IMPACT OF AGRICULTURAL TRAINING PROGRAMMES ON YOUTH AGRIPRENEURSHIP PERFORMANCE AND EMPOWERMENT IN NIGERIA

ADEYANJU DOLAPO FOLASADE

REG NO: A56/9494/2017

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN AGRICULTURAL AND APPLIED ECONOMICS

DEPARTMENT OF AGRICULTURAL ECONOMICS

FACULTY OF AGRICULTURE

UNIVERSITY OF NAIROBI

NOVEMBER, 2019

DECLARATION

This thesis is my original work and has not been submitted for the award of a degree in any other university.

Signature…………………………….   Date…………………………………………

Adeyanju Dolapo Folasade

Reg. No. A56/9494/2017

This thesis has been submitted with our approval as university supervisors.

Prof. John Mburu

Department of Agricultural Economics, University of Nairobi

Signature……………………………   Date…………………………………………

Dr. Djana Mignouna

International Institute for Tropical Agriculture (IITA)

Signature **………………**   Date…………………………………………

i

ACKNOWLEDGEMENT

ABSTRACT

Within the framework of potential strategies to reduce youth unemployment in Nigeria, agriculture has been identified as one with remarkable employment opportunities which could change the economic status of young people. To this end, the Nigerian government with development partners have been implementing numerous agricultural programmes aim at empowering young people through agribusiness for several years. However, there is a dearth of empirical evidence on what worked well or what did not. This study therefore empirically assessed the impact of agricultural training programme on youth agripreneurship performance and empowerment using the case of Fadama GUYS programme in Nigeria. The study used primary data. A total of 977 respondents comprising of 455 participants and 522 non-participants were sampled across three States in Nigeria. The study adopted the Propensity Score Matching method to analyse the impact of the Programme on youth agripreneurship performance. Factors identified to significantly influence participation in the programme include; gender, years of formal education, intention to engage in agribusiness, perception of training and agribusiness. The impact estimate shows a positive and significant impact of the programme on agripreneurship performance. To analyse the impact of training on empowerment, the study adopted a three-stage estimation procedure which combined endogenous treatment effect regression model with a Tobit model. The result showed that training, through agripreneurship performance, contributed to youth empowerment. It was concluded from the study that participation in training led to better performance and empowerment. This findings suggest that stakeholders who aim to empower young people through agribusiness should come up with interventions and strategies to change youths' perception of agribusiness and encourage them to participate in agricultural programmes. It also suggests the need to increase investment in agricultural training such as the case study.

TABLE OF CONTENTS

LISTS OF TABLES

LISTS OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

AERC – Africa Economic Research Consortium

ATE – Average Treatment Effect

ATT – Average Treatment Effect on the Treated

CBM – Calliper-Based Matching

EPM – Entrepreneurship Performance Model

ETER –Endogenous Treatment Effect Regression Model

FAO – Food and Agriculture Organization of the United Nations

FIML - Full Information Maximum Likelihood

GHS - General Household Survey

GUYS – Graduates Unemployed Youths and Women Support

IITA – International Institute of Tropical Agriculture

ILO – International Labour Organization

KBM – Kernel-Based Matching

LIFE – The Livelihood Improvement Family Enterprise

LIML – Limited Information Maximum Likelihood

MOFA – Ministry of Food and Agriculture

NBS – National Bureau of Statistics

NISER – National Institute of Science Education and Research

NNM – Nearest Neighbour Matching

NPC – National Population Commission

ODK – Open Data Kit

OECD – Organisation for Economic Cooperation and Development

OLS – Ordinary Least Square

PSM – Propensity Score Matching

SB – Standardized Bias

SSA – Sub-Saharan Africa

UN – United Nations

UNESCO-UNEVOC – United Nations Educational, Scientific and Cultural Organization Vocational Education

USD – United States Dollar

YCAD – Youth Commercial Agriculture Development Programme

YEAP – Youth Employment in Agriculture Programme

YISA – Youth Initiatives for Sustainable Agriculture

YEDF – Youth Enterprise Development Fund

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Africa has the best population structure in the world. However, the continent is currently in dilemma on whether 'youth bulge' is an asset in disguise or a 'ticking time bomb' patiently waiting to explode. This is because about 230 million people are aged between 15 and 24 years and forms over 35 per cent of the entire African population, while those in the age group 25 to 34 years accounts for 27 per cent of the entire population (United Nations, 2015). It is worth noting that young people are critical to the social, political and economic development of Africa and could transform the trajectory of Africa's economy if adequate investment measures and policy framework are put in place. In addition, the youth represent exceptional opportunities and hope for the next generation owing to their zeal and capability to contribute immensely to nation building.

In Sub-Saharan Africa (SSA), majority of young people (70 per cent) are living in the rural areas (International Labour Organisation, 2012), where they are faced with high poverty levels, food insecurity, critical cases of unemployment and underemployment. These areas are characterized by poor health facilities, inadequate access to information and services, poor quality of education and limited skill development opportunities. Thus, youth in these areas are at the centre of a critical economic crisis which limits them in changing their social and economic status as well as their future prospect (Allen *et al.*, 2016). Another major challenge in many SSA countries is the skewness and dysfunctionality of the labour markets against young people (International Labour Organization, 2012). It is unfortunate that today, many young people in the rural areas barely survive on paltry sources of livelihoods, particularly young women who are always marginalized by African cultural practices and norms (Mastercard Foundation, 2015). There are many employed youths who have remained

poor despite having jobs. This indicates the poor quality of most of the jobs that are available (International Labour Organization, 2016).

The situation is not different in Nigeria which is largely a youthful country, with about 60 per cent of the population between 18 - 35 years of age (Oduwole, 2015). Youth unemployment is a serious issue in Nigeria. According to Surajo (2016), Over 80 per cent of the Nigerian youths are jobless. Competition for the available few job opportunities has led to continued marginalization and segregation of the already marginalized youth. As a result, there is low transition of young people from school to work which is even tougher for young women who are more prone to underemployment, unemployment, and discrimination than men. According to Kazeem (2016), Nigerian universities and colleges release up to 500,000 graduates annually to the labour market, but the absorption rate of the market is less than 50 per cent, thereby forcing many young people to do unimaginable jobs. It is not surprising that young graduates often become money changers, street vendors, operators of public phones, traders, security officers, for lack of good job opportunities. The issue is further expounded by the slow rate of retirement among public employees coupled with the mismatch between the training youths receive and the skills sought by employers (Brewer, 2013).

Consequently, this high rate of youth unemployment has led to failure of many youths affording their daily basic needs. Thus, majority of young men are forced to join rebel groups or go into illegal acts whereas young women either find themselves in early marriages, early pregnancy or prostitution (Alabi, 2014; Asaju, 2014). Young women have also become completely vulnerable to the extent that they experience sexual and gender-based violence (Kabeer, 2014). The high political instability in the northern part of the country coupled with the economic and social strife in other parts of the country have deepened inequalities between young men and women. Limited livelihood opportunities have severely increased

desperation among the youth. The country is on the verge of an internal war if appropriate and permanent solutions to address youth unemployment are not put in place.

Nigeria requires a strong commitment to foster youth employment if it is to respond to the continuous appeal of designing policies that will give young people better opportunities in finding decent jobs. However, policy interventions cannot happen overnight given the current status of the country. At the centre of all possible policy interventions lies the agricultural sector. The country has huge agricultural potentials which have not been fully tapped over decades. According to Lawal (2011), the role played by the agricultural sector in the economic development of any country cannot be overemphasized. It is believed that Nigeria has the capacity to feed her ever-increasing population, eradicate poverty and hunger, harvest the unemployed and underemployed and become the engine of Africa's economic growth.

1.1.1 Youth Bulge

Youth bulge is a common phenomenon associated with many developing countries, particularly those with history of rapid population growth, high fertility rate and no restriction on birth rate (Ahmed, 2014). It is a challenging issue for the Africa continent. The opportunity cost of ignoring it is already evident in the increasing political and social instability which is more daunting. This is a serious concern to the politically unstable states, where a large number of youths are likely to join the rebel movements due to lack of employment opportunities (Urdal, 2006).

Youth bulge has reflective socio-economic and political impacts as it presents both threats and opportunities. It may be a national asset if relevant policies to enhance youths' skills and capabilities are put in place; otherwise, it will create a serious social, political and economic challenge to the country (Ahmed, 2014). According to Omoju and Abraham (2014), youth bulge is potentially beneficial to a country as it can propel economic growth and

development. Contrary to this opinion, Urdal (2006) opined that, rather than being an asset, youth bulge could pose more problems due to the high rate of risky and negative behaviour associated with youth people. Thus, the consequences of youth bulge depend on the institutional environment and policies of the hosting countries.

Youths are valuable assets that can contribute immensely to economic growth and development (Mcdowell, 2007; Gupta, 2014). Youths on one hand could contribute to the development of different sectors of the economy if their energies are channelled towards legal and profitable activities. However, in Africa, youth bulge has compounded the problem of unemployment which is accompanied by high economic and social costs that every African country is struggling to pay (Schoof, 2006).

1.1.2 Entrepreneurship as an Intervention to Reduce Youth Unemployment

Many African countries including Nigeria, are currently experiencing economic hiccups. The current challenge of youth employment in Nigeria is a clear indication that there is a need for urgent policy- and programme-level interventions. One of the initiatives taken by the Federal Government of Nigeria was the inclusion of entrepreneurship studies in the curriculum of tertiary institutions (Aliu & Ibe, 2008; Olorundare & Kayode, 2014). Even though much research has not focused on assessing the impact of this intervention, majority of graduates in Nigeria are forced to depend on the skills acquired during these entrepreneurship classes (Bello, 2018).

In recent years, youth entrepreneurship has gained some more importance all over the world as a means of indorsing employment opportunities and stimulating local, regional and global development (Sitoula, 2015). According to Mohamed and AliSheikh (2017), entrepreneurship has been recognized as an important instrument which could help young people to change their attitude as well as acquire relevant skills for economic and social empowerment. White

and Kenyon (2000) posited that entrepreneurship is crucial for promoting resilience and innovation among youths. The result of their study showed that youth enterprises give young people, particularly the marginalized ones, a sense of 'meaning' and 'belonging' which is capable of shaping their identity.

 Nigeria, just like most countries of the world, has adopted entrepreneurship as a strategic approach to facilitate economic participation and create employment opportunities among young people. This interest in youth entrepreneurship was obviously stirred up by the consistent rise in the rate of unemployment, poverty level, and the high reliance of young people on limited white-collar jobs. Olorundare and Kayode (2014) strongly opined that entrepreneurship activity will bring about social changes through generation of wealth.

In addition to national efforts, many development partners including the World Bank, have come to support local stakeholders to facilitate youth entrepreneurship development, particularly, in the field of Agriculture. The agricultural sector has been reported to hold high employment potentials for young people provided it is supported by adequate investments, a conducive legal environment and appropriate policy frameworks (Koira, 2014; Girard, 2016). In view of this, the Nigerian government with the support of development partners have shown their political commitment towards empowering young people through agricultural training. According to Yami *et al*. (2019), in an effort to reduce youth dependence on formal jobs, (which compounds the problem of unemployment) there is increasing investment in agricultural programmes aimed at promoting youth participation in agribusiness. According to Awogbenle and Iwuamadi (2010), there were remarkable numbers of initiatives by various administrations between 1986 and 2010 to promote youth empowerment through the creation of gainful self-employment opportunities. Examples of such initiatives include Npower, Youth Commercial Agriculture Development Programme (YCAD), Youth Employment in Agriculture Programme (YEAP), Youth Initiatives for

Sustainable Agriculture (YISA), The Livelihood Improvement Family Enterprise (LIFE), and the Fadama Graduate Unemployed Youths and Women Support (GUYS) Programme whose only activity was to train youths in the field agribusiness**.**

The common objectives of these programmes were to reduce youth unemployment and ensure youths are empowered to be economically stable. To achieve this, their common activities include skills development, facilitating access to resources, and how to use technologies in agribusiness (Yami *et al.*, 2019). For instance, training on agribusiness management is expected to help the youths to successfully run and manage an agribusiness enterprise. However, very little is known on the success or failure of these activities in facilitating youth agripreneurship performance and empowerment. Thus, the extent to which these programmes are able to achieve their objective has to be examined so as to provide evidence which can inform practical policy formulation on youth agripreneurship.

1.2 Statement of the Research Problem

Studies have shown that the agricultural sector is capable of absorbing over 70 per cent of Nigeria population, thereby creating jobs for people in different agribusiness areas (Nwajiuba, 2012; Ogbalubi & Wokocha, 2013; Ogunleye, 2017). Thus, as a strategy to reduce youth unemployment, agripreneurship is increasingly being adopted as a valuable and significant means of creating job opportunities, improving the livelihoods and facilitating the economic independence of young people. Government organizations and other development stakeholders have come up to support youth entrepreneurship development and empowerment by organizing youth-specific training programmes, particularly, in the field of Agriculture. According to Awogbenle and Iwuamadi (2010) and Yami *et al*. (2019), there have been numerous interventions aimed at achieving youth empowerment through agribusiness in Nigeria. An example of such programmes is the Fadama GUYS programme, which was implemented in 2017 under a tri-partite agreement between the Federal and State

government of Nigeria and the World bank. Many youths have been trained under the GUYS programme but, its impact on youths economic status has not been assessed since much research has not been conducted to provide empirical evidence on the success and challenges. This corroborates the findings of Yami *et al.* (2019) that even though there have been lots of interventions, there is no or little empirical evidence on the success or failure of these interventions, which has made it difficult to make practical policy recommendations from them.

Most studies on entrepreneurial training programmes are not sector-specific. For instance, Nasra and Ali (2017) conducted a related study in Somalia and found that indeed training was of significant benefit to youth enterprise. However, the study was not based on agricultural training programmes and focused on self-employed youths. Also, Karanja (2014) found that entrepreneurial training significantly influenced the performance of youth enterprises in Kenya. However, the study primarily focused on youth enterprises while ignoring unemployed youths. This study, therefore, sought to give a more comprehensive and clearer picture of youth entrepreneurship, particularly, youth agripreneurship and specifically the role of agricultural training on performance as well as the sustainability and success of these programmes.

Furthermore, it is worth mentioning that several studies have been conducted on the development of youth entrepreneurship in Nigeria but, only a few have analysed the impact of agricultural training programmes on youth agripreneurship using a case study. Many studies seem to focus on factors determining participation rather than measuring the impact on economic outcomes. For instance, Awogbenle and Iwuamadi, (2010); Okoli and Okoli, (2013); Chidiebere *et al.* (2014) explained the significance of education/training in fostering entrepreneurship development but did not assess the impact of training either on performance or empowerment. In addition, the study intends to address this research gap by assessing the

impact of agricultural training programme on youth agripreneurship performance and empowerment so as to broaden knowledge of the subject, narrow the knowledge gap in the area and provide empirical evidence which could contribute to policy formulation.

1.3 Objectives

The main objective of the study was to assess the impact of agricultural training programmes on youth agripreneurship performance and empowerment, using the case of Fadama GUYS Programme in Nigeria. The specific objectives were to:

1. Identify factors influencing youth participation in the training programme.

2. Identify factors influencing youth engagement in agribusiness.

3. Analyse the impact of the Programme training on youth agrireneurship performance.

4. Analyse the impact of the Programme training on youth empowerment.

1.4 Research Hypotheses

To achieve the objectives of the study, the following null hypotheses were tested.

1. Years of formal education did not influence youths' decision to participate in the Programme training.

2. Perception of agribusiness did not influence youths' decision to participate in the Programme training.

3. Ownership of agribusiness enterprise did not influence youths' decision to participate in the Programme training.

4. Access to land and credit does not influence youths' decision to engage in agribusiness.

5. Years of formal education does not influence youths' decision to engage in agribusiness.

6. Participating in the Fadama GUYS programme has no impact on youth agripreneurship performance and empowerment.

1.5 Significance of the Study

Lack of empirical evidence on the impact of entrepreneurship programmes has made it difficult to reach a logical conclusion on what worked or what did not (Yami *et al*., 2019). Thus, identifying factors which influence youth participation in agricultural programmes will provide relevant information to policymakers, the Federal Ministry of Agriculture and other relevant stakeholders which could be used in amending and formulating agricultural policies and initiatives that can motivate youth to participate in agricultural development. Increased youth participation in these agriculture has two implications on the economy. Firstly, it will help to crop more youths into the agricultural sector which will in turn help in reducing youth unemployment. Secondly, it will contribute to increased food production, thereby, contributing to the achievement of SDGs 2 on zero hunger.

Empirical evidence of the Programme impact on youth agripreneurship performance and empowerment generated from this study will inform youths on the benefits of participating in the Fadama GUYS programme and other similar programmes which could stimulate their interest to consider agribusiness as a career option. This will not only improve the outlook of agriculture but also contribute to the economic empowerment and social status of the youths. In addition, this will contribute towards the achievement of SDGs 8 on decent work and economic growth.

The methodology used to assess the Programme impact on empowerment will contribute greatly to the body of literature on impact assessment of development programmes. Specifically, it will guide future researchers on how to conceptualize and model similar cases in other countries. The study has contributed empirical evidence which can inform practical

policies on the design and implementation of agricultural programmes. The findings are also expected to significantly contribute to the national and global efforts of stimulating youth engagement in agribusiness for the purpose of reducing youth unemployment and ensuring food nutrition and security in the world.

1.6 Organization of the Thesis

The thesis is organized into five chapters. Relevant literature on each issue as well as existing impact assessment methods and past empirical studies on impact assessment are discussed in Chapter 2. The methodology capturing data collection and methods of analysis are presented in Chapter 3. The results and relevant discussions arising from the analysed data are presented in Chapter 4 and Chapter 5 presents the summary, conclusions and recommendations based on the study findings.

CHAPTER TWO: LITERATURE REVIEW

2.1 Definition of Terms

Agripreneurship

Bairwa *et al.* (2014) defined agripreneurship as the gainful marriage between entrepreneurship and agriculture. More specifically, this study adopted and used the definition by Volkmann *et al.* (2010) who defined agripreneurship as a concept which involves risk-taking and accepting uncertainties for the purpose of developing a business venture ultimately to make profits.

Entrepreneurship

According to Adenutsi (2009), entrepreneurship is defined as an innovative process which involves identifying new business opportunities and the armament of sufficient productive resources to start a new enterprise or invigorate an existing one, under risky and uncertain conditions for the ultimate aim of generating income and making profit. This definition fits well into the context of the current study since the aim of agricultural training is to increase youth engagement in agribusiness (Job creation) as well as improve youths' agripreneurship performance. Thus, it was adopted and used to conceptualize entrepreneurship in this study.

Unemployed Persons

ILO (2011) defines unemployed persons as individuals who are not in any form of employment and do not seek employment during the reference period. In addition, those who expect to be employed in the future or has made arrangements to start a future job, as well as those involved in skills training or programmes that are designed and organized to promote employment are also classified as unemployed. This study adopted part of this definition to define unemployed youths as those who are not in any form of employment but, actively seeking employment for the reference period.

Youths

Within the context of this study, youths are classified as all young males and females between 18 and 35 years (Nigeria Youth Policy Document, 2009). This definition agrees with the one proposed by ILO (2005). Even though the definition appears to be too broad, it is based on the justification that majority of young people go through significant changes and different life circumstances during these times as they transition from childhood to adulthood.

2.2 Linkages between Entrepreneurship, Employment Creation and Empowerment

Past studies seem to have a consensus that entrepreneurship development results in job creation and economic empowerment in terms of improving livelihood and poverty alleviation (Solomon *et al.*, 2002; Adenutsi, 2009; Nkechi *et al.*, 2012; Omoluabi, 2014). According to Adenutsi (2009), models of economic growth and development consistently asserts that the major driver of economic growth is embedded in capital accumulation in the private sector. Thus, any modern economy should aim at promoting those conditions that facilitate investment in the sector by way of motivating and strengthening the society to fully develop their entrepreneurial capabilities.

Llisterri *et al.* (2006) assessed how employment generation is related to entrepreneurship in Latin American and found that entrepreneurship is a sustainable source of employment as most of the jobs created by private firms are likely to remain in existence for about seven to ten years after they are created. According to Nkechi *et al.* (2012), considering 'entrepreneurship' from the perspective of 'enterprise-creation' can be linked to the development of skills and experiences which can be applied to life challenges thereby contributing to economic empowerment. Similarly, Adenutsi (2009) indicated that entrepreneurship activities have long-term benefits which are associated with economic empowerment. This is due to its ability to generate reliable income sources which foster

economic independence and confidence to confront life situations and challenges. This supports the current study's argument that training programmes lead to skill acquisition which helps to improve entrepreneurship performance and subsequently lead to empowerment.

Omoluabi (2014) assessed how entrepreneurship development impacts employment creation in Nigeria. The study found a strong link between entrepreneurship and employment. According to the author, all things being equal, entrepreneurship development will always give birth to new jobs in any given economy which will, in turn, contribute to both social and economic empowerment. In agreement, Anekwe *et al.* (2018) explained that entrepreneurship development contributes to social wealth and empowerment by facilitating the creation of new jobs, markets opportunities, and technologies resulting in net increase in productivity and income, resulting in better standards of living.

2.3 Review of Empirical and Related Literature

2.3.1 Factors Influencing Youth Participation in Agricultural Programmes

Participation in development programmes is closely linked to the personal gains perceived by the participants (Udensi *et al.*, 2013). However, there are set of observable characteristics which influence individual's decision to either participate or not. According to Yami *et al.* (2019), there are diverse sets of socio-cultural and economic factors which influence youths' decision to participate in agricultural programmes. Some of the socio-economic and cultural characteristic identified by the authors include years of formal educational, societal expectations from the youth as well as their household responsibilities. The study by Yami *et al.* (2019) stressed that youths with low literacy level are more likely to opt for agriculture compared to their counterparts with high literacy level. However, the study differs from the current study since it only reviewed empirical studies which were conducted in different Africa countries.

A study conducted by Kimaro and Towo (2015) to assess the determinants of rural youth's engagement in agricultural activities in Tanzania revealed that a significant and positive relationship exists between youth decision to participate in agricultural programmes and age, marital status, gender, perception about agriculture, farming experience and access to credit. In agreement with the findings of Yami *et al*. (2019), the authors found that years of education was negatively related to the participation decision. On the contrary, Nnadi and Akwiwu (2008) and Ohene (2013) found a positive and significant correlation between years of education and participation. The current study is similar to these studies as they assessed the factors influencing participation using a binary regression model. However, these past studies were based on relatively small sample size and none took a case study approach compared to the current study.

Nnadi and Akwiwu (2008) conducted a study on the "Determinants of Youths' participation in Agriculture in Imo State, Nigeria" and found that factors which positively and significantly influence youths' participation in agricultural programmes include age, education, marital status, household size, income from agricultural activities, and parents' occupation. However, youth dependence status was found to be negative but significant. The study differs from the current study based on the study area and sample size.

Cheteni (2016) assessed the state of "Youth Participation in Agriculture in the Nkonkobe District Municipality of South Africa". He found that youths are nine times more likely to participate in agricultural programmes when they have more productive resources or assets. This corroborates the findings of Ohene (2013) who attributed youths' positive decision to participate in agricultural programme to ownership of productive resources. The findings of these studies may not necessarily be applicable in the current study area due to different demographic characteristics since they were conducted in different countries.

Akpan (2010) identified some of the factors which discourage rural youth participation in agricultural production in Nigeria. Based on this study, the factors were classified into social, economic, and environmental groups. Economic factors identified included lack of adequate credit facilities, low returns from agriculture, high cost of agricultural insurance, and lack of production inputs and capital. The identified social factors included perception about agriculture and parents' influence on career options. Environmental factors were related to those which directly affect farm output such as land and soil degradation issues. Some of the variables included in this study form the independent variables hypothesized to influence participation in the current study.

2.3.2 Youth Engagement in Agribusiness

Agribusiness offers enormous employment opportunities for young people in Africa (Africa Economic Outlook Report, 2017; Yami *et al*., 2019). According to Ohene (2013), there are numerous opportunities along the agricultural value chain, ranging from production to final sales to consumers. Despite recognising the huge potential of the agriculture sector in Africa, young people display declining interest and engagement in agriculture (Afande *et al*., 2015). Adebayo *et al.* (2006) assessed different agricultural training programmes in Imo State, Nigeria. The study found that despite the rich rural endowment and the farming experience of young people, their active and productive level of participation in agricultural-related activities was very low. According to Aphunu and Akpobasa (2010), this low engagement could be attributed to the lack of practical institutional framework which could help in mobilizing, developing and directing their abilities towards agriculture. In addition, Akpan (2010) indicated poor policies and performance of the agricultural sector as other reasons why there is low engagement of young people in agribusiness.

