathered from the decision makers themselves. The concentrated discussion about topics of interest to the research was also gathered for analysis and provided a basis for triangulating data from the household survey and key informant interviews.

The discussions were facilitated to allow a naturally occurring process by which participants shared their opinions, experiences and expectations in response to open ended questions closely related to the research aims and objectives. This made it possible for participants to share divergent and consensual opinions in an open hearted and permissive atmosphere. The process provided opportunity to understand emerging power dynamics between smallholders and producer-exporters, incorporate the voices of smallholders local residents into the research, understand the motivations behind the decision to commercialise or not, and understand how smallholders achieved consensus in real life. However, it was necessary to be flexible and willing to meet at short notices. Also, considerable expense was incurred transporting participants to meeting grounds. Furthermore, some participants wanted to dominate discussions while others appeared to agree with almost everything the group members said. This was indicative of the presence of social desirability and group think bias. However, discussions were guided in a manner that gave everyone opportunity to state their contributions as best as possible and facilitation was conducted in a manner that helped move questions on without upsetting the flow of discussions.

2.6 The Research Instruments

A preliminary study conducted by the researcher as part of preparation for the fieldwork study has already found farmers in the area exchange residual control over land and related assets through relational contracting. It was then established that the rules guiding land tenure access for farmers was a crucial function of production. As a result, the questions were designed to focus on understanding the similarities and differences between farmers in relation to their land tenure access and farm investments. Given that farmers also negotiated production contracts with large scale companies as out growers, it was also deemed necessary to understand how their farming intensification differentiated them from each other.

Face to face data collection was the preferred method used to collect data. This made it possible to gather data directly from industry actors who had first hand experiences of pineapple commercialisation. Although all pineapple growing areas in Ghana could not be surveyed, the selected fieldwork areas are important historical pineapple growing districts that provide opportunity to understand the industry in its totality.

Household Survey, Key Informant Interviews and Focus Group Discussions were conducted in two study areas that share many commonalities, making them suitable as case studies for comparisons to be drawn. A trained team of 10 University students were monitored and quality controlled throughout the data collection process.

Research work in the study areas were permitted so long as no threat is posed to the local community. On arrival, meetings were held with community leaders who summoned local farmers and family heads to attend. At these meetings, the objectives of the research were clearly outlined, and the logistics for conducting the research were communicated. The research team were also introduced to the community and informed consent was given by the participants involved. At these meetings also, any information about existing customary expectations and demands were noted.

*Data Limitations***:** The nature of the data made it suitable for conducting a research that highlights how opportunities are created for smallholders to link into international high value crop production and marketing arrangements. As a result attention was not focused on unpacking the power discourses and interplays that affect agreements between smallholders and large firms. This is a post-modernist

research area that can exude highly subjective pluralistic interpretations of reality and can be exceedingly difficult to articulate. Also, there was no determined effort to follow the trajectory of pineapple production, movement and exports to their final distribution centres and wholesale warehouses. Such an attempt would require a complete value chain analysis which needs to be the subject of a separate study.

Question used to collect data: Open ended and closed questions were used for data collection to provide participants the opportunity to sufficiently answer questions with the possibility of further elaboration. The questions were sufficiently described and introduced, screened, and in some cases divided into multiple parts to make it easier for participants to offer their views. Research assistants were dully trained to recognise difficult terminology, such as 'multiple claimants', and to disambiguate such terminology when administering the questions.

The research design and research instruments used for collecting and analysing data made it possible to produce the mixed methods research papers. They also made it possible to achieve the objectives of the thesis to provide insights into land tenure changes, perception of tenure and investments and differentiation in farmer's position with respect to land tenure access rights. A summary of the data collection, analysis and validation methods are presented in table 2.1 below.

2.7 Measures adopted to reduce bias

*Response and Bias: T*he accuracy of responses and representation of truth provides a basis for validating research works (Robson and McCartan, 2016) While it is important to employ an appropriate measuring tool to try and arrive at the truthful representation of the research findings, it is equally important to identify and draw knowledge from individuals who have insightful knowledge of the phenomena under investigation. This provides a secure basis for verifying the nature of information gathered and the content of the results produced to facilitate the possibility of replication (Robson and McCartan, 2016).

Social desirability: Enabling environments were created that enhanced privacy and comfort for respondents to be interviewed and respondents were sufficiently briefed on the objectives, importance and expectations of the research

Interviewer distortion and subversion: Sufficient training in interviewing techniques and fieldwork protocols were provided to field assistants and the questions were carefully worded to encourage independent responses from participants.

Table 2.1: Data collection, analysis and validation methods used in the papers

Research Paper and topic	Data collection methods	Methods of data analysis	Methods used for validation
Paper 1: (Chapter four) Land Rights and Pineapple farming	Primary: Household Survey: Structured and semi-structured questionnaire (Open and closed questions) Focus Group Discussions Key Informant Interviews: Face to face Secondary: Literature review	Mixed methods: Qualitative and quantitative	Key Informants Focus Groups Literature Comparisons Logic and Reasoning
Paper 2: (Chapter five) Tenure Security and Investment	Primary: Household Survey: Structured and semi-structured questionnaire (Open and closed questions) Field Observations Focus Group Discussions Key Informant Interviews: Face to face Secondary: Literature review	Mixed methods: Qualitative and quantitative	Likelihood estimations Comparisons Literature Interpretation and logic
Paper 3: (Chapter six) Equity and Land Distribution	Primary: Household Survey: Structured and semi-structured questionnaire (Open and closed questions) Focus Group Discussions: Facilitation Key Informant Interviews: Face to face Secondary: Literature review	Mixed methods: Qualitative and quantitative	Comparative analysis Correlation analysis Significance tests (Non-parametric) Interpretation and Logic

Response and non-response: The use of Face to face data collection made it possible to seek clarification to responses or clarify questions to respondents. This helped improve response rates and reduced false responses. Also, stringent supervision and quality control regimes were established to ensure good practice. Debriefings included discussions about the nature of responses compared with similar data gathered from similar areas. There were no non-responses because all selected participants were tracked and interviewed.

2.8 Data Analysis

Following the completion of data gathering, the data was grouped together and checked for 'fitness of purpose and legitimacy' (Cohen et al, 2013). Once the researcher had determined that the data was fit for purpose, it was then separated into its constituent parts and prepared for analysis and interpretation. It was determined that the household survey data was suited for quantitative analysis. That part of the data was therefore grouped together and prepared for analysis using the statistical software package SPSS. It was also found that the key informant interview and the focus group discussion data were more suited for qualitative analysis. They were then gathered and prepared for analysis.

The procedure for analysing the quantitative data involved developing a coding system for each of the question in the questionnaire that was used for the survey. On the one hand, direct responses for close-ended questions were entered into the software package without any need to vary the responses. On the other hand, responses for open-ended questions were categorised, then grouped into topic areas or themes and then entered into the software package. The software package used for analysing the data is considered appropriate software for conducting social science research and provides opportunity to measure data in different ways. For this study, the purpose of the analysis was to determine the differences between and within two main groups of pineapple farmers, contracted and independents. As a consequence, the data was split into the constituent groups and measured to determine frequencies and variations. Also, some of the data was measured to compare and understand the most important factors, from a list of variables, which contributed the most to farmers land tenure security and investments. Consequently, the software package was used to measure likelihoods, correlations and significance between the selected variables.

The procedure for analysing the qualitative data involved grouping the information given by key informant and focus group participants along the relevant topics. These were then organised into different themes to gain further insights. Following that, the information was compared against each other to understand their relatedness and interconnectedness. Themes that had a close relationship with each other were grouped together and any outliers in the data were noted and either included or excluded according to their relevance to the particular issues under consideration. The data was then reported as summaries, and statements. While the reported data was analysed and interpreted with a view to achieving the highest objectivity, the procedures chosen for conducting the analysis and reporting the findings involved the researcher's reliance on his available skill and understanding. This was an inevitable part of the research process for that the researcher could not eliminate. However, the research can be argued to have been completed as objectively as possible.

2.9 Ethical Considerations

The researcher took steps to ensure that the conduct of the research was not a source or cause for harm against anybody associated or dissociated with the research. As a consequence, recommended steps and principles for conducing social science research (Robson and McCartan, 2016) were followed. These involved adhering to allowing respondents to choose to participate consensually having the full understanding of the research aims and objectives. Respondents were also reminded that they could exercise their choice of withdrawal at any time and did not have to answer questions they felt uncomfortable with. The instruments used for gathering the data were designed in such a manner as to maintain respondent privacy and identities. Also, no special favours or financial inducements were advanced to encourage participation. Participants were given the option of accessing the final or summarised versions of the final report and were assured that the researcher would report the finding to reflect their views as accurately as practicable.

2.10 Conclusion

The approaches adopted to carry out the research were presented, discussed and justified in this section with the proposition to conduct a land tenure investigation. The case study approach adopted was considered suitable for promoting objectivity while facilitating the conduct od a critical realist

presentation of phenomena involving the research participants. The study areas were chosen due to their unique position as pineapple farming areas in Ghana and the research participants were drawn from a sample of one-quarter or 25% of identified pineapple farmers. Other participants for focus group discussions and key informant interviews were purposively chosen using the snowball method. The field work protocols were useful in enabling sufficient data to be gathered for analysis. However, the process of data gathering was fraught with heavy financial costs and farmers provided some indication to suggest that they were beginning to suffer from researcher fatigue. The method employed made it possible to draw a high response rate from participants while keeping within the bounds of ethical practice.

Chapter Three

3. Contextualizing the peri-urban space and access to land for farming

Contextualising the research makes it possible to appreciate the background to the study. In this section, the prevailing peri-urban conditions of the study areas are reviewed to understand the land tenure dynamics impacting the areas.

3.1 Conceptual considerations

The complex and diverse nature of peri-urban spaces make them difficult to define. Consequently, the literature recognises different definitions depending on the particularity of the peri urban space in question (Mbiba and Huchzermeyer, 2002). While some researchers identify the peri-urban space as '*continuous processes'*, others view them more as *'environments'* (Iaquinta and Drescher, 2000). However, the concept itself is linked heavily to the differences in demarcating between the 'rural' and the 'urban' spaces and calls attention to incorporating elements of both in a comprehensive definition. Peri-urban spaces are dynamic environments of social change where negotiated exchanges pave the way for redefining meaning with respect to property rights access and use over time (Narain and Nischal, 2007). Thus, while the spatial consideration is important for identification purposes, the manner by which individuals respond to change provides opportunity to differentiate between context specific cases.

Iaquinta and Drescher (2000) have stressed the importance of properly defining specific peri-urban areas as a crucial step towards identifying their situational and case specific nature. They argue that such identification paves the way for an effective definition and the identification of issues affecting the area for analytical purposes. Consequently, they begin their search for a suitable definition by identifying the demographic, economic and social-psychological components that differentiate between specific peri-urban types. This provided them the opportunity to identify and define five main types of peri-urban areas based on their level of urbanisation and geographical positioning (Figure 3.1).

The five peri-urban types are defined to contain specific degrees of urban influences, competition over access to resources and levels of conflict between individual claimants and overlapping institutions.

This provides opportunity to identify pertinent issues related to each typology for closer examination. In the *village peri-urban,* traditional institutions of authority remain predominant forms and there is strong adherence to social rules and norms. Although the flow of ideas between the urban areas and the village impacts changes to social-psychological systems, change is negotiated gradually due to strong attachment to cultural norms.

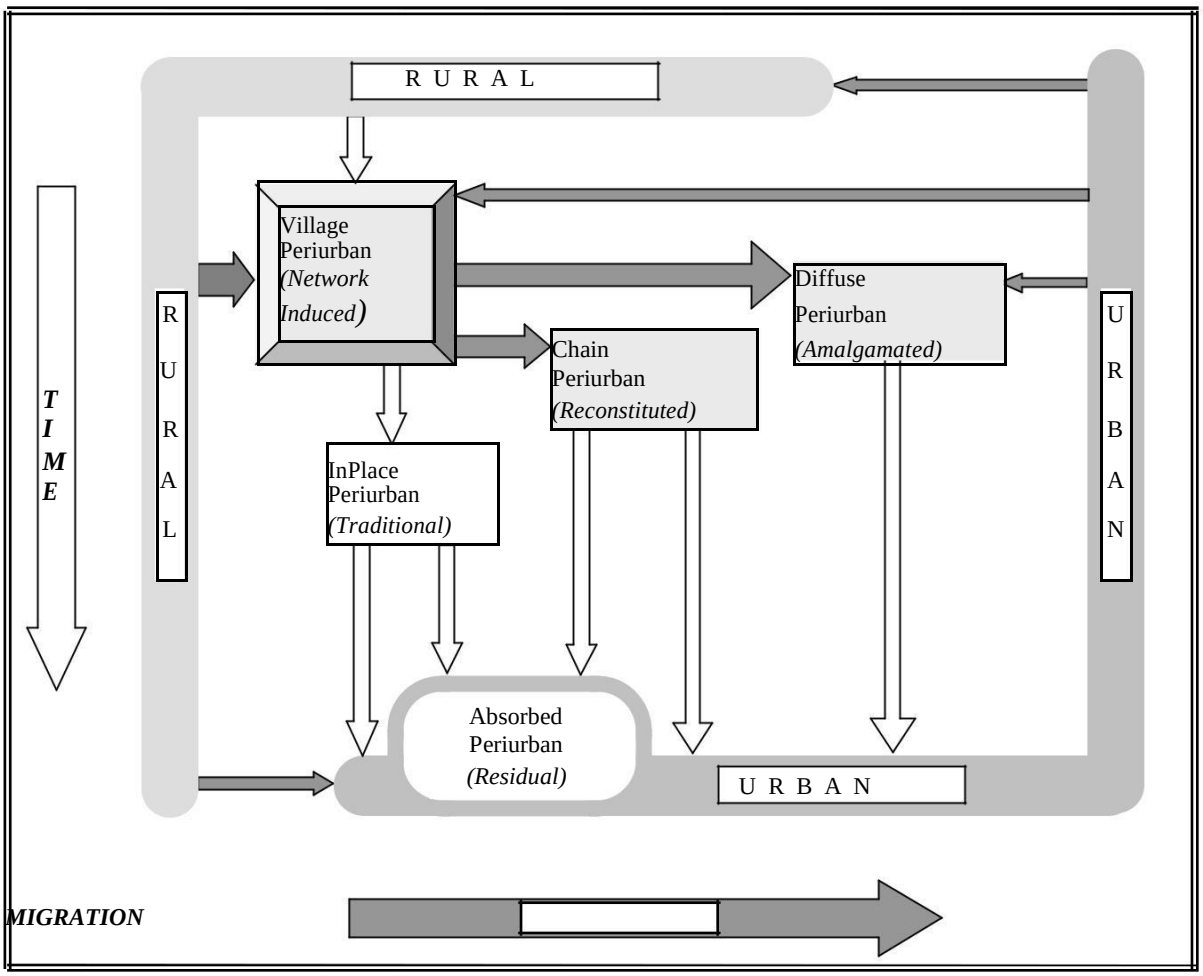
By contrast, the *In-place peri-urban* are urban fringes that are in the process of being completely absorbed. These are also areas where disadvantaged groups suffer great inequality and dispossession. Consequently, conflict and contested claims tend to be high and authority with power structures usurped in favour of the wealthy and powerful actors. Thus, the poor and vulnerable become worse off over time as the rich and powerful entrench their influence and control over resources.

The *chain peri-urban* areas are spaces where local citizens of a village have agreed to be moved to a new location. This is borne out of a need to retain the distinct identity of the people while reducing the impact of urbanising influences. This peri-urban type contrasts with the *diffuse peri-urban* area which is characterised by settler groups of migrants from different backgrounds. Residents of the diffuse peri-urban are mostly landless groups settling on unoccupied land as encroachers.

Finally, the *absorbed peri-urban* are areas that either fall within or closer to urban environments that have retained their traditional outlook. These are generally distinct areas that hold most of their traditional values and retain the core of relationships traceable to a common ancestry.

While there are clear connections and linkages between the different peri-urban types, each offers specific opportunity to define and analyse particularly context specific issues and provides an analytical framework for understanding the environment (Iaquinta and Dreischer, 20000). Considering the areas chosen for this research, the context can be described as the village peri-urban. This is because the research areas were located in villages outside the expanding urban area of Ghana's capital, Accra. The areas were distant enough from the city for residents to retain most of their traditional identity, but close enough to urban built up environments for residents to interact with and receive urban influences through the flow of migrants.

FIGURE 3.1: Peri-urban Typology with Institutional Contexts



Source: Iaquinta and Drescher (2000)

Furthermore, while some farmers had retained control of land as customary claimants, a sizeable proportion was relying on land markets to claim access. Besides, migrants were attracted to the areas both as farmers and settler residents. Thus, while contestations over land access rights were fought between farmers on the one hand, farmers were also struggling to ward off interest from real estate developers to maintain control of arable farming land. As a result, land was becoming increasingly marketed and expensive with multiple claimants clamouring to gain some form of access for different uses. This further identifies the research areas as *network induced institutional context* (Iaquinta and Dresher, 2000).

Network induced institutional contexts are, as defined by Iaquinta and Drescher (2000), 'tradition oriented' and retain their rural outlook. These are primarily farming areas with small population densities. However, the social-psychological orientation of the residents are urbanised due to their

proximity to urban areas. These areas are further characterised by gradual processes of change leading to redefinition of traditional values. Thus, the residents are open to the idea of relaxing rules and norms when circumstances demand.

3.2 Applying the peri-urban context to land tenure issues

A framework for applying the peri-urban context of the present research areas, following Iaquinta and Drescher (2000), is illustrated in Table 3.1 below. Here, the relationship between customary tenure access rules and pressures emanating from urbanisation, such as population growth and urban expansion, are stated to show the question of land tenure access as the predominant issue affecting relationships in the village peri-urban. Consequently, much of the orientation is aimed at clearly defining tenure access rules for different groups. This is important because of the proximity of the peri-urban village to urban markets. Thus, it links the question of access to property rights such as land with survival needs such as income.

Table 3.1: Land access rights indicators in the village peri-urban context

Property rights access indicators and needs	**Related issues**	**Urbanising pressures**	**Related issues**
Resources in question	Mostly Land	**Proportion of urban influx**	High and Increasing
Contestations over access	High	**Residual control**	Predominantly customary
Definition of property rights	Clearer in built up areas	**Access forms**	Multiple
Modes of distribution	Mostly customary	**Friction between access forms**	Low
Conflict level	Low		
Causes of conflict	Uneven distribution of land		

Source: Adapted from Iaquinta and Drescher (2000)

The need for redefinition of property rights is high in areas that are nearer the urban environment. While outsider groups are granted access, their accommodation depends to a large extent on their adherence to local rules. However, in more traditional areas, tenure access rights tend to be unevenly

distributed between locals and migrants setting the grounds for highly contested claims which gradually contribute to eroding traditional structures and arrangements.

By way of conclusion, it can be claimed that the while village peri-urban space is a theatre for contestations over tenure access rights, it sets the stage for negotiating residual control over property rights, especially land, which provides individuals the capacity to manage change, secure investments on land and access land for different uses (Wehrmann, 2008; Mbiba and Huchzermeyer, 2002; Kasanga et al, 1996).

3.3 Peri-urbanisation and land tenure

Land Tenure can be understood as an individual and/ or group perception of rights to promote participation and effect control over the value and use of land in a sustainable and beneficial manner. When individuals and groups claim rights over land, their claims are generally perceived as a continuum that grants them the power to claim exclusive rights of control, warding off counter claims and encroachment and consequently drawing gains from securing and investing in its use for collective benefits (Roth and Haase, 1998). Place et al (1994) have argued that an effectively justifiable claim over land should embody the spirit of three important characteristics. Firstly, claimants must be able to secure control over land by demonstrating the particularity of their 'bundles of rights'. Secondly, the bundles of rights must be guaranteed through perceived legality such that claimants are able to demonstrate a long standing associations or attachment to the land. Often such association or attachment is manifested in historical presence on the land and/or economic investments sunk into the land. Thirdly, claimants must be able to either demonstrate the relative absence of competing interests or counter claims to the land, or an ability to limit any such challenge from causing upheavals leading to loss of rights over the land. This is usually achieved, for example, through the establishment of clearly defined rules, negotiated agreements, forming alliances and resolving disputes through a recognisable medium of redress, such as the courts (Roth and Haase, 1998). In effect, the first two characteristics are designed to enhance 'de jure' access rights over land while the third concerns mostly with 'de facto' rights (Alston et al, 2009).

In general, particularities of land tenure access rules and their interpretations differ across geographical and cultural boundaries. Considering these differences in their peculiar effects provides

opportunity to understand how land is distributed and the effectiveness of such distribution in relation to agricultural performance. For example; while guarantees must be advanced to strengthen both de facto and de jure rights over land, extreme interpretation of rights can create the problem of exclusive control or the alienation of landless groups from accessing farming land. This makes land tenure a dicey issue especially when the reigning expectation is to advance more arable land to increase food production and calls for a careful examination of access rights and how land is distributed within changing institutional settings

3.4 Land tenure as farming access rights

The relationship between land tenure and agricultural production is complex and multidimensional and has implications for managing agricultural performance, especially in areas of the world where land policy and agrarian production are undergoing transitions. In these parts of the world, two competing but interrelated dynamics combine to make it difficult for farmers to gain secure guarantees over land making it difficult to expand farm production. On the one hand, existing land rights and ownership rules tend to have multiple dimensions that challenge farmer's ability to clearly state their particularity of rights and degrees of control. On the other hand, rights over land use are mired in multiple claims and raise the question of land distribution. These challenges have pervasive effects on managing farm production and call attention to securing tenure rights as a prelude to producing sufficient crops to meet growing food needs for a growing world population. Land is deemed generally as a resource to which all mankind has a right. Especially in rural Africa, where majority of people depend on land for survival, denial of access rights to land can serve a reason for the abject poverty of vulnerable groups and provide the reason for conflict leading to distrust, destruction and exclusion (Abdulai et al, 2011; Deininger and Binswanger, 1999; Platteau, 2000). Thus, perceptions of how land rights and land distribution are arranged can create impressions of flexibility or rigidity in society making land tenure security a desirable institutional form for guaranteeing land for farming purposes (Abdulai et al, 2011).

3.5 Property Rights Theory

The research examines the dynamic relationship between farmer's land tenure access and use rights within a constantly changing environment. It focuses attention on understanding how farmers within an institution exchange rights over land to promote participation and effect control for collective benefit. In other words, the examination involves understanding the relationship between individuals within a particular context and their associated rights expressed in a social setting. As a consequence, it was deemed necessary to draw insights from concepts that show how rights are shared within complex and often tenuous relationships.

Theoretical and analytical concepts were therefore drawn from Property Rights Theory, the concept of Residual Control over assets and resources, and New Institutional Analysis (Alchain and Demsetz, 1972; 1973; Coase, 1960; Eggerston, 1990; North, 1990; Ostrom, 1990) to provide an organising framework for understanding how common property and assets are generally negotiated to promote participation and control for common and or collective benefit.

Alternative approaches such as Transaction Cost Theory (Williamson, 1981; 1985) have been employed by researchers to show how efficiency savings can be achieved to improve production and profitability and how the costs and benefits of input-output use contribute to efficiency. This was not deemed useful for the study because making cost-benefit adjustments requires, first, an understanding of how asset specific exchanges and residual control rights (Grossman and Hart, 1986; Hart and Moore; 1990; Riordan and Williamson, 1985) are negotiated.

The concept of residual control advances the view that efficient resource allocation and use can be achieved if parties are prepared to negotiate control rights so that individuals who are better placed to develop an asset are placed in control of its use for collective benefits. For example; a farmer who owns or controls land but lacks the capitalisation to develop its use might choose to negotiating away some of the access rights. This way, both parties can negotiate an efficient contract over the land such the farmer accesses finance capital to reduce his or her constraints while the new claimant accesses land for farming. In the process, both parties would have negotiated away their inefficiencies,

promoting the development of the common asset to increase its access, security and investments. However, this negotiated process must be predicated on awareness of the costs and benefits by both parties rather than a forced settlement by outside forces.

Property rights theory also considers individual rights to property by distinguishing between secure legal guarantee rights or 'De jure' rights, and rights over control of resources or 'De facto' rights. While de jure rights guarantee outright ownership to individual claimants, de facto rights extend only control rights (North, 1990). However, depending on the prevailing circumstances and contextual guarantees over access, either form of control provides opportunity to develop an asset for common benefits.

Institutional analysis considers the customs, rules and norms guiding institutional actor behaviour and how responses are constructed to generate meanings. Depending on the particularity of rules, actors can define their various positions and roles in a manner that provides opportunity for collective benefit of a common property. For example; rules may be deemed stringent enough to effect compliance and control or relaxed enough to encourage noncompliance depending on prevailing feelings, beliefs and perceived benefits (Ostrom, 1990).

3.6 Conclusion

In this chapter of the Thesis, the key concepts and theories guiding understanding of individual and farmers response to Land Tenure change given the context of peri-urbanisation were reviewed to gain theoretical and analytical understanding for conducting the study. These were useful for providing insights into how different actors respond to increasing pressure on land; and the nature and forms of land tenure access rights changes that evolve as a consequence of such pressures. The review also provided opportunity to understand the concept of residual control and its implications for land resource sharing arrangements. This made it possible to develop an analytical perspective predicated on examining the evolving tenure types in the research areas and how current forms of tenure access contribute to differentiation between claimants, especially pineapple farmers. Insights were also gained into how land resource sharing arrangements promote participation and control over common resources such as customary lands paving the way for developing an analytical framework for understanding the linkages between land tenure and investment. Especially, how land claimants rely

on their legal guarantees to secure land and incentivise different degrees of investment. In particular, and especially so for understanding the contextual circumstances of villages located within the peri-urban fringe, a review of the institutional contexts and differences between peri-urban villages provided an opportunity to understand that while the different research areas shared many commonalities, the circumstances with respect to village locations imposed different types of pressures that needed to be understood and considered when analysing the data. In all, the review made it possible to understand the complex and multi-dimensional nature of challenges facing land claimants in the urban fringe of Ghana given the combined effects of increasing population, increasing contestations over tenure access, and continuing farming land shrinkages. This informed the decision to divide the focus of the thesis into specific papers to promote the targeting and focus on some of the different challenges in the research areas.

Chapter Four

4. Land rights and pineapple farming in a peri-urban context: case study of pineapple farmers in Nsawam and Awutu-Senya districts of Ghana

Abstract

Peri-urban areas on the fringes of urban cities in Ghana, and elsewhere in sub-Saharan Africa have become the subject of land tenure studies in recent times. The ways by which farmers deal with land tenure changes, urban land use claims, and urban demand for arable land has become the focal point of many enquiries. Of particular importance is the extent to which farmers adapt their land tenure to promote participation and control, and to sustain farm production. Considering that peri-urbanisation drives land tenure changes, this research focus attention on characterising the current land tenure that provides access to land for pineapple farmers in peri-urban Ghana. Attention is placed on how pineapple farmer's access and use land, and how land use processes contribute to forms of control over land. The paper finds that while farmers are taking proactive steps to retain control over land for sustained pineapple production, their efforts must be complemented with an active process of land use planning to manage tenure access for different groups of claimants.

4.1 Introduction

Ghana, like many other sub-Saharan African countries, is experiencing an increasing process of urbanisation beyond the limits of large towns and cities (Owusu, 2008). This process includes the transfer of arable farming land into urban land use (Gough and Yankson, 2000; Jayne et al, 2014). The process also contributes to changes in the socio-cultural environment of rural areas such as the imposition of urban forms of economic activities and the settlement of migrants in traditionally farming areas (Yaro et al, 2016). Although most urban land use claimants usually settle on unused lands, there are instances where farmers are uprooted from their land to pave way for urban settlers. While the process contributes effectively to tenure insecurity and investment disincentives, it has negative implications for the extent to which farmers can expand their farms to increase productivity.

