MICROFINANCE INTERVENTIONS AND POVERTY REDUCTION AMONG ENTREPRENEURS OF MICRO, SMALL AND MEDIUM ENTREPRISES IN CENTRAL REGION OF GHANA

BY

SAMUEL NATHANIEL AMPAH

D86/CTY/26897/2013

A THESIS SUBMITTED TO THE SCHOOL OF BUSINESS IN FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN BUSINESS ADMINISTRATION (FINANCE) OF KENYATTA UNIVERSITY

NOVEMBER, 2017

DECLARATION

This thesis is my original work and has not been presented for a degree or other award in any other university. No part of this study should be reproduced without authority of the author or and of Kenyatta University.

Signature:_____ Date: 28/11/2017

Samuel Nathaniel Ampah D86/CTY/26897/2013
Department of Accounting and Finance

We confirm that the work in this thesis was done by the candidate under our supervision

Signature:_____ Date: 28/11/2017.

Dr. Ambrose Jagongo,
Department of Accounting and Finance,
School of Business,
Kenyatta University,
Kenya.

Signature:_____ Date: 28/11/2017

Dr. Job Omagwa,
Department of Accounting and Finance,
School of Business,
Kenyatta University,
Kenya.

DEDICATION

This thesis is dedicated to my dear wife Alberta Araba Atta Ampah and my children Samuel Nathaniel Ampah, Alberta Naa Darkoa Ampah and Augustine Kizito Abizi Ampah.

ACKNOWLEDGEMENT

I am grateful to the Lord Almighty for his grace and blessings throughout my life and for taking me through this Ph.D programme.

I wish to express my profound gratitude to my supervisors Dr. Ambrose Ouma Jagongo and Dr. Job Omagwa of Kenyatta University and Dr. Siaw Frimpong of the University of Cape Coast, Ghana whose guidance and encouragement enriched this study. I also wish to acknowledge the contribution of Dr. Liezel Korf of Johannesburg, South Africa for playing the role of an additional supervisor. To Dr. SMA Muathe, Dr. Edward Simiyu, Dr. George Kosimbei and Dr. Fredrick Ndede, thank you for taking time out of your busy schedules to read through this thesis and providing feedback.

I am particularly grateful to Mr. Kaedabi Donkor, formerly of Brakwa Rural Bank for leading me to his colleague microfinance managers for spearheading and managing the data collection team. To the heads of the various microfinance companies and respondents in Central Region of Ghana, I say thank you for your support in accomplishing this task. I also wish to convey my gratitude to my colleagues of the Ph.D 2013 year group especially, Dr. Ken Marangu, Brenda Molonko, Rajiv Agarwal, Bancy Muchira and Rose Nderitu. You were very helpful throughout the programe.

I wish to thank SC Johnson and Son Inc, my employers for the opportunity afforded me by transferring me to Kenya thereby paving the way for this study. To my wife Alberta Ampah and children Samuel Nathaniel Ampah, Alberta Naa Darkoa Ampah and Augustine Kizito Abizi Ampah, I say thank you, this is the reward for your sacrifices.

TABLE OF CONTENTS

DECLARATION ii
DEDICATION iii
ACKNOWLEDGEMENT iv
TABLE OF CONTENTS v
LIST OF TABLES x
LIST OF FIGURES xiii
OPERATIONAL DEFINITION OF TERMS xiv
ABBREVIATIONS & ACCRONYMS xvi
ABSTRACT xvii
CHAPTER ONE: INTRODUCTION 1
1.1 Background to the study 1
1.1.1 Microfinance Interventions 3
1.1.2 Poverty Reduction 6
1.1.3 Role of Microfinance in Poverty Reduction 8
1.1.4 Micro Small and Medium Enterprises in Central Region of Ghana 9
1.1.5 Regulatory framework 11
1.1.6 Central Region of Ghana 14
1.2 Statement of the Problem 15
1.3 Objectives of the Study 17
1.3.1 General Objective 17
1.3.2 Specific Objectives 17
1.3.3 Research Hypotheses 18
1.4 Significance of the study 18
1.5 Scope of the Study 19
1.6 Limitation of the study 20
1.7 Organisation of the Study 21
CHAPTER TWO: LITERATURE REVIEW 23
2.1 Introduction 23

2.2 Theoretical Review 23
2.2.1 Theory of Financial Intermediation 23
2.2.2 Theory of Life Cycle Saving and Investing 25
2.2.3 Supply- Leading Finance Theory 26
2.2.4 Welfarists Theory 27
2.2.5 Institutionalist or Sustainability Theory 28
2.3 Empirical Review 29
2.3.1 Microsavings and poverty reduction 29
2.3.2 Access to credit and Poverty Reduction 31
2.3.3 Microinsurance and Poverty Reduction 32
2.4 Summary of literature review and research gaps 33
2.5 Conceptual framework 35
CHAPTER THREE: METHODOLOGY 38
3.1 Introduction 38
3.2 Research Philosophy 38
3.2.1 Research Design 39
3.3 Study Model 40
3.3.1 The Empirical Model 40
3.3.2 Testing the Regression Coefficient 41
3.3.3 Testing the Moderating Effect 42
3.3.4 Operationalisation and Measurement of Study Variables 45
3.4 Target Population 46
3.5 Sampling Design 47
3.6 Data Collection Instrument 49
3.6.1 Validity 50
3.6.2 Reliability 50
3.7 Data Collection Procedure 51
3.8 Data Analysis and Presentation 52
3.9 Diagnostic Tests 52
3.9.1 Normality Tests 52
3.9.2 Homoscedasticity 53
3.9.3 Multicollinearity Test 53

3.10 Ethical Consideration 54
CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS 55
4.1 Introduction 55
4.2 Descriptive Analysis 55
4.2.1 Response Rate 55
4.2.2 Demographic Characteristics 56
4.2.2.1 Business Characteristics 59
4.2.2.2 Cross Tabulation of Length of Business and Association with Microfinance 60
4.2.2.3 Area of Business Specialisation. 61
4.2.2.4 Legal Form of Business. 62
4.2.3 Microsavings 63
4.2.3.1 Cross Tabulation of Microfinance Institution and Type of Accounts 63
4.2.3.2 Reasons for Not Having a Savings Account Prior to Joining MFI 64
4.2.3.3 Savings Habit Prior to Joining the MFI Scheme 65
4.2.3.4 Average Weekly Savings in Ghana Cedis (Ghs) 66
4.2.3.5 Withdrawal Pattern of Respondents 67
4.2.3.6 Mean Score and Standard Deviation of Microsavings. 68
4.2.4 Access to credit 70
4.2.4.1 Source of Initial Capital 70
4.2.4.2 Access to a Loan Facility from MFI 71
4.2.4.3 Reason for Refusal of Loans 72
4.2.4.4 Loan Acquisition Process 73
4.2.4.5 Punitive Action Taken Against Loan Defaulter 74
4.2.4.6 Mean Score and Standard Deviation on Access to Credit 75
4.2.5 Microinsurance 76
4.2.5.1 Type of Policies Subscribed 76
4.2.5.2 Reasons for Rejection of Claims 77
4.2.5.3 Subscription to an Insurance Policy 78
4.2.5.4 Mean score and standard deviation on Microinsurance 78
4.2.5.5 Summary of Descriptive Statistics and Cross Tabulations 80
4.3 Reliability Tests 81
4.3.1 Test for Normality 82

4.3.2 Homoscedasticity 86
4.3.3 Test for Multicollinearity 87
4.4 Test of Hypotheses 91
4.4.1 Microsavings and Growth in Income $H0_{1a}$ 92
4.4.2 Microsavings and Increase in Consumption Expenditure$H0_{1b}$ 95
4.4.3 Microsavings and Acquisition of Business Assets $H0_{2c}$ 98
4.4.4 Microsavings and ability to educate children $H0_{1d}$ 101
4.4.5 Microsavings and Poverty Reduction (Composit) H_{01} 104
4.4.6 Access to Credit and Growth in Income ($H0_{2a}$) 107
4.4.7 Access to credit and Increase in consumption expenditure $H0_{3b}$ 111
4.4.8 Access to Credit and Acquisition of business Assets $H0_{2c}$ 114
4.4.9 Access to credit and ability to educate children $H0_{2d}$ 116
4.4.10 Access to Credit and Poverty Reduction Composite (H_{02}) 120
4.4.11 Microinsurance and Growth in Income $H0_{4a}$ 123
4.4.12 Microinsurance and Increase in Consumption Expenditure $H0_{3b}$ 126
4.4.13 Microinsurance and Acquisition of business Assets $H0_{4c}$ 129
4.4.14 Microinsurance and ability to educate children $H0_{3d}$ 132
4.4.15 Microinsurance and Poverty Reduction (Composite) $H0_4$ 135
4.4.16 Microfinance Interventions and Growth in Income 138
4.4.17 Microfinance interventions and Increase in Consumption Expenditure H^{05b} 141
4.4.18 Microfinance interventions and Acquisition of Business Assets $H0_{5c}$ 144
4.4.19 Microfinance interventions and ability to educate children $H0_{1d}$ 147
4.4.20 Moderating effect of Regulatory Framework (composite) $H0_5$ 150
4.4.21 Moderating effect of liquidity Position $H0_{5a}$ 153
4.4.22 Moderating effect of Corporate Governance Practices $H0_{5b}$ 155
4.4.23 Effect of Regulatory Framework on MFI and Growth in Income $H0_{5c}$ 156
4.4.24 Effect of Moderator on MFI and Consumption Expenditure $H0_{5d}$ 159
4.4.25 Effect of Regulatory Framework on MFI and Acquisition of Business Assets 163
4.4.26 Effect of Regulatory Framework on MFIs and Ability to Educate Children $H0_{5f}$ 166
4.5 Summary of Hypothesis 169
CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS 172
5.1 Introduction 172

5.2 Summary of Findings 172
5.2.1 Summary of findings on MFI's and Poverty Reduction 173
5.2.2 Summary of findings on the Moderating Effect of Regulatory Framework 175
5.3 Conclusions 176
5.4 Recommendations 179
5.4.1 Implication of the study 181
5.4.2 Suggestions for Future Research 182
REFERENCES 183
QUESTIONNAIRE FOR MICROFINANCE COMPANIES 208
APPENDIX 3 – MAP OF GHANA 209
APPENDIX 2 - SUMMARY OF HYPOTHESIS 210

LIST OF TABLES

Table 2.1 Summary Of Literature Review....34
Table 4.1: Summary Of Responses....55
Table 4.2: Age Of Respondents And Highest Completed Education....56
Table 4.4: Size Of Enterprise And Number Of Years In Business....59
Table 4.5: Length Of Business And Association With Microfinance....60
Table 4.6: Types Of Microfinance Institutions And Type Of Accounts....63
Table 4.7: Mean Score And Standard Deviation Of Microsavings....69
Table 4.8: Mean Score And Standard Deviation On Access To Aredit....75
Table 4.9: Mean Score And Standard Deviation On Microinsurance....79
Table 4.11: Shapiro Wilk Test For Normality....83
Table 4.12: Test Of Homogeneity Of Variances....86
Table 4.13: Correlation Matrix....88
Table 4.14: Correlation Among Sub Scales....89
Table 4.15: Multicollinearity Test....90
Table 4.16a: Model Summary For Microsavings And Growth In Income....92
Table 4.16b: Anova For Microsavings And Growth In Income....93
Table 4.16c: Coefficients For Microsavings And Growth In Income....94
Table 4.17a: Model Summary For Microsavings And Consumption Expenditure....95
Table 4.17b: Anova For Microsavings And Consumption Expenditure....96
Table 4.17c: Coefficients For Microsavings And Consumption Expenditure....97
Table 4.18a: Model Summary For Microsavings And Acquisition Of Business Assets..98
Table 4.18b: Anova For Microsavings And Acquisition Of Business Assets....99
Table 4.18c: Coefficients For Microsavings And Acquisition Of Business Assets....100
Table 4.19a: Model Summary For Microsavings And Ability To Educate Children....101
Table 4.19b: Anova For Microsavings And Ability To Educate Children....102
Table 4.19c: Coefficients For Microsavings And Ability To Educate Children....103
Table 4.20a: Model Summary For Microsavings And Poverty Reduction....104
Table 4.20b: Anova For Microsavings And Poverty Reduction....105
Table 4.20c: Coefficients For Microsavings And Poverty Reduction....106
Table 4.21a: Model Summary For Access To Credit And Growth In Income....108
Table 4.21b: Anova For Access To Credit And Growth In Income....109
Table 4.21c: Coefficients For Access To Credit And Growth In Income....110
Table 4.22a: Model Summary For Access To Credit And Consumption Expenditure..111
Table 4.22b: Anova For Access To Credit And Consumption Expenditure....112
Table 4.22c: Coefficients For Access To Credit And Consumption Expenditure....113
Table 4.23a: Model Summary For Access To Credit And Acquisition Of Assets....114
Table 4.23b: Anova For Access To Credit And Acquisition Of Business Assets....115
Table 4.23c: Coefficients For Access To Credit And Acquisition Of Business Assets.116

Table 4.24a: Model Summary - Access To Credit And Ability To Educate Children...117
Table 4.24b: Anova For Access To Credit And Ability To Educate Children.....118
Table 4.24c: Coefficients For Access To Credit And Ability To Educate Children.....119
Table 4.25a: Model Summary For Access To Credit And Poverty Reduction.....120
Table 4.25b: Anova For Access To Credit And Poverty Reduction 121
Table 4.25c: Coefficients For Access To Credit And Poverty Reduction.....122
Table 4.26a: Model Summary For Microinsurance And Growth In Income.....123
Table 4.26b: Anova For Microinsurance And Growth In Income 124
Table 4.26c: Coefficients For Microinsurance And Growth In Income.....125
Table 4.27a: Model Summary For Microinsurance And Consumption Expenditure 126
Table 4.27b: Anova For Microinsurance And Consumption Expenditure 127
Table 4.27c: Coefficients For Microinsurance And Consumption Expenditure.....128
Table 4.28a: Model Summary - Microinsurance And Acquisition Of Business Assets 129
Table 4.28b: Anova For Microinsurance And Acquisition Of Business Assets.....130
Table 4.28c: Coefficients For Microinsurance And Acquisition Of Business Assets 131
Table 4.29a: Model Summary For Microinsurance And Ability To Educate Children .132
Table 4.29b: Anova For Microinsurance And Ability To Educate Children 133
Table 4.29c: Coefficients For Microinsurance And Ability To Educate Children 134
Table 4.30a: Model Summary For Microinsurance And Poverty Reduction 135
Table 4.30b: Anova For Microinsurance And Poverty Reduction.....136
Table 4.30c: Coefficients For Microinsurance And Poverty Reduction 137
Table 4.31a: Model Summary - Microfinance Interventions And Growth In Income...138
Table 4.31b: Anova For Microfinance Interventions And Growth In Income 139
Table 4.31c: Coefficients For Microfinance Interventions And Growth In Income.....140
Table 4.32a: Model Summary For Mfi's And Consumption Expenditure [B] 141
Table 4.32b: Anova For Mfi's And Consumption Expenditure 142
Table 4.32c: Coefficients For Mfi's And Consumption Expenditure 143
Table 4.33a: Model Summary For Mfi And Acquisition Of Business Assets.....144
Table 4.33b: Anova For Mfi And Acquisition Of Business Assets 145
Table 4.33c: Coefficients For Mfi And Acquisition Of Business Assets.....146
Table 4.34a: Model Summary For Mfi's And Ability To Educate Children.....148
Table 4.34b: Anova For Mfi's And Ability To Educate Children 148
Table 4.34c: Coefficients For Mfi's And Ability To Educate Children.....149
Table 4.35a: Moderation Output: 151
Table 4.35b: R-Square Increase Due To Interaction(S): 152
Table 4.36a: Moderation Output: 153
Table 4.36b: R-Square Increase Due To Interaction(S): 154
Table 4.37a: Moderation Output: 155
Table 4.37b: R-Square Increase Due To Interaction(S): 156
Table 4.38a: Model Summary – Regulatory Framework And Growth In Income 157

Table 4.38b: Anova For Regulatory Framework And Growth In Income 158
Table 4.38c: Coefficients Regulatory Framework And Growth In Income 159
Table 4.39: Model For Regulatory Framework And Consumption Expenditure 160
Table 4.39b Anova - Regulatory Framework Consumption Expenditure.....161
Table 4.39c: Coefficients - Regulatory Framework And Consumption Expenditure.....162
Table 4.40a: Model - Regulatory Framework And Acquisition Of Business Assets.....163
Table 4.40b: Anova Regulatory Framework And Acquisition Of Assets 164
Table 4.40c: Coefficients Regulatory Framework And Acquisition Of Assets.....165
Table 4.41a: Model - Regulatory Framework And Ability To Educate Children 166
Table 4.41b: Anova Of Moderator And Ability To Educate Children.....167
Table 4.41c: Coefficients Of Moderator And Ability To Educate Children 168
Summary Of Hypotheses 169

LIST OF FIGURES

Figure 2.1: Conceptual Framework..... **ERROR! BOOKMARK NOT DEFINED.**
Figure 2 Moderator Effect ..... **ERROR! BOOKMARK NOT DEFINED.**
Figure 4.1 :Area Of Business Specialisation 61
Figure 4.2: Legal Form Of Business 62
Figure 4.3: Reasons For No Savings Account Prior To Scheme 65
Figure 4.4: Savings Pattern 66
Figure 4.5: Average Weekly Savings 67
Figure 4.6: Frequency Of Withdrawal From Savings Account 68
Figure 4.7: Source Of Initial Capital 70
Figure 4.8: Access To Loan Facility From Mfi 71
Figure 4.9: Reasons For Refusal Of Loan 72
Figure 12: Loan Acquisition Process.....73
Figure 4.11: Punitive Action Taken Against Loan Defaulters.....74
Figure 4.12: Type Of Policies Subscribed 76
Figure 4.13: Reasons For Rejection Of Claims 77
Figure 4.14: Subscription To Insurance Policy.....78
Figure 4.15: P-P Plot Of Regression Standardised Residuals.....84
Figure 4.16: Normal Distribution Histogram.....85

OPERATIONAL DEFINITION OF TERMS

Access to Credit	The possibility that firms and individuals can access financial services such as credit: deposits, payments, insurance and other risk management services.
Capacity Building	Is an ongoing process through which individuals, groups, organizations and societies enhance their ability to identify and meet development
Corporate Governance	The set of rules designed by the Central Bank to regulate the operations of microfinance institutions
Empowerment	The capability of a person depends on a variety of factors, including personal characteristics and social arrangements.
Financial Inclusion	The delivery of financial services at affordable costs to sections of disadvantaged and low-income segments of society
Liquidity Position	Is a measure of the ability and ease with which microfinance companies can convert assets to cash.
Microcredit	Is a small financial loan made to poverty-stricken ` individuals seeking to start their own business.
Microfinance	A credit methodology that employs effective collateral substitutes to deliver and recover short-term, working capital loans to micro entrepreneurs
Microfinance Interventions	Encompasses Microsavings, access to credit , microinsurance and micro credit, provided to people who operate micro, small and medium enterprises.

Microsavings	Is a small deposit accounts recommended as an incentive to those with lower incomes for saving money. They are similar to savings accounts, but designed for small deposits.
Microinsurance	The protection of low-income people against specific perils in exchange for regular premium payments proportionate to the likelihood and cost of the risk involved
Poverty	Refers to a Condition where people's basic needs for food, clothing, and shelter are not being met.
Poverty Reduction	Is a term that describes the promotion of economic growth that will permanently lift as many people as possible over the poverty line.
Poverty Stricken Individuals	People are poverty stricken when their income, even if adequate for survival, falls markedly behind that of their community
Susu	Ghanaian word for deposit taking individuals who mobilise funds from clients on daily basis and repay on demand usually at the end of the month or year.

ABBREVIATIONS & ACCRONYMS

BOG	Bank of Ghana
CIDA	Canadian International Development Agency
CU	Credit Union
DFID	Department for International Development
FINCA	Foundation for International Community Assistance
FNGOs	Financial Non-Governmental Organisations
GHS	Ghana Cedis
GPRS	Ghana Poverty Reduction Strategy
ICICI	Industrial Credit and Infrastructure Corporation of India Limited
IFAD	International Fund for Agricultural Development
MASLOC	Microfinance and Small Loans Centre
MFI	Microfinance institutions
MPI	Monetary Poverty Indicator
NBFI	Non-Bank Financial Institutions
OLS	Ordinary Least Squares
RCBs	Rural and Community Banks
RMFI	Rural and Microfinance Institutions
SAT	Sinnapi Aba Trust
SIF	Social Investment Fund
SPEED	Support Programme for Enterprise Empowerment
UNDP	United Nations Development Programme
RCT	Randomised Control Trials

ABSTRACT

This study sought to investigate the effect of microfinance interventions on poverty reduction from the perspective of microfinance clients who are entrepreneurs of micro small and medium enterprises in the Central Region of Ghana. The Specific Objectives of the study was to establish the effect of Microsavings on poverty reduction; determine the effect of access to credit schemes on poverty reduction and to determine the moderating effect of regulatory framework on the relationship between microfinance interventions and poverty reduction in Central Region of Ghana. Five hypotheses were formulated to cover each objective and each of them was operationalized into four sub-hypotheses. The study was underpinned by the financial intermediation theory, supply leading finance theory, theory of life cycle savings and investing, the welfarist theory and the institutionalist theory. The study adopted descriptive cross sectional research design methodologies with positivism as the research philosophy. Using cluster sampling techniques, a sample of size of 370 respondents who are entrepreneurs of micro small and medium enterprises were contacted. SPSS was used to analyse the data using cross tabulations and multiple regression analysis. Tests conducted included: Cronbach Alpha (0.642) normality and linearity using Shapiro-Wilk tests, histogram and P-P plots, multicollinearity using correlation matrix, Tolerance and VIF, and Levene's test for homogeneity of variances. In line with the study objectives, the study found that microsavings had a statistically significant effect on growth in income and acquisition of business assets. It however had a relatively weak positive effect on consumption expenditure and a moderate effect on ability to educate children as poverty indicators. Similarly, Access to credit had a statistically significant strong positive effect on ability to educate children, however access to credit had a weak positive effect on growth in income, increase in consumption expenditure and acquisition of assets as indicators of poverty. Microinsurance on the other hand had strong positive effect on growth in income, acuisition of business assets and ability to educate children. Microinsurance however had a statistically weak positive effect on increase in consumption expenditure. The study therefore concluded that microfinance interventions are effective poverty at reducting poverty in Central Region of Ghana. The moderator, Regulatory Framework had a statistically significant moderating effect on the relationship between microfinance interventions and poverty reduction and its inclusion in the model increased the predictive of growth in income and acquisition of business assets. However its predictive power on increase in consumption expenditure and ability to educate children was insignificant. Accordingly, the study recommended that: prudential regulations on non-bank financial intermediaries by strengthened for the realization of the full benefits of microfinance interventions, the Central bank should carry out frequent and thorough institutional appraisal of the microfinance industry to ensure that its policies on lending are properly implemented, funding agencies such as Masloc established to support the small scale sector should not adopt a blanket financing option for all categories of businesses but rather, policies aimed at promoting the performance and growth of micro and small enterprises should adopt a sectorial approach. The study contributes to the finance theory by explaining how the study variables account for poverty reduction and in particular helps to answers the unending debate about the role of microfinance interventions in poverty reduction. Academicians will form a basis for future studies out of the research gaps identified by this study. Limitations highlighted include the inability of descriptive cross sectional design to capture the time effect of microfinance interventions on poverty reduction, the inability to extend the research outcome to other parts of Ghana other than the study locale, lack of studies adopting similar variable for empirical comparisons. The study recommends that further studies should employ Randomised Control Trials over a longitudinal period. Additionally the study recommend more primary studies using differenent predictors such as micro leasing, microinsurance and money transfer services among others.

CHAPTER ONE: INTRODUCTION

1.1 Background to the study

According to Kirsten (2011), Poverty has been identified as one of the world's biggest problems. The international community recognises that reducing global poverty is one of the major development challenges of the twenty-first century (Dupas & Robinson, 2012). It was estimated in 2009 that 1.8 billion people lived on less than US$2 a day (UNESCAP-ADB-UNDP, 2012); and in 2010, 1.4 billion people lived at or below the level of US$1.25 per day (UNDP 2010). According to Chen and Ravallion (2008), the World Bank reported that the developing world is much poorer than it was thought to be.

A variety of measures have been adopted over the years by governments across countries to reduce the poverty gap. The World Bank for instance has adopted the twin goal of reducing the percentage of people living on less than $1.25 a day to 3 percent by 2030 and improving the living standards of the bottom 40 percent of the population in every country by the year 2030 (World Bank, 2015). Stewart, Van Rooyen, Dickson, Majoro and De Wet (2010) contend that in response to the Millennium development goals, several interventions have been adopted by countries to eradicate poverty. These interventions include microfinance interventions among other things.