Contrary to the argument of Akpan (2010), Ifenkwe (2012) found that even in the face of increasing favourable government policies and support, young people continue to move away

from farming. The researcher attributed this to the low income and profitability from farming in comparison to white-collar jobs as well as youth perception of agriculture as a labour-intensive career option. As a result, there has been an outward movement of rural youths to urban centres in search of employment opportunities in the formal sector. This is supported by the findings of Gemma *et al.* (2013) who conducted a study on the "Challenges and Prospects of Youth Engagement in Agriculture in Uganda". It was found that rural-urban migration was one of the factors which account for the declining number of young people in agricultural production. Similarly, Naamwintome and Bagson (2013) assessed a similar objective in Ghana. The study found that majority (61.08 per cent) of the youths decide to migrate due to economic and cultural factors which invariably reduce the number of youths available for agricultural activities.

 Other factors which have been identified in literature to influence youth engagement in agricultural-related activities include access to finance, access to land and coordinated training (Ohene, 2013; IFAD, 2014; Afande *et al*., 2015; Kimaro & Towo, 2015; Cheteni, 2016). Abdullah *et al.* (2012) assessed the farm-specific characteristics influencing rural youths' decision to enter into agriculture in Malaysia. The study acknowledged access to land as one of the factors that encourage young people to engage in agribusiness. In agreement, a similar study by Chinsinga and Chasukwa (2012) in Malawi found that access to large hectares of land inspired the youths to engage in agribusiness since farming is perceived to be more economically viable in the country. This is supported by the argument of Muthomi (2017) that large farms support mechanization and help farmers to enjoy economies of scale. Njeru and Gichimu (2014) explained that land accessibility is crucial for young people to engage in agriculture.

Adekunle *et al.* (2009) explained that even though there are many challenges impeding youths from engaging in agriculture, some of the pronounced ones include; inadequate access

to agricultural insurance, finance, productive assets, low agricultural returns, and poor technical-know-how. Other individual characteristics that influence youth engagement in agribusiness as identified by Nnadi and Akwiwu (2008), Fine *et al.* (2012) and Afande *et al.* (2015) include age, education, agricultural skills or technical-know-how and Household size. Muthomi (2017) observed that to increase youth engagement in agriculture, there was a need for concerted efforts by different stakeholders to ensure access to affordable agricultural inputs and services.

2.3.3 Factor Influencing Youth Engagement in Agribusiness

Abdullah and Sulaiman (2013) identified the factors which drive youths' interest in agricultural entrepreneurship in Malaysia using the multiple regression model. Two significant factors identified were attitude and agricultural acceptance. One major shortcoming of the study was that it only focused on personality traits while ignoring socio-economic and institutional factors which may influence youths' interest. The current study, however, takes these factors into account.

Bezu and Holden (2014) assessed factors influencing youth livelihood choices, considering on- and off-farm employment using a multinomial logit regression model. It was found that gender, education and value of assets owned were the major determinants of youths' livelihood choices. It was also established that youths usually opt for wage employment in the formal sector due to lack of land and desperation to improve their livelihood, considering the risky nature of agriculture. The uniqueness of this study is that it compared off- and on-farm livelihood choices and identified some of the factors which influence youths' decision to choose either of the alternatives. This approach coupled with the method of analysis differentiates it from the current study.

Akpan (2010) identified some of the factors which influenced youths' decision to participate in agricultural-related activities in the southern region of Nigeria using a logit regression model. The study, which sampled a total of 300 youths for the analysis, revealed that land ownership, access to ICT and agricultural programmes were the major positive determinants of youth engagement in agricultural activities. However, gender, years of formal education and marital status were negative but significantly associated with participation decision. The sample size and analytical method adopted, however, differentiates the study from the current one.

Nnadi and Akwiwu (2008) identified the "Determinants of Youths' Participation in Agricultural Production in Imo State, Nigeria" using a logit model to analyse the data generated from three different agricultural regions in the study area. The study showed that education, age, household size, marital status, parents' occupation, parents' income and youth dependency ratios were factors which significantly influenced youths' participation decision. The analytical model used is similar to the one adopted in the current study. However, a notable difference between the study and the current one is the sample size and study area.

Onemolease and Alakpa (2009) assessed the factors which influenced the decision of youths to adopt livestock-related technologies in Nigeria using logistic regression model. The study was based on 332 youths sampled from four states in the Niger-Delta region. The study showed that income, access to extension services and gender were the important factors which determined youths' adoption of crop-related technologies. Apart from access to extension services, the other two factors coupled with stock size were the major positive determinants of adoption of livestock-related technologies. The study, however, focused on technology adoption and not participation in agricultural programmes. The multi-state approach taken by the study shows its similarity with the current study.

Ankrah *et al.* (2019) assessed the determinants of tertiary institution youths' engagement in agriculture in Ghana using a two-stage model (double-hurdle model). It was found that perception, education, gender, access to land and credit were factors which significantly influenced youths' decision and intensity of engagement in agriculture. The two-stage method used in this study is similar to the one used in the current study. However, the sample size and study area (country) were notable differences between the study and the current one.

2.3.4 Entrepreneurship Training and Youth Entrepreneurship Performance

Many agricultural scholars have come to agree that agricultural entrepreneurship (agripreneurship) holds remarkable potentials to foster economic development by generating both direct and indirect employment for the local populace, and contributing to food nutrition and security (Rajaei etal., 2011; Bairwa *et al.*, 2014; Mujuru, 2014). However, when the issue of ageing farmers in Africa is factored in, Addo (2018) opined that successful and sustainable agripreneurship requires the active participation of young people, not only as producers but as active actors along the entire market value chain. Thus, youth agripreneurship has become a central policy issue in most African countries.

Past studies have found that entrepreneurship training is positively correlated to youth entrepreneurship performance (Kithae *et al.*, 2013; Karanja, 2014; Mayuran, 2016; Mohamed & AliSheikh, 2017; Kwena, 2017). However, empirical evidence is still insufficient on youth agripreneurship.

Mayuran (2016) conducted an empirical study on the "Impact of Entrepreneurship Training on the Performance of Small Enterprises in Jaffna District, Sri Lanka". The study revealed that entrepreneurship training was positively and significantly related to firm performance. However, the limitations of the study is that it only considered business management skills acquired through training while ignoring other important entrepreneurial indicators which

could remarkably improve business performance. Also, it focused on enterprise performance only.

Similarly, an empirical study carried out by Ngoru (2017) to identify some of the "Entrepreneurial Factors Influencing Performance of Youth Enterprises in Mathare Sub-county, Kenya" revealed that entrepreneurship training was a highly significant determinant of the performance of youth enterprises in the study area. Furthermore, the results indicated that a majority of the youths agreed that training is essential for improved performance. However, the generalized nature of the study makes it difficult to make conclusions about sectoral entrepreneurship such as agripreneurship.

Kithae *et al.* (2013) assessed the "Impact of Entrepreneurship Training on Performance of Micro and Small Enterprises (MSES) in Kenya" using a case study. Their result indicated that the majority of the participants experienced great improvement in their enterprise performance after attending the training while only a few (1.4 per cent) found the training to be irrelevant. However, the study was also too general as it considered all aspects of entrepreneurship which may not likely inform practical policy based on specific sectors. However, the case study approach taken by the study is similar to the current study.

Based on a meta-analysis assessment of thirty-seven entrepreneurship training programmes, Cho and Honorati (2013) found that most of the studies only assessed the impact of the programmes in relation to changes in business performance, especially income while ignoring all other indicators of entrepreneurship performance. They also found a positive and significant relationship between entrepreneurship training and firm performance among the youths. However, all these studies aggregated their analysis and focused only on a single indicator of performance.

One of the very few relevant studies on agripreneurship was conducted by Addo (2018) on the "Factors influencing Agripreneurship and their role in Agripreneurship Performance among Young Graduate Agripreneurs" in Ghana using a content/thematic analysis approach. The study found that irrespective of youths' educational background, trained young agripreneurs have the ability to actively participate in the agri-food industry better than their counterparts. However, this study is different from the current one in terms of the analytical approach used and it primarily focused on how observable characteristic influence agripreneurship performance. However, it was not an impact assessment study.

2.3.5 Entrepreneurship Training and Youth Empowerment

Entrepreneurship Education/Training (EET) and development have been proven to be one of the potential tools for industrial growth, youth empowerment, and unity among young people (Akpomi, 2009; Egbefo & Abe, 2017). Egbefo and Abe (2017) conducted a study on "Entrepreneurship Education as a Vital Instrument for Youth Empowerment, Industrial Development and Consolidation of National Integration in Nigeria". The authors identified inadequate entrepreneurship education or training as one of the major issues which have greatly contributed to poverty, low industrial development and youth dis-empowerment. However, the study was a mere review of literature and did not analyse the impact of education or training on youth empowerment.

Krause *et al.* (2016) estimated the "Impact of Youth Entrepreneurship Training in Tanzania" by assessing a programme called U-Learn. They found that the programme directly improved the skills and knowledge of the youths and also translated into gainful employment and higher income. This study is similar to the current study as it followed a case study approach to measure the impact of training on employment generation. The country context and outcome variable, however, differentiates it from the current study.

Similarly, Yami *et al.* (2019) critically reviewed the state of "African Rural Youth Engagement in Agribusiness" looking at the achievements, lessons and limitations in different Africa countries. The authors found that a remarkable number of youth entrepreneurship training programmes have contributed to youth empowerment across Africa. Some of the programmes identified include the agribusiness parks in the Democratic Republic of Congo, Jeunes Agriculteurs in Senegal, the Integrated Agriculture and Agribusiness Programmes in Morocco, and UniBRAIN initiative in Zambia. It was noted that all these programmes provided employment opportunities for young people and also contributed to their empowerment through increased agricultural productivity and value addition which led to increased income and profitability. Thus, it was concluded that these programmes contributed to the improvement of youths' livelihood and economic status. The study, however, reviewed what other researchers have found and did not empirically assess the impact of any of the programmes.

Nsikak-abasi (2017) measured the "Impact of Integrated Farmers Scheme on the Welfare of Rural Farmers in Akwa Ibom State, Nigeria" based on a survey of 120 farmers and found that even though there was an improvement in the welfare of the participants as a result of the scheme, the welfare of the participants and non-participants were not significantly different after the scheme. This implies that the participants were probably worse-off before they participated in the scheme as the study also reported that the scheme brought about an improvement in their welfare. However, the study population were not youths and the outcome variable measured was different from that of the current study.

As reported by Orchard *et al.* (2013), the Songhai centre youth programmes in Benin enhanced youths' business skills and increased youth engagement in agribusiness. According to Yami *et al.* (2019), the programme addressed the interest of young people in independent decision making and also helped them in addressing some major economic challenges

associated with market demand, product quality and standardization, thereby leading to increased production, income and profits. An impact assessment of the programme after 5years revealed that 70 per cent of the 300 youths trained were able to successfully raise and manage an agribusiness enterprise, thereby contributing to their economic empowerment.

Shingla and Singh (2015) assessed the impact of entrepreneurship on women empowerment using a multiple regression model. The study measured empowerment based on three indicators which are; decision-making power, level of mobility and capacity building. It was found that majority of the women had between high to medium empowerment index score as a result of entrepreneurship. The study is different from the current study since it focused only on women. However, some of the empowerment indicators used in this study were included to measure empowerment used in the current study.

Cho and Honorati (2013) reviewed the "Effectiveness of Various Entrepreneurship Programmes in Developing Countries" using meta-regression analysis of 37 impact assessment studies that were available publicly in 2012. The result of the review established a positive and remarkable impact of entrepreneurship programmes on youths' business skills and practices. However, it was noted that the programmes did not lead to business establishment or expansion. This result is, however, contrary to the findings of a number of studies which has assessed the impact of entrepreneurship on business start-up and empowerment (Latopa *et al.*, 2015; Morshed & Haque, 2015; Okoli and Okoli, 2013).

Latopa *et al.* (2015) adopted a qualitative case study approach to analyse the impacts of agriculture capacity building programmes as youth empowerment strategy in Kwara state, Nigeria using data from a survey of 30 respondents comprising of twenty-one youth participants, three implementers, and six government officials. The study found that the training had both direct and indirect impacts on the youths. While the direct impact included

rekindling youth interest in agriculture, exposing them to wealth creation and increased social capital, the indirect impact was perceived on employment and improvement in social status. The study was however based on very small sample size. Also, the study used qualitative data as opposed to the current study.

Some authors, however, have argued that entrepreneurship training programmes do not always lead to youth empowerment or positive outcomes. For instance, Quan (2007), Boone (2015) and, Matenga and Hichaambwa (2017) all found instances where government interventions (agricultural programmes) worsened youths' access to land. Quan (2007) found that the Green Belt Initiative in Malawi worsened the issue of landlessness among young people. Similarly, Otsuki *et al.* (2017) found that the commercial agriculture programme in Mozambique resulted in landlessness among young people.

Fawole and Olajide (2012) explained that two major factors which limit the effectiveness of entrepreneurship programmes include treatment of youths as a homogenous unit and insufficient knowledge of the capabilities of the rural youth. Sikenyi (2017) attributed the limited success of the Youth Enterprise Development Fund (YEDF) in Kenya to the limited ability of the youths to understand the complex procedures required to engage in the programme.

Yambayamba *et al*. (2013) investigated the "Effectiveness of Agricultural and Natural Resources Management Training in Zambia". He indicated that sometimes, there is a disparity between the skills and competencies young people acquire through agricultural training programmes and demand in the labour market. He further explained that the mismatch is usually as a result of treating youths as a homogenous group.

2.4 Empirical Review of Previous Impact Assessment Studies

Bausch *et al.* (2017) evaluated the "Impact of Skill Training on the Financial Behaviour, Employability and Educational Choices of Rural Young People in Morocco" using a Randomized Controlled Trial (RCT). The study adopted the Difference in Difference (DiD) method to evaluate the impact of the project on a total of 1815 youths. The study found that the project had a positive and significant impact on youth labour market outcomes and financial literacy. However, the impact of the training differed significantly based on participants' age, social background and gender. The current study adopts a different analytical approach in assessing the impact of training on agripreneurship performance and empowerment. Also, the current study focused on a specific sector (Agriculture) as opposed to Bausch *et al.* (2017).

Judith (2014) assessed the "Impact of World Food Programme's Purchase for Progress Pilot (P4P) Project on Farm Incomes in Uasin Gishu And Narok Counties, Kenya" using a logit model to identify the factors influencing farmers' decision to participate in the project and PSM method to analyse the impact of the project on 250 farmers. The study found that the project had a positive and significant impact on the participants' gross margin. The current study applies a similar analytical approach in the assessment of the Fadama GUYS programmes. The current study, however, differs from the Judith's study in three ways. Firstly, it used a relatively smaller sample size of 250 farmers. Secondly, the study was conducted in Kenya and lastly, it assessed a different outcome variable.

Abrogena (2014) assessed the impact of entrepreneurship on agricultural growth in the Philippines. Empowerment was assessed following an internal relationship assessment approach described in "before and after" interventions. The findings showed that capacity building had a positive impact on empowerment as measured by income and enterprise sustainability. The "before and after" approach taken by the study and the target audience

(women), however, differentiates it from the current study. Also, it only focused on only two indicators of empowerment.

Mano *et al.* (2014) conducted a study on "Teaching KAIZEN to Small Business Owners" in Nairobi using a DiD-PSM method to estimate the impact of training on business performance. The study found a significant and positive impact of training on business performance. The methodological approach of the study is a bit different from the current study since it combined two different methods to measure the impact of the training. The study also focused only on business performance which was measured using profit and product value-addition. The study also failed to define the age category of the target respondents as it focused on all small business owners regardless of their ages. However, the study has few similarities with the current study. A logistic model was used to estimate the propensity scores used in matching the treatment and the control groups.

Pastore and Pompili (2019) recently evaluated the impact of an integrated programme of active labour policies conducted in Italy in 2016 on the employment integration of participants using a counterfactual approach. Specifically, the study adopted the PSM method to estimate the impact of the programme on a total of 4,962 workers who received on-the-job-training and 3,361 interns. The study found an average net impact of "5 percentage points" on the participants' employment integration. It was also found that off-the-job training programmes had no statistically significant impact on employment. The current study uses a similar methodological approach in evaluating the impact of the Fadama GUYS programmes on youth agripreneurship performance in Nigeria. The study, however, took a different dimension by considering both on-the-job and off-the-job training.

Lauringson *et al.* (2011) used a similar methodological approach (PSM) as the current study in assessing the impact of labour market training on the labour market outcomes of trainees.

Specifically, the impact was measured on two outcome variables (wage and employment). The study found that two years after completing the training, the employment rate among participants was higher by thirteen percentage points compared to non-participants. The outcome variable measured in this study is different from the current study.

Adebayo *et al.* (2018) analysed the "Impact of irrigation technology usage on crop yield, income and household food security in Nigeria" using data from a survey of 2305 households from eighteen states in Nigeria. Similar to the current study, the study adopted a logistic regression model in identifying the drivers of usage decision. Also, the study adopted PSM to assess the impact of irrigation use on the outcome variables. The study showed a positive relationship between use of irrigation technology and all the outcome variables. Some of the notable differences between their study and the current study are treatment variable (technology adoption) and sample size.

Balde *et al.* (2019) assessed the "Food Security Outcomes of Smallholder Oil Palm and Rubber Production at the Household Level in the Forest Region Of Guinea" using PSM and IV models (Endogenous Treatment Effect Regression). The study compared households involved in industrial crop production and those involved only in subsistence food production. The results of both analyses indicated that subsistence farmers perform better than oil palm and rubber smallholder farmers in terms of food diversity but were worse-off on hunger perceptions and coping behaviours metrics.

Jumbe and Angelsen (2007) developed a three-stage endogenous sample selection model to assess how forest dependence influenced household's decision to participate in forest co-management programme using data from Chimaliro and Liwonde forest reserves in Malawi. The study found that in Chimaliro, high forest dependency increased participation, particularly in places where forests largely have a safety net role while a contrary result was

found in Liwonde due to the more commercialized nature of forest use in the area. The current study followed a similar approach in analysing the impact of Fadama GUYS programme on youth empowerment. A notable difference, however, is that the current study used a relatively larger sample size and adopted an endogenous treatment effect regression model as oppose to the Heckman selection model used in modelling the first two stages of their 3-stage estimation procedure.

2.5 Theoretical Framework

The study is anchored on the theory of change. According to Rogers (2014), the theory is the building block for impact evaluation. It is a key which underpins any impact evaluation, given the cause-and-effect focus of the research (Gertler *et al.*, 2016). The theory was developed by Weiss (1995) and it describes how and why an initiative (such as training intervention) works. In other words, "it explains how the activities undertaken by an intervention" (such as a project, programme or policy) contributes to the result or the set of results which lead to expected or observed impacts. Also, it recognizes the context in which a programme is being evaluated as well as the characteristics of the participants (Rogers, 2014; Blamey & Mackenzie, 2007) and describes how an intervention delivers the desired results. According to Gertler *et al*. (2016), the theory describes a chain of events which results into outcomes, explore the conditions needed to arrive at the outcome and clearly shows the causal logic behind the programme.

To build on this, Connell and Kubisch (1998); and Stein and Valters (2012) defines the theory as a "systematic and cumulative study of the links between activities, outcomes, and contexts of the initiative" which implies that the building block of any programme evaluation entails determining the expected outcomes as well as the activities to be implemented to achieve the desired outcomes. For instance, the ultimate goal of the Fadama GUYS programme was to empower young people through agribusiness. To achieve this, the primary

initiative taken was agricultural training which captures training on animal/crop production, marketing of agricultural products, processing, and financial management practices.

According to Weiss (2011), anchoring programme evaluation on this theory has three important advantages. The first is that it helps to focus on the key aspects of the programme. Secondly, it facilitates aggregation of evaluation results into a wider base of programme and theoretical knowledge. Lastly, It provides evidence which has more influence on practical policy-making.

Thus, following the explanation of Gertler *et al*. (2016), the chains of events in this study include all the activities during the agricultural programme which are directed towards achieving the desired outcomes (Better youth agripreneurship performance and empowerment). As such, young people are exposed to different agribusiness training through which they gain desirable skills and attributes which empowers them in the field of agribusiness and improves their agripreneurship performance. The links between these different process are further explained in the conceptual framework.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Conceptual Framework

The conceptual framework (Figure 3.1) is based on the Entrepreneurial Performance Model (E/PM) introduced by Van Vuuren and Nieman (1999). The model looks at the different elements which drive individual entrepreneurial performance. The model can be described as the blueprint which forms the framework of an entrepreneurship intervention. The model considers the structure within which entrepreneurship training programmes operate as well as the approaches they utilize. Furthermore, it describes the minimum requirements for learning programmes which improves participants' ability to gain the competence and capabilities needed for entrepreneurial development.

The model is presented as the multiplicative construct shown in Equation (1):

$$E/P = f[M(E/S \times B/S)]$$

(1)

Where: E/P – Entrepreneurial performance; M – Performance motivation; E/S – Entrepreneurial skills; B/S – Business skills.

From this, it can be deduced that any upward or downward change in entrepreneurial performance is a multiplicative result of performance motivation (M); Entrepreneurial skills (E/S) and Business skills (B/S). Pretorius *et al.* (2005) identified motivation as an important factor which contributes towards qualities like persistence, inner control, decisiveness, leadership, sheer guts, and determination. Hisrich *et al.* (2005) argued that the difference between a manager and an entrepreneur is shown in the development of specific skills, such as risk-taking, innovativeness and leadership. Antonites (2003) also argued that good business skills such as financial management, human resource management and marketing are germane for better performance.

Considering Figure 3.1 therefore, agricultural training programme focuses specifically on introducing new concepts and principles of agripreneurship and agribusiness management to the participants which can help them to start an agribusiness enterprise on their own and also acquire skills (agripreneurial skills and business skills) for better performance. Thus, participants are trained in different agribusiness fields to help them develop and improve these skills. According to Karanja (2014), entrepreneurship (agripreneurship) training will lead to skill acquisition which will result in better performance. The training will also contribute to the improvement of youths' personality traits such as agripreneurial behaviour, intention and attitudes. It is also very important to note that various external environment and institutional factors such as Policies, Programmes and Law may also have a direct effect on training programmes, youth skills and traits as well as their agripreneurship performance. For instance, various government regulations or policies could affect the implementation of training programmes and youth agripreneurship performance, either positively or negatively.

In addition, the individual youths' personality traits, such as behaviours, ambition, and personal interests also have direct implications on their performance. Positive interaction between all these factors will contribute positively to agripreneurship performance since performance is a multiplicative function of the variables. Better agripreneurship performance denotes agribusiness development or expansion, higher income, increased productivity and profitability, better livelihood etc, which will contribute positively to youth empowerment.

External Environment/Institutional Factors
P-(policies, laws, programmes and political dynamics)
-**E** (Economy and Environment)
-**S** (Socio-cultural factors)
-**T** (Technology and Infrastructure)

Agricultural Training Independent Variables (IVs):
-Education
-Training perception
-Gender
-Household size

Youth Engagement in Agribusiness IVs:
-Education
-Gender
-Access to credit
-Access to land

Agripreneurship Skills:
-Crop/Livestock production
-Effective team management
-Taking and Managing risks on farm

Business Skills:
-Financial management
-Preparing business plan
-Cost and pricing
-Agribusiness management
-Record keeping

Personality traits:
-Behaviour
-Intention
-Perception

Better Youth Agripreneurship Performance

Indicators:
-Agripreneurship skills
-Business skills
Agripreneurship behaviour

Youth Empowerment

IVs:
-Agribusiness ownership
-Access to credit
-Income
-Asset ownership

33

Figure 3. 1: Conceptual Framework

3.2 Study Area

The survey was conducted in three states in Nigeria between January and March 2019. The states were Abia, Ekiti and Kebbi States which represent the South-eastern, South-western and North-western regions respectively.

3.2.1 Abia State

Abia state is located in the south-eastern region of Nigeria with Umuahia as its capital. The state occupies a total land area of about 4,900 sq km and lies approximately within latitudes 4° 40' and 6° 14' North, and longitudes 7° 10' and 8° East. The state is low-lying with an annual heavy rainfall of about 2,400 mm which is particularly intense between the months of April through October. Going by the 2006 population census which predicted a population growth rate of 2.7 per cent, the estimated population as of 2016 was about 3,699,168 people (National Bureau of Statistics, 2011).

Majority of the population is engaged in agriculture due to the rich agricultural soil across the state. However, up to 70 per cent practice subsistence farming (Christain Aid, 2017). The state is rich in arable land and produces yams, maize, potatoes, rice, cashews, plantains, taro, and cassava (Hoiberg, 2010). The most important cash crop grown in the state is oil palm. Young people are majorly involved in Cassava processing for the production of starch and flour as well as vegetable and fruit canning (processing and packaging) (Christain Aid, 2017). The common language spoken is Igbo.

The state is characterized by serious infrastructure deficiencies as a result of decades of neglect. Over 95 per cent of the roads are in poor condition and hardly motorable from end to end (African Development Bank, 2019). In addition, the state lacks proper water supply and sanitation facilities. According to UNDP (2018), as of 2017, the poverty incidence rate in the state was 44.4 per cent with an unemployment rate of 39.6 per cent.

