

**INFLUENCE OF CONTRACT FIXED PRICES ON THE FINANCIAL
PERFORMANCE OF FRENCH BEANS FARMERS IN KIRINYAGA COUNTY**

BY

ROSELINE N. MUTURI

REG: 18/02878

**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE IN
COMMERCE FINANCE & ACCOUNTING IN THE SCHOOL OF BUSINESS AT
KCA UNIVERSITY**

OCTOBER 2020

DECLARATION

This dissertation is my original work and has not been submitted for degree in any other university. I also declare that this research project does not contains material published or written by other persons except where author is accordingly acknowledged, and due reference is made.

Student Name: ROSELINE N MUTURI Reg.No. 18/02878

Sign: _____ Date: _____

Declaration by University Supervisor

I do hereby confirm that I have examined the master's dissertation of

[ROSELINE N MUTURI]

And have certified that all revisions that the dissertation panel and examiners recommended
have been adequately addressed.

Sign: _____ Date: _____

ABSTRACT

In the recent past, contract farming has been on the rise. This is because farmers have the fear of the unknown and somehow want to be certain about their future returns. Contract farming therefore, has become the preference for many farmers. Many studies have emerged in regard to this field with little focus on the influence of contract fixed prices on the performance of French Beans farmers in Kirinyaga County. This study was carried out in Kirinyaga County in Kenya. The first objective of the study was to establish the effects of training on the financial performance of French beans farmers in Kirinyaga County. The second objective was to determine the effects of contract transaction costs on the financial performance of French beans farmers in Kirinyaga County. Third was to determine the effects of regulatory framework on the financial performance of French beans farmers in Kirinyaga County. Finally, the fourth objective was to find out the effects technical assistance on the financial performance of French beans farmers in Kirinyaga County. The study used a descriptive design and the target population was a total of 635 French beans farmers who are in contract farming arrangement. Yamane formula was used to determine the sample size. Using the Yamane formula therefore, 245 farmers were used as a sample. Primary data was collected by self-administering of questionnaires by the research assistant. The questions incorporated both open and closed ended questions. The reliability of the research instrument was determined by the use of Cronbach coefficient. Data was collected with the help of a research assistant. Data analysis was done by the use of stata software. The goodness of fit was determined by use of diagnostic test on randomness of errors heteroscedasticity, normality, multicollinearity and the test for outliers. Mean, Standard deviation, and Regression analysis were calculated. The data collected was analyzed by use of percentages and frequencies and data was presented in form of graphs, tables, charts and figures so as to establish the relationship between the dependent and the independent variables. The dependent variable was the financial performance of French beans farmers whereas the independent variables are; training, transaction costs, regulatory framework and technical assistance. The study found that training French beans farmers on health and hygiene, safety standards such as International Food Safety Standards, proper harvesting and post harvesting produce handling techniques, pest and disease control including chemical use and handling and farm records improve financial performance of French bean farmers in Kirinyaga County. The study also established that technical assistance through providing farmers with seeds, chemicals, seeds, spraying services and credit facility improves financial performance of French bean farmers in Kirinyaga County. The study depicted that training and technical assistance were statistically significant in explaining variation in financial performance of French bean farmers in Kirinyaga County. Transaction cost and regulatory framework awareness were not statistically significant in explaining the variation of financial performance of farmers in Kirinyaga County. Therefore, the study concluded that increased training and technical assistance to farmers increase their financial performance. The study recommended that French beans farmers engaged in fixed price contracts should be trained in addition to being given technical assistance so as to increase their financial performance.

Keywords: Contract farming, French beans farmers, financial performance, stata, contract fixed prices.

ACKNOWLEDGEMENT

My thanks go to the Almighty God for giving me the knowledge, opportunity, strength, time, and resources throughout the research project proposal and report writing. He gave me the faith and hope to keep on keeping on everything appeared not to work.

Secondly, my heartfelt gratitude and appreciation goes to my Supervisor Dr Gladys Bunyasi for her kind assistance guidance and unlimited input as I was preparing this research dissertation. I also wish to thank the KCA University fraternity for unlimited resources and guidance. I am also indebted to my colleagues and friends especially Nelius Muthoni and Miss. Rose Njaguara, who kept encouraging me during my lowest moments.

Lastly, I wish to thank all my family members. My dad Peterson Muturi, my mother Janeffer Wanjiru Muturi, my siblings James Lee Wachira, Florence Wacera and Andrew Gathee for their unwavering support and prayers. Without your guidance, encouragement and love I could not have made it this far.

TABLE OF CONTENTS

DECLARATION	i
ABSTRACT	ii
ACKNOWLEDGEMENT	iii
DEDICATION	vi
LIST OF TABLES	vii
LIST OF FIGURES	viii
ACRONYMS AND ABBREVIATIONS	ix
OPERATIONAL DEFINATION OF TERMS	x
CHAPTER ONE	1
1.1 Background of the study	1
1.2 Statement of the problem	5
1.3 Research Objectives	6
1.4 Research Questions	7
1.5 Justification of the study	7
1.6 Significance of the study	8
1.7 Scope of the study	8
CHAPTER TWO	10
LITERATURE REVIEW	10
2.1 Introduction	10
2.2 Theoretical review	10
2.3 Empirical Review	16
2.4 Research gap	30
2.5 Conceptual Framework	31
2.6 Operationalization of Variables	33
CHAPTER THREE	34
RESEARCH METHODOLOGY	34
3.1 Introduction	34
3.2 Research design	34
3.3 Target population	35
3.4 Sampling and sampling procedure	35
3.5 Research instrument	38
3.6 Validity and Reliability of Instruments	38

3.7 Data collection procedure.....	40
3.8 Data Processing Procedure	40
3.9 Diagnostics Tests	40
3.10 Data Analysis.....	41
CHAPTER FOUR.....	43
DATA ANALYSIS, FINDINGS AND DISCUSSION.....	43
4.1 Introduction.....	43
4.2 Questionnaire response rate.....	43
4.3 Demographic characteristics.....	43
4.4 Study variables	46
4.5 Diagnostic test.....	51
4.6 Model fitting	62
CHAPTER FIVE	68
SUMMARY, CONCLUSION AND RECOMMENDATION	68
5.1 Introduction.....	68
5.2 Summary of Findings	68
5.3 Conclusion of the study	70
5.4. Recommendations for the Study.....	70
5.5. Limitations of the Study	72
5.6. Suggestions for Further Research	72
REFERENCES.....	73
APPENDIX 1: Questionnaire	82

DEDICATION

This Research Project is dedicated to my family members for their invaluable love, encouragement, and great desire to see me excel in higher academic heights. God bless you.

LIST OF TABLES

TABLE 1: Operationalization of variables

TABLE 2: Target population

TABLE 3: Calculation of sample

TABLE 4: Calculation of sample size

TABLE 5: Age of the respondents

TABLE 6: Number of years in farming

TABLE 7: Distribution of respondents by the level of education

TABLE 8: Mean and standard deviation of training

TABLE 9: Level of agreement with statements of transaction cost

TABLE 10: Level of agreement with statements on regulatory framework awareness

TABLE 11: Level of agreement with statements on technical assistance

TABLE 12: Level of agreement with statements on financial performance.

TABLE 13: Correlation analysis.

TABLE 14: Vif test

TABLE 15: Estat hettest test

TABLE 16: ANOVA results

TABLE 17: Regression model

TABLE 18: Robust regression model

TABLE 19: Overall output model

LIST OF FIGURES

FIGURE 1: Conceptual Framework

FIGURE 2: Gender of the respondents

FIGURE 3: Linear relationship between training and financial performance

FIGURE 4: Linear relationship between transaction cost and financial performance

FIGURE 5: Linear relationship between regulatory framework awareness and financial performance

FIGURE 6: Linear relationship between technical assistance and financial performance

FIGURE 7: Test for outliers in training

FIGURE 8: Test for outliers in transaction cost

FIGURE 9: Test for outliers in regulatory framework awareness

FIGURE 10: Test for outliers in technical assistance

FIGURE 11: Test for outliers in financial performance

FIGURE 12: Normal distribution of variables

ACRONYMS AND ABBREVIATIONS

ANOVA-Analysis of Variance

CF-Contract Farming

EU-European Union

GOK-Government of Kenya

HCDA-Horticultural Crop Development Authority

IFAD-International Fund for Agriculture Development

IFSS-International Food safety Standards

NGOs- Non-Governmental Organizations

NIE-New Institutional Economics

TCE-Transaction Cost Economics

UN-United Nations

OPERATIONAL DEFINATION OF TERMS

Contract-Legally binding agreement between two parties (Eaton & Shepherd, 2001).

Fixed price contract-is a contract in which the price is usually is not possible to change unless under special circumstances such as the economic changes, changes in the nature of the contract or defective prices (Llewellyn, 1930).

Contract Farming –Is an agreement between a contractor and two or more farmers to produce and supply agricultural products at a predetermined price through a forward agreement (Catelo & Costales, 2008).

Transaction cost- These are costs involved in transfer of goods or services from farmers to buyers and processors (Minot (2007)

Processors-These are firms that buy French beans from farmers so as to add value to them (Prowse, 2012)

French beans- is a bean whose young pod is eaten (Freidberg. & Freidberg, , 2004).

Technical assistance-provision of seeds, fertilizers, chemicals, spraying services, transport services, marketing, extension services and value addition at subsidized cost to French beans farmers (Key & Rusten, 1999).

CHAPTER ONE

1.1 Background of the study

In the recent past, contract farming has gained prominence all over the world. Most agricultural firms have been using contractual arrangements particularly to perishable products such as vegetables. By 20th century CF has been of great importance to food and agricultural industries in both developed and developing countries. CF involves a forward agreement mostly with a predetermined fixed price (Eaton & Shepherd 2001). Such agreements shield farmers from adverse price changes in the market especially the risk averse farmers. This further influence financial performance of farmers which was discussed in length in this study. Just like any other contractual arrangement, fixed price contracts have four stages as alluded by (Platteau, 2000). The very first stage involves the firm deciding on the location on which to procure agricultural commodities and for our case being french beans. This can be explained by the climatic and hydro ecological conditions of the area where a farmer is willing to engage in a contract arrangement. Farmers far away from roads, major towns, with poor infrastructure in terms of road and communication are more likely to be denied an opportunity of engaging in fixed price contracts because it will be too expensive for them due to poor accessibility and high transportation cost incurred. Firms are also procuring French beans from international markets due to guaranteed quality products; farmers are price takers, and the contracting firms have incentives to maintain their reputation as compared to the local market.

Firm contract offer is the second stage in a contract arrangement. In this stage, observable characteristics are highly considered. These characteristics include; participation on NGO extension services training, membership to farmer's organization. An expected scale supply to a firm is a great determinant as far as fixed prices in a contract are concerned. However, scale effects are also very dangerous especially to large scale farmers who attract

huge sales outlet and therefore increasing the risk of side selling breaching fixed price contracts. According to Platteau (2000), the form and content of a contract vary across commodities and locations. A contract can be written or oral. Written contracts always specify the timing and quantities, quality standards, volume, and conflict resolution mechanism. Oral contracts are formed depending on the pre-existing trust between the farmer and the contracting firm.

The third stage is contract acceptance by the farmer which is based on the expected benefits from a contract arrangement. The final stage after accepting the offer is the decision by both the farmer and the firm to honor the contract. In some cases, farmers have not honored these contracts due to side selling in cases where the market offers better prices than that in the contract. On the other hand, firms also breach these contracts by failing to buy the contracted crops. This has caused huge losses to the farmers considering all the production cost incurred and failure to find an alternative market in trust that the contracting firm will buy their produce.

The global market has embraced contract farming and to this extent fixed price contracts. In response to increasing participation in the global market, several measures have been taken. Use of the internet has emerged as one of the key responses. However, only large-scale farmers are able to use such technology due to high costs involved. And the fact that their reliance level is quite higher the related transaction costs is also higher (World bank, 2008). The Kenyan government has provided support to majority small scale farmers through a regulatory body Horticultural Crops Development Authority to provide extension services through encouraging adoption of new technology. Even with such efforts, there has been lack of skilled extension officers leading to poor advisory services hence farmers have been continuously been on the losing end. The government inability to provide satisfactory advisory services has led to farmers running to the private sector as an alternative to leeway to promoting training, access to modern technology and increased productivity (Daniel & Hanson 2013).

There has been low participation on export markets by small scale farmers due to increased need for quality products and high cost in the global market especially following the fact that developed countries have stressed so much on supermarkets business (Dolan, Humphrey, Harris & Pascal 2002). It is worth noting, food safety regulations have barred these farmers to participate in the global market. Recently there has been a remarkable increase in demand for vegetables (Temu & Temu 2006) and farmers can be empowered to take advantage of such emerging opportunities. However, there are high cost involved in participation in the global market such as lack of access to advisory services, poor infrastructure, information asymmetry and high cost of inputs (World bank, 2008).

In sub Saharan Africa, about 70 % of the population live in rural areas and as such depend on agriculture the better part of their livelihood (Atoma, Chikaire, Echetama, Egwuonwu, & Nnadi 2012). In developed countries, all efforts are channeled towards major structural changes in the worldwide agricultural sector. In line with this, firms are changing from small scale and family based to one large firm aligned to its supply and production value chain (Boehlje, 2000). In Kenya, 67% of the population live in rural areas hence heavy reliance on farming as the primary source of their income. Therefore, French beans have formed a greater part of farmer's financial performance in terms of earned income, standard of living, food security among other attributes. French beans have attracted export market more than the local market hence the need to also consider the export market.

1.1.1 Contract Fixed Prices

Contract farming is usually associated with fixed prices. In most cases, contract fixed prices are practiced by firms engaging in food processing. This is because there are high fixed costs attached to such firms. These firms are focused on keeping a steady flow of raw materials depending on their plant capacity. As such relying on open market poses the firms a high risk

to achieve this objective. These firms prefer a contract arrangement because it can easily specify the planting dates and therefore indirectly specify the delivery dates and the quantities expected. This reduces uncertainty to these firms. In addition, these firms save land hire costs and labor costs. To be precise, what influences farmers to engage in contracts with food processing firms is because of the sure market for their output, easy access to credit services, inputs. According to Korb & MacDonald (2011), increase in contract farming despite its fixed price aspect has been heightened by the interest of consumers in quality products and food safety.

1.1.2 Contract Farming

Contract farming is a commitment and an arrangement between producers and processors to provide inputs as well as output at a pre-agreed price, quantity and quality. In contract farming, there are four models. First is the centralized model which the processors at a centralized place buy from a large number of small-scale farmers. Multipartite is the second model. This is where several parties such as the agribusiness firms, NGO's, state, international aid agencies among others are involved. They work together to coordinate and ensure farmers and buyers work together. (Oya, 2012) The other is the intermediary model. This model has the same characteristics as the centralized one only that it differs by the fact that they act as the intermediary on behalf of the other firm. In most cases, the intermediaries organize everything on behalf of the buyers.

In Kenya, contract farming has formed a good channel for forward and backward linkages in horticultural farming (Hu, Mitaya & Minot 2009). Nzuma, Okello & Wainaina (2012) provided evidence that there is a positive correlation between contract farming and the welfare of farmers. However, in the recent past, there has been scarcity of empirical work why farmers prefer fixed price contract and how it affects their financial performance. This study

bridges the gap by examining the influence of contract fixed prices to the financial performance of farmers using a case study of French bean farmers in Kirinyaga County.

1.2 Statement of the problem

The problem facing French beans farmers in Kirinyaga County is fluctuating income obtained from a fixed price contract arrangement (Kathrin & Heike, 2006). Farmers want to try their luck in engaging in such contracts hoping for the best returns out of it. What entangles the farmers most is the global standard with so much emphasis on quality and safe produce and more so the unpredictable market patterns given that they are dealing with perishables goods. Severally, French beans farmers have been forced to be price takers and have borne huge production costs. This happens when production at their farms exceeds the demand for French beans in the market (Kathrin & Heike, 2006). Therefore, even having signed contracts with the buyers and processor, farmers have found themselves at crossroad with fixed prices that cannot outdo the production costs incurred. This challenge has encouraged many farmers to engage in fixed price contracts.

Normally, fixed price contracts should give a guaranteed return and supply of the produce where the price, quality, quantity and delivery time are all agreed in advance (Jaeger, 2010). What is more, in contract farming, famers should get reasonable returns with proper access to training, technical support by getting high quality seed and other inputs, extension education on latest production methods and technology, better credit facilities, access to legal institutions among other benefits (Mandola, 2005). According to Mandola (2005), the above objectives are not always achieved. Fixed price contracts has potential to solve income problems faced by French beans farmers as well as the procurement problem faced by processors and buyers of French beans (Kathrin & Heike, 2006).According to Kathrin and Heike (2006), this potential is never achieved due to arbitrage opportunities that arise along the way which lead to breach of contract

Many researchers have dealt with various challenges regarding contract farming. There is high risk involved in contract farming. First, the risk sharing mechanism in contract farming arrangement is less beneficial. This is because in some cases there is use of intermediaries and producer organization. Kudadjie Freeman, Richards & Struik (2008) alludes that farmers were frustrated by the NGOs due to reasons such as poor negotiation skills, insufficient knowledge on production of sorghum and failure of the initiative to deliver expected benefits to farmers hence the collapse of this initiative. According to Sriboonchitta & Wiboonpoongse, (2008) an initiative on cashew nuts failed due to poor planning and inadequate research on the use of contracts in the initiative. Pultrone (2015), discussed how economic and social barriers have greatly contributed to resistance by farmers to engage in contract agreements. According to him, social and cultural practices influence gender equality negatively. The study still focused on the international legislation that fight for gender equality which in turn influence how individuals engage in contract farming.

In light of the above work done by previous researchers, less focus has been drawn on the influence of fixed price contracts on performance of French bean farmers. This study sought to answer the question: how does training, regulatory framework awareness, transaction cost and technical assistance affect farmer's financial performance?

1.3 Research Objectives

1.3.1. General objective

The purpose of this study was to establish the influence of fixed price contract on the financial performance of French beans farmers in Kirinyaga County.

1.3.2 Specific objectives

1. To establish the effects of training on the financial performance of French beans farmers in Kirinyaga County.

2. To determine the effects of contract transaction cost on the financial performance of French beans farmers in Kirinyaga County.
3. To determine the effects of regulatory framework awareness on the financial performance of French beans farmers in Kirinyaga County.
4. To find out the effect's technical assistance on the financial performance of French beans farmers in Kirinyaga County.

1.4 Research Questions

1. How does training influence financial performance of French beans farmers?
2. In which ways do transaction cost influence financial performance of French beans farmers?
3. How does regulatory framework awareness influence financial performance of French beans farmers?
4. To what extent does technical assistance affect financial performance of French beans farmers?