The relationship between microfinance interventions and poverty reduction is based on the principle that cash flow requirements are not the only burden that clients bear (Odell, 2009). Maintaining health status of household members, providing education for children and funerals for family members also place a heavy burden on clients and

threaten their ability to fulfill loan repayment obligations. Microfinance interventions entails the provision of financial services to low-income individuals and households, as well as micro, small and medium enterprises (MSMEs), using specially designed methodologies that ensures sustainability for the lenders and improvement in the standard of living for its subscribers (PWC, 2016).

Microfinance interventions are widely recognized as one of the most important engines of economic development. It contributions to individual and social welfare, business creation and expansion particularly for MSME's has been underscored by many studies. Microfinance interventions affords poor clients access to financial institutions, expand consumption, absorb disruptive shocks, manage risks and invest in durable goods, health and education which ultimately leads to economic development and poverty reduction (Cheston, Conde, Bykere, and Rhyne, 2016) .

According to Duvendack, Palmer-Jones, Copestake, Hooper, Loke and Rao (2011) microfinance interventions has gained considerable acceptance globally as an important poverty reduction tool in many developing countries. This assertion is supported by Dzisi and Obeng, 2013; Stewart *et al*., 2010 and Stewart *et al*., 2012. Armendariz and Morduch (2005), have also argued that few recent innovations have held much hope for reducing poverty in developing countries as microfinance interventions. Indeed microfinance interventions was projected as a crucial mechanism towards achieving the millennium development goal of halving extreme poverty and hunger by 2015 (Arun, Imai and Sinha, 2006; Rosenberg, 2010). Microfinance interventions has therefore emerged as a developmental strategy with the aim of reducing poverty by building

financial, human, physical and social capital (Robinson, 2003). Indeed, the notional view of microfinance interventions as a panacea to poverty reduction has attracted wide empirical research and public policy discourse in recent years.

In this study however, it is envisaged that regulatory framework will moderate the ability of microfinance interventions on poverty reduction. According to Steel (2003), legislation and regulations governing microfinance institutions in Ghana have evolved with the market opening up opportunities for the establishment of new institutions and tightening up to restrain excessive entry and weak performance in the face of inadequate supervision In this study, these regulations have been grouped into two, those affecting the corporate governance of microfinance institutions and those affecting the liquidity position of microfinance institutions. This distinction is necessary to understand the effect of regulations on microfinance interventions and poverty reduction.

The Central Region of Ghana was chosen as the study locale given the unique characteristics of the region as the seat of education, the heartbeat of tourism in Ghana, the spread between the forest belt and the coastal belt as well as the availability and spread of microfinance institutions in the region and the regions standing on the poverty map of Ghana.

1.1.1 Microfinance Interventions

According to Dzisi and Obeng (2013) microfinance interventions involves the granting of access to finance, Microsavings, microinsurance and non-financial services to low-income people, who wish to access credit for starting or developing an income generation activity. These interventions are based on the understanding that micro-entrepreneurs

and people who were considered poor and are unable to provide collateral security to the formal banks to access credits can be bankable. Stewart *et.al* (2010) also contends that such clients can access credit and repay, both the principal and interest on time and also make savings, provided financial services are tailored to suit their needs.

Historically and for commercial reasons, financial services have been targeted at the rich in society, which have a greater capability to repay loans and preserve their savings (Awaworyi, 2014). The poor community generally remained either unserved or were offered improper financial services. Poor farmers and landless laborers had acute difficulty in accessing financial services from conventional financial institutions. Kessy (2013) contends that microfinance interventions involves a holistic approach to poverty alleviation and empowerment of the poor through programs in health, education, social and legal empowerment (Van-Rooyen, Stewart & De-Wet, 2012).

The introduction of savings facilities as part of microfinance interventions has generated a lot of interest in recent years (Robinson, 2003; Richardson, 2003; Harper and Vogel, 2005). From a historical perspective, the perception of the poor as being too poor to save resulted in the neglect of savings as a financial instrument for poverty reduction (Ahmed-Karim & Alders-Sheya, 2014). The importance of savings to the poor began to emerge when empirical evidence by Rutherford (2006) found that the poor do save and even pay others to take their money for safe-keeping in schemes such as the "susu" as used in Ghana. The capability of the poor to save is therefore buttressed by empirical evidence that the poor all over the world save in different forms and for a variety of reasons (Ahiawodzi & Adade, 2012).

According to Agbozo and Yeboah (2012) microfinance interventions also include access to credit which offer clients the ability to borrow money in exchange for an agreement to repay the funds with interest and or fees at some future point in time. Credit products ranges from working capital loans, emergency and consumption loans, to leasing products and housing loans (Adjei, Arun & Hussein, 2009). Other studies have also indicated that access to credit brings about increased income due to accessibility of micro credit, training on how to manage the credit, increased assets which are bought due to availability of funds and also increased welfare in aspects such as food security, housing and health (Dzisi and Obeng, 2013).

Practitioners of microfinance have come to appreciate that cash flow requirements are not the only burden that clients bear (Odell, 2009). Funerals for family members, maintaining health status of household members and providing education for children, also place a heavy burden on clients and threaten their ability to fulfill loan repayment obligations. To address this burden, microfinance providers around the world have partnered with insurance companies to put in place affordable insurance products that cover various forms of risk for their clients (Stewart *et. al.*, 2010). In Ghana SAT introduced the client welfare scheme as a form of insurance to cover default risk in case of the death or severe illness of a participant who has an outstanding loan to settle. The loan default risk ratio reduced significantly with the introduction of this scheme (Adjei *et. al*., 2014; Adusei & Afranie, 2013).

1.1.2 Poverty Reduction

Poverty is one of the major challenges facing humanity today. A variety of measures have been adopted over the years for reducing poverty. The attack on poverty was spearheaded by the Millennium Development Goals (MDGs) set by the United Nations. The first goal of the MDGs was to eradicate extreme poverty and hunger by the year 2015 (UNDP, 2010). Despite the remarkable achievement of the past decade in lifting over 700 million people out of poverty, the World Bank has indicated that over 1.2 billion of the worlds' population is still living in extreme poverty (Tung, 2015). Accordingly, development agencies such as the World Bank and the United Nations continue to find strategies to reduce global poverty especially in developing countries. The framework aimed at reducing global poverty has evolved from the pursuit of growth led strategies to pro-poor policies of empowerment and livelihood programs (Dzisi and Obeng, 2013).

Poverty in Ghana has witnessed dramatic declines since the introduction of structural Adjustment programs in the late 1980s. For instance, the population of Ghanaians defined as poor (people living below the US$1 mark) declined from almost 40 per cent in 1998/1999 to 24.20 per cent in 2013 with a poverty index gap of 7.8 per cent which means that the mean income of the poor falls below the poverty line by 7.8%. These percentages also indicate that about 6.4 million people in Ghana are poor (GSS, 2014).

According to the Ghana Statistical Service about 8.4% of Ghanaians lives below the poverty line. More than 2.2 million Ghanaians (based on 2010 PHC projections) cannot afford to feed themselves with 2,900 calories per adult equivalent of food per day, even if

they were to spend all their expenditures on food. Although the absolute number living in extreme poverty has reduced over time, it is still quite high given the fact that Ghana is considered to be a lower middle income country. Unfortunately, the rapid economic growth, socio-political transformation and significant poverty reduction in the urban centres have done little in reducing inequalities in the country.

While there has been some positive progress, particularly in reducing social inequalities, such as in education and healthcare, challenges remain in promoting pro-poor growth and social protection strategies that will bridge the gap between the rich and the poor (Owusu, Akanbasiam & Anyesepari, 2013). Unmasking the issues behind the averages and examining the country's progress beyond the national level towards achieving the goal of reducing the percentage of people living on less than $1.25 a day to 3 percent by 2030 and improving the living standards of the bottom 40 percent of the population in every country by the year 2030, reveal the gains so far have not been evenly distributed across regions and localities (Osei-Assibey, 2014).

The Ghana living standards survey (2014) indicate that reductions in poverty were only concentrated in the Accra area and the rural forest regions of the country. Given the high incidence of poverty mentioned above particularly in rural Ghana and the contention that microfinance interventions were designed to eradicate poverty, the need to assess the impact of microfinance interventions on poverty reduction in the Central Region of Ghana whose inhabitants are mainly farmers and fishermen has even become more imperative.

1.1.3 Role of Microfinance in Poverty Reduction

Dupas and Robinson (2012) has observed that a large percentage of people in developing countries have been ignored by the banking sector and are deprived of an organized services such as loans, insurance, remittance and savings instruments. They contend that based on access to finance, Sub Saharan Africa has the lowest proportion. On the average, just a fifth of the population has access to finance.

According to the World Bank (2014), most poor people are not seen to be bankable by the formal financial institutions and are uninsurable to the wide variety of risks they face (Sinn, 2012). People living in poverty like everyone else need a diverse range of financial services to run their businesses, build assets, smooth consumption and manage risks. Duvendack (2011) therefore contends that microfinance offers a mechanism by which, organisations such as banks, non-bank financial institutions, Non-Governmental Organisations (NGO's) offer financial services which include loans, savings, money transfer and microinsurance to the poor.

In developing countries there are a big number of individuals who are financially under served. Microfinance programs have been recognized globally as a prospective component of strategies of development organisations, governments and societies to promote enterprises in developing countries (Jensen, 2014). Specifically microfinance institutions provide a broad range of services including deposits, loans, payments services and insurance to the low income households and their enterprises. In addition some microfinance institutions provides non-financial services such as training, business advisory, market assistance and counselling to their clients (CIDA, 2012). It is from this

stance that microfinance institutions are seen to be critical element to the poor and low income earners in developing countries.

Frimpong (2014) has noted that small enterprises and most of the poor population in sub Saharan Africa have very limited access to deposit and credit facilities and other financial services provided by formal financial institutions. For example, in Ghana, in spite of the gains in the economy, studies by Tiki and Faye (2013) have shown that only 29 per cent of the adult population has access to the banking sector.

1.1.4 Micro Small and Medium Enterprises in Central Region of Ghana

Studies by Ahiawordze and Adade (2010) have classified micro, small and medium enterprises (MSMEs) as the lifeblood for most economies including Ghana. On the average MSMEs represent over 90 percent of enterprises in most African countries and account for 50 to 60 percent of employment. According to Abor & Quartey, (2010), MSMEs in Ghana have been noted to provide about 85% of manufacturing employment and are believed to have contributed about 70% to Ghana's Gross Domestic Product (GDP) and account for about 92% of businesses in Ghana.

Agyapong (2010) on the other hand argue that MSMEs are particularly important in supporting economic growth and livelihoods in Ghana. Indeed, leading advocates of MSME's contend that if all stakeholders were to show serious commitment to the development of the MSMEs sub-sector, the economy would witness meaningful transformation and prosperity (Mensah, 2004; Abor & Quartey, 2010; Boeh-Ocansey, Agyeman & Apau, 2009).

Available data from the Association of Ghana Industries (AGI) suggests that 90% of registered firms in Central Region of Ghana are classified as micro, small and medium enterprises (www.agighana.org, 2017). The region has a relatively long history of government interventions and initiatives to promote and finance MSME's. Following the creation of the National Board for Small Scale Industries (NBSSI) and the establishment of the headquarters of Pan African Festival for Arts and Culture (PANAFEST) in the early 1990's, MSME's in the region begun to attract support for the development of the tourism sector and by extension the manufacturing and other ancillary sectors (Boeh-Ocansey *et. al.*, 2009).

The government of Ghana in response to the various initiatives to expand and tap the economic potential of the region introduced a number of interventions aimed at boosting the productive capacity of the region. These include the establishment of the Business Assistance Fund (BAF), the Ghana Investment Fund (GIF), the Export Development and Investment Fund (EDIF), the Venture Capital Trust Fund (VCTF) and the Microfinance and Small Loans Centre (MASLOC) among others Frimpong (2014). MASLOC in particular grants loans to Microfinance Institutions (MFIs), Departments and Agencies (MDAs) and rural Banks for on-lending to small and micro businesses in Central Region of Ghana.

The financial sector in Ghana comprises 34 commercial banks, 140 rural and community banks, 70 non-bank financial institutions, 37 savings and loans schemes 5 finance and leasing companies, 29 money lending institutions and 429 microfinance institutions as at June 2016. Out of these, 28 commercial banks have presence in Central Region as well as 20 rural banks and 19 microfinance companies who have been providing financial

support for the MSME's (www.bog.gov.gh/supervision, 2017). Accordingly the selection of the region for this study is most appropriate for a study of this nature.

1.1.5 Regulatory framework

Legislation and regulations governing rural and microfinance institutions (RMFIs) in Ghana have evolved with the market, both opening up possibilities for new types of institutions and tightening up to restrain excessive entry and weak performance in the face of inadequate supervision (Steel, 2003). As in most developing countries, there are policy and regulatory shortcomings in the Ghanaian financial sector in general, and the microfinance industry in particular (Remar, 2014). In this study regulatory framework was grouped into those affecting the liquidity position of the microfinance companies and those affecting the corporate governance of the institutions.

Liquidity held by microfinance companies depicts their ability to fund increases in assets and meet obligations as they fall due. Traditionally, MFI's take deposits from customers and give out loans. Liquidity is therefore of prime concern for MFI's and the shortage of liquidity can trigger banks' failure. For effective management of resources, the Central Bank of Ghana sets and reviews the liquidity position of microfinance companies. These policies ranges from the setting up of minimum capital requirements, tax rates to liquid reserve ratios. However setting a minimum capital requirement limits the ability of depository institutions to expand credit (Saunders and Cornett, 2008).

Laeven and levine (2008) conducted a study on bank governance, risk taking and regulations and found a statistically significant negative relationship between the level of liquidity and bank profitability. In contrast to Laeven *et. al.* (2008), Demirgüç *et. al.*

(2003) found statistically significant positive relationship between liquidity and banks profitability. Asongu (2013) conducted a study on post-crisis bank liquidity risk management disclosure. The study sought to examine the extent to which the Basel II pillar 3 disclosure on liquidity risk management was being applied by 20 of the top 33 world banks. The study found that only 25% of the sampled banks provided information on liquidity risk management to the public, signaling that majority of the top ranking banks were still not fully complying with the Basel disclosure.

Kimathi et al. (2015), conducted a survey of 96 employees drawn from 6 Microfinance Institutions in Kenya to assess the factors affecting liquidity risk management practices in the MFI's in Kenya. The study concluded that internal controls, institutional policies, board oversight and risk monitoring significantly affected the liquidity position of the microfinance companies. It follows from the above that MFI's with strong liquid position are better placed to execute poverty reduction strategies. Accordingly it was expected that the liquidity position of microfinance institutions will moderate the relationship between micrfinance interventions and poverty reduction as firms with more liquid assets stood a better chance of generating credit.

Corporate governance has become increasingly important with the collapse of many microfinance companies in recent times. Governance in this context are the set of rules designed by the Central Bank to regulate the operations of microfinance institutions. It comprises but not limited to the composition of the Board of Directors, their level of expertise, frequency of meeting and the formation of an audit committee among others (Hubka & Zaidi 2005).

Kyereboah-Coleman (2007) examined how selected governance indicators impact on performance measures of outreach and profitability in microfinance institutions (MFIs) in Ghana. The study found that governance played a critical role in the performance of MFIs and that the independence of the board and a clear separation of the positions of the CEO and board chairperson had a positive correlation with both performance of the institutions.

Mersland and Strom (2007) studied the effect of corporate governance in microfinance institutions (MFIs) worlwide. The study analyzed the relationship between performance and corporate governance in microfinance institutions utilising a self-constructed global data set on MFIs, collected from third-party rating agencies. They found the split of roles between the CEO and chairman were very important in explaining the preformance of many microfinance companies. The entrenchment effect of CEO/chairman duality had a negative relationship to ROA while a female CEO had a positive effect. They concluded that the CEO/chairman duality tends to be associated with higher operational costs, while a female CEO was associated with a lower cost.

Ferede (2012) studied the impact of corporate governance Mechanism on Bank performance in Ethiopia and concluded that large board size and audit committees negatively influences financial performance; board members educational qualification was found to have positively ainfluence financial performance; industry specific experience of director was also found to have been positively related with high return on asset. Otman (2014) conducted a study in the Middle East and North Africa Region on corporate govenance and firm performance and found statistically significant evidence

that corporate governance in microfinance companies were weak and that efforts are required to improve the governance structure.

The implication of the above findings is that the survival of most microfinance interventions and the eradication of poverty depends on how well funds entrusted to the board and management of microfinance companies are managed. Corporate govenance is therefore expected to moderate the relationship between microfinance intervention and poverty reduction in this study.

1.1.6 Central Region of Ghana

The central region with a population of 2.2 million was historically part of the Western Region until 1970 when it was carved out as a separate regional entity. It occupies an area of 9,826 square kilometres or 4.1 percent of Ghana's land area, making it the third smallest in area after Greater Accra and Upper East. It shares common boundaries with Western Region on the west, Ashanti and Eastern Regions on the north, and Greater Accra Region on the east. On the south is the 168-kilometre length Atlantic Ocean (Gulf of Guinea) coastline (GSS, 2013).

Its capital, Cape Coast was the capital of the Gold Coast until 1877, when the capital was moved to Accra. According to Ankomah, Gyebi and Cudjoe (2013), the region is considered the heartbeat of Ghana's tourism because of its wealth of beaches, forts and castles and festivals. The twin towns of Cape Coast and Elmina provide a clear focal point for tourists. The region is also considered as the heartbeat of Ghana's education given that it has two universities, the University of Cape Coast and the University of Education, Winneba and boast of high profile high schools such as the Mfantsipim

School, St. Augustine's College, Wesley Girls High School, Adisadel College and Holy Child School among others (DeCorse, Can, Chouin, Cook and Spiers, 2000).

The region can be broadly divided into two: the coast, which consists of undulating plains with isolated hills and occasional cliffs characterized by sandy beaches and marsh in certain areas and the hinterland, where the land rises between 250 metres and 300 metres above sea level. The region lies within the dry equatorial zone and the moist semi – equatorial zone. Annual rainfall ranges from 1,000 mm along the coast to about 2000 mm in the interior. The Central Region is also endowed with rich natural resources like: gold, beryl and bauxite in the Upper Denkyira District; petroleum and natural gas at Saltpond; kaolin in the Mfantsiman district; diamond at Nwomaso, Enikokow, Kokoso all in the Asikuma – Odoben – Brakwa District among others (GSS, 2015).

1.2 Statement of the Problem

Poverty has attracted significant attention globally (Robinson, 2003; Stewart *et.al.* 2010, Ledgerwood, 2013) with the international community recognizing the reduction of global poverty as a major developmental challenge of the twenty-first century. Accordingly, the World Bank has adopted the twin goal of reducing the percentage of people living on less than $1.25 a day to 3 percent by 2030 and improving the living standards of the bottom 40 percent of the population in every country by the year 2030 (World Bank, 2014).

The Ghana Living Standards Survey (2014) indicates that over 6.4 million of Ghanaians representing 24.2 percent of the population lives below the $1.25 poverty mark set by the World Bank. The study further stated that about 8.4 per cent of Ghanaians are extremely poor and lives below the poverty line of US$1 mark a day. The report further state that

18.8 percent of the people in Central Region of Ghana, with a population of 2.2 million (GLSS, 2014) lives below the poverty line. To address the poverty gap, the Government of Ghana implemented several interventions ranging from livelihood enhancement programs to support program for enterprise development and the setting up of microfinance institutions. For instance and In 2006, the government of Ghana established the microfinance and small loans centre (MASLOC) under the Ghana Poverty Reduction Strategy (GPRS) II to provide loans to the marginalized productive poor as a tool for reducing poverty and creating jobs (BOG, 2015).

Despite these interventions the number of people living with poverty continues to rise in rural Ghana (GSS, 2014). While several factors could be responsible, this study concentrates on the role of microfinance in the poverty reduction strategy of Ghana. Leading advocates of microfinance interventions such as Yeboah (2010) and Stewart *et.al.* (2010) have argued that, microfinance helps lift people out of poverty by raising incomes and consumption, not just smoothing them. However, Arhin-Sam (2013), Roodman and Morduch (2013) and Awarwoyi (2014) have all found statistically insignificant association between microfinance interventions and poverty reduction. Therefore the projection of microfinance as a poverty reduction strategy needs to be revisited.

From the foregoing, it was the opinion of this researcher, that the impact of microfinance on poverty reduction has not fully been examined. Consequently and given the lapse of time, this study sought to investigate whether new evidence has emerged to access the impact of microfinance interventions on poverty reduction from the clients' point of view

in Central Region of Ghana to give a clearer understanding as to how microfinance interventions affect poverty reduction in Ghana.

1.3 Objectives of the Study

This study was informed by general and specific objectives which are captioned below.

1.3.1 General Objective

The general objective of the study was to determine the effect of microfinance interventions on poverty reduction (from the perspective of microfinance clients) in the Central Region of Ghana.

1.3.2 Specific Objectives

The specific objectives informing the study were:

i. To establish the effect of Microsavings on poverty reduction among entrepreneurs of MSME's in Central Region of Ghana.

ii. To determine the effect of access to credit on poverty reduction among entrepreneurs of MSME's in Central Region of Ghana.

iii. To establish the effect of microinsurance on poverty reduction among entrepreneurs of MSME's in Central Region of Ghana.

iv. To determine the effect of microfinance interventions on poverty reduction among tentrepreneurs of MSME's in Central Region of Ghana.

v. To determine the moderating effect of regulatory framework on the relationship between microfinance interventions and poverty reduction among entrepreneurs of MSME's in Central Region of Ghana.

1.3.3 Research Hypotheses

The study tested the following null hypothesis:

H_{01}: Microsavings do not have a significant effect on poverty reduction among entrepreneurs of MSME's in Central Region of Ghana.

H_{02}: Access to credit does not have a significant effect on poverty reductions among entrepreneurs of MSME's in Central Region of Ghana.

H_{03}: Microinsurance does not have a significant effect on poverty reduction among entrepreneurs of MSME's in Central Region of Ghana.

H_{04}: Microfinance interventions does not have a significant effect on poverty reduction among entrepreneurs of MSME's in Central Region of Ghana.

H_{05}: Regulatory framework does not have a significant moderating effect on the relationship between microfinance interventions and poverty reduction among entrepreneurs of MSME's in Central Region of Ghana.

1.4 Significance of the study

The outcome of the study will form a basis for microfinance policy formulation and implementation. Given the multidimensional nature of poverty in rural Ghana and the limited ability of government to address the vulnerabilities it creates, the government needs to find ways to direct appropriate assistance to these vulnerable households. It is expected that policy makers will take the outcome of this study as an input from microfinance clients in formulating and shaping the existing policy on microfinance interventions. The implementation of such policies will benefit both the private sector and government since the microfinance sector has been considered as the catalyst to develop the private sector as the engine of growth for the economy.

The study shall also benefit stakeholders of the microfinance industry. These include NGO's, donor agencies, bilateral organisations and consultants. For example the study could form a good basis for consultants and donor agencies to train microfinance companies and their clients. This is because the outcome of the study could be used in designing appropriate training materials and programmes. The study outcome could also help organisations involved in financing microfinance institutions the world over to determine the impact of their funding on poor people and the extent to which the funds have contributed in alleviating poverty.

This study shall also contribute to the debate on whether microfinance is indeed the panacea to poverty reduction. Students and academicians alike shall therefore benefit from its findings and recommendations as a reference material in critiquing and conducting further studies. The view of microfinance interventions from clients' point of view will not only help fill the gap in the microfinance literature but also contribute in making microfinance an effective developmental intervention in developing countries.

1.5 Scope of the Study

This study sought to determine the relationship between microfinance interventions and poverty reduction. It involves clients of microfinance companies who are enterpreneurs of Micro Small and Medium Enterprises perceptions of microfinance interventions and their impact on their standards of living for the period they had been under these interventions. The criteria for selecting the Central Region of Ghana were based on a 2014 Ghana Statistical Service survey which identified the region as the fourth poorest in the country in spite of its richness in education and tourism.

Other considerations relate to the diverse composition of the region as one satisfying all the four key ecological zones of the country; urban coastal, rural coastal, rural forest and urban forest zones; the existence of more than ten microfinance institution, diversity of type of microfinance services, microfinance being in existence for three or more years; and the assurance of permission to undertake the study within the time frame. On this basis the Central Region was considered as one of the regions that represent Ghana in its entirety. The study covered interventions over the three year period spanning form the 2012 fiscal year to the 2015 fiscal year.

1.6 Limitation of the study

The study suffered some limitations which are noteworthy. Firstly, the study adopted a descriptive cross sectional research design where relationships between the study variables were tested at a single point in time. For an impact study of this nature, observations over a longer period of time would have been idea, however this was not possible given the time required to conduct the study.