In the peri-urban research areas chosen for this study, contestations over tenure access between farmers and urban land use prospectors has contributed to the accelerated development of land markets and increased costs associated with tenure access (Owusu, 2008; Gough and Yankson, 2000). This has resulted in land loss especially for farmers with no definable claims to customary land (Jayne et al, 2014; Lambrecht and Asare, 2015). Thus, farming groups who fall within these categories such as migrants are increasingly marginalised and looking to land markets to access arable land for farming (Cook, 2004). However, due to increased demand for land from competing sources, migrant groups and poorer farmers are easily priced out of tenure access (Kasanga et al, 1996; Gough and Yankson, 2000; Jayne et al, 2014). In particular, urban land use claimants such as real estate developers are increasingly able to rely on higher incomes from home sales and house rentals to price farmers out of land markets (Gough, 2000). Consequently, arable land loss is becoming a serious problem for farmers to deal with in some areas (Jayne et al, 2014; Lambrecht and Asare, (2015).

Cook (2004) highlights the presence of two forms of land dispute resolution mechanisms; Statutory Courts and Customary Arbitration. Customary arbitration arrangements are generally presided over by family heads and traditional chiefs who encourage claimants to amicably settle their differences. In areas where excess land can be found and the disputing claimants have customary claim, traditional authorities can offer alternative land where necessary. However, it is generally the case that most

disputes are sent to statutory courts. As noted by Cook (2004), land disputes are largely intra-clan or family meaning that customary authorities cannot be trusted by the parties to reach amicable settlements. Cook notes that the plurality of legal options available does not necessarily guarantee effective justice. In an examination of the reasons for preferring the choice of arbitration by land claimants, Cook finds that statutory courts are incapable of handling caseloads expeditiously leaving a backlog of cases and long delays before final outcomes. Cook also finds that high costs associated with bringing legal proceedings makes statutory courts relatively inaccessible to poor and vulnerable groups with the result that illegal claims are seldom unchecked while genuine claimants are left in despair. Thus, while flaws inherent in both forms of dispute resolution mechanisms call the need for definitive forms of enforcement that promote justice, claimants are left primarily to choose their own means of securing land.

Competition over tenure access also drives increasing processes of tenure formalisation with claimants taking steps to secure control of their land through titling and registration (Gough and Yankson, 2000; Lambrecht and Asare, 2015). This process creates incentives and disincentives that have implications for land loss and land gain for different groups. For example; while high costs associated with tenure formalisation with its accompanying long bureaucracies has the effect of encouraging customary authorities and landed but poor farmers to take advantage of higher prices to sell off land, the same reasons account for land gain by wealthy claimants (Goldstein and Udry, 2008). This gradual process is increasingly contributing to shifting the concentration of land away from customary control and drives changes to the institutions of land tenure. Gough and Yankson (2000), summarise the possible end result of these changing processes in peri-urban Ghana by observing that while most arable land has been sold out in some areas and leaves no room for farming, associated costs of tenure access were exceedingly high in land scarce areas. Consequently, land tenure access is increasingly concentrating in the hands of claimants whose primary objective is to access land for speculative purposes and non-farming use.

Peri-urbanisation of previously traditional farming lands in Ghana is a major factor causing land conflicts, litigation, multiple claims and changing institutions of land tenure. This imposes additional

constraints on farmers as they grapple with discovering how to develop their technical and technological skills to improve productivity. As farmers face the prospects of land loss and challenges of claiming exclusive control over land away from competing claimants, it is important to understand how land tenure changes affect crop specific forms of production. Given the importance of pineapple farming in Ghana (Fold and Gough, 2008; Kleemann, 2011; Kuwornu and Mustapha, 2012) no studies have been conducted focused specifically on land tenure and pineapple production in Ghana to inform our understanding. Also, very little research has been conducted in Ghana focussing on crop specific responses changing land tenure. This has left a gap in the literature that this study has sought to close.

Following this introduction, the literature is reviewed to understand how farmers land rights are shaped, especially under conditions of land scarcity in peri-urbanising contexts to gain insights into existing gaps and provide motivation for the study. Afterwards, the methodology for conducting the research is stated to include a presentation of the research objectives, theoretical framework, and description of the data. The results are then presented and discussed to highlight the characteristics of pineapple farming land claimants, how pineapple farmers access land, land rights changes, risks associated with land tenure, and how land use processes contribute to security of tenure. This is followed by the conclusions and recommendations of the study.

4.2 Literature Review

Land Tenure Access Rights in Ghana

Land is an important resource for farm production in Ghana. Especially for pineapple farmers, expansion in area of cultivated provides opportunity to make productivity improvements (FAOSTAT Global production database, 2017). According to Ghana Lands Commission (2017), land tenure in Ghana is complex with multiple forms of access. While tenure access forms differ between regional and ecological zones, they also differ between different ethnic arrangements. Thus, land tenure comprises a mix of different customary access forms and formalised arrangements. In general, land tenure can be differentiated into five different tenure forms as stipulated by Ghana's lands ministry.

These are: Allodial control, customary control, customary leasehold, common law access, and Formalised leasehold.

Allodial control represents the primary form of tenure access under which many of the other forms are generated. This form of control is held by customary authorities such as traditional and paramount chiefs who are charged with the responsibility of looking after the land on behalf of local born citizens. Under this form of control, the power to allocate land rests primarily on the customary authority based on the principle of inalienable rights of citizens to access land as a means of household survival. Although land can be sold to outsiders such as migrants under Allodial control, any such decision must be communally sanctioned meaning that no one authority has the power to transfer land. However, within the arrangement, claimants are able to bequeath land to next of kin or transfer land temporarily to other users under limited arrangements.

When land is allocated to individual claimants from Allodial title holders, this makes the claimants effectively customary title holders. Customary control is generally held by native born citizens on usufruct basis. Usually, claimants who have established connection to the land by way of prolonged presence and use tend to assert their usage rights. Household members of such claimants can also claim portions of the land for their usage needs. The presumption under this form of control is that claimants can retain control of the land so long as it is needed. However, under conditions such as prolonged fallowing other community members might be able to assert their right to use such land. Customary claims can be transferrable to other users and outsiders so long as consent for such an undertaking is granted by the relevant traditional authorities. It is therefore not uncommon for customary claimants to offer land to third parties in the form of leasehold rental.

Common leasehold rental are forms of tenure access commonly granted to a user by the relevant individuals or groups who have obtained land as customary claimants. Since customary claims were granted to native born citizens as a means of giving them the means to sustain their households, such rights are generally extended to offering short periods of tenancies to outsiders. Some of these short tenure access forms provide opportunity for groups such as migrant farmers and settler groups to

access land with the most commonly known arrangements being the ‘abusa’, ‘Oyekye’ and ‘abunnu’ share cropping agreements. These are arrangement by which land can be granted to tenant farmers on different conditions such as the customary land owner claiming variously agreed shares of the harvest from tenant farmers. However, in recent times following the commodification of land, it is not uncommon for customary claimants to rent out land for direct financial gain. However, there are circumstances where land is granted by Allodial title holders under common law access and leasehold grants.

Common law access and leasehold grants share many commonalities. Both forms of tenure access are generally granted by Allodial tile holders and permit the claimant to register their title formally in the Ghana lands registry. Thus, in both cases the claimant can rely on their title to use land as collateral. However, while leasehold grants are limited, up to 99 years, common law access is a form of permanent grant either through outright sale or gift. Thus, common law claimants are able to own land exclusively without fearing the risk of losing control in the foreseeable future.

The different tenure access forms can be categorised to place Allodial holders, customary freeholders, customary leaseholders and Leaseholders under Customary Tenure while Common law access is placed under outright ownership. Pineapple farmers in the study sample access land as outright owners, leaseholders, gift recipients and customary claimants. This places the latter three forms under customary tenure while the former remains under formalised control. These distinctions have implications for tenure security, arable land loss and land loss for established groups of pineapple farmers and calls attention to understanding the crop specific characteristics of pineapple farming land tenure.

Land tenure and access to arable land in peri-urban Accra

Land tenure studies conducted in peri-urban areas in Ghana to understand the effects of peri-urbanisation and farming development have focused attention on farmer tenure access constraints under conditions of land scarcity. While some of the studies have suggested that farmers should be assisted to intensify production of high value crops, many other studies have argued the importance of

preserving arable farming land away from the reaches of urban land use claimants. However, little attention has been placed on characterising the land tenure that provides access to arable land for specific crops to inform our understanding. The peri-urban land tenure literature in Ghana is hereby reviewed to highlight existing gaps in the literature and the contribution of this study to closing the gap.

Peri-urban agriculture offers opportunity for farmers to take advantages associated with proximity to urban markets; such as high demand for food crops, low transportation costs and nearness to urban infrastructure such as ports and harbours, to gain access to secure income and employment. In a study conducted to highlight the importance of urban and peri-urban agriculture in Ghana, Cofie et al (2003) contended that while peri-urban agriculture contributed significantly towards achieving food security and food nutrition by offering farmers an opportunity to make efficiency savings on production and marketing costs, farmers suffered severe risks associated with land tenure access that needed to be minimised in order to sustain farm production. In particular, the study identified the prevalence of land conflicts and contestations over tenure access between farmers and urban land use claimants as major risks that disincentives farming investment. The study draws attention to the need to implement land use plans that facilitates farmers' access to land and protects arable lands from being claimed by urban land users. Importantly, this study highlights the imminent risks associated with tenure access for farmers in peri-urban areas in Ghana. However, it does not provide specific information to show how pineapple farmers fare in managing such risks.

Risks associated with tenure access in peri-urban Accra, Ghana, were also explored by Maxwell et al (1998) who assessed the effects of peri-urbanisation on land tenure access for different groups of claimants such as farmers and real estate developers. The study found that peri-urban land tenure was fraught with extenuated risks such as increased litigation, competing and contested claims and conflicts over tenure access between groups of claimants. These contestations were found to be contributing to land tenure changes and resulted in an increasing process of shifting rural lands into urban land use hands. The study also found that changes in land rights were causing landlessness for vulnerable groups such as women and migrants. Based on the findings of the study, Maxwell et al

suggest the need for policy level intervention to assist in planning a land use policy that protected farmers' right to access land for food production. They also call for arable land to be preserved in certain areas to support crop intensification of farm production. The implication of the study highlights the need for forms of land tenure intervention to support crop intensive farming as a means of developing farmer capacity to secure higher incomes with which to secure control of their land. However, even though the study identifies the importance of focusing attention on understanding the links between land tenure and specific crop production, it fails to make any such linkage with a specific crop.

In Owusu (2008), the land tenure access right between indigenous populations and migrants were compared to understand how land was distributed between the two groups in peri-urban Accra, Ghana. The study found that while land tenure was gradually shifting towards individualisation of rights away from customary tenure, the accelerated development of land markets was contributing to land scarcity and high cost of tenure access. Indigenous populations who previously accessed land cheaply through customary tenure were found to be competing in land markets with migrant groups to access land. The study shows that land tenure changes in peri-urban areas resulted in land scarcity making it difficult for indigenous populations to access customary land. However, no indication was provided in the study to show how land tenure changes affected the fortunes of farmers, especially pineapple producers.

In Gough and Yankson (2000), the increasing reliance on land markets as a form of tenure access in peri-urban Ghana is further explored. Although majority of land was found to be controlled by customary claimants, it was observed that customary lands were increasingly being converted from farming to urban usage. Land markets were found to be conflictive with multiple claimants clamouring to access arable land. Also, customary authorities and land owning groups were found to be willing to take advantage of high land prices to sell land to non-farming users. While customary authorities were found to be willing to sell land belonging to the community to enrich themselves and their households, most of the new land claimants were found to be individuals who bought land either for speculative purposes or non-farming use. At the same time, indigenous populations were found to

be unwilling to hold customary authorities to account because of their high sense of adherence to tradition. The study argues that falling short of outright land tenure reform, a land use planning arrangement that combines some form of customary control with land markets should be explored in order to improve tenure access rights, especially for farmers. The implications of the findings of the study shows that farmers in peri-urban areas face the prospects of land scarcity and will increasingly look to land markets as a means of accessing arable land. The study also highlights the gradual loss of arable land meaning that farmers will increasingly look forward to productivity improvements by resorting to methods other than expansion in farm size. However, the study does not delve deeper into identifying the effects of land scarcity and land markets on access to pineapple farming lands.

Per Kasanga et al (1996) who investigated the links between land tenure and legal issues in peri-urban Ghana. They study found that customary guarantees provided opportunity to register claims. However, high costs of tenure registration and long bureaucracies significantly reduced the changes of title registration. Thus, only wealthy and powerful claimants were generally able to complete their tenure registration. It was also found that customary authorities sold land in the open market making land allocation ambiguous with multiple claimants sometimes allocated the same piece of land. The study highlights a shift in tenure access from customary claimants to wealthy and powerful individuals and an increasing resort to land markets as a form of tenure access. The implications of the study show that under conditions of land scarcity, farmers could lose control of arable land with consequentially negative effects on their ability to increase farm production through farming land expansion. However, the study does not focus particular attention on how land tenure changes affect farmers who produce specific crops.

The peri-urban literature that examines the links between land tenure and agricultural production in peri-urban Ghana is limited and remains in the process of development. The literature needs to be expanded to cover different areas and ecological zones (Lambrecht and Asare, 2015). Recurrent themes in the literature identify the need for land tenure interventions as a strategy for improving tenure access for farming purposes. While some of the literature questions the commitment and effectiveness of government in drawing an effective land use policy that protects arable lands from

being claimed for urban land use, others go beyond the questions to suggest specific strategies for improving land tenure such as the creation of arable land use reservations. A very small section of the literature goes further to suggest the linking of arable land tenure issues with the promotion of crop intensification and marketing schemes as a means of developing farmer capacity increase their earnings and use some of the proceeds from trade to invest in securing their tenures) Maxwell et al, 1998). However, none of the literature has moved further to examine the land tenure that provides access to arable land for a specific crop and therefore leave gaps to be explored. Understanding farmers' crop specific land tenure provides opportunity to understand whether farming the crop is sustainable within the context of the area in which it is cultivated. This is important to show the extent to which land tenure changes affect the productivity of the particular crop and provides indication to measure whether steps should be taken to protect farmers who produce the particular crop. Given the importance of pineapple farming as an income, employment and revenue source; and its contribution to reducing food insecurity and food malnutrition, this research expands the literature by examining the links between land tenure and pineapple production in the peri-urban context of the selected study areas.

4.3 Methodology and Methods

Given the context of pineapple farming in the study areas, farmers are expected to increase production to meet growing demand. However, peri-urban land tenure in Ghana is characterised by associated risks, contestations over tenure access, litigation and land conflict. Land rights are also shifting towards tenure individualisation with farmers increasingly looking to expensive land markets as a means of accessing land. Wealthy and powerful claimants are also increasingly accessing land for speculative purposes and non-farming use while customary authorities and land owning groups are increasingly subverting traditional rules and selling off land for non-farming use. As a consequence, farming lands are shrinking and farmers who have no secure claims to land are becoming landless. However, the specific effects of these changes in land tenure for pineapple production have not been documented making it difficult to understand whether current processes of land tenure changes have a

direct effect on pineapple production. Consequently, this study sets its objectives to characterise land tenure with a specific focus on pineapple production.

Data from fieldwork studies (Key informant interviews, focus group discussions and household land tenure survey) are integrated to provide a combination of iterative interpretation of respondent answers to key questions about land tenure and an analysis of fieldwork survey data to provide a comprehensive and insightful report. Farmers were required to share their experiences and opinions about land tenure as well as provide valuations about the extent to which their perception of tenure security and risks associated with tenure access contributed to their farm investment decision making processes. Thus, open and closed question, and structured and semi-structured questionnaires were used to gather the data. The research areas, Nsawam and Awutu-Senya districts are important pineapple producing areas in Ghana and share many commonalities such as ecological zone and farming backgrounds. Thus, the data was grouped together to provide a general picture.

The results of the research are presented to provide information that goes beyond simply describing the survey data. Interlinkages between the different data are therefore explored. The results are therefore organised to address research questions such as: What are the demographic backgrounds of pineapple land claimants? What are the characteristics of pineapple farming lands? How do pineapple farmers use land? What forms of control do pineapple farmers have over land? How sustainable is land access and use for pineapple farming?

Theoretical Framework: Evolutionary theory of land rights

Evolutionary theory of land rights (Boserup, 1965) is considered an insightful guiding light for understanding how land tenure change affects land access rights (Platteau, 1996). Consequently, the evolutionary theory will be reviewed in this section to gain further understanding. Platteau (1996) provides an excellent review of the theory. Thus, and for the purposes of this paper, a summary review is presented drawn primarily from Platteau.

The foundations of the theory rest principally on the evolution of land tenure under conditions of peri-urbanisation. That is, when population growth and land markets have developed in areas where land

tenure institutions were communally controlled. The theory stipulates that the evolution of land rights will shift towards formalised and regulated forms and argues that under such conditions the tenure formalisation would be likely appropriate responses. However, critiques of the theory such as Platteau (1996) have argued that most of the expected gains from establishing privatised forms of tenure stipulated in the theory would be exceedingly costly, highly prescriptive and inadequate for solving land tenure problems at the community level.

Among its stipulations, the theory suggests that various stages of evolutionary development of land tenure would accrue under conditions of change, beginning with land scarcity caused by increasing population pressure over tenure access rights. This breeds uncertainty over tenure access causing contestations, competed claims and conflict over land rights. While these processes continue, there would be increased recourse to enforcing compliance through legal means to settle disputes making claimants shift land tenure towards formalisation, regularisation and registration. The theory suggest further that at this stage, claimants will acquire the means to benefit exclusively from land use and develop their capacity to use land as private property drawing direct and collateral forms of investment from land. The process is also expected to generate a move towards land reallocation, promoting residual control by eliminating inefficient claims thereby reducing conflict and litigation costs and improving revenue collection from taxation to fill national coffers (Boserup, 1965).

However, it would appear that some of the stipulations outlined in the theory do not necessarily fit the conditions pertaining in peri-urban areas such as the one chosen for this research. Although land tenure appears to be shifting towards individualised forms, as demonstrated in the background section of this paper, some of the other predictions of the theory about efficiency savings are negated within the reality of farmer experiences. For example; while the theory suggests that claimants would tend to benefit from land tenure changes at the privatisation stage, the reality of farmer experiences shows a trend towards land expropriation and usurpation of land rights. This makes the theory fail to account for the plight of claimants whose livelihoods stand to be destroyed following land loss. Thus, the theory fails to provide meaningful practical solutions to the problem of and tenue change within the contextual conditions of the chosen study areas.

Furthermore, while the theory has contended that most of the changes will necessarily occur as path dependent processes of change, it would appear that under current conditions groups that tend to lose out from land tenure changes might need some forms of intervention to develop their capacity to maintain control over land. Under conditions of land scarcity, it is doubtful whether already impoverished farmers can benefit developmentally from current changes (Deininger and Byerlee, 2012). For example; current processes of land tenure change is causing some farmers in the research study areas to lose their land and vulnerable farmers are finding it difficult to raise the needed finances to access land at the markets. Thus, if the stipulations of the theory were allowed to take root, it would likely result in unbalanced development leaving certain groups of claimants without the means and wherewithal to sustain their livelihoods.

A later stipulation of the theory that argues in favour of taxation at the formalised control stage also fails to meet the reality of existing conditions in the research areas for this paper. Land claimants remain constrained in the extent to which they can pay taxes even when their land is formally owned. This is because some claimants suffer production access constraints while others engage in producing food crops for non-market use such as household subsistence needs. There are also groups of claimants who expropriate land for speculative and non-farming use (Gough and Yankson, 2000; Aryeetey and Udry, 2010; Jayne et al, 2014), meaning that substantial portions of land could shift into the hands of individuals who do not incrementally improve its value for common gain. Thus, the imposition of taxes on such groups is likely to yield little or no returns. In reality, some of the poorer claimants require assistance to improve their productive capacity if they should be developed to the point of paying taxes.

The evolutionary theory of land rights has provided useful insights into understanding many issues related to land tenure change and contributes effectively to developing an analytical framework for examining current developments in the study areas chosen for this paper. However, most of the stipulations embedded in the theory, especially the latter expectations; do not appear to fit current needs in the peri-urban research areas where land scarcity and contestations over tenure access rights has caused farmers to lose vital arable lands on which their livelihoods depend. Consequently, it remains an important argument to explore avenues for intervening to correct imbalances rather than

allow evolutionary processes to continue to wreak havoc on farmers' livelihoods. This paper, thus, examines the land tenure changes that occurred and its effects on farmers in the research areas. The paper aims to provide useful insights about land tenure changes and suggest options for dealing with the negative effects of such changes. Thus, such factors as the cost and processes of managing change to protect vulnerable claimants become an imperative objective of the study.

Data

Case study methodology (Yin, 1994; 2006) was employed to gather and analyse the fieldwork data (described in detail in chapter four in this thesis) about land rights, tenure access modes and the current allocation and distribution of land in the research areas. Researchers conducting land tenure studies commonly use case studies to capture the dynamic processes of change (Denscombe, 2007). The case study approach is justified in the careful selection of the two study areas located in peri-urban Ghana where pineapple cultivation is a main stay for farmers. While the study areas are located in different administrative regions of Ghana, they both fall within the same ecological zone and are both located along the Togoland ranges. Also, both areas have been former Cocoa growing until swollen shoot disease caused the destruction of Cocoa plantations leaving behind the currently rich loamy soil suitable for pineapple cultivation. The study areas were therefore purposively selected based on the study objectives.

Data representing respondent opinions, attitudes and preferences were gathered through key informant interviews, focus group discussions and the use of a household survey questionnaire. The questions were intended to gather responses about changes in land tenure, and the allocation and distribution of land. Attention was also focussed on gathering information about changes in land ownership and use. While key informants such as representatives of large scale producer-exporting firms and agricultural extension officers were questioned to gather the more technical viewpoints, the questionnaire was administered to smallholders in a survey. The focus group discussions were also organised to include local residents, members of cooperative unions and traditional authorities taking gender and power balance into consideration for constituting the groups.

Rather than rely exclusively on data provided by respondents who had direct experience of land tenure changes such as those who have lost their land, it was assumed that gathering data from all

respondents in the sample population was necessary to provide a fuller picture and flag out inconsistencies in the data. The presumption was that most, if not all, farmers, held important knowledge about land tenure and were capable of contributing meaningful information to assist with attaining the study objectives. Besides, since farmers who experience loss of farming land generally tend to move elsewhere in search of new farming land or new employment opportunities, focussing attention on isolating them for questioning would have been time consuming and difficult to complete within the time set aside for fieldwork study. For the purpose of answering the research questions in this paper, the fieldwork data was sufficient and provided opportunity to triangulate responses.

The data was analysed using descriptive statistics and qualitative descriptions. While descriptive statistics were drawn from the questionnaire responses, data from key informants and focus groups were written as texts. The analysis was conducted with reference to existing theories and research findings on peri-urban land tenure and the results were integrated and presented to show topical and thematic linkages.

4.4 Results and Discussion

The results of the study are provided to provide insights into the characteristics of pineapple farming land claimants, how pineapple farmers access land, land rights changes, risks associated with land tenure, and how pineapple farmers use land. The implications of these issues on tenure security and sustainable access to land are also explored as follows:

Demographic and background characteristics of pineapple farming land claimants

Important features of the survey data with respect to the demographic and background characteristics of pineapple farmers accessing land in the sample are summarised and presented in Tables 4.1a and 4.1b. Pineapple farming land users can be described to comprise a mix of indigenes and migrant farmers. The claimants are mostly an active work force averaging between 28 and 55 years. However, the overwhelming majority of claimants are male. This implies that most pineapple farming land is concentrated in the hands of male farmers and raises the question of gender imbalance in the distribution of land. A sizeable proportion of pineapple land claimants, 50.4%, are also household members. While this provides indication to suggest that household heads are not in full control of

pineapple production, it highlights the complementary role played by individual family members in income generation within households. This is not unusual since income and wealth are communally generated and shared in traditional households.

A worrying trend is highlighted in the results to show that claimants have generally low levels of education. For example; only a total of 8.7% of respondents have post-secondary school education with just 1 claimant (0.7%) having a graduate degree. This has potential consequences on farmers' ability to understand the long term effects of changing land rights and calls attention to proactively engaging farmers with education campaigns in order to sensitise them about the potential consequences of peri-urbanisation on the distribution of land. This need is buttressed by the fact that most land claimants, 63%, have prolonged attachments to pineapple production meaning that they will find it necessary to engage with development workers to negotiate appropriate land tenure responses.

Table 4.1(a): Demographic characteristics of pineapple land claimants

Characteristic	Measure	Frequency (n = 135)	Percentage (100 %)
Age	18 - 25	4	3.0
	26 - 35	28	20.7
	36 - 45	58	45.0
	46 – 55	36	26.7
	56 and over	9	6/7
Gender	Male	127	94.1
	Female	8	5.9
Experience (Years)	5 or under	34	25.2
	6 - 10	38	28.1
	11 – 15	27	20.0
	16 and over	36	26.7
Education (Level)	Primary	50	37.0
	Junior Secondary	32	23.7
	Senior secondary	25	18/5
	Technical/Polytechnic	9	6.7
	Undergraduate	11	8.1
	Post Graduate	1	0.7
	Other	7	5.2
Crop Intensification	Pineapple only	44	32.6
	Mixed crops	91	67.4
Social status	Household Head	66	48.9
	Household Member	68	50.4
	Other	1	0.7
Non-farm Income	Yes	59	43.7
	No	76	56.3

Source: Compiled from the fieldwork data

The results highlights further that claimants who access land are primarily producers of mixed crops, 67.4%. This point to reliance on producing a mixture of crops as a form of insulation against market and food security shocks. As most farmers are primarily concerned with producing to meet their household consumption needs, planting a mixture of crops provides some guaranteed access to family food nutrition while offering avenues for selling excess supplies at the markets as a means of raising supplementary income. Opportunities for raising non-farm related income are generally low (43.7%),

meaning that pineapple production is the major means of raising supplementary income for most households. The implication of the results draws attention to the development of the pineapple sector as a means of sustaining livelihoods. Especially for farmers located in the urban fringe areas around Accra and other towns, it highlights the importance of land use planning to reserve land for different types of users, both farming and urban. In particular, the activities of urban land use claimants such as real estate agents, sand winners and 'land gangs' have been identified by farmers as the most serious challenges to land rights in fringe peri-urban corners of the research areas. Given that demand for food crops increases with urban settlements, devising a suitable land use plan can serve the dual purpose of preserving arable land that can be used to produce food crops to supply urban markets.

The rest of the data with respect to the characteristics of pineapple land claimants is presented in Table 4.1b. Farmers are distinguishable in their claims as Contracted (34.8%) and Independent (65.2%) groups. Contracting offers opportunity for selected farmers to gain secure guarantees over market access and higher incomes from processing companies and exporting firms. Although the sample is skewed in favour of Independent farmers, it highlights the fewer opportunities available for accessing contracts. In particular, firms that offer contracts rely on selection criteria that include the requirement to own land securely, and the capacity to produce certifiable pineapple to market standard requirements. This accounts substantially for the lack of access to contracts as some farmers do not have the capacity or capitalisation to produce to these requirements.

Further indicators from the results show that pineapple land claimants in the sample are mostly full time residents (90.4%) and primarily native citizens (85.2%) of the research areas. While this provides indication to suggest that majority of the claimants may be accessing land through customary tenure, it highlights the vulnerabilities that other claimants face within the changing dynamics of land enure. For example, a good proportion of claimants (14.8%) are from migrant farming and other backgrounds. In particular, the Nsawam area has a sizeable number of migrant residents who trace their association and settlement in the area to the period before Ghana gained independence in 1957. These groups consider that that their rights to access land is paramount for their survival and expect their land rights to be protected. However, following several petitions to have their rights to access

land recognised, little progress has been made making them vulnerable to land loss under changing land tenure conditions. Some members of this group have formed themselves into pineapple farmers associations in an attempt to pool their resources together to improve their changes of accessing contracts and maintaining control of farming land. However, with limited guarantees accorded them over tenure access and little policy level efforts to secure some form of land for the group, they consider their continued pineapple farming participation day pretty numbered. This is in spite of some members of the group claiming that they happen to be the more active group of pineapple farmers compared with indigenes.