1.5 Justification of the study

The objectives of this study were to evaluate how training, transaction costs, regulatory framework and technical assistance affect financial performance of French beans farmers in Kenya. Training is very important to farmers since it determines the level of skill and knowledge possessed by a farmer. The higher the training, the better the financial performance and vice versa. Proper training is attributed to high yields, low cost hence higher profit. What is more is that proper training increases financial performance. When the transaction cost is high, there is reduced profit to the farmer. Farmers with proper knowledge on regulatory framework have reduced disputes with their buyers, reduced court battles and always comply with government laws and regulations and ensure proper food safety and hygiene levels among other reasons. Lastly, technical assistance will determine how easy farmers can access inputs, credit, transport, and logistics services and how it will increase the financial performance. It is

therefore very important to determine to what extent training, transaction cost, regulatory framework awareness and technical assistance influence financial performance of French beans farmers in Kirinyaga County.

1.6 Significance of the study

Various parties would benefit from the findings of this study. To start with, the findings of this study will be of great importance to many parties in this country. These parties include French beans farmers, financial institutions, buyers, government, non-government organization, producers, processors, Ministry of Agriculture and Livestock and investors. French beans farmers will use the finding to get an insight on the various regulatory requirements, how to minimize transaction cost increasing the income and the importance of acquiring relevant training. Buyers and processors will use the finding of this study to plan, develop policies and programs with an aim of improving contract farming. This will include developing training program on best practices, food, safety, grading and handling, among others.

Financial institution could use the findings of this study to decide on whether to give credit facilities to contract farming or not to contract farmers. In addition, government and non-governmental organizations will use the findings to decide on whether to provide funding and food aid to the farmers. Such funding includes building of grading shade and installation of irrigation system. The Ministry of Agriculture and Livestock will use the findings of this study to in making policies on contract farming. Finally, the findings of this study will be of great importance to body of knowledge in academic research.

1.7 Scope of the study

This was a study on the influence of fixed price contract on the financial performance of French beans farmers. This study was confined to French bean farmers in Kirinyaga County due to lack of sufficient funds to study a larger area as well as limited time. The study focused on the farmers who engage in contract farming with buyers/processors. This included individual

farmers who were registered in six centers in Kirinyaga County. This is because these farmers have well stipulated contract terms and conditions.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

While contract arrangement has become so common in developed and developing countries, there has been conflicting views on the impact of contract fixed prices on financial performance of farmers. According to Benson & Minot(2009) contract farming benefits farmers since they have ready and assured markets for their produce and easy access to global markets. What is more the author argue that contract farming has the advantage of economies of scale and in return positive influence farmer's income. It is important to point out that some of the authors argue that contract farming act as an exploitation to farmers.

Guo, Jolly & Zhu (2005) says that these contracts are very costly to farmers. In many occasions, it is too costly to comply with, following the fact that most firms break these contracts at the expense of farmers due to information asymmetry and inferior market power. What is more, contract farming is deemed to benefit the food processing firms while leading to poverty and rural inequality and even pushing small scale farmers out of the market. This chapter give extensive research work on the influencen of fixed price contract on the financial performance of french bean farmers.The chapter is structured into theoretical review, emphirical review conceptual framework, operationalization of variables and the knowledge gap that this chapter seeks to bridge.

2.2 Theoretical review

This section focused on the theories underpinning fixed price contract which includes transaction cost approach theory, contract enforcement theory, value chain governance theory and competency theory.

2.2.1 Competency Theory

While the transaction cost approach and the value chain governance theory focus on the interactions between firms, what is different with the competency theory is the fact that it focuses on the intrinsic attributes and qualities that firms have. The theory was first developed by Penrose in 1959. This can be explained from the competency perspective, the structure, the existence as well as the boundaries of the firms which are explained by the skills knowledge and competency of individuals or team fostered and maintained by the organization (Hobbs & Young 2002). The creation and sustainability of contract farming operations clearly depends on the skill and experience of involved staff and the ability of a firm to maximize these. The knowledge and skills possessed by staff can be utilized to increase productivity and profitability of an organization only if the organization is able to realize and use it efficiently.

This theory postulate that firm knowledge is more superior than in the marketplace and therefore contracting firms can easily equip farmers with such knowledge. This practical knowledge is usually in the form of competencies in an organized group of individuals with a common goal and it could not exist in the world of re-contracting or contracting of individual agents unless transferred from firms to such contracting arrangement (Hobbs & Young 2002). It is therefore evident that a contract farming arrangement is only successful depending on how well skills, knowledge and competencies are transferred and well utilized. The theory was very important to this study in explaining the effects of training to the financial performance of French bean farmers.

2.2.2 Transaction cost theory

Transaction cost theory was first postulated by the Nobel price winner Ronald Coase in 1937 who asserted that firms exists due to “marketing cost” in most cases being referred as transaction costs.. There has been a common theoretical approach toward contract farming

referred to as Transaction cost economics; a component of New Institutional Economics which states that there must be transaction costs involved between two economic actors. Transaction cost involves; finding a customer or a market, negotiating and signing of a contract, controlling compliance of a contract and switching of costs in case of breach of a contract. In most cases, transaction costs takes different forms and severally due to information asymmetry and uncertainty. In pursuance to economize transaction and production costs, parties involved either multilaterally or unilaterally prefer the most efficient institutional and organization structure. Asset specificity and uncertainty are the main attributes of a transaction (Karen & Williams 1985).

Asset specificity is defined as the investment committed to a bilateral contract and whose sustainability value is lower outside such a contract. Uncertainty has two aspects: environmental or behavioral (Lyons, 1996). Environmental uncertainty can be defined as information asymmetry regarding the natural environment as well as the market. Behavioral uncertainty is inability to predict someone's behavior in the future. Transaction has specific asset specificity which includes human, site and physical. Human asset specificity is the know-how developed between parties to a contract (Heide & John, 1992). More precisely, it can be described as the effort and time taken to learn about supplier's specific needs (Artz & Brush 2000).

Contract farming typically takes the form of hybrid organization structure (Menard, 2004). What is more, there is higher possibility of contract arrangement when there is less uncertainty that assets used in one contract arrangement are not likely to be used in another one. In response to this, farmers prefer intergrated governance structure so as to safeguard their investment. In light of this therefore, it is clear that the higher the human asset specificity, the higher the possibility of intergrated governance structure in a contract arrangement. When contracts are taken in the midst of high uncertainty, it is likely to attract high transaction cost

(Frank & Henderson, 1992). Due to this fact, firms tend to rely on non-market coordination kind of arrangement. The higher the market uncertainty, the greater the possibility that parties to the contract will trust those they had prior interactions in the past (Podolny 1994). It is therefore very important to identify the types of transactions uncertainty and how they affect the choice of the governance structure.

The more the uncertainty, the more the centralized kind of governance structure so as to maximize the welfare of all the stakeholders and meet their objectives. High uncertainty may prevent a farmer from taking asset specialized contracts if there are no proper safeguard measures (Luh, 2007). Some transactions tend to connect to other transaction. In most cases how transaction connect to each other differ since some investments are highly specific, and it is possible that they yield complementary services or assets. Sometimes, transactions become so dependent to each other giving rise to lock in problems (Loucks & Slangen 2008). According to this theory, transaction costs are determined by the characteristics of human behavior. Inability to predict every aspect of the future of bounded rationality is mostly used to define human behavior.

Hayes, (2000) describes transaction cost in different aspects. It includes bureaucratic costs involved in coordination and management of integrated marketing, production, and processing. Secondly, the opportunity cost of coordinating and communicating with the farmers. Third, the cost of screening associated with uncertainty on reliability of potential buyers or sellers as well as the uncertainty on the quality of products. Fourth, the cost of establishing and monitoring long term contract. Finally, the cost the transfer cost such as the legal cost, transport cost, storage costs and handling costs, among others. This theory is therefore very important to this study since it describes very diverse aspects of transaction costs in fixed price contracts and the affects thereof.

2.2.3 Contract Enforcement Theory

The theory of contract enforcement focus on the incentives behind honoring a contract agreement. The incentives can be private or public depending on the prevailing market conditions and how it matches with the contents of the contract at the time of the agreement or both at any time of the contract, both parties assess the benefits and cost of breaching the contract. On assessment, if there are changes in the market conditions that might lead to benefits upon delaying or breaching the contract are greater than the reputation and capital losses, then, either party may prefer not honoring the contract. Consequently, if the benefits associated with breaching the contract does not exceed the reputation, future discounted income losses and capital losses then, either party will honor the contract (Gow & Swinnen 2001).

Contract enforcement could be illustrated by the following example. Firm A and Firm B enters into a contractual agreement that firm A will be supplying goods at a fixed price P_0 . Consequently, there is an increase in the market price of the products which provide an incentive for firm A to breach the contract since it can sell its products to the spot market at a higher profit. If the market price increases to P_1 and does not increase any further, firm A may discover that the increase is not sufficient enough to cover the capital, future discounted income losses and reputation cost and therefore opt honor the contract. In a case where the spot market price further increases to P_2 which is sufficient to cover the reputation cost, future discounted loss and capital loss, then firm A will opt to breach the contract. Firm B will look at the lowest limit cost of enforcement beyond which it will becomes beneficial to breach the contract. Benefits include lower reputational cost, capital cost and discounted future income losses and manage to purchase the product from the spot market, (Gow, *et al* 2001).

It is very clear from the illustration above, that the incentives behind honoring a contract does not only focus on short term benefits but also on the long-term benefits, the future

discounted income losses, capital losses and the reputation costs. What is more, a mutually beneficial and stable contract highly depend on the stable spot market conditions and precise contract details. Third, farmers do not care about the reputational losses if they get instant income with maximum benefits. Finally, contracts can be easily designed to provide mutual benefits by increasing the range which they are enforced such as increasing the investment required such as the asset specificity, (Gow,et al 2001). This theory will be very key to explaining the regulatory framework awareness objective in this study.

2.2.4 Value Chain Governance Theory

This theory was first developed and popularized by Michael Porter in 1985. He used the theory to explain on how to explain a competitive edge through identify the cost and value drivers of each value activities. This theory seeks to explain coordination of exchange information in the market. Humphrey &.Memedovic, (2006), considers this very important due to risk reduction and the need to produce standard products. In their discussion, they suggest two ways through which firms are able to coerce other firms to behave in a certain manner. First, putting in place sanctions such as creating or increasing barriers to entry. Second, the economies of scale benefit. Value chain can be defined as the ability of firms to take control of value chain. Williamson (1979), suggests three forms of coordination; hierarchy, networks and markets which is closely defined by information complexity that needs to be communicated, the extent to which such information can be clearly and simply communicated and the competence of the supplier. In most cases standard products that require no information transfer are transacted in the market. On the other hand, highly differentiated or niche products are transacted by use of hierarchies and networks which highly depend on the competence of the supplier and the whether the information on quality and other attributes of the product are easily and simply transmitted. Further, network coordination takes three forms. First, relational linkages which refers to strategic partnership with a certain degree of inter reliance. The second, is the captive

linkages. This is where the small upstream suppliers are highly dependent on large downstream buyers. The last one is the modular linkage where there is customization of products without substantial specific asset investment hence free entry and exit in the value chain. Contract farming takes the form of captive linkages.

Literature show that convention theory and value chain governance theory states that just as non-state and state actors regulate, and control commodity chain so do private firms do in collaboration with each other. In addition to the convention theory, value chain governance focus on the increasing role of standards in ensuring that the value chains are well structured. A good example is when there are stringent mandatory measures placed on food safety on both product and process standards will affect the value chain (Humphrey &.Memedovic, 2006). This theory will be of great importance to this study since it explains technical assistance is very important as part of value chain aspect and how it is extended to farmers.

2.3 Empirical Review

2.3.1 Training and Financial Performance of French Beans Farmers

There is increased cost of production day by day, French beans produce prices not keeping pace. Farmers need to catch up with the modern production techniques and technology so as to curb adverse effects arising from these challenges. It is good to note that high yield does not necessarily means high profits. The reason is, profits depends on the pre-agreed product fixed prices as stipulated in the contract. Therefore, it is very important to train farmers regularly on the best and improved production methods which will minimize the cost of production while maximizing profits (Ministry of Food and Agriculture, 2003). This report recommended various production techniques which includes training farmers on soil management, proper farm tillage, crop rotation, pest and disease control, field records, selection and purchase of certified seeds and nutrient management. In addition, the report advises that farming and tillage record as well as crop rotation for five consecutive years will help the farmers to know the best

production practices that they can adopt to minimize cost and maximize the profit margin. What is more, farmers who do not attend training lack up to date information and therefore not able to add value to their production techniques (Ministry of Food and Agriculture, 2003).

Access to information on timing, technology, quality and market changes may motivate farmers to engage in contract farming. When farmers are ready to access to new production techniques, will not only have a positive effect on the contracted crop but also a spillover effect on other crops (Minten, 2009). There are various forms of technical assistance. For example, the buying firm could provide all the technical assistance. In this form, while farmers will be given access to market information they have researched, these firms will overcharge farmers for this service. Alternatively, Non-Governmental Organization or government may provide technical assistance through extension officers (Minten, 2009). However, the challenge will be providing contract specific advisory services. This makes more favorable buying and processing firms providing technical support despite being expensive for farmers.

In cases where farmers are left at the hands of middle men, they reap minimal benefits because they take advantage of their ignorance and illiteracy to gain maximum profit benefits caring less even when farmers are selling their produce at loss (Mitchell, 2011). In addition, the author argues that farmers lack bargaining power especially the fact that French beans are perishable and therefore have no option except to accept a contract agreement where they are having guaranteed market with fixed expected income at the end even if not favorable.

Secondly, training farmers about the food safety and standards is very key to ease implementation of such by farmers. It also ensures safe and healthy produce by consumers (Boyer, Camella ,Canon, Gaskin, Harrisson & Zehnder 2012). Just a single case of food contamination can have very destructive effects. The author further argues that bad chemical use is also a health hazard and will cause rejection by European Union due to quality and

standards issues. *Boyer et al, (2012)* also advises that there are various steps of minimizing huge losses cause. First involves training farmers on risky practices. Such training is just the basic hygiene practices in the production, transportation, handling produce, post harvesting and spraying. Further, the author argues that once written procedures are developed, they should be accessible to the farmers and their workers and in a simple and preferable the local language that they should easily understand. Review of the existing procedure should be done regularly to ensure that they meet the current trends and patterns as well as the customer's expectations and demand.

Training French beans farmers on the existing regulatory framework is also very important. There are several disputes that can arise from contract farming. In his research (Jain, 2008), such disputes arise from disagreements when buyer are unable to buy the contracted produce, delay in payment for the already delivered produce, discount calculation, forced price reduction and rejection of contracted produce among many other reasons. In his study on regulation and dispute resolution in contract farming in India, the author recommends that arbitration is the best way of resolving conflicts arising from disagreements from contract farming through the assistance of the authorities named in the contract agreement.

In Kenya, Horticultural Crop Development Authority (HCDA) serves this role of arbitration. He further stresses that it is the responsibility of the buyers of the produce to ensure that farmers understand the legal implications of the signing of the contract agreement. The terms and conditions of the contract agreement should be written down for independent, open and copies should be shared with the representatives of the farmer. In his research (Jain, 2008) further discuss that it is hard for either party to seek legal justice through courts hence the need to train farmers on easy, quick and simple ways of resolving the dispute such as the two disagreeing parties coming together and solving the disputes.

According to Muhammad & Raza (2011), French bean farmers need to be trained on the role of middlemen in marketing chain. This is because marketing and buying of produce is done through processors and middlemen (Mitchell, 2011). In most cases, processors offer loan to farmers and in turn recovering the money from the produce. Therefore, there is great need to teach farmers on the recovery schedule to avoid misunderstanding.

In the year 2012, small scale French beans farmers in Kenya found themselves in a cross road when the companies buying their French beans produce could not buy their french beans after there was a ban on all fresh vegetables for exports by all the supermarkets in Europe. This is after there was suspicion that small scale French beans farmers were spraying a pesticide called Dimethoate on vegetables for export. This pesticide was suspected to cause ill health to both humans and animals despite contamination to the Environment (Songa in Today Financial News, 2013). The ban by the European Union supermarkets between January and September 2012 caused the volume of beans sold by the small scale farmers to the European supermarkets to drop to 54,000 metric tonnes from 59,000 metric tonnes in the year 2012 between the month of January and September (Mwikaya in Business Daily, 2013). This ban contributed to the loss of four billion shillings in this same period of January to September 2012 (Mwikaya in Business Daily 2013).

Records from East African Growers Company, show that despite having signed contractual agreements with small scale farmers in its out grower schemes for the year 2012 to 2013, the company was accepting from its registered small scale farmers, french beans at between 50 to 80% packability as compared to 80 to 100% packability for the year 2011 to 2012. Mwikaya in Business Daily (2013) argues that in such a case it is the small scale farmers who suffered most. According to Mwikaya in Business Daily(2013),this is because, despite of having signed an agreement between East African Growers and its small scale farmers, the company could only buy what it could process and export leaving the rest of the produce with

the farmers. There is no provision for cost sharing in the contract in the event of calamities (Mwikaya in Business Daily, 2013).

In an effort to save the small scale french beans farmers from the increased losses witnessed after the ban, Horticultural Crop Development Authority (HCDA) and Fresh Produce Exporters Association of Kenya (FPEAK) focused in providing awareness campaign to educate the illiterate vegetable growers especially the french beans farmers and those who engaged in selling of agrochemicals on the complete ban of the use and sale of Dimethoate including use of other chemicals that were banned from use in the European market (Mwikaya in Business Daily, 2013). The campaign would not only cushion the small scale french beans farmers business from collapsing but also avoid decline on the Kenyan economy Mwikaya in Business daily (2013). (According to Mwikaya in Business daily, (2013) french beans not only contribute close to five percent of the total vegetable volumes exported, but also 30% of the total revenue earned from vegetable exports. This would mean that this would have significant medium term impact on the small scale farmers, the exporters and the country.

2.3.2 Transaction cost and financial performance of French beans farmers.

In relation to transaction cost, there are two major pitfalls in contract farming namely; non-compliance to the contract and hold up. Pultrone, (2015) argues that increased competition among buyers encourage side selling. In his study on beef farming. Brown, Longworth & Waldron, (2010) sets out that side selling leads to breach of contract agreement. Not renewing of contract is the main threat of enforcing contract farming, (Bellemare, 2010). Swinnen, Maertens & Vandeplas (2010) argues that offering higher prices in contracts than the market price is enough incentive for farmers to honor contracts. However, contractors may employ agents who monitor farmer's behaviors (Marcoul & Veyssiere 2010). When market price is higher than the fixed or designated price, farmers may divert inputs provided to other uses such

as sell to other competing contractors as long as they offer higher prices. Most often, farmers should invest in asset specificity investments such as greenhouses because there is reduces chances of changing their mind due to contingencies or opportunities (Wu 2006, 2014). Hold up problem can be solved by allowing foreign investments. However, Singh (2002) argues that contract farming is always unsuccessful due to lack of trust among the two parties. Further, Schipmann & Qaim (2011) farmers in Thailand withdrew from a contract due to lack of trust.