Secondly, the study was based on respondents from the Central Region of Ghana and may not necessarily represent the impact of microfinance interventions on the entire Ghanaian landscape. Consequently, there could be questions as to the representative nature of this study and the applicability of its findings to poverty reduction in Ghana. Nonetheless, it is the opinion of the researcher that the outcome of the study has given a fair reflection of microfinance interventions in Ghana given that efforts were expended in selecting a region which had a fair representation of the country Ghana.

Thirdly, the units of analysis of this research were micro small and medium enterprises; however respondents were the entrepreneurs or managers of such enterprises. Accordingly, some of the demographic characteristics evaluated were actually personal characteristics of the owners and may not represent the institutions they represent. Also, most respondents were skeptical at supplying researchers with the information needed for an objective measure because of their suspicion of academic research. Therefore the data may not be 100 per cent accurate and may not give a true reflection of microfinance interventions in Ghana.

Lastly, the study was not intended to cover all microfinance clients in the Region due to time and financial constraints and therefore some key clients could have been omitted due to the selection criteria. These notwithstanding, scientific methods was used in selecting the sample size which could serve as a valuable input for further studies as some inferences could be made to neighbouring areas that share a context similar to that of the study area because most of the microfinance institutions in Ghana have adopted the Grameen model and therefore have similar modus operandi.

1.7 Organisation of the Study

This thesis consists of five chapters. Each chapter addresses certain aspects of the study and it is designed in logical sequence towards answering the research question. As an introductory chapter, chapter one provides the background to the study, statement of the problem, research objectives and hypothesis, significance of the study, limitation and organization of the study. Chapter two reviews literature on microfinance. In this

chapter both theoretical and empirical reviews were carried out. A conceptual framework is then developed from the literature review.

Chapter three discusses the methodology used in the study. The chapter covers the research design, the research philosophy, and the study area, target population, sampling techniques and sample size determination and diagnostic test. Others include the research instrument, validity and reliability tests, and data collection procedure and data analysis. In conclusion, the chapter highlights ethical issues relating to the study. Chapter four presents the research results and discussion. The chapter presents the major findings of the study and discussions of the findings and made comparison to existing studies. Lastly, the study concludes with chapter five which consists of the summary, conclusions and recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature related to microfinance interventions and poverty reduction. It begins by reviewing the various theories underpinning microfinance intervention and poverty reduction. A conceptual framework is then developed from these variables that affect poverty reduction. The chapter ends with a summary of the literature reviewed which affects microfinance intervention and poverty reduction.

2.2 Theoretical Review

This study was underpinned on the financial intermediation theory, the supply leading finance theory, the theory of life cycle savings, the welfarist theory of poverty and the institutionalist theory.

2.2.1 Theory of Financial Intermediation

According to OECD (2015) financial intermediation as pioneered by Gurley and Shaw (1961) is a productive activity in which an institutional unit incurs liabilities on its own account for the purpose of acquiring financial assets by engaging in financial transactions on the market; the role of financial intermediaries is to channel funds from surplus spending units to deficit spending units by intermediating between them. Microfinance institutions exist to intermediate between surplus spending units and deficit spending units by not only channelling credit to deficit spending units, but also train their clients on the proper use of the funds acquired (Ledgerwood, 2013).

Financial intermediation is built on the models of resource allocation based on perfect and complete markets by suggesting that it is frictions such as transaction costs and asymmetric information that are important in understanding intermediation (Carter, 2013). Akerlof (1970), Spence (1973) and Rothschild and Stiglitz (1976) who have been advocates of the financial intermediation theory in recent years have all argued that financial intermediaries exist because they can reduce information and transaction costs that arise from an information asymmetry between borrowers and lenders. Intermediaries assist in the efficient functioning of the financial markets, and any factors that affect the amount of credit channeled through financial intermediaries can have significant macroeconomic effects.

According to Santomero and Allen (1998) and Claus and Grimes (2003) there are two strands in the literature that formally explain the existence of financial intermediaries. The first strand emphasises financial intermediaries, provision of liquidity. The second strand focuses on financial intermediaries, ability to transform the risk characteristics of assets. In both cases, financial intermediation can reduce the cost of channeling funds between borrowers and lenders, leading to a more efficient allocation of resources.

Although the presence of financial intermediaries improves investment in the economy and expands the market equilibrium, profit-seeking banks nonetheless leave certain market niches unfilled (Carter, 2013). Banks avoid borrowers who have no collateral or who have not received previous loans in the formal sector. Claus and Grimes (2003) asserts further that to reduce agency costs, banks prefer borrowers with assets that can be used as collateral in the unlikely events of the project's failure, meaning that poor people who do not have credit ratings are excluded from access to finance in the formal banking

set up. This theory helps in understanding the role of savings and access to credit as used in the study.

2.2.2 Theory of Life Cycle Saving and Investing

According to Bodie, Treussard and Willen (2007), the theory of life cycle savings determines how much a family saves for retirement and for the kids' education; how much insurance they buy; how they allocate their portfolio across different assets and what a household chooses as the default asset allocation for a mandatory retirement saving plan is a determined by the theory of life cycle savings. The theory, developed by Ando and Modigliana (1963) teaches how to view financial assets as vehicles for transferring resources across different times and outcomes over the life cycle, and that perspective allows households and planners to think about their decisions in a logical and rigorous way.

According to Deaton (2009) the saving propensity of families may be linked to one, or a combination, of the following elements: to build up a reserve against unforeseen contingencies; to provide for an anticipated future relation between the income and the needs of the individual or his family different from that which exists in the present for example family education, or the maintenance of dependents; to enjoy interest and appreciation, to enjoy a gradually increasing expenditure, to enjoy a sense of independence and the power to do things among others.

Kintzel (2007) argues that these motives might be called the motives of Precaution, Foresight, Calculation, Improvement, Independence, Enterprise, Pride and Avarice; and we could also draw up a corresponding list of motives to consumption such as

Enjoyment, Short-sightedness, Generosity, Miscalculation, Ostentation and Extravagance (Roodman, 2010). To these motives Stewart *et.al.* (2010), add the "down-payment" motive "to accumulate deposits to buy houses, cars, and other durables". The dependence of consumption and saving on present income is a fundamental proposition of the general theory of employment, interest and money; the consumption and saving functions are based on the simple notion that individuals' or families' consumption and saving behaviour in a given period is related to their disposable income of that same period.

In sum, among the theories that underlie the concept of microfinance the financial intermediation theory stands out as the most significant. Poor people are provided with capital which they invest in income-generating activities and make profit. This should result in a virtuous cycle: credit leads to increased production and incomes, and allow for greater consumption and savings, and result in further investment (Adjei, Arun & Hussein, 2009). This theory helps in understanding the role of savings in poverty reduction as used in the study.

2.2.3 Supply- Leading Finance Theory

Economists have been interested in the finance-growth link for a long time. Yet, there seems to be no consensus on the matter. Dating back to Schumpeter (1969) who is accredited with the proposition of this theory, the importance of financial services in promoting economic growth had been emphasized. Gezici (2007) and Carter (2013) also suggested the critical role that financial intermediation has for stimulating economic growth. Others (Robinson, 2003; Rachdi & Mabarek, 2011) are not convinced that finance strengthens economic growth and note that financial development follows

economic growth. Levine (2005) notes that "where enterprise leads finance follows". As such, this school of thought which purports that growth leads finance is based on the premise that financial development is as a result of the demand for financial services which comes about as the economy develops.

CGAP (2014) rationalize this view by realizing that a regular measure of financial development (the ratio of the broad money stock to nominal GDP) is the inverse of the velocity of circulation of the broad money stock, and viewing the services rendered by money balances as a luxury, then any positive association between financial development and real gross domestic product (GDP) per capita may simply reflect an income elasticity which is greater than unity. As such, the direction of causation would run from real GDP to financial development, through the demand for money. The stronger arguments though seem to be in favour of the fact that finance is important in facilitating economic growth. This theory is relevant to this study because it helps in understanding the role of the variable access to finance as used in this study.

2.2.4 Welfarists Theory

The Welfarists emphasize on poverty lending as measured by depth of outreach. That is reaching not just a larger number of clients (breadth of outreach) but a larger number of poor clients also known as depth of outreach (Kipesha & Xhang, 2013). It follows therefore that Welfarists view microfinance as established for poverty reduction. Their main objective is to empower the poorer or the economically active poor and thus depth of outreach should be given a higher priority.

Microfinance should be able to serve as many as possible poor clients even when it may appear as not profitable. They contend that the deficit in operations should be filled with donor and government support or social investors (Kessy, 2013). Taking the Welfarists view aboard, many groups especially NGO's argues that there is a trade-off between sustainability (Profitability) and targeting the poor (Outreach) because the poorest and cost ineffective to reach when profitability is considered and thus donor support is required to bridge the gap (Nyamsogoro, 2010). Their argument is that to reach the poorest require small exclusive programmes which cannot be sustainable and require ongoing donor funding (Chen, Shaohua & Ravallion, 2008). The Welfarist theory as used in this study emphasises the importance of depth of outreach. The Welfarist argue for many people to be offered facilities to be able to set up their own businesses since a purely sustainable approach will defeat the objectives of reducing global poverty as envisaged by the Worlbank which is also the thrust of this study.

2.2.5 Institutionalist or Sustainability Theory

According to Annim (2010), the institutionalist focuses mainly on financial sustainability of microfinance institutions. They view financial deepening as the main objective of microfinance institutions. Financial deepening was explained to mean creating sustainable financial intermediation for the poor. The institutionalist asserts that financial sustainability as measured by profitability should be given priority by all MFI's (Nyamsogoro, 2010, Kessy, 2013). Their argument comes from the fact that in most cases donor dependence is not certain and thus unless and MFI is able to sustain itself financially it will not be able to serve the poor in the long term.

Contrary to promoting financial sustainability, there is a potential tension that over emphasis on financial self-sustainability may lead microfinance institutions into moving away from its poverty reduction objective a situation which Aubert, Janvvry, and Sadoulet (2009) describes as a mission drift. A close examination of the arguments put forward by the institutionalist and the Welfarists reveal that the whole debate is about how microfinance is financed. On one hand the institutionalist would want to see that MFI's are meeting all their costs from self-generated funds and also making some level of profit. This is what they would refer to as a sustainable MFI. The Welfarist on the other hand are less concerned with where the funds come from provided the MFI's can continue with their operations and meet their social objectives they would consider that to be sustainable. Their focus is on depth of outreach rather than breadth of outreach or financial self-sufficiency (Brau & Woller, 2004; Nyamsogoro, 2010 and Annim, 2010).

2.3 Empirical Review

This section reviews empirical literature relating to the variables used in the study. In particular the section reviews empirical studies on poverty reduction, savings, access to credit and microinsurance, which will serve as the foundation for the findings of the study.

2.3.1 Microsavings and poverty reduction

Ahmed-Karim and Alders-Sheuya (2014) argues that Microsavings have been much less at the forefront in the discourse of microfinance than microcredit. They contend that Microsavings are generally less of a financially profitable proposition for lending institutions than microcredit. However, providing the poor with access to save their

money has been found by a number of studies to have promising effects (Dupas and Robinson, 2012). Similarly, Kast, Meier and Pomaranz (2012) conducted a study in Nepal and found that randomized access to free and easy to use savings accounts for female heads of households led to increased savings and assets as well as investments in health and education. Prina (2015) contends in his study on banking the poor in Malawi that providing access to accounts to rural farmers resulted in increased input usage, higher crop sales and greater household expenditure over the subsequent agricultural year.

However, Dupas *et. al.* (2012) study in Western Kenya revealed that the specifics of the accounts and the context seem to matter significantly. The study observed that though there was 63% take up of accounts after the opening fee was waived, only 15% actively used the accounts. A study by Dupas and Robinson (2013) in Kenya found that market women who were provided with bank accounts with no opening fees but high withdrawal fees used their accounts more actively and increased their total savings than the male taxi drivers who were provided with similar facilities. Four to six months after opening the accounts, women who received the accounts had 38 per cent to 56 per cent higher daily investment in their businesses and 37 per cent higher daily expenditures than the comparison group that did not receive an account. Understanding the dynamics of Microsavings in Ghana could help policy makers and microfinance institutions that are active in Microsavings to improve their products to achieve the millennium development goal of halving poverty.

2.3.2 Access to credit and Poverty Reduction

The idea of enabling the poor to have access to credit is based on the virtuous cycle principle: low income, investment, more income, more credit, more investment, more income (Hulme and Mosley, 1996). It is assumed that credit will be used for productive purposes and would generate additional income for borrowers. Thus, the provision of credit came to be perceived as an important mechanism for reducing poverty.

However as to whether availability of credit reduces poverty remains to be proven. This is because it is difficult to isolate the impact of credit out of the many factors in a microfinance intervention that can potentially affect poverty (Duvendack *et. al.*, 2011). Additionally, De Mel, McKenzie and Woodruff (2013) conducted an experiment in Sri Lanka using a sample of 1,525 Sri Lankan enterprises for a microfinance project which provided capital, incentives to hire new employees and management training. They found that the treatments largely had temporary effects, suggesting that while they may speed convergence to a steady state, they did not appear to put firms on a different growth path.

Awarwoyi (2014) conducted a meta study on microfinance by reviewing 25 empirical studies with a total of 595 estimates of the impact of microcredit and access to credit on poverty and microenterprises and found no significant association between access to credit and assets. He also found that access to credit has an insignificant relationship on consumption expenditure as well business revenue. He however found a positive association between access to credit and income. Chen *et. a.* (2013) on the hand observed that access to credit brought only partial improvement in women‘s well-being because of the low absorptive capacity in poor communities.

2.3.3 Microinsurance and Poverty Reduction

According to Arhin-Sam (2013), poor clients are susceptible to shocks, and the consequences of them are greater. Billions of poor people even those who have recently escaped poverty live on the edge of disaster. A single major shock, such as serious illness or death of a breadwinner could push a family into complete destitution. And while saving for the unexpected is a useful and common practice, it is rarely sufficient to cover major shocks.

CSFI (2014) contends that while microfinance has come to encompass both credit and savings for many MFIs, insurance for the underserved (or 'microinsurance') remains the least developed part of the financial product suite. Providers have found it difficult to offer insurance beyond credit life (which pays off the insured's loan in the event of death). Despite coming late to the sector, the microinsurance sector has evolved dramatically in the last decade. Health, funeral and crop insurance are being offered in many countries.

While microinsurance is in some ways the hardest product to offer, it can provide potentially the biggest reward for clients and institutions alike. Karlan, Osei, Osei-Akoto and Udry (2013) conducted a study in Ghana with 1,100 farmers and found that demand for rainfall insurance was strong and insurance led to significantly higher agricultural investment and riskier production choices. Banthia, Johnson, Mathews and McCord (2009) conducted a study in Bolivia and found that and MFI that offers health microinsurance program that includes maternity coverage had a 62% take up among the 45% share of women clients.

2.4 Summary of literature review and research gaps

A survey of the literature dealing with microfinance and poverty reduction indicates that there is a significant gap in the knowledge of the determinants of poverty reduction. Different authors measure poverty in different ways. There are several studies which investigated microfinance intervention on poverty reduction. However, most of these studies reviewed the studies of other authors instead of conducting their own study to ascertain whether microfinance indeed influence poverty. The end result is that such studies either affirmed that which is already known or contributed to the controversy surrounding the subject.

The most significant gap observed in most of the literature reviewed was that most studies were not supported by any theory. Additionally, most studies used unscientific sampling techniques and sought to generalise their results. It was also strange to observe that most of the studies relied on secondary data, yet no diagnostic test was conducted to prevent violation of the assumption of linearity. Below is a summary of the various literatures reviewed.

Table 2.1 Summary of Literature Review

Author and Context	Objective	Methodology	Key Findings	Research Gaps	Addressing research the gaps
Adusei & Appiah (2013) Ghana	Investigate impact of credit union financial intermediation on economic growth	Study utilises panel generalized method of moment estimation technique	Positive effect between financial intermediation and economic growth	Small sample size and unspecified method of sampling	• Study uses cluster sampling techniques and large sample size
Annim (2010) Ghana	Investigate the trade-off or mutuality between financial sustainability and Outreach	Randomised control test	Study observed trade-off between financial sustainability and outreach	Lack of diagnostic tests	• Study performs diagnostic test: • Homoscedasticity, test for normality, Multicollinearity
Awaworyi (2014) Worldwide	To review Impact of micro credit and access to credit on poverty reduction	Meta-analysis using 25 empirical studies with 595 estimates of impact of microcredit and access to credit on poverty and microenterprises	No significant impact on poverty and income growth except for increase in assets	Convenient sampling techniques	• Study adopts Cluster sampling techniques • Study uses primary data
Dupas and Robinson, 2012 Rural Kenya	Evaluate savings constraints and microenterprise development	Randomised control test	The study found significant barriers to savings and investment for market women	Study did not explain the causes of the barriers. No literature review	• Studies in underpinned by financial intermediation theory
Duvendack, Palmer-Jones, Copestake, Hooper, Loke and Rao (2011) WorldBank study	Investigate impact of microfinance on poverty reduction	Review of 58 empirical studies using RCT methodology	Study could neither support nor deny the notion that Microfinance is pro-poor and pro-women	Study did not meet its objectives as it could not make a definite conclusion	• Study will make a definite conclusion • Study designed to meet its objectives
Gyamfi and Ampofo (2014) Upper Denkyira East Municipality, Ghana	Review effects of Microcredit on Community Farmers in Upper Denkyira East Municipality of Ghana	Descriptive research with mixed approach and convinience sampling technique	Microfinance credit has made a significant effect on the economic life of community farmers to increase their farms and yields	Lack of theoretical framework Convenient sampling techniques subject to biases.	• Study is supported by four theories • Study adopts Cluster sampling technique
Jensen (2014)	Review of microfinance as a paradigm for development in	Descriptive design with multiple-case study	Microfinance cannot be viewed as a sustainable	Study lack clear objectives	• Study is supported by four clear objectives

	Kenya	methodology	solution to poverty.		
Rosenberg (2010) World wide	Impact of microfinance on poverty reduction	Randomised Control Test	Microfinance lifts people out of poverty	Small sample size limited to a single bank in Kenya. Lack of diagnostic test.	• Study adopts large sample size • Study is supported by literature
Stewart, Van Rooyen, Dickson, Majoro and De Wet (2010) Worldbank study	Investigate impact of microfinance on poor people	Creative traditional methods of peer feedback and snowballing	Microsavings is a better model than micro-credit. Micro credit make some people worse off	Unclear methodology . Study findings cannot be generalised	• Study adopts Cluster sampling design
Yeboah (2010) Brong Ahafo Region, Ghana	Microfinance in rural Ghana: a view from below	Mixed method and ordinal multiple linear regression	Microfinance interventions contribute to household consumption than household asset accumulation	Weak theoretical basis with missing diagnostic test even though study used secondary data	• Study is supported by five theories • Study conducts diagnostic test

Source: Various literatures reviewed, 2017

2.5 Conceptual framework

The conceptual framework is a researcher's conceptualization of the interactions between the variables of a study. It explains graphically the general constructs of the variables to be studied and the relationships amongst them. In this study, the relationship between the independent variables and the dependent variables is graphically presented below.

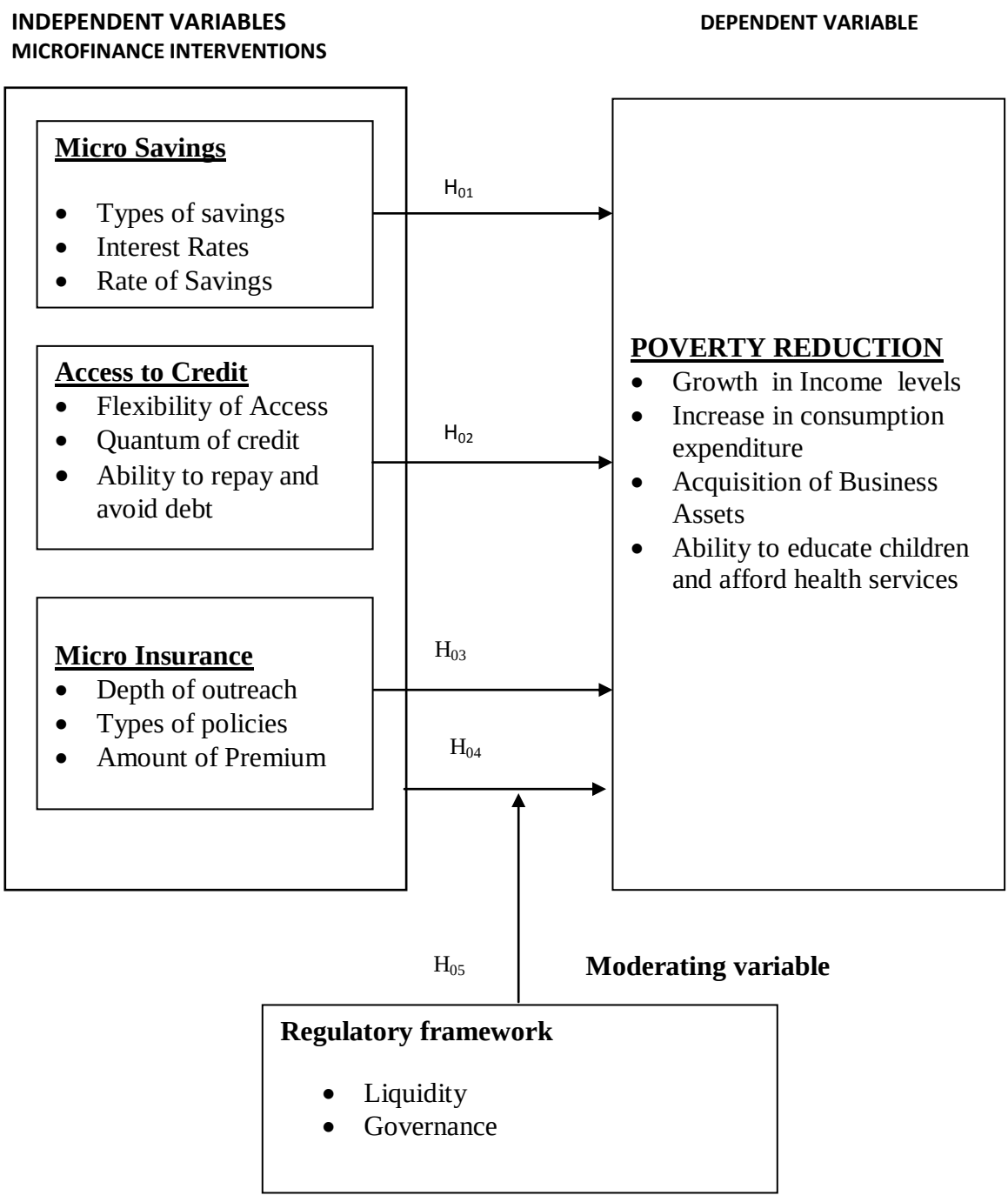


Figure 2.1: Conceptual Framework

Source: Researcher, 2016

The conceptual framework of this study was derived following review of theoretical and empirical literature. The independent variables used in this study were Microsavings, access to credit and microinsurance. The researcher conceptualised that the relationship between the dependent variable and the independent variables was to be moderated by Regulatory framework. Regulatory framework affects microfinance interventions and poverty reduction.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter presents the blue print for the study. In particular, it highlights the research philosophy that was adopted, the research design used, the target population of study, the sample size estimation and sampling method, data collection method that were adopted and an overview of data analysis techniques that were used. The chapter also provides an operationalization of the research variables as well as the diagnostic test used in the study.

3.2 Research Philosophy

The study employs the positivist philosophy. Carson, Gilmore, Perry and Gronhaug (2001) argue that positivist reflects that the world is external. Consequently, positivist take a controlled and structural approach in conducting research by identifying a clear research topic, constructing hypotheses and assuming an appropriate research methodology (Churchill, 1996; Carson *et al.*, 2001). The philosophy was deemed ideal for the study since Mukherji and Albion (2010) contend that positivism allows for use of survey approach hence covering a wider population area. Since the study involved testing of relationships between microfinance interventions and poverty reduction, the positivist approach was considered most appropriate.

Data for the study was collected from a large number of respondents who were drawn from different parts of the Central Region of Ghana hence the justification of positivism as opposed to phenomenology. Positivism philosophy eliminates biases and enable researchers remain isolated from the participants of the research by creating a space making them neutral so as to make clear demarcation between reason and feeling. They

also keep a clear distinction between science and personal experience, fact and value judgment (Carson *et al.*, 2001, Hudson & Ozannnne, 1988).

3.2.1 Research Design

The study adopted explanatory research design. Howell (2013) contends that explanatory research seeks to establish causal relationships between variables. Saunders, Lewis and Thornhill (2012) also suggest that explanatory research is the systematic inquiry in which a researcher does not have direct control of the independent variables because their manifestations have already occurred. The choice of explanatory research design is contingent on the fact that the researcher has specific hypotheses which are formulated on the basis of theoretical and empirical literature review which render descriptive and exploratory research designs inappropriate for this study. The research effort is cross sectional in nature.