3.2.2 Ekiti State

Ekiti state, with Ado-Ekiti as its capital city, is mainly an upland zone with a total land area of about 5887.89 sqkm. The state is located in the south-western region and speaks Yoruba-Ekiti dialect. The state is located along latitude $7^0 15$ and $8^0 71$ north and longitude $4^0 47$ east of the equator. The mean annual temperature and Rainfall are 27^0 C and 1400mm respectively. The climate pattern has two distinct seasons which are; the rainy season, between April and October and; the dry season between November and March. As of 2006, the national population census shows the state has a population of 2,398,957 people (National Bureau of Statistics, 2011)

More than 75 per cent of the population is actively engaged in agriculture (Ajayi, 2017). The state is highly rich in cocoa production. Other major resource-base for development in the state apart from Cocoa include Arable crop cultivation of yam (81,000ha), rice (120,000ha), maize (159,000ha), and cassava (87,000ha). According to Ajayi (2017), youths are actively involved in crop/livestock production (Rice, Cassava, Aquaculture, Poultry), Nursery operations, Crop and Livestock processing, storage and packaging and Marketing of Agricultural Products.

The state is relatively poor in terms of infrastructural development. According to Ogunleye (2014), the state of potable water, electricity, medical facilities system is below average. The state has federal, state and local government roads. However, some of these roads are in a terrible condition which accounts for poor linkages between some communities and other states (Ogunleye, 2014). According to UNDP (2018), as of 2017, the poverty incidence rate in the state was 30.6 per cent with an unemployment rate of 18.6 per cent.

3.2.3 Kebbi State

Kebbi state is located in the north-west geopolitical zone of Nigeria with its capital at Birnin Kebbi, an ancient town that dates back to the 14th century. The State is bordered by Niger, Sokoto, Zamfara, Benin republic, and Niger republic. The total land area is about 36,985 km sq out of which 12,600 km sq is cultivated for agricultural purposes. The mean annual rainfall is about 1000mm in the south and 800mm in the north. The mean annual temperature is as high as 26°C across the state. According to the 2006 national population census, the total population is estimated at 3,256,541 (National Bureau of Statistics, 2011).

Majority of the population are economically engaged in Agriculture. The state is dominated by Fulani-Hausa people who depend mostly on cattle rearing and crop production. Much of the land in the state is used for grazing goats, sheep, and cattle. The common cash crops cultivated include rice, cotton, and groundnuts. Subsistence crops include millet, sorghum, onions, and cowpeas. The youths are actively involved in all of these agricultural activities. The State has two important agricultural lands which are: Fadama (floodplains) and dryland. These agricultural lands are the key source of income to millions of people in the State (Usman *et al.*, 2016).

The state is rich in historical structures which include the tomb of Abdullahi Fodio, Girmace shrine of the Zulu and Yelwa museum of archaeology. The state capital is connected by road to Bunza (45 km southwest), Jega (35 km southeast), and Argungu (45 km northeast). According to UNDP (2018), as of 2017, the poverty incidence rate was 82.3 per cent with an unemployment rate of 11.6 per cent.

3.3 Research Design

This study adopted a quasi-experimental research design which helps to schedule data collection procedures like an experimental design (Campbell, 1963) and makes it possible to

compare the outcomes of a treatment group to one or more groups with no treatment at all or with an alternative treatment (Thyer, 2012). The major aim is to identify a comparison group which is as similar as possible to the treatment group in terms of pre-intervention observable characteristics (Handley *et al*., 2018). One major advantage of this design is that regardless of the theoretical basis of the assignment or treatment, it is sufficiently useful in the evaluation of virtually any kind of intervention or programme (Thyer, 2012). This design was adopted becasue the study required data from a large group of persons from two different target audiences (programme participants and non-participants) for the purpose of comparing their outcomes and attributing any difference between their outcomes to the assignment variable (Thyer, 2012).

Thus, adopting the "With and Without" treatment approach of impact assessment, the study population was stratified into two categories (Treatment and Control). The treatment group comprised of youths who were trained under the Fadama GUYS programme in 2017 while the non-participants were other youths who reside in the study area but, did not participate in the training. The design facilitated data collection from the two groups and also made it possible to attribute any difference between the participants and non-participants to the assignment variable (training) (White & Sabarwal, 2014). This desirable feature of the design makes it appropriate for the study since the objective is to compare these two groups so as to be able to attribute any difference between their outcomes to the programme.

3.4 Methods of Data Collection

3.4.1 Sampling Procedure and Sample Size

The study adopted a multistage sampling technique. In the first stage, three states were purposively selected. The choice of these states was based on the relatively high number of participants in the Fadama GUYS programme in 2017, to ensure representation of at least three regions in which the programme was conducted, and to ensure that they are similar in

terms of specific characteristic since the three states ranked high is agricultural activities (more than 70 per cent of the population in all the states are engaged in agriculture). The aim of this was to ensure that the respondents are comparable to allow aggregation of analysis. In the second stage, the study population was divided into two strata: participants and non-participants. The third stage involves the random selection of respondents. The sample size of participants was determined based on the formula proposed by Krejcie and Morgan (1970). A sampling frame of 900 youths was used in gathering the participants consisting of a complete list of youths trained under the programme in 2017 obtained from the Fadama office in each state. This was followed by the random selection of respondents from the sampling frame via random numbers generated using Microsoft Excel.

The total number of participants of the Fadama GUYS programme from the three states was 900, with 300 from each state. Using Krejcie and Morgan (1970) formula, the total sample size generated was using Equation 2:

$$n_p = \frac{N(X)}{X + (N - 1)} \qquad (2)$$

Where $X = \frac{Z^2*P(1-P)}{e^2}$

n_p = sample size of participants; N= Population size; e = Margin of Error; p = Sample proportion (0.5); z = the confidence interval (1.96).

Thus; $X = \frac{1.96^2*0.5(1-0.5)}{0.03^2} = 1,067$

$n_p = \frac{900(1067)}{1067+(900-1)} = 488$

However, some of the respondents were out of reach and could not be contacted. Because of this, the total number of the Fadama GUYS programme participants who participated in the

surveyed was 455 across the three states with 169, 136 and 150 participants from Abia, Ekiti and Kebbi states respectively .

Since the total population of the control group was unknown, the sample size for the non-participants was generated using the error margin formula proposed by Bartlett *et al.* (2001). According to the formula, the sample size of an unknown population can be determined using the formula specified in Equation (3):

$$n_{np} = \frac{Z^2 * P(1-P)}{e^2}$$ (3)

$$\text{Thus }, n_{np} = \frac{1.96^2 * 0.5(1-0.5)}{0.04^2} = 600$$

Where n_{np} is the sample size of non-participants.

However, due to resource constraints, transportation limitations, and busy schedule of some of the respondents, only 522 youths from the control group participated in the survey with 171, 147 and 204 non-participants respectively from Abia, Ekiti, and Kebbi states. The total number of youths surveyed for both groups was 977.

3.4.2 Data Type

Primary data were used in this study. Specifically, quantitative data were collected on important variables which was classified into different categories including: Demographic Information, Entrepreneurship Training, Agripreneurship Skills, Business Skills, Agripreneurship Behaviour, Livelihood, and Youth Empowerment. Data was also collected on socio-economic characteristics such as age, gender, education and marital status.

3.4.3 Data Collection Methods

Primary data were collected using a semi-structured questionnaire. Questionnaires are deemed to be the best instrument to gather large amounts of information in a cost-effective

and timely manner. The questionnaire was designed based on previous literature on similar studies and in consultations with the research supervisors in order to ensure relevance of the solicited information in achieving the study objectives as well as to ensure conformity to academic standards. Variables measured and means of measurement were programmed on Open Data Kit (ODK) and data was collected using Phones and Tablets by trained enumerators.

3.5 Data Analysis

Data were analysed using both descriptive and inferential statistics. Descriptive statistics such as means and percentages were used to analyse data on selected socio-economic characteristics of respondents. The data collected was exported to Microsoft Excel and analysed using STATA 14.

3.5.1 Factors Influencing Youth Decision to Participate in the Training Programme

This objective was achieved by fitting a logistic regression model into the data set. The model is specified in Equation (4).

Participation (Fadama GUYS participants = 1 and 0 otherwise) = $\beta o + \beta 1$ AGE + $\beta 2$ EDUC + $\beta 3$ GENDER + $\beta 4$ MARITAL_STAT + $\beta 5$ HHSIZE + $\beta 6$ MIGR_STAT + $\beta 7$ AGRIB_INT + $\beta 8$ ASSET + $\beta 8$ TRAIN_PERC + $\beta 9$ AGRIB_PERC + $\beta 10$ AGRIB_OWN + Error term   (4)

Based on reviewed literature, the hypothesized independent variables that could influence youths' participation in the programme and their expected signs are presented in Table 3.1.

Age of the Youth (AGE)

Age of the youth was measured as the number of years as of their last birthday. Some previous studies on youth engagement in agricultural programmes predict a positive correlation between age and youth participation (Nnadi & Akwiwu, 2008; Abdul-Hakim & Che-Mat, 2011; Ayinde *et al*., 2016). This was based on the ground that older youths are

more likely to participate in entrepreneurship programmes that will enhance their skills and contribute to their economic status in terms of employment since they are less likely to depend on their parents. However, other authors like Davis *et al*. (2012) found a contrary result and argue that younger youths are more likely to participate in farmers field school in Kenya due to their risk-loving and adventure attributes. This is supported by the argument of Ohene (2013) that young farmers are more likely to participate in new projects because they are less risk-averse compared to older farmers. Thus, in this study, age is expected to either have a positive or negative influence on youths' decision to participate in the programme.

Table 3. 1: Description of Variables in the Logit Model

Variable	Description	Measurement	Expected sign
PARTICIPATION	Dependent variable indicating youth participation in the Fadama GUYS programme	Dummy (Participants=1, Non-participants=0)	
	Independent Variable		
AGE	Age of the youth	Age in years	+/-
EDUC	Education level of the youth	Years of formal education	+/-
GENDER	Gender of the youth	Dummy (Male=1, Female=0)	+/-
MARITAL_STAT	Marital Status of the Youth	Dummy(Married =1, Otherwise=0)	+
HHSIZE	Household size of where the youth comes from	Number of household members	+
MIGR_STAT	Migration status of the youths from their original place of birth/residence	Dummy (Migrated =1, Not Migrated =0)	-
AGRIB_INT	Youth intention to engage or remain in agribusiness	Dummy (Positive intention =1, otherwise =0)	+
ASSET	Ownership of productive asset	Continuous index	+
TRAIN_PERC	Youth perception about training programmes	Dummy (Positive perception=1, otherwise =0)	+
AGRIB_PERC	Youth perception about agribusiness	Dummy (Positive perception=1, otherwise =0)	+
AGRIB_OWN	Ownership of any agribusiness venture	Dummy (owns a venture =1, otherwise =0)	+

Years of Formal Education (EDUC)

Education was included in the model because it can enhance a better understanding of the basic concepts taught in the programmes. It was measured as the number of years of formal education of youth and it is expected to be either positively or negatively correlated with the decision to participate in the programme. This is because there is mixed evidence on the influence of education on the decision to participate in agricultural programmes. While some studies have found a positive relationship between an individual's years of formal education and participation (Nnadi & Akwiwu, 2008; Ohene, 2013; Muhammad-Lawal *et al.*, 2015), others studies such as Sudarshanie (2015) have found a negative correlation and based it on the argument that individuals with more years of formal education are more likely to choose career options in fields other than agriculture and may not be willing to participate in agricultural programmes.

Gender of the Youth (GENDER)

The gender of the youth was included in the logit model because of the gender differences in terms of roles and responsibilities that exist in most African communities. Gender is expected to take either direction (positive or negative) as there is mixed evidence on how gender influences decision to participate in agricultural programmes. For instance, Judith (2014) found that being a male negatively influenced participation in agricultural programmes in Uasin Gishu and Narok counties in Kenya while Godtland *et al.* (2004) found otherwise. Abdul-Hakim and Che-Mat (2011); Ohene (2013); and Muhammad-Lawal *et al.* (2015) in similar studies captured gender as a dummy with male taking the value of 1 and female taking the value of zero.

Marital Status (MARITAL_STAT)

The youths' marital status was measured as a dummy taking the value of 1 if a youth is married and 0 for any other marital categories which were classified as unmarried. According to Ohene (2013), married youths bear additional responsibility of catering for their families and hence may adopt any empowerment programme that could help them to have diversified income sources. Thus, in this study, marital status is expected to be positive. Other studies which have found a positive correlation between marital status and participation include; Nnadi and Akwiwu (2008) and Muhammad-Lawal *et al.* (2015).

Household Size (HHSIZE)

The household size was measured as numbers of persons who lives and dines together in the same house as the respondents. According to Adesina and Eforuoku (2017), a large household size positively influences participation in agricultural programmes because large household size depicts labour endowment. Thus, young people can participate in agricultural programmes with the assurance that they will get help in terms of labour from their household members. Also, coming from a large household could imply competition for household limited resources which may prompt young people to look for means of survival elsewhere. In this study, household size is expected to have a positive influence on youths' decision to participate in the programme.

Migration Status (MIGR_STAT)

Youths' migration status from their original place of residence was included in the model and expected to negatively influence participation. According to Ohene (2013), the increase in rural-urban migration in search of employment in the formal sector has a negative implication on youth engagement in agricultural programmes. Thus, youths who have migrated to escape from rural poverty and in search of corporate job may not be interested in agricultural programmes. This was supported by the Harris-Todaro Model which argued that "Migrants consider the various market opportunities available to them in the rural and urban sectors and

choose the one that maximizes their expected migration gains". The migration status was measured as a dummy which takes the value of 1 if a youth has migrated and 0 otherwise.

Intention to Engage in Agribusiness (AGRIB_INT)

According to Ajzen (2009), intention reflects the motivational factors which influence behaviour. In other words, intention is a major determinant of action. Thus, youth intention to engage in agribusiness may motivate them to engage in programmes through which they can acquire the required skills to successfully raise and manage an agribusiness venture. Youths who intend to engage in agribusiness were assigned the value of 1 while those without the intention were assigned the value of 0. In this study, intention is hypothesized to positively influence youths' decision to participate in the programme.

Perception of Training (TRAIN_PERC)

Youths' perception of training was included in the logit model and is expected to influence their participation decision positively. According to Ohene (2013), perception can either have a positive or negative influence on youths' decision to engage in agricultural activities and the extent to which it does this largely depends on the direction it takes. Youths who perceive training as an instrument of skill acquisition and development were assigned the dummy value of 1 and those who do not were assigned the dummy value of 0.

Perception of Agribusiness (AGRIB_PERC)

Youths' perception of agribusiness was measured as a dummy which takes the value of 1 for positive perception and 0 otherwise. The variable is expected to be positively related to participation since perception determines how people react to interventions or programmes. Ohene (2013) found that youths who perceive agriculture as an occupation with high economic returns were more likely to participate in agricultural programmes. Ministry of Food and Agriculture (2011) posits that many young people perceive agricultural as an

occupation for the poor and are unwilling to participate in agricultural-related activities. Similarly, Akudugu (2012) found that positive perception of farmers about loan application had a positive influence on their demand for bank loans.

Ownership of Agribusiness (AGRIB_OWN)

Ownership of an agribusiness enterprise was included in the logit model estimation and is expected to have a positive relationship with participation in the programme. It is measured as a dummy variable. A youth who has a personal agribusiness enterprise was assigned a dummy value of 1 whilst a youth who does not own an enterprise was assigned the dummy value of 0. This is because youths who are already actively involved in agribusiness are more likely to know the importance of such agricultural programmes and will be more willing to participate than those without any experience.

3.5.2 Factors Influencing Youth Decision to Engage in Agribusiness

To determine the factor influencing youth engagement in agribusiness, this study adopted the Heckman probit model introduced by Van de Ven and Van Pragg (1981). This model is similar to the Heckit model which controls for sample selection bias. However, the major difference is the nature of their outcome variables. For the Heckprobit model, the outcome variable is a dummy, which takes the value of one for individuals engaged in agribusiness and zero for those who are not while the heckit model measures a continuous outcome variable. Thus, the nature of the outcome variable, as well as the possible existence of selection bias, justified the use of this model.

3.5.2.1 Model specification

The Heckman probit sample selection model is based on the assumption that an underlying relationship exist. This is also known as a latent equation shown in Equation 5:

$$Y_i^* = X_i \, \beta + u_{1i} \qquad \text{(Outcome Equation: Youth Engagement in Agribusiness)} \qquad (5)$$

Such that the outcome equation is expressed as a probit in Equation 6:

$$Y_i = (Y_i^* > 0) \tag{6}$$

In this study, the binary outcome corresponds to youth engagement in agribusiness and otherwise.

The selection equation which is the first stage can be stated as Equation 7:

$$(z_i\gamma + u_{2i} > 0)$$

such that

$$T_i = (z_i\gamma + u_{2i} > 0) \quad \text{(Selection Equation: Participation in Training)} \tag{7}$$

where:

T_i = Treatment/selection variable indicating if a youth participated in training or not.

z = covariates affecting decision to participate in training

γ = parameter estimate

u = Error term

$u_i \sim$ N(0,1)

$u_2 \sim$ N(0,1)

Cor(u_i , u_2) = rho (ρ)

If the two error terms are not correlated, i.e. rho (ρ) = 0, a binary regression can be used. However, if otherwise, there is a need to account for selection bias which may lead to bias estimate (Van de Ven & Van Pragg, 1981). In the latter case, it becomes appropriate to use a sample selection model such as the Heckprobit model for unbiased and consistent estimate.

For this model, it is a condition for the selection equation to contain at least an instrument which is correlated with selection but, uncorrelated with the outcome of interest.

The outcome model is specified in Equation 8. The marginal effects of the change in the variables on the likelihood of engaging in agribusiness were also computed.

AGRIB_ENG (Engaged in Agribusiness = 1 and 0 otherwise) = βo+ β1 AGE + β2 EDUC + β3 GENDER + β4 HHSIZE + β5 MIGR_STAT + β6 ASSET + β7 EMP_TYPE + β8 CREDIT + β9 LAND + Error term

(8)

3.5.2.2 Description of Variables in the Outcome Model

Based on reviewed literature, the hypothesized independent variables expected to influence youths' engagement in agribusiness and their expected signs are presented in Table 3.2. Age, Education, Gender, Household size, Migration status, Asset index score are expected to influence decision to engage in agribusiness in the same way as participation in training.

Table 3. 2: Description of Variables in the Heckprob Outcome

Variable	Description	Measurement	Expected sign
AGRIB_ENG	Dependent variable indicating youth engagement in agribusiness	Dummy (Engaged=1, Not Engaged=0)	
AGE	Age of the youth	Age in years	+/-
EDUC	Education level of the youth	Years of formal education	+/-
GENDER	Gender of the youth	Dummy (Male=1, Female=0)	+/-
HHSIZE	Household size of where the youth comes from	Number of household members	+
MIGR_STAT	Migration status of the youth from their original place of birth/residence	Dummy (Migrated =1, Not Migrated =0)	-

ASSET	Ownership of productive asset	Continuous index	+
EMP_TYPE	Type of Employment	Dummy (Formal=1, otherwise =0)	-
CREDIT	Access to credit facilities	Dummy (Have access to credit =1, otherwise =0)	+
LAND	Access to land	Dummy (Have access to land=1, otherwise =0)	+

Access to Credit (CREDIT)

Access to credit was measured as a dummy, which takes the value of 1 if a youth has access and 0 otherwise. Previous studies on youth engagement in agribusiness has found a positive relationship between access to credit and youth decision to engage in agribusiness (Njeru & Gichimu, 2014; Afande *et al.*, 2015; Muathe, 2016; Nwibo *et al.*, 2016; Adesina & Eforuoku, 2017; Muthomi, 2017). This is because access to credit facilitates the acquisition of productive resources needed for agribusiness. Thus, in this study, access to credit is expected to have a positive influence on youths' decision to participate in agribusiness.

Access to Land (LAND)

 Land variable was included in the model because it is required for most agricultural activities, especially crop and livestock production. It is measured as a dummy which takes the value of 1 if a youth has access to land for agribusiness purposes and 0 otherwise. It is expected to be positively associated with the decision to engage in agribusiness. This is because a number of studies have found a positive correlation between access to land and youth engagement in agricultural activities (Mohammed, 2012; Katchova & Ahearn, 2014; Njeru & Gichimu, 2014; Kimaro *et al.*, 2015; Kwenye & Sichone, 2016; Byamugisha & Ansu, 2017).

3.5.3 Impact of Training on Youth Agripreneurship Performance

3.5.3.1 Measure of Agripreneurship performance

Many studies tend to use farm output or income as a proxy for performance. Past work on the measurement of agripreneurship performance is extremely limited. The only relatively relevant study was conducted by Niewoudt (2016) who developed a generalized index for entrepreneurship competence. Following Niewoudt's approach, a continuous agripreneurship index based on the Entrepreneurial Performance (E/P) Model postulated by Vuuren and Nieman (2004) was developed. According to the model, performance is measured as a multiplicative function of entrepreneurship skill, business skill and motivation. These three indicators were adopted and modified to capture the basic elements of agripreneurship as opposed to the generalized nature of the model. However, to generate a more robust index, an additional indicator which measures agripreneurship behaviour was included. This is because behaviour is a strong determinant of performance (Ajzen, 2009; Anagnosti *et al.*, 2013). Thus, the agripreneurship performance model is presented in Equation (9) as the multiplicative function of agripreneurship skill, business skill and agripreneurship behaviour.

$$A/P = A/S \times B/S \times AB/S \tag{9}$$

Where A/P is Agripreneurship Performance; A/S is Agripreneurship Skill; B/S is Business Skill and; AB/S is agripreneurship Behaviour.

Each indicator was assessed by 7 items measured on 5-point Likert-scale. The agripreneurship performance index was generated as the multiplicative function of the three indexes. The performance score generated was continuous in nature. Mburu (2015) explained that the major advantage of using a continuous index is that it allows the inclusion of all the respondents (youths) in the model compared to a binary one.

3.5.3.2 Model Specification

Impact of training on youth agripreneurship performance was analysed using the PSM model. This follows a two-stage method. Firstly, a logit model was used to estimate the propensity scores which were used in matching the participants and Non-participants. The second stage entails estimating the average treatment of the treated (ATT) using the propensity scores obtained from the logit model.

Step One (Logit Model)

The first step is the same as the method described for Objective 1 (factors influencing youth participation in the programme). Thus Equation 3.1 was analysed to estimate the propensity scores used for the matching exercise.

Step Two (PSM Model)

At this stage, the Participants and Non-participants were matched using the propensity scores derived from the first stage. The PSM model was fitted into the data to evaluate the impact of participating in the programme on youth agripreneurship performance. The model is specified as follows;

Let Y_i^T and Y_i^C be the outcome variable for the participants (treatment) and non-participants (control) respectively. The difference in the outcome of the two groups can be expressed as Equation 10:

$$\Delta_I = Y_i^T - Y_i^C \tag{10}$$

Where:

Y_i^T: Outcome of treatment (i.e. youth agripreneurship performance of the ith individual, when he/she participates in the training programme),

Y_i^C: Outcome of the untreated individuals

Δ_I: Difference between the outcomes of the two groups

If Equation 3.7 is expressed in causal effect notational form, by assigning $D_i=1$ as the assignment variable which takes the value of 1 for participants and 0 for non-participants, then the Average Treatment Effect (ATE) of a youth, i can be written as Equation 11:

$$ATE=E\ (Y_i^T|D_i=1)\text{-}E(Y_i^C|D_i=0) \tag{11}$$

Where:

$E(Y_i^T|D_i=1)$: Average outcome for Participants (D_i=1).

$E(Y_i^C|D_i=0)$: Average outcome for Non-participants (D_i=0).

The Average Effect of Treatment on the Treated (ATT) for the sample is therefore given as Equation 12:

$$ATT=E\ (Y_i^T\text{-}Y_i^C\ |\ D_i=1)=E(Y_i^T|D_i=1)\text{-}E(Y_i^C|D_i=1) \tag{12}$$

For comparison, various matching algorithms (NNM, CBM and KBM) were fitted for the PSM and the best algorithm was selected for the study.