Contract farming is a major tool of reducing transaction costs. According to New Institutional Economics (NIE), as long as there are transactions between two economic actors, then there must be costs. Such costs include signing and negotiating a contract, switching costs associated with breach of contract and compliance costs. TCE explains an optimal organization behavior in carrying out transactions between customers and producers. In addressing this we have to focus on the characteristic of transactions which include the characteristics of commodity as well as the transactions partners and how they influence the size of transaction costs. This includes explaining how opportunism, asset specificity, bounded rationality and uncertainty affects transaction costs. Contract farming may be favorable to certain transactions in comparison to spot market.

First, we will focus on uncertainty which is directly related to asymmetry information on the current and future information. To have optimal negotiation in a contract arrangement and their terms, buyers and seller must have all the information. In most cases buyers have adequate information about market conditions while sellers have adequate information on the quality of the product. The more there is incomplete information and the higher the information asymmetry, the higher the transaction cost since the contract partners have to commit more resources to solve the information gap between them. Small-scale farmers are mostly affected by information imbalance due to lack of public information services. In response to this, farmers prefer to engage in contracts that do not need additional information. Therefore,

producers engage in contract farming since it reduces the uncertainty by the fact that there is a guaranteed market for their produce. In agreeing on the price in the contract, the farmer has certainty on the expected income. Stipulating the cultivation method and the types of inputs to be used reduce uncertainty on the quality of output and in turn transaction cost.

Secondly, bounded rationality is a characteristic of every economic actor. It is explained by the fact that even if the current and future demand and supply information is made available to all the transaction actors of the contract, human being do not have the time and the capacity to processing all the information. The reason is the fact there is limited access to formal education. Due to this limitation, farmers cannot not engage in new production activities even if they are beneficial to them. Contract farming cannot eliminate bounded rationality among the producers but can limit the negative impacts that can arise. This is achieved by providing technical assistance to them.

Third, we can focus on the opportunistic behavior which is explained by the fact that both transaction partners will fail to keep their promises. Contract farming reduce cheating because inputs can be provided, technical assistance and regularly monitoring production activities. Usually, contract farming is a repetitive agreement. This characteristic build reputation and reduces the chances of breach of contract agreement. Finally, asset specificity favors a contract farming agreement under spot market arrangement. At the time of initiating the contract, deciding the product and the investment type do not have a direct benefit on the existing marketing conditions and therefore no push to invest in certain types of investment. Processors who require specific produce from producers will have to give guarantee to them even before planting. This is where they have to have contract with them for their produce. From the above discussion, it is good to note that a combination of factors causes transaction cost to rise. For example, without opportunistic behavior, asset specificity would not be a problem since producers would prefer joint investment instead of individual investment.

In a contract farming agreement, the type of the product, buyer and the market determine the suitability of a contract. To start with, when the product is perishable of uniform quality, when farmers are familiar with production methods, when farmers can easily determine the quality and clearly know the market conditions, then transaction cost will be lower and therefore spot markets will be favorable. This explains why crops such as grains are sold through the spot market. High perishability encourages high coordination between processors and producers to determine harvest and delivery time. Once perishable products are harvested, bargaining power is reduced. Farmers may avoid such perishable products in a contract guaranteed arrangement. Where there is lack of technical knowledge among farmers, they may prefer a contract arrangement so that the processor will provide technical assistance, credit and specialized inputs.

Looking in the type of buyer, those processors who engage in high value products, highly perishable, and those that require specialized knowledge and skills are likely to engage in contract farming arrangement. In addition, processors who have capital intensive processing plant will have contract agreement with producers so as to have guaranteed supply of raw materials to maintain high utilization capacity. Finally, the type of market is very important determinant of suitability of a contract. In a case of high quality and food safety standards, the higher the temptation for buyers to increase control over the production process.

In an effort to economize on transaction and production costs, transaction parties (bilaterally or unilaterally) choose the most efficient institutional and organizational structure (Williamson, 1985). This can be referred as the governance structure which can be defined as the set of rules by which an exchange is administered (Hendrikse, 2003). Governance structures can be classified as vertical integration which is a continuum ranging from spot market to hierarchy. In between these extremes, many so-called hybrid governance structures can be found, combining price (as the dominant governance mechanism in markets) with authority (as the

dominant governance mechanism in a hierarchy). In most cases, contracts are a typical hybrid governance structure (Menard, 2004). Shifting from the continuum of governance structures to spot market through contracts and to other hybrids to hierarchy, would imply a reduction of transaction costs due to a reduction of incentive intensity, a strengthening of administrative control, a reduction of autonomous adaptation, and a strengthening of coordinated adaptation (Williamson, 1991). However, governance costs rise when there is more complex and hierarchical governance structure, therefore, the optimal organizational structure for any particular transaction depends on the trade-off between governance costs and transaction costs.

In conclusion, contract farming is said to reduce transaction cost. When vertical coordination is required between production activities and marketing activities, then spot market transactions are high due to behavioral uncertainty and specific investments. In such situation, contract farming is said to be the best alternative since there is reduced uncertainty and improved incentives for farmers to make specific investment. What is more, it provides an organizational structure for providing credit, inputs and technical assistance to the producers.

2.3.3 Regulatory Framework Awareness and Financial Performance of French Beans Farmers.

Regulatory framework awareness is very important to farmers due to compliance with the food safety standards by French beans farmers in Kenya and in the global market. It is worth noting that French beans are mostly exported and specifically to European nations. With increased demand for processed French beans for exportation to the European Union, supermarkets and retailers in Europe have great concern on the hygiene and food safety for their customers (FAO, 2002). Therefore, there is need to discuss the European food safety standards awareness by farmers. For French beans farmers, standards increase fixed and transaction costs of production. This is because standards influence the assessment of quality of the produce. Both large and small-scale farmers use contracts as a way of safeguarding their investments against

standards. Large farms use their own equity to invest whereas small farms tend to use marketing groups to reduce transaction cost and spread their investment to make it favorable to them. However, buyers face information asymmetric problem forcing farmers to comply with the hard production requirements. What is more, buyers tend to use closely monitored contracts where the threat of breach of contract is low and the varying product pricing has forced compliance to the required standards. Small farmers tend to join in cooperative so as to have economies of scale benefit and even in an effort to remain viable.

According to Kimenye, 1993, McCulloh & Otta, (2002) Kenya, French bean production can be traced to the 1950s, although their production and trade gained popularity in the 1980s and 1990s. In the early 1980s, Kenyan exports of green beans increased to 27000 tonnes in the early 1980s to 6000 tonnes in 2003. In 2002, French beans alone accounted for close to 22% of the value of all Kenyan horticultural exports and was by then the second largest foreign exchange earner in the industry (HCDA, 2003). However, the rate of expansion of trade in french beans slowed down in the 1990s as the industry adjusted to the challenges created by IFSS and competition from other African producers (Dolan & Humphrey, 2000). The strong recovery is attributed to the increased supermarket trade by leading exporters in the wake of IFSS due to pre-pack (prepared produce) business.

Production response to IFSS has followed the same trend, but with a significant impact on production structure. IFSS were introduced in the early 1990s in response to food safety regulatory changes in the UK and the EU as a whole. In the UK, these standards emanated from the UK Food Safety (Due Diligence) Act of 1991 and the resultant supermarket-developed codes of practice. These regulatory changes were initially aimed at addressing the problem of microbial contaminants in food. Prior to IFSS era, farmers applied many different types of pesticides (including those unregistered) on green beans, often with sprayers that were old and

poorly maintained and dosages that are higher than recommended (Dolan and Humphrey, 2000).

In the recent past, food safety scandals and contamination by pesticides and microorganisms by the European Union (EU) has led to the European government put stringent food safety measures and regulations (Jaffe, 2003 & Mungai, 2004). The fresh export retailers such as supermarket has placed their own stringent protocols in line with the once developed by the United Nations and have passed them upstream to the developing nations. To secure their fresh produce markets in the European markets exporters in the developed have no option but to comply with the International Food Safety Standards (IFSS) by placing more stringent requirements to fresh produce suppliers (Dolan & Humphrey, 2000). Some of these requirements include; high hygiene standards, establishing traceability system and guideline on pesticide handling and used systems. Over the years fresh exporters have utilized spot markets, own farms or contracted out growers as their source of supply until in the recent past where they mostly rely on spot markets supplemented by loose contract farming with small scale farmers. After the introduction of IFSS those who export to the EU countries and the developed nations have shifted from spot markets and loose contracts to closely governed contracts. The contracts require farmers to comply with IFSS. To comply includes heavy investment in variable inputs, sheds such as the grading shed and pesticide store (Murimi, 2004). There is high cost of investments attached to export market and therefore excluding small scale farmers in developing countries due to their limited access to information and capital (Mungai, 2004).

Due to high pest infestation attached to the humid weather and the preference by European consumers', disease and pest blemishes free French beans, hence heavy reliance on pesticides. Earlier before the establishment of IFSS, farmers applied different types of pesticides even those not registered for French beans with sprayers that are not well maintained,

old and even use of higher dosage than the recommended one. Small scale farmers using pesticides on weekly basis with no protective gear with the pesticide container either left in the field or disposed in the waste pits used for domestic purposes. What is more, smallholders' farmers stored pesticides in the food store, kitchen and in the family residence. Post harvesting farm level also was given little or no attention at all. Harvest was transported to collection point under a tree just by the road side where grading was done, packed in cartons and then distributed to exporters by exporters themselves or their agents. In pre-IFSS era, exporter only emphasized on the physical attributes such as the size, color, shape and length just to mention a few in grading French beans. The physical inspection was very fast and less expensive. (Harris, Hegarty, Kherallah, Mukindia, Ngige, Stems & Tatter 2000)

Introduction of IFSS has changed all these aspects. Apart from meeting the IFSS, there is also the specific farm level post harvesting requirements and production standards. Those spraying the crop should have the protective gear. Handling of pesticide is done in a manner to ensure the safety of applicators and mixers. Those applying the pesticides are required to bathe immediately after application of the pesticides or after the pesticide accidentally come in to contact with their skin. Pesticides are stored safely away from the foodstuff and in a fully secured pesticide store with proper ventilation. The pesticide left overs and container are disposed safely so as not to be a health hazard to both people and animals. Farmers do not use unapproved pesticides anymore and the left overs of the approved pesticides are maintained below the Minimum Residual Level (MRL). In grading, contamination by microbes and foreign objects such as dirt and human hair and even shield them from tropical heat. Lastly, farmers are required to keep pesticide use documentation. As a requirement, a record of pesticide usage accompanies every consignment of green beans sold (*Harris et al 2000*)

In an effort to comply with IFSS, farmers have to change their production practices behavior and make significant investments in the following areas. First, purchase of protective

gear which includes gumboot, rubber gloves, long sleeved overalls, goggles and a hat. Also, construct a shower room for use by the person doing the spraying, a well-ventilated pesticide store room, a pesticide disposal pit and an incinerator. Third, they have to buy the approved pesticides which are a bit more costly and safer. Implementation of integrated approach to disease and pest control methods and only use pesticide when it is absolutely necessary and upon approval by the agronomist of the exporter. Fourth, constructing of grading shade and buying of cold room. Finally observing high level of hygiene by wearing headscarf and hats by men and barring perfumes from the grading and storage area, (Horticultural Crop Development Authority 2002). In conclusion, it is clear that compliance with IFSS requires specialized assets and alters the way quality is assessed hence the high transactions between farmers and export-oriented buyers.

According to Jain (2008), there are disputes that arise from contract farming arrangement. Such disputes are attributed by the refusal by processor and buyers to buy contracted produce, failure to pay on the agreed time, giving discounts, forced price reduction of produce and rejection the contracted produce without convincing reasons. In his study Jain (2008), suggests that disputes arising from contracting should be directed to the authority mentioned in the contract to act as the arbitrator. The authority therein should be able to solve the dispute within a stipulated reasonable time frame. In Kenya, HCDA serves the role of arbitration. Jain (2008) further argues that both parties should be involved in formulating a contract agreement so as to assist in wording of complex terms that farmers may not understand their meaning. He further stresses that it is the responsibility of the processors and buyers to ensure that the farmers fully understand the implications of the signed contract agreement. The terms and conditions therein must be written and independent review should be done and farmers should have their own copy for future reference.

However, Jain (2008) in his research on Regulation and dispute settlement in contract farming in India notes that in the majority of the disputes between the small scale farmers and the buyers and processors of their produce, it is highly unlikely that a buyer or the processor will take legal action against a farmer for the breach of a contract. Action by small scale farmers against the buyer of their produce is similarly improbable. Jain (2008) attributes this to the high costs involved during legal issues besides threatening the relationship between the produce buyer and all the farmers producing for the buyer. Jain (2008) concludes by saying that, as neither side is likely to seek legal remedy through the courts, it is therefore highly important to clearly educate small scale farmers on simple, quick and easy methods or ways of solving arising disputes between them and the buyers of their produce. Such simple, quick and easy methods such as the two disagreeing parties coming together to solve the dispute between themselves, without arbitration or legal tussle at the courts, should be clearly identified in the farming agreement where applicable.

2.3.4 Technical Assistance and Financial Performance of French Beans Farmers

According to Bellemare, (2010) technical support include supplying farmers with inputs mostly on credit basis such as fertilizers, chemicals and certified seeds. Also providing cash advance to farmers to purchase fertilizers, chemicals, certified seed and acquiring labour is part of technical assistance. However, provision of such inputs is an easier and cheaper way of farmers acquiring quality seeds, fertilizers plus other inputs and as such they can easily transfer the latest technology (Kathrin & Hoeffler, 2006).

Bellemare, (2010), in his study in the contract arrangement, the processors delegated production of vegetables such as leeks, French beans and cucumber to growers providing them with credit in form of fertilizers, seeds and pesticides. During harvest time, the input advance is repaid in crop and the remaining crop at the pre-agreed price provided the quality is satisfactory. In these contracts technical assistants were hired from the local community. The

reason is to utilize the local knowledge and reduce transaction costs of providing extension services. In his study, technical assistance is twofold. The first fold involves contract enforcement actions such as preventing farmers to divert the inputs provided to non-contracted crops, leaking the contracted crop to the local crop and preventing neglect of the crops by growers. The second is production management. This involves ensuring that growers adhere to production schedule as agreed with the processor. Also, the inputs are provided on time and in the correct proportions and ensuring that the contracted crops conform to food safety and European Union requirements.

In conclusion, technical assistance is very key to contract farming. In a fixed price contract, technical assistance should be factored in especially in a case where processing firms provide extension services other than the government. The number of visits by the technical assistant can be directly attributed to the quality and quantity of output. This makes technical assistance very key in this study.

2.4 Research gap

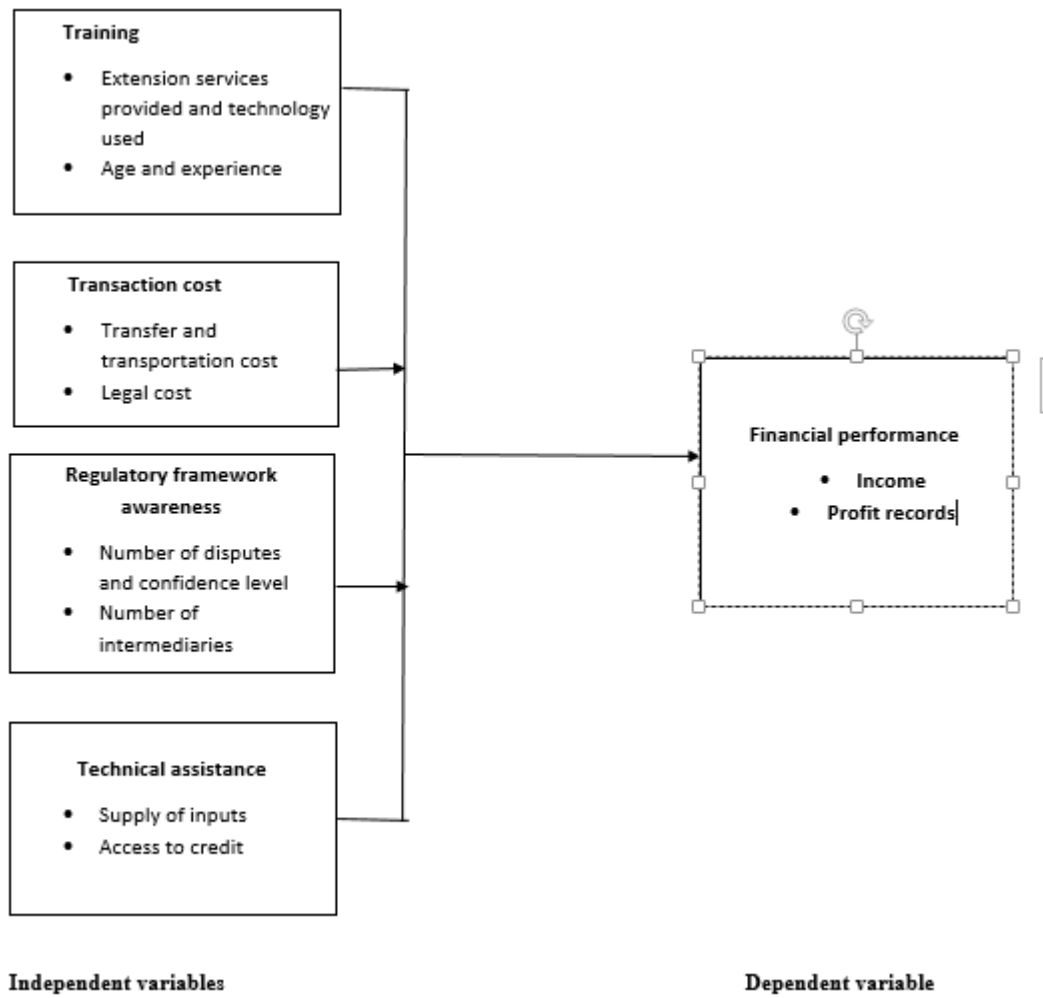
A number of studies have been done locally in regard to contract farming. Mikalitsa (2010), focused on how gender specific constraints affect household food security and technology use in Western Province Kenya. *Wainaina, et al (2012)*, studied impact of contract farming on smallholder poultry farmers' income in Kenya. Contract farming in Sub Saharan Africa: a survey approaches, debates and issues was done by (Oya, 2012). Icheria (2012) analyzed household food insecurity and coping strategies among small scale farmers in Tharaka Central division in Kenya. Ndun'gu (2017) analyzed influence of contract farming on marketing of farm produce: A case of small-scale French beans farmers in Kutus, Kirinyaga County, Kenya. Kagwiria (2017) studied factors influencing contractual farming in Buuri Constituency, Kenya.