Table 4.1(b): Demographic characteristics of study participants (Contd.)

Characteristic	Measure	Frequency (n=135)	Percentage (%)
Farming Orientation	Contracted	47	34.8
	Independent	88	65.2
Residential status	Full time	122	90.4
	Part time	8	5.9
	Non-Resident	5	3.7
Household Size (Number)	3 or less	7	5.2
	4 - 5	33	24.4
	6 – 8	67	49.6
	9 -12	21	15.6
	13 or more	7	5.2
Ethnic Origin	Native	115	85.2
	Migrant	20	14.8
Religious Background	African Traditional	1	0.7
	Christian	129	95.6
	Moslem	5	3.7
Union member	Yes	69	51.1
	No	66	48.9

Source: Compiled from the fieldwork data

The impression is also created from the results that while majority of land claimants are registered with a union and follow the common religion of Christianity, conflicting rights over tenure access such as contestations can be resolved amicably within these institutions. However, with substantial proportions of households (70.2%) registering between 6 and 13 members, one cannot fail to notice

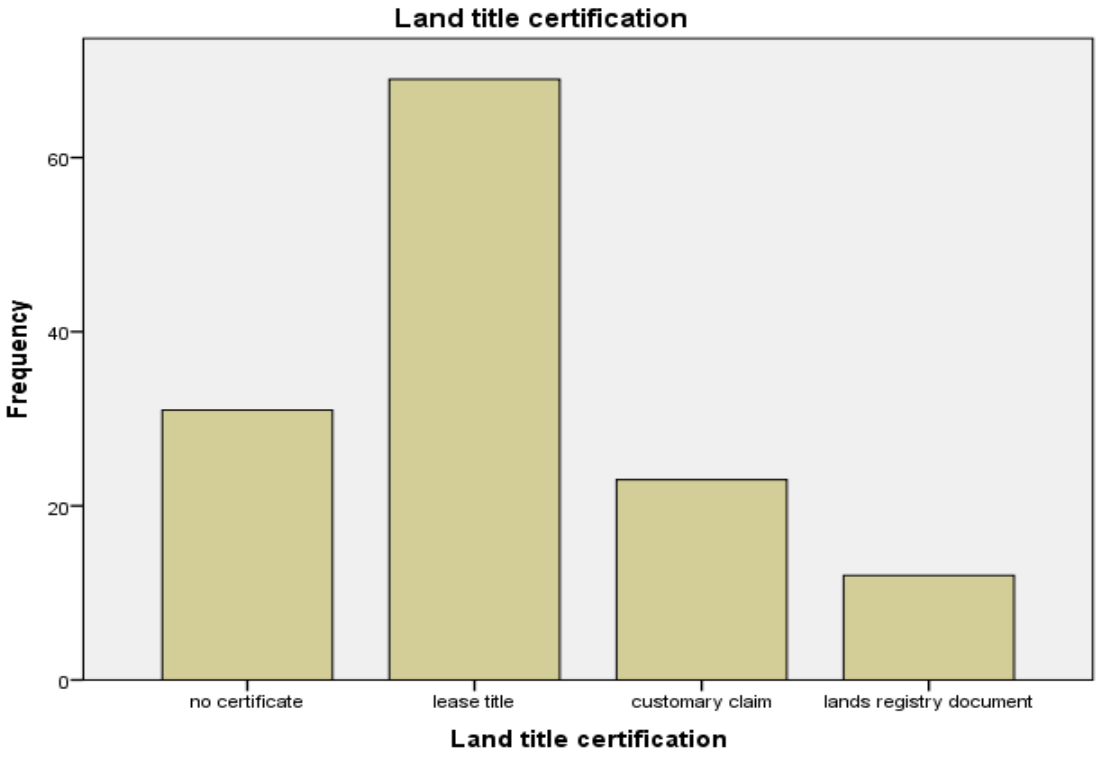
the potential for increased future land fracturing and possible future land sale by smallholder claimants. As land continues to draw a higher premium as a commodity under peri-urbanising pressures, it is highly likely that some farmers will be forced to sell of their land as a strategy to mitigate potentially high risk of losing land to encroachers or expropriators. This has implications for managing land use arrangements in order to preserve substantial portions of land for sustained farming use and calls attention to forms of intervention to support farmers with formalising control of land such as individualisation and registration.

Land Access Rights and Pineapple farming

Claimants of pineapple farming land rely on a mix of de jure ownership rights (16.5%) and de facto rights to claim access to land. Although land transactions such as sale and rental are generally frowned upon under customary tenure rules, an increasing shift towards tenure individualisation can be observed across the study areas. There are instances where customary claimants are reported to have either registered land accessed under customary rules and or leased such lands out to third parties. It was therefore considered important to examine this incidence more closely. The results presented in Figure 4.1 provide indication to suggest that despite reported incidents of usurpation of customary tenure rules; very few farmers in the sample have actually registered their title over land. There is however some indication to support claims that customary lands are being leased out to third parties. For example; while leasehold access appears the most commonly reported access form, most leaseholds were negotiated from customary claimants.

As noted by Jayne et al (2014), it is not uncommon for customary claimants to sub-let their plots by relying on their acquired limited transfer rights drawn from prolonged occupation of the land (Lambrecht and Asare, 2015). These arrangements are however fraught with challenges and mal-practices. For example; while leaseholds are generally negotiated over short durations such as 5 year periods, some customary claimants have asked for substantial payments in advance and provided longer leaseholds. As land in some areas such as the urban fringe has come to attract higher premiums, these ‘landlords’ have also negotiated deals with real estate developers and breached their initial agreements with farmers.

Figure 4.1: Land title certification for pineapple farmers



In particular, one of the focus group participants highlights this issues by claiming that real estate developers who negotiate such contract simply employ the services of 'land gangs' to uproot farmers from the land without regard to whether the land has been cultivated with crops or not. It is also claimed that compensation usually paid for land loss falls far short of incurred losses leaving farmers with little options for seeking redress. A serious consequence of land loss is that farmers forced out of farm production while others are left with little option than to seek waged employment elsewhere. The rest of the results with respect to land access rights and pineapple farming are presented in Table 4.2.

Leaseholds are a popular form of tenure access for pineapple farming. However, most leasehold is negotiated from customary claimants. This makes customary claims the predominant tenure access form used for pineapple production.

Table 4.2: Land ownership and pineapple cultivation

Category	Measure	Frequency (n =135)	Percentage (% = 100)
Tenure access type / mode	Customary	55	40.7
	Purchase	21	15.6
	Leasehold	58	43.0
	Gift	1	0.7
Average size of land (Hectare)	0.5 or under	2	1.5
	0.6 - 1	20	14.8
	2 – 5	53	39.3
	6 – 10	36	26.7
	11 or over	24	17.8
Proportion of land used for pineapple cultivation (Hectare)	0.5 or under	10	7.4
	0.6 - 1	23	14/0
	2 – 5	63	46/7
	6 – 10	25	18.5
	11 or over	14	10.4
Land owned. or controlled elsewhere	Yes	48	35.6
	No	87	64.4
Distance of land to market centre (Kilometre)	5 or under	107	79.3
	6 -10	26	19.3
	11 -15	2	1.5
Distance of land to purchasing firm (Kilometre)	5 or under	60	44.4
	6 – 10	56	41.5
	11 – 15	12	8.9
	16 or over	7	5.2
	1 or less	17	12.6
Duration of tenure(Years)	2 – 5	26	19.3
	6 – 10	36	26.7
	11 – 15	21	15.6
	16 or over	35	25.9

Source: Compiled from the fieldwork data

Outright purchases are also quite prominent and provide indication to suggest the presence of a thriving market for land in the research areas. However, contrary to suggestions and expectations that most pineapple farmers in Ghana are smallholders with farm sizes between 0.5 and 5 hectares (Ninson, 2012), the results suggests that 60 out of 135 farmers in the sample are medium to large

scale land owners controlling over 6 hectares of land. Also, a sizeable proportion of claimants, 28.9%, apportion more than 6 hectares of land for pineapple farming. This means that some farmers are operating as large scale producers and signposts the possibility that this group of farmers may be accessing more land. This is further depicted in the data to show that a large proportion of farmers in the sample, 35.6%, own or control land outside the research areas. The most likely explanation for this development is that farmers who have access to contracts are relying on their guaranteed access to markets and higher income to claim more land within and outside the research areas.

Most lands owned by pineapple farmers are located within 5 kilometres of the nearest market centres and pineapple purchasing firms. While this is advantageous for market access and provides contracted farmers easy access to purchasing outlets, independent farmers also gain from their location by selling to purchasing firms during periods of high market demand. Independent farmers also sell pineapple to local traders such as market women who buy from farm gates and re-sell at local markets to retailers, hawkers and street sellers. The advantages of location make the research areas desirable for sustained pineapple farming and highlight its potential contribution to food security for urban dwellers. However, it would appear that more secure guarantees over land claims may be needed to preserve land for farmers. Indicators from the results show, for example, that only a total of 68.2% of land claimants have controlled their land for 6 years and over. While this provides indication to suggest that many farmers enjoy some form of short term security of tenure, it calls attention to whether farmers translate this form of security into investment incentives. As an indicator, the duration of tenure provides strong indication of tenure security and has an association with the incentive to invest. However, given that claimants can also make investments aimed at improving the security of tenure, it is important to understand how these linkages are constructed within pineapple farming. This has implications on the relationship between perceived tenure security and investment, and hold potential for signposting whether farmers might be inclined to increase or decrease their farm investment given positive or valuations of tenure security.

Changing Land Rights and pineapple farming

In general, the link between land rights and sustained production defines the extent to which land resources can be secured for continued usage (Roth and Haase, 1998). While this has implications for tenure security, it also provides insights into understanding issues related to sustainable land use. The results are therefore presented to examine farmer perception about land tenure changes and their effects on land retention for pineapple production in Table 4.3. Farmers identify real estate developers as the most serious challenge to land rights. Although, land loss and land sale by customary authorities were sighted as possible changes, the majority of farmers (65 out of 135) felt that land had has become more expensive in recent times. Also, a slight majority of farmers (51.9%) felt that some of the changes were caused by pineapple farming. A sizeable proportion of respondents also suggested that farming lands were shrinking due to the combined activities of real estate developers and sand winners.

A serious consequence of land tenure change is that farmers, primarily migrant groups, are increasingly forced to rely on land markets to access land with the implication that poorer claimants are gradually priced out of accessing arable land. Additional effects of land tenure changes such as soil degradation caused by the activities of sand winners are also becoming increasingly noticed as serious challenges needing attention. However, despite these concerns, many farmers still maintained that land tenure changes were not severe enough to threaten food security. Although farmers were in the main becoming aware of the increasingly conflictive nature of tenure access, they remained adamant that under current tenure arrangements in the more rural and land abundant areas, land tenure arrangements remained sustainable to provide opportunity for continued pineapple production. This was not however the position held by farmers who were located in the fringe areas of the expanding urban areas.

Table 4.3: Changing land rights and pineapple production

Observation	Measure	Frequency (n =135)	Percentage (% = 100)
How do changes affect land rights?	Higher land prices	65	48.1
	Land loss	17	11.8
	Sale of land by customary authorities	20	14.8
	No change	34	25.2
Are changes caused by pineapple farming?	Yes	69	51.9
	No	65	48.1
	Unsure	1	0.7
What factors are causing land tenure changes?	Real Estate agents	84	62.2
	Sand winners	25	18.5
	Shrinking farm lands	10	7.4
	Unsure	16	11.8
How do the changes affect your land?	Soil degradation	46	34.1
	High litigation	13	9.6
	Distrust of land owners	25	18.5
	Food insecurity	12	8.9
	Unsure	39	28.9
What are your impressions about current land tenure?	No problem	40	29.6
	Very conflictive	55	40.7
	Needs Improvement	36	26.7
	Change ownership structure	4	3.0

Source: Compiled from the fieldwork data

It is clear from the results presented in this section that farmers in the sample have mixed opinions with respect to land tenure changes. While some groups, especially those located in more traditional areas maintain a more positive perception of land tenure, others whose lands are located in more urbanised areas have the opinion that land tenure changes threatened their continued capacity to retain control of land. This makes it pertinent to not only sensitise farmers in the traditional areas about the need to secure their rights into the future, it also calls attention to devising specific ways by which farmers located in the immediate fringe of expanding urban areas can be protected from potentially devastating land loss.

Perception of risks associated with land tenure and Pineapple farming

Land rights, defined as the ability to retain control over land as a continuum, has implications for tenure security and the incentive to invest (Sjaastadt and Bromley, 1997; Roth and Haase, 1998). While this affects the extent to which individual claimants make investment decisions, it has risk management quotients that must be better understood in order to measure the degree of land rights.

The results are presented in Table 4.4 to show the valuations of perceived risks associated with tenure access and its implications for investment. Farmers were asked to measure their valuation of risks in relation to three identified risk factors affecting land tenure in the research areas, land conflict, competing claims and litigation. These are also considered tenure security variables and provide indication to show whether farmers hold perception of secure or insecure tenure in general. Other than multiple claims from internal household pressure such as family members, farmers were of the general opinion that competing claimants did not pose the most serious challenge to land rights. This relatively low perception of risks associated with multiple claims was attributed to the effectiveness of existing customary arbitration arrangements. While competing claimants are generally indigenes who may have claims to a piece of land by virtue of being extended members of the current land user, there is a high adherence to customary rules and procedures for making such kinds of claims. It is the considered opinion of many respondents that incidents of such nature were very rare in the past. However, in recent times and especially in the more fringe areas, family members are beginning to negotiate land transfers away from family heads causing land to be sold to different buyers. Despite this development, it would appear that majority of respondents in the sample, 83.7%, have no direct experience of multiple claims over their land.

The results presented in Table 4.4 were designed to also understand how claimants perceived certain risks associated with tenure access. Claimants were therefore asked to make value judgements with respect to perceived risks. This was designed to capture feelings in general as a mean of understanding whether land rights were perceived as a gain or loss given contextual risk factors.

Table 4.4: Perception of gain/loss associated with using land

Gain/ Risk factor	Measure	Frequency (n=135)	Percentage (%=100)
Multiple claimants	Family	13	9.6
	Local authority	1	0.7
	Third parties	5	3.7
	No other claims	113	83.7
	Unsure	3	2.2
Perception of Land conflict	High	31	23/0
	Medium	8	5.9
	Low	96	71.1
Perception of competing claims	High	14	10.4
	Medium	5	3.7
	Low	116	85.9
Perception of litigation	High	43	31.9
	Medium	36	26.7
	Low	56	41.5

Source: Compiled from the fieldwork data

Land conflict was designed as a variable to capture the totality of perceived risks associated with the external environment. Thus, perception about factors such as potential changes in national level policy affecting land tenure, and wider land tenure conflicts at inter-clan level were expected to be captured. Respondents held a generally low perception of risks associated with land conflict, 71.1%, meaning that very few farmers expected land conflicts to impact negatively on their decision to invest. This is surprising given that some farmers in the sample have experienced land loss (At least one migrant farmer has claimed to have been forcibly ejected from his leased land). Also, given the peri-urban context of the research areas where real estate agents are highly operative, it is surprising to have a high proportion of the sampled farmers maintaining such highly positive view about land tenure.

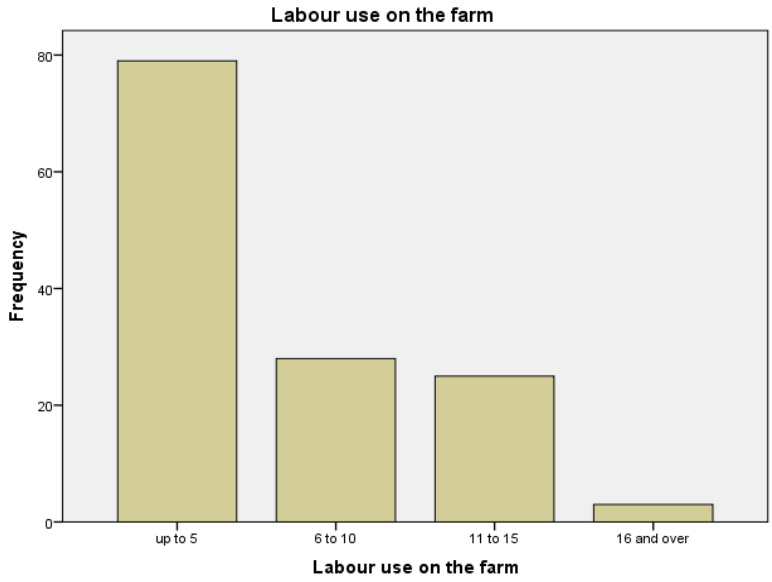
Perception of competing claims was also designed to capture the extent to which both intra-family and extra-family risk factors associated with quarrels and disagreements over ownership rights, affect land tenure. The results were presented to suggest that while respondents held a generally low perception of risks associated with competing claims, it was the valuation of most farmers (85.9%) that this was not serious enough to jeopardise continued retention of land for pineapple farming. However, with

respect to litigation, designed to capture respondent feelings about the impact of third party interest on land such as real estate developers, the results was mixed. His provided indication to suggest that risks factors associated with tenure access were perceived to be greater when the challenge came from external sources such as third parties.

Land Use and pineapple farming

Features of the survey data are summarised in Figure 4.2 and Table 4.5 to show land use processes for pineapple farmers.

Figure 4.2: Investments in Labour use on pineapple farms



Land use processes are also forms of investment, and can be grouped as short, medium and long term investment types (Lambrecht and Asare, 2015). These forms of investment relate with security of tenure in two distinct ways; as security inducing investment that improve the chances of maintaining control of land over longer periods. Labour use on pineapple farms by the sample respondents was small. For example, nearly 80% of farmers employed no more than 5 workers on their land. While this provides indication to suggest that farmers may be relying more on household labour as a means of cutting costs associated with farm production, it highlights the main considerations behind the decision by large scale producer-exporters to offer production contracts to farmers. Key informants contended that farmers benefit from cost savings in the area of land rent and labour which makes it

possible to produce relatively cheaper, and has been a major consideration in the decision to offer production contracts for pineapple supplies.

Additional land use processes as forms of investment are summarised in Table 4.5. In total, 86 respondents have stated that they have proactively taken steps to secure their land through hedging, fencing or some form of demarcation. Similarly, a high proportion of respondents, 86.7%, have either engaged in land fallowing or are confident of fallowing land. This is surprising because previous studies have suggested that high risks associated with land tenure, especially in peri-urban areas in Ghana, make land fallowing a risky and least favoured method of improving the quality of land (Goldstin and Udry, 2008).

However, given high contestations associated with land rights at the more fringe areas adjacent to expanding urban settlements, claimants in such areas are less likely to fallow land compared with their counterparts whose lands are located in more rural parts.

Other forms of investments in land use targeted at improving the quality of the land such as the use of land to produce a wide variety of crops, investing in land preparation and investing in securing land for at least five years, cash crop planting and applying inorganic manure on the farm were carried out by the overwhelming majority of respondents, providing a good indication to suggest that majority of farmers drew their motivation to complete such investment due to the relatively secure guarantees accorded them over land use rights. However, with respect to farmer's ability to draw transfer rights from their land such as using land forms of collateral or selling land to raise finances, there is a sense of limitation to farmer's rights.

While 71.9% of respondents were unable to sell land under their control, 79 out of 135 respondents did not feel as though their rights extended to using their land as forms of collateral. Perception of investment in buying land, generally associated with speculative land purchases, were high, 57.8%, indicating that farmers were willing to purchase land in the research areas.

Table 4.5: Land use as forms of investment for pineapple production

Investments	Measure	Frequency (n=135)	Percentage (%=100)
Land fencing / hedging	Strongly agree	84	62.2
	Agree	2	1.5
	Unsure	28	20.7
	Disagree	18	13.3
	Strongly disagree	3	2.2
Land Fallowing	Strongly agree	117	86.7
	Agree	3	2.2
	Unsure	4	3.0
	Disagree	11	8.1
Mixed crop planting	Yes	128	94.8
	No	7	5.2
Land preparation	Yes	130	96.3
	No	5	3.7
Apply inorganic manure	Yes	126	93.3
	No	9	6.7
Use land (next 5 years)	Yes	128	94.8
	No	7	5.2
Sell land	Yes	35	25.9
	No	97	71.9
	Unsure	3	3.0
Use Land for Credit	Yes	52	38.5
	No	79	58.5
	Unsure	4	3.0
Cash crop planting	Yes	110	81.5
	No	25	18.5
Buy land	Yes	78	57.8
	No	52	38.5
	Unsure	5	4.7

Source: Compiled from the fieldwork data

4.5 Conclusion

Important findings of this paper are reported to show that under peri-urbanising conditions of land tenure, tenure access is becoming increasingly contested between different claimants, both farmers and urban land users. This is causing the concentration of land to shift gradually into non-farming hands and contributing to increasing cost of tenure access for farmers. However, the problems are more pronounced in the urban fringe areas adjoining the city of Accra and other large towns.

The results of the study highlight the need to regulate land markets to ensure that arable farming lands are secured and preserved for sustained farming use. In particular, urban land use claims should be controlled and confined to particularly demarcate urban development corridors away from arable farming lands. This will ensure availability of suitable land for both farming and urban use processes. Such a step will also ensure that farmers are able to take advantage of proximity to produce and supply nearby urban markets.

Chapter Five

5. Perception of tenure and Investment: Likelihood estimates of risk perception, perceived security of tenure and investment likelihood

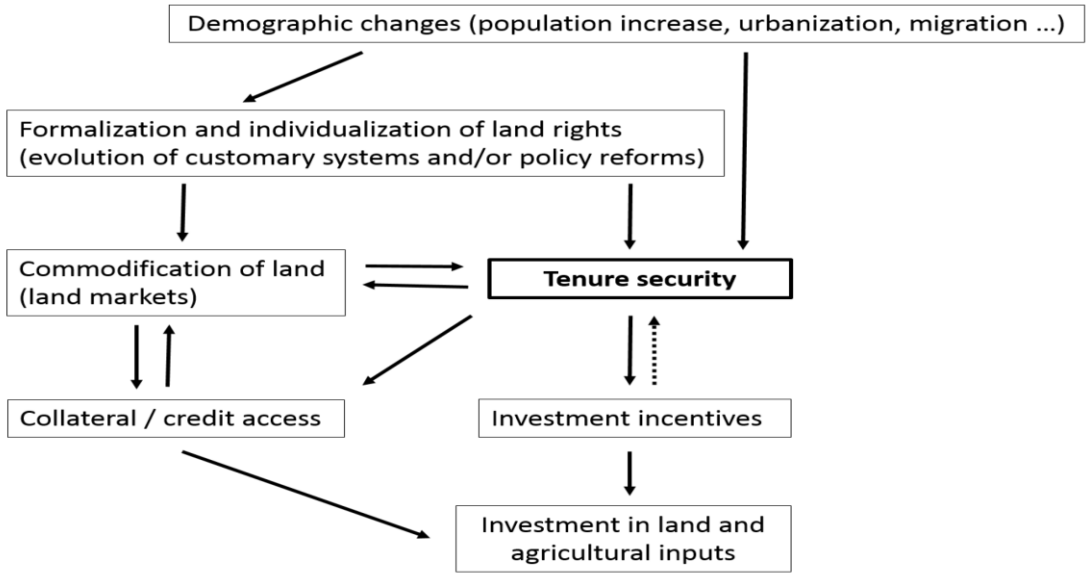
Abstract

A common conception in the literature considers that secure land tenue increases investment incentives. However, empirical studies using different methodologies and procedures have found no conclusive evidence to justify such claims in the particular example of sub-Saharan Africa. This is because most studies fail to account effectively for the effects of endogenous land rights on the decision to invest. 'Land rights' is a decision variable, and lends itself to the ageless question of observability and verifiability. In this paper, the relationship between perceived security of tenure and investment on pineapple farms is examined based on famer valuation of risks associated with tenue access. This paper applies likelihood estimation of risks associated with tenue access as a means of accounting for endogeneity of land rights. These are then measured against individually valued estimations of probable short, medium and long term investment to generate meanings. The mixed results generated provide evidence to suggest that secure tenure significantly incentivises the likelihood of long term investment, but has a pervasive effect on short and medium term investment. The conclusion is dawn to suggest that customary guarantees over tenure access under changing dynamics of peri-urbanisation do not provide basic investment incentive for pineapple farmers in the peri-urban research areas. It is argued that farmers should be supported to access and secure land through land markets if their tenures should be guaranteed to incentivise sustained investment.

5.1 Introduction

The investment relation of secure land tenure is theoretically predicated on the supposition that collateral and market effects can be drawn from formal control and ownership of land (Ghebru et al, 2016; Figure 5.1). The focal arguments of the theory, as depicted in figure 1, are stated to show that under conditions of land scarcity, when demographic pressures such as population expansion, migration and urban expansion increase the demand for land, land commodification, tenure formalisation and individualisation of tenure rights are accelerated. While this increases the chances of relying on the newly acquired rights of control to enhance the property rights value of land; such as collateralization and credit, rental and sale, thereby promoting the use of such gains to incentivise investment, justification for the theory remains contested with mixed empirical results (Deininger and Jin, 2006; Place, 2009). While significant links were found between secure land tenure and investment in some studies (Abdulai et al, 2011; Holden et al, 2007), for instance; inconclusive results were reported in others (Besley, 1995; Brasselle et al, 2002; Fenske, 2011).

Figure 5.1: conceptualised model linking land tenure and investment



Source: Ghebru et al, 2016

Several factors account for differences in reported findings of the links between secure land tenure and investment. These range from differences in agreeing a common definition, differences in methodologies used to measure tenure security, disagreements with identifying whether tenure security is individually or collectively generated, and differences in contextual examples of what actually constitutes tenure security (Lambrecht and Asare, 2015). For example; some studies adopt a rights based approach to measuring 'bundles' of property rights from land ownership variables such as land titles, access modes, size of holding and certification and their impact on tenure security (Besley, 1995; Brasselle et al, 2002; Abdulai et al, 2011). These studies argue the importance of establishing legal or de jure rights of ownership as a basis for gaining exclusive rights of control to incentivise investment (Deininger, 2003). Other studies focus attention on individual perception variables, such as individual choice, feelings, equity and perception of risks (gain or loss) associated with tenure access, and their scaler impact on the decision to invest (Hagos and Holden, 2006; Van Gilder, 2009; Ma et al, 2013). However, the latter context remains relatively least studied due to problems with observing, verifying and quantifying perception and decision variables (Lambrecht and Asare, 2015).

Perception matters for drawing investment incentives within different contexts (Van Gelder, 2007; Lambrecht and Asare, 2015). For example; perception affects the decision to negotiate imminent risks associated with tenure access (such as existing levels of land conflict, competing and counter claims over land and present or past disputes over land) and provides the basis for deciding whether or not to complete an investment. However, while land tenure studies conducted in Ghana have successfully established linkages between secure tenure and long term investments such as tree crop planting (Besley, 1995), very few studies have delved deeper to examine how perception of tenure relates with, or incentivises, investment (Abdulai et al, 2011). In particular, no studies have focused attention on making these linkages using the experiences, examples and backgrounds of land claimants who share common backgrounds as smallholders, faced with land tenure changes under peri-urbanising conditions and intensify production as semi-subsistence and commercial producers of high value food crops. This research was conducted to fill this existing gap by relying on the example of pineapple

farmers in peri-urban Accra to examine the links between perception of tenure and investment likelihood. This follows a string of recent studies in social psychology that focus attention on decision making under uncertainty. These studies conceptualise perception of tenure as motivated by the thoughts and feelings associated with decision making and hold potential for understanding perceptual differences and scaler strengths assigned to initial bundles of tenure rights (van Gelder, 2007).