An explanatory research design is very appropriate where a researcher is attempting to explain how phenomena operates by identifying the underlying factors that cause change in it in which case there is no manipulation of the independent variable (Kerlinger & Lee, 2000). Therefore, this study adopted explanatory design as it sought to investigate the relationship between microfinance interventions and poverty reduction in the Central Region of Ghana.

The Central Region of Ghana was chosen as the study locale given the unique characteristics of the region as the seat of education, the heartbeat of tourism in Ghana, the spread between the forest belt and the coastal belt as well as the availability and

spread of microfinance institutions in the region and the regions standing on the poverty map of Ghana.

3.3 Study Model

The study utilized a multiple regression analysis to analyse data. According to Field (2013), multiple linear regression analysis uses several independent variables to predict the outcome of a dependent variable by modelling a relationship in the form of a straight line that best approximates all the observations using the OLS methodology. Brooks (2008) asserts that multiple non-linear regression analysis uses several independent variables to predict the outcome of a dependent variable by modelling a relationship in the form of a curve that best approximates all the observations using non-linear least squares methodology.

In this study, the OLS methodology was preferred because the regression model that has been developed had been derived following the review of previous literature and is a formula that can be evaluated in a finite number of standard operations. The non-linear least squares methodology was best suited for closed form regression models which are usually solved by iterative refinement that involves very many complex operations (Wooldridge, 2000).

3.3.1 The Empirical Model

The multiple regression model used to analyse data in this study is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \quad \ldots\ldots (1)$$

Where Y = is the dependent variable, Poverty Reduction

X1 = Microsavings

X2 = Access to Credit and

X3 = Micro Insurance

β_1, β_2, β_3, β_4 and β_5 = coefficients of the independent variables

Equation (1) is the general equation for the multiple regression models. The specific regression model for the study was as follows:

$$PR_i = \beta_0 + \beta_1 \text{MSave} + \beta_2 \text{AccCred} + \beta_3 \text{Msure} + \varepsilon_i \quad \ldots\ldots(2)$$

Where PR = Poverty Reduction for factor i,

MSave = Microsavings

AccCred = Access to Credit

Msure = Microinsurance

3.3.2 Testing the Regression Coefficient

Brooks (2008) and Gujarati and Porter (2009) recommend that a multiple regression model should be tested to assess how well the data fits into the model, overall significance of the model and significance of the independent variables. To test how well the data fit into the multiple regression model, the coefficient of multiple determination will be calculated using adjusted R^2. The coefficient of multiple determinations will report the proportion of total variation in poverty reduction that will be explained by all the variables when they are considered together.

An analysis of variance was then performed to test whether there is a linear relationship between all the variables considered together and poverty reduction. This linear relationship was tested using the following hypothesis:

H0: β1, β2, β3, β4 = 0 (at least one β equal to zero – there is no linear relationship)

H1: At least one β is not equal to zero (at least one of the variables affects poverty reduction)

To test this hypothesis, a P value (F probability statistic) generated by the SPSS computer software was to be compared to a significance value of 0.05. Where the p value was found to be greater than the significance value of 0.05, the null hypothesis was supported since there will be evidence that none of the variables is linearly related to poverty reduction. Where the p value was found to be less than the significance value of 0.05, the null hypothesis was to be rejected since that will indicate that at least one of the variables is linearly related to poverty reduction.

To test whether an individual variable affects poverty reduction, each coefficient was tested individually to determine which ones were significant. This procedure used a t distribution and tested the following hypothesis:

H0: $\beta j = 0$

H1: $\beta j \neq 0$

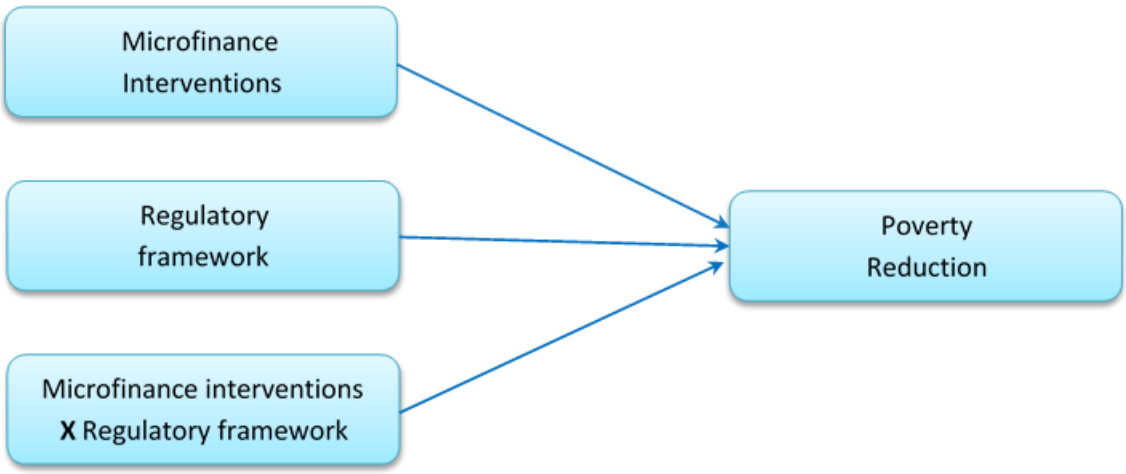
Where βj = Coefficient of microfinance interventions

To test this hypothesis, a P value (t probability statistic) generated by SPSS was compared to a significance value of 0.05. Where the p value was found to be greater than the significance value of 0.05, the null hypothesis was not rejected since that shows evidence that the individual variable does not affect poverty reduction. Where the p value was found to be less than the significance value of 0.05, the null hypothesis was rejected since that was an indication that the individual variable affected poverty reduction.

3.3.3 Testing the Moderating Effect

In this study, the researcher envisaged Regulatory Framework to moderate the relationship between microfinance interventions and poverty reduction. The relationship

between microfinance interventions, Regulatory framework and poverty reduction is graphically represented by figure 3.1 as conceptualised by Baron and Kenny (1986).



Source: Researcher, 2017

According to Baron and Kenny (1986), a variable functions as a moderator if it has a strong contingent effect on the independent-dependent variable relationship. Frazier, Tix and Hayes (2013), contends that researchers can use multiple regression analysis to examine moderator effects if the predictor variables and the moderator variable are continuous.

In this study, the moderator effect was specified as follows:

$Y = i + aX + bM + cXM + E$ …….(4)

Where Y is the dependent variable poverty reduction,

i = Interaction

X = Microfinance Interventions and

M = Regulatory Framework.

Accordingly the specific moderator equation is expressed as follows:

$PR = \alpha + \beta$ Microfinance Interventions $+ \beta$ RegFra Moderation Effect + Interaction $+ \varepsilon$ 5

Where:

β Microfinance Interventions $= \beta_1$ Msave $+ \beta_2$ AccCred $+ \beta_3$ Msure $+ \varepsilon$ ……. 5a

β Moderation Effect $= \alpha + \beta_1$ Msave Regfra $+ \beta_2$ AccCred Regfra $+ \beta_3$ Msure Regfra $+ \varepsilon$…….5b

Where Msave = Microsavings

AccCred = Access to Credit

Msure = Microinsurance and

Regfra = Regulatory Framework

In this study, multiple regression analysis was used to examine the moderator effect of Regulatory framework on the relationship between poverty reduction and microfinance interventions. The multiple regression analysis followed the approach outlined by Hayes (2013) and MacKinnon, Fairchild and Fritz (2007). Step one involved standardising the predictor variables and the moderator variable. Baron and Kenny (1986) recommended that the predictor and moderator variables be standardized by subtracting their sample means to produce revised sample means of zero.

Step two involved creating product terms that represented the interaction between the predictor variables and the moderator variable. The product terms was formed by multiplying the predictor variables and the moderator variable using the newly standardised variables (Hayes, 2015). The product terms was inputted into the hierarchical multiple regression equation and the statistical package for services solution (SPSS) used to run the multiple linear regression equation

Step three entailed fitting the regression model (block 1) predicting the outcome Y from both the predictor variable X and the moderator variable M. Both effects as well as the model in general should produce an R^2 which should be significant. The next step was to add the interaction effect to the previous model (block 2) and check for a significant R^2 change as well as a significant effect by the new interaction term. If both were significant, then moderation had occurred. Where the moderation effect was found to be non-significant, the researcher will make a decision on whether to remove the moderator from the model.

According to Aiken and West (1991), the overall relations between the predictor and the moderator may not be statistically significant yet moderation may exist in a study. Therefore if there are strong theoretical reasons for expecting an interaction they recommend the keeping of the non-significant variable.

3.3.4 Operationalisation and Measurement of Study Variables

This section operationalises the variables that were used in this study. Variables such as increased consumption, income stability and income growth, reduced inequalities, health and education outcomes, nutrition improvements, employment levels, empowerment indicators, reduced vulnerability to shocks, strengthened social networks, and strengthened local economic and social development can vary according to who has been reached by these microfinance institutions (Stewart *et.al*, 2010). Accordingly the table below shows the variables for this study and how they were operationalised.

Table 3.1 Operational definition and measurement of variables

Variable	Nature	Indicator/Operationalisation	Hypothesised Direction	Measurement
Poverty Reduction	Dependant	Growth in income	None	Ratio
	Dependant	Increase in consumption expenditure	None	Interval
	Dependant	Acquisition of household & Business Assets	None	Interval
	Dependant	Ability to educate children	None	Ratio
Microsavings	Independent	Types of savings	Hypothesised	Interval
	Independent	Rate of savings	Hypothesised	Ratio
	Independent	Interest Rates	Hypothesised	Ratio
Access to Credit	Independent	Flexibility of Access	Hypothesised	Nominal
	Independent	Quantum of Credit	Hypothesised	Interval
	Independent	Loan repayment	Hypothesised	Ratio
Microinsurance	Independent	Depth of Outreach	Hypothesised	Nominal
	Independent	Types of insurance	Hypothesised	Interval
Regulatory framework	Moderator	Liquidity	Hypothesised	Ratio
	Moderator	Governance	Hypothesised	Nominal

Source: Various literature reviewed, 2016

3.4 Target Population

Polit and Hungler (1999) refer to the population as an aggregate or totality of all the objects, subjects or members that conform to a set of specifications. The microfinance landscape in Ghana is divided into seven broad categories, namely, Rural and Community Banks (RCBs), Savings and Loans Companies (S&Ls), Credit Unions (CUs), Financial Non-governmental Organizations (FNGOs), Susu Collectors and Associations (SCAs), other church-based organizations and government microfinance institutions.

According to the Bank of Ghana (2016) there are over 10,000 microfinane clients in Central Region of Ghana. Accordingly the target population for this study consisted of 10,000 active microfinance clients who are also operators of micro small and medium

enterprises of all microfinance institutions in Central Region of Ghana. These included Global Access Savings and Loan scheme, Opportunity International, Sinapi Aba trust, MASLOC and all the rural banks such as Asikuma Odoben Brakwa rural bank. The researcher combined clients of the microfinance institutions into one population to have a fair representation of the clients in the study locale. This was necessary to have a total representation of the micro, small and medium enterprises in the study as the provision of microfinance services was undertaken by both rural banks and microfinance institutions alike.

3.5 Sampling Design

Sampling is the selection of the units that will be studied out of the target population of the study (Israel, 2009). In selecting a sample it is essential to ensure that the sample size is representative of the population being studied. This would ensure that the findings of the study are generalisable to the population (Kothari, 2004). This study adopted the Cluster sampling technique to select the respondents. According to Cooper and Schindler (2003), cluster sampling technique is a sampling technique used when "natural" but relatively heterogeneous groupings are evident in a statistical population.

In cluster sampling, the total population is divided into groups (or clusters) and a simple random sample of the groups selected. The elements in each cluster are then sampled. If all elements in each cluster are sampled, then this is referred to as a "one-stage" cluster design. If a simple random subsample of elements is selected within each of these groups, this is referred to as a "two-stage" design (McDaniel Jr. & Gates, 2010). Israel (2009) indicated that a common motivation for cluster sampling is to reduce the total number of interviews and costs given the desired accuracy. Assuming a fixed sample

size, the technique gives more accurate results when most of the variation in the population is within the groups, not between them (Cooper & Schindler, 2003 and McDaniel. & Gates, 2010). Given a population of 10,000, the clients of the microfinance institutions were grouped into clusters of 1000 each according to the various sub groups already in existence such as women associations, farmers groups, the fishermen association, micro small and medium enterprises and individual households. A simple random sample was then used to select the appropriate clusters for sampling.

To ensure that the sample size was representative of the population, the study adopted a sample size from the table of Saunders, Lewis and Thornhill (2012) below and crosschecked it with the formula given by Israel (2009) as follows: $n = N/[1 + N(e^2)]$ where: n is the sample size, N the population and e the alpha level. Accordingly the sample size for this study is 370 given a population of 10,000 at a 5% confidence interval.

Table 3.2 Sample sizes for different sizes of population at a 95 confidence level

Population	Margin of error			
	5%	3%	2%	1%
50	44	48	49	50
100	79	91	96	99
150	108	132	141	148
200	132	168	185	196
250	151	203	226	244
300	168	234	267	291
400	196	291	343	384
500	217	340	414	475
750	254	440	571	696
1 000	278	516	706	906
2 000	322	696	1091	1655
5 000	357	879	1622	3288
10 000	370	964	1936	4899
100 000	383	1056	2345	8762
1 000 000	384	1066	2395	9513
10 000 000	384	1067	2400	9595

Source: Saunders, Lewis and Thornhill (2012)

3.6 Data Collection Instrument

The survey instruments for this study was made up of a questionnaire. Saunders, Lewis and Thornhill (2012) contends that questionnaires tend to be used for descriptive research. Saunders and Rojon (2014) highlights, the strengths of using questionnaires to include the fact that they are less expensive and can be administered to a large number of respondents over a large geographical area; they can also be tailored to the specific respondents; they eliminates bias due to the framing of the questions differently for different respondents.

However, Varkeviser (2003) drew attention to weaknesses of using questionnaires and suggested the need for the researcher to be well trained to avoid important information from some respondents not being recorded properly. The study indicated that

questionnaires tends to consume a lot of time while waiting for feedback from respondents; some respondents may choose not to reply, which may increase bias in the study. Additionally, misinterpretations and misrepresentations may occur when using the questionnaires (Douglas, 2006). The questionnaire for the study was grouped into sub headings with each addressing one research objective as well as variables as per Appendix one.

3.6.1 Validity

Henry and Perry (2000) as cited by Frimpong (2014) explains that validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. It estimates how accurately the data obtained in the study represents a given variable or constructs in the study (Mugenda & Mugenda, 2003). The study ensured construct validity by deriving the research variables from the existing theoretical frameworks and the conceptual framework. To ensure content validity, the questionnaire was given to experts from the microfinance industry and their comments was used to amend the questionnair in enriching its contents.

3.6.2 Reliability

To establish if the chosen instrument was clear and unambiguous and that the study was well conceptualised, a pilot study was undertaken at Sekondi-Takoradi a suburb of the Western Region which has similar characteristics with Central Region of Ghana before the main study. In total 60 microfinance clients representing 16.21 per cent of the sample size of this study was used for the pilot study. According to Baruch and Holtom (2008) and Wells & Wollack (2003) a pilot tests helps to reveal if the questions were clearly

phrased and words understood by the respondents; the questions were logically arranged; whether there is the need to clarify some items and if the questions were relevant.

To test for reliability the Cronbach Alpha coefficient was used. Cronbach alpha coefficient greater than 0.90 are often considered excellent, alphas greater than 0.80 are considered good, alphas of 0.7 are considered acceptable, while alphas below 0.6 are considered questionable. An alpha below 0.5 is considered poor and unacceptable (George & Mallery, 2003; Omagwa, 2010 and Gwet, 2014)

3.7 Data Collection Procedure

The main data for this study is primary data collected through questionnaire. The data was obtained from clients of the microfinance institutions, owners of small businesses, women groups, individuals and households among others. First, the researcher presented a letter issued by the Kenyatta University to the Bank of Ghana and requested for assistance. The Bank of Ghana in turn issued a letter to all microfinance institutions in Central Region of Ghana requesting them to assist the researcher in the data collection. The researcher then contacted the headquarters of the various microfinance institutions who in turn requested their branches to assist the researcher or his assistants with necessary data.

The researcher then proceeded to the University of Cape Coast, Ghana where research assistants were recruited and trained for the data collection. The researcher and his assistants then proceeded to the study locale to establish contacts with the local and branch managers of the institutions and obtained a data base of their clients to facilitate

the study. Through statistical sampling, the data base was pruned and given to the research assistants.

3.8 Data Analysis and Presentation

The completed data was extracted into an Excel spreadsheet where it was edited and coded to facilitate the data entry. Once all the data were entered, test run was done in a form of frequencies until the data was ready for analysis. The study used standard multiple regression analysis to analyse data for inferential statistics. Cross tabulations were also used to show the relationships between some selected study variables. The results were presented in the form of descriptive statistics such as means and standard deviations and histograms and charts. Inferential statistics in this study involved the use of multiple linear regressions to determine the effect of microfinance interventions on poverty reduction.

3.9 Diagnostic Tests

To ensure the non-violation of the assumptions of the classical linear regression model before attempting to estimate the outcomes of the interventions the study conducted the following diagnostic tests, multicollinearity, homoscedasticity and test for normality. The results are presented in section 4.3 below.

3.9.1 Normality Tests

In statistics, normality tests are used to determine if a data set is well-modeled by a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally distributed Field (2009). In this study, normality was tested using the Kolmogorov-Smirnov test, Shapiro-Wilk test and the probability –probability plot (P-P plots) Saunders, Lewis & Thornhill, 2009; Field, 2013). The Shapiro Wilk test

becomes applicable when the sample size is between 3 and 2000, while the Kolmogorov-Smirnov test is applicable when the sample exceeds 2000 (Omagwa, 2010).

3.9.2 Homoscedasticity

According to Wooldridge (2012) the classical linear regression model assumes that the variance of the errors is constant and this is known as the assumption of homoscedasticity. Homoscedasticity is the assumption of equal standard deviation of y values about the population regression line, regardless of the X. If the errors do not have a constant variance, they are said to be heteroscedastic. In this study, the presence of heteroscedasticity was tested using Levenes test.

The null hypothesis of this test was that the variance of the error term is not homoscedastic. Where the null hypothesis was rejected and a conclusion made that heteroscedasticity was present in the study data, this condition was accounted for using the GLS model. Running a multiple linear regression model in the presence of heteroscedasticity has the consequence of obtaining an OLS estimation that shall provide unbiased coefficient estimates but they shall not be best linear and unbiased estimates (Saunders, Lewis & Thornhill, 2012). This implies that if heteroscedasticity was ignored the standard errors could be inappropriate and hence any inferences made shall be misleading.

3.9.3 Multicollinearity Test

The classical linear regression model assumes that the error term and the independent variables are not related. Multicollinearity is a statistical phenomenon in which two or more independent variables in a multiple regression model are highly correlated implying that one can be linearly predicted from the others with some degree of accuracy (Field,

2013). Running a regression model in the presence of multicollinearity has the consequences of obtaining individual coefficients that have high standard errors and the regression model becomes very sensitive to small changes in the specification.

In this study, the presence of multicollinearity was tested using the correlation matrix whereby the cut off point for severe multicollinearity was pegged at 0.8. This threshold was recommended by Gujarati and Porter (2009) and Cooper and Schindler (2008). A correlation coefficient greater than 0.8 indicated the presence of multicollinearity and correlation coefficient of 0.9 is indicative of severe multicollinearity.

3.10 Ethical Consideration

Ethics are self-regulatory principles and guidelines for making decisions and defining professions (Janssen & Kraft P 2012). The researcher obtained an introductory letter from the Kenyatta University, permission from the Bank of Ghana as well as the head offices of the microfinance institutions involved in the study before conducting the study at their branches within the study locale. This was to ensure that information was provided by only authorized agents of the microfinance institutions and their clients. All participating microfinance institutions were assured of confidentiality and any information provided was used for the purpose it is intended. The names of the respondents as well as anything that will infringe on the rights of the participants were excluded.

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

The chapter contains a descriptive analysis of study variables and further performs statistical tests on research data. The descriptive analysis of the research data is presented using measures of central tendency and cross tabulation to appreciate the nature of the relationship between selected study variables. The chapter also presents results for several tests on research data as a precursor for multiple regression analysis. The tests include: tests for reliability, normality, multicollinearity and homogeneity of variance.

4.2 Descriptive Analysis

This section presents descriptive analysis of the study variables. The research data is presented using measures of central tendency and cross tabulations to appreciate the nature of the relationships between the study variables.

4.2.1 Response Rate

The sample size for the study consisted of 370 micro, small and medium enterprises. A total of 330 completed questionnaires were collected out of the 370 distributed, yielding a response rate of 89 percent. Table 4.1 shows the response rate of the respondents.

Table 4.1: Summary of Responses

	Respondents	Number	Percentage
Cases	Valid	300	0.89
	Rejected	30	0.11
	Total	330	100.0

Source: Study data, (2016)

Out of the 330 questionnaires received, 30 were rejected and excluded from further analysis. These were respondents which indicated that they were formal employees of a

firm or had been with microfinance companies for a period less than three years or have not accessed a facility under the microfinance scheme. According to Hart (1987), response rates in business surveys vary from 17 percent to 60 percent with an average of 36 percent is considered adequate. Accordingly the response rate of 89 percent was considered adequate for purposes of data analysis based on support from similar empirical study on Micro Small and Medium Enterprises (Omagwa, 2010; Elliot, 2012 & Frimpong, 2014).

4.2.2 Demographic Characteristics

This section presents cross tabulations of selected study variables. Cross tabulation is often necessary when the data in question is nominally scaled. The study asked respondents to indicate the highest levels of education attained and the highest professional skills achieved Table 4.2 shows the relationship between the age of respondents and their highest completed education.

Table 4.2: Age of Respondents and Highest Completed Education

Age of respondents		Freq	Percentage	Junior High School	Senior High School or College	Diploma /HND	Degree	Post Graduate
Valid	Less than 25	4	1.3%	0	1	2	1	0
	25-34	114	38.0%	12	15	51	32	4
	35-44	126	42.0%	14	36	58	16	2
	45-54	55	18.3%	6	16	23	8	2
	Above 55	1	0.3%	1				
	Total	300	100.0%	33	68	134	57	8
Percentage		100%		11%	23%	45%	19%	3%

Source: Study data, (2016)

The findings from Table 4.2 indicate that most respondents were in the active age group of 35 to 44 years, an indication of the composition of entrepreneurs in the Central Region. They were followed closely by those aged between 25 – 34 years with 38 percent and those aged 45 – 54 years respectively. This could imply that those aged 45 years and above were not active members of microfinance institutions. In terms of educational qualification, most respondents (45%) had Diploma or Higher National Diploma. Those with high school or college education followed with 23 percent with degree holders totalling 19 percent, junior high or middle school education amounted to 11 percent and those with post graduate education accounting for the remaining 3 percent.

In total about 67 percent had diploma and above. This is in line with expectations as the Central region has been touted as the seat of education in Ghana (GLSS, 2014). It could also mean that the people of the region has high regard for education. Table 4.2 also affirms the findings of table 4.1 above as the capital outlay required for setting up business is high and therefore not many young men and women below the age of 25 years would have accumulated adequate wealth and knowledge to start a business.

Table 4.3 captures the cross tabulations of family size of respondents and level of expenditure per month.

Table 4.3 Family Size and Consumption Expenditure

Household		Frequency	Percent	GH¢1 - GH¢200	GH¢201- GH¢400	GH¢401 - GH¢600	GH¢601- GH¢800	GH¢801 - GH¢1000
Valid	Singles	21	7.0%	2	15	3	1	0
	1 – 4	237	79.0%	0	8	68	140	21
	5 – 10	39	13.0%	0	2	5	10	22
	Above 10	3	1.0%	0	0	0	1	2
	Total	300		2	25	76	152	45
Percent of Expenditure			100.0%	0.7%	8.3%	25.3%	50.7%	15.0%

Source Study data, (2016)

From table 4.3, a greater number of respondents (79%) had a family size of between 2 to 4 dependents, followed by families with 5 – 10 dependents at 13 percent with singles constituting 7 percent. The average family size in Central Region of Ghana is therefore made up of a household of 4 persons. The above also indicate that most households 50.7 percent spends a maximum of GHS 800 a month with 0.7 percent spending about GHS 200 per month. Taking the upper limit of GHS4 per household this works out to GHS200 per person per family. Using the prevailing exchange rate of GHS3.5 to the US Dollars at the time of this study (October 2016), the average spend per person can be computed as $57.14 per person per month.