3.5.4 Impact of Training on Youth Empowerment

3.5.4.1 Measurement of Youth Empowerment

Principal component analysis (PCA) was adopted to generate a Youth Empowerment Index (YEI) used to quantify empowerment. PCA was adopted because it is a data reduction method which assigns more weights to indicators than simple summation (Moser & Felton, 2007). The indicators, which was grouped into six empowerment domains, as presented in Table 3.3, were extracted from existing literature on youth and women empowerment (International Labour Office, Tunisia, 2018; Mburu, 2015) . Fifteen indicators were subjected to PCA in order to extract the essential components required to construct a non-standardized

YEI. According to Mburu (2015), the researcher may possibly determine the number of components to retain. This approach, however, may not be efficient since it is required for the retained components to have an eigenvalue of 1 or above. Thus, this study followed Kaiser's criteria, retaining components which had an eigenvalue of one or above. The proportion of each of the retained component was then used as the weights in generating the non-standardized index following Equation 13.

$$YEI^{NS} = \sum_{i=1,\ldots n} \left\{ \frac{Proportion\ of\ PC\ Variation}{Total\ Variation\ of\ retained\ Component} \ X\ PC_i \right\} \qquad (13)$$

Where : PC = Principal component; i = Value of retained PC

YEI^{NS} = Non-standardized Youth Empowerment Index

To standardize the index, Equation 14 was be applied.

$$YEI^{S} = \frac{YEI^{NS}_{i\ldots n} - Min\ YEI^{NS}_{i\ldots n}}{Max\ YEI^{NS}_{i\ldots n} - Min\ YEI^{NS}_{i\ldots n}} \qquad (14)$$

Where :

YEI^{S} = Standardized Youth Empowerment Index

YEI^{NS} = Non-standardized Youth Empowerment Index

$Min\ YEI^{NS}$ = Minimum non-standardized Youth Empowerment Index

$Max\ YEI^{NS}$ = Maximum non-standardized Youth Empowerment Index

Table 3. 3: Indicators of Youth Empowerment

Five Domains of Empowerment (5DE)	Indicators	Policy Issues that are triggered
Access and decision to credit	1. Access to Credit	• Economic
	2. Decision and use of credit	

	3. Credit repayment	Empowerment
Asset Ownership	4. Agricultural Assets	• Decision-making
	5. Personal household assets	• Representation
Youth Livelihood	6. Personal living Condition	
	7. Contribution to Household income	
	8. Life contentment	
	9. Household living condition	
Financial Freedom	10. A consistent source of income	
	11. Control over the use of income	
Group Membership and Relationship	12. Dependence on my parents for basic needs	
	13. Membership of association	
	14. Closeness to family members and relatives	
	15. Relationship with family	

Source: Authors compilation from existing literature

3.5.4.2 Three-Stage Model Specification

A three-stage estimation procedure similar to that of Jumbe and Angelsen (2007) was used in analysing the fourth objective (impact of agricultural training programme on youth empowerment). The key model is the Tobit empowerment equation, which is a function of the predicted value of agripreneurship performance and other relevant covariates. However, participation is endogenous in nature and was estimated first. Since participation may not necessarily be random, the issue of potential selection bias may arise. This was corrected for by using an endogenous treatment effect regression (ETER) model.

Thus, the empirical model is itemised as a system of simultaneous equations to show the connection among Programme participation (training), youth agripreneurship performance, and youth empowerment as follows:

$Z_i^* = \beta X_i + u_i$ *(Participation in the Programme - first stage, probit)* ....(15)

$$Y_i = \alpha K_i + \eta Z_i + \varepsilon_i \qquad \text{(\textit{Agripreneurship performance - second}}$$

stage)……………………(16)

$$E_i = \mu T_i + \lambda \widehat{Y_\iota} + e_i \qquad \text{(\textit{Youth Empowerment – third stage, Tobit})}……………..……….......$$
(17)

where Zi is an indicator variable for participation in training which takes the value of 1 if a youth participated and 0 otherwise; Y_i denotes youth agripreneurship performance measured as a multiplicative function of agripreneurship skills, business skills and agripreneurship behaviour; E_i denotes youth empowerment and $\widehat{Y_\iota}$ is the predicted value of youth agripreneurship performance from the second stage; X_i, K_i, T_i are vectors of covariates that determined participation, youth agripreneurship performance and youth empowerment, respectively; β, α, η, μ, and λ are unknown parameters and u_i, ε_i and e_i are error terms.

In this analysis, Y_i is observed for a Youth, i together with covariates and K_i and X_i if $Z_i = 1$.

Details of the three-stage Estimation Procedure

a) **Endogenous Treatment Effect Regression Model**

   i) **The First Stage**

The first two stages were modelled using the endogenous treatment effect regression (ETER) model. The aim of the first stage was to obtain the inverse Mills' ratios (rho) to correct for endogeneity in the estimates of youth agripreneurship performance. The first stage thus distinguished the participants from non-participants using probit model. The decision to participate in the programme was measured as a dichotomous variable which assumes the value of 1 if a youth participated and 0 otherwise. From Equation (15), the reduced form participation equation was specified as expressed in Equation (18)

$$Z_i= \begin{cases} 1 \; iff \; Z_i^* \geq 0 \\ 0 \; otherwise \end{cases} \quad\quad\quad (18)$$

ii)   The Second Stage

The second stage aims at obtaining the predicted estimates of youth agripreneurship performance after correcting for endogeneity $(\widehat{Y}_i)$. According to Jumbe and Angelsen (2007), applying OLS to Equation (16) will generate an inconsistent estimate of the outcome variable because the expected value of the disturbance term condition on participation is non-zero. This, therefore, raises the issue of endogeneity which validates the appropriateness of using ETER for the first two stages. Thus, the conditional mean of the outcome variable in Equation (16) is expressed as Equation 19:

$$E(Yi/Zi = 1) = \alpha K_i + E(\varepsilon_i/X_i, \; u_i) = \alpha K_i + E(\varepsilon_i/u_i) \quad\quad\quad (19)$$

Such that $E(\varepsilon_i/u_i) \neq 0$

The conditional expected value of the two error terms can therefore be specified as in Equation 20:

$$E(\varepsilon_i/u_i) = E(\varepsilon_i/u_i \leq \beta X_i) = E(\sigma_\varepsilon, \rho/u_i) = \rho\sigma_\varepsilon \left. \phi(\beta X_i) \middle/ \Phi(\beta X_i) \right. \quad\quad\quad (20)$$

Where $\Phi(.)$ and $\phi(.)$ denotes the cumulative distribution functions and standard normal density respectively.

The IMR derived in the first stage was included as an explanatory variable in the second stage as an endogeneity-correction term. This is because it is a standard for the second stage estimation to include at least one imposed exclusive restriction that is justifiable (Burke *et al.*, 2015). The statistical significance of the coefficient of the inverse Mills' ratio (rho) implies the presence of endogeneity which justifies the use of ETER.

b) The Third Stage (Tobit Model)

The third step estimated the impact of the predicted youth agripreneurship performance as a result of participation in training on empowerment (Equation 17). The predicted estimates of agripreneurship performance denoted by $\widehat{Y_\iota}$, was derived from Equation 16. Then, the empowerment model was specified to include the predicted value as one of the explanatory variables as shown in Equation (17) where λ is the parameter of interest. The third stage was modelled using the Tobit regression model, which is most appropriate given the truncated nature of the dependent variable (youth empowerment index) at this stage.

3.6 Model Diagnostic tests

3.6.1 Diagnostic Tests for the Logit Model

The following diagnostic tests were carried out to assess the validity of the logit used in the study:

a) Test for Multicollinearity

Multicollinearity arises when two or more explanatory variables in the regression model are correlated (Daoud, 2017). In this study, Pearson's correlation matrix was computed to check for multicollinearity. According to Gujarati (2001), variables are said to be highly correlated if their correlation coefficient is higher than 0.8. In addition, the Variance Inflation Factor (VIF) and tolerance level tests were conducted. If the VIF value is over 10 or the tolerance level is less than 60 per cent, then there is presence of multicollinearity (Gujarati, 2001).

b) Test for Goodness-of-Fit

Generally, "the goodness of fit of a statistical model is assessed by relating how well the model fits the observed dataset" (Guffey, 2012). In this study, the goodness of fit was tested using the Hosmer-Lemeshow test. The test is more appropriate since the data were obtained from a random sample (Shah & Barnwell, 2003). Data were ranked according to the predicted likelihood of the results from the logistic model which is under evaluation and categorized

into 10 groups, the expected outcomes were compared to the observed ones. The null hypothesis of Hosmer and Lemeshow's test is that the model is fit. Thus, if the *p*-value is greater than 5 per cent, it will imply that the model is fit and the null hypothesis cannot be rejected (Guffey, 2012).

c) Test for Heteroskedasticity

According to Greene (2003), heteroscedasticity occurs when the regression disturbances do not have a constant variance leading to bias and inefficient estimators. To test for heteroscedasticity, this study adopted the Breusch-Pagan/Cook-Weisberg test which tests the null hypothesis of constant error variances. The result of the test gives a chi-square with a corresponding *p*-value which shows the presence/absence of heteroscedasticity. A statistically insignificant *p*-value indicates equal variance of the errors which implies absence of heteroskedasticity thus failing to reject the null hypothesis.

3.6.2 Diagnostic tests for the Propensity Score Matching

a) Covariate balancing test

In this study, balancing of covariate was checked using the tests of mean differences before and after matching. According to Caliendo and Kopeinig (2008), the test ensures that all the covariates are well balanced for the matching exercise so as to avoid bad matches. Balancing is achieved when there are no significant differences between the covariates of the control and treatment groups after matching even if they were significantly different before matching. This test was conducted to ensure that the control and treatment group were similar based on of pre-treatment observable characteristics.

b) Indicators of matching quality

Matching quality test was conducted to make sure that treatment and control groups are similar in terms of observable pre-treatment characteristics. The major indicators used in this study are those recommended in literature including Caliendo and Kopeinig (2008), Douglas *et al.* (2016), and Haji and Legesse (2017). The pseudo R^2 and likelihood ratio were compared before and after matching to assess whether the matching procedure was able to balance the characteristics of the treatment and comparison groups and also to make sure that the control group is a reliable counterfactual. According to these authors, an insignificant likelihood ratio test and low pseudo R-squared after matching shows that the two groups have the same covariates' distribution and are comparable. By standard, the pseudo R-squared must be lower after matching (Caliendo & Kopeinig, 2008). In addition, the number of matched sample size and insignificant variables after matching were assessed. According to Haji and Legesse (2017), the matched sample must be large enough for the PSM analysis. Thus, number of cases lost to common support should be minimal.

c) Validity test (Propensity score (PS) Histogram)

To test for the validity of the propensity score estimates, a PS histogram was generated using the psgraph command in stata14. This was done to verify the common support region and ensure that the common support conditions are met. The basic underlying assumption is that the likelihood of participating in any programme or intervention lies between 0 and 1 (Haji & Legesse, 2017). Thus, following the visual assessment method proposed by Lechner (2011), the propensity score distribution was visually assessed to check if the common support condition was met. This was done by observing if there was enough overlap between the two group.

d) Sensitivity analysis for the hidden bias

To check if there were unobserved variables affecting assignment into treatment and the outcome variable, the bounding approach proposed by Rosenbaum (2002) was adopted in testing the null hypothesis that unobserved characteristics have no effect on the impact estimate (Hujer *et al.*, 2004). The gamma level, which is the odds ratio of differential treatment effect as a result of unobserved characteristic, was reported at the point where 5 per cent significance level is exceeded (Hujer *et al.*, 2004).

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Socio-economic and Farm Characteristics

The results presented in Table 4.1 show that the mean age of participants was 27 years while that of non-participants was 24 years. The difference between the mean age for the two groups was found to be significant at 1 per cent. About Sixty-five per cent of the participants were male against sixty-eight per cent for the non-participants. The difference between the two groups when disaggregated by gender was not statistically significant. About 40 per cent of the participants were married compared to only 14 per cent of the non-participants. The difference between the two groups was statistically significant at 1 per cent.

The mean years of formal education was almost 15 years for participants compared to 13 years for non-participants. This high literacy rate among both groups may be attributed to the high value placed on education in Nigeria. According to FAO (2018), the youth literacy rate in Nigeria has been rising since 1991, it grew from 66.4 per cent in 2008 to 79.9 per cent in 2015. The two mean were significantly and statistically different at 1 per cent.

Averagely, respondents had a household size of about 5 persons while non-participants had an average of 6 persons. The average household size is defined in terms of the average number of people who lives and dines under the same roof as the participant. This result corroborates the results of Alfred (2014) who found that the mean household size in Nigeria is between 4 and 6 persons. However, the mean household size of non-participants was slightly higher than the number reported by the General Household Survey (GHS) in 2017 which indicated that the average household size in Nigeria is 5. Thus, it can be inferred that the majority of the non-participants were from large households. The difference between the household size for the two groups was significant at less than 1 per cent.

Table 4. 1: Socio-Economic and Farm Characteristics

Variable	Pooled	Treated	Control	z-value
	n = 977	n = 455	n = 522	
Age of Respondents	25.72	27.33	24.33	-10.92***
Education (Years)	14.10	14.48	13.77	-3.78***
Household Size	6	5	6	4.03***
Experience in Agriculture(Years)	2.07	2.13	1.95	-1.80*
Productive Asset Index Score	4.50	4.68	4.35	-1.99**
Average Monthly Income	₦24761.84	₦28897.80	₦21156.74	-4.38***
Average Monthly Farm Income	₦12740.74	₦18890.55	₦7380.23	-8.81***
	Pooled	**Treated**	**Control**	**z-value**
	n = 977	**n = 455**	**n = 522**	
Gender (Male)	67.04	65.49	68.39	0.96
Marital status (Married =1)	26.10	39.56	14.36	-8.94***
Access to Credit	23.23	25.67	20.44	-1.93**
Ownership of Agribusiness	47.49	62.20	34.67	-8.59***
Type of Employment	9.11	7.47	10.53	1.66*
Intention on Agribusiness	46.67	70.77	25.67	-14.09***
Perception about Training	87.92	92.30	84.09	-3.93***
State Dummies				
Abia	34.80	37.14	32.76	-1.44
Ekiti	28.97	29.89	28.16	-0.59
Kebbi	36.23	32.97	39.08	1.58

Source**:** Author's Computation**,** 2019. Note: $p > 0.1 = *$, $p > 0.05 = **$, $p > 0.01 = ***$

The mean year of experience in agribusiness for participants was 2.13 years and 1.95 years

for non-participants. Even though the result showed that participants had more years of

agribusiness experience compared to the non-participants, an average of 2 years is still considered to be very little. This, therefore, implies that both groups had very little experience in agribusiness. The difference between the two groups was statistically significant at 10 per cent.

Only about 7 per cent of the participants were formally employed against 10 per cent of the non-participants. The difference between the two groups was significant at 10 per cent. Majority of the participants (62.20 per cent) had their own agribusiness enterprise against only 34.67 per cent among the non-participants. This high percentage among the participants may likely be as a result of their participation in the training programme. The difference between the two groups was significant at 1 per cent.

The average monthly income of participants and non-participants is equivalent to approximately 80 USD and 59 USD respectively translating to about 2.55 USD per day for participants and 1.87 USD for non-participants. This implies that going by the global poverty line of 2USD/day, participants were better off compared to the non-participants. The difference between the average monthly income of the two groups was found to be significant at less than 1 per cent.

Analysed data also showed that 25.67 per cent and 20.44 per cent of the participants and non-participants respectively had access to credit. The difference was significant at 1 per cent. In terms of ownership of productive assets, on the average, participants had a higher index score of 4.68 compared to non-participants at 4.35. The difference was statistically significant at 5 per cent. Majority (71 per cent) of the participants had the intention to engage in agribusiness compared to only about 26 per cent of the non-participants. This could be attributed to the positive influence of training on the participants. The difference between the two groups was significant at 1 per cent. Similarly, majority of the participants (92 per cent) compared to the

non-participants (84 per cent) perceived agricultural training as an important factor for better performance. This positive perception of agriculture is contrary to the common belief that young people perceive agriculture as an occupation for the poor. This may be attributed to the changing outlook of agriculture and the introduction of agribusiness in most Africa countries. The difference between the two groups was significant at 1 per cent.

4.2 Analysis of Agripreneurship Performance Indicators

The results presented in Table 4.2 shows that in terms of agripreneurship skills, participants had a mean score of 4.33 while non-participants had an average of 3.29. This higher score recorded by the participants could be attributed to their participation in the training programmes. This is because they were able to acquire more skills through the programme. The mean difference between the two groups was statistically significant at 1 per cent. Similarly, participants had higher score (4.24) for agribusiness skills as compared to non-participants (3.02). The difference was statistically significant at 1 per cent. In terms of entrepreneurship behaviour, participants also had a higher score of 3.79 compared to that of non-participants of 2.64. The difference was also statistically significant at 1 per cent. Based on these results, it is evident that the training programme led to skill acquisition/improvement among the participants.

Table 4. 2: Comparison of the Means of Respondents Agripreneurship Indicators

Variable	Pooled	Treated	Control	Difference
	n = 977	n = 455	n = 522	
Agripreneurship skills	3.78	4.33	3.29	-1.04***
Business skills	3.58	4.24	3.02	-1.22***
Entrepreneurship Behaviour	3.18	3.79	2.64	-1.15***

Source: Author's Computation, 2019. Note: $p > 0.1 = *$, $p > 0.05 = **$, $p > 0.01 = ***$

4.3 Factors Impeding Youth Participation in Agribusiness

As shown in Figure 4.1, majority of the youths (79 per cent) identified "lack of access to finance" as the major factor impeding them from engaging in agribusiness. This, in fact, is not surprising, one of the commonly stated barriers to business start-up in literature is the lack of capital coupled with the difficulties of getting funds from relevant agencies (Adesina & Eforuoku, 2017; Kimaro *et al*., 2015; Njeru & Gichimu, 2014; Ohene, 2013). Agribusiness requires notable start-up capital which is usually far above what an unemployed youth with no source of consistent income can afford. Apparently, in most cases, such investments go beyond personal savings. This challenge is further compounded by the high-interest rate (13.50 per cent in Nigeria) and "ridiculous" collateral such as land title deeds and physical assets demanded by most financial institution. Sacerdoti (2005) explained that interest rates are relatively high in developing countries specifically, on micro-credits and small loans. In addition, administrative costs are not in favour of youths' scale of operations. This is supported by the finding of Chebet (2016) who identified lack of collateral as one of the major challenges young people face when trying to access funds from financial institutions. Similarly, Sharu and Guyo (2015) found that young people have difficulties in accessing credit because they lack self-sustaining resources, substantive credit history, and sufficient collateral or guarantees to secure loans. To overcome this barrier, there is a need to facilitate youths' access to commercial credit through borrowers group formation among those willing to engage in agribusiness.

The second barrier identified was a lack of mentorship. About 11 per cent of the youths explained that they are more likely to engage in agribusiness if there are professionals to mentor them. This is a very important factor which should not be discarded so easily. Yami *et al.* (2019) reported that continuous mentorship on both technical and financial aspects of youth-run agribusiness projects greatly enhanced youth engagement in agribusiness in Kenya.

A way to accomplish this is by incorporating post-training mentorship programmes into training programme designs.
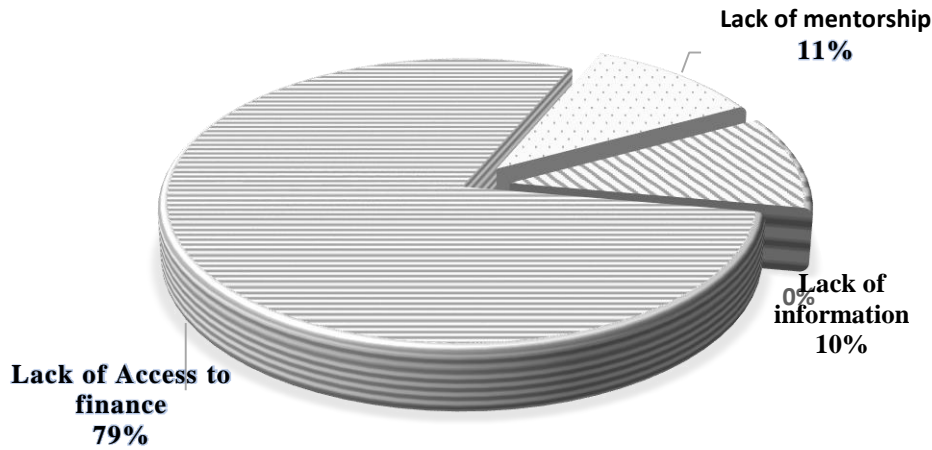
Figure 4. 1: Factors Impeding Engagement in Agribusiness

Only 10 per cent of the respondents ranked lack of information as a challenge. Access to information is key to any successful business venture. This may actually give innovative insights to youths regarding agribusiness development. This agrees with the findings of Davis *et al*. (2008) who found that access to information yielded favourable outcomes in shaping youths' attitudes towards engagement in agribusiness

Thus, relevant information can be disseminated through the internet. While the use of social media has been abused, it can still serve as a useful means of getting information to a large number of the intended audience. Information can also be disseminated through relevant government service centres and youth social network.

4.4 Factors Influencing the Likelihood of Participation in the Fadama GUYS Programme

The test for multicollinearity showed that there was no statistically significant correlation between the variables as all the coefficients were less than 0.5, indicating that there was no

noticeable problem of multicollinearity among the variables. Also, the Hosmer and Lemeshow's goodness-of-fit test result had a chi-square (8) of 7.88 with a *p*-value of 0.4457 which implies that the null hypothesis stating that the model is fit could not be rejected. Thus, the model was fit for the analysis. In addition, the mean value of the VIF was less than 10 and tolerance level (1/VIF) had values which were all greater than 0.6 confirming further that there was no problem of multicollinearity. Also, result of the null hypothesis of Bruesch-Pagan/Cook-Weisberg test for the presence of heteroscedasticity had a chi-square of 0.31 and a *p*-value of 0.5797 indicating that the null hypothesis of homoscedasticity could not be rejected. Thus, it was concluded that there was no problem of heteroscedasticity in the model.

Out of the 12 independent variables hypothesized to influence participation, nine were statistically significant. These were age, years of formal education, gender, household size, ownership of agribusiness, migration status, perception about agricultural training, and perception about agribusiness (Table 4.3). Non-significant variables include asset index, marital status and head of household years of formal education.

Age of respondent was positive and significant at 1 per cent. The value of the marginal effect of 0.027 implies that as age increases by one year, the likelihood of participation increases by 2.7 per cent. This implies that older youth are more likely to participate in the programme compared to the younger ones. This is because younger youths are more likely to still depend on their family/parents for means of livelihood, unlike the older youths who are more likely to be married and be in the labour market in search for employment or means of livelihood. Nnadi and Akwiwu (2008) attributed the positive relationship between age and participation to the increased consciousness of the importance of agriculture as people grow older (experience). This result is consistent with the findings of Nnadi and Akwiwu (2008); Abdul-Hakim and Che-Mat (2011); Akudugu (2012); Ayanwuyi *et al* (2013), Muhammad-Lawal *et al*., (2015); and Ayinde *et al* (2016).

Table 4. 3: Factors Influencing Youth Participation in the Programme Training

Variables	Coef.	S.E.	t-value	Marginal Effect
AGE	0.110	0.025	4.48***	0.027
EDUC(Years)	0.074	0.031	2.35**	0.018
GENDER	-0.417	0.183	-2.27**	-0.104
HHSIZE	-0.067	0.028	-2.36**	-0.017
AGRIC_ENT	0.940	0.218	4.31***	0.231
MIGRATION	0.397	0.182	2.19**	0.098
AGRI_INTENT	0.674	0.072	9.32***	0.167
ASTINDEX	-0.042	0.033	-1.30	-0.011
TRAIN_PERC	0.593	0.296	2.01**	0.142
AGIB_PERC	0.821	0.271	3.03***	0.192
HoHEDUC(Years)	0.013	0.027	0.48	0.003
MARITAL_STAT	0.042	0.254	0.17	0.011
State Dummies				
Abia state	0.845	0.204	4.14***	0.208
Ekiti state	-0.907	0.212	-4.27***	-0.216
Kebbi state	0.078	0.235	0.03	0.019
Constant	-7.152	0.802	-8.91***	

PseudoR^2 =0.257; LR chi2 (*p*-value) = 346.47 (0.000); Hosmer-Lemeshow chi2 (8) = 7.88
Prob >chi2 = 0.4457; Bruesch-Pagan/Cook-Weisberg chi-square (1) =0.44 Prob >chi2 = 0.5074

Source: Author's Computation, 2019. Note: *p* >0.1= *, *p* >0.05= **, *p* >0.01= ***

Gender was significant at 5 per cent but, negatively related to the likelihood of participating in the programme. This implies that female youths are 10 per cent more likely to participate in the programme compared to their male counterparts. This could be attributed to the fact

that women play a remarkable role in household food production and provide most of the farm labour in the Africa context. As a result, they are more likely to choose to participate in agricultural programmes which will improve their skills and empower them to increase their productivity. This is similar to the findings of Judith (2014) who found that female farmers were 24 per cent more likely to participate in agricultural-based programmes in Kenya and also Senkondo *et al.* (2004) who found that compared to men, women were more actively involved in the Rain Water Harvesting (RWH) project in Tanzania.