This study will review literature on fixed price contracts and how it influences performance of farmers. The study will establish how fixed prices in contract farming affects performance of farmers either positively or negatively and the effect is unique to each factor. For example, the higher the transaction costs incurred by the farmer the higher the negative effect to performance of farmers hence fixed price contract reduce such costs. Regulatory framework requires specialized assets hence higher transactions costs, high quality products, food safety and compliance and in turn improved market for farmer's produce which improves performance. The level of knowledge and training is a great determinant on whether farmer should engage in fixed price contract. In light of the above reviewed literature, it is clear that there is a research gap since none of the studies focused on the factors influencing contract fixed prices on performance of French beans farmers in Kirinyaga County, Kenya.

2.5 Conceptual Framework

This section will provide the relationship between the dependent and the independent variables as conceptualized in this study. The dependent variable has been used as the measure of financial performance of farmers while the independent variables are catalysts of fixed price contract. In this study the independent variables are training, transaction cost, regulatory framework and technical assistance which are assumed to drive the decision to undertake contract farming and in turn influence farmer's financial performance as illustrated in the figure 2.1 below.

FIGURE 1
Conceptual Framework



2.6 Operationalization of Variables

TABLE 1
Operationalization of Variables

Type of Variable	Variable	Scale of measurement	Data collection Tool	Data analysis tool
Independent variable	Training <ul style="list-style-type: none"> • The level of education • Adoption of new technology by farmers 	Ordinal	Questionnaire	Frequencies and percentages
	Transaction cost <ul style="list-style-type: none"> • The transfer costs incurred • Legal and monitoring cost incurred 	Interval	Questionnaire	Frequencies and percentages
	Regulatory framework awareness <ul style="list-style-type: none"> • Decrease in the number of conflicts between the farmer and the buyer • Increased confidence level 	Ordinal	Questionnaire	Frequencies and percentages
	Technical assistance <ul style="list-style-type: none"> • Provision of farm inputs • Ease of accessing credit 	Ordinal	Questionnaire	Frequencies and percentages
Dependent variable	Financial performance <ul style="list-style-type: none"> • Income • Profit records 	Interval	Questionnaire	Frequencies and percentages

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the methodology which the researcher used to carry out the study. It helps in data collection to enable the research to answer the research questions. The chapter was organized into various subsections such as; the research design, target population, sampling and sampling procedure and research instrument. The chapter also covered validity and reliability of the instrument, data collection procedure and data processing and analysis.

3.2 Research design

A research design is an overall plan on how the researcher will carry out the research. It basically mean the way in which the researcher address the research questions (Orodho, 2004). It can also be defined as the structure within which the research was conducted and provides a blueprint for data collection, measurement as well as its analysis (Kothari, 2003). Descriptive design was used in this study. According to (Mugenda 2011), descriptive studies are used to conduct an in-depth issues and problems within communities that have not been addressed. In a research problem, descriptive explores and describe the variables thereon (Roger &Uma, 2010). It therefore lays a good platform for the use of a regression to analyze the relationship between dependent and the independent variables. Descriptive studies are always preferred because one can easily adopt it to collect information, come up with findings and conclusions that can be used as a representative of the whole population (Robbins, 2003). What is more is that the design is used in a geographically limited research. In light of the above discussion, descriptive design was the most appropriate for this study.

3.3 Target population

According to Mugenda & Mugenda, (2003), a target population is the entire group of the population which the researcher is interested in. It constitutes individuals with observable common characteristics. The target population in this study was 635 French beans farmers who are members of six registered centers in Kirinyaga County in Kenya. The study mainly focused on the registered French beans farmers because they are likely to understand the regulatory framework in the country which in turn affect their financial performance. Also, in most cases registered farmers are preferred in contract farming in Kenya. The farmers will include both male and female.

3.4 Sampling and sampling procedure

A sample is a subset of the total population whose results and findings can be generalized to give conclusion about the characteristics of the whole population (Kothari, 2004). A sample size should be adequate enough to give a clear picture of the whole population. Also, At least 10% or more of the target population act as an optimum and adequate sample to represent the whole population (Kerlinger, 1973). According to (Mugenda & Mugenda, 2013), when the target population is less than 10,000, a 10%-30% sample of the target population is a good representation. The larger the sample the higher the reliability of the results and the findings. Sampling technique is the way in which a suitable sample is selected to act as a representative of the whole population characteristics. The target population is shown in the table 3.1 below.

TABLE 2
Target population

Centre Name	No of Registered farmers	Percentage
Kiamwenja	156	24.57%
Kiaritha	60	9.45%
Ngungu	105	16.54%
Kiamwathi	159	25.04%

Kiandai	67	10.55%
Mukarara	88	13.86%
Total	635	100%

Source: Author 2020

The study utilized Yamane formula (Israel, 1992) to obtain the study sample. So as to get a reasonable sample from the stratum comprised of 635 farmers registered in six centers in Kirinyaga County. The Yamane formula is stated as the following; $n = \frac{N}{1 + N(e)^2}$

Where n is the sample size

N is the target population.

e is the error margin

It assumes a P value of 0.05 and a confidence level of 95 percent. The study population has a total of 635 farmers who are all registered in six centers. Using Yamane formula therefore, $n = \frac{635}{1 + 635(0.05)^2}$. As determined by the Yamane formula, the sample size is 245 farmers. The following formula was used to decide on how many respondents were to be selected from each center.

$$ns = \frac{N}{TN} n$$

Where ns is sample size of each center in the stratum.

N is the population of each center in the stratum.

TN is the total number of the respondents in the stratum.

n is the sample size.

Using the formula above,

This study used simple random sampling technique to obtain a sample of 245 farmers from the six centers as illustrated by the table below.

TABLE 3
Calculation of sample

Centre	Calculation of sample	Actual sample
Kiamwenja	$156/635*245$	60
Kiaritha	$60/635*245$	23
Ngungu	$105/635*245$	41
Kiamwathi	$159/635*245$	61
Kiandai	$67/635*245$	26
Mukarara	$88/635*245$	34
Total		245

TABLE 4
Calculation of sample size

Centre Name	Population (N)	Sample Size (n)	Percentage
Kiamwenja	156	60	24.49%
Kiaritha	60	23	9.39%
Ngungu	105	41	16.74%
Kiamwathi	159	61	24.9%
Kiandai	67	26	10.61%
Mukarara	88	34	13.88%
Total	635	245	100%

Stratified simple random sampling is used to select a sample in a sub-set of a population especially where when a set is deemed to be underrepresented or not included at all, Mugenda & Mugenda (2013). In his study, the researcher explains that where the target population exhibits different classes and sizes, then the sampling frame can be organized in those different classes into strata. Mugenda (2008) further discusses that, the subset in the population are

proportionally but randomly selected to obtain an adequate representation of the target population. This ensures that subsets that have majority members in the population are proportionately represented. This study used tags with written representative numbers for each center and placed in a bucket for the members to pick one at a time. This was to ensure no biasness and facilitate random picking. The papers picked by each member of the target population will then be opened. Those with the representative numbers irrespective of gender or age will be picked to act as the sample. This clearly shows that all farmers in each center will have equal chance of being selected as the respondent.

3.5 Research instrument

This study used a questionnaire as the tool for data collection. A questionnaire is a research tool that comprises of a set of open or closed ended questions that are intended to collect data in a simple but in a standardized manner (Bhattacharjee, 2012). According to Bhattacharjee (2012), there are two types of questionnaire. First are the self-administered questionnaires. These are given to the individual selected individuals to fill independently. Group administered questionnaires is the other one where the questionnaires are given to the group though required to fill individually. In this method the group members are assemble at one meeting point and individually given the questionnaire. This study used the self-administering of questionnaire where the farmers are required to fill it on their own convenient time and follow up done on the pre agreed collection dates. This was also in an effort to curb the spread of the corona virus which has shaken the world and ensure compliance with GOK directive on the ban of public gathering.

3.6 Validity and Reliability of Instruments

Validity refers to the meaningfulness and accuracy in conclusion made in a research study results (Golafshani, 2013). It is the extent to which the research instrument measures what it intended to measure (Mbweza, 2006). The researcher clearly explains that if an instrument

measure what it is not intended to measure then it ceases to be valid. In this study, the self-administered questionnaire were discussed in details with my fellow postgraduate, colleagues and horticultural experts. Also, the questionnaire was structured in a simple and precise language to make it easy for all the respondents.

According to Uma and Roger, (2010), reliability of an instrument is the extent to which there is no biasness and ensure consistency of measurement across various research items at all time. It is the indication of consistency and stability with which the instrument measures a concept and further help assess how good it is. This study used test-retest method to assess the reliability of the instruments. According to Bhattacharjee (2012), the test-retest reliability method is used to measure the consistency of two test of the same type administered to the same sample issued two different times. In his research to Bhattacharjee (2012), points out that if an instrument is consistent after several tests over time, then it is reliable. The interval between administering two tests for the same sample should not be long (Mbwesa 2006). This is because longer period lowers the reliability of correlation coefficient due to possible changes to sample under test and therefore the recommended period is up to 90 days. An equivalent of 10% of the sample selected is enough for pilot test-retest (Mugenda and Mugenda 2003). The study selected 15 respondents after 14 days of the first test to test the reliability of the instrument. This study used Cronbach coefficient alpha where information is given on range scale of zero to one to obtain its consistency. A scale of more than 0.7 reveals that the instrument is reliable.

To make the study more reliable, a pilot study was carried out by issuing questionnaire to French beans farmers under contract farming arrangement in the neighboring Murang'a County. This helped identify the difficulties faced and ensure correction before the actual data collection. The other need for a pilot study is to ensure that the research instrument is simple and clear and reveal same meaning to all the respondents in the selected sample (Mugenda

1999). According to Mugenda & Mugenda (2003), a sample of 10% of the total population is adequate enough to do a pilot study.

3.7 Data collection procedure

The data collected was basically from primary source. Primary source can be described as firsthand information. It was very crucial to use research assistant who could explain to the farmers the reason for doing the research, create a favorable platform for data collection and stress the importance of providing the correct information. The research assistant personally administered the questionnaires to the sampled farmers from the various centers which they filled at their own time. Telephone conversation was utilized by the research assistant to book appointments with the farmers at least three days before but also ensure no social gathering so as to curb spread of corona virus as per the government directive. Such appointments also facilitated easier dropping and picking of questionnaires.

3.8 Data Processing Procedure

Upon completion of data collection exercise, all the questionnaires were coded to facilitate cleaning and organization of data. Cleaning of data eliminate incomplete questionnaires because they cannot be used for data analysis. The cleaned data was then be analyzed by use of Stata. Descriptive statistics was then be used which included the use of percentages and frequencies.

3.9 Diagnostics Tests

A diagnostic test is a test done to ascertain that all the assumptions of a linear equation are met. Diagnostic test will be done to determine how significant the model was. Randomness of errors, normality, multicollinearity and heteroscedasticity are some of the tests done.

3.9.1 Randomness of errors

To start with, randomness of error was tested by the use of Rvf test which plot the residuals against the fitted values. This plot graph was be used to determine the randomness of outliers and residual including non-linearity (Anderson 2013).

3.9.2 Normality test

To test normality, a histogram was used so as to ascertain that the data is normal, independent and identically distributed. What is more, skewness and kurtosis should be between -1.0 and +1.0 as the rule of the thumb (Zofia 2016).

3.9.3 Multicollinearity

The third test on multicollinearity was done by the use of Variation Inflation Factor analysis. Also, it tests the extent of severity in a multi-collinear OLS regression.

3.9.4 Heteroscedasticity

Breusch-pagan test was used to sense the linear equation form of heteroscedasticity. In addition, it tests the null hypothesis that the variance of errors is the same versus the other alternative hypothesis that the variance of errors is a multiplicative function in one or two variables (Richard 2015).

3.10 Data Analysis

Regression analysis was done on training, transaction costs, regulatory framework and technical assistance and to further investigate further, the relationship between fixed price contract and financial performance of French beans farmers in Kenya using the formula illustrated below.

Direct relationship

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon \dots\dots\dots \text{equation 1}$$

Y; β_0 is the linear equation intercept, and

Where, β is the general impact of the independent variable

ε is the corresponding residuals in the formula (Fairchild & Mackinnon 2009).

Therefore, our general regression equation was

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \dots\dots\dots \text{equation 2}$$

Where;

Y = Financial performance of French beans farmers.

β_0 = Intercept, which is the value of Y when value of X is zero.

X_1 = Training

X_2 = Transaction cost

X_3 = Regulatory framework

X_4 = Technical assistance

ε = Error term

$\beta_1, \beta_2, \beta_3$ and β_4 are coefficients for training, transaction, regulatory framework and technical assistance respectively. To analyze the factors influencing fixed price contract on financial performance of French Beans farmers in Kenya, the data collected will be analyzed by the use of graphs, charts, tables and figures.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presented data that was collected from small scale farmers on influence of contract fixed prices on the financial performance of French beans farmers in Kirinyaga County. The data is organized into six sections. Section one presents questionnaire response rate, section two presents the respondents background information while the rest of the sections presents the finding of the study.

4.2 Questionnaire response rate

Out of the 245 questionnaires administered, 180 questionnaire were duly filled and returned back accounting for a response rate of 73.5%. According to Mugenda (2003), a response rate of 50% is adequate for data analysis and reporting, 60% is good and above 70% is excellent. The response rate of this study was therefore adequate for data analysis and discussion of the findings.

4.3 Demographic characteristics

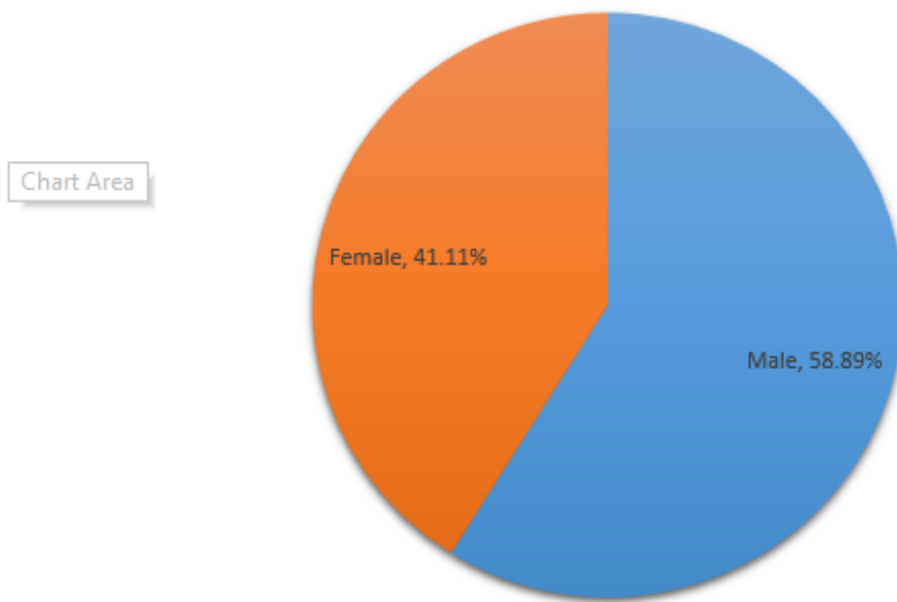
This section explains background information which included the gender, age, number of year the farmers have engaged in farming and the level of education of the respondents.

4.3.1 Gender of the respondents

The respondents were requested to indicate their gender and the findings were illustrated in the figure 1 below

FIGURE 2

Gender of the respondents



From the finding, majority of the respondents were male (58.89%) while 41.11% were female. This implies that majority of the respondents were male.

4.3.2 Age of the respondents

The respondents were requested to indicate their age bracket and the findings were illustrated in the table 5

TABLE 5
Age of the respondents

Age	Respondent	Percentage (%)
Below 20 years	2	1
21-30 years	27	15
31-40 years	86	48
41-50 years	35	19
51-60 years	21	12
61-70 years	7	4
above 71 years	2	1
Total	180	100

source: Author 2020

According to findings above, most of the respondents (48%) were between 31-40 years of age 19% between 41-50 years, 15% between 21-30 years, 12% between 51-60 years, 4% between

61-70 years and those below 20 years and above 71 years were both 1%. This depicts that majority of the respondents who engage in French beans farming were between 31-40 years of age.

4.3.3 Number of years of farming

The study sought to find out about the number of years the respondents have engaged in fixed price contract farming and the table 6 below shows the findings.

TABLE 6
Number of years in farming

Number of years	Respondents	Percentage (%)
Below 5 years	12	7%
6-10 years	17	9%
11-15 years	86	48%
16-20 years	56	31%
above 21 years	9	5%
Total	180	100%

Source: Author 2020

From the table above, majority of the respondents (48%) were between 11-15 years in farming, 31% were between 16-20 years, 9% between 6-10 years, 7% were below 5 years and 5% were above 21 years in farming.

4.3.4 Level of education

The respondents were requested to indicate the level of education and the findings were shown in the table below.

TABLE 7
Distribution of respondents by the level of education

Level of education	Respondents	Percentage
Primary level	34	19%
Secondary level	69	38%
College level	26	15%
University level	31	17%
other level	13	7%
None	7	4%
Total	180	100%

Source: Author 2020

From the findings, most of the respondents (38%) attained secondary level of education, 19% primary level, 17% university level, 15% college level, 7% other level and 4% had none.

4.4 Study variables

4.4.1 Analysis on training

The study sought to find out how farmers received training in various aspects of fixed price contract and how this influenced their income. The respondents were requested to indicate their level of agreement with training done on various aspects of contract fixed prices. The responses were classified in a 5 likert scale where 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree. The findings were discussed in table 4.4 below, where NPTM represents new production technology and methods, SS= training on safety standards, MB= training on the role of middlemen and brokers, PDC= training on pest and disease control including chemical use and handling and finally FR= training on farm records.