This findings is consistent with the Ghana Living Standards Survey (2014) where the lower poverty line was pegged at GHS792.05 per adult per annum with the upper limit pegged at GHS1,317. Given that the rate of exchange in 2013 was GHS1.92 to the US Dollar (GLSS, 2014). This works out to a lower poverty limit of $34 per month and an upper limit of $57.16 per month. The Ghana Living Standards Survey (2014), considered individuals living below GHS792.05 as extremely poor since even if they allocated their

entire budget to food, they would not be able to meet their minimum nutritional requirements of 2900 calories. Individuals consuming above the upper limit of GHS1,314 were considered able to purchase enough food to meet their nutritional requirements and their basic non-food needs. By inference 65.7 percent (50.7% + 15%) of respondents could be considered as living within the upper poverty line.

4.2.2.1 Business Characteristics

Table 4.4 below depicts the cross tabulations of the size of enterprise in terms of number of employees and length of business in years.

Table 4.4: Size of enterprise and number of years in business

No. of Employees				Length of Business in Years		
		Frequency of Employees	Employee Percentage	1 - 4 Years	5 - 9 Years	Above 10 Years
Valid	Less than 5	68	23%	44	22	2
	6 – 29	199	66%	46	149	4
	30 – 99	33	11%	20	10	3
	Above 100	0	0%		0	
	Total	300	100%			
Total Respondents		300		110	181	9
Percent of Business years			100%	37%	60%	3%

Source: Study data, (2016)

From Table 4.4 above, 66 percent of respondents had employee size of between 6 and 29 and can therefore be categorised as small enterprises in line with a study by Abor and Quartey (2010). This was followed by respondents with employee size of less than 5 at 23 percent and is therefore classified as micro enterprises with the remaining 11 percent employing over 30 employees and can therefore be classified as medium enterprises.

In terms of length of business, 60 percent of respondents had operated their businesses between 5 and 9 years, 37 percent of businesses had been operated for less than 5 years with the remaining 3 percent haven been operated their businesses for more than 10 years. It is also instructive to note from table 4.5 above that businesses which have been in existence for 5 to 9 years employs about 75 percent of the employees between 6 and 29 (144 out of 199).

4.2.2.2 Cross Tabulation of Length of Business and Association with Microfinance

Table 4.6 below presents the cross tabulations of number of years in business and association with microfinance company

Table 4.5: Length of Business and Association with Microfinance

No. of years in Business				**Number of years with Microfinance Company**		
	Length of Business	Frequency	Percent	3-4 years	5-7 years	7 years and above
Valid	0-4 years	9	3.0%	4	3	2
	5-9 years	181	60.3%	11	98	72
	10 years and above	110	36.7%	2	30	78
	Total	300		17	131	152
	Percentage of years with Microfinance		100.0%	5.7%	43.7%	50.7%

Source Study data, (2016)

Table 4.5 finds that most entrepreneurs (60.3%) have operated their business for a period spanning between 5 and 9 years, followed by those who have been in business for a period spanning over ten years with 36.7 percent, only 3 percent have been in business for less than 4 years. The implication of this is that respondents have a great deal of experience in managing resource entrusted to them. In terms of association with

microfinance companies, more than half of the respondents have been associated with microfinance for a period spanning over 7 years and above, 43.7 percent have been associated with microfinance for a period spanning between 4 to 6 years with the remaining 5.7 percent having associated with microfinance for a period less than 4 years. This categorisation was necessary to understand the years that entrepreneurs have been under the interventions.

4.2.2.3 Area of Business Specialisation.

Micro, small and medium enterprises in the study specialised in different areas of business as captured in figure 4.1 below:

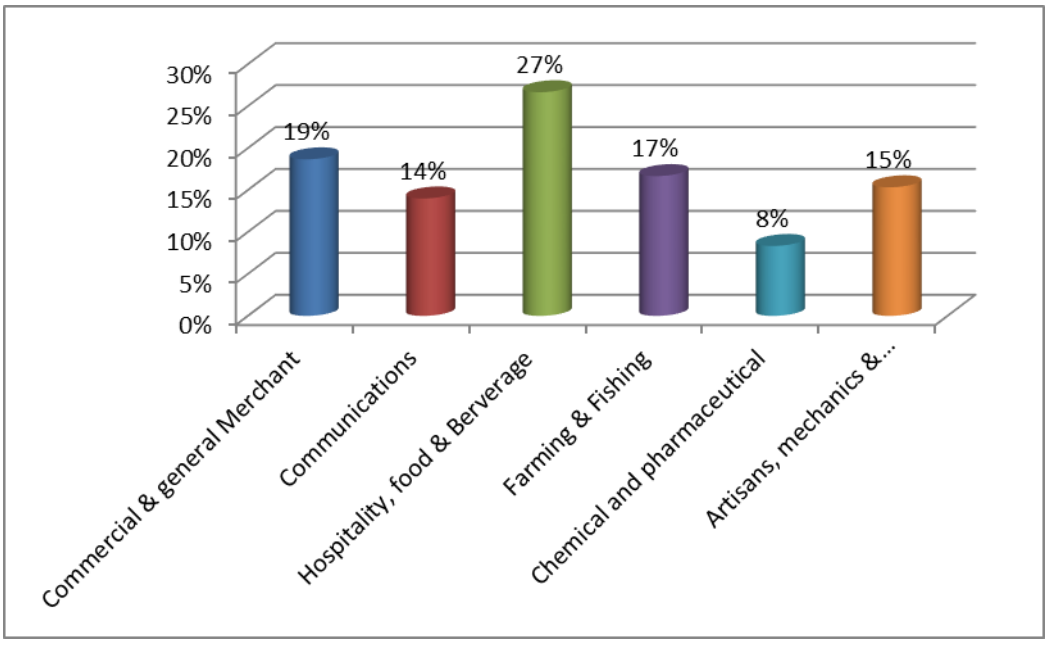


Figure 4.1 :Area of Business Specialisation

Source: Study data, (2016)

From figure 4.1 above, 27 percent of MSMEs in Central Region of Ghana are in the hospitality, food and beverage sub sectors of the economy, followed by 19 percent in the commercial and general merchant sub sectors with farming and fishing accounting for 17

percent of the MSMEs. It is not surprising that the sub sector with the highest representation is hospitality, food and beverage, followed by general merchants and then farming and fishing. This affirms the general characteristics of the region as the seat of tourism, farming and fishing in Ghana.

4.2.2.4 Legal Form of Business.

Respondents were asked to indicate the legal form of business. Figure 4.2 below shows the legal form of businesses MSME's are engaged in Central Region of Ghana.

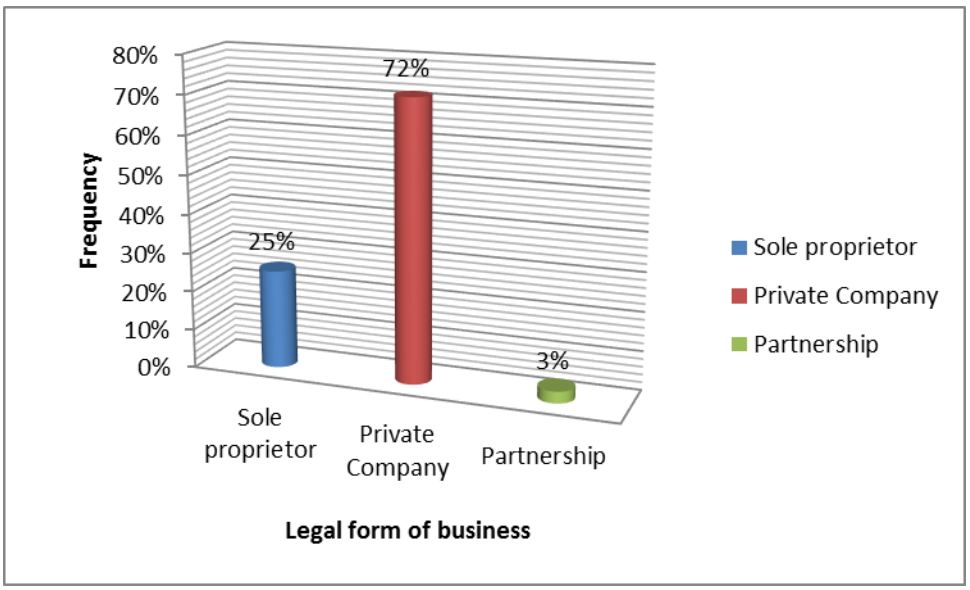


Figure 4.2: Legal form of business

Source: Study data, (2016)

Results from figure 4.2 above indicate that the dominant legal form of business in Central Region of Ghana are private companies with 72 percent respondents, this was followed by sole proprietors with 25 percent with the remaining 3 percent being partnerships. This finding is at variance with Agbozo and Yeboah (2012) and Frimpong (2014) all of whom

found the sole proprietor as the dominant legal form of business in Ghana with 47 percent and 73.9 percent respectively.

4.2.3 Microsavings

This section covers the descriptive statistics on Microsavings. It begins by looking at cross tabulations and ends with the mean score and standard deviations.

4.2.3.1 Cross Tabulation of Microfinance Institution and Type of Accounts

Table 4.6 shows the various types of microfinance institutions in Central Region of Ghana and the type of accounts operated by respondents.

Table 4.6: Types of Microfinance Institutions and Type of Accounts

Type of Microfinance Institutions			Type of Accounts		
Valid	Frequency	MFI Percent	Current Account	Savings Account	Multiple accounts
Commercial bank	7.0	2.3%	2.0	5.0	
Community or Rural bank	218.0	72.7%	31.0	177.0	10.0
Savings and Loans Scheme	49.0	16.3%	13.0	22.0	14.0
Multiple banks	25.0	8.3%	10.0	9.0	6.0
Susu Scheme	1.0	0.3%		1.0	
Total	300.0	100.0%	56.0	214.0	30.0
Percent of Account	100.0%	100.0%	18.7%	71.3%	10.0%

Source: Study data, (2016)

Table 4.6 indicate that the dominant microfinance institutions in Central Region of Ghana are the community and rural banks. 72.7 percent of respondents operated accounts with community or rural banks, followed by 16.3 percent who had accounts with various

savings and loans schemes. About 8.3 percent of respondents had accounts with multiple financial institutions while 2.3 percent had accounts with commercial banks.

In terms of types of accounts, 71.3% operated a savings accounts, 18.7 percent operated a current accounts with 10 percent operating multiple accounts. This finding contradicts the finding of Jagongo (2013) whose findings study on strategic business financing on entrepreneurial financing in Kenya found a low average propensity to save for their MSE growth by the women entrepreneurs. The study findings is however supported by Dupas and Robinson (2012) who used randomised control trials to conduct an experiment in Kenya and found that women in the treatment group who used the savings product actively, on average increased their total savings significantly. It could also mean that respondents have high appreciation of the benefits of savings or were merely taking advantage of the high interest rates associated with savings as compared to current accounts.

4.2.3.2 Reasons for Not Having a Savings Account Prior to Joining MFI

This study sought to find out reasons why respondents did not have a savings account prior to joining the microfinance scheme. Reasons were categorized into: there was no financial institution in my locality, process of obtaining account was too cumbersome, did not have enough money for savings, did not have regular income and any other reason was to be indicated. Figure 4.3 below depicts the reasons for not having a savings account prior to joining the microfinance scheme.

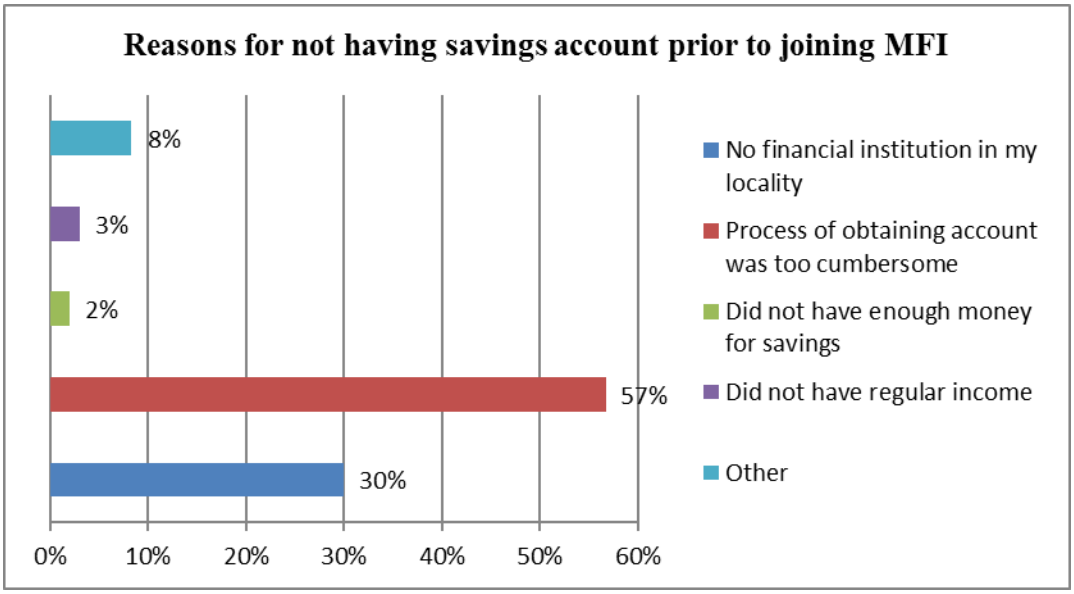


Figure 4.3: Reasons for no savings account prior to scheme

Source: Study data, (2016)

Figure 4.3 above shows that, 57 percent of respondents cited the process of obtaining account as being too cumbersome to overcome, this was followed by 30 percent who cited no financial institution in their locality as the cause for not having a savings account, other reasons such as lack of education on benefit of having an account accounted for 8 percent, with lack of regular income and not having enough to save accounting for 3 percent and 2 percent respectively.

4.2.3.3 Savings Habit Prior to Joining the MFI Scheme

The study further sought to understand the savings habit of respondents prior to joining the MFI scheme... Figure 4.4 below summarises the findings of respondents in the form of a pie chart.

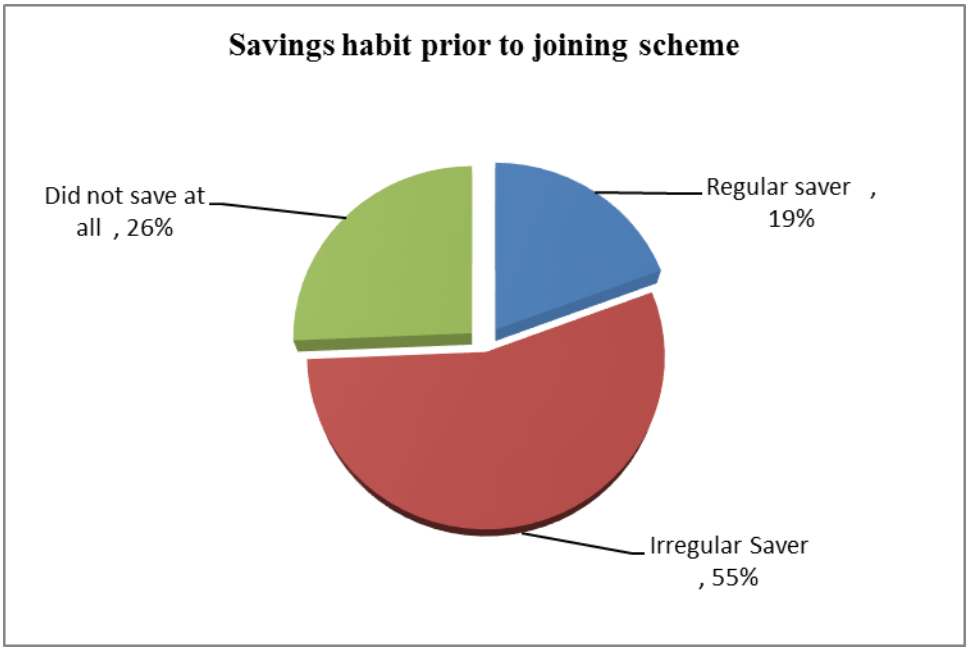


Figure 4.4: Savings Pattern

Source: Study data, (2016)

Results of figure 4.4 above indicate that 55% of the respondents were irregular savers before joining the MFI Scheme, 19% were regular savers with the traditional Susu scheme, while 26% were not saving at all. This finding is consistent with the findings of figure 4.4 above.

4.2.3.4 Average Weekly Savings in Ghana Cedis (Ghs)

Respondents were to indicate the amount of money in Ghs they save on weekly basis as shown in Figure 4.5.

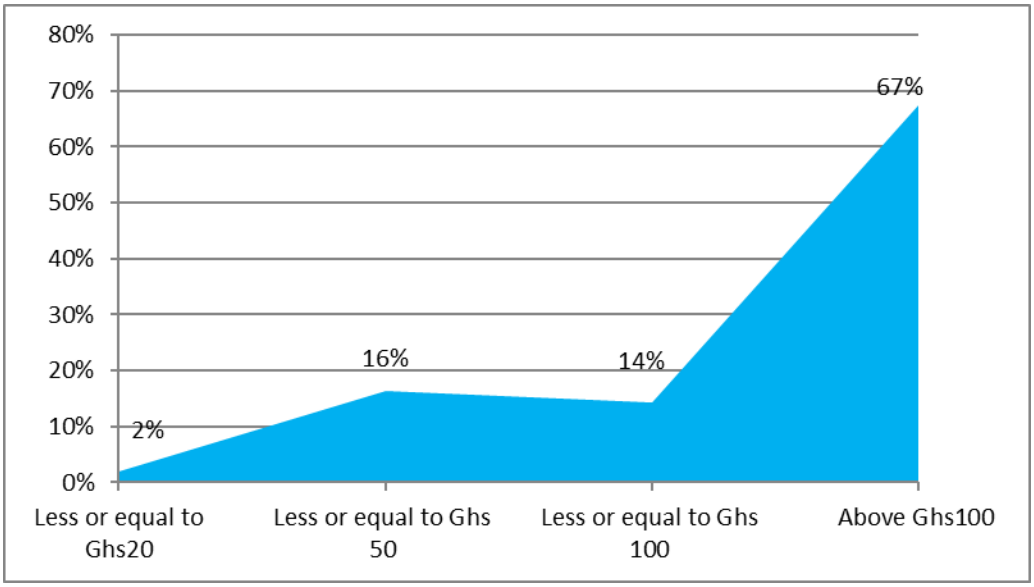


Figure 4.5: Average Weekly Savings

Source Study data, (2016)

Figure 4.5 above indicate that 67 percent of respondents saved above Ghs100 a week or above US25 a week. This was followed by 16% of the respondents who saved Ghs 50 or US$12.5 a week with those saving Ghs 100 totaling 14 percent.

4.2.3.5 Withdrawal Pattern of Respondents

To understand how entrepreneurs build up capital for investment, respondents were asked to indicate the frequency at which withdrawals were made in a month. Figure 4.6 below indicate the frequency of withdrawal from savings account.

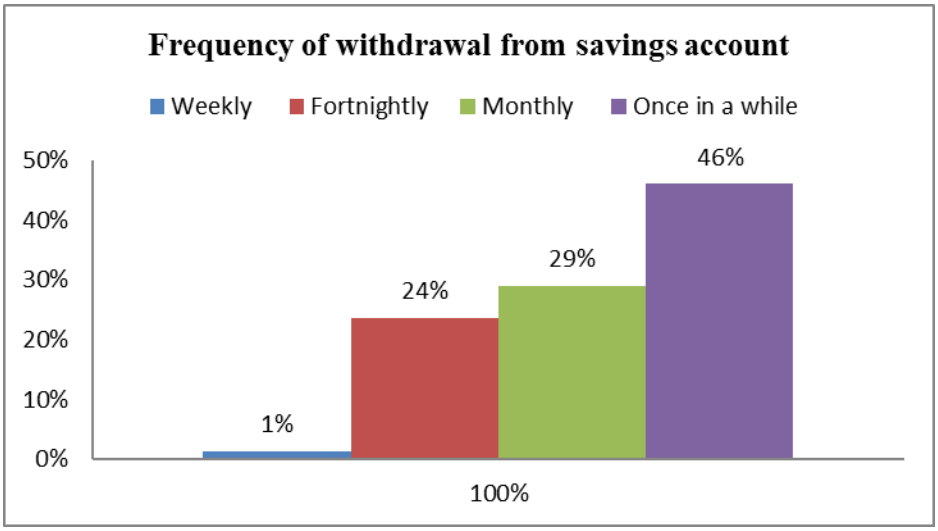


Figure 4.6: Frequency of Withdrawal from Savings Account

Source: Study data, (2016)

Results from figure 4.6 above indicate that most respondents (46 percent) withdrew once in a while; this was followed by 29 percent and 24 percent who withdraws monthly and fortnightly respectively. Only 1 percent of respondents withdrew money on a weekly basis.

4.2.3.6 Mean Score and Standard Deviation of Microsavings.

The study asked respondents to indicate the extent of their agreement on various aspects of Microsavings. The questions were then grouped under each of the sub scales of Microsavings and the mean score and standard deviation calculated. The statistics are summarized in table 4.7.

Table 4.7: Mean score and standard deviation of Microsavings

	N	Minimum	Maximum	Mean	Std. Deviation
Microsavings	300	1.20	4.20	2.4947	.95482
Type of savings	300	1.33	4.00	2.3456	.92943
Interest rates	300	1.33	4.00	2.3011	.50644
Rate of savings	300	1.00	4.50	2.7183	1.15221
Valid N (listwise)	300				

Source: Study data, (2016)

According to Field (2013) the standard deviation is a measurement to test how a group are spread out from the mean. Generally, a small standard deviation relative to the value of the mean indicate that the data points are closer to the mean. A large standard deviation relative to the mean on the other hand indicates that the data points are distant from the mean and therefore the mean is not an accurate representation of the data.

Table 4.7 indicate the overall mean of Microsavings as 2.4947. The mean of the subscale type of savings is 2.3456, interest rates 2.3011 and rate of savings 2.7183. The standard deviation on the other hand is given as 0.95482 for Microsavings, 0.92943 for types of savings, 0.50644 for interest rate and 1.15321 for rate of savings. It could be observed that the individual means of the subscales are very closer to the main variable Microsavings. A critical observation of Table 4.7 also indicate that apart from rate of savings whose standard deviation is greater than 1 and therefore could mean that there was a lot of variability, all the standard deviations are less than 1 and therefore very close to the mean. Table 4.7 above therefore indicates that the model is a fair representation of the population.

4.2.4 Access to credit

This section presents the descriptive statistics on access to credit. It begins with the source of initial capital and ends with the mean score and standard deviation on access to credit

4.2.4.1 Source of Initial Capital

To understand access to credit, respondents were asked to indicate the source of their initial capital. Figure 4.7 below shows the various sources of initial capital of MSME's in the study.

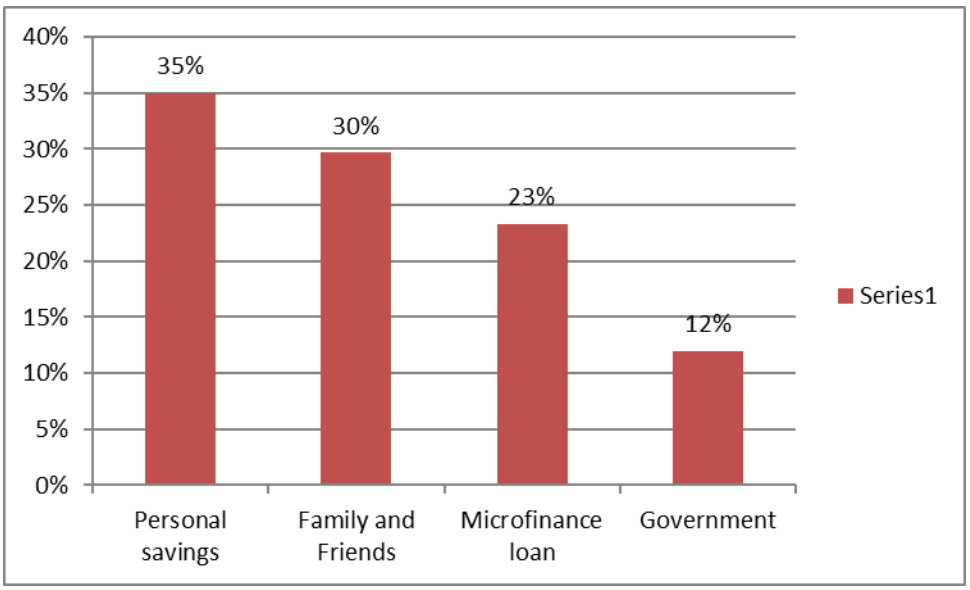


Figure 4.7: Source of Initial Capital

Source: Study data, (2016)

Figure 4.7 above shows that most respondents relied on varied forms of funding as their start-up capital. 35 percent of respondents started their businesses using their personal savings, 30 percent were supported by their families and friends to start up their businesses. 23 percent benefited from funding from Microfinance companies with 12

percent benefiting from government support through the National Board for Small Scale industries. This finding is supported by Frimpong 2014 where owners' savings accounted for 56.45 percent of start-up capital.