Years of formal education was significant at 5 per cent and positively related to the likelihood of participating in the programme. The marginal effect shows that as the year of formal education increases by one year, the likelihood of participation will increase by 0.018. This was not expected but could, however, be attributed to the unconducive struggle for white-collar jobs after graduation which has driven many young graduates looking for alternative employment (particularly in the agricultural sector) outside their professional career. It could also be attributed to the role of education in accessing timely information on such programmes through social media and other sources. This agrees with the argument of Ayinde *et al.* (2016) that a higher level of education is a vital means of accessing information. Also, Amaza and Tashikalma (2003) posited that education is capable of influencing people towards embracing innovations. However, this was contrary to the findings of Sudarshanie (2015) who attributed the negative relationship between participation and the level of formal education to the preference of more educated people for wage employment.

Household size was significant but negatively related to participation in the programme. The marginal effect shows that a unit increase in household size will lead to a 0.017 decrease in the log-odds of participation in the training programme, holding all other independent variables constant. This was contrary to expectation, but could be attributed to the possibility of households having different occupations that are not related to agriculture. For instance,

68

those from households involved in construction business are likely to help in running the family business. This is common in the Eastern part of Nigeria where family labour is mostly employed in family businesses. This finding is contrary to the findings by Adesina and Eforuoku (2017); Eneyew and Bekele (2015); Abdul-Hakim and Che-Mat (2011); Alkaeli (2010); and Nnadi and Akwiwu (2008).

Ownership of agribusiness enterprise was positive and significant at 1 per cent. The implication is that ownership of agribusiness enterprise increases the likelihood of participating in the programme by 23 per cent. Thus, the null hypothesis that ownership of agribusiness enterprise did not influence youths' decision to participate in the Programme training was rejected and it was concluded that ownership of agribusiness enterprise influenced participation decision. This could be attributed to their work flexibility and the fact that they already have some of the productive assets, such as land and capital, required for running a successful agribusiness venture. Thus, their major need is likely to range from resource mobilization to agribusiness expansion. They are therefore more likely to seek knowledge on how to expand their enterprise which might have influenced their decision to participate in the programme. Many studies have identified lack of access to land as one of the major factors hindering young people from engaging in agribusiness (Ovwigho & Ifie, 2011; Afande *et al.*, 2015; Adesina & Eforuoku, 2017).

Youths' intention to engage in agribusiness was positive and significant at 1 per cent implying that those who have positive intention towards agribusiness are more likely to participate in the programme. This aligns with expectations as intention is defined as a drive to action and achievement. According to Ajzen (2009), most of the motivational factors which tend to influence behaviour are reflected by intentions. Thus, youths' positive intention towards agribusiness will inspire them to participate in agricultural training since the aim of the programme is to empower them in the field of agribusiness. This corroborates the

findings of Anagnosti *et al*. (2013) that entrepreneurial intention positively influences people's attitudes towards entrepreneurship and therefore, has a positive influence on the decision to participate in entrepreneurship training.

Youths' perception of agribusiness was positive and significant at 1 per cent. This implies that positive perception about agribusiness increases the likelihood of participating in the programme by approximately 20 per cent. Thus, the null hypothesis that perception of agribusiness did not influence youths' decision to participate in the Programme training was rejected and it was concluded that perception aided participation decision. This may be attributed to the changing traditional perception of most youths regarding agribusiness. According to Robbins *et al*. (2012), "Perception is a process by which individuals organize and interpret their sensory impressions in order to give meaning to their environment." Perception can influence human behaviour positively or negative as it pertains to decision-making (Ohene, 2013). Thus, youths who perceive agribusiness to be an occupation with potentially high economic returns and a means of escaping unemployment are more likely to participate in training programmes compared to those who think otherwise. Muathe (2016) explained that good perception of agribusiness will increase the rate of youth entrance into the field. Evidence from Kenya as reported by Yami *et al.* (2019) showed that young people now perceive agribusiness as a socially accepted career option. This also agrees with the findings of Adesina and Eforuoku (2017). However some studies have reported a contrary result. For instance, Abdullah *et al.* (2012) indicated that many youths are not interested in engaging in agriculture because they perceive the field as an attractive work area. Also, MoFA (2011) explained that youths who have a negative perception about farming do not participate in agricultural programmes.

The state dummies included in the model are Abia state, Ekiti state, and Kebbi state. Only two of the dummies had a significant influence on youths' participation in the programme.

The Abia state dummy was positive and significant at 1 per cent implying that youths in the state are more likely to participate in the training programme. This is expected owing to the high rate of youth unemployment in the state. Olurinola and Fadayomi (2016), using evidence from the labour market survey, reported that the rate of youth unemployment in Abia state as of 2015 was 38.96 per cent ranking among the states with very high rates. According to Essien and Onukwubiri (2015), this high rate of youth unemployment in the state is aggravated by inadequate functioning industries coupled with unfavourable policies to absorb the large youth population. Based on this, many youths may opt for any empowerment programme capable of restructuring and changing their economic status. Also, the National Bureau of Statistics (2010) reported that the agricultural sector is the highest employer of labour in Abia state, accounting for 19.4 per cent of total employment. This clearly shows the role agricultural programmes can play in the state.

Conversely, the Ekiti state dummy was negative but significant at 1 per cent, suggesting that youths in these state are less likely to participate in the programme. This could be ascribed to the high outward migration of youths from the state. According to the Ekiti State government, most of the youths who are supposed to engage in agriculture have migrated in large numbers to the urban centres in search of formal employment[1]. This corroborates the findings of Aremu and Akinwamide (2018) that majority of the youthful population who are supposed to drive sustainable rice production in the state (a crop in which the state has a competitive advantage) has departed to urban centres in the name of finding greener pasture.

4.5 Determinants of Youth Engagement in Agribusiness

The determinants of youth engagement in agribusiness was analysed at the second stage of the Heckprobit model. The correlation between the error terms of the selection equation (participation in training) and engagement equation (rho, ρ) was negative and significant

---

[1] https://ekitistate.gov.ng/2013/08/features-food-security-in-ekiti-youth-scheme-revives-agric/

(Table 4.4), indicating an issue of selection bias, which validates the use of Heckprobit models. The Wald Chi² test (Chi² (1) =25.75; p=0.000) was significant at less than 1 per cent leading to the rejection of the null hypothesis that all variables can be jointly excluded. Thus, it was concluded that the model has high explanatory power and is appropriate for the analysis. From Tables 4.4, only the marginal effects and p-values are discussed since they are more relevant than the coefficient. As hypothesized, access to credit, access to land, and asset index score positively and significantly influenced youths' decision to engage in agribusiness. Conversely, years of formal education negatively but significantly influenced engagement decision. This is also in compliance with the hypothesized expectation. Non-significant variables include Age, Household size, Migration Status, and Employment type. All results are discussed based on the marginal effect.

Gender was positive and significant at 5 per cent. This implies that male youths are 6 per cent more likely to engage in agribusiness compared to their female counterparts (p =0.026). This could be ascribed to the strenuous nature of agriculture as well as the economic responsibility of men. This corroborates the findings of Bezu and Holden (2014) who found that young women are more likely to opt for wage employment in the urban area than farming. The authors attributed this to cultural barriers which limit access of women to land and other productive resources. However, Akpan (2010) found a contrary result and based it on the argument that women play a major role in ensuring household food security, as a result, they may be more willing to engage in agribusiness for the purpose of food production.

Table 4. 4: Determinants of Youth Engagement in Agribusiness

Variables	Participation in Training				Engagement in Agribusiness			
	Coef.	Std. Err.	*p*-value	Marginal Effect	Coef.	Std. Err.	*p*-value	Marginal Effect
AGE	0.081	0.011	0.000	0.024	0.014	0.018	0.419	0.017
EDUC	0.048	0.016	0.003	0.014	-0.045	0.020	0.026	-0.011
GENDER	-0.247	0.103	0.016	-0.073	0.259	0.130	0.046	0.066
HHSIZE	-0.050	0.017	0.003	-0.015	0.011	0.023	0.651	0.000
MIGR_STAT	0.198	0.103	0.056	0.058	-0.198	0.141	0.159	-0.032
ASSET	-0.033	0.029	0.249	-0.010	0.095	0.045	0.032	0.035
EMP_TYPE	-0.305	0.171	0.075	-0.090	-0.032	0.213	0.879	-0.076
CREDIT	-0.208	0.110	0.059	-0.061	0.539	0.161	0.001	0.165
AGRIB_INT	0.472	0.038	0.000	0.139				
TRAIN_PER	0.736	0.138	0.000	0.217				
LAND					0.081	0.022	0.000	0.031
State Dummies								
Abia	0.581	0.119	0.000	0.167	0.102	0.151	0.497	0.110
Ekiti	-0.497	0.116	0.000	-0.144	0.396	0.175	0.733	0.068
Kebbi	-0.093	0.130	0.474	-0.027	0.542	0.159	0.001	0.164
_cons	-4.548	0.413	0.000		0.697	0.621	0.262	

rho = -0.7968***   LR test of indep. eqns. (rho = 0):   chi2(1) =   25.75   Prob > chi2 = 0.0000

Source: Author's Computation, 2019. Note: *p* >0.1= *, *p*>0.05= **, *p*>0.01= ***

As expected, years of formal education was negative and significant at 5 per cent implying that as years of formal education increases by 1 year, the likelihood of engaging in agribusiness reduces by 1 per cent. This could be because those who are well-learned or have high literacy level have high hopes of getting white-collar jobs or working in a formal sector compared to those with low literacy level. Bezu and Holden (2014) argued that as educational achievement increases, people have higher expectation of getting a formal job. This result agrees with the findings of Sharma (2007) and Akpan (2010). This opposing result of

influence of education on decision to participate in training and decision to engage in agribusiness is really surprising as if implies that not all those who participate in training are likely to engage in agribusiness.

Asset index score was positive and significant at 5 per cent. This is in line with the hypothesized expectation. The implication of this is that those with more productive assets are more likely to engage in agribusiness. This is because one of the common challenges faced by young people is limited access to productive resources for agricultural purposes. Thus, ownership of productive asset eliminates some of these hindrances and open them up for agribusiness activities. This agrees with the findings of Bezu and Holden (2014) who found a negative relationship between value of asset owned and decision to engage in off-farm employment. Thus, youths with more productive assets are more likely to choose a career in agriculture than work for other people.

As expected, access to credit was positive and significant at 1 per cent showing that access to credit increases the probability of engaging in agribusiness by almost 20 per cent. This suggests that access to credit is relevant for youth engagement in agribusiness. The reason for this is that access to credit relaxes some of the financial impediments associated with financing an agribusiness firm as well as give people the opportunity to diversify their income sources. This agrees with many studies which have assessed the influence of credit on youth engagement in agribusiness (Njeru & Gichimu, 2014; Afande *et al.*, 2015; Muathe, 2016; Nwibo *et al.*, 2016; Adesina & Eforuoku, 2017; Muthomi, 2017).

The results also showed that access to land increased the probability of youth engagement in agribusiness by approximately 4 per cent, suggesting that land is important for agricultural engagement. Similarly, Mohammed (2012); Njeru and Gichimu (2014); Kimaro *et al.* (2015); Kwenye and Sichone (2016); and Byamugisha and Ansu (2017) all attributed

increased youth engagement in agricultural activities to availability of and access to land. Having access to land could motivate youths willing to engage in agribusiness, particularly, those interested in crop and livestock production.

The Kebbi state dummy was positive and significant at 1 per cent suggesting that youths in Kebbi state are more likely to engage in agribusiness compared to the other states. This could be attributed to the fact that most youths in the northern region earn their living from agribusiness as more of them are herdsmen. Thus, the predominant occupation is farming. This is supported by the findings of Soneye (2014) that the major occupation in the north-western region of Nigeria is farming.

4.6 Impact of Programme Training on Agripreneurship Performance

4.6.1 Results of PSM Diagnosis Test

This objective was achieved using the PSM method. The analysis was preceded by a number of diagnostic tests.

4.6.1.1 Results of Different Matching Algorithm

Table 4.5 shows that, compared to other algorithms, the NNM algorithm with four matches best satisfied the criteria outlined by Caliendo and Kopeinig (2008), and Haji and Legesse (2017). It yielded the lowest pseudo R^2 of 0.005 after matching, large number of matched sample (941), and lowest mean standardized bias of 4.1 per cent which falls within the percentage recommended in literature (Augurzky & Kluve, 2007; Caliendo & Kopeinig, 2008; Austin, 2014; Almeida & Bravo-Ureta, 2017; Haji & Legesse, 2017). Also, all the covariates were insignificantly different after matching.

Table 4. 5: Comparison of the Performance of Matching Algorithms

Matching Algorithm	Number of Insignificant variables after matching	Pseudo R2 after matching	Matched sample size	Mean SB
Nearest Neighbour Matching Algorithm				
1	12	0.012	941	4.9
2	12	0.009	941	4.7
3	12	0.007	941	4.7
4	12	0.005	941	4.1
Kernel-based Algorithm				
0.01	12	0.007	922	4.7
0.1	12	0.009	941	5.3
0.5	4	0.065	941	17.2
Calliper-based Algorithm				
0.01	11	0.009	922	4.1
0.05	11	0.012	941	4.9
0.25	11	0.012	941	4.9
0.5	11	0.012	941	4.9

Source: Field survey data (2019) using psmatch

4.6.1.2 Result of the Validity Test

Figure 4.2 shows that very few cases of the sample were lost to common support restriction. Similarly, the distribution of the estimated propensity scores for participants and non-participants showed clearly that the common support condition was fulfilled since the propensity score distribution of both groups had enough overlap for the matching exercise. This, therefore indicates the assumption of common support condition was satisfactorily attained since the treatment and control groups were well matched (Caliendo & Kopeinig, 2008).
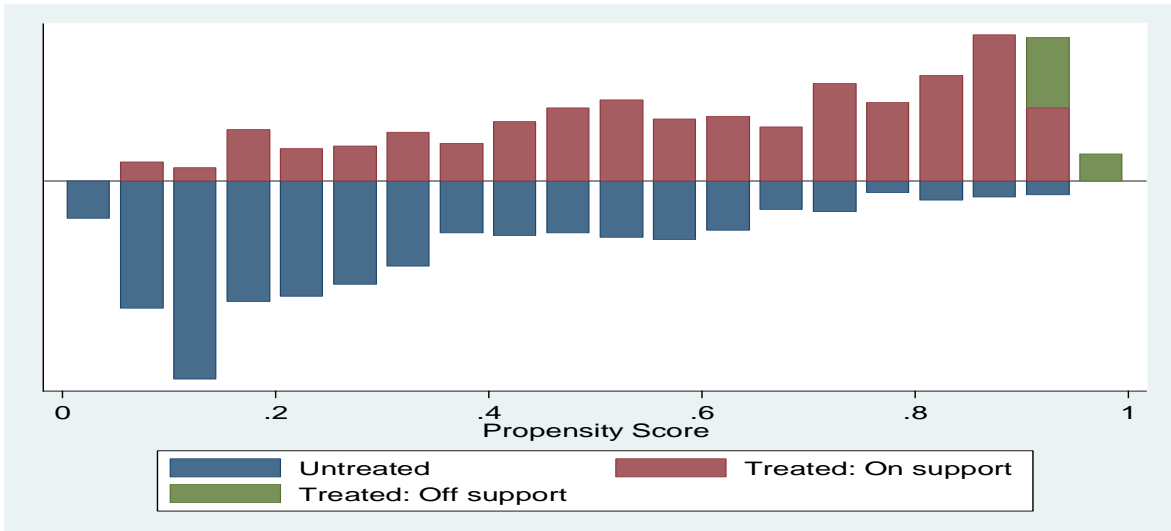
FIGURE 4. 2: COMMON SUPPORT GRAPH FOR NNM ALGORITHM

KEY: Horizontal axis- propensity score; Vertical axis- frequency of propensity score.
Source: survey data (2019) plotted using psgraph

4.6.1.3 Results of Balancing Test for Covariates

The covariate balancing test showed that there was no significant difference between the means of the treatment and control groups following matching as opposed to the case before matching for all the twelve covariates (Table 4.6).

For instance, before matching, the mean age of participants (treatment) was 27.33 years while that of non-participants was 24.33 years. However, after matching, the mean age of the treatment and control respectively were 26.89 and 27.13 and the initial significant difference was eliminated ($p = 0.440$). This was similar for all the other covariates as those that were significantly different before matching all became insignificant after matching. This implies that the disparities between the covariates of the participants and non-participants were successfully eliminated resulting in the conclusion that the comparison group is a good counterfactual. According to Caliendo and Kopeinig (2008), the main essence of matching is to ensure that the covariates are comparable in terms of observable characteristics, hence, the two groups must not be statistically and significantly different.

Table 4. 6: Covariate Balancing Test for Selection Bias after Matching

Variable	Matched/ Unmatched	Mean		%Reduction		t-test	
		Treated	Control	%Bias	Bias	t	p >t
AGE	Unmatched	27.33	24.33	69.90		10.92	0.000
	Matched	26.89	27.13	-5.60	91.90	-0.77	0.440
EDUC(Years)	Unmatched	14.48	13.77	24.10		3.78	0.000
	Matched	14.34	14.49	-5.10	79.00	-0.76	0.445
SEX	Unmatched	0.65	0.68	-6.20		-0.96	0.337
	Matched	0.67	0.69	-3.30	46.40	-0.48	0.631
HHSIZE	Unmatched	5.63	6.49	-26.10		-4.03	0.000
	Matched	5.79	5.99	-6.00	77.10	-1.04	0.297
AGRIC_ENT	Unmatched	0.43	0.10	82.00		13.00	0.000
	Matched	0.39	0.39	1.20	98.60	0.14	0.888
RES	Unmatched	0.65	0.63	4.40		0.68	0.498
	Matched	0.65	0.68	-5.40	-23.10	-0.79	0.432
AGRIB_INT	Unmatched	3.67	2.55	95.80		14.90	0.000
	Matched	3.59	3.56	2.70	97.20	0.41	0.678
ASTINDEX	Unmatched	4.68	4.35	12.90		1.99	0.046
	Matched	4.62	4.47	6.00	53.00	0.89	0.372
SKILL_PERC	Unmatched	0.92	0.84	25.60		3.95	0.000
	Matched	0.92	0.92	-2.40	90.60	-0.41	0.679
BUS_PERC	Unmatched	0.90	0.80	30.60		4.72	0.000
	Matched	0.89	0.88	5.60	81.80	0.89	0.372
MARITAL_STAT	Unmatched	0.40	0.14	59.10		9.32	0.000
	Matched	0.35	0.34	2.20	96.20	0.29	0.772
HoHEDUC(Years)	Unmatched	14.76	14.02	21.10		3.30	0.001
	Matched	14.54	14.65	-3.40	83.90	-0.55	0.584

Source: Field survey data (2019) using pstest

4.6.1.4 The Quality of Matching

Table 4.7 shows that using the NNM algorithm, the value of the Pseudo R^2 was 0.257 before matching. However, after matching, the value reduced to 0.005 which is within the range obtained by Ahmed and Haji (2014) and Haji and Legesse (2017). Also, the LR chi2 reduced to 5.71 after matching compared to 347.15 before matching. The likelihood ratio test after matching implies that since all the regressors in the treatment group were statistically insignificant (p >chi2 = 0.930), the assumption of joint significance of the regressors could

not be sustained (Caliendo & Kopeinig, 2008). Furthermore, the mean standardized bias after matching reduced to 4.1 per cent from 38.1 per cent before matching indicating an 89 per cent reduction (Table 4.8). This value (4.1 per cent) is in line with the acceptable percentage of 3 -5 per cent recommended by Caliendo and Kopeinig (2008). Also, only 36 cases were lost to common support restriction, representing only 4 per cent of the entire sample. Thus, it can be concluded that good matching quality was obtained.

Table 4. 7: Chi-Square Test for Joint Significance

Sample	Ps R2	LR chi2	p >chi2
Unmatched	0.257	347.15	0.000
Matched	0.005	5.71	0.930

Source: Field survey data (2019) using pstest

Table 4. 8: Indicators of Matching Quality and Robustness of Result

Entrepreneurship performance	SB$_{Before}$ (per cent)	SB$_{After}$ (per cent)	percentage reduction in SB	Cases lost to CS	percentage of cases lost to CS	Critical value of gamma
	38.1	4.1	89	36	4	2.8-2.85

Source: Field survey data (2019) using pstest

4.6.1.5 Result of the Sensitivity Analysis

The gamma level obtained from the R-bounds test conducted to check for the hidden bias was reported at the point where 5 per cent level of significance was exceeded since the tolerance level was fixed at 5 per cent. The critical value of gamma for the impact estimate varied between 2.8 to 2.85 (Table 4.8) which implies that the unobserved variable would have to increase the odds ratio of participating by up to 185 per cent before the estimated result can be negated. Following this, it was concluded that the estimated ATT is robust against hidden bias and can be attributed to the training programme.

4.6.2 Impact Results

The impact of the Fadama GUYS programmes on youth agripreneurship performance was obtained by taking the difference between the mean outcome values of the treatment and control groups. Table 4.9 shows that the difference between the mean outcome values of both groups was positive and significant at 1 per cent. The ATT shows that participants' performance score has improved by up to 27 percentage points implying that participation in the programme had a significant impact on the performance of the participants (t=5.05). The earlier diagnostic tests carried out further validates this result. Based on this result, the null hypothesis which states that agricultural training programmes has no impact on youth agripreneurship performance was rejected and it was concluded that training had a positive and significant impact on youth agripreneurship performance.

Table 4. 9: Impact of Training Programme on Youth Agripreneurship Performance

Variable	Sample	Treated	Control	Difference	S.E	T-Stat
Youth Entrepreneurship performance	ATT	55.90	43.95	11.95	2.36	5.05***

Source: Author's Computation, 2019. Note: $p > 0.1 = *$, $p > 0.05 = **$, $p > 0.01 = ***$

4.7 Impact of Programme Training on Youth Empowerment

4.7.1 Results of the Endogenous Treatment Effect Regression Model

This objective was analysed using a three-stage estimation procedure. In this estimation, the average treatment effect (ATE) is the same as the average treatment effect on treated youths (ATET). By implication, the average estimated outcome for the entire sample is the same as the average estimated outcome for the treatment units.

The estimated correlation coefficient between the error terms of the participation equation and the Youth agripreneurship performance equations was -0.76 (Table 4.10). The negative sign implies that the unobserved variables affecting agripreneuship performance is negatively

correlated with those that affect the likelihood of participating in the programme. In addition, the likelihood ratio test result was statistically significant ($p < 0.01$). Hence, it was concluded that the error term of the selection (participation) and the first outcome variable (agripreneurship performance) were correlated.

Table 4. 10: Results of the Endogenous Treatment Effect Regression Model

Variables	Selection Equation (Probit)		Agripreneurship outcome Equation (OLS)	
	Coef	S.E	Coef	S.E
GENDER	-0.180**	0.092	0.027*	0.016
HHSIZE	-0.039***	0.013	0.012***	0.002
AGRIB_OWN			0.095***	0.016
ASSET	0.515**	0.234	0.092**	0.043
MHI (Mental Health Index)	0.355***	0.060	0.069***	0.010
EMP_TYPE	-0.204	0.145	-0.061**	0.026
CREDIT	-0.292***	0.101	0.019	0.017
MIGR_STAT	0.148*	0.089	0.023	0.016
AGRIB_INT	0.751***	0.080		
TRAIN_PERC	0.393***	0.104		
PARTICIPATION			0.477***	0.032
Constant	-1.602	0.260	-0.177***	0.037

Rho = -0.7634 ; LR test of indep. eqns. (rho = 0): chi2(1) =   53.07   Prob > chi2 = 0.0000

Source: Author's Computation, 2019. Note: $p >0.1= *$, $p >0.05= **$, $p >0.01= ***$

Thus, controlling for endogeneity by using the ETER model, Table 4.10 shows that the coefficient of the treatment variable (participation in training) was positive and significant at 1 per cent. This implies that participation in the programme had a significant and positive (*p*

< 0.01) impact on youth agripreneurship performance. This is consistent with the PSM result. A few studies have followed similar approach in validating PSM results instead of conducting a sensitivity analysis (Feleke *et al*., 2016; Adebayo *et al*., 2018). This is also consistent with existing studies which have argued that training is required for capacity building, skill acquisition and better performance (Ahmed *et al*., 2016; Kasau, 2014; Ngugi, 2014; Ng'ang'a *et al*., 2013).