TABLE 8
Level of agreement with statement on training

Variable	Obs	Mean	Standard deviation	Min	Max
NPTM	180	3.722	1.041	1	5
SS	180	3.839	1.026	1	5
MB	180	3.806	0.763	1	5
PDC	180	4.244	1.112	1	5
FR	180	4.183	0.794	1	5

From the findings of the study indicated above, the respondents agreed that training on pest and diseases control (4.244), followed by training on farm records increase their income (mean 4.18), training on safety standards (3.839), training on the role of middlemen and brokers (3.806) and new technology and methods increase the income of farmers (3.722). This means that training on pest and disease control is greatest determinant of the independent variable;

training. This was followed by The findings of this study coincides with the findings of Setboonsarng (2008), who studied about global partnership in alleviating poverty, where he found out that access to the right information on contract farming through training creates a good platform for farmers to access better markets for their produce which in turn lead to increased income. Also, the findings of this study agrees with The Ministry of Food And Agriculture Atlanta United States of America(2003), which states that farmers should be regularly be trained on the best and improved production methods which minimize their cost of production and this results to increased profit margin (MFA, 2003). What is more, Afenyo (2015), found out that training farmers on new skill, knowledge and technology enables them to respond to the evolving challenges.

4.4.2 Analysis on Transaction cost

Further, the study sought to establish the influence of transaction cost involved in fixed price contracts on the financial performance of farmers. The responses were classified in a 5 likert scale where 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree. The results obtained from the respondents were presented in the table 4.5 below where tc= the cost of transportation, SC= storage costs, HC= handling cost, MC= cost of monitoring the crop and LC= legal cost such as compliance costs.

TABLE 9
Level of agreement with statements of transaction cost

Variable	Obs	Mean	Standard deviation	Min	Max
TC	180	3.911	1.140	1	5
SC	180	3.989	1.224	1	5
HC	180	3.806	1.192	1	5
MC	180	4.261	0.988	1	5
LC	180	3.789	1.062	1	5

From the findings of the study, majority of the farmers agreed that high transaction cost reduce their income. Monitoring cost was the leading with a mean of 4.261, storage cost (mean 3.989), transport cost (mean 3.911), handling cost (mean 3.806) and legal costs (mean 3.789). This

clearly indicated that storage cost has the greatest influence in the independent variable; transaction cost. The findings of this study agrees with the findings of (Coulter, Goodland, Tallontire, & Stringfellow, 1999) who found out that there is high transaction cost in contract farming which could be dealt with by forming farmer groups or farmer- controlled enterprises such as cooperatives. These farmer groups can bargain prices on behalf of the farmers.

4.4.3 Analysis on regulatory framework awareness

The third objective of this study is to establish the influence of regulatory framework awareness; aspect of contract fixed prices on the financial performance of French bean farmers in Kirinyaga County. The responses were classified in a 5 likert scale where 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree. The table 4.6 below depicts the finding of the respondents where DR= reduced number of disputes in fixed price contracts, ICL= increased confidence level in fixed price contracts, FI= there are few numbers of intermediaries in fixed price contracts, RL= I understand regulatory laws and regulations of French bean farming while BC=it is not right to breach a contract.

TABLE 10
Level of agreement with statements on regulatory framework awareness

Variable	Obs	Mean	Standard deviation	Min	Max
DR	180	3.828	1.406	1	5
ICL	180	3.967	1.171	1	5
FI	180	3.428	1.277	1	5
RL	180	3.756	1.028	1	5
BC	180	3.306	1.178	1	5

From the findings of the study on increased confidence level in fixed price contracts was leading with a mean of 3.967, reduced number of disputes (mean 3.828), those who understood the regulatory laws and regulations (mean 3.7556), those who agreed to the statement that there are few number of intermediaries had a mean of 3.428 . The findings clearly indicated

that increased confidence level has the greatest influence on the independent variable; regulatory framework awareness. The findings of this study agrees with those of Ndun'gu (2017), who found out that majority of the farmers had knowledge and skills on regulatory framework and therefore able to handle fixed price contract with a better approach, reducing disputes invloved therefore increasing their income. Ndun'gu, (2017), also found out that knowledge on legal framework reduced disputes between contract farming parties. In addition, Jain (2008) was in agreement with the findings of this study in that, understanding the regulatory framework, specifically formulation of a contract agreement and participation in such agreements reduce disputes in that farmers understand the consequences of breaching such contract. Pultrone (2012), in her study also found out that sound legal and regulatory framework in contract farming creates a good environment for negotiations and guides farmers and buyers towards implementation and hence successful business among the two parties.

4.4.4 Analysis of Technical assistance

The final objective of this study was to find out how various aspects of technical assistance affect financial performance of farmers. The responses were classified in a 5 likert scale where 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree. The table 4.7 below shows the results obtained from the respondents where COF=cost of fertilizers, COS=cost of seeds, COC= cost of chemicals, COSS=cost of spraying services and COCF=cost of credit facility.

TABLE 11
Level of agreement with statement on technical assistance

Variable	Obs	Mean	Standard deviation	Min	Max
COF	180	3.267	1.475	1	5
COS	180	3.256	1.142	1	5
COC	180	3.356	1.552	1	5
COSS	180	3.522	1.481	1	5
COCF	180	3.578	1.510	1	5

From the findings; the respondents were neutral that they were comfortable with the cost at which credit facility were given (mean 3.578), the cost of spraying services (mean 3.522), the cost of chemicals (mean 3.556, the cost of fertilizers (mean 2.744) and finally a mean of 2.733 represented that the respondents were comfortable with the cost of seeds offered to them. The findings of this study indicated that the cost at which credit facility were given had the greatest influence on the independent variable; transaction cost.

4.4.5 Financial performance

The respondents were requested to give answers in a likert scale of 1-5 where 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree on the statement on financial performance where IT=increased training, HTC= high transaction cost, IFRA= increased regulatory framework awareness, TA= technical assistance and FP= fixed prices.

TABLE 12
Level of agreement with statements on financial performance.

Variable	Obs	Mean	Standard deviation	Min	Max
IT	180	4.322	0.802	1	5
HTC	180	4.461	0.828	1	5
IRFA	180	4.178	0.847	1	5
TA	180	3.344	1.649	1	5
FP	180	3.783	1.342	1	5

From the findings above, a mean of 4.461 represented respondents who agreed that high transaction cost reduce their income, increased training followed with a mean of 4.322, followed by increased technical assistance with a mean of 4.178, fixed prices (mean 3.7833), respondents who said that increased regulatory framework awareness reduce their income (4,178) and finally a mean of 3.344 represented the respondents who said that technical assistance reduce their income. The finding clearly indicated that training had the greatest influence on the financial performance of French bean farmers in Kirinyaga County.

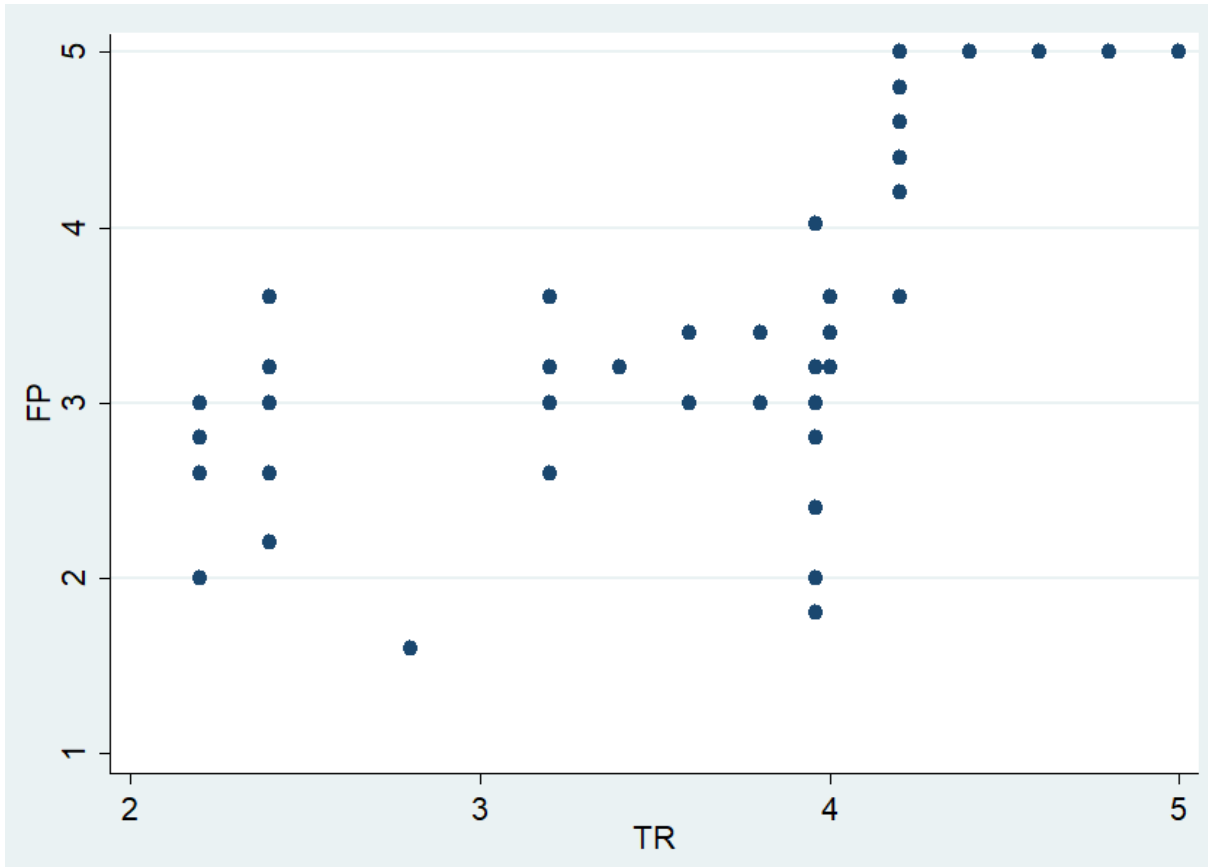
4.5 Diagnostic test

In carrying out statistical procedures, there are basic assumptions that guide them. When these assumptions are violated, the research will not be meaningful and will result to inferences that are not useful (Akenhed & Wilkinson, 2013). So as to verify the basic assumption, this study carried out various diagnostic tests to ensure that; a) there exist a linear relationship between the dependent and each of the independent variables, b) there are no outliers, c) there is no strong correlation between the independent variables or multicollinearity, d) error terms have a constant variance to avoid heteroscedaticity, e) the error terms are normally distributed with a mean of zero.

4.5.1 Test for linearity of variables

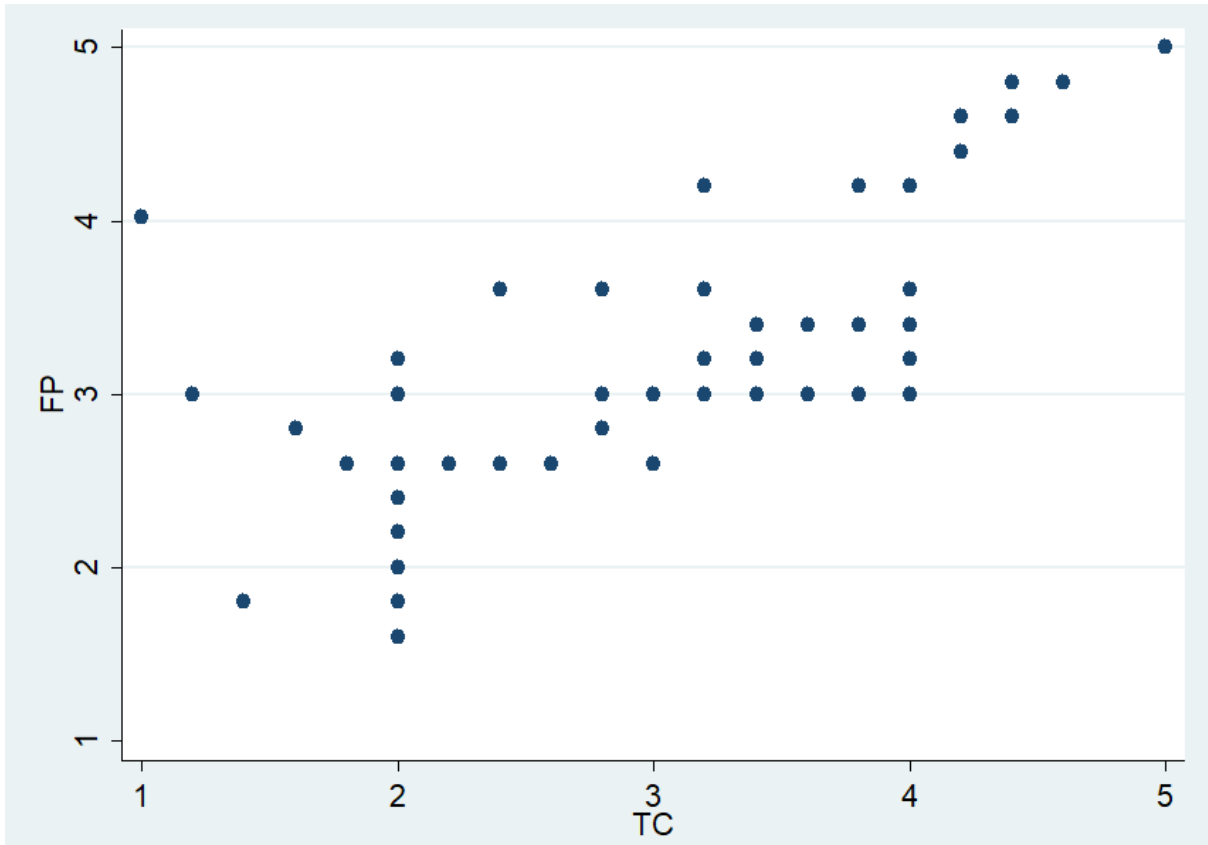
In this study, the check on whether there existed a linear relationship between the dependent and each of the independent variable was done by the use of scatter plot illustrated in the figure 4.1below.

FIGURE 3
Linear relationship between training (TR) and financial performance (FP)



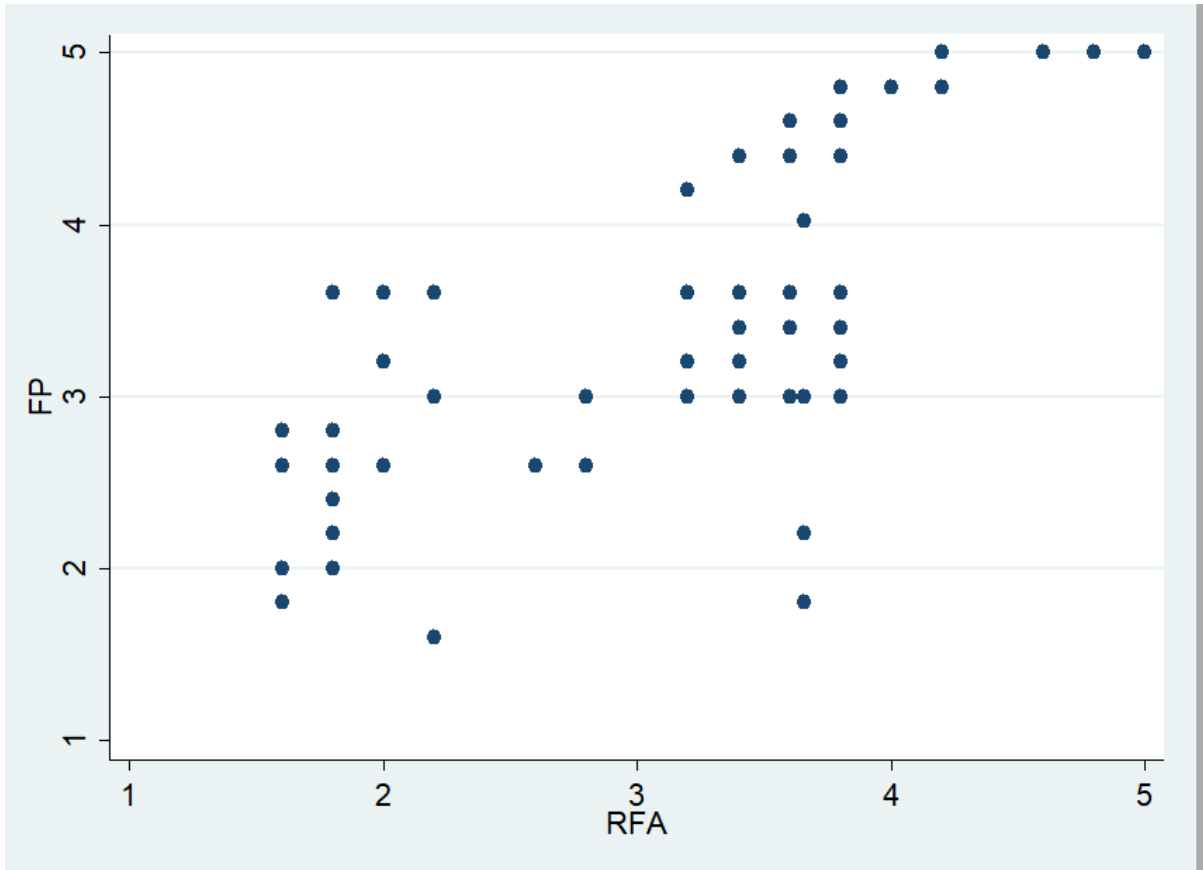
From the figure 4.2 above, it was clear that there existed a linear relationship between training and financial performance.