The literature is reviewed to understand the links between tenure security and investment. This is explored to incorporate the perspective on decision making under uncertainty as a case for investment incentives. Afterwards, the methodology, although unusually applied to the field of land tenure studies but holds immense potential to contribute meaningfully to its development (van Gelder, 2007), is presented to include a description of the data and estimation method. This is followed by a presentation and discussion of the results, after which the conclusions and recommendations are stated.

5.2 Literature Review

Tenure Security and Farming Investment

Available literature highlights two major approaches to understanding the investment relation of secure land tenure. One approach considers how farmers land rights and their perceptual measures of such rights are translated into feelings that incentivise investment (Roth and Haase, 1998; Braselle et al, 2002; van Gelder, 2007). In Braselle et al, for example, the investment quotient emanating from land rights are considered as an 'assurance effect' within which is embedded a 'collateralization effect'. Secure land tenure has been argued as the desirable tenure form that incentivises investments and promotes agricultural productivity (Demsetz, 1967; Feder and Feeny, 1991; Bisingwanger et al, 1995; Smith, 2004; Deininger et al, 2011 2009; Chirwa, 2008; Holden et al, 2007; Deininger and Ali, 2011; Abdulai et al, 2011).

Beyond the rights based approach, a 'technical view' situated in neo-classical theory identifies investment incentives as the primary motivation for generating investments on land. Although the narrative identifies claimant rights as the ability to use the value of their land to claim access to

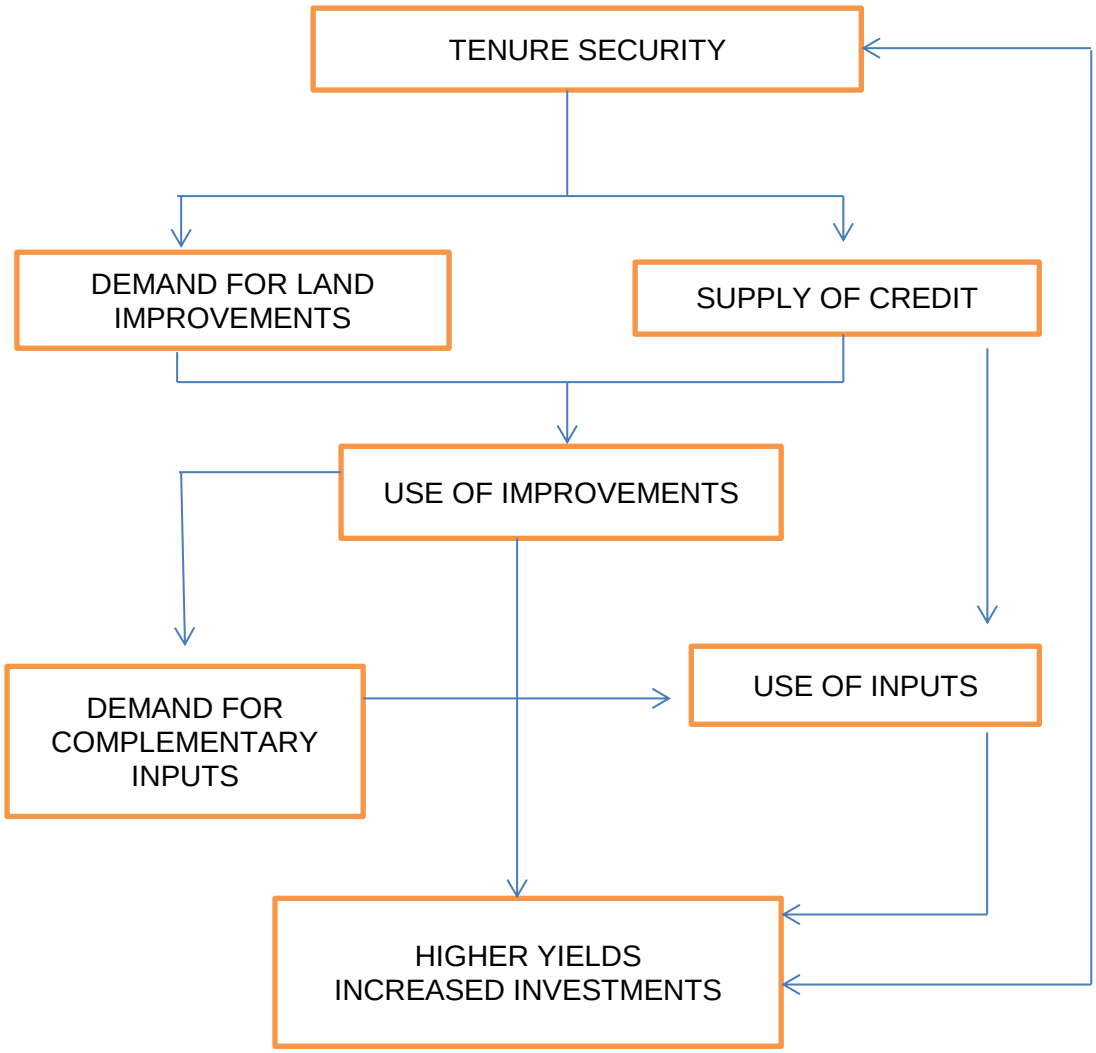
capital, it identifies land 'fixed asset' providing returns both in its end produce and collateral value (Besley, 1995; Platteau, 1996). In this respect, land can be either sold out rightly, or used as a medium of exchange at land rental markets, to raise capital (Braselle et al, 2002).

However, the evidence remains mixed due to theoretical and methodological inconsistencies and a lack of rigorous empirical data makes it important to choose methodologies that allow researchers to account for both endogenous and exogenous factors (Braselle et al, 2002; Lawry et al, 2016; Jane et al, 2016). For example; Saul (1993) conducted a study to understand the investment decisions of farmers who gained land tenure access rights through formal and informal means. He found that investment decisions were not necessarily associated with land tenure alone but were linked to other factors such as farmer characteristics and constraints. While the finding pointed to factors extraneous to land tenure, it highlights the importance of context in generating understanding of the reasons for investment decisions. Also, Sjaastad and Bromley (1997) examined the links between farmers' perceptions of rights and their farm investments and found that perceptions of tenure security had a pervasive effect on farmers' decisions. For example; feelings of tenure insecurity could serve as a reason for generating investments to improve security. For the same reason, it can serve as disincentive to investments. While many works are principally argued using apriori rationalisation (Pande and Udry, 2005), multiplicities of different positions are advanced with mixed results. Some studies, for example; focus attention on making comparisons between land ownership and use variables while others try to understand the rights associated with owning and using land. Furthermore, some researchers analyse their data by considering land tenure security as a unit in order to estimate its effect size (Migot-Adholla et al, 1994; Place and Migot-Adholla, 1998) and others separate it into its constituent de jure and de facto components. For example; the latter approach was adopted in Deininger and Jin (2006) to highlight different levels of tenure rights and their linkages with investments (Holden et al, 2007).

Roth and Haase (1998) have argued that regardless of the approach used, it is important to conceptualise tenure security as an incentive to invest. When so considered, the role played by secure

land tenure to enhance access to farming capital and promote farm investments can then be understood to pave the way for an exploration of its linkages with farm productivity (Figure 5.2).

Figure 5.2: Conceptual model linking tenure security with investment



Source: Adapted from Roth and Haase (1998)

The conceptual model outlines the relationship between secure land tenure and agricultural productivity to show that demand and supply side effects are generated to enhance farm production when land is secure for farming purposes. On the demand side, secure land tenure incentivises claimants to invest in their land and farms, and make farm infrastructural improvements. This is derived from relying on the gains from trade and reliance on land to generate surpluses which are reinvested in farms in the form of sunk costs. Some of the savings come from land transactions such as land rent while others are accrued from efficiency gains such as enforcement fees. On the supply

side, secure land tenure serves as a lending variable that has capital implications such as credit, collateral and direct finance and sales effects for claimants. For example; proceed from selling portions of land can be invested in existing farms to increase productivity.

Roth and Haase also suggested that the relationship between tenure security and production affected productivity incrementally. They demonstrated that when farmers with secure tenures increased their productivity, the productivity benefits affords then the opportunity to further invest in securing their tenures through titling, increased access to markets and the development of farm and farm related infrastructure (Roth and Haase, 1998, Abdulai et al, 2011).

When farmers access land for farming purposes, they acquire initial 'bundles of access rights' which builds their emotional attachment and incentivises their willingness to invest on the land. However, this emotional attachment can also be the reason for their adoption of a cautious approach to investments. Deininger and Jin (2006) used examples of farming households who had recently accessed land in Ethiopia to show that farmers who held higher personal valuations of their newly acquired land rights took proactive steps to invest in tree planting compared with those who perceived their rights to be insecure. Although the bundles of initial rights were important to incentivise investments for both groups, the different perceptual measurements produced different outcomes for the groups. This signpost perceived rights as an inducement that incentivises investments and highlights individual motivation as an important consideration in the decision to invest as opposed to tenure types (Abdulai et al, 2011).

It can be argued therefore that formalised land tenure per se does not hold marked advantages over other tenure types as far as investments are concerned. In Brasselle et al (2002) these links are further explored to show that farmers who have an established presence on the land tend to increase their bundles of rights and therefore increase their investments through time. Using examples from Burkina Faso, Bresselle et al demonstrated that migrant farmers who developed high perceptions of tenure security were incentivised to invest on land even though their initial rights were lower than that of native farmers. Investment decisions made by migrant farmers were borne out of their ability to establish a secure presence on the land by sinking investments. Thus, Sunk investments increase an

individual perception of rights and incentivise the willingness to invest making the process a perceptually determined consideration. For example; an individual who has a long attachment to a plot of land develops a historical and investment trail that contributes to an initial bundle of rights. The initial rights provide bundles of opportunities and limitations which can be increased or decreased according to individually determined perceptual measures. This affects investments and shows the extent to which the land can be kept secure for incremental investments regardless of tenure type (Bruce, 1998; Place and Hazell, 1993; Sjaastad and Bromley, 1997; Bugri, 2008).

The incremental increase in bundles of rights is evidenced in Deininger and Ali (2007) who used examples of farming households in Uganda to show how farmers expended extra finances on land and in premiums to local people as a strategy to increase their bundles of rights over land. Farmers who paid a premium developed higher perceptions of tenure security and were incentivised to increase their farm investments compared with farmers who were unwilling to pay any premiums. This makes perception of tenure security a very important determinant of and measure of tenure security.

Goldstein and Udry (2008) have also used examples of authority systems and structures in Ghana to suggest that individuals and groups who held higher positions in the socio-political and economic fabric of society took advantage of their positions to develop higher perceptions of rights over land. This incentivised them to invest relatively more on land than ordinary farmers. In this example; the position occupied by the former in society served as a form of protection to generate feelings of security. Similar examples are provided by Migot-Adholla et al (1991) to show that when farm lands were formalised in Rwanda their incentive to invest was increased because they had developed a renewed perception of their rights.

In the same manner as positive perceptions incentivise investments, negative perceptions reduce investment incentives. Place and Otsuka (2001) compared different land tenure access modes in Malawi and found that farmers who gained their access rights through matrilineal inheritance when they lived in predominantly patrilineal societies were less incentivised to invest compared with farmers who gained access rights through patrilineal inheritance. Another example is provided by Gavian and Fafchamps (1996) who found that farmers will not develop the quality of their land by applying farming inputs such as manure in adequate quantities on the land because they held only

short term leaseholds. This is because as short term renters, the farmers had developed a negative perception of their rights and believed that their right were not guaranteed. Even though their rent contracts had stipulated similar rights with long term leaseholders, the initially assigned rights were not enough to encourage farmers to invest. Similar findings in Migot-Adholla et al (1991) highlight this effect to show that farmers who held insufficient appreciation of their assigned rights because they felt incapable of bequeathing land to their next of kin, were less willing to invest in tree planting on their land in certain areas of western Ghana.

Given that both secure and insecure land tenure have effects on investments, it is equally likely that investment decisions can affect tenure security (Sjaastadt and Bromley, 1997). For example; claimants who have an established presence on land will be comparatively more assertive of their rights and consequently more willing to invest on their land whether their claims are formalised or not (Staastadt and Bromey, 1997). In other words, secure guarantee over land regardless of its designation is the main reason for generating incentives to invest. Lunduka (2009) tested the extent to which secure guarantees over land incentivised investments and found that when farmers were given assurances that their land would be secure over the long term, they were incentivised to invest in tree planting on the land. He also found that farmers who had developed high levels of tenure insecurity were equally incentivised to invest in securing their land boarders. However, Lunduka found variations in the results to show that different modes of access and different locational contexts produced different results for different groups such as patrilineal and matrilineal claimants. At best, results from research findings provide indication to suggest that an inverse relationship exists between land tenure and investments that must be closely investigated.

Land rights and investment in Ghana

Empirical results from land tenure studies in Ghana are mixed with researchers producing different results. Most of the differences in reported finding are due, in part, to differences in tenure arrangements across Ghana (Lambrecht and Asare, 2015). However, differences in methodologies employed also contribute to results that appear to contradict each other (Fenske, 2011). Some studies have successfully demonstrated that medium term investments such as; tree crop planting, are higher

among claimants which have higher valuation of their tenure rights (Place and Hazell, 1993; Besley, 1995). On the other hand, some studies have shown that investments differ between claimants according to the mode of tenure acquisition (Quisumbing et al, 2001a, Abdulai et al, 2011) and contextual background situations of individual claimants (Goldstein and Udry, 2008). However, the results differ according to the employed methodologies and study contexts. For instance; in the case of studies conducted using the context and data from Wassa in the Western Region, short and medium term investments, such as; tree planting and land fallowing, were found to be positively associated with tenure security in some studies (Place and Hazell, 1993; Besley, 1995; Quisumbing et al, 2001a; Otsuka et al 2003) but negative in others (Migot-Adholla et al, 1994).

The current literature in Ghana has not exhausted many issues and therefore, falls short of providing a complete picture. The importance of context, as expressed in endogeneity of land rights, was highlighted as an issue initially in the literature by Besley (1995) but has only been addressed in a study by Goldstein and Udry (2008). Furthermore, research appears to be conducted in small segments of the country. This made the literature rather contextually specific as local case studies (Lambrecht and Asaare, 2015). While this makes it problematic to generalise outcomes, it requires additional case studies to be conducted in parts of the country, where land tenure research has not yet been conducted. This further study can contribute to cover the diverse geographical, ethnic and social backgrounds, and different regional and ecological zones.

Furthermore, most contributions in the field of study place emphasis on producing quantitative results thereby failing to highlight important qualitative implications of the relationship between land tenure and investment (Deininger and Jin, 2003; Lawry et al, 2016). This calls attention to draw on the contextual specificity of case study results to generate qualitative or mixed methods study results. That can either test or complement results from existing studies. This way, the scope of the literature in Ghana can be expanded away from the current focus on single issue or subset of major issues (Lambrecht and Asare, 2015) to place emphasis on providing a broader picture. Consequently, this paper set out to examine how perceived tenure security influences the probability of investments in Nsawam (Eastern Region) and Awutu-Senya (Central Region) districts in Ghana. To my knowledge

and understanding, no land tenure research of this type has been conducted in Awutu-Senya district. Also, no additional land tenure research has been conducted in the newly created Nsawam district since a previous research was conducted by Goldstein and Udry (2008), when the area was part of the larger Akuapim district. Additionally, no extensive research covering numerous diverse issues has been conducted in Ghana to understand how perceived tenure security has impact on the probability of investments in a mixed methods research in the study zones.

Given the current context of increasing population and demand for food at both local and international level, land tenure studies are placing emphasis on making additional links between tenure and food security. Food security requirements in Ghana can be considered according to the demand sources, which farmers are expected to satisfy. Although many farmers in the research areas are primarily concerned with producing enough to meet their household needs, recent opportunities for producing high value crops offer them options to embrace production for commercialisation. Consequently, it is important to understand the investment relation of land tenure by making linkages to food security (Maxwell and Wiebe, 1998; 1999).

Land for agricultural in the Peri-urban study areas is allocated primarily through customary tenure. Other forms such as land markets can be found to be in operation (Larbi, 1996). Although farmers receive an initial 'Bundle of Access Rights' on claiming land. They must value the worth of the 'Bundles' and guarantees accorded them ex-post, in order to decide whether to complete investments or not. These judgements are perceptually constructed and contained valuations of the initial bundle, mediated by endogenous factors. For example; when claimants faced with competing claims over access, their incentive to invest is expected to be affected making them withhold these investments, at least at the initial stage. Therefore, when claimants are able to complete short and medium term investments, they are also expected to hold secure control over land. Under such circumstances, measuring the perceptual valuations also makes it possible to acquire the effects of exogenous factors, implicitly embedded within the perceived probability of completion.

Measures of individual valuations of tenure security is as an effective means of gaining perceptions into the relationship between land tenure and investments in many studies (Migot-Adholla et al, 1991; Bromley and Sjaastad, 2000; Ma et al, 2013). This is predicated on the belief that perceptual valuations provide objective measures of probable investments because the individual holds first-hand information about the breadth and depth of their land rights (Roth and Haase, 1998; Jacoby et al, 2002). Considered within this understanding, it is possible to generate results that highlight perceived rights as a function of probable investments (Ma et al, 2013). This is helpful, for example; to identify the cause of differences in investments, given similar access rights over land, and makes it possible to compare the investment accomplishment of different groups. It is also an important means of identifying claimant constraints, in order to offer recommendations for managing farming transitions.

This study categorises farming investments in Ghana into short, medium and long term investments for analytical purposes, in line with Lambrecht and Asare (2015). Short term investments are investments that facilitate land use such as land tilling, land clearing, drainage, excavation, crop planting, manuring, raising shallot beds, and mulching. Claimants primarily expect to establish their presence on the land, when short term investments are completed, and signal the extent of their tenure rights as a means of warding off competing claimants, otherwise, discouraging encroachment at least over the duration of the investment. Accordingly, the intensity of short term investments completion depends very much on the guarantees accorded over land use in a farming season.

Medium term investments are those investments, which are completed for improving the quality of the land, as well as, drawing some profit by consuming the land. Such as; tree crop planting, high value crop cultivation and land fallowing. These are also called strategic forms of investment, which are intentionally carried to prolong the duration of tenure. When these are completed, opportunity is created for claimants to rely on their investments to seek greater control and user rights over land. For example; claimants will be incentivised to make medium term investments if they perceive their land rights to be secure, at least in the intermediate duration, which is usually five years. Thus, perceived security of tenure is expected to play an important role in incentivising such forms of investment. For example; by virtue of having established an extended association with the land, a claimant can gain

the confidence to make medium term investments, when they perceive the land to be safe and secure over a few cropping seasons once. Long term investments are investments that are completed because claimants hold perceived secure guarantees and formalised control over land. Moreover, claimants have the confidence to use land as exclusive property. Accordingly, claimants make such investments, as purchasing or selling portions of land, to raise capital. Claimants also use land as investment to access credit and planting long term tree crops on the land, usually over fifteen years. Thus, it can be argued that long term investment also affects the extent to which claimants can use land as a marketed form. For example; it is extremely expected, that given available finances farmers, who experience high tenure security, would most probably invest in land purchases. On the reverse side, high tenure insecurity could be a reason for selling off land as a strategy to minimise the cost of losing the land.

Since perceived land tenure security plays a crucial role in the incentive to investment at the initial stage, this paper focuses attention on examining how perceptual valuations of tenure security affect the short, medium, and long term investment decisions. Consequently, the initial causality is established in one way to show how perceived tenure security is moderated by duration of tenure, land conflict and competing claims that impact the probability of investments. This is then reversed to understand the links between probable investments and tenure security. Qualitative data from focus group discussions and key informant interviews, and data from a semi-structured questionnaire detailing respondent opinions and perceptions of tenure security was matched against valuations of ability to complete declared short term investments.

The questionnaire data required respondents to declare their perceptual valuations of tenure security, measured as a Likert scale type questions; and their valuations of the ability to complete a list of declared short term investments that were gathered from the interview and focus group data and the existing literature in Ghana. This way, unobserved influences affecting individual decision to invest implicitly implied in the valuations could be accounted for in the analysis. The results were then used to represent the likelihood and differences in perceived investments. The data triangulates itself in the sense, that a farmer, who holds higher valuation of tenure security would be expected to hold a comparatively higher perception of ability to invest, thereby flagging out any discrepancies. The focus

group and key informant interview data contained information about the nature and types of investments that farmers in the sample typically complete on their farm lands. It also contains the motivation that drives investment completion. These are analysed and presented as qualitative descriptions. In general, the links between land-tenure, tenure-security, and investments were therefore captured to include the impact of perception, exogenous factors, and justification for investment completion.

5.3 Methodology and Methods

Conceptualising tenure security and Investment

The objective of the chapter is to examine the relationship between perceived tenure security and investment incentive in the research areas. Consequently, the relationship was defined as perceived tenure security compared with the probability of completing short, medium and long term investments. The paper identifies tenure security by distinguishing between secure guarantees of initial bundles of access rights (de jure rights) and perceptual valuations of tenure rights (de facto rights). The former provides guarantees, on which claimants control land as property rights, making it possible for them to ward off encroachers or challenge competing claims backed by legal recourse or customary power (Demsetz, 1967). On the other hand, the latter provides user fractural rights on which claimants make perceptual decisions to draw benefits from using or marketing land. This makes perceived tenure security subject to the probable effects of endogenous risk factors such as land conflict, competing claims and land disputes (Van Gilder, 2009; Ma et al, 2013).

In Ghana, de jure tenure rights or initial bundles of access rights are acquired through a variety of sources. Especially in more built up peri-urban areas, land is accessed through dualistic processes of customary tenure and land markets (Owusu and Adjei, 2007). Thus, the nature and extent of guarantees and rights embedded in an initial claim combined with prevailing risk factors such as the fear of losing land provides an initial perception of tenure security (Van Gelder, 2007; Jacoby et al, 2002). For example; investment incentives can be increased or reduced if claimants develop a high or low perception of land conflict, competing claims and land disputes (Takane, 2002; Otsuka et al, 2003; Pande and Udry, 2005; Lambrecht and Asare, 2015). Given this consideration, endogenous

factors such as land conflict, competing claims and land disputes can be identified as perceived tenure security enhancing mechanisms on which investment variables can be measured. In the same vein, it is possible to conduct a reverse assessment when investment variables are isolated and measured against perceived security of tenure. Both considerations are explored in this paper.

Data

Perceived tenure security: Given increasing demand for food resulting from increasing population and available opportunity to increase access to higher incomes from production contracts with large scale food exporting firms, it is expected that farmers will seek to secure land for farming investment. Consequently, the study respondents were asked to value their perception of tenure security by responding to three (3) Likert scale type questions with respect to land conflict, competing claims and land disputes. The questions required respondents to measure on a scale of 1 to 5 (1 being strongly agree and 5 being strongly disagree) whether they considered their land rights to be affected by land conflict, multiple claims and land disputes. These variables were considered as risk factors that affected perceived land loss or gain making it possible to measure overall perception of tenure security.

The land conflict variable captures the perception of wider conflict such as contestations over tenure access with third parties whose operations affect security of tenure. Competing claims captures intra-household and/ or village level claims and counter claims and its contribution to perceived tenure security. Land disputes capture active disputes that are currently under arbitration either at state level courts or traditional courts. Together, these variables constitute risk factors that provide a basis for measuring perception of tenure security. On a conceptual level, these risk factors are expected to be functionally independent. For example; as one risk factor increases, the others may increase, decrease or remain stable (Jacoby and Kaplan, 1972). Thus, a land claimant might engage in risk trade-off behaviour such that a high or low valuation of perceived gain or loss provides incentive to increase or reduce investment. This provides opportunity to measure perception of tenure security.

Quantitative study*:* Ordinal regression, proportional odds model, was conducted to measure the effects of perceived security of tenure on the likelihood of completing short, medium and long term investments. As has been discussed earlier, a reverse causality exists between tenure security and investment. Consequently, the strategy was adapted to measure tenure security as a function of risks associated with future land loss such as land conflict, competing claims and tenure duration. This is relevant, for example, to gain insights into how ex ante valuations of initial access rights and ex post perceptions of endogenous pressures contribute to the decision to complete investments. Also, conducting the analysis using ordinal regression provides opportunity to predict the interaction between tenure security variables and investment variables in a two way function to account for dual causality.

Estimation method*:* Perceived tenure security: Measuring the probability of completing investments on the assumption that claimants make the decision to invest based on perceived security of tenure is considered a useful means of gaining insights into the relationship between land rights and investment (Jacoby et al, 2002; Ma et al, 2013). It provides opportunity to measure probable investments by considering tenure security as a function of a. tenure duration b. Land conflict and c. competing claims. This way, perceived future loss of land caused by extenuating endogenous factors (Jacoby et al, 2002); and the valuations assigned tenure to access rights (Ma et al, 2013) can be accounted for. Studies that have relied on this method for developing insights have produced mixed results. For example; Jacoby et al found a significantly positive correlation between perceived tenure security and probable investments while Ma et al, found no effects at all. However, it remains a useful means of gaining insights into the relationship between land tenure and investment.

The measurements were carried out on the assumption that duration of tenure, representing a measure of tenure security, provided grounds for valuations of the initial bundles of access rights in relation with the decision to invest. Tenure duration was also considered to be closely related to the right to bequeath land. It served as a reference point for gauging whether existing bundles of access rights provide secure access guarantees, up to and exceeding 16 years. At that time it generates a stronger desire to increase the exclusivity of its use for a household. This was also the consideration held by

some key informants and focus group participants. They believed strongly that regardless of the type of access, formalised or customary, prolonged occupancy provided grounds for better securing or increasing claims over land for household use. Thus, as a variable for measuring perceived tenure security, tenure duration was designed to capture the very essence, depth and breadth, of initial land rights. It provides some indication of implicit right to bequeath land. This was therefore considered an important dependent variable for which respondents were required to measure on a Likert type scale of 1-5. A scaler measure 1 represented continuous occupancy for 16 year or more. This was also measured on the scaler 1 meaning a very strongly perceived security of tenure. A measure of 5, or less than 1 year, represented very weak tenure security.

To include the effects of endogenous factors on perceived tenure security, land conflict and competing claims, considered as moderating factors, were included in the analysis. Perceived tenure security can be affected by perceived fear of future loss of land and can also affect the decision to invest by implication (Jacoby et al, 2002). Thus, these variables were adopted into the measurement as additional dependent variables and were measured on a five point scaler representing 1 if respondents felt very affected by these factors in their decision making through to 5 if they felt very least affected.

Land conflict and competing claims are two endogenous factors that primarily affect land rights in the research areas. The contextual background of the areas show a picture of increasing machinations by land gangs, real estate agents, and some landlords in a concerted effort to expropriate and grab land from farmers. This situation is compounded by existing confusing dynamics of inheritance which, as discussed in the qualitative study above, provides cause for multiple and competing claims by nuclear and extended family members. Consequently, land rights and perceived tenure security become fraught with competing claims and land conflict making them important considerations in the decision to invest.

Investment: The focus of the study was to measure the probability of investments as opposed to actual investments. This was considered adequate because measurements of perceived probability of investing is considered a useful means of gaining insights into the perceptual valuations of investment

decisions (Gebremedhin et al, 2003; Ma et al, 2013). Thus, the variables gathered about likely investments were grouped under short, medium and long term investments for respondents to assign their valuations.

Short term investments were identified as the types that related with farm preparation. When tenure access rights are assigned at the initial stage, it is necessary for farmers to operationalise their rights by using the land for the purposes for which it had been acquired. This requires making initial investments that include expending resources in preparing the land. These early investments such as labour use, land preparation and crop planting can be considered as short term investments. This is because of their relationship with early investments aimed at establishing a presence on the land.

Three variables, labour use, land preparation and planting of mixed subsistence crops, were chosen as the independent variables representing short term investments due primarily to their importance as early investments and frequency, by which they were alluded to in interviews and discussions. In particular, investments in planting a variety of crops on land were considered an important form of investment in food security for the household especially in the Nsawam area. In Awutu-Senya, respondents preferred planting pineapple as a cash crop and using the proceeds to purchase household foods.