4.7.2 Impact Results

Table 4.11 shows that the predicted value of agripreneurship performance from the second stage was positive and statistically significant at 1 per cent. This implies that youth agripreneurship performance as a result of training had a positive and significant impact on youth empowerment. Thus, as performance score increases by 1 percentage point, youth empowerment score will increase by up to 73 percentage points. The implication is that training led to better agripreneurship performance which invariably led to an increase in youth empowerment score. Based on this result, the null hypothesis which states that participating in Fadama GUYS programme has no impact on youth empowerment was rejected and it was concluded that the programme had a significant and positive impact on youth empowerment. This result is consistent with prior expectation and corroborates the findings of Bairwa *et al.* (2014) that better agripreneurship performance translates into increased productivity and profitability as well as contribute to better livelihood and individual's economic status which are all indicators of economic empowerment. Bairwa and Kushwaha (2012) similarly argued that one of the important roles played by agripreneurship in the growth and development of national economy is that it increases employment opportunities among rural and urban dwellers.

Variables	Empowerment outcome Equation (Tobit)	
	Coefficient	S.E
GENDER	0.015	0.027
HHSIZE	0.020	0.025
AGRIB_OWN	0.097***	0.033
ASSET	0.083***	0.005
MHI (Mental Health Index)	0.150***	0.017
EMP_TYPE	-0.014	0.046
CREDIT	0.142***	0.028
MIGR_STAT	0.060	0.026
INCOME	0.150***	0.016
CONSIST_INCOME (Consistent income)	0.195***	0.029
Predicted Value of Agripreneurship Performance	0.727***	0.056
State Dummies		
Abia State	-0.039	0.304
Ekiti State	-0.012	0.028
Kebbi State	0.123***	0.038
Constant	-3.903***	0.170

Pseudo R^2 = 0.5394; LR Chi2(prob) = 942.12(0.000); Log likelihood = -402.17

Table 4. 11: Impact of Agricultural Training on Youth Empowerment

Source: Author's Computation, 2019. Note: $p > 0.1 = *$, $p > 0.05 = **$, $p > 0.01 = ***$

4.7.3 Drivers of Youth Empowerment

The model of Youth empowerment includes the predicted value of youth agripreneurship

performance and other relevant explanatory variables that influences empowerment. The

results presented in Table 4.11 shows that out of the eleven variables hypothesized to influence empowerment, seven were positive and significant at less than 1 per cent.

Productive asset index score was positive and significant at 1 per cent. The coefficient (0.083) implies that as the score increases by one percentage point, empowerment score will increase by close to 8 percentage points. This is not surprising as possession of asset is expected to contribute to the economic outcome of young people. Thus, possession of relevant assets will improve youth-owned enterprise which will contribute to empowerment.

Having a consistent source of income was positive and significant at 1 per cent. This implies that having a consistent source of income increases youth empowerment score by close to 20 per cent. This is because consistent income source implies lesser financial dependence on other people and financial buoyancy. Thus, they are able to make their personal and economic decisions with less dependence on people, which is an important indicator of empowerment. This agrees with the findings of Mburu (2015) who found that high dependency ratio reduced women empowerment in Kenya. Furthermore, a consistent income source may translate into a better livelihood. In the modern world, a consistent income source is comparable to job security. The implication is that regardless of economic stress and strains, all things being equal, income will be earned at a specified and expected period. This may give some sort of peace of mind and contribute to mental health also.

Access to credit was positive and significant at 1 per cent. This implies that having access to credit facilities will increase empowerment score by 14 percentage points. This is because access to credit will lead to increased investment which will further translate to increased income, more profit and better livelihood. This corroborates the findings of Kurgat, (2017) and; United Nation (2014).

Ownership of agribusiness enterprise was another factor which was positive and significantly related to youth empowerment. The result implies that having an agribusiness enterprise will increase youth empowerment score by up 10 percentage points. Having an agribusiness enterprise implies that youth has an income source (employed) and makes decisions relating to investment. Thus, this increase in empowerment may be attributed to the ability to make production, economic and welfare decisions as well as earn consistent income from firm.

The average monthly income was positive and significant at 1 per cent. This implies that an increase in average monthly income by one naira will lead to an increase in youth empowerment score by 15 percentage points. This is because higher income may lead to higher and better investment, thereby contributing to youth economic empowerment. Haneef *et al.* (2014) found that having an independent income source has a greater influence on investment decision which is an important indicator of empowerment. Higher income motivates people to make investment decisions which fosters income diversification and contribute to economic empowerment. Higher income can translate into financial stability, increased social status, and increased level of confidence which are all indicators of empowerment.

CHAPTER FIVE: **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

5.1 Summary

In recent times, the agricultural sector has been identified as one with lots of potentials that can foster youth employment and economic empowerment in Nigeria. As a result, a few youths have started taking up agriculture as a means of livelihood. However, certain skills are required if agriculture is to be taken as a business. Despite the existence of several agricultural training programmes for youths, there is very scanty empirical evidence on the impact these programmes have on youth performance and empowerment. It is for this reason that the current study assessed the impact of agricultural training programmes on youth agripreneurship performance and empowerment taking the case of Fadama GUYS programme in Nigeria. The specific objectives were to determine the factors which influenced youth participation in the programme; determine the factors influencing youth engagement in agribusiness; assesses the impact of the Programme on youth agripreneurship performance, and assess the impact of the Programme on youth empowerment. Data were collected following a multi-stage sampling procedure from a total of 977 youths, comprising of 455 participants and 522 non-participants. Data were analysed using descriptive and inferential statistics.

Based on the comparison of the socio-economic and farm characteristic of the respondents, participants were significantly different from the non-participants in terms of years of formal education, household size, and productive asset score. Also, Participants had higher average monthly income and more years of agricultural experience compared to the non-participants. However, both groups were not significantly different in terms of gender.

On factors impeding youth engagement in agribusiness, three barriers ranked high among those identified by the respondents. 56 per cent ranked lack of access to finance, 11 per cent

86

ranked lack of mentorship while 10 per cent ranked lack of access to information. Out of the three identified, lack of mentorship is the only one which is not so common in literature.

The factors which positively and significantly influenced youth participation in the Programme training were age, years of formal education, gender, agribusiness ownership, perception about training and agribusiness as well as intention to engage agribusiness. However, household size was found to be negatively but, significantly associated with participation.

Youths' decision to engage in agribusiness was positively and significantly influenced by gender, productive asset index score, access to land and access to credit. However, years of formal education was negatively but, significantly related to engagement decision. The insignificant variables included in the model were age, household size, migration status, and type of employment. Interestingly, Some of the factors which influenced youths' decision to participate in training such as education and gender also influenced their decision to engage in agribusiness. However, they took opposite directions.

The PSM result indicated a positive impact of the programme on youth agripreneurship performance. A significant difference was found between the average performance score of participants and non-participants which was attributed to the training programme. Specifically, the performance of participants improved by up to 27 percentage points. The result of the sensitivity analysis further showed that the impact estimate was insensitive to unobserved selection bias, thereby confirming the validity of the result.

The three-stage estimation results showed that the programme had a positive and significant impact on youth empowerment. Specifically, agripreneurship performance which was predicted to measure the impact of training on empowerment had a positive and significant coefficient (0.727) implying that as youth agripreneurship performance score increases by 1

percentage point, empowerment score also increases by up to 73 percentage points. Other drivers of empowerment identified in the study include; Productive asset, access to credit, consistent income source, ownership of agribusiness and average monthly income.

5.2 Conclusions

Based on the findings of this study, it was concluded that participants were better off in terms of agribusiness attributes such as ownership of agribusiness enterprise, years of agricultural experience, ownership of productive asset as well as farm income compared to non-participants. This further led to the conclusion that the training programme influenced these significant differences between the two groups.

Factors which significantly influenced participation in the training were age, gender, years of formal education, household size, ownership of agribusiness enterprise, intention to engage in agribusiness, perception of training and agribusiness. The positive influence of the perception variables (perception of training and agribusiness) calls for relevant strategies which could further help to change the outlook of agriculture as a career-option with low economic returns.

Factors which significantly influenced youth engagement in agribusiness were years of formal education, gender, productive asset index score, access to land and access to credit. The opposing influence of years of formal education on training participation and engagement in agribusiness suggests that participation in training does not guarantee engagement in agribusiness. Also, the strong influence of access to land and access to credit on decision to engage in agribusiness implies that capital and productive assets such as land is important for agribusiness engagement.

Participation in training led to better agripreneurship performance which subsequently led to empowerment. This validates the hypothesis that training impacts on both agripreneurship

88

performance and empowerment. By implication, a strong link exist between training, performance and empowerment.

5.3 Recommendations

a) Recommendation for Policy-makers and development partners

Based on the findings of this study, the following recommendations were made:

1. In order to increase youth participation in agricultural training programmes, stakeholders (Government, development partners, private organisations) aiming to empower youth through these programmes should work on improving their perception of agribusiness by formulating policies and introducing strategies which could change the general outlook of agriculture and make agriculture more attractive.

2. To motivate more youth to engage in agribusiness, access to credit and land should be improved. On this note, government and development partners should provide financial and institutional support for young people who intend to go into agribusiness. This institutional support could be in form of reducing the high-interest rate on loan or by providing loans without collateral. An approach that could be adopted is the group borrowing which has worked in the United State. Access to land could be improved by providing small plots to youths willing to engage in agribusiness. Idle government lands can be used for this purpose and the youths can pay rent based on specified agreed-upon conditions.

3. More investment should be directed towards training young people willing to engage in agribusiness since it has attractive implication on their agripreneurship performance and empowerment.

b) Suggestions for Further Research

1. The study focused on general agricultural training programmes without disaggregating into different sub-sectors such as Crop, Livestock, among others. It is therefore

recommended that further study should be carried out to evaluate the impact of each sub-sector on youth performance and empowerment.

2. Further studies should be carried out to improve on the application of the agripreneurship performance model.

REFERENCES

Abdul-Hakim, R., & Che-Mat, S. H. (2011). Determinants of Farmer's Participation in Off-Farm Employment: A Case Study in Kedah Darul Aman, Malaysia. *Asian Journal of Agriculture and Rural Development*, *1*(2), 27–37.

Abdullah, A. A., & Sulaiman, N. N. (2013). Factors that Influence the Interest of Youths in Agricultural Entrepreneurship. *International Journal of Business and Social Science*, *4*(3), 288–302.

Abdullah, F. A., Samah, B. A., & Othman, J. (2012). Inclination Towards Agriculture among Rural Youth in Malaysia. *Journal of Basic and Applied Scientific Research, 2*(11), 3–6.

Abrogena, N. Q. (2014). Empowering Women on Agri-Entrepreneurship: Its Impact to Agricultural Growth. *Philippine Journal of Crop Science (Philippines)*, *39*(1), 131–132.

Addo, L. K. (2018). Factors Influencing Agripreneurship and their Role in Agripreneurship Performance Among Young Graduate Agripreneurs. *International Journal of Environment, Agriculture and Biotechnology*, *3*(6).

Adebayo, K., Awotunde, M., Okuneye, P. A., & Okonowo, U. V. (2006). Assessment of Secondary School Agricultural Education Programme in the Rural Areas of Imo State. *Nigerian Journal of Rural Sociology*, *6*(1&2), 13–22.

Adebayo, O., Bolarin, O., Oyewale, A., & Kehinde, O. (2018). Impact of Irrigation Technology Use on Crop Yield, Crop Income and Household Food Security in Nigeria: A Treatment Effect Approach. *AIMS Agriculture and Food*, *3*(2), 154–171. http://doi.org/10.3934/agrfood.2018.2.154

Adekunle, O. A., Adefalu, L. L., Oladipo, F. O., Adisa, R. S., & Fatoye, A. D. (2009). Constraints to Youths' Involvement in Agricultural Production in Kwara State, Nigeria.

Journal of Agricultural Extension, *13*(1).

Adenutsi, D. E. (2009). *Entrepreneurship, Job Creation, Income Empowerment and Poverty Reduction in Low-Income Economies* (MPRA Paper No. 29569). Munich.

Adesina, T. K., & Eforuoku, F. (2017). Determinants of Participation in Youth-in-Agriculture Programme in Ondo State, Nigeria. *Journal of Agricultural Extension*, *21*(1), 80–94.

Afande, F. O., Maina, W. N., & Maina, F. M. P. (2015). Youth Engagement in Agriculture in Uganda : Challenges and Prospects. *Journal of Culture, Society and Development*, *7*(6), 4–20.

Afande, F. O., Maina, W. N., & Maina, M. P. (2015). Youth Engagement in Agriculture in Kenya: Challenges and Prospects. *Journal of Culture, Society and Development*, *7*, 4–19.

African Development Bank. (2019). *Abia State Integrated Infrastructure Development Project Preparation Studies*. Abia.

African Development Bank, Organisation for Economic Co-operation and Development, & United Nations Development Programme. (2017). *Entrepreneurship and industrialization* (Vol. 10).

Ahmed, B., & Haji, J. (2014). Impact of Small-Scale Irrigation on Farm Households' Technical Efficiency: The Case of Eastern Oromia, Ethiopia. *Asian Journal of Agricultural Biology*, *2*(4), 224–234.

Ahmed, H. (2014). The Socio-Economic and Political Impacts of Youth Bulge: The Case of Sudan. *Journal of Social Science Studies*, *1*(2), 224–235.

Ahmed, R. R., Ahmad, N., & Channar, Z. A. (2016). Relationship Between Training & Development and Performance of Business Schools Faculty. In *International*

Conference of Education, Research and Innovation Proceedings (Vol. 1, pp. 7164–7173). http://doi.org/10.21125/iceri.2016.0632

Ajayi, M. O. (2017). *Assessment of the Impact of Youth Commercial Agricultural Development Programme on Unemployment Reduction in Ekiti State (2011-2015).* Ahmadu Bello University, Zaria.

Ajzen, I. (2009). *Theory of Planned Behavior. Social Psychology: Social Cognition and Social Perception* (Vol. 1). http://doi.org/10.1037/t15668-000

Akpan, S. B. (2010). *Encouraging Youth's Involvement in Agricultural Production and Processing. International Food Policy Research Institute. Abuja, Nigeria:* Consultative Group for International Agricultural Research.

Akpomi, M. E. (2009). Achieving Millennium Development Goals (MDGs) through Teaching Entrepreneurship Education in Nigeria Higher Education Institutions (HEIs). *European Journal of Social Sciences*, *8*(1), 152–159.

Akudugu, M. A. (2012). Estimation of the Determinants of Credit Demand by Farmers and Supply by Rural Banks in Ghana's Upper East Region. *Asian Journal of Agriculture and Rural Development*, *2*(393-2016–23992), 189–200.

Alabi, T. (2014). Youths' Unemployment and Crime Control: An Analysis of Nigerian Experience. *European Scientific Journal*, *10*(2).

Alice Kasau, S. (2014). Relationship between Training and Performance : A Case Study of Kenya Women Finance Trust Eastern Nyanza Region, Kenya. *European Journal of Business and Social Scince*, *3*(1), 95–117.

Aliu, S., & Ibe, G. (2008). Recent Trends in Entrepreneurship Education in Nigeria: Prospects and Challenges. *Abuja: Belfast*.

Alkaeli, J. (2010). *Determinants of Rural Income in Tanzania:* Research Report 10/4, Dar es salaam,Research on Poverty Alleviation.

Allen, A., Howard, J., Jamison, A., Jayne, T., Kondo, M., Snyder, J., & Yeboah, F. (2016). Agri-food Youth Employment and Engagement Study. *Michigan State University: East Lansing, MI, USA*.

Almeida, A. N., & Bravo-Ureta, B. E. (2017). Assessing the Sensitivity of Matching Algorithms: The Case of a Natural Resource Management Programme in Honduras. *Studies in Agricultural Economics*, *119*(2), 107–114. http://doi.org/10.7896/j.1703

Amaza, P. S., & Tashikalma, A. K. (2003). Technical Efficiency of Groundnuts in Adamawa State, Nigeria. *Journal of Arid Agriculture*, *13*, 127–1311.

Anagnosti, A., Zampetakis, L. A., & Rozakis, S. (2013). Understanding Entrepreneurial Intentions of Students in Agriculture and Related Sciences. *Agricultural University of Athens Working Paper Series*, *4*, 1–13.

Anekwe, R. I., Ndubuisi- Okolo, P., & Yusuf, A. E. (2018). Effect of Entrepreneurship Development on Poverty Alleviation in Nigeria. *IOSR Journal of Business and Management (IOSR-JBM)*, *20*(2). http://doi.org/10.9790/487X-2002108087

Ankrah Twumasi, M., Jiang, Y., & Acheampong, M. (2019). Determinants of Agriculture Participation Among Tertiary Institution Youths in Ghana. *Journal of Agricultural Extension and Rural Development*, *11*, 56–66. http://doi.org/10.5897/JAERD2018.1011

Antonites, J. A. (2003). *An Action Learning Approach to Entrepreneurial Creativity, Innovation and Opportunity Finding*. University of Pretoria. Retrieved from https://repository.up.ac.za/bitstream/handle/2263/25909/00front.pdf?sequence=1

Aphunu, A., & Akpobasa, B. I. O. (2010). Assessment of Rural Youths' Attitude Towards

Agricultural Production in Sapele Local Government Area of Delta State. In *The Nigerian Academic Forum* (Vol. 19, pp. 1–4).

Aremu, J. O., & Akinwamide, B. (2018). Prospects and Challenges of Sustainable Rice Production in Igbemo Ekiti, Southwest Nigeria. *European Journal of Educational & Social Sciences*, *3*(2), 125–143.

Asaju, K. (2014). Rising Rate of Unemployment in Nigeria: The Socio-Ecnomic and Political Implications. *Global Business and Economic Research Journal*, *3*(21).

Augurzky, B., & Kluve, J. (2007). Assessing the Performance of Matching Algorithms when Selection into Treatment is Strong. *Journal of Applied Econometrics*, *22*(3), 533–576.

Austin, P. C. (2014). A Comparison of 12 Algorithms for Matching on the Propensity Score. *Statistics in Medicine*, *33*(6), 1057–1069. http://doi.org/10.1002/sim.6004

Awogbenle, A. C., & Iwuamadi, K. C. (2010). Youth Unemployment: Entrepreneurship Development Programme as an Intervention Mechanism. *African Journal of Business Management*, *4*(6), 831–835.

Ayanwuyi, A., Akinboye, O. A., & Olaniyi, O. A. (2013). Youth Participation in Rural Development Projects in Surulere Local Government Area of Oyo State, Nigeria. *The Social Sciences*, *2*(3), 312–317.

Ayinde, J. O., Olarewaju, B. E., & Aribifo, D. L. (2016). Perception of Youths on Government Agricultural Development Programmes in Osun State, Nigeria. *Scientific Papers: Management, Economic Engineering in Agriculture & Rural Development*, *16*(3).

Bairwa, S. L., & Kushwaha, S. (2012). Agro Industry scenario in India: Agricultural Research and Sustainable Development in India. *Bharti Publications, New Delhi*,

110093, 159–182.

Bairwa, S. L., Lakra, K., Kushwaha, S., Meena, L. K., & Kumar, P. (2014). Agripreneurship Development as a Tool to Upliftment of Agriculture. *International Journal of Scientific and Research Publications*, *4*(3), 1–4.

Balde, B. S., Diawara, M., Rossignoli, C. M., & Gasparatos, A. (2019). Smallholder-Based Oil Palm and Rubber Production in the Forest Region of Guinea: An Exploratory Analysis of Household Food Security Outcomes. *Journal of Agriculture*, *9*(2), 41.

Bartlett, J. E., Kotrlik, J. W., & Higgins, C. C. (2001). Organizational Research: Determining Appropriate Sample Size in Survey Research. *Information Technology, Learning, and Performance Journal*, *19*(1), 43–50. http://doi.org/10.1007/BF00471876

Bausch, J., Dyer, P., Gardiner, D., Kluve, J., & Kovacevic, S. (2017). *The Impact of Skills Training on the Financial Behaviour, Employability and Educational Choices of Rural Young People Findings from a Randomized Controlled Trial in Morocco*. *International Labour Office*.

Bello, B. P. (2018). *The Impact of Entrepreneurship Studies in Nigeria University*. Univeristy of Abuja, Nigeria.

Bezu, S., & Holden, S. (2014). Are Rural Youth in Ethiopia Abandoning Agriculture? *Journal of World Development*, *64*, 259–272.

Blamey, A., & Mackenzie, M. (2007). Theories of Change and Realistic Evaluation: Peas in a Pod or Apples and Oranges? *SAGE Publications*, *13*(4), 439–455. http://doi.org/10.1177/1356389007082129

Boone, C. (2015). Land Tenure Regimes and State Structure in Rural Africa: Implications for Forms of Resistance to Large-Scale Land Acquisitions by Outsiders. *Journal of*

Contemporary African Studies, *33*(2), 171–190.

Brewer, L. (2013). *Enhancing Youth Employability: What? Why? and How? Guide to Core Work Skills*. Geneva: International Labour Office.

Burke, W. J., Myers, R. J., & Jayne, T. S. (2015). A Triple-hurdle Model of Production and Market Participation in Kenya's Dairy Market. *American Journal of Agricultural Economics*, *97*(4), 1227–1246. http://doi.org/10.1093/ajae/aav009

Byamugisha, F., & and Ansu, Y. (2017). *Facilitating Access of Rural Youth to Agricultural Activities* (The Farmers' Forum Youth session).

Caliendo, M., & Kopeinig, S. (2008). Some Practical Guidance for the Implementation of Propensity Score Matching. *Journal of Economic Surveys*, *22*(1), 31–72. http://doi.org/10.1111/j.1467-6419.2007.00527.x

Campbell, D. T. (1963). Experimental and Quasi-Experimental Designs for Research on Teaching. *Handbook of Research on Teaching*, *5*, 171–246.

Chebet, A. (2016). Factors Influencing Access to Credit by Youth Entrepreneurs in Sotik Sub-County Bomet County, Kenya. *Unpublished Master's Thesis. University of Nairobi*.

Cheteni, P. (2016). Youth Participation in Agriculture in the Nkonkobe District Municipality, South Africa. *Journal of Human Ecology*, *55*(3), 207–213.

Chidiebere, O., Iloanya, K., & Udunze, U. (2014). Youth Unemployment and Entrepreneurship Development : Challenges and Prospects in Nigeria. *Kuwait Chapter of Arabian Journal of Business and Management Review*, *4*(4), 20–35.

Chinsinga, B., & Chasukwa, M. (2012). Youth, Agriculture and Land Grabs in Malawi. In *Young People, Farming and Food,* (Vol. 43, pp. 67–77). Accra Ghana: Wiley Online Library.

Cho, Y., & Honorati, M. (2013). Entrepreneurship Programs in Developing Countries: A Meta Regression Analysis. *Labour Economics*, *38*, 110–130. http://doi.org/doi.org/10.1016/j.labeco.2014.03.011

Christain Aid. (2017). *The State of Governance in Nigeria: A Situational Analysis of Abia, Ebonyi, Imo and Kaduna States*. Abuja.

Connell, J. P., & Kubisch, A. C. (1998). *Applying a Theory of Change Approach to the Evaluation of Comprehensive Community Initiatives: Progress, Prospects, and Problems*. The United State of America: The Aspen Institute.

Daoud, J. (2017). Multicollinearity and Regression Analysis in Practice. *Journal of Physics: Conference Series*, *949*, 0–6. http://doi.org/10.1088/1742-6596/949/1/012009

Davis, K. E., Ekboir, J., & Spielman, D. J. (2008). Strengthening Agricultural Education and Training in Sub-Saharan Africa from an Innovation Systems Perspective: A Case Study of Mozambique. *Journal of Agricultural Education and Extension*, *14*(1), 35–51.

Davis, K., Nkonya, E., Kato, E., Mekonnen, D. A., Odendo, M., Miiro, R., & Nkuba, J. (2012). Impact of Farmer Field Schools on Agricultural Productivity and Poverty in East Africa. *World Development*, *40*(2), 402–413.

Douglas, D. J., Radicic, D., & Pugh, D. (2016). Evaluating the Effectiveness of Public Support on Inbound Open Innovation: Evidence from Spanish Manufacturing SMEs. In *Academy of Management Proceedings*. Academy of Management.

Egbefo, D. O., & Abe, M. O. (2017). Entrepreneurship Education: a Vital Instrument for Youth Empowerment, Industrial Development and Consolidation of National Integration in Nigeria. *African Research Review*, *11*(1), 28–48.

Eneyew, A., & Bekele, W. (2015). Causes of Household Food Insecurity in Wolayta. *Journal*

of Stored Products and Postharvest Research, *3*(3), 35–48. http://doi.org/10.5897/JSPPR11.069

Essien, B. S., & Onukwubiri, U. D. (2015). Graduate Unemployment in Nigeria: An Appraisal of the Causes And Socio-Behavioural Effects Among Graduate Youths in Abia State. *International Journal of Advance Research*, *3*(6).

FAO. (2018). *National Gender Profile of Agriculture and Rural Livelihoods* (Country Gender Assessment Series). Ghana. Retrieved from http://www.fao.org/3/i8639en/I8639EN

Fawole, O. P., & Olajide, B. R. (2012). Awareness and Use of Information Communication Technologies by Farmers in Oyo State, Nigeria. *Journal of Agricultural & Food Information*, *13*(4), 326–337.