FIGURE 4
Linear relationship between transaction cost (TC) and financial performance (FP)



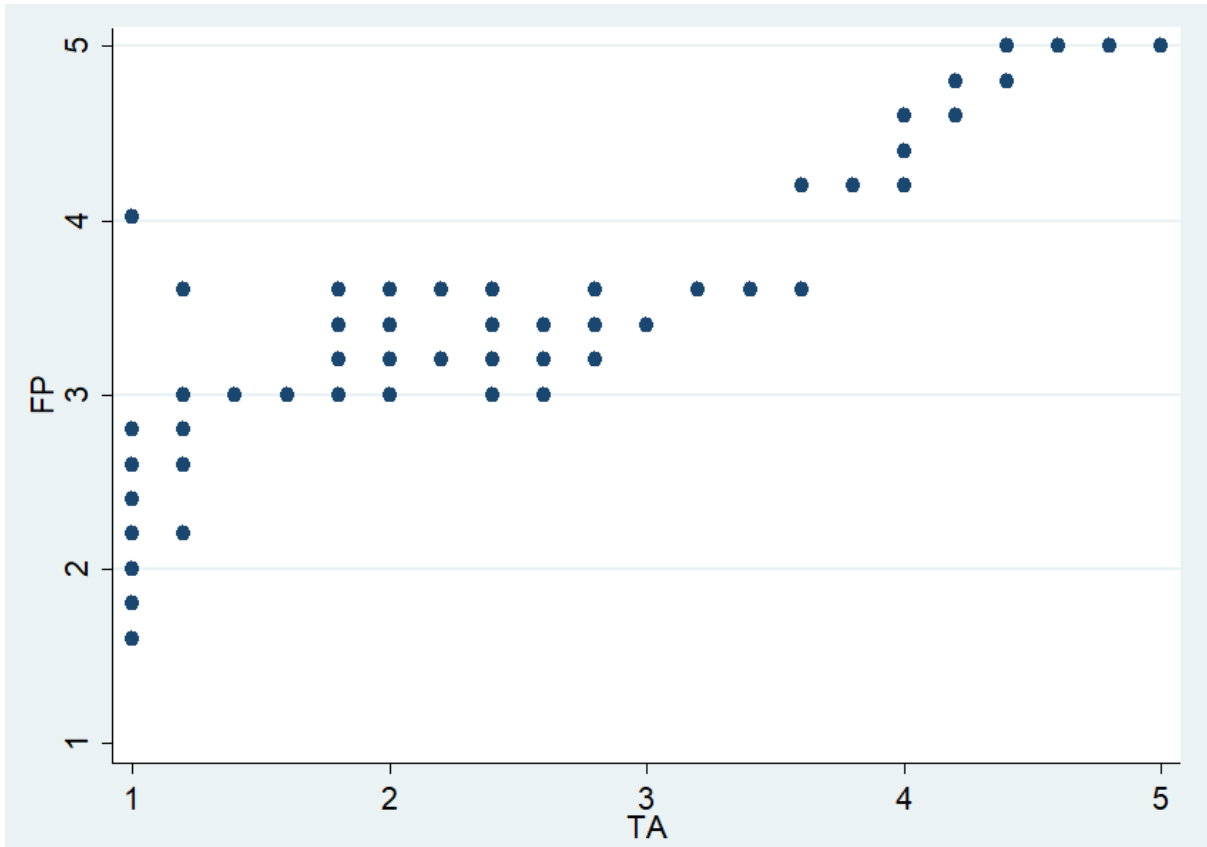
From the figure 4.3 illustrated above, the study met the requirement for a linear relationship since there existed a linear relationship between transaction cost and financial performance.

FIGURE 5
Linear relationship between regulatory framework awareness (RFA) and financial performance (FP)



The third independent variable met the basic requirement of linearity since there existed a linear relationship between regulatory framework awareness and financial performance as illustrated by the figure 4.4 above.

FIGURE 6
Linear relationship between technical assistance (TA) and financial performance (FP)



According to the findings illustrated in the figure 4.5 above, it is clear that technical assistance and financial performance had a linear relationship.

4.5.2: Test for outliers

In this study, check for outliers was done to ensure that the data collected is not skewed which could result to inaccurate results. The results for the check was illustrated by the figures below.

FIGURE 7
Test for outliers in training (TR)

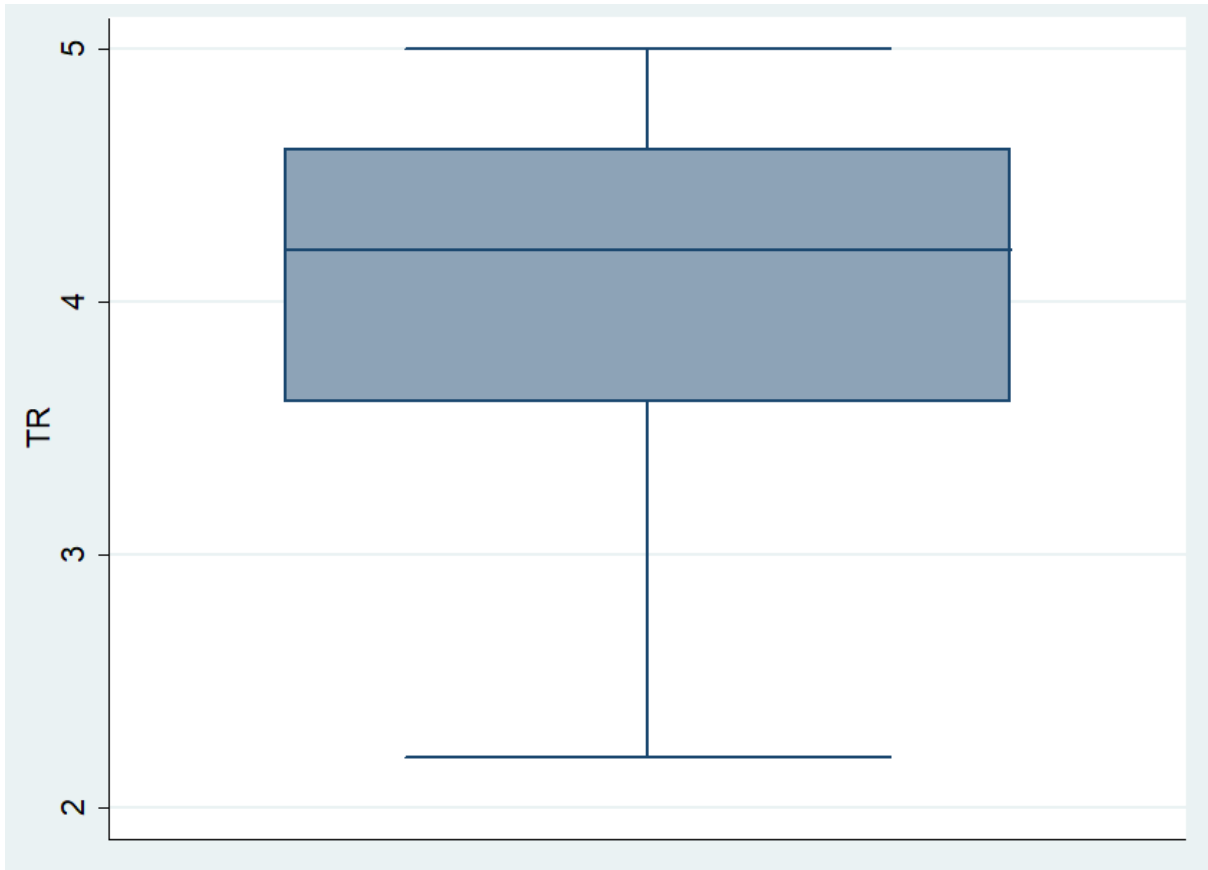


FIGURE 8
Test for outliers in transaction cost (TC)

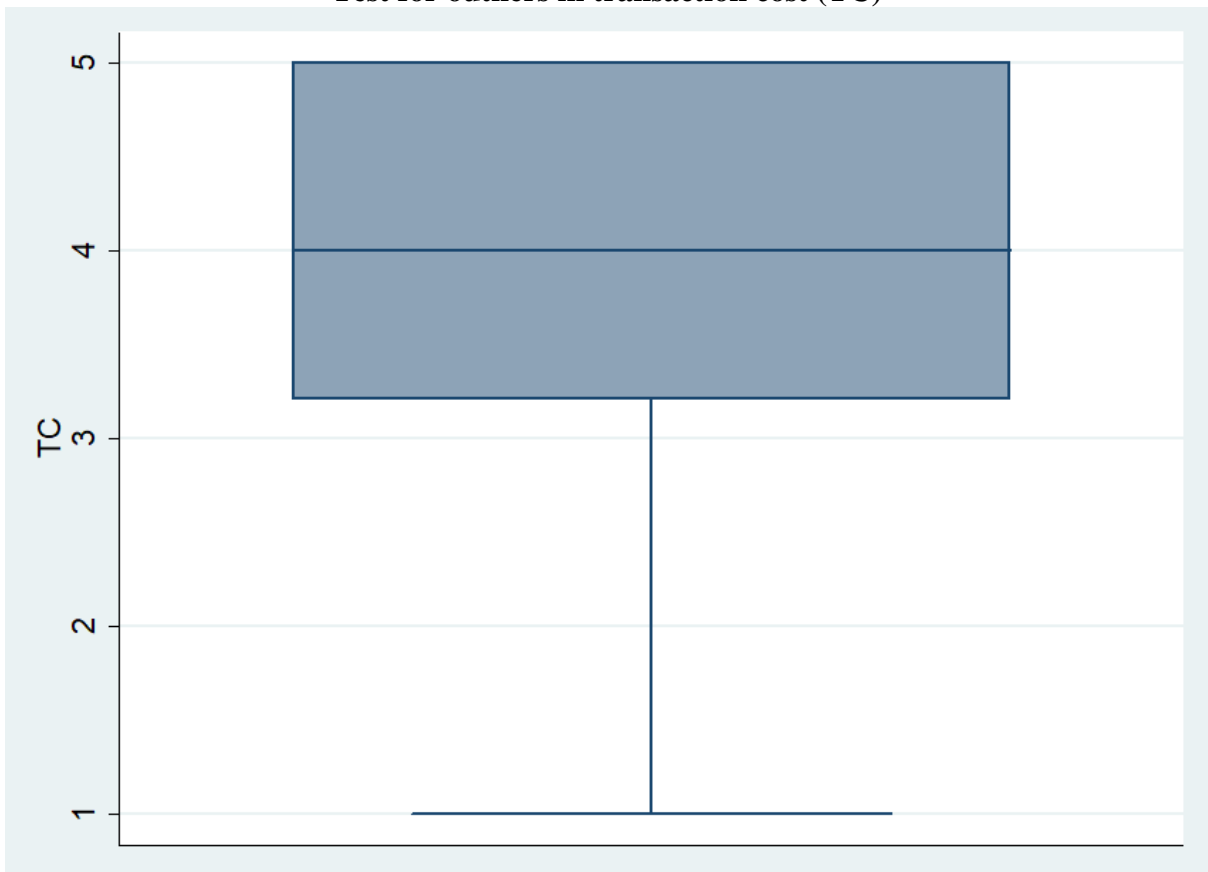


FIGURE 9
Test for outliers in regulatory framework awareness (RFA)

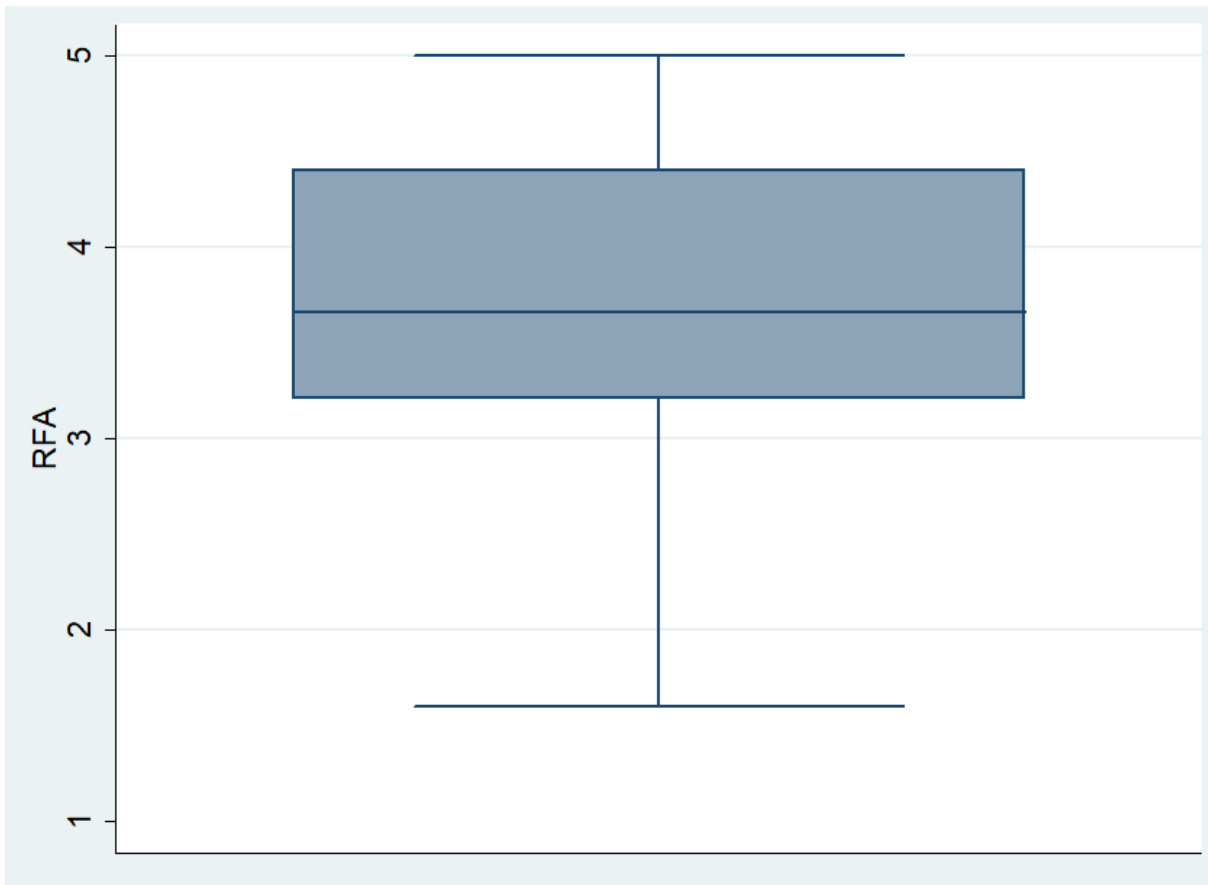


FIGURE 10

Test for outliers in technical assistance (TA)

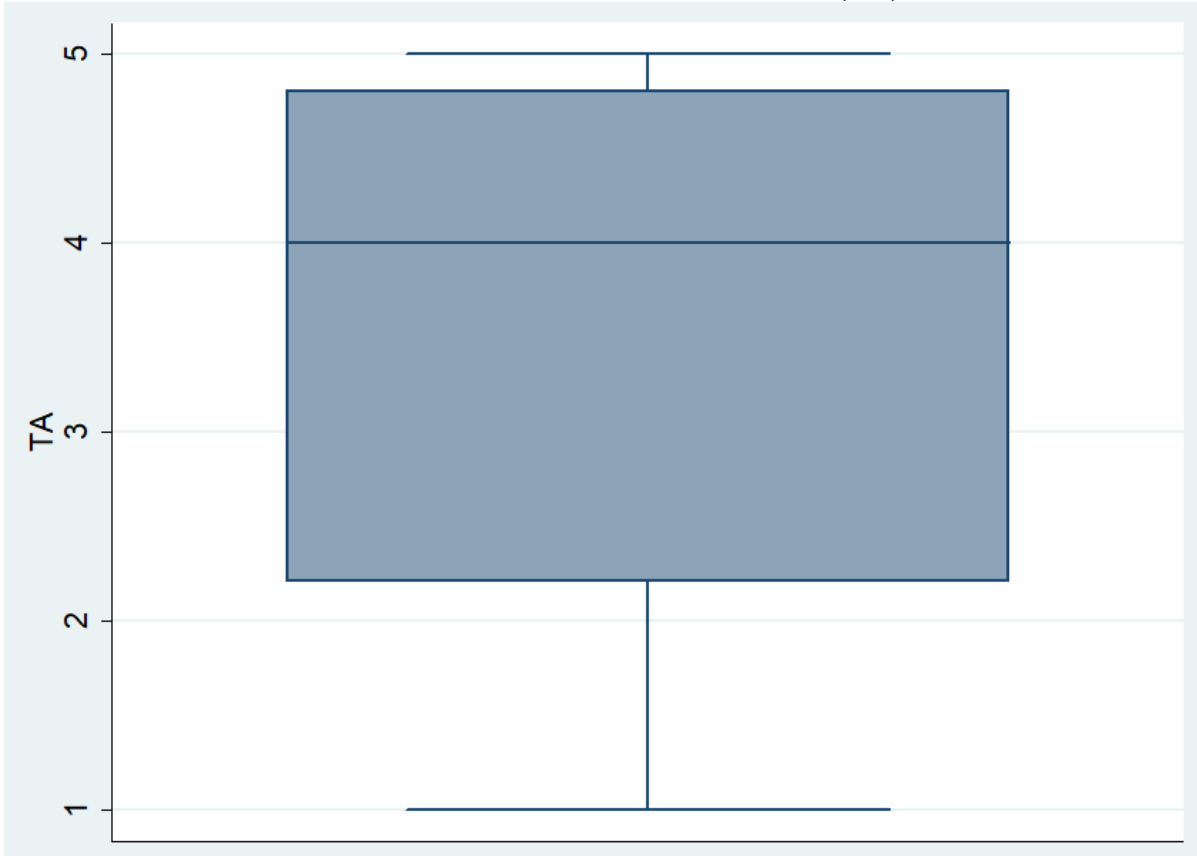
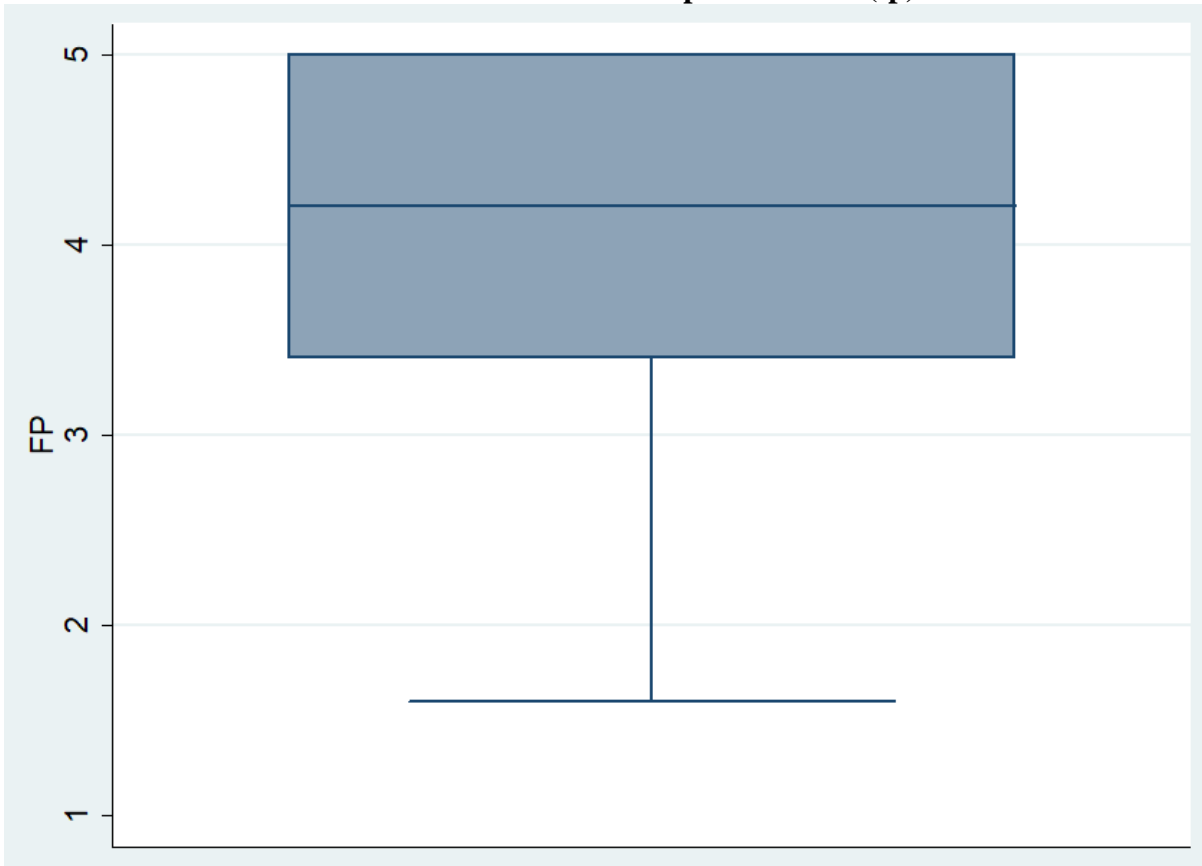


FIGURE 11

Test for outliers in financial performance (fp)



From the figures illustrated above, there were presence of outliers in the independent variables (transaction costs and regulatory framework awareness). The problem was eliminated by replacing the outliers with the respective mean of the variables.