4.2.4.2 Access to a Loan Facility from MFI

Respondents were to indicate the number of times they had accessed a facility from a microfinance institution in the last five years. This was necessary to understand the impact MFI's have had on MSME's in Central Region of Ghana to be able to appreciate the genuineness of responses given in terms of acquisition of assets and working capital needs. Figure 4.8 below depicts the study findings on access to a loan facility.

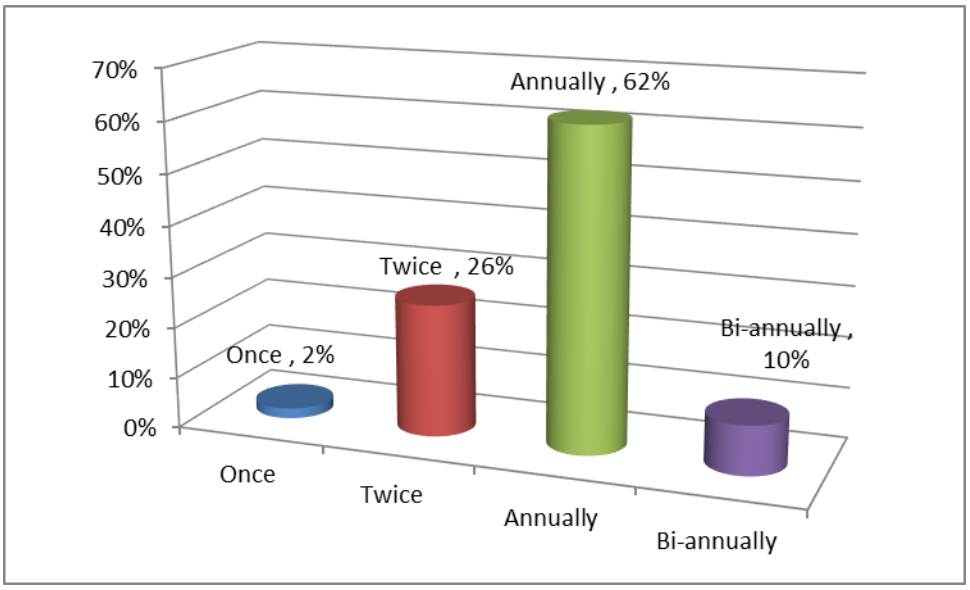


Figure 4.8: Access to loan facility from MFI

Source: Study data, (2016)

The study found from figure 4.8 above that 62 percent of respondents had accessed a facility from MFI annually, 26 percent accessed facilities twice within the five years, and

10 percent accessed a facility biannually with only 2 percent accessing a facility once within the five years.

4.2.4.3 Reason for Refusal of Loans

Respondents were to point out reasons assigned for the refusal of loans. Findings from the study as indicated in figure 4.9 shows that not having spent enough time with the scheme was a key determinant to obtaining a loan as 49 percent of responded had alluded to. Figure 4.9 below also show that having no savings with the scheme accounted for 30% of the refusals, not being a member of the scheme accounted for 12 percent while 8 percent were refused a loan due to lack of collateral

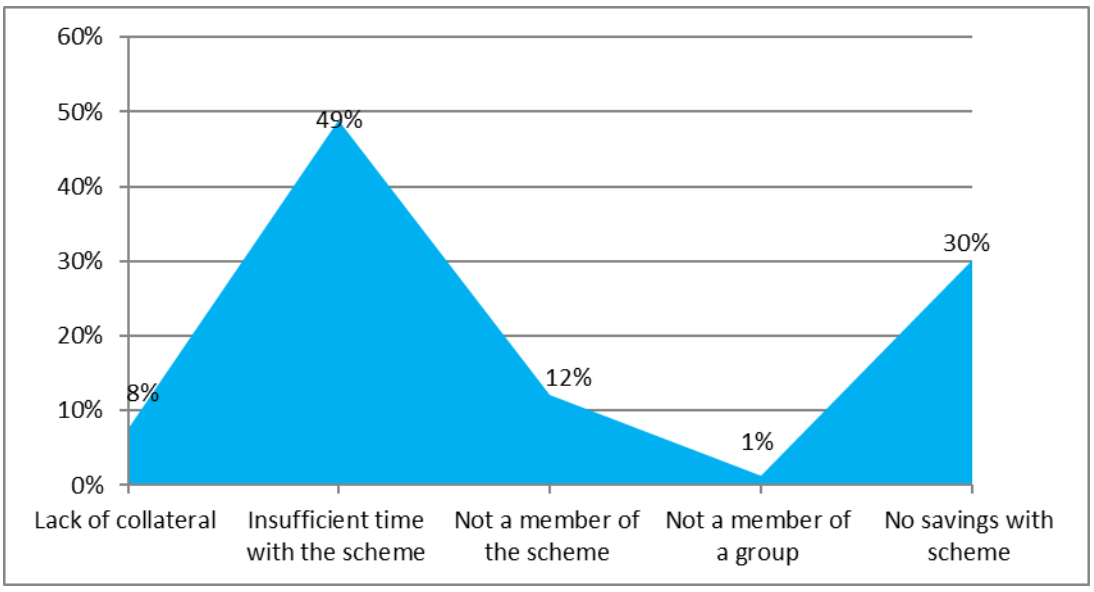


Figure 4.9: Reasons for refusal of loan

Source: Study data, (2016)

The above findings is supported by Yeboah (2010) whose study in Ghana found that to access a facility from a microfinance scheme, you ought to have been a member of the

scheme for at least 6 month and should have made continuous savings with the scheme to serve as collateral

4.2.4.4 Loan Acquisition Process

Respondents were asked to indicate the process of obtaining a loan in a microfinance institution. Figure 4.10 below depicts the findings from the survey.

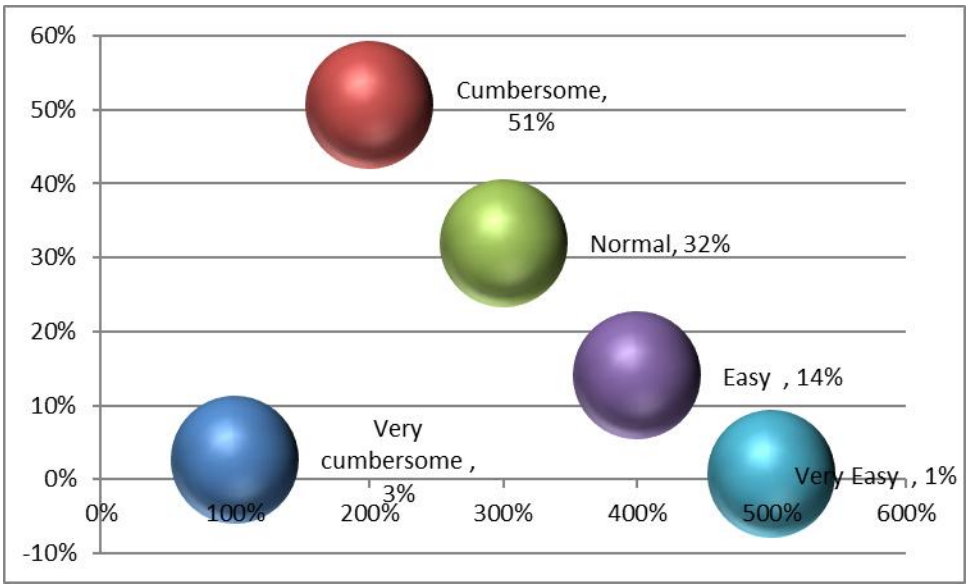


Figure 4.10: Loan Acquisition process

Source: Survey data (2016)

Contrary to the findings of Dupas and Robinson (2013) and Banerjee, Duflo, Glennester, & Kinnan, (2013), figure 4.10 indicate that 51 percent of respondents considered the process of obtaining loans in microfinance institution as cumbersome, 32 percent considered the process as normal, 14 percent viewed the process as easy while 3 percent considered it very cumbersome. Only 1 percent found the loan acquisition process as very easy.

4.2.4.5 Punitive Action Taken Against Loan Defaulter

Respondents were to indicate whether they had ever defaulted in servicing their loans and whether the bank instituted punitive action against them for defaulting. Figure 4.11 below shows punitive action taken against loan defaulters.

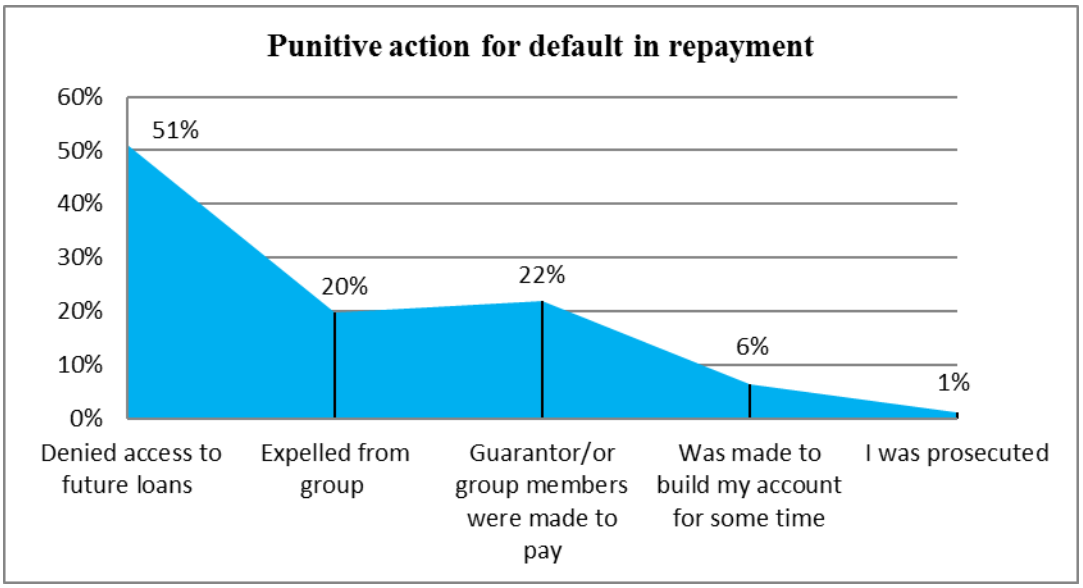


Figure 4.11: Punitive Action taken against loan defaulters

Source: Study data, (2016)

Figure 4.11 above shows that 51 percent of respondents were denied access to future loans, guarantors or group members of 22 percent of loan defaulters were called upon to pay, 20 percent were expelled from the group while 6 percent were made to build their capital before accessing future loans. This finding is consistent with Beck (2015) and Yeboah (2010) who all found that loan defaulters were either expelled from the group or their guarantors and group members were called upon to service the loan for the defaulting member or were made to build up their savings to qualify for future loan.

4.2.4.6 Mean Score and Standard Deviation on Access to Credit .

The study asked respondents to indicate the extent of their agreement on various aspects of access to credit . The questions were then grouped under each of the sub scales of access to credit and the mean score and standard deviation calculated. Table 4.8 below shows the results of the output.

Table 4.8: Mean Score and Standard Deviation on Access to Aredit

	N	Minimum	Maximum	Mean	Std. Deviation
Access to credit	300	1.75	4.13	2.8125	.55011
Ability to repay loan	300	1.75	4.50	3.0008	.60671
Flexibility of access	300	1.00	4.50	2.1017	.97998
Quantum of credit	300	1.50	5.00	3.1450	.91703
Valid N (listwise)	300				

Source: Study data, (2016)

Results from table 4.8 indicate that the mean of the subscale ability to repay loan is 3.0008, flexibility of access is 2.1017 and quantum of credits 3.1450 all of which are closer to the main variable access to credit whose mean is 2.8125. The standard deviation on the other hand is given as 0.55011 for access to credit, 0.60671 for ability to repay loan, 0.97998 for flexibility of access and 0.91703 for quantum of credit.

According to Field (2013) the standard deviation is a measurement to test how a group are spread out from the mean. Generally, small standard deviations relative to the value of the mean itself indicate that the data points are close to the mean. A large standard deviation relative to the mean on the other hand indicates that the data points are distant from the mean and therefore the mean is not an accurate representation of the data. From

Table 4.9 above, it could be observed that all the standard deviations are less than 1 and therefore very close to the mean.

4.2.5 Microinsurance

This section presents the descriptive statistics on microinsurance. It begins by looking at the type of policies and ends with the mean score and standard deviations on microinsurance.

4.2.5.1 Type of Policies Subscribed

Microfinance companies' partners with insurance companies to issue different policies for which respondents were expected to subscribe. This study wanted to establish the type of policies respondents subscribed to. Figure 4.12 presents the survey findings on type of policies subscribed.

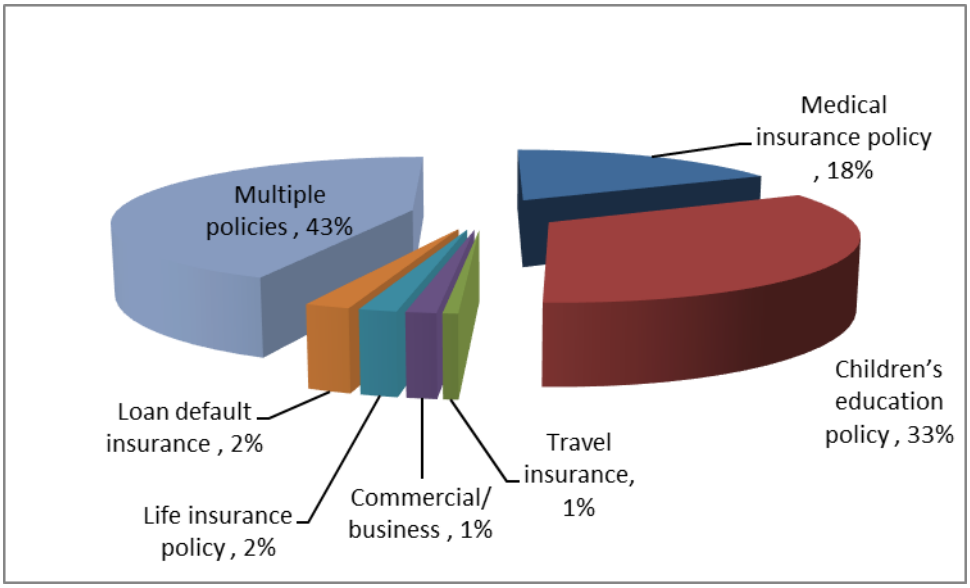


Figure 4.12: Type of Policies Subscribed

Source: Study data, (2016)

Results from figure 4.12 above depict that 43 percent of respondents subscribed to multiple policies. This was followed by children's education policy with 33 percent and medical or health insurance policy with 18 percent. Others included the mandatory 2 percent loan default policy, life insurance policy of 2 percent and, travel and commercial business policy at 1 percent each. This findings is supported by Robinson (2012) whose field experiment in Kenya found multiple subcription indicating the depth of outreach .

4.2.5.2 Reasons for Rejection of Claims

The study further asked respondents to indicate the reason for the rejection of their claims if any. Figure 4.13 below depicts that 80 percent of claims rejected was due to claim being in excess of policy taken, 15 percent of the rejection was alluded to claims not covered under the policy with 4 and 2 percent respectively being lack of disclosure of relevant information at the time of policy and non-payment of premium.

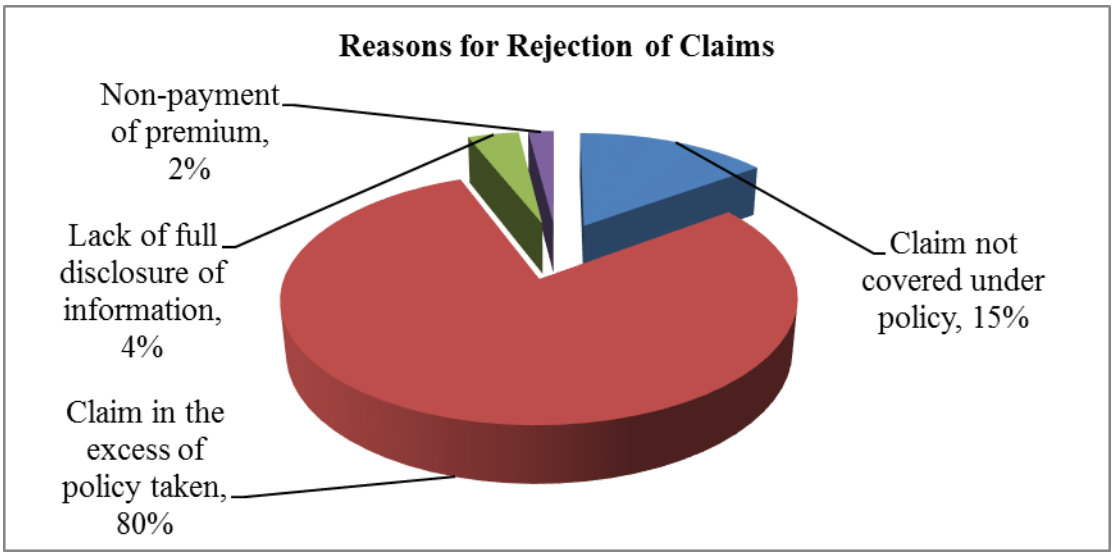


Figure 4.13: Reasons for rejection of claims

Source: Study data, (2016)

4.2.5.3 Subscription to an Insurance Policy

To appreciate the effect of premiums on subscription of policies and depth of outreach of microinsurance products, respondents were asked to indicate if they would subscribe to a policy if they were not to have done so already? Results from figure 4.14 depicts that 89 percent of respondents would consider taking up an insurance policy if it would be beneficial to them. 9.7 percent would take up an insurance policy if the premiums were reasonable while 4 percent did not consider it necessary.

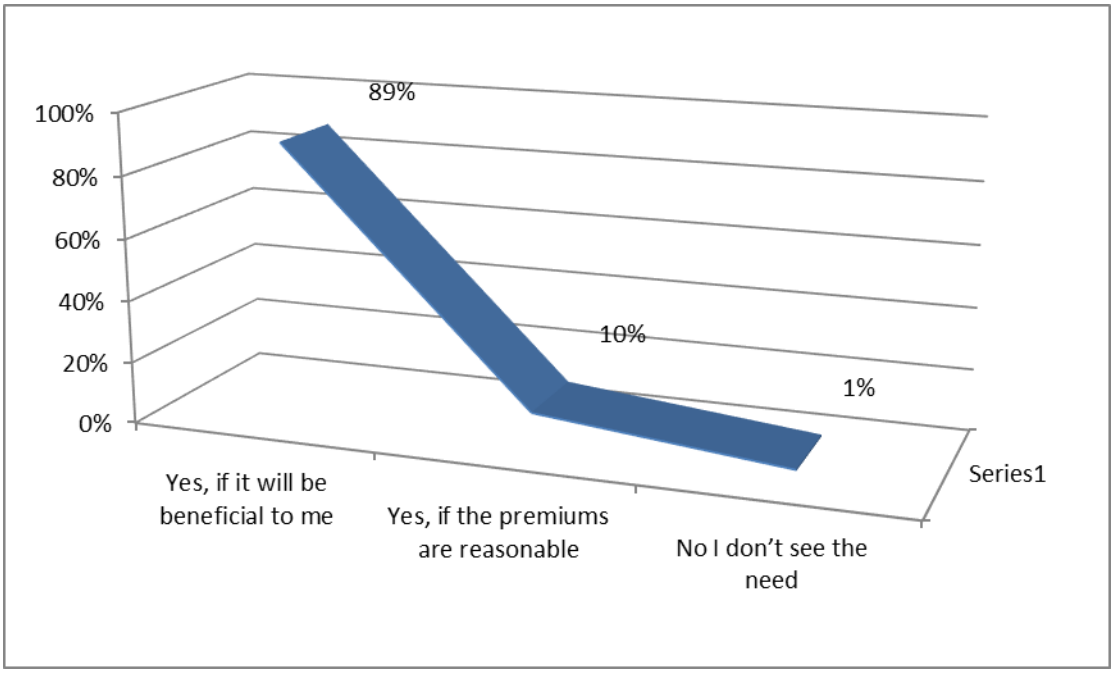


Figure 4.14: Subscription to Insurance Policy

Source: Study data, (2016)

4.2.5.4 Mean score and standard deviation on Microinsurance

The study asked respondents to indicate the extent of their agreement on various aspects of microinsurance. The questions were then grouped under each of the sub scales of

microinsurance and the mean score and standard deviation calculated. The statistics are summarized in table 4.9 below.

Table 4.9: Mean Score and Standard Deviation on Microinsurance

	N	Minimum	Maximum	Mean	Std. Deviation
Microinsurance	300	1.29	3.57	2.5806	.44304
Types of policies	300	1.50	4.50	3.0167	.47131
Amount of premium	300	1.00	5.00	3.8767	1.25966
Depth of outreach	300	1.00	4.00	2.0000	.50930
Valid N (listwise)	300				

Source: Study data, (2016)

Field (2013) indicates that the standard deviation is a measurement to test how a group are spread out from the mean. Generally, a small standard deviation relative to the value of the mean indicate that the data points are closer to the mean. A large standard deviation relative to the mean on the other hand indicates that the data points are distant from the mean and therefore the mean is not an accurate representation of the data. Results from Table 4.9 above shows that amount of premium has a standard deviation of 1.25 which means that respondents were more spread from the mean and therefore could indicate that there was a lot of variability in the responses. The standard deviation of microinsurance, depth of outreach and type of policies were all below 0.5 indicating that respondents were consistently close to the mean an indication of how well our model represents the population.

4.2.5.5 Summary of Descriptive Statistics and Cross Tabulations

The response rate for the study was 89.1 percent which was quiet encouraging considering that many studies had alluded to the difficulty in collecting data in Ghana (Agyapong, 2010, Annim, 2010 and Adjei *et. al.*, 2009). The cross tabulations of demographic characteristics and highest completed education found that majority of respondents (42%) were in the age bracket 35 – 44 and most respondents (45%) had Diploma or HND as their highest completed educational qualification. This finding is not strange as the Central Region of Ghana has long been found to be the seat of education in Ghana (DeCorse, Can, Chouin, Cook and Spiers, 2000).

On family size and consumption expenditure, the study found that the average family size in the Central Region of Ghana was made up of a household of 4 people. The study findings also indicate that the average household consumption expenditure per month was GHS800. Comparing this to the Ghana Living Standards Survey (2014) it is important to state that respondents in the study were found to be living on the upper poverty line an indication that poverty was very low in the Central Region of Ghana

The first specific objective of the study was to establish the effect of microsavings on poverty reduction. The study found that most respondents operated accounts with rural and community banks with a high subscription to savings accounts. Additionally the study found that the savings habit of respondents had improved significantly during the period of the interventions and that the average weekly savings of respondents was Ghs100, a confirmation that microsavings has had a significant impact on respondents.

The second specific objective of the study was to establish the effect of access to credit on poverty reduction. To this end the discriptive analysis found that most (62%) enterpreneurs accessed a loan facility annually but a high number of respondents (51%) indicated that the loan acquisition process was cumbersome and that loan defaulters were denied access to future loans or were made to build their accounts over a long period to qualify for future loan.

The third specific objective of the study was to establish the effect of microinsurance on poverty reduction. From the descriptive statisitics, the study established a high subscription to insurance products with (43%) subscribing to multiple policies. Additionally, a high number of respondents (89%) indicated that they would subscribe to an insurance policy if they were not to have done so already and indication of a high depth of outreach.

4.3 Reliability Tests

Reliability is concerned with the ability of an instrument to measure consistently and the accuracy and precision of questions included in the questionnaire (Tavakol & Dennick, 2011; Haper, 2002; Mc Daniel Jnr. & Gates, 2010). Reliability is often considered the first step in test validation process and the process captures the degree to which measures are free from random errors. The output of the reliability test for 60 items informing the study is presented in table 3.3.

Table 4.10 Reliability Test

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.642	.688	60

Source: Study data, (2016)

Table 4.10 shows an alpha of 0.642 which is above the minimum acceptable threshold of 0.6. The variable-total statistics further reveal that each of the variables had a measure of over 0.688 on the Cronbach's Alpha scale indicating that the data was reliable. The outcome of the reliability test resulted in the modification of some of the questions to give clarity. This was because some respondents complained that the questions were not very clear to them

Source: Study data, (2016)

Table 4.10 shows an alpha of 0.642 which is above the minimum acceptable threshold of 0.6. The variable-total statistics further reveal that each of the variables had a measure of over 0.688 on the Cronbach's Alpha scale indicating that the data was reliable. The outcome of the reliability test resulted in the modification of some of the questions to give clarity. This was because some respondents complained that the questions were not very clear to them.