Feleke, S., Manyong, V., Abdoulaye, T., & Alene, A. D. (2016). Assessing the Impacts of Cassava Technology on Poverty Reduction in Africa. *Studies in Agricultural Economics*, *118*(2), 101–111. http://doi.org/10.7896/j.1612

Fine, D., van Wamelen, A., Lund, S., Cabral, A., Taoufiki, M., Dörr, N., … Cook, P. (2012). Africa at Work: Job Creation and Inclusive Growth. Nueva York: McKinsey Global Institute. Retrieved from www. mckinsey. com/insights/mgi

Gemma, A., Musa Lwanga, M., & Swaibu, M. (2013). Youth Engagement in Agriculture in Uganda: Challenges and Prospects.

Gertler, P. J., Martinez, S., Premand, P., Rawlings, L. B., & Vermeersch, C. M. J. (2016). *Impact Evaluation in Practice* (Second Edi). Washington, DC: The World Bank.

Girard, P. (2016). *Building a Country-Level Comparative Approach for Grasping the Youth Employment in Sub-Saharan Africa.*

Godtland, E. M., Sadoulet, E., Janvry, A., Murgai, R., & Ortiz, O. (2004). The Impact of

Farmer Field Schools on Knowledge and Productivity: A Study of Potato Farmers in the Peruvian Andes. *Economic Development and Cultural Change*, *53*(1), 63–92.

Greene, W. H. (2003). *Econometric analysis* (Fifth Edition). Upper saddle River, New Jersey. Prentice Hall.: Pearson Education India.

Guffey, D. (2012). *Hosmer-Lemeshow Goodness-of-Fit Test: Translations to the Cox Proportional Hazards Model.* University of Washington. Retrieved from https://digital.lib.washington.edu:443/researchworks/

Gujarati, D. N. (2001). *Basic Econometrics*. *Jakarta : Erlangga.* (Fourth Edition). New York: McGraw-Hill/lrwin. http://doi.org/10.1016/j.aquaculture.2013.02.043

Gupta, M. Das. (2014). The Power of 18 Billion: Adolescents, Youth, and the Transformation of the Future. The State of World Population. United Nations Population Fund.

Haji, J., & Legesse, B. (2017). Impact of Sedentarization Program on the Livelihood and Food Security of Ethiopian Pastoralists. *Journal of Arid Environments*, *136*, 45–53. http://doi.org/10.1016/j.jaridenv.2016.10.007

Handley, M. A., Lyles, C. R., McCulloch, C., & Cattamanchi, A. (2018). Selecting and Improving Quasi-Experimental Designs in Effectiveness and Implementation Research. *Annual Review of Public Health*, *39*, 5–25.

Haneef, C., Pritchard M., Hannan, M., Kenward, S., Rahman, M., Alam, Z. (2014). Women as Entrepreneurs : The Impact of having an Independent Income on Women's Empowerment. *Chars Livelihoods Programme. Accessed August 10, 2019*. Retrieved from http://www.managingforimpact.org

Hisrich, R. D., Peters, M. P., & Shepherd, D. A. (2005). Definition of Entrepreneur Today. Extract from Entrepreneurship. New York: McGraw-Hill Irwin.

Hoiberg, D. H. (2010). Aba. Encyclopedia Britannica. I: A-Ak-Bayes . Chicago, IL: Encyclopedia Britannica.

Hujer, R., Caliendo, M., & Thomsen, S. L. (2004). New Evidence on the Effects of Job Creation Schemes in Germany: A Matching Approach with Threefold Heterogeneity. *Research in Economics*, *58*(4), 257–302. http://doi.org/10.1016/j.rie.2004.07.001

IFAD FAOCTA. (2014). *Youth and Agriculture: Key Challenges and Concrete Solutions. Published by the Food and Agriculture Organization of the United Nations (FAO) in collaboration with the Technical Centre for Agricultural and Rural Cooperation (CTA) and the International Fund for Agricultural Development (IFAD). Rome*.

Ifenkwe, G. E. (2012). Mobilizing and Empowering Youths for Sustainable Community and Rural Development in Nigeria. *International Journal of Academic Research in Progressive Education and Development*, *1*(2), 144–152.

International Labour Office. (2018). *Women's and Youth Empowerment in Rural Tunisia-An Assessment using the Women's Empowerment in Agriculture Index (WEAI)*. Geneva.

International Labour Organisation. (2011). *Unemployment Rate. Social Work* (Vol. 54). Retrieved from http://data.bls.gov/pdq/SurveyOutputServlet

International Labour Organisation. (2012). *Global Employment Trend: Preventing a Deeper Jobs Crisis* (Vol. 24).

International Labour Organization. (2005). *Youth: Pathways to Decent Work*. International Labour Organization. Retrieved from http://www.ilo.org/youthmakingithappen/

International Labour Organization. (2012). *Youth Employment Interventions in Africa*. Addis Ababa: International Labour Organization-Regional Office for Africa.

International Labour Organization. (2016). *World Employment and Social Outlook 2016:*

Transforming Jobs to End Poverty.

Judith, M. (2014). *Impact of World Food Programme's Purchase for Progress Pilot Project on Farm Incomes in Uasin Gishu and Narok counties, Kenya*. University of Nairobi.

Jumbe, C., & Angelsen, A. (2007). Forest Dependence and Participation in CPR Management: Empirical Evidence from Forest Co-Management in Malawi. *Ecological Economics*, *62*(3), 661–672. http://doi.org/10.1016/j.ecolecon.2006.08.008

Kabeer, N. (2014). *Violence against Women as "Relational" Vulnerability: Engendering the Sustainable Human Development Agenda*. United Nations Development Programme.

Karanja, B. N. (2014). *Influence of Entrepreneurial Training on Performance of Youth Enterprises: A Case of Stryde Project in Nyeri County, Kenya*. University of Nairobi.

Katchova, A., & Ahearn, M. (2014). *Farmland Ownership and Leasing: Implications forYoung and Beginning Farmers*. *University of Kentucky*.

Kazeem, Y. (2016). Youth Unemployment in Nigeria. *Quartz Africa. Assessed November 27, 2018*.

Kimaro, P. J., & Towo, N. N. (2015). Determinants of Rural Youth's Participation in Agricultural Activities: The Case of Kahe East Ward in Moshi Rural District, Tanzania. *International Journal of Economics, Commerce and Management*, *3*(2), 33.

Kimaro, P. J., Towo, N. N., & Moshi, B. H. (2015). Determinants of Rural Youth's Participation in Agricultural Activities: The Case of Kahe East Ward in Moshi Rural District, Tanzania, *III*(2), 83.

Kithae, P. P., Maganjo, R., & Kavinda, L. (2013). Impact of Entrepreneurship Training on Performance of Micro and Small Enterprises (MSES) in Kenya: A Case Study of Embu Municipality. *International Journal of Business and Management Review*, *1*(2), 1–17.

Koira, A. K. (2014). Agribusiness in Sub-Saharan Africa: Pathways for Developing Innovative Programs for Youth and the Rural Poor. *The Mastercard Foundation: Toronto, ON, Canada.*

Krause, B. L., McCarthy, A. S., & Chapman, D. (2016). Fuelling Financial Literacy: Estimating the Impact of Youth Entrepreneurship Training in Tanzania. *Journal of Development Effectiveness*, *8*(2), 234–256.

Krejcie, R. V, & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, *30*(3), 607–610.

Kurgat, F. (2017). Impact of Access to Credit Facilities on Youth Economic Development: A Case of Mwanzo Youths in Uasin Gishu County, Kenya. *International Journal of Research in Business Studies and Management*, *4*(1), 24–36. http://doi.org/10.22259/ijrbsm.0401004

Kwena, H. K. (2017). *Influence of Lifeskill Training and Mentorship on Youth Empowerment : A Case of Lepta Community Programme for Youth in Mathare Slum , Nairobi , Kenya*. University of Nairobi.

Kwenye, J. M., & Sichone, T. (2016). Rural Youth Participation in Agriculture: Exploring the Significance and Challenges in the Control of Agricultural Sector in Zambia. *Fifth RUFORUM Biennial Regional Conference*, *14*(14), 473–477. Retrieved from http://www.ruforum.org/sites/default/files/Kwenye.pdf

Latopa, A.-L., Sharifah, A., Syed, N., Abd Rashid, I., Asnarulkhadi, A., Abu Samah, A., & Haslinda, A. (2015). The Impacts of Integrated Youth Training Farm as a Capacity Building Center for Youth Agricultural Empowerment in Kwara State, Nigeria. *Mediterranean Journal of Social Sciences*, *6*(5). http://doi.org/10.5901/mjss.2015.v6n5p524

Lauringson, A., Villsaar, K., Tammik, L., & Luhavee, T. (2011). Impact Evaluation of Labour Market Training. *Estonian Unemployment Insurance Fund*.

Lawal, W. A. (2011). An Analysis of Government Spending on Agricultural Sector and its Contribution to GDP in Nigeria. *International Journal of Business and Social Science*, *2*(20).

Lechner, M. (2011). The Estimation of Causal Effects by Difference-in-Difference Methods Estimation of Spatial Panels. *Foundations and Trends in Econometrics*, *4*, 165–224. http://doi.org/10.1561/0800000014

Llisterri, J., Kantis, H., Angelelli, P., & Tejerina, L. (2006). *Is Youth Entrepreneurship a Necessity or an Opportunity ?: A First Exploration of Household and New Enterprise Surveys in Latin America. Sustainable Development Department Technical Papers Series*. Inter-American Development Bank Washington, D. C. Marshall.

Mano, Y., Akoten, J., Yoshino, Y., & Sonobe, T. (2014). Teaching KAIZEN to Small Business Owners: An Experiment in a Metal Working Cluster in Nairobi. *Journal of the Japanese and International Economies*, *33*, 25–42.

Mastercard Foundation. (2015). *Youth at Work: Building Economic Opportunities for Young People in Africa*. Retrieved from http://www.mastercardfdn.org/

Matenga, C. R., & Hichaambwa, M. (2017). Impacts of Land and Agricultural Commercialisation on Local Livelihoods in Zambia: Evidence from Three Models. *The Journal of Peasant Studies*, *44*(3), 574–593.

Mayuran, L. (2016). Impact of Entrepreneurship Training on Performance of Small Enterprises in Jaffna District. *Global Journal of Commerce and Management Perspective*, *5*(2), 1–6.

Mburu, P. D. (2015). Mapping of the Honey Value Chain and Analysis of Changes in Gender Roles and Factors Infuencing Women Empowerment among Beekeepers in Kitui County, Kenya. University of Nairobi.

Mcdowell, C. (2007). Youths as Assets for Development. *The World Bank Development Outreach*, *9*(2), 38–41.

Ministry of Food and Agriculture. (2011). *Youth In Agriculture*. Retrieved from http://mofa.gov.gh/site/?page_id=1173

Mohamed, N. A., & aliSheikh, A. Y. (2017). The Influence of Entrepreneurship Training and Financial Grant on Youth-Owned Enterprises in Somalia. *European Journal of Business and Management*, *9*(12), 6–16.

Mohammed, B. T. (2012). Comparative Analysis of Gender Involvement in Agricultural Production in Nigeria. *Journal of Development and Agricultural Economics*, *4*(8), 240–244. http://doi.org/10.5897/JDAE11.034

Morshed, F., & Haque, M. E. (2015). Impact of Women Entrepreneurship on Women Empowerment in Bangladesh. *World*, *1*(1), 1–14.

Moser, C., & Felton, A. (2007). *The Construction of an Asset Index Measuring Asset Accumulation in Ecuador* (CPRC Working Paper Series No. 87). 1775 Massachusetts Avenue, NW Washington DC, 20036, USA.

Muathe, J. (2016). *Factors Influencing Youth Participation in Agricultural Value Chain Projects in Kenya: A Case of Kathiani Subcounty, Machakos County, Kenya*. University of Nairobi, Kenya.

Muhammad-Lawal, A., Omotesho, O.A. and Falola, A. (2015). Technical Efficiency of Youth Participation in Agriculture : A Case Study of the Youth-in-Agriculture. *Nigerian*

Journal of Agriculture, Food and Environment, *5*(1), 20–26.

Mujuru, J. T. R. (2014). Entrepreneurial Agriculture for Human Development: A Case Study of Dotito Irrigation Scheme, Mt Darwin. *International Journal of Humanities and Social Science*, *4*(4), 121–131.

Muthomi, E. (2017). *Challenges and Opportunities for Youth Engaged in Agribusiness in Kenya*. United States International University.

Naamwintome, B. A., & Bagson, E. (2013). Youth in Agriculture: Prospects and Challenges in the Sissala Area of Ghana. *Net Journal of Agricultural Science*, *1*(2), 60–68.

National Bureau of Statistics. (2010). *National Manpower Stock and Employment Generation Survey*.

National Bureau of Statistics. (2011). *Annual Abstract of Statistics*. *Annual Abstract of Statistics.* Retrieved from www.nigerianstat.gov.ng,

Ng'ang'a, R., Weru, J. W., Iravo, M. A., & Sakwa, M. (2013). The Relationship between Training and Development on Performance of State Owned Corporations. *International Journal of Academic Research in Business and Social Sciences*, *3*(9), 57–75. http://doi.org/10.6007/ijarbss/v3-i9/190

Ngoru, M. (2017). Entrepreneurial Factors Influencing Performance of Youth Enterprises in Mathare Sub County, Kenya. United States International University-Africa.

Ngugi, M. N. N. (2014). *The Perceived Relationship Between Occupational Stress and Employee Performance in Tea Factories in Murang'a County*. University of Nairobi.

Niewoudt, S. (2016). Entrepreneurial Characteristics and Financial Performance. University of the Free State.

Nigeria Youth Policy Document. (2009). *Second National Youth Policy*. Retrieved from http://nigeria.unfpa.org/pdf/snyp2009.pdf

Njeru, L. K., & Gichimu, B. M. (2014). Influence of Access to Land and Finances on Kenyan Youth Participation in Agriculture: A Review. *International Journal of Development and Economic Sustainability*, *2*(3), 1–8.

Nkechi, A., Emeh Ikechukwu, E. J., & Okechukwu, U. F. (2012). Entrepreneurship Development and Employment Generation in Nigeria: Problems and Prospects. *Universal Journal of Education and General Studies*, *1*(4), 88–102.

Nnadi, F. N., & Akwiwu, C. D. (2008). Determinants of Youths` Participation in Rural Agriculture in Imo State, Nigeria. *Journal of Applied Science*, *8*(2), 328–333.

Nsikak-abasi, E. A. (2017). Improving Welfare of Rural Farmers through Youth Empowerment Programme. *International Journal of Advances in Agricultural & Environmental Engineering*, *4*(1).

Nwajiuba, C. (2012). Nigeria's Agriculture and Food Security Challenges. *Retrieved from www. Boell. org/downloads/4_Green_Deal_Nigeria_agriculture. Pdf.*

Nwibo, S. U., Mbam, B. N., & Biam, C. K. (2016). Determinants of Agripreneurship among the Rural Households of Ishielu Local Government Area of Ebonyi State. *Journal of Biology, Agriculture and Healthcare*, *6*(13), 3–10.

Oduwole, T. A. (2015). Youth Unemployment and Poverty in Nigeria. *International Journal of Sociology and Anthropology Research*, *1*(3), 23–39.

Ogbalubi, L. N., & Wokocha, C. C. (2013). Agricultural Development and Employment Generation: The Nigeria Experience. *OSR Journal of Agriculture and Veterinary Science*, 2319–2380.

Ogunleye, E. K. (2017). Synthesis of The Literature on Employment Creation in Nigeria's Agriculture and Agro-Industries in the Context of Inclusive Growth. Include Platform.

Ogunleye, O. S. (2014). Urban Mobility in Ekiti State: Options for Transformation. *American International Journal of Social Science*, *3*(5), 200–206.

Ohene, V. (2013). *Determinants of Farmers' Participation in the Youth-in-Agriculture Programme in the Eastern Region of Ghana*. University of Ghana. Retrieved from http://ugspace.ug.edu.gh

Okoli, D. I., & Okoli, E. I. (2013). Youth Empowerment through Entrepreneurial Development in Nigeria. *Journal of Educational and Social Research*, *19*, 224–233. http://doi.org/10.5901/jesr.2013.v3n9p147

Olorundare, A. S., & Kayode, D. J. (2014). Entrepreneurship Education in Nigerian Universities: A Tool for National Transformation. *Asia Pacific Journal of Educators and Education*, *29*(8), 155–175.

Olurinola, I. O. P., & Fadayomi, T. (2016). Youth Labour Market Outcomes in Nigeria: Evidence from National Labour Market Survey. *Covenant Journal of Business and Social Sciences*, *5*(2).

Omoju, O. E., & Abraham, T. W. (2014). Youth Bulge and Demographic Dividend in Nigeria. *African Population Studies*, *27*(2), 352–360.

Omoluabi, E. T. (2014). Impact of Entrepreneurship Development on Job Creation in Nigeria. *Journal of Entrepreneurship*, *2*(4).

Onemolease, E. A., & Alakpa, S. O. (2009). Determinants of Adoption Decisions of Rural Youths in the Niger Delta Region of Nigeria. *Journal of Social Sciences*, *20*(1), 61–66.

Orchard, J., Chancellor, T., Denton, R., Fall, A. A., & Jaeger, P. (2013). *Growing Africa:*

Unlocking the potential of agribusiness. The World Bank.

Ovwigho, B. ., & Ifie, P. . (2011). Attitude of Youth to Agricultural Development Programmes In Ughelli South Local Government Area of Delta State, Nigeria. *Journal of Agricultural Extension*, *13*(2), 67–75. http://doi.org/10.4314/jae.v13i2.53898

Pastore, F., & Pompili, M. (2019). *Assessing the Impact of Off-and On-the-Job Training on Employment Outcomes: A Counterfactual Evaluation of the PIPOL Program* (GLO Discussion Paper Series No. 333). IZA Discussion Paper.

Pretorius, M., Nieman, G., & Van Vuuren, J. (2005). Critical Evaluation of Two Models for Entrepreneurial Education: An Improved Model through Integration. *International Journal of Educational Management*, *19*(5), 413–427. http://doi.org/10.1108/09513540510607743

Quan, J. (2007). Changes in Intra-Family Land Relations. *Changes in "Customary" Land Tenure Systems in Africa*.

Rajaei, Y., Yaghoubi, J., & Donyaei, H. (2011). Assessing Effective Factors in Development of Entrepreneurship in Agricultural Cooperatives of Zanjan Province. *Procedia-Social and Behavioral Sciences*, *15*, 1521–1525.

Robbins, S. T., Judge, T. A., & Hasham, E. S. (2012). *Management (Arab World Editions)*. (F. Gibbons & V. Bingham, Eds.). Edinburgh: Pearson Education Limited. Retrieved from http://www.pearsonmiddleeastawe.com/

Rogers, P. (2014). *Theory of Change: Methodological Briefs-Impact Evaluation*. Florence.

Rosenbaum, P. R. (2002). Covariance Adjustment in Randomized Experiments and Observational Studies. *Statistical Science*, *17*(3), 286–327. http://doi.org/10.1214/ss/1042727942

Sacerdoti, M. E. (2005). *Access to Bank Credit in Sub-Saharan Africa: Key Issues and Reform Strategies*. International Monetary Fund.

Schoof, U. (2006). *Stimulating Youth Entrepreneurship. International Labour Office*. Geneva.

Senkondo, E. M. ., Msangi, A. S. ., & Hatibu, N. (2004). Profitability of Rainwater Harvesting for Agricultural Production in Selected Semi-Arid Areas of Tanzania. *Journal of Applied Irrigation Science*, *39*(1), 65–81.

Shah, B. V., & Barnwell, B. G. (2003). Hosmer-Lemeshow Goodness of Fit Test for Survey Data. *Proceedings of the Joint Statistical Meetings—Section on Survey Research Methods*, (3), 3778–3781. Retrieved from http://scholar.google.com/scholar

Sharma, A. (2007). The Changing Agricultural Demography of India: Evidence from a Rural Youth Perception Survey. *International Journal of Rural Management*, *3*(1), 27–41.

Sharu, H., & Guyo, W. (2015). Factors Influencing Growth of Youth-Owned Small and Medium Enterprises in Nairobi County, Kenya. *International Journal of Science and Research*, *4*(4), 973–987.

Shingla, P., & Singh, M. (2015). Women Empowerment through Entrepreneurship Development. *Studies on Home and Community Science*, *9*(1), 27–32. http://doi.org/10.1080/09737189.2015.11885429

Sikenyi, M. (2017). Does Kenya's Youth Enterprise Development Fund Serve Young People?

Sitoula, T. (2015). *Challenges and Prospects of Youth Entrepreneurship in Kathmandu*. University of Nordland.

Solomon, G. T., Duffy, S., & Tarabishy, A. (2002). The State of Entrepreneurship Education

in the United States: A Nationwide Survey and Analysis. *International Journal of Entrepreneurship Education*, *1*(1), 65–86.

Soneye, A. S. O. (2014). Farm Holdings in Northern Nigeria and Implication for Food Security: A Remote Sensing and Gis Assessment. *African Journal of Food, Agriculture, Nutrition and Development*, *14*(2).

Stein, D., & Valters, C. (2012). *Understanding Theory of Change in International Development. The Justice and Security Research Programme* (Volume 1).

Sudarshanie, S. D. (2015). *Factors Affecting Youth Participation and Satisfaction in Occupation Related to Agriculture*. University of Moratuwa Sri Lanka.

Surajo, A. Z. (2016). Youth Unemployment and Poverty in Nigeria: A Threat to Sustainable Growth and Development. *International Journal of Scientific Research and Management*, *4*(12), 4919–4928. http://doi.org/10.18535/ijsrm/v4i12.02

Thyer, B. A. (2012). *Quasi-Experimental Research Designs*. 198 Madison Avenue, New York, New York 10016: Oxford University Press.

Udensi, L. O., Daasi, G. L. K., Emah, D. S., & Zukbee, S. A. (2013). Youth Participation in Community Development Programmes in Cross River State: Implications for Sustainable Youth Development in Nigeria. *IOSR Journal of Humanities and Social Science*, *31*(5), 61–67.

United Nations. (2014). *Impact of Access to Financial Services, Including by Highlighting Remittances on Development: Economic Empowerment of Women and Youth* (Vol. 6). Geneva. Retrieved from https://unctad.org/meetings/en/SessionalDocuments/

United Nations. (2015). World Ageing Population. *Department of Economic and Social Affairs*, *9*(5), 300–302. http://doi.org/10.5860/CHOICE.40-1307

United Nations Development Programme. (2018). *Planning the Opportunities for a Youthful Population. National Human Development Report*. Abuja, Nigeria.

Urdal, H. (2006). A Clash of Generations?: Youth Bulges and Political Violence. *International Studies Quarterly*, *50*(3), 607–629.

Usman, S., Noma, S. S., & Kudiri, A. M. (2016). Dynamic Surface Soil Components of Land and Vegetation Types in Kebbi State Nigeria. *Eurasian Journal of Soil Science*, *5*(2), 113–120.

Van de Ven, W. P., & Van Pragg, B. M. (1981). *The Demand for Deductibles in Private Health Insurance: A Probit Model with Sample Selection. Journal of Econometrics* (Vol. 17). North-Holland. Retrieved from https://econpapers.repec.org/article/

Van Vuuren, J. J., & Nieman, G. H. (1999). Entrepreneurship education and training: A model for syllabi/curriculum development. In *44th ICSB World Conference Proceedings*.

Volkmann, C. K., Tokarski, K. O., & Grünhagen, M. (2010). Entrepreneurship in a European Perspective. *Wiesbaden: Gabler*, *10*, 973–978.

Vuuren, V. J., & Nieman, G. (2004). Entrepreneurship Education and Training: A Model for Syllabi/Curriculum Development. In *Inovation and Opportunity Finding*. University of Napoli Federico II, Italy.

Weiss, C. H. (2011). Nothing as Practical as Good Theory: Exploring Theory-Based Evaluation for Comprehensive Community Initiatives for Children and Families. In *New Approaches to Evaluating Community Initiative* (pp. 65–90). Prentice-Hall.

White, H., & Sabarwal, S. (2014). Quasi-Experimental Design and Methods. *Methodological Briefs: Impact Evaluation*, *8*, 1–16.

White, S., & Kenyon, P. (2000). *Enterprise-Based Youth Employment Policies, Strategies and Programmes*. Geneva.

Yambayamba, K. E. S., Chakeredza, S., Yaye, A., Aucha, J., & Macala, J. P. (2013). Effectiveness of Agricultural and Natural Resources Management Training in Zambia. *The Journal of Agricultural Education and Extension*, *19*(1), 37–51.