Medium term investments were identified as the types that related with farm development. Thus, investments that were aimed at improving farm infrastructure and the quality of the land were classified under this category. Respondents identified the need to secure greater control over land as a primary consideration for making medium term investments and were consequently asked to measure their valuations of the probability of completing selected long term investments based on the wider literature (land border fencing, use of land for next 5 year), the literature on Ghana (land fallowing), and an important focus of the research (pineapple crops as a cash crop similar to tree crop planting).

Long term investments were identified in relation with land transfers and land transactions. These were generated from the literature treatment of land transfers as forms of investments intended to increase access to capital, expand access to land and secure formalised control over land as property

rights (Demsetz, 1967, Deininger and Jin, 2006). Thus, three selected variables, purchase land, sell land and use land as credit, were drawn to solicit respondent valuations.

For all selected investment variables, farmers were expected to either hold the probability of completing any, some, or all of the investments to differing degrees. They were expected to measure their perceived probabilities on Likert type scales under very likely, or 1, through to very unlikely or 5. The identified investments used for the study were not exhaustive of the types of investments that could be made on farms in Ghana, but they provided sufficient variety for the purpose of gaining insights for the study.

Data Limitations*:* The data, used for the study, is limited to the chosen study areas. But it has wider implications for policy and the development of pineapple farming in Ghana. This is justified in the sense that as a main cash crop in the study areas, comparisons can be between pineapple crops and investments in tree crops such as Cocoa. For example; results can be generated to understand whether tenure security plays a similar role in promoting the incentive to invest in pineapple farms as has been found to be the case with Cocoa in some areas of Ghana (Besley, 1995). Also, while the data is limited to the chosen study areas, it provides opportunity to fill existing gaps and has wider implications. For example; none of the current studies has produced data on the Central region. Also; with the exception of Goldstein and Udry (2008) who based their study on Akuapim (now Nsawam and incidentally the second study area for this thesis), no additional studies have been conducted in that area. The data from Nsawam district will therefore provide opportunity to examine what changes have occurred since Goldstein and Udry (2008). Besides, investments in land fallowing in Akuapim were observed for maize and cassava farmers. Shifting attention on pineapple, which incidentally is the main cash crop in the area, provides opportunity to understand additional links between land tenure and food security.

Moreover, apart from data used from Anloga in the Volta region, no other studies have been conducted in other coastal areas. The data from Awutu-Senya will therefore provide opportunity to examine another coastal area. It is also the case, as pointed out by Lambrecht and Asare (2015) that

land tenure case studies are "Limited Geographically, but they also often focus on one specific, or a limited subset, of possible investments, cropping systems, or land under specific modes of acquisition". This paper tries to address most of these gaps by focusing attention on conducting a case study that identifies and incorporates many investment variables.

Land tenure studies are generally challenged by the question of unobserved heterogeneity and reverse causality making it difficult to fully establish causation (Lambrecht and Asare, 2015). As a consequence, serious limitations are usually placed on empirical interpretation of results. In particular, Lambrecht and Asare (2015) have cited investments in tree planting as a typical example of a case in which investments produce reverse gains making the application of an instrumental variable an important means of resolving the issue (Besley, 1995). However, several studies have employed this methodology to highlight the relationship between land tenure and investments successfully in Ghana (Besley, 1995; Quisumbing, 2001a; Otsuka et al, 2003). Thus, this study used qualitative results and descriptive statistics to generate meanings.

5.4 Results and Discussion

Land rights, tenure security and investments in the study areas

Rights acquired at the initial access stage provide claimants specified guarantees that form the bundle of access rights. This generates a level of tenure security on which land rights are claimed. However, operationalising the claims depended on individual background characteristics, tenure access types and individual valuations of tenure security.

Land rights: The relationship between tenure rights and tenure security depended on whether claimants had accessed land through customary access or formalised means. For example; while it is a common presumption that, the right to sell land also comes with the right to use land as collateral, respondents who accessed land through customary tenure and claimed the ability to sell land were unable to establish a link between their rights and land collateralisation. Most of the respondents in this category claimed that they were interested in using land to acquire credit. But they had limited opportunities to access credit with their land. This makes it questionable whether claimants can use

land for collateral even if they have declared an ability to do so. Similarly, land owners, who had formalised control over land, were equally unable to justify having used land, to claim access to credit. While they stated that their exclusive ownership rights made it possible for them to access credit with their based on their tenure rights.

Tenure rights were also expressed differently within specific tenure types that overlapped one another. Where land belonged to a family, for example, and the head of household was responsible for allocating portions to family members, the right to sell portions of the land could be conferred on members of the family provided consensus had been reached and there were compelling reasons for selling land. This evidence provides reason to point to some forms of customary tenure access rights as flexible and negotiable. It also gives cause to challenge the long standing notion that traditional forms of tenure are rigidly negotiated and do not incentivise investments.

Tenure security*:* Respondents draw their perception of tenure security from a combination of the initial bundle of access rights and moderating exogenous factors in the research areas. At the initial stage, individual background characteristics such as financial standing or position within the community serve as moderating factors and account for differences in perception of tenure security. Respondents suggested that wealthier and powerful claimants enjoyed comparatively greater tenure security simply because they had the power to enforce compliance. A key informant interviewed as the head of farmers' cooperative provided grounds to understand that adherence to cultural norms may play a part in keeping potential encroachers away from lands belonging to family heads, clan leaders and chiefs. This is because it is considered disrespectful to community elders and sanctions against encroachers could be quite severe.

Tenure types equally provide claimants with perceptual valuations of their tenure security. Respondents were of the opinion that, formalised tenure provided secure and exclusive access in the same way as some forms of customary access such as family land. Especially when the family owns land in excess, it was considered that competing claims within the family could be addressed by providing alternative access. In particular, a key informant who has accessed some family land but

also owns land in the Nsawam area suggested that when the land was located in more rural parts customary claimants could expect to enjoy similar guarantees over access rights compared with formalised claimants. It was also suggested by all except one participant in the focus group discussions that no major land conflicts had been experienced in the research areas in the last 15 years. Although this creates the impression that land conflicts are at a premium in the research areas, data from the key informant interviews suggests otherwise. For example; an agriculture extension officer interviewed as a key inform ant in the Nsawam area provided evidence from a newspaper report to show that 'land gangs' expropriated farming land in the peri-urban areas. Thus, while guarantees provided by tenure access modes could be sufficient to generate perceptions of tenure security, moderating factors played an equally important role in shaping perceived security.

Although some respondents acknowledged that moderating factors such as land conflict, multiple and competing claims and land encroachment had a role to play in influencing perceived tenure security, it was consensually agreed that claimants whose lands were located in traditional areas and had secured investments on it were less likely to consider the risk of losing land as a reason for measuring how secure their tenures were. However, one of the focus group participants ranked these factors extremely highly and stated that his first-hand experience of land expropriation at the hands of land gangs and real estate developers had made him acutely aware of the need to consider the impact of exogenous factors in determining the security of his tenures.

Investment*:* An examination of respondent views provided indication to suggest that investment decisions were driven by several factors. Among these, the perceived ability to bequeath land to next of kin was considered a crucial factor impacting the decision to complete medium and long term investment such as land improvements and infrastructure development. Although an intestate succession law (ISL) exists in Ghana to provide guarantees over succession rights to spouses and children of the deceased, some respondents argued that this run counter to traditional rules and failed to protect individuals who lived in more rural areas. Concerns about enforcement at the courts, exorbitant legal fees, and long bureaucracies at the courts were cited as some of the challenges making it difficult to enforce compliance and accounted for the small nature of investments on many

farms. Others contended that in some cases the fear of reprisals by family members made it difficult to refer matters of inheritance for prosecution. One of the focus group participants in the Nsawam area reiterated this issue by citing the following example:

> *'If you get land from your wife's hometown then you can farm proper on the land because you know your children can get the land when you die. In your own area, the rest of the family can take some of the land and your children can suffer when you die'*

This illustration highlights an important dynamic in the investment relation to show that even when certain guarantees are accorded a claimant, claiming those rights can sometimes depend on the location of the land and the dynamics of marriage and customary laws. For example; in both study areas, matrilineal inheritance is the commonly practiced system of inheritance. According to some of the rules, it provides comparatively greater guarantees of succession to children of the female relative because, according to one respondent, '*a person's ancestry is most assured through the female because it is unquestioned that she gave birth to the child'*. This makes matrilineal relations hold clearer and more secure claims over land and makes it easier for them to invest. When questioned if they would find it easier to invest in their spouse's hometown, all male focus group participants responded to the affirmative. Female respondents were not so willing to invest in their spouse's hometown.

Secure tenancy, evidenced in tenure duration without breach, impacts strongly on the decision to invest by respondents who rent land. In almost all cases in both study areas respondents reported that it was common practice for land owners to collect rent in lieu of many years, up to 30 years in some cases, in advance only for some of them to breach the agreement when offered higher financial incentives by real estate agents. This issue is weighed strongly by respondents whose lands are located in more peri-urban areas and at least one respondent has claimed to have suffered this breach directly. This respondent claimed that his land had been forcibly seized for real estate development with the assistance of 'Land Gangs'. He claimed that the seizure of his land was done without regard to his rent agreement, existing investments including crops, and his personal welfare. Although the

landlord was claimed to have compensated him by paying back his outstanding rent, the experience had left a lasting effect on him and made him cautious about either investing on farming land in some areas or trusting landlords in general. The sincerity of land owners and the protection accorded farmers within the larger institution of land governance in the country was therefore questioned by respondents.

Land expropriation in the research areas generally takes the form of tenancy breach in areas where land has become highly marketable in recent times. However, the tenancy breaches have a direct link with the activities of real estate developers, land encroachers and multiple claimants. For example; the activities of 'land gangs' or mobs of unemployed youth who worked for real estate developers and used intimidation and violence to drive farmers away from farming lands were highlighted as a worrying development that affects investment decisions. Although the issue is still in its infancy and primarily affect the southern peri-urban spaces of the study areas, expansion of the city of Accra with its ever increasing population has made land tenure in such spaces conflictive and highly contested between different claimants. He issue was also quite divisive with respondents who had experienced land loss by this means arguing in favour of combative efforts to stop it from continuing. On their part, respondents whose land was located in more rural areas appeared oblivious to the risks and maintained the perception that their tenure rights remained secure and uncontested. It is likely that the later position was motivated also by the fact that majority of lands in both study areas were located in rural parts and controlled by customary authorities.

With respect to instances where the land in question was formally controlled by the claimant, enforcing such claims to ward off encroachers was considered a serious challenge. Respondents were of the opinion that even when armed with legal documentary proof of ownership enforcing their rights could prove tricky if their lands were located in heavily contested spaces. They also believed that such a prospect would greatly impact on their willingness to make medium and long term investments. They claimed further that the courts generally tended to sympathise with land encroachers because the latter may have made longer term investments, such as housing, on the land. Consequently, the courts were more attuned to recommending that farmers be compensated for the loss of their land. Key

informants who were aware of this problem explained that the attitude adopted by the courts only helped to further exacerbate forcible land seizures by real estate developers and set the tone for more loss of farming land unless steps were taken to counter the effects. However, respondents whose land were located in more rural parts felt that such arbitrary land take overs could not succeed in their areas. However, one cannot help but assume that this is a serious problem that can only worsen unless steps were taken to curb its incidence.

Multiple claims evidenced in competing customary claims has been identified in the literature as one of the most important challenges, making land insecure to incentivise investments in southern Ghana (Pande and Udry, 2005; Goldstein and Udry, 2008; Lambrecht and Asare, 2015). However, when questioned about this issue, respondents did not acknowledge it to be decisive in their investment decisions. They intimated that while the issue was not wide spread in their experience, existing customary authorities were capable of resolving claims of such nature because it would most likely involve members of the same family or clan. Most respondents pointed to the authority of the family and clan heads as decisive in matters of conflict resolution and members had a duty to uphold their decisions. They also pointed to additional recourse to referring matters involving clan, family and tribe to the paramount chief who has supreme powers to intervene in such issues. Furthermore, respondents suggested that in rural areas where land was abundant, the family, clan or paramount chief could step in to offer alternative land as a means of resolving the issue and keeping the peace. Despite these suggestions, respondents reiterated that such claims were extremely rare and none of them had experienced or known someone to have experienced such conflict.

Land fallowing was another issue that was divisive in relation to the decision to invest. Land fallowing with an average median of 4 years (Goldstein and Udry, 2005) has been argued as one of the most important medium term farm investments completed by farmers to improve soil quality. However, the dynamics of such investments needs to be further highlighted qualitatively. Focus group participants were asked to deliberate whether and how they made fallowing decisions and key informants were asked to state the dynamics that impacted the decision to fallow land. In all responses the results provided indication to suggest that locational considerations played a mediating role in the

decision to fallow land. Claimants of land that was located in rural parts and under customary control felt that they were not time constrained in their decision to fallow land. The opposite view was adopted by respondents who were located in more built up areas where land rights were contested. This group of farmers felt very strongly that it was impossible to consider fallowing land for up to 4 years. They identified the high incidence of land loss to real estate agents and potential connivance by family members to sell fallow land as serious risk factors making it difficult to invest in land fallowing.

In conclusion, the qualitative results provide insights to suggest that the motivation to invest has definable linkages with perceived tenure security. For example; secure guarantees embedded in the initial bundles of tenure access rights imbues a feeling of either satisfaction of grief and affects the nature an types of investments claimants are likely to complete. However, the initial bundle is affected by individual background characteristics, tenure types and exogenous factors in the second stage to provide indications of perceived tenure security and investment incentives.

Estimation results and discussions

In this section, the ordinal logistic regression results are presented for the perceived likelihood of completing investments given perceived land tenure security. As discussed elsewhere in this paper, there is a two-way causality between tenure security and investment. As a consequence the results linking tenure security and investments are first presented and discussed in this sub-section. This is followed by a presentation of the results for the reverse causality between investments and tenure security in the next sub-section.

Random effects ordinal regression models were developed for the analysis of multi-level ordinal response variables using the logit response function. This was particularly useful for distinguishing between the ordinal scores in order to determine the proportional or cumulative odds (McCullagh, 1980). The results represented the probability or odds of several models that are generated on the simplifying assumption of proportional or parallel odds. This provides justification for relying on one model to describe the relationship between the response variables and the predictors, and provides

opportunity to interpret the data without confining the findings to the Alpha (p) values alone (O'Connell, 2006). Also, using such a model, we can understand which of the predictors have a significant effect on predicting the likelihood of being in one of the categories of the ordinal dependent variable.

Land tenure security and Investment: To understand the links between tenure security and investments, the questionnaire data was examined on the severity of valuations assigned by farmers to perceived probability of completing short term (labour, mixed cropping, land preparation, fertiliser application), medium term (Fence (Hedge), fallow, control (5 years or more), plant cash crop (pineapple)) and long term (buy land, sell land and collateralise land) investments, given perceived measures of tenure security as moderated by endogenous land risk factors.

Specifically, the valuations were examined on a 5-point scale probability of perceived completion of investments: 1 = strongly agree; 2 = agree; 3 = neutral; 4 = disagree; and 5 = strongly disagree. The only exception was investments in Labour which was measured as 1 = 5 or less; 2 = 6-10; 3 = 11-15; and 4 = 16 and over. For the illustration of the ordinal likelihood effects of tenure security and investments, the investment valuations were recoded into three ordered categories for short and long term investments and four ordered categories for medium term investments. The tenure security variables (secure tenure, competing claims, and land conflict) were also recoded from the Likert scale type valuations 1-5 into the likelihood effects of 0 = low, 1 = medium and 2 = high for the purpose of illustration. Correspondingly, likelihood threshold benchmarks were assigned for the significance and odds of evaluations assigned by respondents to the various questions at the low, intermediate and upper scales.

Long term Investment*:* The results are reported for the ordinal regression (Appendix 1) to state the perceived likelihood of completing long term investment. The likelihood ratio chi-square measure indicate that perceived land tenure security has a statistically significant relationship with perceived investment in buying land (15.868**), and with using land as collateral (11.297**). When the

thresholds are considered, it can be observed that three (3) models can potentially be used to predict the perceived likelihood of completing long term investments.

The predicted likelihood of valuations 1 or 2 (agreeing or strongly agreeing with the statement that perceived long investments are affected by land tenure security variables) versus 3 to 5 is delimited by threshold 3. Also, the predicted likelihood of valuations 1 to 3 (agreeing with the statement or being neutral) versus 4 to 5 (disagree or strongly disagree) is delimited by threshold 4. Finally, the predicted likelihood of valuations 1 to 4 (strongly agreeing to disagree) versus 5 (disagree or strongly disagree) is delimited by threshold 5. In order to determine the likelihood ratios of respondents who fall within different groups, the fitted equation of the model was computed.

Respondents who held medium valuations of perceived completion of long term investments had a fitted value of 0.69. This corresponded to an Odds Ratio of 0.5 and implied that respondents within this category were 50% less likely to disagree or strongly disagree with buying land as a form of investment. Based on this evidence, it can be argued that respondents who hold medium valuations of tenure security are significantly more likely to consider purchasing land and using land for collateral as viable forms of investments compared with those who hold high valuations of tenure security.

Respondents who had low valuations of completing long term investments had a fitted value of -1.68 corresponding to an odds ratio of 0.18. This suggests that they were 72% less likely to disagree or strongly disagree with buying land and collateralising land as forms of investment. Based on the evidence, it can be argued that respondents within this group were significantly more likely to buy land and or use land as collateral compared with those who hold high valuations of tenure security.

Observing the individual Odds ratio for different coefficients, we can conclude that respondents, who are characterised by a medium tenure security (B = 1.4**) are 4.05 more likely to remain neutral, disagree or strongly disagree as opposed to agreeing or strongly agreeing to make long term investments compared with respondents who are characterised with high tenure security. This also makes the former 1.72 more likely to make the same kinds of decisions compared with the latter group.

Based on the evidence provided, it can be argued that some elements of tenure security variables such as perception of secure tenure and perceived conflict over land do have an effect on the perceived decision to purchase, collateralise and sell land as investments by respondents with low and medium valuations compared with respondents who have high valuations. For example; respondents with low valuations of security of tenure are more likely to invest in buying land (p=.015) and collateralising land (p=.034). Also, respondents with medium valuations of security of tenure are perceptually more likely to buy land (p=.003) as investments. The results also shows that respondents who hold medium valuations of land conflict are more likely (p=.038) to sell land compared with those who hold high valuations of land conflict.

The findings of the results are consistent with expectations for the peri-urban background in which the research areas are situated. Investments in purchasing land and using land as collateral are part of the increasing process of individualisation of land rights brought about by increasing population and expanding urban areas in Ghana (Otsuka et al, 2003; Bugri, 2008). Consequently, as farmers establish continuous claims on their land, they are driven to seek greater exclusive control over its use regardless of its usurfructuary designation under customary tenure (Lambrecht and Asare, 2015). It is therefore possible to find customary claimants who have 'individualised' control over their land (Lambrecht and Asare, 2015) and can sublet or rent out such land under leasehold contracts. This is also possible because land leaseholds are generally negotiated over 99 year leasehold in Ghana making land transfers or sale impermanent and subject to be returned to the requisite customary authorities.

Also, the reported insignificant results reported with respect to competing claims leaves room for drawing some important conclusions about the contextual background of the research areas. For example; land conflict does not appear to be heightened in these areas. As a result, claimants are not facing direct upheavals over land access rights such as can be found in other parts of the world where land expropriation and redistribution raises the prospects of high competition over access rights. Furthermore, customary tenure, commonly practiced in the areas, appears flexible enough and creates opportunities for native claimants to access land. Consequently, competing claims tend to be limited

and effectively addressed by family members and traditional authorities. This makes land rights fairly secure for all claimants as was similarly observed by Golstein and Udry (2008).

In view of the evidence pointing to claimants with medium valuations of land conflict being willing to sell land compared with respondents who hold higher valuations, this can be understood within the spatial differences in the experience of land conflict. As discussed in the qualitative study above, land conflict is heightened in the mostly peri-urban areas where real estate developers and land gangs connive with land owners to expropriate land from farmers in those fringe areas. As perceived conflict tend to be high in such areas, it is only logical that farmers would choose not to buy land in such areas. Similarly, in areas where perceived conflict over land remains low, such as the customary areas, land does not appear to attract high prices and farmers are not hard pressed to sell. Besides, maintaining control over land in areas where land has not attracted high premiums may well be an economic decision for claimants who would sell at high premiums in future. Within this understanding, it can be argued that claimants with medium valuations perceive a relatively secure basis for indulging in land based transactions in the current state possibly because they do not hold long term in farming. This view was corroborated by the evidence provided by some key informants and focus group participants who have claimed that the current system of land distribution protects access for native citizens even though they do not primarily engage in farming compared with migrant farmers. This position is also held in Golstein and Udry (2008) who found that powerful claimants and authoritative individuals enjoyed relatively more secure tenure making them more likely to draw the most benefit from land compared with other groups.

Medium term investments: Appendix 2 presents results for the ordinal regression model in respect of perceived likelihood to complete medium term investments given perceived land tenure security. The likelihood ratio chi-square measure indicate that there is a statistically significant relationship between perceived land conflict and perceived medium term investments (21.489**). When the thresholds are compared, it can be observed that four (4) models can potentially explain the link between perceived land conflict and medium term investments. The fitted equations showed that

farmers who hold low estimates of land conflict were more likely to complete medium term investment compared with those who held higher valuations of land conflict.

Observing the individual odds ratio for different coefficients, it can be observed that farmers characterised by low valuations of land conflict are 2.42 more likely to fence or plant hedges to protect their land (B=0.88*) compared with those who held higher valuation of land conflict. The same latter group were 2.84 more likely to fallow land (B=1.04*), 1.93 more likely to maintain their presence on land for at least five (5) years (B-0.66*), and 3.14 more likely to invest in the production of cash crops such as pineapple (B=1.14*). The results highlight important links between perceived land conflict and medium term investments to show that farmers will complete medium term investments when they consider that land conflicts are low. It also establishes important connections between different types of investments to show that when the investments are closely inter related, similar types of endogenous factors can influence perceptions leading to investment completion. For example, in a good state where land conflicts are low, farmers who invest in producing high value cash crops such as pineapple would also expect to be able to fallow land while maintaining control over land for long periods. In the particular example of the research areas where farmers produce pineapple as contractors for large scale processors, exporters and value-chain corporations, access to conflict free land becomes an important means of securing markets and household income.

The implications of the results also shows that farmers are likely to reduce the intensity of investments when they perceive land conflicts to be on the increase and provide a platform for identifying ways by which sources of potential conflict such as the activities of real estate developers, land gangs and landlords can be tackled. The findings also provides credence to the view held by Goldstein and Udry (2008), who discovered in Akwapim (now Nsawam and one of the research areas for this study) that farmers decision to fallow land, were negatively affected by fear of losing land unless they were members of powerful elite, political and social groups. The results in this paper go even further to show that fallowing decisions are also made in conjunction with other short term investments due to their inter relatedness. The findings also provide evidence to support the view held by Jacoby et al (2002) who argued that expropriation risks negatively impact farmer's decision to

complete some forms of medium term investments. In the case of Ghana, the results provide support for similar findings by Lambrecht and Asare (2015), who found that uncertainty over renewal of tenancy agreements and concerns about continuity of tenure access rights negatively impacted the decision to invest in irrigation channels by rice farmers in Ejisu-Juaben area of the Ashanti region. Furthermore, the results are consistent with findings in Otsuka et al, (2003), who found a significant link between tenure security and investments in planting Cocoa on farm plots.

Short term investments: Appendix 3a and 3b present results of the ordinal regression model for perceived likelihood of completing short term investment. The likelihood chi-square measure indicates that there is no statistically significant relationship between the variables for perceived land tenure security and perceived short term investments. This suggests that the perceived decision to complete short term investments in farm labour, producing mixed crops, preparing land for farming and applying fertilizer on farming land do not necessarily depend on perceived land tenure security. This finding is in contrast with the conclusion arrived at by sections of the literature who have found significant links between tenure security and short term investments (Roth and Haase, 1998) and in particular, those who have found significant links between tenure security and investments in fertilizer (Jacoby et al, 2002) and manure application.

Although the measures were statistically insignificant, an examination of the different group responses show that respondents who held lower valuations of security of tenure were 2.02 more likely to employ additional labour (B=0.70) compared with respondents who held medium and high valuations of security of tenure, This means that respondents with lower valuations in this category were more likely to increase labour use on farms and by implication their production when they perceived their land rights to be secure. This is a general expectation in the literature and has been the reason for suggesting the implementation of measures aimed at increasing security of tenure in most of the literature (Aryeetey and Udry, 2010).

Additionally, the same category of respondents was 5.11 more likely to apply fertiliser on their land when they held low perceptions of land conflict. This is expected because fertiliser application is an

investment intended to yield immediate results and can be difficult to complete unless farmers have conflict free access to the land. This result corroborates the position held by Hagos (2012) who have claimed that conflict over land evidenced in land encroachment reduces the propensity to complete farming investments.

Reverse causality: Investment and tenure security

Reverse causality is considered an important function of the relationship between land rights and investment. This is predicated on the understanding that investment could likely improve land rights (Besley, 1995). Some of the studies conducted in Ghana highlight long term investment such as tree crop planting, and short and medium term investments such as drainage, land excavation and destumping as examples where reverse causality between investment and land rights can be established (Lambrecht and Asare, 2015). Ordinal regression measurements were conducted using data about investment completion and perceived security of tenure to understand whether there were any reverse links. The results are discussed below:

Long term investments and tenure security: Appendix 4 presents the ordinal regression results for the relationships between perceived long term investments and perceived security of tenure. The likelihood ratio chi-square measure indicates that there is a statistical significance between perceived willingness to collateralise land (credit) and perceived desire to purchase land as investments with land tenure security (17.841***). Examining the thresholds, it can be observed that one model can potentially be used to predict the likelihood of long term investments and land tenure security. For example; respondents who hold high valuations of land purchases (p=.003, B=.397**) and land collateralisation (p=.002, B=.431) are more likely to improve tenure security based on the higher long term investments compared with those who hold lower valuations. This provides a likelihood odds ratio of higher tenure security for those who invest more in land collateralisation (.672) and land purchases (1.539) compared with those who hold lower valuations.

The results presented in appendix 4 also highlight a higher likelihood that respondents with high valuations of investment completion are more likely to experience higher competing claims

(B=2.593**, p=.001 and odds ratio of 9.35) and higher land conflict (B=1.228*, p=.025 and odds ratio of 3.415) compared with those who hold lower valuations. This is intuitive, and reflects the background of the research areas where increasing urbanisation and population growth is responsible for increased contestations over tenure access rights (Jayne et al, 2014; Lambrecht and Asare, 2015). It is also a reflection of the possibility that, there is an increasing move towards individualisation of tenure by claimants, who previously accessed land through customary tenure. Lambrecht and Asare have found similarly that, customary claimants are increasingly individualising tenure access rights in many areas in Ghana. The results also confirms most of the views held in many studies in Ghana that have linked long term investments, especially tree crop planting, with increasing land tenure security (Place and Hazell, 1993; Besley, 1995; Quisumbing et al, 2001a; Abdulai et al, 2011).

Medium and short term investments and land tenure security: The ordinal regression results linking medium and short term investments with land tenure security are presented in Appendix 5 for medium term investment and Appendix 6 for short term investments. The likelihood ratio chi-square measure indicates that there is no statistical significance between the variable used for the analysis in both cases. However, when the thresholds are compared, respondents who complete higher medium term investments are reported to experience relatively higher competing claims (B=2.559**, p=.001 with an odds ratio of 12.917) compared with those who hold lower valuations. Also, the same group of respondents experience relatively higher land conflict (B=2.276**, p=.000 with a likelihood ratio of 9.735). This further buttresses the point made earlier in respect to the background circumstances of increasing contestations over tenure access in the research areas and points to a need to institute policies aimed at regularising tenure access rights for different groups in the research areas. The results also provide indication to suggest that medium and short term investments are not generally designed as strategic investments aimed at establishing continuity of tenure making them less affective of land tenure security.