4.3.1 Test for Normality

Normality was tested using a combination of the Kolmogorov-Smirnov test, the Shapiro-wilk test, probability –probability plot (P-P plots) and the histogram (Saunders, Lewis & Thornhill, 2009; Field, 2013). The Kolmogorov–Smirnov test and Shapiro–Wilk test compare the scores in the sample to a normally distributed set of scores with the same

mean and standard deviation. If the test is non-significant (p >0.05) it tells us that the distribution of the sample is not significantly different from a normal distribution. If, however, the test is significant (p < .05) then the distribution in question is significantly different from a normal distribution (i.e. it is non-normal).

The P-P plot on the other hand, plots the cumulative probability of a variable against the cumulative probability of a particular distribution to specify a normal distribution. The data are ranked and sorted, then for each rank the corresponding *z*-score is calculated. The actual *z*-score is plotted against the expected *z*-score and if the data are normally distributed then the actual *z*-score will be the same as the expected *z*-score and the graph will display a lovely straight diagonal line Field (2013).

Table 4.11 below presents the Kolmogorov-Smirnov test and the Shapiro-Wilk Test

Table 4.11: Shapiro wilk test for normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Microsavings	.305	300	.000	.753	300	.000
Access to Credit	.096	300	.000	.983	300	.002
Microinsurance	.216	300	.000	.890	300	.000
Poverty Reduction Outcomes	.112	300	.000	.965	300	.000

a. Lilliefors Significance Correction

Source: Study data, (2016)

Table 4.11 above shows that both the Kolmogorov- Smirnov and the Shapiro-Wilk tests are significant for all the variables and therefore an indication that the distribution of the sample is not significantly different from a normal distribution. However, the Kolmogorov-Smirnov and the Shapiro-Wilk tests have their limitations because with large sample sizes as used in this study, it is very easy to get significant results from

small deviations from normality, and so a significant test doesn't necessarily tell us whether the deviation from normality is enough to bias any statistical procedures that we apply to the data. Field (2013) therefore recommends the plotting of the data either in the form of a P-P or Q-Q test in addition to the Kolmogorov-Smirnov and the Shapiro Wilk test to make an informed decision about the extent of non-normality.

Figure 4.3 below presents the expected outcome of poverty reduction against the actual or observed outcome. Linearity is examined through residual plots drawn by the analysis software SPSS.

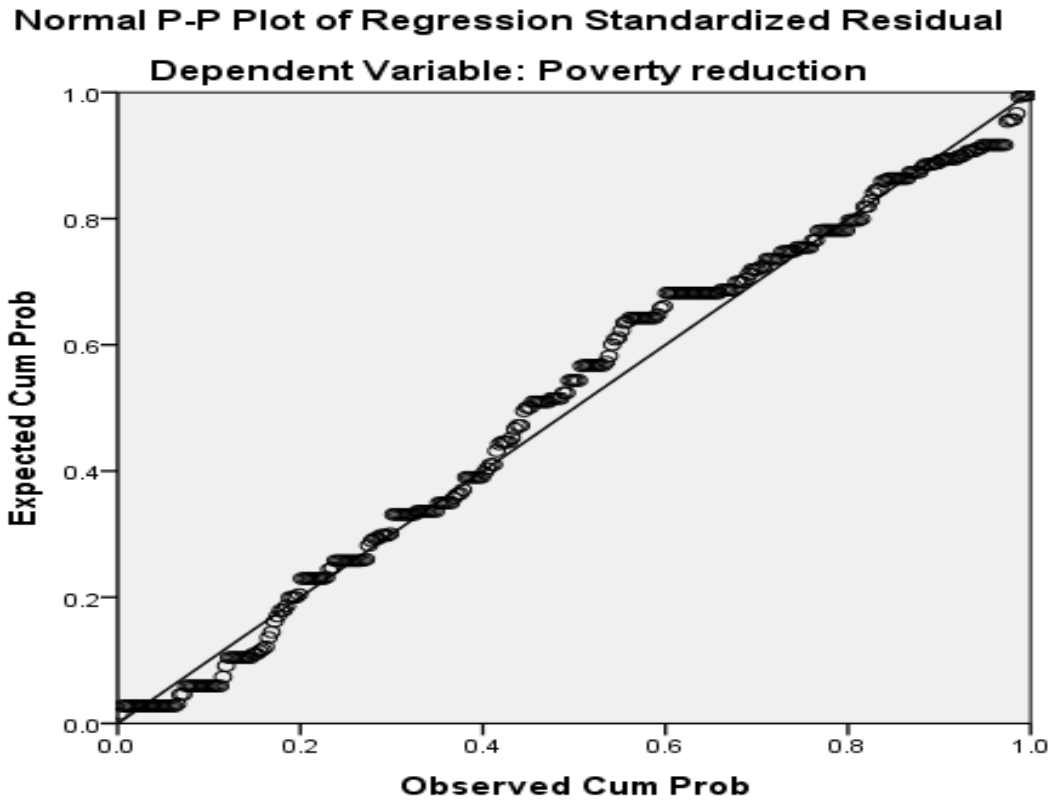


Figure 4.15: P-P Plot of Regression Standardised Residuals

Source: Study data, (2016)

The visual presentation in figure 4.15 above indicates that the observed values did not deviate significantly from the expected value apart from a few items. Accordingly the results are indicative of normality.

Figure 4.16 presents the histogram of microfinance interventions and poverty reductions. In an ideal world, data would be distributed symmetrically around the centre of all scores. As such, if a vertical line were to be drawn through the centre of the distribution then it should look the same on both sides (Saunders *et.al*., 2009). This is known as a normal distribution and is characterized by the bell-shaped curve.

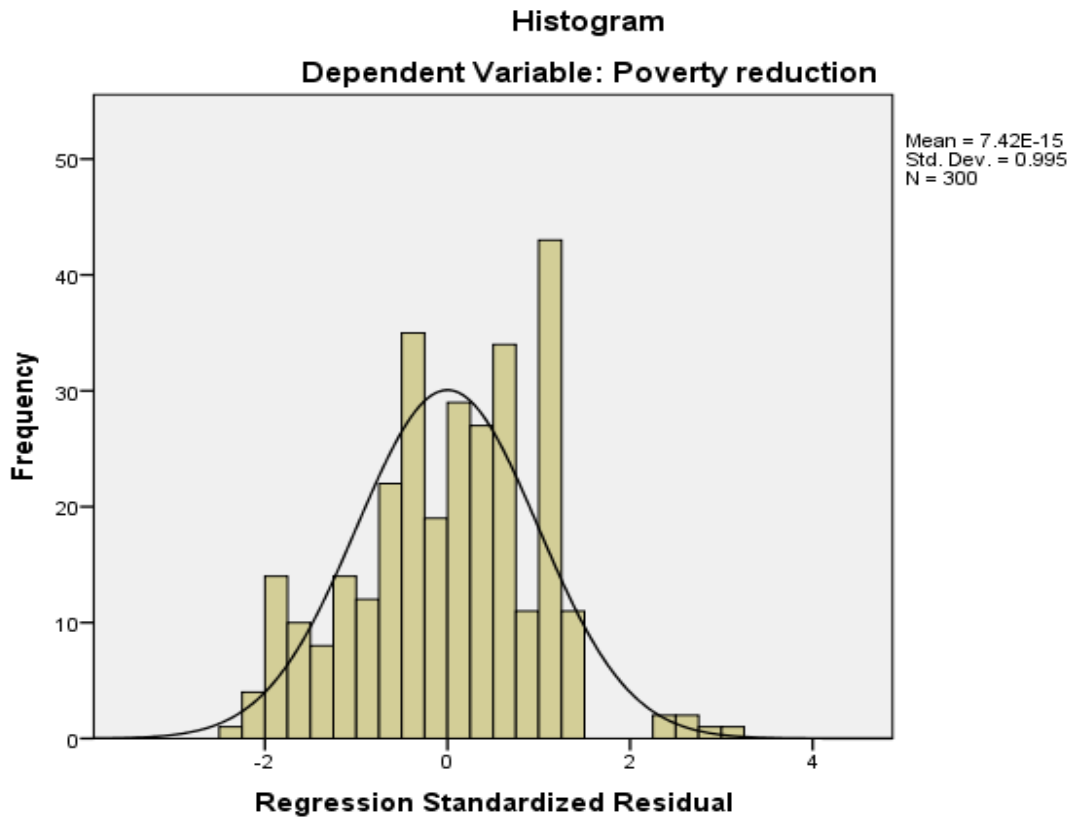


Figure 4.16: Normal Distribution Histogram

Source: Study data, (2016)

Figure 4.16 above shows the distribution of the data for this study. It could be observed that the data is normally distributed and therefore the sample can be relied upon to make conclusions about the population.

4.3.2 Homoscedasticity

Homoscedasticity is the extent to which data values for the outcome (Y) values and predictors (X) have equal variances (Saunders *et.al*., 2009; Field, 2013). Homoscedasticity is also assumption of equal standard deviation between the outcome variable and the independent variable. In this study the presence heteroscedasticity was tested using Levene's test. Levene's test is an inferential statistic used to assess the quality of variances for a variable calculated for two or more groups.

The null hypothesis that the populations variances are equal was tested. According to Field (2013) if Levene's test is significant at $p \leq .05$ then we can conclude that the null hypothesis is incorrect and that the variances are significantly different therefore, the assumption of homogeneity of variances has been violated. If, however, Levene's test is non-significant (i.e. $p > .05$) then the variances are roughly equal and the assumption is tenable. Table 4.12 below presents the Levenes test of homogeneity of variances.

Table 4.12: Test of Homogeneity of Variances

	Levenes Statistic	Df 1	Df 2	Sig
Microsavings	2.584	1	298	0.111
Access to Credit	2.089	1	298	0.152
Microinsurance	2.086	1	298	0.150
Regulatory Framework	2.523	1	298	0.115

Source: Field Study, 2016

Table 4.12 above indicate that the Levene's statistic is not significant for all the variables therefore the study failed to reject the null hypothesis indicating that the variances are roughly equal and the assumption is tenable.

4.3.3 Test for Multicollinearity

In this study multicollinearity was tested using the correlation matrix, the variable inflation factor (VIF) and the tolerance statistic of the various regression outputs. According to Field (2013), One way of identifying multicollinearity is to scan a correlation matrix of all of the predictor variables and see if any correlate very highly beyond 0.90. He argues that using the correlation matrix is a good ball park method but misses more subtle forms of multicollinearity. Accordingly there is the need to conduct other multicollinerity test such as the variance inflation factor (VIF).

The VIF indicates whether a predictor has a strong linear relationship with the other predictors or not. Although there are no hard and fast rules about what value of the VIF should cause concern, Myers (1990) suggests that a value of 10 is a good value at which to worry. If the average VIF is substantially greater than 1, then multicollinearity may be biasing the regression model (Bowerman & O'Connell, 1990). Related to the VIF is the tolerance statistic, which is its reciprocal (1/VIF). A tolerance below 0.1 indicate serious problems although Menard (1995) suggests that values below 0.2 are worthy of concern.

Multicollinearity permeates every aspect of multiple regression analysis and has an adverse effect on the analysis especially if the correlation among independent variables is high (Field, 2013). Table 4.13 presents the correlation matrix for all variables to ascertain the nature and strength of the relationship between the study variables.

Table 4.13: Correlation matrix

Spearmans rho		Microsavings	Access to credit	Microinsurance	Regulatory framework	Growth in income	Consumption expenditure	Ability to educate children	Acquisition of household assets
Microsavings	Correlation Coefficient	1.000	.161**	.441**	0.050	.730**	-.147*	.182**	.712**
	Sig. (2-tailed)		0.005	0.000	0.390	0.000	0.011	0.002	0.000
	N	300	300	300	300	299	300	300	300
Access to credit	Correlation Coefficient	.161**	1.000	.228**	0.019	-0.031	0.012	.618**	0.071
	Sig. (2-tailed)	0.005		0.000	0.746	0.591	0.836	0.000	0.218
	N	300	300	300	300	299	300	300	300
Microinsurance	Correlation Coefficient	.441**	.228**	1.000	0.101	.485**	-.506**	.566**	.579**
	Sig. (2-tailed)	0.000	0.000		0.081	0.000	0.000	0.000	0.000
	N	300	300	300	300	299	300	300	300
Regulatory framework	Correlation Coefficient	0.050	0.019	0.101	1.000	0.074	-0.024	0.078	.116*
	Sig. (2-tailed)	0.390	0.746	0.081		0.203	0.682	0.178	0.044
	N	300	300	300	300	299	300	300	300
Growth in income	Correlation Coefficient	.730**	-0.031	.485**	0.074	1.000	-0.064	.264**	.665**
	Sig. (2-tailed)	0.000	0.591	0.000	0.203		0.271	0.000	0.000
	N	299	299	299	299	299	299	299	299
Consumption expenditure	Correlation Coefficient	-.147*	0.012	-.506**	-0.024	-0.064	1.000	-.119*	-.313**
	Sig. (2-tailed)	0.011	0.836	0.000	0.682	0.271		0.040	0.000
	N	300	300	300	300	299	300	300	300
Ability to educate children	Correlation Coefficient	.182**	.618**	.566**	0.078	.264**	-.119*	1.000	.230**
	Sig. (2-tailed)	0.002	0.000	0.000	0.178	0.000	0.040		0.000
	N	300	300	300	300	299	300	300	300
Acquisition of household assets	Correlation Coefficient	.712**	0.071	.579**	.116*	.665**	-.313**	.230**	1.000
	Sig. (2-tailed)	0.000	0.218	0.000	0.044	0.000	0.000	0.000	
	N	300	300	300	300	299	300	300	300

Source: Study data, (2016)

Results from table 4.13 indicate several positive and negative relationship among the variables but none exceed the 0.9 threshold indicated by Saunders *et.al*. (2009) and Field (2013) therefore no multicollinearity can be construed.

Table 4.14 presents the nature and strength of relationship between the independent variables.

Table 4.14: Correlation among Sub Scales

Spearman's rho		Micro Savings	Access to credit	Micro insurance	Type of savings	Interest rates	Rate of savings	Ability to repay loan	Flexibility of access	Quantum of credit	Types of policies	Amount of premium	Depth of outreach
Micro Savings	Correlation Coefficient	1.000	.161**	.441**	.598**	-.254**	.942**	.123*	0.095	.122*	.250**	.724**	.587**
	Sig. (2-tailed)		0.005	0.000	0.000	0.000	0.000	0.033	0.099	0.034	0.000	0.000	0.000
	N	300	300	300	300	300	300	300	300	300	300	300	300
Access to credit	Correlation Coefficient	.161**	1.000	.228**	.318**	-0.107	0.102	.739**	.661**	.525**	.130*	-.228**	.227**
	Sig. (2-tailed)	0.005		0.000	0.000	0.065	0.078	0.000	0.000	0.000	0.024	0.000	0.000
	N	300	300	300	300	300	300	300	300	300	300	300	300
Micro insurance	Correlation Coefficient	.441**	.228**	1.000	.828**	0.071	.342**	.491**	-0.011	-.254**	.943**	.182**	.879**
	Sig. (2-tailed)	0.000	0.000		0.000	0.218	0.000	0.000	0.855	0.000	0.000	0.002	0.000
	N	300	300	300	300	300	300	300	300	300	300	300	300
Type of savings	Correlation Coefficient	.598**	.318**	.828**	1.000	-0.041	.426**	.466**	.140*	-.206**	.768**	.237**	.763**
	Sig. (2-tailed)	0.000	0.000	0.000		0.482	0.000	0.000	0.015	0.000	0.000	0.000	0.000
	N	300	300	300	300	300	300	300	300	300	300	300	300
Interest rates	Correlation Coefficient	-.254**	-0.107	0.071	-0.041	1.000	-.284**	-0.089	-0.031	-.155**	.130*	-.184**	0.031
	Sig. (2-tailed)	0.000	0.065	0.218	0.482		0.000	0.125	0.592	0.007	0.025	0.001	0.593
	N	300	300	300	300	300	300	300	300	300	300	300	300
Rate of savings	Correlation Coefficient	.942**	0.102	.342**	.426**	-.284**	1.000	0.066	0.040	.124*	.170**	.750**	.474**
	Sig. (2-tailed)	0.000	0.078	0.000	0.000	0.000		0.257	0.486	0.032	0.003	0.000	0.000
	N	300	300	300	300	300	300	300	300	300	300	300	300
Ability to repay loan	Correlation Coefficient	.123*	.739**	.491**	.466**	-0.089	0.066	1.000	.193**	.148*	.469**	-.176**	.438**
	Sig. (2-tailed)	0.033	0.000	0.000	0.000	0.125	0.257		0.001	0.010	0.000	0.002	0.000
	N	300	300	300	300	300	300	300	300	300	300	300	300
Flexibility of access	Correlation Coefficient	0.095	.661**	-0.011	.140*	-0.031	0.040	.193**	1.000	.165**	-0.095	-.248**	-0.058
	Sig. (2-tailed)	0.099	0.000	0.855	0.015	0.592	0.486	0.001		0.004	0.100	0.000	0.321
	N	300	300	300	300	300	300	300	300	300	300	300	300
Quantum of credit	Correlation Coefficient	.122*	.525**	-.254**	-.206**	-.155**	.124*	.148*	.165**	1.000	-.369**	0.083	-0.077
	Sig. (2-tailed)	0.034	0.000	0.000	0.000	0.007	0.032	0.010	0.004		0.000	0.151	0.184
	N	300	300	300	300	300	300	300	300	300	300	300	300
Types of policies	Correlation Coefficient	.250**	.130*	.943**	.768**	.130*	.170**	.469**	-0.095	-.369**	1.000	0.086	.719**
	Sig. (2-tailed)	0.000	0.024	0.000	0.000	0.025	0.003	0.000	0.100	0.000		0.139	0.000
	N	300	300	300	300	300	300	300	300	300	300	300	300
Amount of premium	Correlation Coefficient	.724**	-.228**	.182**	.237**	-.184**	.750**	-.176**	-.248**	0.083	0.086	1.000	.340**
	Sig. (2-tailed)	0.000	0.000	0.002	0.000	0.001	0.000	0.002	0.000	0.151	0.139		0.000
	N	300	300	300	300	300	300	300	300	300	300	300	300
Depth of outreach	Correlation Coefficient	.587**	.227**	.879**	.763**	0.031	.474**	.438**	-0.058	-0.077	.719**	.340**	1.000
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.593	0.000	0.000	0.321	0.184	0.000	0.000	
	N	300	300	300	300	300	300	300	300	300	300	300	300

Source: Study data, (2016)

Table 4.14 indicate that apart from the relationship between Microsavings and its sub scale rate of savings which is above the 0.9 threshold, all other correlation matrixes are below 0.9. Accordingly the sub scales of microfinance interventions meet the threshold for multiple regression analysis and that there appears to be no excessive multicollinearity issues among the variables.

Table 4.15 shows the VIF and tolerance levels of the various variables.

Table 4.15: Multicollinearity Test

VARIABLE	TOLERANCE	VIF	REMARKS
Microsavings	0.542	1.845	No Multicollinearity
Type of savings	0.429	2.329	No Multicollinearity
Interest rates	0.925	1.082	No Multicollinearity
Rate of savings	0.414	2.418	No Multicollinearity
Access to credit	0.953	1.049	No Multicollinearity
Ability to repay loan	0.876	1.142	No Multicollinearity
Flexibility of access	0.882	1.134	No Multicollinearity
Quantum of credit	0.939	1.065	No Multicollinearity
Microinsurance	0.551	1.816	No Multicollinearity
Types of policies	0.574	1.742	No Multicollinearity
Amount of premium	0.859	1.165	No Multicollinearity
Depth of outreach	0.511	1.955	No Multicollinearity
Mean	**0.705**	**1.562**	No Multicollinearity

Source: Study data, (2016)

Results from table 4.15 indicate that the maximum VIF is 2.41 and the least is 1.049. The average VIF of 1.56 is also not substantially greater than 1 and therefore an indication that there is no collinearity issue given the maximum threshold of 10. Similarly, the tolerance statistics are all above 0.2 with the least being 0.414 and the maximum 0.953. Therefore, it can safely be concluded that there is no collinearity within the data.

4.4 Test of Hypotheses

This section tests the research hypotheses using multiple regression analysis. Each of the four hypotheses presented in section 1.3.3 were operationalised into sub hypotheses with each of them having Microsavings, access to credit and microinsurance as the preditor variables and growth in income, consumption expenditure, acquisition of business assets and ability to educate children as the outcome variable. All the sub hypotheses were tested at a significance level of 5 percent.

The regression output for the study is presented in three tables. The first table (the model summary) focuses on the simple correlation between the study variables and the coefficient of determination R^2. In interpreting the regression coefficient reliance was placed on the rule of thumb for simple regression analysis where a correlation greater than 0.20 and equal to or less than 0.4 is considered weak; a correlation greater than 0.4 but less than 0.60 is deemed to be moderate with correlation greater than 0.8 is considered very strong (Field 2013). The coefficient of determination R^2 is a measure of the amount of variability in the dependent variable that is explained by the independent variable.

The second table the analysis of variance (ANOVA) shows the overall significance of the model. The ANOVA tells us whether the model, overall, results in a significantly good degree of prediction of the outcome variable. However, the ANOVA doesn't tell us about the individual contribution of variables in the model. The third table (coefficients) provides details of the model parameters (the beta values) and the significance of these values. The regression coefficients (b) are estimates of the effect of individual independent variables on the outcome variable (Omagwa, 2014). Positive beta

coefficients values indicate a direct relationship between the independent variables and the dependent variables. A negative beta values indicate an inverse relationship between the specific independent variable and the dependent variable. This indicates that a higher numeric value for the independent variable were associated with lower numeric values for the dependent variables (Saunders, Lewis & Thornhill, 2009). The entire hypotheses are interpreted using the above guidelines.

4.4.1 Microsavings and Growth in Income $H0_{1a}$

The specific objective of the study was to ascertain the effect of microsavings on poverty reduction. Four sub hypotheses were formulated for each of the four outcome variables of poverty reduction (Growth in income, increase in consumption expenditure, acquisition of business assets and ability to educate children in Central Region of Ghana.

Table 4.16a to 4.16c presents the results of the above sub hypothesis. In table 4.16a, the regression function is modelled by taking microsavings as the predictor variable and growth in income as the outcome variable.

Table 4.16a: Model Summary for Microsavings and Growth in Income

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.783[a]	0.613	0.609	0.48458	0.613	155.621	3	295	0.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Rate of savings, Interest rates, Type of savings

b. Dependent Variable: Growth in income

From table 4.16a above, a strong positive correlation is observed between microfinance interventions (rate of savings, interest rates and type of savings) and growth in income (R =0.783 and P=0.000). The results further indicate that the R^2 which is a measure of the amount of variability in one variable that is shared by the other variables is 61.3%, indicating that microsavings accounts for 61.3 percent of growth in income (R^2 = 0.613). The adjusted R^2 tells us how much variance in Y would be accounted for if the model had been derived from the population. The Adjusted R^2 is 60.9 percent and therefore very similar to the R^2 indicating that the cross-variability of this model is very good.

Table 4.16b below presents results of the models overall significance in the form of analysis of variance. The ANOVA tests whether the model is significantly better at predicting the outcome than using the mean as a best guess

Table 4.16b: ANOVA for Microsavings and Growth in Income

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	109.628	3	36.543	155.621	.000b
	Residual	69.271	295	0.235		
	Total	178.899	298			

Source: Study data, (2016)

Significance Level = 0.05

a. Dependent Variable: Growth in income

b. Predictors: (Constant), Rate of savings, Interest rates, Type of savings

Results from table 4.16b above indicate that the model overall is statistically significant with a P-value less than 5 percent (p=0.000). The F-ratio represents the ratio of the improvement in prediction that results from fitting the model, relative to the inaccuracy that still exists in the model. In this case F=155.621 meaning that the model significantly

improved our ability to predict the outcome variable better. From the foregoing, the sub-hypothesis, $H0_{1a}$ which states that microsavings does not have a statistically significant effect on growth in income is not supported and therefore rejected.

Table 4.16c below presents results of the regression coefficient (beta values) for microsavings and growth in income to indicate whether microsavings is significant in explaining growth in income.

Table 4.16c: Coefficients for Microsavings and Growth in Income

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	0.788	0.170		4.632	0.000		
	Type of savings	0.259	0.046	0.312	5.631	0.000	0.429	2.332
	Rate of savings	0.014	0.058	0.009	0.250	0.802	0.925	1.081
	Interest rate	0.351	0.038	0.523	9.275	0.000	0.413	2.420

Source: Researcher, 2016

a. Dependent Variable: Growth in income

b. Significance level = 0.05

From table 4.16c above, the study finds that Type of Savings (P=0.000) and Interest Rates (P=0.000) are statistically significant microsavings indicators in explaining growth of income as a poverty indicator. Rate of savings is however not significant given that P=0.802. The beta values tell us to what degree each predictor affects the outcome if the effects of all other predictors are held constant. The implication of this is that as type of savings increases by one unit, growth in income increases by 0.259 units. Similarly as Interest Rates increase by one unit, growth in income increases by 0.351 units. The regression function for the sub-hypothesis ($H0_{1a}$) is extracted as follows:

$Y_1 = 0.788 + 0.259X_1 + 0.351X_3$

Where Y_1 = Growth in Income, X_1 = Type of Savings and X_3 = Interest Rate.