Yami, M., Feleke, S., Abdoulaye, T., Alene, A., Bamba, Z., & Manyong, V. (2019). African Rural Youth Engagement in Agribusiness: Achievements, Limitations, and Lessons. *Sustainability*, *11*(1), 185. http://doi.org/10.3390/su11010185

APPENDICES

Appendix 1: Correlation Matrix for Logistic Regression Model

e(V)	Age	Educ	Gender	Hhsize	Agrib_ Own	Migr_ Stat	Agri_ Intent	Asset	Train_ Perc	Agib_ Perc	Hoh Educ	Marital_ Stat
Age	1											
Educ	-0.173	1										
Gender	-0.193	0.059	1									
Hhsize	0.057	-0.017	-0.150	1								
Agrib_ Own	-0.207	0.096	0.012	0.072	1							
Migr_ Stat	0.095	0.021	-0.142	-0.159	0.040	1						
Agri_ Intent	0.013	-0.024	-0.057	-0.134	-0.406	-0.133	1					
Asset	-0.059	-0.099	-0.209	-0.028	-0.110	0.032	0.064	1				
Train_ Perc	-0.157	0.052	0.011	-0.148	-0.019	0.021	0.134	-0.062	1			
Agrib_ Perc	0.090	-0.087	-0.022	0.043	0.041	-0.024	-0.111	-0.081	-0.246	1		
HohEduc	0.006	-0.442	0.013	-0.010	-0.020	-0.006	-0.022	0.026	-0.060	0.090	1	
Marital_ Stat	-0.318	0.115	0.175	0.293	-0.105	0.015	-0.105	-0.096	-0.020	-0.026	-0.1059	1

Appendix 2: The Variance Inflation Factor (VIF) Diagnostic Test Results

Variable	VIF	1/VIF
Perception about training	1.55	0.645
Ownership of Agribusiness	1.54	0.650
Age	1.49	0.671
Perception about Agribusiness	1.49	0.673
Household size	1.35	0.741
Marital Status	1.35	0.741
Agribusiness Intention	1.33	0.751
Years of Formal Education	1.31	0.766
Head of Household Education (Years)	1.28	0.781
Productive Asset Index Score	1.28	0.783
Migration Status	1.19	0.842
Gender	1.16	0.861
Mean VIF	1.36	

Appendix 3: Scree Plot of Eigenvalues after PCA for Empowerment Index
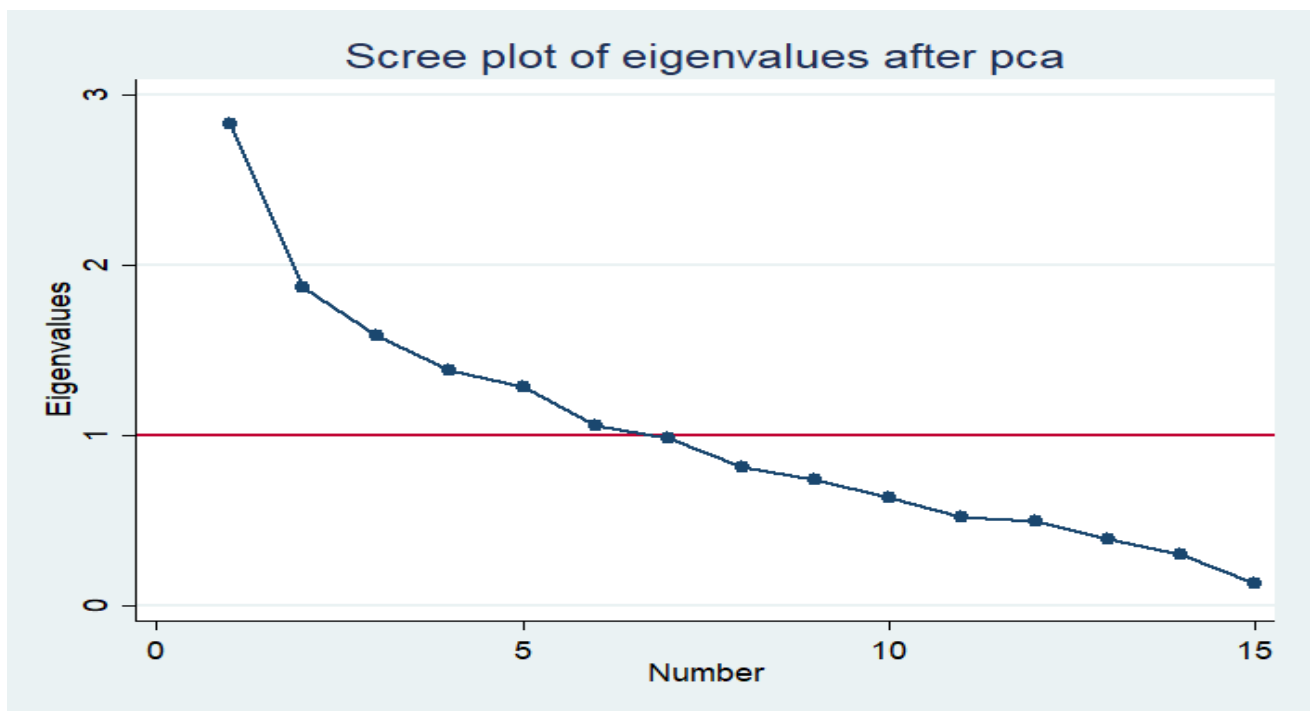
Appendix 4: Scree Plot of Eigenvalues after PCA for Asset Index
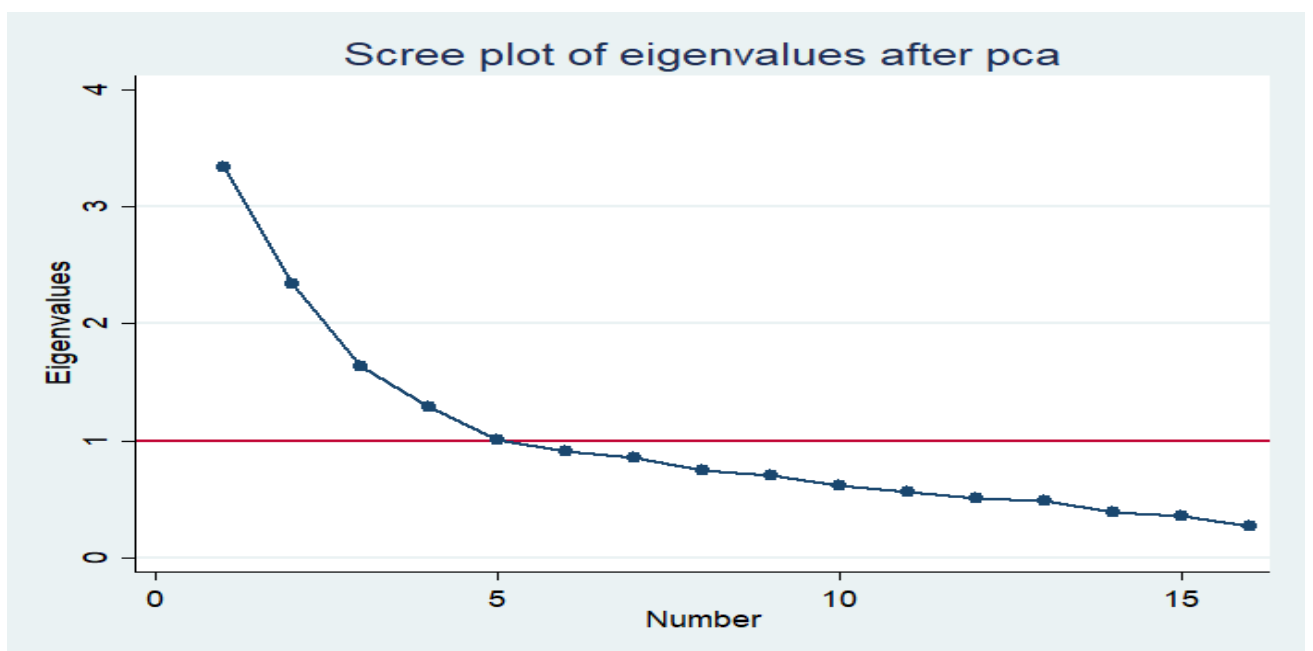
Appendix 5: Survey Instrument

UNIVERSITY OF NAIROBI, KENYA

Impact of Agricultural Training Programmes on Youth Agripreneurship Performance and Empowerment in Nigeria

Youth Survey Questionnaire, January 2019

Respondent Consent and Purpose of the Survey

Thank you for giving us a chance to speak to you. We are researchers from the University of Nairobi, Kenya. The reason for conducting this field survey is to get some insights on the impact of agricultural training programmes on youth entrepreneurship performance and empowerment in Nigeria. You have been randomly selected to participate in this study, and your voluntary participation in answering questions on these issues is highly appreciated. Your responses together with those from about 1,064 other youths in the three selected states will be analysed, and the findings will help to inform policy on better strategies for improving the quality of training given to youths as well as training providers on how well to design training to be beneficial to youths. All the information obtained will be treated with the utmost confidentiality and will only be used for the purpose of this survey, which is strictly academic. This interview will take approximately **45MINUTES** to complete. Please note that your participation in this study is purely voluntary. You can decide to withdraw anytime or not answer any question you do not want to. In case you decline/withdraw, your lack of participation will not have any negative consequence on you. **We would, however, be very grateful if you can answer every question and complete the interview**. Your name or contact is strictly confidential.

I request your permission to start now. For any further clarification, please contact Adeyanju Dolapo (+2347068936984).

Thank you.

INSTRUCTION: Please tick in the appropriate box and also fill in the blank spaces provided for those questions where elaborate answers are required. You are requested to complete this questionnaire as honestly and objectively as possible.

SECTION A: GENERAL INFORMATION

1.   Enumerator   code…………………………..   Date: ………………………………….

2.   Respondent ID…………………………………………………………

Region (1= South-Western; 2= North-Western ; 3= South-Eastern)	
City/State ………………………………	
Town/Village ……………………………	
GPS Reading	

SECTION B: YOUTH DEMOGRAPHIC INFORMATION:

B1. Age (in years): ………………………………….

B2. What is your gender?   1. Male (   )   2. Female (   )

B3. What is your highest educational qualification (in years) …………………..

B4. Marital Status   1. Not married ( )   2. Married ( )

B5. If married, at what age did you get married? …………………………….

B6. Do you have children? 1. Yes (   )   2. No (   )

B7. If yes in B6, How many? …………………………………………..

B8. What is your household size? (Include yourself): …………………………………

B9. Are you the head of your household? 1. Yes (   )   2. No (   )

B10. If No in B9, what is the sex of your household head? 1. Female (   )   2. Male (   )

B11. If No in B9, is your household head a literate? 1. Yes ( )   2. No ( )

B12. If Yes in B11, specify the years of schooling of your household head
……………………..

B13. How many persons in the household are self-employed …………………………………

B14. How many persons in the household work for a salary/wage?
………………………………

B15. How many persons are in the household are without work and actively looking for work? …………

B16. How many persons in your household are literates? ……………………………….

B17. Is your father still alive? Yes ( )   2. No ( )

B18. Do you have people/siblings you are responsible for? Yes ( )   2. No ( )

B19. Which of the following describes your current residence?1. Rural area ( )

2.Small town in rural area ( ) 3. Metropolitan area ( ) 4. Large city ( )

B20. Which of the following describes your original place of residence (or place of birth registration):

1. Rural area ( ) 2.Small town in rural area ( ) 3. Metropolitan area ( ) 4. Large city ( )

B21. What was the main reason for moving to your current residence?

1. To accompany family ( )
2. For education/training/apprenticeship ( )
3. To work/for employment-related reasons ( )
4. Other reasons ( ) 99

SECTION C: Education, activity history and aspirations

C1. Are you currently studying 1.Yes ( )   2. No ( )

C2. If Yes in C1, what do you plan to do immediately after your education/training?

1.   Look for a job (   )
2.   Start my own agribusiness venture
3.   Start other business
4.   Stay at home (   )
5.   Immediately go for further education/training (   )
6.   Do not know (   )
7.   Other 99

C3. What is your most recent educational activity? 1. I have never studied (   )

 2. I left before graduation (   )   3. I have completed my education (   )

4. I am currently studying at elementary level (   )   5. at vocational school (   )

C4. Which of the following activities best corresponds to what you were/will doing/do

immediately

after the completion of your highest level of studies?

1.   Work for wage/salary with an employer (full- or part-time) (   )
2.   Self-employed/start a farm (   )
3.   Work as unpaid family member (work for family gain) (   )
4.   Engaged/will engage in training (   )
5.   Engaged/will engage in home duties (including child care) (   )
6.   Did/will not work or seek work for other reasons (disability, etc.) (   )
7.   Others…………………………………………….99

SECTION D: Employment, Work Experience/study combination

D1. Have you ever been employed in the last 12months? 1. Yes (   )   2. No (   )

D2. If Yes in D1, state your years of working experience ………………….

D3. Have you ever refused a job that was offered to you? 1. Yes (   )   2. No (   )

D4. If yes in D3, what was the reason?

1.   Too low wage (   )
2.   I prefer to work for myself (   )
3.   It was not my field (   )
4.   Others………………………….

D5. Did you work while you studied (or do you work while you study)? Yes (   )   2. No (   )

D6. If yes in D5, Please describe the work experience?

1.   Internship/apprenticeship in a cooperate company (   )
2.   Internship/apprenticeship in non-profit organization (   )

3. Personal Business (   )
4. Work in family business (   )
5. Work on farm (   )
6. Community volunteer work (   )
7. Work in the informal ("black") economy (   )
8. Other. 99

D7. Was the work   1. Paid? (   )   2. Unpaid? (   )

D8. What was (is) your primary motivation for working while studying?

1. To earn money (   )
2. To gain work experience/build up a curriculum vitae (   )
3. To make connections that could lead to future employment (   )
4. Other 99

D9. Which of the following best describes your current working situation

 1. Employed (   )   2. Unemployed (   )

D10. If employed in D9, which of the following describes your type of employment

1. Self –employed (   )   2.Paid employment (   )   3. Unpaid employment (   )

D11. Have you ever owned or worked on a farm or any agricultural enterprise?

1. Yes (   )   2. No (   )

D12. If Yes in D11, for how long? …………………………

D13. Do you currently own a farm or an agribusiness enterprise? 1. Yes (   )   2. No (   )

D14. Would you consider establishing your own agribusiness enterprise 1. Yes (   ) 2. No (

)

D15. If yes in D14, what are your main barriers to starting a new business

1. Lack of skills Lack of information (on business opporunities) (   )
2. Access to finance/startup capital (   )
3. Social/cultural constraints (   )
4. Others, specify………………………..

E1	E2	E3	E4
On the average what is your current income level per month	Average monthly income from agricultural activities or agribusiness	On the average what is the current income level of your Household per month	On the average, what is the current income level of your Household head per month?

SECTION E: Income

E5. Where do you get most of your money from?

1.   My agribusiness firm (   )
2.   Unemployment or social security benefits (   )
3.   Training allowance or educational grant (   )
4.   My parents and/or family (   )
5.   My spouse/ partner (   )
6.   Paid employment
7.   Other 99

SECTION F: Opinions and aspirations

F1. In your opinion, a person needs at least how many years of education/training to get a

decent job or start a good business these days? …………………………………..

F2. Which of the following qualities do you think is the most useful in starting a good

business? (Select one)

1.   Information technology skills (   )
2.   Scientific or technical qualifications (   )
3.   Knowledge of the business world (   )
4.   Communication skills (   )
5.   Teamwork skills (   )
6.   Good general education (   )
7.   Ambition (   )

8.   Having completed an apprenticeship or an appropriate training course (   )
9.   Other 99

F3. Ideally, which of the following type of work would you prefer? (select one)

1.   Start your own business (   )
2.   Work for the government/public sector (   )
3.   Work for a private company (   )
4.   Work for a non-profit organization (   )
5.   Work for own/family farm (   )
6.   Work for someone else's farm (   )
7.   Work for family business (   )
8.   Not sure (   )
9.   Do not wish to work (   )
10.   Other 99

F4. In your opinion, does agribusiness training influence entrepreneurial development among the
Youths? Yes ( )   No ( ) Not sure ( )
F5. Does agribusiness training influence youths' decision to start a business? Yes ( )   No ( )   Not sure

SECTION G: Youth agribusiness experience/intention

G1. Have you ever started an agricultural enterprise?

1.   Yes (   )   2. No (   )

G2. If Yes in G1, what motivated you to start the enterprise?

1.   Attended a training (   )
2.   School farming experience (   )
3.   Peer pressure (   )
4.   Others……………………………………99

G3. Are you currently looking for work? 1. Yes (   )   2. No (   )

G4. If No in G3, are you trying to establish your own agribusiness enterprise?

1.   Yes (   )   2. No (   )

G5. During the last four weeks, have you taken any steps to find work or to establish your

own agribusiness enterprise? 1. Yes (   )   2. No (   )

G6. If Yes in G5, What steps did you take to establish your own agribusiness enterprise

during the past four weeks?

1.   Attended agricultural training institution (   )

2.   Registration of enterprise with CAC (   )
3.   Seeking financial assistance of friends, relatives, colleagues, unions, etc (   )
4.   Looking for land, building, machinery, equipment to establish own enterprise (   )
5.   Arranging for financial resources (   )
6.   Applying for permits, licenses (   )
7.   Nothing (   )
8.   Other (   )

SECTION H: TRAINING

H1. Have you received any agricultural training?   1. Yes ( )   2. No ( )

H2. If yes in (H1), where did you receive it? 1. FADAMA (   ) 2. Other government programmes ( ) 3. Other private programmes (   ) 4. Others………………………99

H3. What was the duration of the training? 1. Less than 1month ( )   2. 1-6months ( )   3. 7-12months ( )   4. Above 12months ( )

H4. Amongst the areas indicated below, please tick those that was covered in the agricultural training undertaken/attended. If you have not attended any, kindly tick the ones you have knowledge about.

1.   General Farm management   (   )
2.   Financial Management   (   )
3.   Managing risk on the farm   (   )
4.   Crop/Livestock production   (   )
5.   Record keeping   (   )
6.   Preparing business plans   (   )
7.   Marketing products or services   (   )
8.   Financial analysis   (   )
9.   Customer relationship   (   )
10.   Others, please specify: _____(99)

H5. Who paid for the training?

1.   Yourself/your family (   )
2.   Your employer (   )
3.   Government (   )
4.   International organization (   )
5.   Other 99

H6. For how long were you idle before attending the training?

1.   Less than a week (   )
2.   1-4 weeks (   )
3.   1-2 months (   )
4.   3-6 months (   )
5.   6 months-1 year(   )

6. More than 1 year ( )

H7. Do you feel the education/training you received in the past was useful enough to start your own agribusiness firm? 1. Yes ( )   2. No ( )

H8. If yes in H7, which one was/will be most useful?

1. General Farm management   ( )
2. Financial Management   ( )
3. Managing risk on the farm   ( )
4. Crop/Livestock production   ( )
5. Record keeping   ( )
6. Preparing business plans   ( )
7. Marketing products or services   ( )
8. Financial analysis   ( )
9. Customer relationship   ( )
10. Others, please specify: _____(99)

H9. If Yes in H7, why do you think it was/will be useful?

1. I gained a great deal from the programme ( )
2. The programme was specific to my career/business needs ( )
3. The programme enhanced my networking skills ( )
4. Others, please specify …………………………..

SECTION I: AGRIPRENEURIAL SKILLS/CAPACITY
Instruction: Please write your answer to the statements below and kindly use the rating guide provided)

1-Strongly disagree 2-Disagree 3- Neutral 4- Agree 5- Strongly agree

	Items	5	4	3	2	1
Crop/Animal Production	I have a basic knowledge of agricultural production.					
	I have the required skill to start my own farm					
Effective team Management	I can brainstorm with others to come up with a new idea for a product or service					
	I can get others to identify with and believe in my vision					
	I am good at getting people to work together well					
Managing risks on farm and risk-taking	I can effectively deal with day-to-day problems and crises relating to agricultural activities					
	If there was a high likelihood of large profits in a new idea, I would invest as much as I could					

SECTION J: YOUTHS AGRIPRENEURIAL BEHAVIOR AND STATUS
Instruction: Kindly provide answers to the following questions based on the rating guide provided

1-Strongly disagree 2-Disagree 3- Neutral 4- Agree 5- Strongly agree

 In the last 6months, have you;

No	Items	5	4	3	2	1
1	Spent a lot of time thinking about how to start an agribusiness enterprise					
2	Identified a potential agricultural market opportunities					
3	Prepared a business plan for an agribusiness					
4	Selected/will select a business name					
5	Saved/saving money to invest in an agribusiness					
6	Invested/plan to invest money in an agribusiness					
7	Required or received financial support to start an agribusiness					

SECTION K: BUSINESS SKILLS

Instruction: Kindly provide answers to the following questions based on the rating guide provided

1-Strongly disagree 2-Disagree 3- Neutral 4- Agree 5- Strongly agree 12. Kindly rate your

current skill(s);

No	Items	5	4	3	2	1
1	Spent a lot of time thinking about how to start an agribusiness enterprise					
2	Identified a potential agricultural market opportunities					
3	Prepared a business plan for an agribusiness					
4	Selected/will select a business name					
5	Saved/saving money to invest in an agribusiness					
6	Invested/plan to invest money in an agribusiness					
7	Required or received financial support to start an agribusiness					

SECTION L: WELLBEING MEASURES

Mental health index

Based on the given scale, in the past four weeks, how often have you done each of the following;

1. Very rarely or none of the time   2. Rarely   3. Sometimes   4. Often times   5. All of the time

S/N	Items	1	2	3	4	5
L1	Been nervous					
L2	Felt so down that nothing could cheer you up					
L3	Felt calm and peaceful					
L4	Felt downhearted					
L5	Been happy					

Living condition

On a scale of 1 to 10. Where, 1 implies complete dissatisfaction/very poor and 10 implies

complete satisfaction/Extremely rich

		1	2	3	4	5	6	7	8	9	10
L6	Are you satisfied with your current living condition?	1	2	3	4	5	6	7	8	9	10
L7.	Are you satisfied with your current household condition?										
Personal/ Household wealth											
		1	2	3	4	5	6	7	8	9	10
L8.	How rich or poor do you think your household is at this current period?										
L9.	How rich/poor do you think you are at this current period?										

Livelihood

L10. Do you make any contributions to the household monthly income? Yes （)   No（)

L11. If yes, please state the average amount of your contribution to the household's monthly income before you attended the training _____(for trainees only)

L12. If yes, please state the average amount of your contribution to the household's monthly income in the past 12 months _____

L13. Please state the amount of your present contribution to the household's monthly income (if the answer to question I10 is YES) _____

L14. What changes in living standards would you say have come about as a result of the training? 1. Better accommodation ( ) 2. Steady income ( ) 3. Possession of asset ( ) 4. Affordability of basic needs ( ) 5. All of the above ( ) 6. None ( )

SECTION M: ACCESS TO AND DECISION TO CREDIT

M1. Have you borrowed money in the last 12months? 1. Yes ( )   2. No ( )

If **YES in M1,** kindly fill details in the Table below

M2	M3	M4	M5	M6	M7	M8	M9
Credit source 1. Bank 2. Cooperatives 3. Family/Friends 4. others specify	Amount obtained	Main use of credit: 1=Business 2=School fees 3=Domestic 4=Assets 5=others specify	Why did you choose your credit source? 1=low interest rate 2=easy access 3=others(specify)	Have you started repaying this loan? (1=Yes, 0=No)	If YES What proportion have you repaid: 1=1/4, 2=1/2, 3=3/4, 4=all	Do you participate in decisions to borrow funds from source (1=Yes, 0=No)	Do you participate in decision about the use of funds

SECTION N: FINANCIAL FREEDOM

N1	N2	N3	N4	N5	N6
Do you have a consistent source of income **(1=Yes, 0=No)**	If yes, what is this source of income? 1=Personal trade/Business 2=Agribusiness firm 3=Paid employment	How much do you earn from this source on a monthly basis?	Do you have control over the use of your income? **(1=Yes, 0=No)**	Do you still depend on your parents for basic needs? **(1=Yes, 0=No)**	Are you contented with your present financial status? **(1=Yes, 0=No)**

	4=Family members 5=Other, specify				

SECTION O: OWNERSHIP OF ASSETS

O1	O2	O3	O4	O5	O6
Do you have an asset? (1=Yes, 0=No)	If yes, kindly indicate which of the following Assets you have	Number of the Asset owned	Purchasing price of asset	Current value of asset	How much was your contribution to the acquisition of the asset?1=1/4, 2=1/2, 3=3/4, 4=all 5=None
	Agricultural land				
	Land for construction purpose				
	Television				
	Real estate				
	Car				
	Bicycles/ Motorbikes				
	Personal apartment				
	Mobile Phone				
	Electric cooker				
	Electric/Gas oven				
	Gas cooker				
	CD/DVD Player				
	Air condition				
	CD player/iPod				
	Computer				
	Fridge				
	Microwave				
	Internet Connection (modem)				
	Others, specify				