5.5 Conclusion

In this paper, differences in perceived effects of land tenure security on the likelihood of investment completion, in two pineapple producing areas of Ghana were examined. The analysis distinguished

between short, medium and long term investments from a combination of variables drawn from recent land tenure literature in Ghana, key informant interviews and focus group discussions. The qualitative results were presented to show the motivation and justification for completing certain types of investments while the quantitative results were presented to show the likelihood of completing investments given perception of tenure security.

In the qualitative study, respondents assigned valuations to factors impacting perceived tenure security. This provided opportunity to incorporate the effects of endogenous tenure security variables in the analysis. The analysis was also conducted to take account of reverse causality between investments and tenure security.

The results were presented to show that, land tenure security had significant effects on the perceptual decision to complete long and medium term investments. But it had no significant effect on perceived completion of short term investments. Respondents who held low valuations of secure tenure were significantly more likely to complete long term investments in purchasing land and using land for collateral (credit) compared with those who held high valuations. Also, respondents who held medium valuations of land conflict were significantly more likely to complete investments in land sale compared with those who held low or high valuations. With respect to medium term investments, respondents who perceived low land conflict were significantly more likely to invest in land fallowing, land boundary protection such as planting fences or hedges, extending their tenure duration for five years or more, and investing in high value crop production such as pineapple compared with those who held high valuations of land conflict.

In the study of the reverse causality aimed at establishing the relationship between investments and land tenure security, there was no statistically significant relationship found between all short and medium term investment variables used for the study. However, with respect to long term investments, a statistically significant relationship was found linking perceived willingness to purchase land and perceived willingness to use land as collateral (credit) with perceived security of tenure. The mixed results provide reason to suggest that factor extraneous to the ones chosen for the

study might also have a role to play in determining land tenure security. Thus, further investigations should focus attention on understanding how farmer access constraints and individual background characteristics contribute to investment in order to provide a fuller picture.

The results contribute to the literature by showing that perceptual measures, evidenced in valuations assigned to tenure security, can provide effective opportunities to gain insights into how farmers make investment decisions. Thus, it contributes additional information to show that unobservable effects of phenomena such as land tenure security can affect perception and motivate the decision to invest. Consequently, it highlights the need to employ land tenure security enhancing mechanisms to assist claimants to increase their control over land for sustained use.

In almost all the studies, conducted to link land tenure and investments in Ghana, tree crop planting has been used as the major variable to test for the effects of long term investments (Lambrecht and Asare, 2015).Consequently, attention has been drawn to its links with tenure security in many works. For example; Otsuka et al (2003) have argued that tree crop panting improves the chances of acquiring land as individual property. Quisumbing et al (2001a) also argue the 'strategic' planting of tree crops as a tenure security inducing mechanism leading to the establishment of exclusive land use. The data used for the analysis in this study highlight other variables that can be considered as measures of long term investments and draw attention to their consideration in future research.

Chapter Six

6. Distributional effects of changing land tenure for pineapple farming under conditions of peri-urbanisation and farm commercialisation: emerging challenges for contracted and independent pineapple farmers in Nsawam and Awutu-Senya in Ghana.

Abstract

This paper presents evidence about land distribution under changing conditions of peri-urbanisation. The results obtained provide evidence to suggest that land rights become more individualised under peri-urbanisation and farm commercialisation causing inequality in land distribution. This process is increasingly promoting the concentration of land in the hands of wealthier groups. However, ensuing inequalities can be addressed through land rental and sale markets. Furthermore, land loss is not exacerbated for claimants of customary lands. These groups are able to increase their tenure security regardless of whether they are efficient producers or not. Consequently, all groups of farmers have tenure access options that can be secured to guarantee continued production.

6.1 Introduction

An important focus of debates about sub-Saharan African land tenure highlights the question whether smallholders should continue to play a role in farm production (Collier and Dercon, 2014). While opponents have argued that large scale farms hold the key to sustained agricultural development and productivity improvements (Collier and Dercon, 2014), proponents have maintained that smallholders make efficiency savings that provides them advantages making it necessary for them to be supported to contribute to food production (Cotula, 2012). In recent times, this debate has assumed new significance. With many countries experiencing rapid population growth and urban expansion causing land to become increasingly scarce in fringe peri-urban areas, attention is drawn to the equity effects of changing land tenure (Baland et al, 1999; Amanor, 2010; Tsikata and Yaro, 2011; Yaro et al, 2016). The conditions under which inequalities in land distribution are exacerbated or decreased becomes an important question that, when answered, can potentially settle the issue whether the predominantly practiced customary tenure in sub-Saharan Africa should be retained or reformed to pave way for individualised tenure. This paper examines the emerging differences in tenure access and use between Contracted and Independent pineapple farmers in Ghana to gain further insights.

Equitable distribution of land and tenure individualisation is considered important prerequisites for retaining control of land and promoting pro-poor agricultural development. In Ghana, as in many sub-Saharan African countries, the predominant structure for land distribution has long been through customary tenure. In rural areas where land remains in abundance, customary tenure has been responsible for guaranteeing tenure access to majority of land claimants. However, under conditions of land scarcity, especially in areas where urban expansion and population growth have bought pressure on land from different claimants, land ownership is gradually shifting into the hands of wealthy claimants, causing imbalances in the distribution of land (Kasanga and Kotey, 2001; Yaro and Tsikata, 2015; Yaro et al, 2016). This is particularly concerning as it defeats the objectives of pro-poor development agendas set by many countries to improve access to income and sustainable livelihoods, especially for farming households.

Under conditions of land scarcity when peri-urbanisation and farm commercialisation contribute to land tenure changes, the ensuing tenure individualisation affects existing institutions of customary land rights in two major ways. Firstly, the rights associated with land use or 'de facto' rights claimed at the initial access stage gradually transforms into 'de jure' ownership rights of control (Baland et al, 1999). This occurs as a continuum within the understanding that prolonged occupancy of the land increases the security of tenure and incentivises the claimant to invest in long term development of the land (Place and Hazzell, 1993). By this action, the claimant gradually gains recognition as the exclusive user of the land and begins to acquire transfer rights such as the ability to bequeath the land to next of kin or rent it out to third parties. This eventually results in the acquisition of full transfer rights. While at the initial access stage transfer rights are constrained due customary restrains, in the latter scarcity stage transfer rights are extended (Baland et al, 1999; Place and Hazzell, 1993).

An intended outcome of changing land rights from 'de facto' to 'de jure' rights under conditions of land scarcity is the expectation that claimants can rely on their formalised claims to gain the necessary resources to produce more efficiently. In particular, claimants are expected to rely on their formal rights to draw collateral, rent, and finances from land sale with which to invest on their land (Atwood, 1990; Baland et al, 1991; Migot-Adholla et al, 19991; Platteau, 1996; Place and Hazell, 1993). However, unintended outcomes can result from this process creating distribution inequality, inefficient allocation and the exclusion of vulnerable groups.

On the one hand, tenure individualisation creates the conditions for distribution inequality through the exclusion of vulnerable groups from accessing land as a matter of right (Noronha, 1985). In particular, groups such as women and migrant farmers tend to lose the guarantees accorded them over tenure access making them susceptible to income and livelihood shocks (Baland et al, 1999). This process also serves to strain traditionally organised land tenure arrangements and threatens the survival of farmers who access land through customary tenue.

Another unintended consequence of tenure individualisation affects the distribution of arable land (Baland et al, 1999). As land becomes increasingly formalised and exclusively controlled, the

changing nature of claims can lead to imbalances in the type of land allocated to claimants. Claimants may access land that may be limited in the extent to which opportunities cab be created for its productive use. Where the land accessed is barren, for example, claimants may not develop the necessary confidence invest in increasing its value. This has implications for understanding the investment relation and its links with tenure security (Baland et al, 1999), and provides opportunity to understand how individual differences such as their resource endowments accounts for differences in land allocation.

Unintended consequences of tenure individualisation can also result in the marginalisation of smallholders or their disappearance as a farming group through the mechanics of land markets. When they are considered to be inefficient, for example, smallholders can be forced to sell of their land of have such lands expropriated to the detriment of pro-poor development. This feeds into an existing argument that calls for the withdrawal of smallholders from farm production in sub-Saharan Africa citing their production on small farms as insufficient and inefficient (Collier and Dercon, 2014). However, a development perspective contends that market imperfections such as credit access constraints, as opposed to smallholders, are primarily to blame for inefficient production (Berry and Cline, 1979; Baland et al, 1999). It is also argued that removing smallholders from owning land only serves to advance the cause of an elitist land grabbing class whose primary motivation for claiming land lies in the need to own land for speculative purposes (Barrows and Roth, 1990). This latter case appears an apt description of conditions in peri-urban areas and tenure access conditions for commercial production of high value food crops where non-resident land owners dominate tenure access (Green, 1987). Most research conducted to understand the equity effects of changing land rights are contextually limited to different areas and call the need to identify more cases to highlight specific traits.

This paper uses the peri-urban context of pineapple producing areas in Ghana where smallholders cultivate pineapple as independent semi-subsistence farmers and contracted out growers for large scale exporting and processing firms (Suzuki et al, 2008) to examine the distributional effects of land tenure changes. As contracted farmers and independent groups, opportunity is presented to make

comparisons between the groups to understand whether changing processes of tenure access increases the concentration of land to one group compared with the other. To achieve the purpose set for the research, household survey data of 135 smallholders collected across two districts, Nsawam in the Eastern Region and Awutu-Senya in the Central Region were used. These areas are suitable for conducting the study for several reasons. Firstly, they can be best described as 'Village peri-Urban' (Iaquinta and Drescher, 2000), meaning that the areas are increasingly experiencing urban influences and pressures. Furthermore, the areas have a prolonged association with land markets and tenure individualisation (Hill, 1961). Smallholders as share many commonalities with respect to tenure access but intensify production differently as contracted and independent groups (Suzuki et al, 2008). This makes it possible to examine how land tenure changes causes differentiation in land distribution for the two groups. This paper is structured to explain the study background and important features of the study areas in Section 2. In Section 3, the effects of land tenure change on distribution of land are reviewed to gain further insights. Differences in tenure access between contracted and independent smallholders are examined to understand the equity effects in Section 4. This is followed by the conclusions, recommendations and suggestions for future research in Section 5 to complete the study.

6.2 Contextual Background

Population growth and the accelerated development of land markets have been identified as primary drivers of land tenure changes causing land loss for farmers and promoting tenure individualisation in peri-urban areas in Ghana (Owusu, 2008). These changes in dynamics emanate from interrelated considerations such as the quest by urban residents to reduce the high rent costs associated with living in the inner city, low cost of accessing land in the peri-urban fringes (Patrick et al, 2015; Appiah et al, 2017) and non-market factors such as claimant's reliance on their socio-political and economic power to expropriate land (Kasanga et al, 1996; Goldstein and Udry, 2008; Owusu, 2008). Additional considerations such as household overcrowding and inadequate provision of utility services in the main cities have also been identified as secondary drivers causing urbanites to relocate to the urban fringes (Ghana Statistical Services, 2008; Gillespie et al, 2018). The Ghana Statistical Services (2008)

has observed, for example, that majority of households in Accra, 53.6% are affected by overcrowding and struggle to find cheaper accommodation within the inner city.

Owusu (2008) draws attention to inadequacies in land management practices that were drawn during pre-colonial times in the 1940's under conditions of land abundance and notes the need to define new policies that take into consideration the conditions under which multiple claimants are clamouring for limited land. Blocher (2006) notes the inherent flaws embedded in the land tenure arrangements in Ghana and cites the dualistic practice of customary and statutory tenure and their lack of interaction as a major factor contributing to imbalances in land distribution for different groups of claimants. Institutional weaknesses and systemic failures in managing an effective land use policy are also identified in Owusu (2008) as barriers to sustainable land use arrangements in peri-urban areas such as Ghana's capital city, Accra. As the combined effects of pressure on land by urban claimants and inefficient land use management arrangements contribute to increasing costs associated with tenure access and land loss for farmers (Owusu and Agyei, 2007), it becomes even more pertinent to understand how farmers in peri-urban areas retain control of land for sustainable food production.

In the research areas chosen for this study, changes in dynamics of land tenure are particularly poignant. In the Nsawam district especially, farmers have reported experiences of increasing land expropriation in cases where real estate developers have connived with groups of unemployed youth known as 'land gangs' to intimidate them from returning to their farms. Land gangs are reported to employ unsavoury methods such as threats and beatings to drive farmers away paving the way for real estate developers to quickly develop the land. This experience has also been reported by a major producer-exporting pineapple firm in the area who claimed to have lost substantial portions of their farming land to real estate developers through these methods. Further revelations from focus group participants point to connivance between customary authorities and land prospectors to truncate established arrangements of customary land distribution and shift land away from farmers. These problems call attention to the need to develop an efficient land use sharing arrangement to provide sufficient space for sustainable farming.

The two study areas, Nsawam District in the Eastern Region and Awutu-Senya District in the Central Region of Ghana are suitable locations to study how changing land rights under conditions of land

scarcity raise questions about equitable distribution of land. The areas are located in the fringe of Ghana's expanding capital city, Accra, and attracts urban workers who are seeking cheaper forms of accommodation. Nsawam and Awutu-Senya districts are predominantly pineapple producing areas that have benefitted from the loamy soil suitable for pineapple production left behind after the strategic burning of Cocoa farms in the 1960s (Ampadu-Agyei, 1995). Land commodification and tenure individualisation is not new in these areas (Hill, 1961). However, recent pressures over tenure access caused by expansion in the city of Accra and other towns have contributed to increasing land scarcity. As a consequence, pineapple farmers are increasingly competing with real estate developers and other urban land use claimants over tenure access. This results in the conversion of arable farming land into urban land use processes and causes land loss for some groups such as migrant farmers. Also, due to increasing commercialisation of pineapple production, land rights are competed between contracted and independent pineapple farmers.

The tenure systems practiced in the study areas are best described as dualistic with a mix of customary tenure and other market forms. However, majority of farmers access land through customary tenure. Per Ghana Lands Commission (2017), under customary tenure, land is held by the stool, community or families. These are generally allocated to qualifying claimants on the basis of blood ties to the area. Land claimed under customary tenure assigns user rights to claimants who are able to use such land indefinitely. This allows claimants to gradually increase their rights to exclusive control acquiring limited forms of transfer rights in the process. Recent developments in land scarce parts of the study areas where real estate developers are using extreme means of claiming land points to an increasing drive by farmers to regularise control of customary lands through tenure formalisation and registration. As their primary motivation, most farmers have stated the desire to bequeath land to their next of kin. However, these areas have also experienced acceleration in the development of land markets, meaning that communal control is gradually diminishing. Outsiders such as migrant farmers were traditionally granted access to farming land under different forms of share cropping arrangements such as the 'Oyekye' in Awutu-Senya and the 'Abusa' in Nsawam. However, these practices are no longer practiced with land owners preferring instead to take advantage of high premiums to rent out or sell land.

As the most produced crop in the study areas, pineapple production has an impact on farmers land tenure and provides opportunity to examine the changes in land distribution and equity consideration between farming groups. Consistent with the development of the pineapple industry and its production and export model, large scale producer-exporting firms have mostly ceased self-production and prefer offering contracts to smallholders for supplies. Pineapple farmers in the peri-urban research areas produce crops as contracted and independent farmers. Contracted farmers hold production contracts as out growers to supply processing firms and exporting companies. This provides them with guaranteed markets and access to higher income placing them in a good position to manage land tenure risks. In particular, they can rely on savings from their higher income to purchase land and or improve their security of tenure. Independent farmers on the other hand produce primarily for subsistence and take advantage of available markets to sell excess produce to supplement their household income. This raises equity issues and questions about the distribution of land in relation to pineapple farming. However, no research has been conducted to document the pineapple farming land tenure in the research areas which is the focus of this paper.

6.3 Literature Review

Effects of changing land tenure on distribution and allocation of land

The increasing shift towards individualisation of tenure under conditions of land is adequately documented in many studies (Boserup, 1965; Place and Migot-Adholla, 1998; Lawry et al, 2016). Under such conditions, caused especially by population growth, urban expansion and farm commercialisation, risks associated with tenure access are heightened causing customary land claimants to engage in distress land sales (Baland et al, 1999). Relying on the informal guarantees and usurfructuary arrangements accorded them over tenure access, customary claimants were able to rely on their land rights to ensure that qualifying claimants could access land for farming purposes as a matter of survival. However, under changing conditions when pressures over tenure access are heightened, imminent risks such as expropriation, encroachment and competing claims are experienced calling the need for adjustments. To mitigate these risks, some farmers are driven to sell

of land while others rely on their savings to formalise control of their land. These processes and responses create changes in the distribution of land that have implications for managing land rights (Carter, 1997; Baland et al, 1999).

The current literature highlights, on the one hand, the equalising effect of land tenure changes on the distribution of land under conditions of tenure individualisation (Place and Migot-Adholla, 1998). Using different contextual examples in sub-Saharan Africa to back their case, these studies argue the mitigating impact of land sales as a means by which landless groups are granted access to land. The opportunities presented for selling some portions of land to raise finances for investment are also argued to present equalising avenues to distribute land more equitably for different groups (Pinckney and Kimuyu, 1994; Baland et al, 1999).

On the other hand, however, contextual examples are provided in some studies to show inequalities in land distribution resulting from an income and wealth effect (Andre and Platteau, 1998). In particular, attention is drawn to reliance on available income and savings to buy land leading to an increasing concentration of land in the hands of wealthy claimants. While some of these wealthy claimants are shown to own land for speculative purposes causing land prices to rise, others are shown to have little interest in owning land for farming purposes thereby contributing to the preclusion of poorer groups from accessing land (Platteau, 1996).

Clearly, the evidence remains inconclusive and calls attention for additional research. Of particular importance is the need to understand how population pressure, urban expansion and contestations over tenure access are causing arable lands to shrink within specific contexts. One such context is the chosen research areas chosen for this study. Pineapple farmers in these areas are increasingly accepting production contracts from large scale processors and exporting companies to supply pineapple as out growers. In the process, contracted farmers are looking to access more land to expand production while independent farmers are concerned with retaining control of land to continue production as semi-subsistent producers. The resultant differences in tenure access between the two groups are examined to understand whether current trends are contributing to a shift in the concentration of land from one group to the other. The examination within the group is very important to show how land tenure changes contribute to the development or preclusion of particular groups

from farming. This differs from an examination of the shift in tenure concentration between rural and urban land claimants which appears to be an equally important area of investigations in many studies. The expectation is that, under conditions of increasing land scarcity and individualisation of tenure, farmers who have the requisite capacity to purchase or securely lease land (such as contracted groups) will begin to assert greater control over arable pineapple producing land.

6.4 Conceptual considerations

The paper adopts a rights based approach to understanding how changing land rights create differences between contracted and independent pineapple farmers tenure access. Limiting attention to analysing the differences within pineapple farmers provides opportunity to make important linkages between land tenure and farm commercialisation (Maxwell et al, 1998). Drawing insights from Baland et al (1999), the paper identifies two major ways by which changing land tenure causes distortions in land rights. On the one hand, given that most farmers access land through customary tenure, increasing tenure individualisation shifts land rights away from competing claimants. This raises an equity problem as poorer and less endowed claimants are excluded from land ownership. On the other hand, given that individualisation of tenure from customary to more formalised forms is continuous over time, different groups of claimants will gradually lose control of land as individual claimants begin to assert their claim to exclusive control. While claimants who retain control are able to increase their rights incrementally, the resulting unequal distribution resulting in land loss for disadvantaged groups needs to be understood. This paper adopts a comparative approach to examine the differences in land rights for contracted and independent pineapple farmers in the sample. It is expected that under conditions of urbanisation and farm commercialisation causing land to become increasingly scarce in the research areas, both contracted and independent farmers will begin to take proactive steps to regularise control over land. In the process, they will begin shifting land away from customary control. However, contracted farmers will be expected to be better placed to rely on their access to regular income to retain control over land. On their part, independent farmers will be expected to begin to manage land related risks by selling more land.

6.5 Results

Data Descriptive

In this section, the descriptive statistics of contracted and independent pineapple farmers used for the study are summarised. The background characteristics were grouped together into one variable and the data was split to reflect the differences between the two groups. The data included demographic and background characteristics such as age, gender, position in society, crops produced, other activities, experience, education, household size, residency, ethnic origin, union membership and non-farm based income.

The results presented in appendix 7 shows that the sample had more independent farmers (N=88 than contracted farmers (N=47). The minimum and maximum score for contracted and independent farmers were quite dissimilar. Furthermore, while both groups had the same median score (23.0), the standard deviation for independent farmers was relatively higher (2.79514) compared with contracted farmers (2.41220). This was equally represented in the quartile score showing both groups with second quartiles of 20.0 respectively. This implies that the demographic and background characteristics of contracted farmers were less spread out compared with independent farmers. This same distribution was also reflected in the kurtosis (Contracted = -1.223, independent = .945). For example; the distribution of demographic and background characteristics of contracted farmers shows a roughly symmetrical and unimodal pattern. There did not appear to be outliers in the data also.

Correlation analysis

In this section, the demographic data were compared with the main variables of interest pertaining land tenure access and use. Correlation analysis was conducted to determine whether any associations could be found between the demographic variables and the land tenure access and use variables. The correlations were measured using spearman correlation. The correlation matrix, Appendix 8, shows the correlations of the land tenure and use variables and the demographic and background variables.

The results suggested that 24 out of 276 correlations were statistically significant with coefficients[2] that were less than or equal to, *r (135) = .50, p<.05, two-tailed.*

In general, the results suggested that some respondent demographic and background characteristics had an association with land tenure access and use in the stud areas. However, the variables that were statistically significant (24) were only a considerably small number compared with the total correlations. This provided further cause to investigate the variables more closely to understand their relationships.

Mann-Whitney U test

The results are presented in this section to determine the differences between contracted and independent smallholders with respect to land tenure. The investigation aimed to understand whether there were significant differences in land tenure access and land use arrangements between contracted and independent smallholder pineapple farmers. In order to differentiate between land tenure access and use modes of the two groups, Mann-Whitney U tests were conducted using several data gathered about existing land access and land use modes of the two groups. The Mann-Whitney U is a non-parametric comparison designed to test the statistical differences between two independent groups. This was therefore identified as a suitable means of analysing the data.

An examination of the results presented in Appendix 9 shows the Mann-Whitney U test comparison of the land tenure access modes between contracted and independent smallholder pineapple farmers in the sample population for the study. The results did not show any statistical differences (Z=-.173; p= .863>.05). The average rank of the contracted group was 67.27, while the independent group had an average rank of 68.39. This means that there was no statistically significant difference in how contracted and independent smallholders accessed land. Consequently, it can be stated that neither group held an advantage over the other with respect to accessing land in the study areas.

[2] Note: Coefficients of variables for the total sample (N=135) represent correlations between land tenure access and use variables and demographic and background variables used for the study. The coefficients highlighted in bold were significant.

The results provide additional information about the average size of land owned or controlled by contracted and independent farmers. An examination of the results shows that there were significant statistical differences between the two groups with respect to their land ownings (Z=-2.905; p=.004<.05). The average rank for the contracted group was 80.78, while the independent group had an average rank of 61.18. This means that the contracted group owned or controlled significantly higher portions of land compared with the independent group. Consequently, it can be argued that contracted farmers held a significant advantage in accessing more land.

The latter view espoused above appears to be buttressed by the results that compare the proportion of land used for pineapple farming by the two groups. As can be observed, there were significant statistical differences in land apportion for pineapple farming by the groups (Z=-2.964; p=.003<.005). Contracted farmers had an average rank of 80.85, while independent farmers had an average rank of 61.14 meaning that contracted farmers apportioned more land for pineapple farming. While the results provide indication to confirm the status of independent farmers as a primarily subsistence or semi-subsistence group, it makes it possible to identify contracted farmers as the group currently intensifying production on pineapple.

The results also compare the two groups with respect to their propensity to increase their land holdings. Farmers were asked whether they would take advantage of their positions to increase their farm sizes. As can be observed, the differences between the two groups was statistically significant, (Z = -3.599; p=.001<.005). Contracted farmers had an average rank of 78.98, while independent farmers had an average rank of 62.14. This made contracted farmers the group ore likely willing to expand their farm sizes.

The results are also presented to understand whether farmers intend to reduce their farm sizes. As can be observed, differences in planned farm reduction were statistically significant, Z= 13.05; p=.002<.005). Contracted farmers had an average rank of 61.07, while independent farmers had an average rank of 71.70 meaning that on this occasion independent farmers were planning to reduce their farm sizes compared with contracted farmers.

Differences between contracted and independent farmers with regards to land owned or controlled elsewhere outside the study areas were also compared. This was intended to understand if the process

of land grabs and landlessness had extended beyond the confines of the study areas. The results did not show any statistically significant differences, Z=-. -1.613; p= .107 >.05). The average rank of the contracted group was 61.84, while the independent group had an average rank of 71.29. This means that neither of the groups held a significant advantage over the other with respect to controlling land elsewhere.

When claimants feel secure in accessing and using their land, they are incentivised to retain control over it for long periods of time. The results further capture the differences between the groups with respect to tenure duration. An observation of the results shows that there were statistically significant differences tenure duration between the groups, Z=-4.526; p=.001<.005). Contracted farmers had an average rank of 88.33, while independent farmers had an average rank of 57.14. This means that contracted farmers managed to prolong their control over land compared with independent farmers.

Land title registration is considered one of the means by which claimants can develop the confidence to secure control and use land to draw benefits from trade. The results compared the differences in title registration between the two groups. The results did not produce any statistically significant differences, Z= -.1381; p= .167>.05. The average rank of the contracted group was 73.86, while the independent group had an average rank of 64.87. This means that neither group held a significant advantage over the other with respect to land title registration.

The link between the farm and market centres is important to understand whether location of land plays a part in creating farmer differences. The results did not show any statistical differences, Z = -.643; p= .520>.05). The average rank of the contracted group was 65.91 while the independent group had an average rank of 69.11. This means that proximity of land to market was did not play a significant role in differentiating contracted from independent farmers.

Similarly, an examination of the results with respect to proximity to purchasing firms did not produce any statistically significant differences, Z = -.232; p= .817>.05). The average rank of the contracted group was 67.02, while the independent group had an average rank of 68.52. This means that both contracted and independent farmers were clustered around similar locations and distances in relation the location of purchasing firms.

The results did not also show any statistically significant differences between the groups with respect to labour use, Z = -1.080; p= .280>.05. The average rank of the contracted group was 72.40, while the independent group had an average rank of 65.65. This implies that both groups employed relatively similar quantities of labour on their farms.

One of the expectations pertaining land tenure change is that farmers will gradually embrace technology in their bid to start producing more efficiently. The results compared the differences between the groups in relation to the use of farm machinery (Own transport). The results did not show any statistically significant differences, Z = -.157; p= .875>.05. The average rank of the contracted group was 67.61, while the independent group had an average rank of 68.21. This means that either group out performs the other with respect to using modern methods of production such as their own farm transport.

It can be surmised from the results that both contracted and independent farmers in the sample held certain advantages that provide them some claim to accessing and using land. Although the results showed that contracted farmers held advantage in accessing and maintaining control over land compared with independents, the latter group were shown to match contracted farmers with regards to land use processes.

6.6 Discussion

Land tenure changes, especially in peri-urban areas are fraught with conflict over tenure access rights. While most studies identify the negating role of urbanisation and population pressure on tenure access rights, other studies identify how changes promote or exacerbate landlessness. However, very few studies concentrate attention on understanding and or identifying the winners and losers so that steps can be taken to provide the necessary assistance to improve their tenure access.

The approach adopted for this study provided opportunity to draw comparisons within one particular group of farmers as opposed to the usual practice of making comparisons between groups. Given the backdrop of continuing peri-urbanisation of fringe areas in Ghana, such an approach has yielded results to show some differences in tenure access and use for pineapple farmers. The paper thus, highlights, as suggested by Maxwell and Weibe (1999), important results that could be generated when land tenure is examined primarily within the consideration of food production.