4.5.3 Test for correlation

In detecting correlation between variables, a pworth test for correlation was done. Correlation problem was detected and a transformation was done by use of logarithm. The table 4.9 below indicate the test for correlation.

TABLE 13
Correlation analysis.

Variable	FP	Log TR	Loglog TC	Log rfa	LoglogTA
FP	1.0000				
Log TR	0.7948	1.0000			
Loglog TC	0.7798	0.6625	1.0000		
Log rfa	0.7959	0.8092	0.7346	1.0000	
LoglogTA	0.8060	0.8292	0.7523	0.7329	1.0000

4.5.4 Test for multicollinearity

Multicollinearity test was carried out in this study by the use of Variance Inflation Factor (VIF).

In normal circumstances, VIF of more than 10 indicate presence of multicollinearity.

TABLE 14
Vif test of multicollinearity

Variable	VIF	1/VIF
TA	7.08	0.141
TC	6.55	0.153
RFA	5.06	0.197
TR	4.93	0.203
Mean VIF	5.91	5.91

From the findings in the table 4.10 above, technical assistance had a VIF of 7.08 followed by transaction cost (mean 6.55), regulatory framework awareness (mean 5.06) and finally training with a mean of 4.93. In addition, the overall mean was 5.91 which means that there was no multicollinearity.

4.5.4: Test for heteroscedasticity

Heteroscedasticity occurs when the variance of the error terms are different across observations. According to Godfrey (1996), it is carried out to find out whether there is a difference in residual variance of observations from one period to another. This study followed the same steps with Glejser test (1969) who conducted residual regression value of the independent variables. This was on the assumption that when the p-value is more than 0.05, then there is no heteroscedasticity problem. The results of this test in this study were presented in the table 14 below.

TABLE 15
Estat hettest test

Breusch-pagan/cook-weisberg test for heteroskedasticity	
H0: Constant variance	
Variables:fitted valus of fp	
Chi2 (1)	=1.78
Prob> Chi2	=0.1817

H0, the residuals have a constant variance

H1, the residuals do not have constant variance

As illustrated in table 4.11 above, the p. value 0.1817 is more than 0.05, and therefore H0 was not rejected.

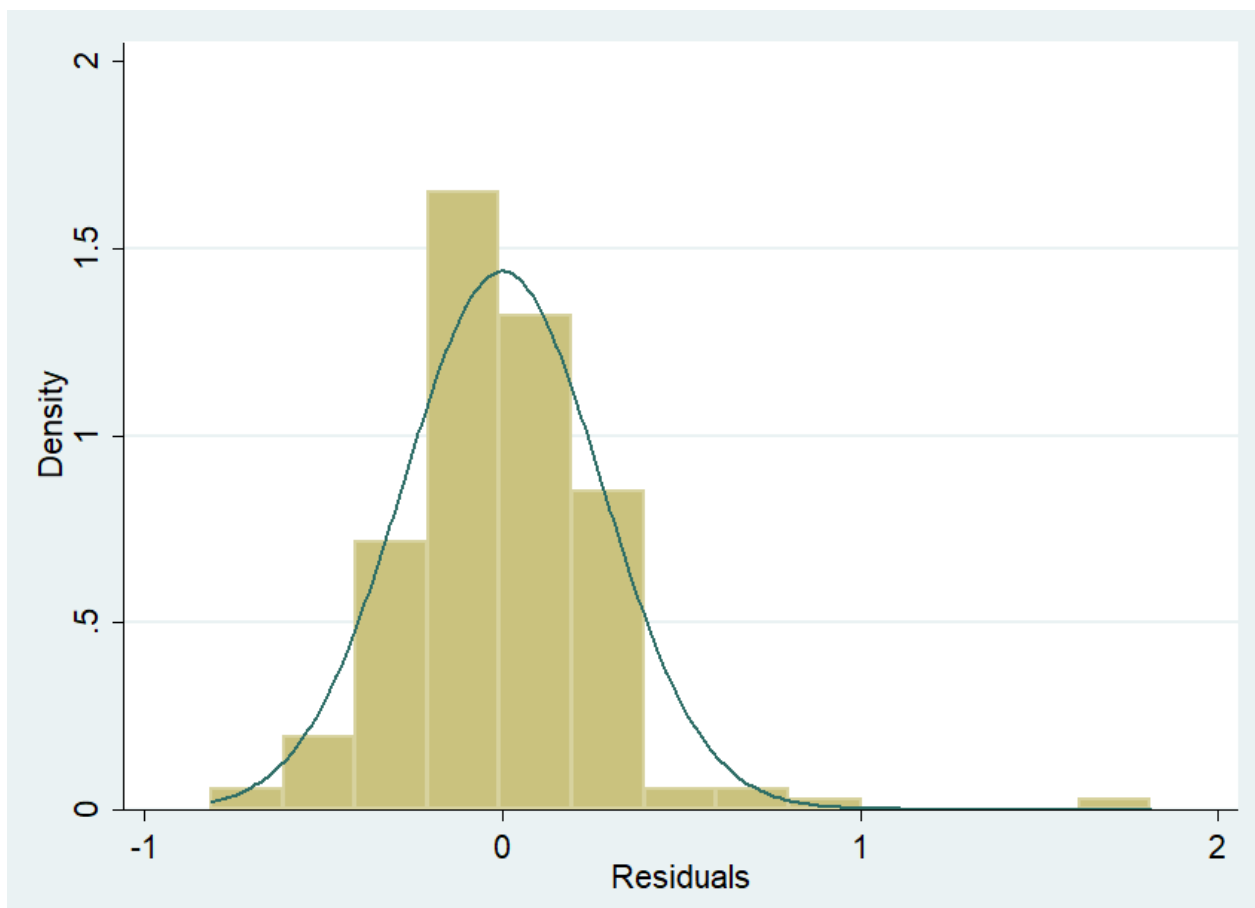
4.5.5 Test for normality of residuals

This study used regression analysis on assumption that the residual are normally distributed. However, to ensure that the results are accurate and reliable, a histogram was done to ensure that normality test was achieved. According to Field (2013), results should be rendered inaccurate and unreliable depending on the phenomenon under consideration if normality of residuals is not achieved. Thode (2002) also confirmed that Shapiro-Wilk Test uses less power to measure and detect values in the test of normality and therefore recommended to researchers. What is more, since this study had a sample greater than 30, a single Shapiro-Wilk Test for

normality was just enough since non-normality would not significantly affect parametric tests (winter, 2013).

According to Barton & Peat (2005), results showing a small value of W indicates that the sample population is not normally distributed and therefore the null hypothesis that the population is normally distributed should be rejected. In this study, a histogram was used and the results shown in the graph shown in figure 4.11 below.

FIGURE 12
Normal distribution of variables



4.6 Model fitting

The study utilized a simple regression model to find out the relationship between the predictor variables and financial performance of French beans farmers. In conducting this study, the researcher utilized excel spreadsheet to code the data collected and data analysis was done by the use of stata software to come up with a regression model. Due to the problem of heteroscedasticity detected, robust regression model was used so as to eliminate this problem. The coefficient of determination obtained from the robust regression model was used to explain the relationship between the dependent and the independent variables. The dependent variable in this study was financial performance while the independent variables were training, transaction cost, regulatory framework awareness and technical assistance.

4.6.1 ANOVA results

The results of the relationship between financial performance of French bean farmers and the predictor variables. The results were presented in the table 4.12 below.

TABLE 16
Anova results

Source	SS	df	MS	Number of observations=161
Model	69.39	4	17.38	F(4,156)=98.22
Residual	27.55	256	0.177	Prob>F=98.22
Total	96.95	160	0.606	R-Squared=0.7158 Adj R-Squared=0.7085 Root MSE=0.42028

H0: The model is not useful in predicting financial performance

Ha: The model is useful in predicting financial performance

The results shown in the table above shows the strength of relationship between the financial performance of French beans in Kirinyaga County and the independent variables. As indicated by the coefficient of determination, there exist a strong relationship between the dependent and the independent variables given an R squared of 0.7158 and an adjusted R-squared of 0.7085. This results indicated that the independent variables; training, transaction cost, regulatory

framework awareness and technical assistance explains for 71.58% of the variations of the dependent variable (financial performance). Therefore, this means that 28.42% of the variation is explained by the error term. The Analysis of Variance (ANOVA) was used to assess whether there existed significance relationship between the independent and the dependent variables which in turn determines if the regression model is significant. As per the table above, the model has a p value of 0.000 which indicate that the probability of the model giving false prediction is zero and therefore the model was appropriate.

To determine the financial performance of French beans farmers, the mean results from all the question from each objective was used. A simple robust regression model was then constructed. The results shows that when training, transaction cost, regulatory framework awareness and technical assistance are kept constant, then, financial performance of French bean farmers was 1.597 as indicated by the below table 4.13.

TABLE 17
Regression model

FP	Coefficients	Robust std error	t	p>t	95% confidence	interval
Log TR	1.2792	0.5555	2.30	0.023	0.1820	2.376
Loglog TC	0.3170	0.3753	0.84	0.393	-0.4242	1.0583
Log RFA	0.4756	0.3287	1.45	0.150	-0.1737	1.1248
LoglogTA	0.6421	0.2600	2.47	0.015	0.1285	1.557
Constant	1.597	0.614	2.60	0.010	0.3841	2.8091

a. Predictors: (Constant), training, transaction cost, regulatory framework awareness and technical assistance.

b. Dependent Variable: financial performance of French bean farmers in Kirinyaga County

In the questionnaire used in this study, each objective five questions. This study obtained the mean of all the five outcomes for each respondent for the purpose of analysis. The mean was preferred since it could give accurate results. From the findings of the table above, the study found out that holding training. Transaction cost, regulatory framework awareness and technical assistance at zero, financial performance of French bean farmers will be 1.596. What is more, holding transaction cost, regulatory framework awareness and technical assistance constant, one unit increase in training will lead to increase in financial performance by 1.2799($p=0.023$). Transaction cost was not significant in explaining financial performance since the p value of 0.399 was more than 0.05. Also, regulatory framework awareness was not significant in explaining financial performance since the p value (0.15 was more than 0.05 as well. A unit increase in technical assistance lead to increase in financial performance by 0.642 holding training. Transaction cost and regulatory framework awareness constant. From the above findings, training and technical assistance are significant in explaining financial performance of French bean farmers in Kirinyaga County. Since transaction cost and regulatory framework awareness are not significant in explaining financial performance of French bean farmers in Kirinyaga County, the fitted model becomes; $(Y= 1.562+ 1.812X1+ 0.767X4 + \epsilon)$

TABLE 18

Robust regression model

Number of observations=161
 $F(4, 158)=63.68$
 $\text{Prob}>F=0.0000$
 $R\text{-squared}=0.7043$
 $\text{Root MSE}=0.42593$

FP	Coefficients	Robust std error	t	p>t	95% confidence	interval
Log TR	1.811	0.363	4.99	0.000	1.094	2.529
LoglogTA	0.767	0.1735	4.42	0.000	0.4237	1.109
Constant	1.597	0.506	3.09	0.002	0.5624	2.561

a. Predictors: (Constant), training, transaction cost, regulatory framework awareness and technical assistance.

b. Dependent Variable: financial performance of French bean farmers in Kirinyaga County

From the findings of the table above, the model explained 70.43% of variance in financial performance. Holding training and technical assistance constant, one unit increase in training will lead to increase of financial performance by 1.812. The p-value for training is 0.000. Consequently, one unit increase in technical assistance leads to increase in financial performance by 0.767 and the p-value of technical assistance is 0.000.

The findings of this study are similar to those of Ndun'gu (2017), who analyzed influence of contract farming on marketing of farm produce. From his study, he found out that in various areas where the farmers received training such as training on food safety and standards for example health and hygiene, harvesting techniques and post harvesting technology, there was increased income. Also, his study demonstrated other areas where farmers rarely received any training such as marketing and marketing chain, role of intermediaries in marketing chain, crop husbandry, contract farming agreement and this led to reduced financial performance. The findings of this study agreed with the report from the Ministry of Food and Agriculture Atlanta United States of America (2003), which states that farmers and especially small scale should be regularly trained on the best possible production methods to ensure minimized costs of production and therefore help them realize higher profit margins (MFA, 2003). The findings to this study agree with those of Afenyo (2015) where in his study, *Making Small Scale Farming Work in Sub Saharan Africa*, he found that training of small scale farmers in new skills and knowledge help them respond efficiently to their ever evolving challenges and further increase their performance.

Just like the finding of this study, Ndun'gu(2017), established that provision of inputs to small scale farmers on credit presented several benefits to them since farmers used the money they could have spent on buying inputs on other beneficial projects. Further in his study, Ndun'gu, (2017) found out that technical support which includes providing inputs on credit such as

fertilizers, quality seeds agrochemicals among others, help the small scale farmers engage and manage other farm activities hence very important. The findings of this study were also in agreement with those of Eaton & Shepherd and Hoeffler &, Kathrin 2001 where they state that providing inputs to small scale farmers on credit help the farmers accelerate the transfer of the latest technologies to the rural areas increasing their income. However, the findings of this study do not agree with those of IFAD (2003), who carried out a study on Agricultural Marketing Companies as a Source of Small Holder Credit in Eastern and South Africa, where it was established that despite the high risk associated with provision of inputs on credit terms, most buyers were still willing to give small scale farmers inputs on credit given the fact that the benefits were more than the losses. The study by IFAD (2003) further established that, the buyers in most cases would calculate the equivalent of the loss if the small scale farmers default the loan repayments and compare it to the gain of the volumes of the produce delivered by the small scale farmers. That is, the value of the profits gained from purchase of the produce under contract farming.

4.6.2 Analysis of the coefficients

TABLE 19
Overall output model

Predictor Variables	Beta coefficients	Standard error	t-value	p-value
Constant	1.597	0.613	2.60	0.010
Training	1.279	0.555	2.30	0.023
Transaction cost	0.317	0.375	0.84	0.399
Regulatory framework awareness	0.476	0.328	1.45	0.150
Technical assistance	0.642	0.26	2.47	0.015

From the table 4.15 above, in absence of the independent variables, financial performance was 1.595. The level of significance is determined by the t value as well as the p value. If $p \text{ value} < 0.05$ and $-2 < t \text{ value} < +2$ then, the predictor variable is significant and therefore should be discussed in the model. Training had a t value of 2.3 and a p value of 0.023 therefore significant. Transaction cost had a t value of 0.84 and a p value of 0.399 and therefore not significant. Brouthers, K. D. (2002), in his study agreed with and added additional support for those scholars (Brouthers & Brouthers, 2000; Delios & Beamish, 1999; North, 1990; Kogut & Singh, 1988) who suggested that the explanatory power of transaction cost could be improved by including aspects of both the institutional and cultural context. This clearly indicated that, the transaction cost objective was not statistically significant in this study since it did not include all the aspects possible. What is more according to him, extended transaction cost influence both financial and non-financial performance.

Regulatory framework awareness had a t value of 1.45 and a p value of 0.15 hence not significant. This was supported by the findings of (Eaton, C., & Shepherd, A. 2001) who concluded that despite contract arrangement complyin with the rules and regulations of a country, it is important to consider the societal attitudes and prevailing practices towards contractual obligations because in almost all societies these factors can produce outcomes that differs from the formal letter of the law. This supports why the five aspects considered in this study could not be significant. Technical assistance had a t value of 2.47 and p value of 0.015 therefore significant in the model. Holding all the other variables constant, one unit change in training will lead to change in financial performance by 1.279 while one unit change in technical assistance will lead to change in financial performance by 0.642. The regression model therefore is: $FP = 1.597 + 1.279TR + 0.642TC$ where FP= financial performance, TR=training and TC=Technical assistance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter presented summary of findings, conclusions and recommendations of the influence of contract fixed prices on the financial performance of French bean farmers in Kirinyaga County.

5.2 Summary of Findings

This section presented the summary of findings of the study. The study sought to establish various areas training carried out and technical assistance on French bean farmers. The study established that training and technical assistance were statistically significant in determining financial performance of farmers in Kirinyaga County. Transaction cost and regulatory framework awareness were not statistically significant in determining the financial performance of French bean farmers in Kirinyaga County.

5.2.1. *Findings on training*

According to the findings of this study, training was found to be statistically significant in explaining the variance of financial performance. A unit increase in training holding technical assistance constant will lead to increase in financial performance of French bean farmers in Kirinyaga County by 181.2% ($p=0.000$). The respondents agreed that training on pest and diseases control (4.244), followed by training on farm records increase their income (mean 4.18), training on safety standards (3.839), training on the role of middlemen and brokers (3.806) and new technology and methods increase the income of farmers (3.722). The findings of this study agreed with those of Ndun'gu, (2017), who established that training affects income of farmers.

5.2.2. *Findings on transaction cost.*

In this study, technical assistance was found not to be significant in explaining the variance in financial performance of French bean farmers in Kirinyaga County. Majority of the respondents agreed that high transaction cost reduce their income. Monitoring cost was the leading with a mean of 4.261, storage cost (mean 3.989), transport cost (mean 3.911), handling cost (mean 3.806) and legal costs (mean 3.789). The findings of this study contradicted with those of Kagwiria (2017), who argued that transaction costs reduce farmers income. This study

established that the reasons would be that transaction cost are charged at the market rate and therefore no cost benefits as per say (Ministry of Food and Agriculture, 2003).