The results presented in this paper provided opportunity to draw several conclusions about land access and use arrangements for the sampled pineapple farmers. With respect to access, the evidence was provided to show that while there are no restrictions on the quantity of land a farmer can claim, accelerated development of land markets caused distortions in tenure access and use. Consequently, the institutional arrangements over access were skewed against farmers who did not have either the requisite finances to purchase or rent land, or the social clout with which to complete customary claims. This meant that increasingly, disadvantaged groups of farmers will most likely lose control over their land paving the way for a take-over by more capital endowed farmers and land speculators. These findings are also shared in some of the land tenure literature in Ghana where studies have identified landlessness and loss of farming land as some of the outcomes of current land tenure changes (Maxwell et al, 1998; Ubink, 2008; Owusu, 2008; Holden and Otsuka, 2014; Yaro et al, 2016).

Landlessness is a major issue of concern affecting pro-poor growth and development and the literature advocates for steps to be taken to preserve arable land under conditions of peri-urbanisation (Feder and Noronha, 1987; Platteau, 1996). The results presented in the study provide evidence to suggest that contracting can serve as a medium through which farmers can develop their capabilities and access the needed income with which to maintain control of their land. This is because contracted farmers were demonstrably more capable of retaining control of their land, and for longer periods of time, and expressed more of an interest in expanding their land holdings and farm sizes compared with independents.

Tenure formalisation through exclusive private ownership has been identified as a necessary component of evolution of tenure (Boserup, 1965; Hayami and Ruttan, 1971; Deininger and Feder, 2009). The results showed that none of the two groups held an advantage over the other with respect to title registration. However, it highlighted the possibility that both groups of farmers, regardless of their tenure access mode, were taking steps to register their title over land. A similar finding has been made in Jayne et al (2014) who have stated that in areas of Ghana where contestations over tenure access are high, farmers are increasingly taking steps to claim exclusive control of land previously

accessed under customary rules. Some of these farmers were claimed to have devised ingenious ways of registering these lands.

In making the link between the data and pineapple production, the results showed that contracted farmers apportioned relatively more land for pineapple cultivation. This is important because it shows that contracted farmers are rising to the challenge, at least, of trying to increase their pineapple production in response to existing market demand. Expanding local and international market for pineapple exist. As a consequence it remains important to understand whether production can be sustained into the future. Given the current distribution, it can be argued that contracted farmers hold the capacity to increase pineapple production since they apportion more land for pineapple cultivation. This has positive implications for the development of independent farmers and farmer's welfare in general. For example; it shows that when independent farmers are given forms of assistance to improve their farming practice that they could contribute effectively to food security. While the findings negate literature concerns about the negative consequences of commercialising smallholder production (Cotula et al, 2009; World Bank, 2011), the leveraging effect from assisting affected farmers to catch up with their counterparts could provide meaningful solutions to the problem of food insecurity.

Some of the strengths, especially of independent farmers, were highlighted in the results pertaining labour use, proximity to markets, proximity to buying firms and use of machinery (own transport). While the results did not produce any statistically significant differences, it provided very useful information about the productive capacity of farmers and speed by which supplies could be delivered to markets. These result also provided some indication to show that independent farmers had certain qualities that could be relied upon as the foundations for providing them assistance to further develop their capabilities. For example; independent farmers in the sample were shown to apportion similar quantities of labour on their farms compared with contracted farmers. They also shared commonalities with contracted groups in the general location of their farms in relation to market centres and buying firms. Their machinery use was also very similar meaning that both groups were evenly matched with respect to those variables.

6.7 Conclusion

The current paper employed correlation analysis and Mann-Whitney U tests to compare the land tenure access and use differences between contracted and independent pineapple farmers in peri-urban Ghana. The results highlighted understanding about how land tenure changes in peri-urban areas contributed to differentiating between farmers with respect to land access and use arrangements. The findings of the paper confirmed most of the literature findings to show that urban expansion and population growth were major drivers of land tenure changes in the peri-urban study areas. These were also found to be the primary cause of accelerated development of land markets, contested claims over tenure access and shrinking farming land (Owusu, 2008; Amanor, 2010; Jayne, 2014; Yaro et al, 2016). For example; contracted farmers were demonstrated to hold significant advantages over independent farmers with respect to tenure access. Contracted farmers were also demonstrated to use more land for pineapple farming while reserving the better capacity to increase their land holdings. This made contracted farmers the most likely group to take advantage of their position to acquire more land giving them greater control over production and a potentially elitist status.

The paper also demonstrated that while customary tenure had been flexible and adaptable to accommodate the development of other forms, as considered in other studies (Hill, 1961; Bassett, 1993; Udry, 2011), some of the new forms such as land markets threaten to undermine the very customary institutions of land governance. For example; land markets are major drivers of tenure individualisation and commodification of land (Gough and Yankson, 2000; Owusu, 2008; Ubink, 2008). This means that farmers will increasingly look to raise finances to either purchase or rent land for farming. Thus, a process of differentiation in tenure access is emerging that eliminates the poor and vulnerable form accessing land for farming. This was clearly demonstrated in the study to show that contracted farmers were accessing, apportioning and willing to purchase comparatively more land for farming. While some authors might argue this as a demonstration of residual control and efficient land access and use, the resultant landlessness and joblessness provide cause for concern and raise questions about pro-poor development.

Several potential solutions have been proposed in the literature to include the streamlining of access rules such that the power to allocate land is shifted away from customary authorities and handed over

to area land committees (Maxwell et al, 1998; Aryeetey et al, 2007; Yaro et al, 2016). This is because customary authorities as custodians of stool land have been found in many areas to seize control of lands for individual and speculative purposes (Kasanga et al, 1996; Roth, 1996; Aryeetey et al, 2007; Holden and Otsuka, 2014). Other propositions, such as the creation of land banks to preserve arable farming land to redistribute to farmers are useful suggestions which can contribute to reducing landlessness and protecting agrarian land from encroachment (Aryeetey et al, 2007).

In addition to these propositions, it is the consideration of this paper that landless and vulnerable groups including farmers who are on the verge of losing their land can be offered some forms of soft interventions intended to secure the land they currently occupy. In this regard, support for title registration, tenure formalisation and market access through contracts will be desirable interventions that can assist farmers to retain control over land. With specific respect to pineapple farmers, it is a consideration also that providing independent farmers assistance to improve production to meet the requirements set for purchasing pineapple by buyers can provide them access to contracts and higher income. With their newly acquired status and income, this group of farmers can develop greater capacity to improve their capacity to retain control, rent or purchase land in order to maintain their claims to continued farm production.

Land tenure studies conducted in Ghana are generally contextually based with limited generalisability to the study settings in which they were conceived. However, as more studies are conducted covering other areas of the country, patterns of the bigger picture begins to emerge. One of the chosen study areas, Awutu –Senya, fits this description as it is a coastal area. No previous land tenure studies have been conducted in the area. The results of the study are therefore generalizable as a means of comparison with the different studies conducted in different areas of the country. However, its applicability will remain limited to the context of the research areas. In order to add to the emerging picture across Ghana, the paper recommends that future research is focused on areas where land tenure studies have not been conducted. Also, comparisons of similar nature could be made in other areas to determine the differences in land tenure access for different groups of farmers in order to further understand how land tenure changes can be managed to provide farming opportunities for all groups.

Chapter Seven

7. Summary and Conclusions

7.1 Research Summary

The research was conducted to understand the characteristics of land tenure, the links between perceived tenure security and investment, and the distribution of land for pineapple farmers under conditions of peri-urbanization and increasing land scarcity. The research areas are best described as village peri-urban. This means that they are increasingly experiencing urban pressures such as the influx of urban land use claimants. Ensuing pressure on land is beginning to cause land loss for some farmers in areas adjoining the outer limits of the expanding city of Accra, Ghana's capital. Loss of farming land in these areas is attributable primarily to the activities of real estate developers and their 'land gangs' sub-agents. Land gangs are used by real estate agents to intimidate farmers to vacate their lands paving the way for quick development of the land. As primarily customary claimants, most farmers are unable to provide sufficient evidence at the courts to reclaim their land meaning that real estate developers are granted the right to retain control on the basis of their investment. In other scenarios, land owners have double crossed farmers by selling land to real estate developers and conniving with the latter to forcibly eject farmers from the land. This is usually carried out regardless of whether the land has been cropped. Given that pineapple production offers an opportunity for farmers to access lucrative income from expanding local and international markets, and holds immense promise for contributing to revenue growth in Ghana, the investigations were deemed useful for generating information that would contribute to the development of farmer and farming practices in the research areas. It was also expected that some of the information would provide insights into changing processes of land rights to guide potential forms of intervention for managing tenure access for different groups of claimants. The study focused attention of understanding three important issues related to land tenure in the research areas namely; to understand the characteristics of pineapple farming land tenure, to examine the links between perception of tenure and investment, and to examine the distribution of land between the two main groups of farmers, contracted and independents.

The results were obtained using a Household Survey of pineapple farmers in the sample. This was complemented with Key Informant Interviews and Focus Group Discussions. The results presented are a collection of papers organized into chapters. At the heart of the presentation are three research papers that are organized under chapters 4, 5 and 6. Each of these chapters tackles one of the key issues. These are summarized below:

7.2 Summary of Results in the main chapters

Chapter Four: Despite its position as Ghana's number one horticultural product and the expected income and revenue from its production, the pineapple industry land tenure has not been characterised in any studies. Consequently, this study was conducted to examine the land tenure and detail pineapple farmer's land rights. This included a characterisation of how pineapple farmers access and use land, and related issues. The results provided indication to suggest that pineapple farmers relied on multiple tenure forms to access land. Individualised tenure forms such as outright ownership and leaseholds were found to be increasingly relied upon to access land for pineapple farming while older forms of tenure such as share cropping arrangements were found to be gradually discontinued.

The results provide indication to suggest that farmers are increasingly relying on land markets to access land. This implies also that land is gradually shifting away from customary tenure and moving towards tenure individualisation. Individualisation of land rights provides opportunity for landless groups with sufficient capital to purchase land. Also, it holds potential for mitigating unequal distribution of land. However, inequalities in land distribution could also result where poor farmers are excluded from access due to their inability to purchase land. These prospects are highlighted when farmers were asked to identify the biggest challenge they faced over tenure access. The results, presented in Table 7.1, provided indication to show that farmers were mostly concerned about high costs associated with tenure access. Concerns that customary authorities were selling land were also relayed providing further justification to show that land was becoming increasingly concentrated in the hands of individual owners.

Table 7.1: Challenges facing pineapple farmers over tenure access

Nature of challenge	Frequency	Percent
High cost of accessing land	65	48.1
Land loss for animal grazing	11	8.1
Land loss to big companies	5	3.7
Land sales by customary authorities	20	14.8
No major issues	34	25.2

Source: Fieldwork Data

The results produced in the paper provided cause to conclude by suggesting that steps should be taken to assist pineapple farmers to formalise control of land. In particular, given contextual challenges such as increasing urban land use claims in the research areas, farmers could be assisted with soft forms of intervention to reduce their access constraints such as finance capital with which to purchase or lease land. Part of the intervention could also be directed at securing control of land for banking purposes away from urban encroachment. For example; when asked to provide suggestions for dealing with land tenure challenges in the research areas, most farmers expected some form of Government intervention in dealing with the matter as depicted in Table 7.2. Also, a high proportion of farmers in the sample expected some means by which the costs of accessing land could be managed. This provides sufficient grounds to support the recommendations in this paper.

Table 7.2: Farmer suggestions for solving land rights issues

Suggestions	Frequency	Percent
Unsure	34	25.2
Reduce cost of land	27	20.0
Government intervention	62	45.9
Redistribute land in the area	9	6.7
Negotiate with customary leaders	3	2.2

Source: Fieldwork data, 2014

Chapter Five: In this paper, the investment relation of land tenure was examined. The purpose was to understand the links between perception of risks associated with tenure security and investment likelihood. The Likelihood Odds Ratio of the non-parametric logistic regression provided indication to show that respondents who held low valuation of risks were more likely to complete medium and long term investment. Accordingly, respondents who held high valuations of risk were more likely to complete short term investment. Given that perception of tenure is a decision variable that affects individual feelings, the results derived provided useful insights into factors that affect the decision to invest in pineapple farms.

The results have important implications for the development of farmers and provide valuable information to assist with targeted intervention to assist farmers. For instance; it highlights different forms of investment that farmers with secure tenure are likely to complete. This makes it possible to design tailored forms of intervention to target these groups. In particular, farmers could be identified and supported to reduce risks associated with tenure access as a means of helping them to produce more efficiently. Furthermore, given that land rights are becoming increasingly contested between farmers and urban land uses, the results provide useful information to assist with land use planning in the research areas. The results also capture the impact of context on investment decision making. In the process, it highlights the important role that risk perception plays in motivating investment decisions.

Chapter Six: Current processes of land tenure changes in the peri-urban villages are shifting towards tenure individualisation. While this has implications for tenure access rights between farmers and urban land use claimants, it is also causing land to be unevenly distributed between farmers. The paper focused attention on understanding the differences in tenure access between farmers to understand whether changes are leading to concentration of land in the hands of particular groups. This is important because majority of farmers rely primarily on farm production to support their households. The narrowing of the focus on to farmers can potentially highlight the typology of farmers who are able to retain control of farm production within peri-urban zones. As land rights become increasingly contested and tenure access becomes increasingly individualised, individuals and groups will rely more and more on their finance capital to acquire land for farming. Such lands will become less abundant meaning that farmers will increasingly look to produce high value crops as an alternative to selling off land. The focus was therefore considered important especially for the research areas where farmers were increasingly accepting production contracts to produce pineapple for large scale companies. The land rights of contracted and independent pineapple farmers in the sample were therefore compared to understand emerging issues related to the distribution of land.

The Mann-Whitney test conducted to compare the two groups produced results to show that contracted farmers were increasingly accessing more arable land compared with independent groups. This effectively identified independent farmers as a vulnerable group who were more likely to succumb to land losses under changing processes.

The implications of the results point to the importance of contracts as a mitigation against land loss and highlights the role that contracts play in offering farmers an opportunity to negotiate control over land either through market purchases or by reducing the prospects of making distress land sales.

The results provided opportunity to conclude by suggesting that while soft forms of intervention such as the provision of access to markets, access to finance and land registration schemes are desirable as a means of leveraging inequalities in land distribution, developing farmer capacity to access contracts holds immense potential for providing them the means by which they can control their land.

7.3 Contribution of the Research to Literature

The research fills an existing gap to conduct land tenure research covering a coastal region in Ghana (Lambrecht and Asare, 2015). Thus, it is expected to make a contribution to Ghana's land tenure literature. The research also draws attention to making comparisons between farmers within the same group, such as smallholders, in order to identify their particularity of responses and adjustment capacity under conditions of changing land tenure.

Furthermore, the research contributes important information about the links between perceived tenure security and the likelihood of investment in the research areas. Thus, it adds to a growing literature that considers to role of individual perception as incentive to complete investment (Deininger and Jin, 2006; Van Gelder, 2007; 2010).

In addition, the research offered practical solutions to challenges of land tenure change in peri-urban areas. Thus, it offered insights about the changing processes and suggested options for dealing with the challenges by drawing on findings from a fieldwork research process that was carefully conducted, replicable and prescriptive as expected in a rigorously completed research investigation (Gibbons et al, 2008).

Finally, the research was centred on investigating a sensitive series of issues affecting farmer's livelihoods that causes conflict and contestations between them and other land users. This was an issue that came close to farmers and policy makers hearts and required steps to be taken to address imbalances in order to maintain social cohesion and participation for different groups. The research, thus, makes a contribution to these issues by offering some ways of peacefully negotiating change in order to forestall the exacerbation of conflict and abject poverty.

7.4 Limitations and Recommendations for future studies

The case study approach adopted for conducting the study makes the study findings limited to the chosen peri-urban research areas. This means that the research findings are generalizable only to the research areas. Furthermore, since the processes of land tenure change are continuous until steps are taken to address the issues raised in the research, it can be argued that the research is limited to the prevailing conditions at the time of the field study. Thus, generalising the findings is limited to the

contextual circumstances and conditions of that time. As a consequence, it is important to conduct studies periodic studies of a similar nature in order to identify further changes. It is also pertinent to conduct studies of similar kinds in areas of Ghana where no land tenure studies have been carried out to understand contextual differences in how farmers manage land tenure change.

The study recommendations remain untried in the current research areas and would require steps to be taken to test them within limited localities to determine their degree of practicability. If successful, these can be rolled out as major policies and focus areas. However, it is recommended that further studies are carried out in additional areas that the research failed to cover in order to provide a fuller picture. These recommended further studies are listed as follows:

a. Examine the factors causing disinterest in pineapple farming or farming in general by young people in the research areas. This recommendation is drawn from the respondent background information in which it was found that young people were under represented in farming.

b. Examine ways by which tenure access rights for vulnerable groups such as women and migrant farmers can be improved in the research areas. Although some recommendations to this effect were provided in the current research, a complete study in this area will likely reveal further options for managing land tenure and promoting equitable access for different groups.

c. Assess the impact of real estate development on the availability of arable land in the research areas. This has to do with the spatial and environmental effects of the interaction between urban land use acquisitions and shrinkage in farming land. A more technical insight could be provided to highlight how the built up environment compares with the remaining forest land, and might require the use of modern research methods such as satellite investigations to complete the study.

d. Examine ways by which independent farmers can be incorporated into contracting arrangements as a means of developing their capacity to retain control of their land. This requires a study that focuses attention of providing practical solutions about how contracts and marketing channels can be improved to cover most faming groups.

e. Examine ways by which urban and rural land governance structures can be integrated to form a land use development tool that caters for farmer needs under conditions of peri-urbanisation. Here again, some solutions have been offers in the current research. However, a closer investigation could

detail additional policy and planning options for simplifying and effecting greater compliance arrangements and protection of arable farming land with direct corroboration between rural and urban land governance managers.

7.5 Conclusion

Rapid urbanisation of rural land constricts the extent to which farming land can be expanded. It also creates differences in tenure access for farmers by providing opportunity for some farmer groups to gain greater control over land while others are pushed out of production. This has a negative effect on the promotion of pro-poor development of farmers and risks exacerbating poverty for landless and vulnerable groups. This situation needs to be rescued with careful planning and soft forms of intervention in order forestall social upheaval and conflict. However, the issues are not extensively researched meaning that the true effects of rapid urbanisation on food security are least appreciated.

This research demonstrated that while responses to urban expansion into the village peri-urban had been silent from a policy perspective in Ghana, farmers collective capacity to adjust to changing land tenure created differences in their position with resultant winners and losers. The results were mixed in the sense that some farmers were better positioned to take advantage of land markets to access land while others struggled to raise the necessary finances take advantage of market forms. Groups that held a high perception of tenure security were also demonstrated to hold a high likelihood of making medium and long term investment. However, access to contract, guaranteed markets and capital were found to be the most distinguishing factor making it possible for some farmers to maintain greater control over land and farm production. Differences in tenure access hold potential to creating a land owning elite in contracted farmers meaning that independent groups could realistically end up as farm labourers on their former lands. In order to avoid the creation of a wave of dispossessed and unemployed group of former farmers, the plight of poor, landless and vulnerable farmers such as women and migrant groups should be managed with soft forms of intervention to maintain social cohesion, food security and farming sustainability in the peri-urban research areas.

Chapter Eight

8. Policy Recommendations

8.1 Introduction

The research findings produced in the different chapters of the thesis provide cause for making specific recommendations for managing land tenure for different claimants in the research areas. These are specified in this chapter to serve as practical considerations for potentially piloting and implementing some of the ideas. The recommendations are therefore stated with a particular focus on each research focus areas as follows:

8.2 Improving Tenure Access rights in the Research Areas

The implications of the results presented in paper 1 paints a picture of increasing peri-urbanisation and a lack of development planning effort in the research areas. While land markets remain unregulated and have been left to evolve by themselves, the activities of 'land gangs' and unscrupulous customary authorities who usurp farmers rights of access have not been checked. Consequently, urban expansion into the peri-urban villages has been left unplanned with negative consequences for access to arable farming land. As a result, large towns near the peri-urban villages in the research areas such as Awutu Breku and Nsawam have become *In place peri-urbanised,* meaning that they are in the process of being completely absorbed into urban Accra. This calls for urgent local level planning to protect arable lands from being absorbed into urban land use processes.

An important idea for improving tenure access rights for farmers, land banks, has been suggested in a recent study by Aryeetey and Udry (2010). Doan and Oduro (2012) have also suggested the need to select specified transitory areas to preserve for urban land use accommodation. This study adds it voice to these recommendations, and suggests that arable farming land be bought at the market and used for redistribution to landless farming groups. Since land ownership is not restricted in the peri-urban villages and available land markets provide access options, such an undertaking will likely be completed without social upheaval or a need for radical intervention. This is because most local residents have greater guarantees over tenure access rights through customary tenure. One of the key

informants for the study, a community leader and head of a migrant farmers' cooperative union, puts the need for such a form of soft intervention by stating thus:

'We those who came here to farm. Our ancestors introduced us to farming. So, we are the ones who take farming seriously. The locals. They have their land and we rent it from them, but they don't take farming seriously. So, we are the ones who are doing most of the farming.'

This key informant went on to stress the importance of owning land, but lamented that land was becoming increasingly expensive to either purchase or rent and the relative lack of secure guarantees even when the land was rented caused many landless groups to reduce their interest in farming.

It is clear, however, that in the absence of policy planning and a fully functioning enforcement regime, land purchased for redistribution could still be encroached upon by real estate developers and 'land gangs'. Thus, the need to complement such a move with a strict compliance regime becomes an added necessity. This study recommends two interlinked ways of enforcing compliance. Firstly, the courts will need to be persuaded to shed their lenient attitude towards land encroachers. Instead, it should be encouraged to adopt a pro-conservationist and pro-agricultural land stance to dealing with land matters. Some form of re-education of court staff might be desirable here. Secondly, while land gangs were always constituted and used to harass farmers to vacate their land because the former were jobless themselves, a new focus could be developed to recruit these gangs to play a direct opposite role of becoming custodians of arable farming land. When properly compensated for their efforts and retrained to understand the important role they could play as citizens, land gangs could become effective enforcement mechanisms for keeping land banks safe for farmers.

8.3 Promoting Farming Investment in the Research Areas

The research has demonstrated that farmers held high perceptions of securing medium and long term investment on land in the research areas. However, contracted farmers were shown to hold the better capacity for such investments compared with independents. Although the reported findings were mixed, meaning that perceived security of tenure and other factors were responsible for incentivising investment, those additional factors such as tenure access modes, level of guarantees embedded in

bundle of tenure access rights and finance capital need be identified, managed and developed to improve farmer propensity to invest.

Many of these factors fall under access constraints causing differentiation in investment capability with contracted farmers holding an advantage in raising the needed resources with which to retain control over land. Thus, while both groups had the necessary production experience, contracted farmers were demonstrating the better capacity to maintain control of production as independent farmers were demonstrating signs of losing control. It was found that contracting, as a major distinguishing cause of the differentiation, was primarily responsible for the out performance of independents with respect to land tenure access. Thus, it would be appropriate to target contracts with its complementary guaranteed market access as a strategy aimed at closing the gap between the groups.

Closing the gap through creating access to contracts for independent groups can lay a dual role of providing them with the means to rely on their savings to retain control of land while improving their production capabilities. For example; finances from savings can be used by independent groups to supplement their household costs and needs making it uneconomical to sell land for the same purposes. At the same time, such savings could be relied upon by the group for reinvesting in farming operations, including land rentals or purchases, making them develop the capacity to produce more efficiently while increasing production.

Aside from contracts, this research suggests that limited development of infrastructure in the research areas could serve to protect all farming groups in their quest to remain in farm production and increase their farm investments. Although the need to develop infrastructure as a means of opening up the rural areas making it easier to transport produce from farms to market centres has been suggested in some studies (Ashley and Maxwell, 2001), it is the position held by this research that an aggressive programme of infrastructure development could serve only to entice urban land use prospectors to the peri-urban areas. This view is supported in a recent study by Doan and Oduro (2012) who equally held that extensive development of rural infrastructure under current conditions of increasing urbanisation were not conducive to developing an effective land use arrangement between peri-urban and urban areas. Instead, the focus should lie more in closing some peri-urban areas from urban land

encroachers and prospectors. This research holds the view that restricting infrastructure development to improving already existing networks would provide an adequate response while leaving room for expending resources on creating contracting and market access opportunities to assist farmers to deal with land tenure change.

8.4 Promoting Equity in Land Distribution for Contracted and Independent Farmers

At the heart of land tenure changes, especially under conditions of competition and contestation, lie equity considerations about how land is distributed for farmers. The focus in paper 3 was intended to understand how the current distribution of land differentiated between the groups and create winners and losers in the processes of change. Farmers in the sample were found to share many commonalities such as farm sizes, tenure access modes and backgrounds. However, these are changing due to external pressure brought to bear on land. For example; as demonstrated in paper 3, contracted groups were found to hold secure control of land and demonstrated a desire to increase their and holdings compared with independents. On their part, independent farmers were found to be losing out and were being gradually pushed out of production.

When the reigning policy focus is to promote production efficiency, then such changes can argued to be likely Boserupian in nature and therefore expected. However, it does not conform to expectations held by pro-poor development planners and policy makers. The latter group have argued for the retention of poor and vulnerable farmers in agricultural production in sub-Saharan Africa for supplementary household income allocation and complementary access to food and nutritional reasons. The pro-poor growth agenda focuses attention on tackling the access constraints that limit the capacity of poor farmers to produce efficiently, arguing that removing obstacles to production and pursuing an equity agenda meets the objective of reducing abject poverty. There is, therefore, the need to institute measures aimed at redressing the imbalances between the two groups in the current research with respect to land tenure. Independent farmers are just as capable of producing efficiently and increasing production when their access constraints such as access to farm inputs, capital and market certification costs are addressed. Thus, the focus should be tuned towards developing their

capacity to produce marketable crops that meet purchase requirements so that they can gain access to contracts.

It is the position held in this research that while there are no restrictions on land ownership in the research areas and individuals can buy as much land as they can pay for, a three step process of soft intervention could help redress the issues. Firstly, the acquisition of land through land markets for the purposes of redistribution to poor and vulnerable farmers should be prioritised. Secondly, this should be followed by the provision of secure guarantees over tenure access through tenure formalisation and documentation in order to strengthen the enforcement of compliance. Thirdly, land so acquired for the purposes of farming should be banked away from encroachment by instituting a strict and verifiable compliance regime. However, these measures should be complemented with development funding through capitalisation and provision of advisory services to poor and vulnerable groups as a means of assisting them to close existing gaps between themselves and more successful groups. The latter two measures will also offer farmers the opportunity to increase their chances of accessing contracts which, with its guaranteed access to lucrative markets, further improves their propensity to retain control of their land.

In sum, the series of recommendations suggested in this thesis can be summarised as follows:

a. Develop a sustainable land preservation mechanism to protect arable farming land from encroachment. This could be achieved through the creation of land banks.

b. Assist farmers to regularise control over land. This could be achieved by making it easier for farmers to formalise their title through registration.

c. Link land tenure issues with access to contracts. This will assist farmers to gain access to lucrative market thereby helping them to generate saving with which to secure their tenures.

d. Fund land purchases at the market for redistribution to poor and vulnerable groups such as migrant farmers and women groups. This will redress imbalances in access for gendered groups while making land available to groups who are more interested and rooted in farming.

e. Discourage encroachment by encouraging the courts to adopt a stringent interpretation of the laws with a pro-conservationist bias. This will complement steps taken to secure arable farming land from encroachment.

f. Curb the activities of ‘land gangs’ and unscrupulous customary authorities who sell off prime farming land by recruiting and redeploying land gangs to protect arable farming land.

g. Pursue limited infrastructure development of the peri-urban areas by improving existing infrastructure along already established networks. This will help the areas to maintain their rural outlook and make them unattractive to urban land use prospectors.

8.5 Conclusion

The current chapter was organised to present practical recommendations for dealing with land tenure issues in the research areas. It was considered that while the different claimants, both urbanites and rural, reserved specific rights with respect to tenure access, strategies needed to be developed to promote forms of residual control such that land can be preserved in specified areas for different uses. While most of the recommendations remain untested, it was an overriding consideration to pilot test the ideas in order to determine the extent to which they offer practical solutions to the multi-complex issues affecting land tenure in the areas. The recommendations also encouraged the recognition of rights for different claimants as important starting points for addressing the issues based on the understanding that such recognition can assist policy makers to demarcate land for different uses.

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Appendices

Appendix 1

Table 1: Estimations of perceived likelihood of completing long term investments

Parameter		Purchase			Collateralise (credit)			Sell portions of land		
		B	Sig	Odds	B	Sig	Odds	B	Sig	Odds
Threshold	5	-5.1**	.000	.006	-2.871**	.000	.057	-3.384	.000	.034
	4	-1.1	.143	.334	1.323	.062	3.756	1.557	.043	4.746
	3	-0.99	.184	.370						
[PercTenSec2=0] LOW		1.03*	.015	2.82	-.934**	.034	.393	.143	.760	1.154
[PercTenSec2=1] Medium		1.4**	.003	4.05	.244	.574	1.276	.475	.326	1.608
[PercTenSec2=2] High										
[competing2=0] low		-1.18	.090	.307	.659	.287	1.932	.173	.795	1.188
[competing2=1] Medium		-1.53	.181	.217	.645	.555	1.906	.121	.921	1.129
[competing2=2] High										
[conflictive2=0] Low		-0.43	.329	.651	.555	.212	1.742	.059	.903	1.060
[conflictive2=1] Medium		0.54	.557	1.724	1.066	.194	2.905	1.754*	.038	5.779
[conflictive2=2] High										
Likelihood Ratio Chi-Square		15.868**			11.297**		6.335			

Appendix 2: Estimations of perceived likelihood of completing medium term investments

		Fence (Hedges)			Fallow land			Control (5 years+)			Cash crop (Pineapple)		
Parameter		B	Sig	Odds	B	Sig	Odds	B	Sig	Odds	B	Sig	Odds
Threshold	5	-3.00	0.00	0.05									
	4	-0.82*	0.20	0.44	-22.06	1.00	0.00	-22.96	1.00	0.00	-1.25*	0.15	0.29
	2	0.37	0.56	1.45	-21.64	1.00	0.00						
	1	0.44*	0.49	1.55	-21.38	1.00	0.00						
[PerTenSec2=0] LOW		0.65*	0.13	1.92	-0.09	0.89	0.91	-0.30	0.77	0.74	-0.53*	0.31	0.59
[PerTenSec2=1] Medium		0.01	0.99	1.01	0.07	0.93	1.07	-1.13*	0.25	0.32	-0.24	0.69	0.79
[PerTenSec2=2] High													
[competing2=0] low		0.20	0.72	1.23	-19.87	1.00	0.00	-19.88	1.00	0.00	-0.30	0.71	0.74
[competing2=1] Medium		-1.41*	0.15	0.24	-23.10	1.00	0.00	-21.74	1.00	0.00	-0.50	0.72	0.61
[competing2=2] High													
[conflictive2=0] Low		0.88*	0.03	2.42	1.04*	0.10	2.84	0.66*	0.48	1.93	1.14*	0.02	3.14
[conflictive2=1] Medium		-0.02	0.98	0.98	-1.42*	0.10	0.24	-0.95*	0.48	0.39	0.39	0.67	1.48
[conflictive2=2] High													
Likelihood Ratio Chi-Square 10.587					21.489**			5.467			6.486		

Appendix 3a: Estimations of perceived likelihood of completing short term investments

	Labour			Mixed cropping		
Parameter	**B**	**Sig**	**Odds**	**B**	**Sig**	**Odds**
Threshold						
4 = 16+	-4.98	0.00	0.01	-2.34	0.07	0.10
3 = 11 - 15	-2.48	0.00	0.08			
2 = 6 to 10	-1.41	0.07	0.24			
[PercTenSec2=0] LOW	0.70	0.10	2.02	0.19	0.85	1.20
[PercTenSec2=1] Medium	-0.14	0.73	0.87	-0.11	0.91	0.89
[PercTenSec2=2] High						
[competing2=0] low	-1.28	0.08	0.28	0.30	0.80	1.35
[competing2=1] Medium	-1.49	0.18	0.22	19.53	1.00	303667360.55
[competing2=2] High						
[conflictive2=0] Low	0.02	0.96	1.02	0.76	0.42	2.15
[conflictive2=1] Medium	-1.21	0.11	0.30	-1.54	0.17	0.21
[conflictive2=2] High						
Likelihood Ratio Chi-Square	11.17			5.086		

Appendix 3b: Estimations of perceived likelihood of completing short term investments

	Land Preparation			Fertiliser Application		
Parameter	**B**	**Sig**	**Odds**	**B**	**Sig**	**Odds**
Threshold						
4	-2.72	0.06	0.07	-21.57	1.00	0.00
3						
2						
[PercTenSec2=0] LOW	-0.21	0.84	0.81	-0.29	0.74	0.74
[PercTenSec2=1] Medium	0.33	0.80	1.39	-0.74	0.40	0.48
[PercTenSec2=2] High						
[competing2=0] low	0.78	0.51	2.17	-19.71	1.00	0.00
[competing2=1] Medium	20.57	1.00	861477517.46	-21.12	1.00	0.00
[competing2=2] High						
[conflictive2=0] Low	0.01	0.99	1.01	1.63	0.03	5.11
[conflictive2=1] Medium	-1.44	0.34	0.24	20.93	1.00	1234299010.33
[conflictive2=2] High						
Likelihood Ratio Chi-Square	2.086			9.13		

Appendix 4: Estimations of the likelihood effects of long term investments on tenure security

Parameters		Tenure Security			Competing Claims			Land Conflict		
		B	**Sig**	**Odds**	**B**	**Sig**	**Odds**	**B**	**Sig**	**Odds**
Threshold	0 Low	-.840	.076	.432	2.235	.004	9.349	.913	.092	2.492
	1 High	.386	.409	1.472	2.593**	.001	13.365	1.228*	.025	3.415
Sell land		.051	.715	1.053	.093	.670	1.097	-.095	.554	.909
Collateralise land		.397**	.002	.672	.247	.210	1.281	.215	.145	1.239
Purchase land		.431**	.001	1.539	-.290	.124	.748	-.142	.318	.867
Likelihood Ratio Chi-Square		17.841***			3.739			2.924		

Appendix 5: Estimations of the likelihood effects of medium term investments on tenure security

Parameters		Tenure Security			Competing Claims			Land Conflict		
		B	**Sig**	**Odds**	**B**	**Sig**	**Odds**	**B**	**Sig**	**Odds**
Threshold	0 Low	-.528	.277	.590	2.209	.003	9.103	1.952	.001	7.046
	1 High	.594	.222	1.811	2.559**	.001	12.917	2.276**	.000	9.735
Fence land boarders		.208	.129	1.231	.174	.383	1.191	.265	.087	1.304
Fallow arable land		-.107	.579	.899	.037	.895	1.038	.134	.528	1.144
Plant mixed crops		.028	.910	1.029	.001	.998	1.001	.170	.535	1.186
Use of land for next 5 years or more		-.042	.867	.959	-.010	.980	.990	.104	.717	1.110
Likelihood Ratio Chi-Square		2.499			0.986			5.89		

Appendix 6: Estimations of the likelihood effects of short term investments on tenure security

Parameters		Tenure Security			Competing Claims			Land Conflict		
		B	**Sig**	**Odds**	**B**	**Sig**	**Odds**	**B**	**Sig**	**Odds**
Threshold	0 Low	-.612	.234	.543	.986	.212	2.680	1.813	.003	6.128
	1 High	.503	.326	1.654	1.342	.094	3.827	2.141*	.000	8.506
Labour use		.184	.328	1.202	-.572	.118	.565	.129	.557	1.138
Plant mixed crops		.240	.606	1.272	-6.762	1.000	.001	.660	.176	1.936
Land Preparation		-.311	.565	.732	7.001	1.000	1097.618	-.606	.296	.546
Fertiliser Application		-.071	.740	.931	-.172	.659	.842	.479*	.036	1.615
Likelihood Ratio Chi-Square		1.489			3.948			6.993		

Appendix 7: Background descriptive of contracted and independent farmers used for the study

Characteristics	Contracted (N=47)	Independent (N=88)
Median	23.0	23.0
Mode	25.0	23.0
Std. Deviation	4.41220	2.79514
Variance	5.819	7.813
Skewness	-.2.55	-.135
Std. Error of Skewness	.347	.257
Kurtosis	-1.223	.945
Std. Error of Kurtosis	.681	.508
Range	8.0	17.0
Minimum	19.0	15.0
Maximum	27.0	32.0
Sum	1077.0	2007.0
Percentiles 25	20.0	21.0
50	23.0	23.0
75	25.0	24.75

Source: Field work Data, 2014

Appendix 8: Matrix for correlation coefficients (*r)* for demographic and land access and use variable

	Farming intensity (01)	Social status (02)	Cropping options (03)	Other interest (04)	Age (05)	Gender (06)	Experience (07)	Education (08)	Residential status (09)	Household size (10)	Ethnic origins (11)	Mode of tenure (12)
(1)	1											
(2)	.017*	1										
(3)	.520	-.398	1									
(4)	.480	.139	-.000**	1								
(5)	-.107	-.000**	.118	-.043*	1							
(6)	.551	-.423	-.282	-.963	.118	1						
(7)	-.059	.262	.330	-.156	.001**	-.344	1					
(8)	-.170	-.068	-.037*	.103	.033*	.908	-.206	1				
(9)	.726	.160	.440	-.823	-.092	-.345	.568	-.664	1			
(10)	-.071	-.153	.380	-.476	.204	-.036*	.354	.221	.969	1		
(11)	-.124	-.011*	.070	-.270	.495	-.227	-.608	.003**	.000**	.550	1	
(12)	.863	.058	-.682	.708	.555	.288	.165	.811	.851	-.663	.030*	1
(13)	-.003**	-.004**	.196	-.092	.014*	-.028*	.000**	,435	-.059	.408	.737	-.519
(14)	-.003**	-.036*	.594	-.207	.013*	-.023*	,000**	-.444	-.035*	.807	-.158	-.420
(15)	-.282	.127	-.266	.335	-.344	-.073	.003**	.851	.786	.060	-.040*	.343
(16)	.107	.095	.606	-.809	-.128	-.102	-.979	-.137	.129	.098	.038*	.367
(17)	.522	.092	.317	-.013*	.248	.041*	.730	.009**	.757	.408	-.197	-.152
(18)	.818	-.059	.091	-.025*	-.823	.155	-.979	-.002**	-.448	-.314	-.066	-.064
(19)	-.000**	-.017*	-.575	-.660	.051	-.178	.189	.010*	.215	.230	.000**	.084
(20)	.002**	.058	.486	.594	-.142	-.714	-.268	.408	.845	.934	.511	.649
(21)	.000**	.003**	-.588	.274	.340	.431	-.456	-.026*	.316	.835	-.068	.298
(22)	.002**	.018*	.078	-.395	-.077	.275	.206	-.010*	.312	-.178	-.273	.038*
(23)	-.000	-.319	-.837	-.833	.015*	-.297	.085	.005*	-.636	.858	.092	-.493
(24)	-.168	-.099	-.847	.759	-.226	-.093	.244	.633	-.788	.316	-.838	-.487

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

Appendix 8 (Contd.): Matrix for correlation coefficients (r) showing the simple linear relationship between demographic variables and land tenure access and use variables for the sample population

	Access to land (13)	Size of land (14)	Labour use (15)	Other land (016)	Proximity to market (17)	Proximity to buyers (18)	Expand farm size (19)	Reduce farm size (20)	Union member (21)	Other income (22)	Tenure Duration (23)	Tenure certificate (24)
(13)	1											
(14)	.000**	1										
(15)	.004**	.011*	1									
(16)	-.109	-.022*	-.078	1								
(17)	.753	.273	-.544	-.964	1							
(18)	.282	.145	-.463	.694	.043*	1						
(19)	.004**	.072	-.216	-.828	-.649	-.248	1					
(20)	-.214	-.067	-.208	.277	-.220	-.208	-.000**	1				
(21)	-.002**	-.043*	-.452	.215	.021*	.274	.000**	.019*	1			
(22)	-.724	-.644	.189	.713	.077	.357	-.041*	.648	.327	1		
(23)	.000**	-.001**	.165	-.108	-.005**	-.050*	.004**	-.108	-.000**	-.005**	1	
(24)	.022*	.078	.220	-.038*	-.012*	.409	.593	-.767	-.152	-.912	.044	1

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

Appendix 9: Mann-Whitney U-test results for land rights comparisons between Contracted and Independent pineapple farmers

	Contracted					Independents	
Land Rights Variables	Average Rank	Sum of Ranks	U	Z	P	Average Rank	Sum of Ranks
Tenure type	67.27	3161.5	2033.5	-.173	.863	68.39	6018.5
Size of Land	80.78	3796.5	1467.5	-2.905	.004*	61.18	5383.5
Land used for pineapple	80.85	3800	1464	-2.964	.003*	61.14	5468
Planned farm expansion	78.98	3712	1552	-3.599	.000*	62.14	5468
Planned farm reduction	61.07	2870.5	1742.5	13.050	.002*	71.70	6309.5
Land owned elsewhere	61.84	2906.5	2906.5	-1.613	.107	71.29	6273.5
Tenure Duration	88.33	4151.5	1112.5	-4.526	.000*	57.14	5028.5
Formalised title	73.86	3471.5	1792.5	-1.381	.167	64.87	5708.5
Proximity to market	65.91	3098	1970	-.643	.520	69.11	6030
Proximity to purchasing firm	67.02	3140	2022	-.232	.817	68.52	6030
Labour use on land	72.40	3403	1861	-1.080	.280	65.65	5777
Machinery use on land	67.61	3177.5	2049.5	-.157	.875	68.21	6002.5

*The difference is significant since $p \leq .05$.

Appendix 10: SURVEY QUESTIONNAIRE

SMALLHOLDERS

You have been randomly selected to participate in a survey of pineapple farmers who operate either as independent or contracted smallholders in the Nsawam District (formerly Akwapim south) and Awutu-Senya District of Ghana. I am interested in gathering data about land tenure arrangements and its contribution to the development of the pineapple industry.

This survey should take approximately 2 hours to complete, and can be broken into 2 parts if you so wish. Your participation is voluntary, and there are no wrong answers to the survey questions. If you agree to participate, you may skip any questions you do not want to answer and you can stop answering the survey at any time. The data you provide in this survey will be confidential. Your name and / or address will not be related to any of the survey questions and answers or declared in the final reports.

If you would like a copy of a summary of the survey results, please include your email or contact address on the attached sheet on the final page of the survey. This information will be removed from each completed survey before the survey data is analysed. If you would like to participate in the other parts of this research or have additional information to provide or require further information about the research now or afterwards, please contact me on 00447920054923. Email: a.iddi@uea.ac.uk.

If you would like to participate in the survey, I will continue on the next page…

Survey No. _____

Region: .....

District: .....

Area: .....

Date/Time: .....

Facilitator: .....

Note-taker: .....

Thank you for participating in this survey! Your opinions are important and will provide valuable information.

Section 1: Demographic information.

Please provide some information about your demographic background (income levels, age ranges, gender, education levels) by answering the following questions.

A. Household backgrounds

A.1 Household description

A.1.1 Please choose the category that best describes your status *(please check only **one** answer).*

a) □ Household head *(Please proceed to A1.3)*
b) □ Household member
c) □ other *(Please specify)* _____

A.1.2 Do you produce only pineapples on your farm?

a) □ Yes
b) □ No

A.1.3 What other crops do you cultivate? (Please list them) _____

_____

A.1.4 Please state your **age** (*in years*) _____

A.1.5 Please select your gender.

a) □ Male
b) □ Female

A.1.6 How long have you been working as a pineapple producer?

a) □ 1 – 5 years
b) □ 6 – 10 years
c) □ 11 – 15 years
d) □ over 16 years

A.1.7 What is your highest level of educational attainment?

a) □ Primary School
b) □ Junior School
c) □ Senior Secondary School
d) □ Technical / Polytechnic Level
e) □ Undergraduate / university
f) □ Post - Graduate
g) □ other *(please specify)*: _____

A.1.8 Are you normally resident in this area?

a) □ Resident full-time
b) □ Resident part-time
c) □ Non-Resident

A.1.9 Including yourself, how many people live in your household? *(Please specify)*

_____

A.1.10 Do you consider yourself a native of the area?

a) □ Yes *(Please specify e.g. by birth, ancestry etc)* _____
b) □ No

A.1.11 How did you access land for pineapple farming?

a) □ customary access *(Please specify)* _____
b) □ Access through markets *(Please specify)* _____
c) □ other *(Please specify)* _____

B. This section is designed to gather additional information about your land and related household assets. Please select your responses to by ticking only one box per question.

B1. Household land and complementary assets

B.1.1 What is the average size of your land?

a) □ up to 0.5 hectares
b) □ 0.5 – 1 hectare
c) □ 1 – 5 hectares

d) □ 6 – 10 hectares
e) □ over 10 hectares

B.1.2 How many hectares of land do you use for pineapple farming?

a) □ up to 0.5 hectares
b) □ 0.5 – 1 hectare
c) □ 1 – 5 hectares
d) □ 6 – 10 hectares
e) □ over 10 hectares

B.1.3 Including yourself, how many workers do you employ on your farm? Please complete the following table:

	Land clearing and preparation	Planting	Chemical use and weeding	Other (off peak) farming times	Pineapple cultivation	Pineapple supplies / Delivery
Family						
Friends						
Relatives						
Waged labour						
Other (Please specify) _____						

B.1.4 Do you own additional land outside the study area?

a) □ Yes (If yes, complete B.1.5 – B.1.6)
b) □ No (Continue from B.1.7)

B.1.5 What is the size of your additional land?
a) □ up to 0.5 hectares
b) □ 0.5 – 1 hectare
c) □ 1 – 5 hectares
d) □ 6 – 10 hectares

e) □ over 10 hectares

B.1.6 How far is your additional land from your current land?

a) □ Driving distance under 1 hour
b) □ Driving distance between 1 hour and 5 hours
c) □ Driving distance over 5 hours
d) □ Inaccessible to motor vehicles

B.1.7 How far is your current land to the nearest commercial town?

a) □ Driving distance under 1 hour
b) □ Driving distance between 1 hour and 5 hours
c) □ Driving distance over 5 hours
d) □ Inaccessible to motor vehicles

B.1.8 Are there any large producer-exporters near your household?

a) □ Yes *(proceed to B.1.9)*
b) □ No *(continue from B.1.10)*

B.1.9 How far is the producer-exporter from your farm land?

a) □ Driving distance under 1 hour
b) □ Driving distance between 1 hour and 5 hours
c) □ Driving distance over 5 hours
d) □ Inaccessible to motor vehicles

B.1.10 Do you plan to buy additional land for pineapple farming?

a) □ Yes
b) □ No

B.1.11 Do you plan to sell land used for pineapple farming?

a) □ Yes
b) □ No

B.1.12 If you do or do not plan to buy or sell land, please provide your reason(s) below:

_____

B.1.13 Who provides transportation to supply pineapples?

a) □ Own transport
b) □ Hired transport
c) □ Other (Please specify) _____

B.1.14 What other crops do you cultivate on your farm**?** *(Please list them).*

_____

B.1.15 Please select your religious background:

a) □ Traditional African (Please specify) _____
b) □ Christian (Please specify denomination) _____
c) □ Moslem (Please specify branch) _____
d) □ other (Please specify) _____

B.1.16 Do you consult your religious doctrines when making decisions?

a) □ Yes – always
b) □ Yes – sometimes
c) □ Yes – subconsciously
d) □ No
e) □ Not sure

B.1.17 Are you a member of any cooperative(s) or farmer's organisation(s)?

a) □ Yes (Please state) _____
b) □ No (Continue from B.1.19)

B.1.18 Do you make decisions on the advice of your cooperative of farmer's organisation?
a) □ Yes – always
b) □ Yes – sometimes
c) □ No
d) □ Not sure

B.1.19 Do you earn income from sources other than your farm?

a) □ Yes (Please Specify) _____
b) □ No

C. Please provide information about your current land ownership status. Select one answer only per question.

C.1 Land ownership status

C.1.1 Do you own the land or rent it?

a. □ own
b. □ rent

C.1.2 How did you choose the current land?

a. □ It was allocated customarily
b. □ It was passed down to me
c. □ other (Please state) _____

C.1.3 What is the duration of your current land tenure?

a. □ At least one year
b. □ Under 5 years
c. □ Under 10 years
d. □ Under15 years
e. □ over 15 years

C.1.4 What kind of certificate do you hold for your land?

a. □ None
b. □ Leasehold
c. □ customary claim
d. □ Lands title certificate

C.1.5 Have you bought or sold land in the last 10 years?

a. □ Bought
b. □ Sold
c. □ Neither
d. □ Both

C.1.6 Do you have plans to buy or sell land in the next 10 years?

a. □ Buy
b. □ Sell
c. □ Neither
d. □ Both

C.1.7 If you bought land, or plan to buy, can you tell why? *(Please explain why below:)*

C.1.8 If you have sold land, or plan to sell your land, can you show why? *(Please explain below:)*

C.1.9 Have you received extension support in the last 5 years?

a. □ Yes

b. □ No

C.1.10 Do other claimants exist for your land? (Please state who and why)

C.1.11 How do multiple claimants address their claims? (Please explain)

C.1.12 Can new unoccupied land be created for new claimants?

a. □ Yes
b. □ No

Section 2: Related institutions – Land tenure arrangements

This section is designed to collect additional information about land ownership and land use. *(Please check the box with your answer to each question).*

D: Access to land

D1: Please provide your responses to question D.1.1 if you acquired land through customary access:

D.1.1 How did you access your land?
a. □ Inheritance
b. □ Gift
c. □ Share cropping
d. □ outright purchase
e. □ other (Please specify) _____

D.1.2 Please, state your response if you acquired land at the markets:

What is your land purchase status?
a. □ Freehold
b. □ Leasehold
c. □ other (Please specify) _____

D.1.3 Please state if customary rules make it possible for you to protect your land. Please rate your agreement with the following statements *(please check only **one** box per statement)*:

	Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
a) Traditional customs, myths and norms promote access to land for farming for different groups	□	□	□	□	□
b) Different customary rules promote access to land for men	□	□	□	□	□
c) Different customary rules promote access to land for women	□	□	□	□	□
d) It is customarily sanctioned to access fallow land	□	□	□	□	□
e) customary arrangements allow land encroachers to be penalised	□	□	□	□	□
f) Only the courts can punish land encroachers	□	□	□	□	□
g) I have the power to remove encroachers from my land	□	□	□	□	□

D.1.4 Additional information: Security of tenure. *(please state your opinion by checking only **one** box per statement)*:

	Agree	**Disagree**
a) multiple claims exist on land in this area	□	□
b) my land has been encroached upon in the area	□	□
c) to continue using the land, I must renew access annually	□	□
d) to continue using the land, I must renew access every 5 years	□	□
e) to continue using the land, I must renew every 10 years	□	□
f) to continue using the land, I must renew access every 15 years	□	□
g) I have registered legal title to my land	□	□

D2: Land use

D.2.1 Please rate your agreement with the following statements *(please check only **one** box per statement)*:

	Agree	**Disagree**
a) I am free to plant any crop on my land	□	□
b) I choose to use any size of my land for pineapple production	□	□
c) I plan to use my land for the next 5 years or more	□	□

d) I preserve some parts of my farm for subsistence production	□	□
e) I decide my own planting and harvesting schedules	□	□
f) I set my own pineapple production targets	□	□
g) my land use decisions are not dictated by monetary needs	□	□

Please provide any additional explanations

_____

D.3 Land transfers

D.3.1 Please rate your agreement with the following statements *(please check only **one** box per statement)*:

	Agree	**Disagree**
a) I am free to sell any portion of my land	□	□
b) I am able to use portions of my land to guarantee credit	□	□
c) It is more profitable to sell land	□	□
d) Income from land sales can be invested freely on the farm	□	□
e) Income from land sales must be shared with other claimants	□	□
f) It is impossible to sell land	□	□
g) It is customarily unacceptable to sell land	□	□

Please provide any additional explanations

_____

D4: Collateral

D.4.1 Please rate your agreement with the following statements *(please check only **one** box per statement)*:

	Agree	**Disagree**
a) I have secured my land from encroachers	□	□
b) I can fallow land for short periods (under a year)	□	□
c) I can fallow land for longer periods (over a year)	□	□
d) I have been challenged over land rights in the last 5 years	□	□
e) customary leaders have greater authority over my land	□	□
f) the government has control over my land	□	□
g) other claimants have the same rights over the land	□	□

Please provide any additional explanations

_____

D.5 Overall impressions

D.5.1 How do you feel about the current state of land tenure in the area?

D.5.2 Do you feel that land in the area is easy to access?

a) □ Yes
b) □ No
c) □ Sort of
d) □ I don't know/no opinion

D.5.3 Is land readily available for multiple claimants?

a. □ Yes
b. □ No

D.5.4 Have changes to land tenure occurred due to pineapple commercialisation?

a. □ Yes
b. □ No

D.5.4 What changes have you experienced in land tenure due to pineapple commercialisation? (Please explain)

_____

_____

D6: The remainder of the questions in this section are open response. Please provide your opinions using a few sentences.

D.6.1 What are the challenges of accessing land for pineapple farming in the area?

D.6.2 What are the risks of using land for pineapple farming?

D.6.3 What are the benefits of using land for pineapple farming?

D.6.4 What changes should be made to existing land tenure arrangements?

D.6.5 Is there anything that you would like to add on any of the topics in this section?

Section 3: Related Institutions – Contract farming
In this section data about your contracting status will be gathered to gain additional insights.

E.1.1 Are you a contracted or independent smallholder?

a) □ Contracted
b) □ Independent

F.1 About contracts

Please provide some information about how you market pineapples.

F.1.1 How do you market your pineapples?

a) □ Locally
b) □ Internationally
c) □ other (Please specify) _____

F.1.2 Do you have regular markets for pineapples?

a) □ Guaranteed
b) □ Variable
c) □ other (Please specify) _____

F.1.3 What is the nature of payments for your supplies?

a) □ Regular
b) □ Irregular
c) □ Delayed

d) □ Upfront
e) □ other (Please specify) _____

F.1.4 Please indicate using the scale (1=most important, 2= important, 3=desirable) Contracts promote:

a) □ Employment creation _____
b) □ Environmental protection _____
c) □ secure land tenure _____
e) □ Infrastructure development _____
f) □ Access to inputs, machinery and chemicals _____

F.1.5 Please tick the statement most applicable to your views and experiences from the following statements. (Check only one box per statements)

	Agree	**Disagree**
a) I value contracts	□	□
b) I have not been offered contracts	□	□
c) I am simply not interested in contracts	□	□
d) I had a contract which was terminated	□	□
e) I terminated my previous contract	□	□
f) I do not understand what contracting can offer	□	□

Please provide any additional explanations

_____

F.1.6 Please tick the statement most applicable to your views and experiences from the following statements. (Check only one box per statements). Contracts are designed to:

	Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
a) Impoverish smallholders	□	□	□	□	□
b) Exploit smallholders	□	□	□	□	□
c) Increase smallholder income	□	□	□	□	□
d) Share risks collectively between smallholders and producer-exporters	□	□	□	□	□
e) Create access to markets for pineapples	□	□	□	□	□

The next set of questions is open response. (Please provide your opinions in a few sentences)

F.1.7 What are your general opinions about the future of pineapple farming?

F.1.8 What are your general opinions about producer-exporters offering contracts?

F.1.9 Please state any other comments you will like to share?

End of Independent smallholder interview. Thank you for your time and responses.