5.2.3. Findings on regulatory framework awareness

Regulatory framework awareness was found not to be statistically significance in explaining the variance in financial performance. As per the finding of this study, increased confidence level in fixed price contracts was leading with a mean of 3.967, on reduced number of disputes (mean 3.828), those who understood the regulatory laws and regulations (mean 3.7556), those who agreed to the statement that there are few number of intermediaries had a mean of 3.428. Regulatory framework are standards and do not change from time to time (Pultrone, 2012). This explains why in this study it was not significant.

5.2.4. Findings on technical assistance

This study found technical assistance to be statistically significant in explaining the variance in of financial performance of French bean farmers in Kirinyaga County. Holding training constant, one unit increase in technical assistance leads to increase in financial performance of French bean farmers by 76.65% and with $p=0.000$. This study established that respondents were neutral that they were comfortable with the cost at which credit facility were given (mean 3.578), the cost of spraying services (mean 3.522), the cost of chemicals (mean 3.556, the cost of fertilizers (mean 2.744) and finally a mean of 2.733 represented that the respondents were comfortable with the cost of seeds offered to them. The findings of this study concides with those of (Ndun'gu, 2017).

5.2.5. Findings on financial performance

In regard to financial performance, the respondents agreed that, that high transaction cost reduce their income, increased training followed with a mean of 4.322, followed by increased technical assistance with a mean of 4.178, fixed prices (mean 3.7833), respondents who said that increased regulatory framework awareness reduce their income (4,178) and finally a mean of 3.344 represented the respondents who said that technical assistance reduce their income.

5.3 Conclusion of the study

From the regression analysis, the study concluded that at 5% significance level and 95% confidence level, training and technical assistance influence financial performance of French beans farmers in Kirinyaga County. Both training and technical assistance have a positive influence on financial performance. An increase in training increase financial performance of French beans farmers. What is more, an increase in technical assistance increase financial performance of French bean farmers as well. At 5% level of significance and 95% confidence level, transaction cost and regulatory framework awareness was found to be statistically insignificant. This study concluded that training on new production methods and technology, farm records, role of middlemen, pest and disease and food safety positively contribute to the performance of French bean farmers in Kirinyaga County. Technical assistance to farmers in terms of providing seeds, fertilizers, chemicals, spraying services and providing credit facility positively influence financial performance.

5.4. Recommendations for the Study

This study focused on the influence of fixed price contracts on the financial performance of French beans farmers in Kirinyaga County. Training and technical assistance were said to have a significance positive influence to financial performance. In practice, this study will help parties to fixed price contracts to ensure that training is done to farmers. Also, is advisable to provide technical assistance. This will create good customer relationship between the contracting parties in that it is cheaper for contracting to obtain economies of scale benefit from buying inputs in bulk and sell to farmers at a subsidized price and ensure quality. Technical assistance will also encourage farmers to engage in fixed price contracts especially in cases where farmers do not enough capital. This makes them not shy off from engaging in these contracts. However, this study could not make recommendations on transaction cost and regulatory framework awareness since they were found to be statistically insignificant. The

findings of this study are very useful to person who would like to engage in fixed price contracts. Very few research work has been done of fixed price contracts and therefore, this study will be helpful to future researchers. French bean farmers can use this study to identify areas of improvement to ensure maximum benefits from fixed price contracts at minimum cost.

5.4.1 Recommendations for training

In this study, training was found to be statistically significant in explaining the variance of financial performance. In most cases, farmers should be training on new production technology and methods, food safety standards such as International Food Safety Standards and compliance, role of middlemen and brokers, pest and disease control including chemical use and handling and keeping farm records. These aspects are said to have a positive influence to financial performance.

5.4.2 Recommendations for transaction cost

According to the findings of this study, transaction cost was said to be statistically insignificant. This limited the researcher from making any recommendations.

5.4.3 Recommendations for regulatory framework awareness

Regulatory framework awareness was also said to be statistically insignificant. This fact as well limited the researcher from making any recommendations

5.4.4 Recommendations for technical assistance.

The findings of this study found technical assistance to be statistically significant. Technical assistance has various aspects such as provision of seeds, fertilizers, chemicals, spraying and credit facility which are found favorable in fixed price contracts. Parties to fixed price contracts are therefore encouraged to embrace technical assistance to boost the financial performance of French bean farmers.

5.5. Limitations of the Study

The study concentrated on French bean farmers in Kirinyaga County and not all the farmers in the whole country, Kenya. Therefore, the results of the study may also be limited to benefit French beans farmers in Kirinyaga County and not the whole country. Due to the self-report nature of data which entailed the use of questionnaires, responses on the survey may not accurately convey their real involvement in fixed price contracts. Some respondents did not return the questionnaires resulting to fewer number of respondents than the expected which in turn affected statistical reporting in this study. Moreover, this data relied on primary data which makes it very hard to verify unlike secondary data.

Finally due to limited time and resources required to carry out the study, various fixed price contract was not covered. This could be important because it would provide a national wide picture. Also, it would be important to potential investors and farmers who are interested in fixed price contracts.

5.6. Suggestions for Further Research

Research should be carried out to other French beans farmers in other counties to establish whether training and technical assistance improve their performance and also establish what other factors influence financial performance. Other countries with similar micro and macro environment should also research on fixed price contract and their influence on financial performance. This will ensure cross-country comparison. A study should be conducted to find out how socio-economic status of the small scale french beans farmers for example age, gender, education, influences their involvement in fixed price contracts in Kirinyaga County. Future studies should apply different research instruments like focus group discussions so as to involve respondents in focus group discussions as opposed to use of questionnaires used in this study in order to generate detailed information on fixed price contracts.

REFERENCES

Abebe,G.K.,Bijman,J.,Kemp,R.,Omta,O.,& Tsegaye,A. (2013). Contract Farming Configuration. *Smallholders' preference for contract design attributes*, 14-24.

Afenyo, S. J. (2015, 01 10). Making Small Scale Farming Work In Sub- Saharan Africa.

Agriculture, M. o. (2003). Best management practices: Field crop production. A field production book.

- Artz, K.W.,Brush,T.H. (2000). Asset Specificity,uncertainty and relationship norms. *An examination of coordination costs in collaborative strategic alliances J Econ.behav .Organ.*, 337-362.
- Authority, H. C. (2002). Horticulture export performance. 5-6.
- Bellemare, M. (2010). Agricultural extension and imperfect supervision in contract farming:evidence from Madagascar. *Agricultural Economics*, 507-517.
- Bhattacharjee, A. (2012). Social Science Research:Principles, Methods and Practices. (U. o. Florida, Ed.)
- Boehlje, M. (2000). Critical dimentions of structural Change. (D. o. University, Ed.)
- Brouthers, K. D. (2002). Institutional, cultural and transaction cost influences on entry mode choice and performance. *Journal of international business studies*, 33(2), 203-221.
- Brouthers, L.E., K.D. Brouthers, & S. Werner. 2000. Perceived Environmental Uncertainty, Entry Mode Choice and Satisfaction with EC-MNC Performance. *British Journal of Management*, 11: 183-195
- Catelo,M.O. and Costales.a. (2008). Contract Farming and other market institutions as mechanisms for intergrating smallholder livestock producers in the growth and development of the livestock sector in developing countries.
- Daniel,N. and Hanson,S. (2013, January). Innovation for improved agricultural service delivery. *Increasing private extension and the case of One Acre Fund*.
- Delios, A. & P.W. Beamish. 1999. Ownership Strategy of Japanese Firms: Transactional, Institutional, and Experience Influences. *Strategic Management Journal*, 20: 915-933.

- De Winter, J. C. (2013). Using the Student's t-test with extremely small sample sizes. *Practical Assessment, Research, and Evaluation*, 18(1), 10.
- Dolan, C. ,Humphrey,J. and Harris-Pascal,C. (2002). Horticulture commodity chains: the impact of the Uk market on the African fresh vegetable industry. 96.
- Eaton,C. and Shepherd,A. (2001). Contract Farming: "Partnership for growth,".
- Freidberg,S.E. & Freidberg,S. (2004). French beans and food scares: Culture and commerce in an anxious age.
- Glejser, H. (1969). A new test for heteroskedasticity. *Journal of the American Statistical Association*, 64(325), 316-323.
- Godfrey, L. G. (1996). Misspecification tests and their uses in econometrics. *Journal of Statistical Planning and Inference*, 49(2), 241-260.
- Golafshani, N. (2013). Understanding reliability and validity in qualitative research. 597-606.
- Gow,H.R and Swinnen J.F.M. (2001). Private Enforcement Capital and Contract Enforcement in Transition Economies. *American Journal of Agricultural Economics*, 83, 686-690.
- Guo, H., Jolly,R W., & Zhu, J. (2005). Contract Financing in China: Supply chain or ball and chain?
- Harris,C.,Hegarty,P.V., Kherallah,C.A., Mukindia,J.A., Ngige,P.A. Stems and Tatter,J. (2000). The impact of standards on food sector in Kenya. 5-26.
- Hayes, D. (2000). Transaction Costs Economics and the Evolving Structure of Agricultural Production. (C. M. Schmitz T.G, Ed.) *In Ecommerce in Agribusiness*.
- Heide, J.B., John,G. (1992). Do Norms Matter in Marketing Relationships? 32-44.

- Humphrey, J. and O. Memedovic. (2006). Global Value chains in the agrifood sector. *United Nations Industrial Development Organization*.
- Icheria, B. (2012). Household food security and coping strategies among smallscale farmers in Tharaka Central Division, Kenya.
- International Fund for Agricultural Development. (2003). A Policy Paper on Agricultural Marketing Companies as a Source of Smaller Credit in Eastern and South Africa: Experiences, Insights and Potential for Donor Role. Eastern and Southern Africa Division 2003.
- Israel, G. D. (1992). *Determining sample size*.
- Jaeger, P. (. (2010). Smallholders: How to involve small scale farmers in commercial Horticulture.
- Jaffe, S. (2003, May). From Challenge to Opportunity. (W. Bank, Ed.) *The transformation of the Kenyan Fresh Vegetable Trade in the context of Emerging Food Safety and Other Standards*.
- Kagwiria, F. (2017). Factors influencing contractual farming in Kenya. A case of Buuri Constituency, Meru County, Kenya.
- Kathrin, S and Heike, H. (2006). Contract farming in Kenya: Theory, Evidence from selected value chain and implication for development cooperation.
- Kerlinger, F. (1973). Foundations of Behavioral Research.
- Key, n. & Rusten, D. (1999). Contract farming, smallholders, and rural development in Latin America: the organization of agroprocessing firms and the scale of outgrower production. *World development*. 381-401.

- Kimenyé, L. N. (1993). The Economics of Smallholder French Bean Production and Marketing.
- Kogut, B. & H. Singh. 1988. The Effect of National Culture on the Choice of Entry Mode. *Journal of International Business Studies*, (Fall): 411-432.
- Kothari, C. (2003). *Research Methodology, methods and techniques*.
- Kudadjie Freeman, C., Richards, P., Struik, P. C. (2008). Unlocking the Potential of Contract Farming: lessons from Ghana.
- Llewellyn, K. (1930). What Price contract.
- Lucas, L., Gasselin, P., & Van der Ploeg, J. D. (2016). Increasing searches for autonomy among French beans farmers: a starting point for agroecology in proceeding of the 12th European IFSA Symposium.
- Luh. (2007). The role of guanxi in buyer-seller relationships in China. *A Survey of Vegetables supply chain in Jiangsu Province, 1*.
- Mandola, M and Kumwenda, I. (2005). The Status of Contract Farming in Malawi.
- Mbwesa, J. (2006). *Introduction To Research Methods and Techniques*.
- McCulloh, N. a. (2002). Export horticulture and poverty in Kenya.
- Menard, C. (2004). The Economics of hybrid organizations. 1-32.
- Mikalitsa, S. (2010). Gender specific constraints affecting technology use and household food security in Western province of Kenya.
- Minot, n., & Benson, T. (2009). *Fertilizer Subsidies in Africa: Are vouchers the answer?*
- Minten, B. (2009). Global retail chains and poor farmers: evidence from madagascar. *World Development* 37, 1728-1741.

- Mitaya,S. ,Minot,N. and Hu,D. (2009). World Development. *Impact of contract farming on income:linking small farmers, packers, and supermarkets in China*, 37, 1781-1790.
- Mitchell, T. (2011, November). *Middlemen, Bargaining and price Information:Is Knowledge power?*
- Mugenda, A. (2008). Social Science Research.Theories and Principles.Applied Research and Training Services.
- Mugenda, A. (2011). Social Science Research Methods:Theory and Practice.
- Mugenda, A. (2013). Qualitative Research Methods.
- Mugenda, O. a. (2003). Quantitative and Qualitative Approaches. *Research Methods*.
- Muhammad,A and Raza,A. (2011). *Small Growers at the Mercy of the Middlemen*.
- Mungai, N. (2004, May). "EU rules could destroy horticulture. *the protocol on good agricultural practices will have a profound impact on both large and small scale farmers, although the biggest impact will be on the latter.*", 11.
- Mungai, N. (2004). EU rules could destroy horticulture: the protocol on good agricultural practices will have a profound impact on both large and small scale farmers although the biggest impact will be on the latter. 11.
- Murimi, J. (2004, May). EU "safety rules to cost Kenya shillings 62 billion". 20.
- Mwambi,M.,Oduol,J,Mshenga,p. and Said,M. (2016). Journal of Agribusiness in Developing and Emerging Economies. *Does Contract Farming improve smallholder income?The case of avocado farmers in Kenya*, 6, 2-20.
- Mwikaya, M. S. (2013, September 10). European export ban hits farmers as vegetable sales drop by 18.7pc. Business. *Business Daily, Money markets*.

- Ndun'gu, P. (2017). Influence of contract farming on marketing farm produce. A case of small scale french beans farmers in Kutus location, Kirinyaga County, Kenya.
- Nnadi, F Chikaire, J. ,Atoma, C . ,Egwuonwu, H and Echetama, J. (2012). Science Journal of Agricultural Research Management. *ICT for agriculture knowledge management in Nigeria: lessons and strategies for improvement, 2012, 8.*
- North, D.C. 1990. Institutions, Institutional Change and Economic Performance. Cambridge: Cambridge University Press.
- Orodho, A. (2004). Techniques of writing Research Project and reports in educational Sciences.
- Oya, C. (2012). Contract Farming in Sub Saharan Africa: A survey approaches, debates and issues. *Journal of Agrarian Change, 1-33.*
- Peat, J., & Barton, B. (2005). Medical statistics. *A guide to data analysis and critical appraisal. Oxford: Blackwell Publishing Ltd.*
- Platteau, J. (2000). Institutions ,social norms and economic development.
- Podolny, J.M. (1994). Market Uncertainty and the Social Character of Economic Exchange Admin Sci. 458-483.
- Prowse, M. (2012). Contract Farming in developing countries: a review.
- Pultrone, C. (2015). A review of Contract Farming Issues. *Fostering gender balance in Agrifood Chain Development.*
- Robbins, P. (2003). Transnational corporations and the discourse of water privatization. *Journal of International development, 40, 1073-1082.*

- Slangen, L., Loucks L., Slangen, A. (2008). *Institutional Economics and Economic Organisation Theory: An Intergrated Approach*.
- Songa, W. (2013, September 25). Kenya bans use of Dimethoate in fruits and vegetables as exports to Europe remain high despite financial crisis. *Business daily, the money markets*.
- Sriboonchitta S and A. Wiboonpoongse. (2008, July). ADBI Discussion paper. (A. D. Bank, Ed.) *Overview of Contract Farming in Thailand: Lessons learned*.
- Swinnen JMF, Vandeplass, A, Maertens, M. (2010). Liberalization, endogenous institutions, and growth; A comparative analysis of agricultural reforms in Africa, Asia and Europe.
- Temu, A and Temu, A. (2006). Workshop proceedings on how can the poor benefit from the growing markets for high value agricultural products. *High value agricultural products for small markets in sub-Saharan Africa: Trends, opportunities and research priorities*.
- Thode, H. C. (2002). *Testing for normality* (Vol. 164). CRC press.
- Uma, S. a. (2010). *Research Methods for business. A Skill Building Approach*.
- Wainaina, P.W, Okello, J.J., Nzuma, J. (2012). Impact of contract farming on small holder poultry farmers in Kenya. 18-24.
- Wainaina, W. Okello, J. and Nzuma J. (2012). The International Association of Agricultural Economists Conferenc. *Impact of contract farming on smallholder poultry farmers' income in Kenya*.
- Waldron S, Brown, C, Longworth, J. (2010). A Critique of high value supply chain as a means of modernising agriculture in China: the case of beef industry Food Policy. 479-87.

Williams,S. and Karen,R. (1985). The Economic Institutions of Capitalism Firms,Markets, Relational Contracting.

World bank. (2008). World Development Report. *Agriculture for development*. Retrieved July 20, 2013

Young,L.M and J.E Hobbs. (2002). Vertical Linkages In Agri-Food Supply Chains:Changing Roles for Producers,Commodity Groups and Government Policy. *Review of Agricultural Economics*, 24, 428-441.

Zehnder,G.,Boyer,R.,Gaskin,J.W,Canon,J.,Harrisson,M,A and Camella,J.A. (2012). Enhancing the safety of locally grown produce. *Training and certification options*.

		SA	A	N	D	SD
i.	The cost of transportation					
ii.	Storage costs					
iii.	Handling cost					
iv.	Cost of monitoring the crop					
v.	Legal cost such as compliance costs					

Part D: Regulatory Framework Awareness and Financial Performance of French Beans Farmers

7. Use Strongly Agree(SA), Agree(A), Neutral(N) Disagree(D) or Strongly Disagree(SD) to explain the level of agreement with the following

	Aspect	SA	A	N	D	SD
i	There is reduced number of disputes in fixed price contracts					
ii	There is increased confidence level in fixed price contracts					
iii	There are few numbers of intermediaries in fixed price contracts					
iv	I understand regulatory laws and regulations of French bean farming					
v	It is not right to breach a contract					

Part E: Technical Assistance and Financial Performance of French Beans Farmers

8. In your opinion, are you comfortable with the cost at which the below are given to you? Use Strongly Agree (SA), Agree (A), Neutral (N) Disagree (D) or Strongly Disagree (SD) to answer.

	Aspect	SA	A	N	D	SD
i	Cost of fertilizers					
ii	Cost of seeds					
iii	Cost of chemicals					
iv	Cost of spraying services					
v	Cost of credit facility					

Part F: Financial Performance of French Beans Farmers

9. Please answer using Strongly Agree (SA), Agree (A), Neutral (N) Disagree (D) or Strongly Disagree (SD) indicate whether the following reduce your income as a farmer

	Aspect	SA	A	N	D	SD
i	Increased training					
ii	High Transaction cost					
iii	Increased Regulatory framework awareness					
iv	Technical assistance					
v	Fixed prices					

THANK YOU FOR YOUR RESPONSE