The above findings indicate that Microsavings have a significant positive relationship with growth in income. This finding is supported by Dupas and Robinson (2012) whose field experiment in Kenya found that market women who subscribed to the savings products significantly increased their income over the period of the intervention.

4.4.2 Microsavings and Increase in Consumption Expenditure$H0_{1b}$

Table 4.17a to 4.17c presents the results of the above sub hypothesis. In table 4.17a below, the final output of the regression function is modelled by taking microsavings (Types of savings, Interest Rate and Rate of savings) as the predictor variable and increase in consumption expenditure as the outcome variable.

Table 4.17a: Model Summary for Microsavings and Consumption Expenditure

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.393a	0.154	0.146	0.34947	0.154	17.990	3	296	0.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Rate of savings, Interest rates, Type of savings

b. Dependent Variable: Increase in consumption expenditure

Results in table 4.17a above indicate a weak positive correlation between Microsavings and increase in consumption expenditure (R = 0.393 and P = 0.000). This could imply

that people who are active savers are reluctant to spend on consumption. The results further indicate that microsavings accounts for only 15.4 percent of increase in consumption expenditure (R^2 = 0.154). According to Field (2013), the adjusted R^2 gives some idea of how well the model generalizes and should be very close to the value of R^2. The Adjusted R^2 is 0.146 and is close to the R^2 indicating that the cross-variability of this model is very good.

Table 4.17b below presents results of the models overall significance in the form of analysis of variance (ANOVA).

Table 4.17b: ANOVA for Microsavings and Consumption Expenditure

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.591	3	2.197	17.990	.000[b]
	Residual	36.151	296	0.122		
	Total	42.743	299			

Source: Study data, (2016)

Significance level = 0.05

a. Dependent Variable: Increase in consumption expenditure

b. Predictors: (Constant), Rate of savings, Interest rates, Type of savings

Table 4.17b shows that the model overall is statistically significant with P< 0.05 (p=0.000). The F-ratio which represents the ratio of the improvement in prediction that results from fitting the model, relative to the inaccuracy that still exists in the model is 17.990 indicating that the model improved our ability to predict the outcome variable better. From the foregoing, the sub-hypothesis, $H0_{1b}$ which states that microsavings does not have a significant effect in predicting increase in consumption expenditure is hereby not supported and therefore rejected.

Table 4.17c below presents results of the regression coefficient (beta values) for microsavings and increase in consumption expenditure to indicate whether microsavings are significant in explaining increase in consumption expenditure.

Table 4.17c: Coefficients for Microsavings and Consumption Expenditure

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	2.822	0.123		23.003	0.000		
Type of savings	-0.204	0.033	-0.500	-6.133	0.000	0.429	2.329
Interest rates	-0.113	0.042	-0.152	-2.728	0.007	0.925	1.082
Rate of savings	0.059	0.027	0.180	2.171	0.031	0.414	2.418

Source: Study data, (2016)

Significance level = 0.05

a. Dependent Variable: Increase in consumption expenditure

Results from table 4.17c above indicate that all three sub variables of savings with P values less than the significant level of 0.05 are statistically significant microsavings indicators in explaining increase in consumption expenditure as a poverty indicator. The b-values tell us about the relationship between increase in consumption expenditure and each predictor. A positive beta indicates that there is a positive relationship between the predictor and the outcome, whereas a negative coefficient represents a negative relationship. Table 4.17c above indicate that type of savings with a beta of -0.204 and interest rates with a beta of -0.113 have an inverse relationship with the outcome variable increase in consumption expenditure. The implication is that as type of savings increases by one unit, increase in consumption expenditure decreases by 20.4 percent. Similarly as Rate of Savings increases by one unit, increase in consumption expenditure increases by 5.9%. The regression function for the sub-hypothesis ($H0_{1b}$) is extracted as follows:

$Y_2 = 2.822 - 0.204X_1 - 0.113X_2 + 0.059X_3$

Where Y_2 = Increase in consumption expenditure, X_1 = Type of Savings, X_2 = Interest Rate and X_3 is rate of savings.

The weak positive correlation found between Microsavings and increase in consumption expenditure is supported by Augsburg *et. al.* (2015) whose study in Bosnia and Herzegovina also found weak positive correlation between Microsavings and poverty reduction. This is not strange as studies have found that people with high propensity to save tend to consume less (Pitt & Khandaker, 1998 and Roodman and Morduch, 2013)

4.4.3 Microsavings and Acquisition of Business Assets $H0_{2c}$

Table 4.18a to 4.18c presents the results of the above sub hypothesis. In table 4.18a below, the final output of the regression function is modelled by taking microsavings (Types of savings, Interest Rate and Rate of savings) as the predictor variable and acquisition of business assets as the outcome variable.

Table 4.18a: Model Summary for Microsavings and Acquisition of Business Assets

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.775[a]	0.601	0.597	0.47163	0.601	148.468	3	296	0.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Rate of savings, Interest rates, Type of savings

b. Dependent Variable: Acquisition of business assets

Table 4.18a above indicate a strong positive correlation between Microsavings and acquisition of household assets and or business assets (77.5 percent). This may imply that households and MSME's are either able to save to acquire household and or business assets are able to use savings as a form of collateral to acquire assets. Table 4.18a also indicate that Microsavings accounts for 60.1 percent of acquisition of business assets (R^2 = 0.601).

The above finding is consistent with that of Adjei and Arun (2009) whose study in Ghana suggested that Microsavings influenced the amount of wealth made by participants. It must however be called out that most microfinance institutions in Ghana adopted the Grameen model meaning that to qualify for a loan you need to have about 20 percent of the amount you require in the form of savings deposits before a loan will be approved.

Table 4.18b below presents results of the models overall significance in the form of an analysis of variance (ANOVA).

Table 4.18b: ANOVA for Microsavings and Acquisition of Business Assets

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	99.075	3	33.025	148.468	.000b
	Residual	65.842	296	0.222		
	Total	164.917	299			

Source: Study data, (2016)

Significance level = 0.05

a. Dependent Variable: Acquisition of business assets

b. Predictors: (Constant), Rate of savings, Interest rates, Type of savings

Table 4.18b above shows that the model overall is statistically significant with P< 0.05 (p=0.000). The F-ratio is 148.46 indicating that the model significantly improved our ability to predict the outcome variable. From the foregoing, the sub-hypothesis, $H0_{2c}$ which states that microsavings do not have a significant effect on acquisition of business asset is hereby rejected.

Table 4.18c below presents results of the regression coefficient for microsavings and acquisition of business assets to indicate whether microsavings has a significant effect in explaining acquisition of business assets.

Table 4.18c: Coefficients for Microsavings and Acquisition of Business Assets

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	0.431	0.166		2.603	0.010		
Type of savings	0.315	0.045	0.395	7.040	0.000	0.429	2.329
Interest rates	0.166	0.056	0.113	2.965	0.003	0.925	1.082
Rate of savings	0.293	0.037	0.455	7.968	0.000	0.414	2.418

Source: Study data, (2016)

a. Significance level = 0.05
b. Dependent Variable: Acquisition of business assets

From table 4.18c above, it can be deduced that all three sub variables of savings are statistically significant in explaining acquisition of business asset as a poverty indicator given that P<0.05. They all have a positive beta values indicating that there is a positive relationship between the predictor, microsavings and the outcome acquisition of business asset. Table 4.18c above also indicate the beta for type of savings as 0.315, interest rates as 0.166 and the beta for rate of savings as 0.293. The implication is that as rate of

savings increases by one unit, acquisition of business asset increases by 29.3 percent. The regression function for the sub-hypothesis ($H0_{2c}$) is extracted as follows:

$Y_3 = 0.431 + 0.315X_1 + 0.166X_2 + 0.293X_3$

Where Y_3 = Acquisition of business asset, X1 = Type of Savings, $_{X2}$ = Interest Rate and X_3 is rate of savings.

Evidence from similar studies in Uganda and Zanzibar found that micro-credit clients invested more in business assets such as tools, plants and equipments (Barnes et al. 2001; Brannen 2010). The data from Tanzania suggests that investing in household assets is especially true of male clients, although it is also significant amongst female borrowers. Accordingly the findings of this study that microsavings has a significant effect on acquisition of business assets is hereby supported.

4.4.4 Microsavings and ability to educate children $H0_{1d}$

Table 4.19a to 4.19c presents the results of the above sub hypothesis. In table 4.19a below, the output of the regression function is modelled by taking microsavings (Types of Savings, Interest Rate and Rate of Savings) as the predictor variable and ability to educate children as the outcome variable.

Table 4.19a: Model Summary for microsavings and ability to educate children

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.658[a]	0.433	0.427	0.56188	0.433	75.214	3	296	0.000

Source: Study data, (2016)
Significance Level = 0.05
a. Predictors: (Constant), Rate of savings, Interest rates, Type of savings

b. Dependent Variable: Ability to educate children

From table 4.19a above, a moderate positive correlation is observed between microsavings (rate of savings, interest rates and type of savings) and ability to educate children (r =0.658). The results further indicate that Microsavings accounts for 43.3 percent of ability to educate children (R^2 = 0.433). The adjusted R^2 which gives us some idea of how well our model generalizes is R^2 is 42.7 percent and therefore very similar to the outcome predicted by the R^2, indicating that the cross-variability of this model is very good.

Table 4.19b below presents results of the models overall significance in the form of analysis of variance. According to Field (2013) ANOVA tests whether the model is significantly better at predicting the outcome than using the mean as a best guess.

Table 4.19b: ANOVA for microsavings and ability to educate children

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	71.236	3	23.745	75.214	.000[b]
	Residual	93.449	296	0.316		
	Total	164.686	299			

Source: Study data, (2016)

a. Dependent Variable: Ability to educate children

b. Predictors: (Constant), Rate of savings, Interest rates, Type of savings

The findings of table 4.19b above indicate that the model overall is statistically significant with a P-value less than 5 percent (p=0.000). According to Saunders, Lewis and Thornhill (2009) the F-ratio represents the ratio of the improvement in prediction that results from fitting the model, relative to the inaccuracy that still exists in the model. In

this case F=75.214 meaning that the model significantly improved our ability to predict the outcome variable. From the foregoing, the sub-hypothesis, $H0_{2d}$ which states that microsavings do not have a significant effect on ability to educate children is therefore not supported and rejected.

Table 4.19c below presents results of the regression coefficient (beta values) for microsavings and ability to educate children.

Table 4.19c: Coefficients for microsavings and ability to educate children

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1.276	0.197		6.472	0.000		
Type of savings	0.774	0.053	0.969	14.508	0.000	0.429	2.329
Interest rates	-0.002	0.067	-0.001	-0.028	0.978	0.925	1.082
Rate of savings	-0.362	0.044	-0.562	-8.257	0.000	0.414	2.418

Source: Study data, (2016)

a. Dependent Variable: Ability to educate children
b. Significance Level = 0.05

Table 4.19c above indicate that only type of savings and rate of savings with $P<0.05$ are statistically significant in explaining ability to educate children as a poverty indicator. While type of savings have a positive beta value of 0.774 and therefore indicating that there is a positive relationship between the predictor (microsavings) and the outcome variable, ability to educate children, rate of savings has a negative beta of -0.362 implying that rate of savings has an inverse relationship with ability to educate children. Accordingly, a unit increase in the rate of savings will result in a 0.362 decrease in ability to educate children.

Interest rate is not significnant and is therefore excluded from the regression equation. The regression function for the sub-hypothesis ($H0_{1d}$) is therefore extracted as follows:

$Y_4 = 1.4276 + 0.774X_1 - 0.362X_3$

Where Y_4 = Ability to educate children, X1 = Type of Savings and X_3 is rate of savings.

The above finding is supported by empirical studies by Adjei *et. al.* (2009) and Ssewamala (2010) whose respective studies in Ghana and Uganda found significant positive relationship between microsavings and ability to educate children. Nanor (2008) and Shimamura (2009) however found mixed effect on ability to educate children. Nanor (2008) in particular found significant positive effect in some districts of the Eastern Region of Ghana and significant negative effects in other districts of the same region in Ghana.

4.4.5 Microsavings and Poverty Reduction (Composit) H_{01}

Table 4.20a to 4.20c presents the results of the above hypothesis. In table 4.20a, the regression function is modelled by taking Microsavings as the predictor variable and the composite of poverty reduction as the outcome variable.

Table 4.20a: Model Summary for Microsavings and Poverty Reduction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.816[a]	0.665	0.662	0.28728

Source: Study data, (2016)

Significance level = 0.05

a. Predictors: (Constant), Rate of savings, Interest rates, Type of savings

b. Dependent Variable: Poverty reduction (Composite)

From table 4.20a above, a strong positive correlation is observed between Microsavings and Poverty Reduction (R =0.816). The results further indicate that the R^2 which is a measure of the amount of variability in one variable that is shared by the other variables is 0.665 indicating that microsavings accounts for 66.5 percent of poverty reduction. The adjusted R^2 which tells us how much variance in Y would be accounted for if the model had been derived from the population is 66.2 percent indicating that the cross-variability of this model is very good because it is very closer to the R^2.

Table 4.20b presents results of the models overall significance in the form of analysis of variance.

Table 4.20b: ANOVA for Microsavings and Poverty Reduction

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	48.556	3	16.185	196.123	.000[b]
	Residual	24.428	296	0.083		
	Total	72.985	299			

Source: Study data, (2016)

Significance Level = 0.05

a. Dependent Variable: Poverty reduction (Composite)

b. Predictors: (Constant), Rate of savings, Interest rates, Type of savings

Results from table 4.20b indicate that overall model is statistically significant with a P< 0.05 (p=0.000). According to Saunders, Lewis and Thornhill (2012) the F-ratio represents the ratio of the improvement in prediction that results from fitting the model, relative to the inaccuracy that exists in the model. The F-ratio is 196.123 meaning that the model significantly improved our ability to predict the outcome variable better. From the

foregoing, the null hypothesis $H0_1$ which states that microsavings does not have significant effect on poverty reduction in Central Region of Ghana is not supported and therefore rejected.

Table 4.20c presents results of the regression coefficient (beta values) for microsavings and poverty reduction to indicate whether microsavings is significant in explaining poverty reduction.

Table 4.20c: Coefficients for Microsavings and Poverty Reduction

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	1.159	0.101		11.498	0.000		
	Type of savings	0.325	0.027	0.612	11.920	0.000	0.429	2.329
	Interest rates	0.027	0.034	0.028	0.798	0.425	0.925	1.082
	Rate of savings	0.109	0.022	0.255	4.882	0.000	0.414	2.418

Source: Study data, (2016)

a. Dependent Variable: Poverty Reduction (Composite)
b. Significance level = 0.05

From the results in table 4.20c above, the study finds that type of savings and rate of savings with $P<0.05$ are statistically significant indicators in explaining poverty reduction. Interest rate is however not significant given that $P=0.425$. The beta values tell us to what degree each predictor affects the outcome if the effects of all other predictors are held constant. The implication of this is that as type of savings increases by one unit, poverty reduction increases by 0.325 units. Similarly as rates of savings increase by one unit, poverty reduction increases by 0.109 units. Interest rate is excluded

from the regression equation given that P>0.05. The regression function for the sub-hypothesis ($H0_1$) is extracted as follows:

$Y_2 = 1.159 + 0.325X_1 + 0.109X_3$

Where Y_2 = Poverty Reduction, X_1 = Type of savings and X3 Rate of savings.

The above finding is consistent with several other empirical studies including but not limited to Robinson (2001), Brune *et. al.* (2011), Dupas and Robinson (2012) and Brannen (2010) all of who found significant effect between microsavings and poverty reduction. Stewart *et. al.* (2010) however found a week positive correlation between microsavings and poverty reduction.

4.4.6 Access to Credit and Growth in Income ($H0_{2a}$)

The objective of this hypothesis was to determine the effect of access to credit on poverty reduction in Central Region of Ghana. Four sub hypotheses were formulated for each of the four outcome variables of poverty reduction (Growth in income, increase in consumption expenditure, acquisition of business assets and ability to educate children) to test the effect.

Table 4.21a to 4.21c presents the results of the above sub hypothesis. The regression function is modelled by taking access to credit as the predictor variable and growth in income as the outcome variable.

Table 4.21a: Model Summary for Access to Credit and Growth in Income

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.392a	0.153	0.145	0.71652	0.153	17.820	3	295	0.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Quantum of credit, Flexibility of access, Ability to repay loan

b. Dependent Variable: Growth in income

From table 4.21a above, a weak positive correlation is observed between access to credit and growth in income (R =0.392). The results further indicate that the R^2 which is a measure of the amount of variability in one variable that is shared by the other variables is 15.3 percent of growth in income (R^2 = 0.153). The adjusted R^2 tells us how much variance in Y would be accounted for if the model had been derived from the population. The adjusted R^2 is 14.5% indicating that the cross-variability of this model is relatively good.

Table 4.21b below presents results of the models overall significance in the form of analysis of variance. The ANOVA tests whether the model is significantly better at predicting the outcome than using the mean as a best guess

Table 4.21b: ANOVA for Access to Credit and Growth in Income

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	27.447	3	9.149	17.820	.000b
	Residual	151.452	295	0.513		
	Total	178.899	298			

Source: Study data, (2016)

Significance Level = 0.05

a. Dependent Variable: Growth in Income

b. Predictors: (Constant), Quantum of credit, Flexibility of access, Ability to repay loan

Results from table 4.21b indicate that the model overall is statistically significant with a P-value less than 5 percent (p=0.000). The F-ratio which represents the ratio of the improvement in prediction that results from fitting the model, relative to the inaccuracy that still exists in the model is 17.820 meaning that the model significantly improved our ability to predict the outcome. From the foregoing, the sub-hypothesis $H0_{2a}$ which states that access to credit does not have a significant effect on growth in income as a poverty indicator is rejected.

Table 4.21c present results of the regression coefficient (beta values) for access to credit and growth in income to indicate whether Access to Credit is significant in explaining growth in income.

Table 4.21c: Coefficients for Access to Credit and Growth in Income

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	1.610	0.233		6.899	0.000		
	Ability to repay loan	0.432	0.073	0.338	5.914	0.000	0.878	1.139
	Flexibility of access	-0.262	0.045	-0.331	-5.814	0.000	0.884	1.132
	Quantum of credit	0.009	0.047	0.010	0.188	0.851	0.941	1.063

Source: Study data, (2016)

a. Dependent Variable: Growth in income

From the results in table 4.21c above, the study finds that ability to repay loan and flexibility of access have individual $p<0.05$ and therefore are statistically significant indicators in explaining growth in income as a poverty indicator. The beta values tell us the extent to which each predictor affects the outcome if the effects of all other predictors are held constant. The implication of this is that as ability ot repay loan increases by one unit, growth in income increases by 0.432 units. Similarly as flexibility of access increase by one unit, growth in income decreases by -0.262 units. Quantum of credit is excluded from the regression equation because its $P>0.05$ and therefore not significnant. The regression function for the sub-hypothesis ($H0_{2a}$) is therefore extracted as follows:

$$Y_1 = 1.610 + 0.432X_1 - 0.262X_2$$

Where Y_1 = Growth in Income, X_1 = Ability to repay loan and X_2 = Flexibility of access.

The significant positive findings above between access to credit and growth in income is supported by Robinson (2001), Dupas and Robinson (2012) all of whom conducted field

experiments in Kenya and found that market women who subscribed to the savings products significantly increased their income. Other studies by Brannen (2010), Lacalle (2008) and Barnes (2001) using wealth creation as an indicator for growth in income found significant positive effect on wealth creation and poverty reduction. These findings are however contrasted by Nanor (2008) and Lakwo (2006) who both found no effect on wealth creation.

4.4.7 Access to credit and Increase in consumption expenditure $H0_{3b}$

The objective of this hypothesis was to test the effect of access to credit on increase in consumption expenditure. Table 4.22a to 4.22c presents the results of the above sub hypothesis. In table 4.22a, the output of the regression function is modelled by taking Access to Credit (Ability to repay loan, flexibility of access and quantum of credit) as the predictor variable and increase in consumption expenditure as the outcome variable.

Table 4.22a: Model Summary for Access to credit and Consumption Expenditure

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.431[a]	0.186	0.178	0.34282	0.186	22.560	3	296	0.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Quantum of credit, Flexibility of access, Ability to repay loan

b. Dependent Variable: Increase in consumption expenditure.

Results from table 4.22a indicate a weak positive correlation between access to credit and increase in consumption expenditure (R=0.431, P=0.000). The results further indicate

that access to credit accounts for only 18.6 percent of increase in consumption expenditure (R^2 = 0.186). Field (2013) indicates that the adjusted R^2 gives some idea of how well the model generalizes and should be very close to the value of R^2. The adjusted R^2 is 17.8% and is close to the R^2 indicating that the cross-variability of this model is good. This could imply that having access to credit does not necessarily mean that a greater part of the credit will be spent on consumption expenditure, rather consumption increases but at a slower pace.

Table 4.22b below presents results of the models overall significance in the form of analysis of variance (ANOVA). The ANOVA tests whether the model is significantly better at predicting the outcome than using the mean as a best guess.

Table 4.22b: ANOVA for Access to credit and Consumption Expenditure

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.954	3	2.651	22.560	.000b
	Residual	34.788	296	0.118		
	Total	42.743	299			

Source: Study data, (2016)

Significance level = 0.05

a. Dependent Variable: Increase in consumption expenditure

b. Predictors: (Constant), Quantum of credit, Flexibility of access, Ability to repay loan

Table 4.22b above shows that the model overall is statistically significant with P< 0.05 (p=0.000). The F-ratio is 22.560 indicating that the model improved our ability to predict the outcome variable better. Therefore the sub-hypothesis, $H0_{2b}$ which states that Access to Credit does not have a significant effect in predicting increase in consumption expenditure is not supported and therefore rejected.

Table 4.22c below presents results of the regression coefficient (beta values) for Access to Credit and increase in consumption expenditure to indicate whether Access to Credit is significant in explaining increase in consumption expenditure.

Table 4.22c: Coefficients for Access to credit and Consumption Expenditure

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.928	0.111		17.314	0.000		
	Ability to repay loan	-0.055	0.035	-0.088	-1.563	0.119	0.876	1.142
	Flexibility of access	-0.044	0.022	-0.113	-2.022	0.044	0.882	1.134
	Quantum of credit	0.182	0.022	0.441	8.152	0.000	0.939	1.065

Source: Study data, (2016)

a. Dependent Variable: Increase in consumption expenditure

Results from table 4.22c above indicate that ability to repay loan is not statistically significant in predicting increase in consumption expenditure and is therefore eliminated from the regression equation. Flexibility of access and Quantum of credit are however significant in explaining increase in consumption expenditure as a poverty indicator. However, flexibility of access with a beta coefficient of -0.044 is inversely related to increase in consumption expenditure, quantum of credit on the other hand with a beta of 0.182 has a direct positive effect on increase in consumption expenditure. The regression function for the sub-hypothesis ($H0_{3b}$) is extracted as follows: $Y_2 = 1.928 - 0.044X_2 + 0.182_3$

Where Y_2 = Increase in consumption expenditure, $X_{2\,=}$ Flexibility of access, $_{X3\,=}$ Quantum of Credit.

The above findings is supported by Augsburg (2015) who found that 'access to credit allowed borrowers to start and expand small-scale businesses but that the impact on consumption and other outcome variables was heterogeneous.

4.4.8 Access to Credit and Acquisition of business Assets $H0_{2c}$

The objective of this hypothesis was to test the effect of access to credit on acquisition of business assets. Table 4.23a to 4.23c presents the results of the above sub hypothesis. In table 4.23a below, the final output of the regression function is modelled by taking Access to Credit as the predictor variable and acquisition of business assets as the outcome variable.

Table 4.23a: Model Summary for Access to Credit and Acquisition of Assets

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.180a	0.032	0.023	0.73420	0.032	3.312	3	296	0.020

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Quantum of credit, Flexibility of access, Ability to repay loan

b. Dependent Variable: Acquisition of Business Assets

Table 4.23a above indicate a weak positive correlation between access to credit and acquisition of business assets R = 0.180. The results further indicate that the R^2 which is a measure of the amount of variability in one variable that is shared by the other variables is 0.032 which indicates that Access to Credit accounts for only 3.2 percent of acquisition of business assets (R^2 = 0.32). According to Field (2013), the adjusted R^2 gives some

idea of how well the model generalizes and should be very close to the value of R^2. In this case the adjusted R^2 is 0.23 indicating that the cross validity of the model is good.

Table 4.23b below presents results of the models overall significance in the form of an analysis of variance (ANOVA). The ANOVA tests whether the model is significantly better at predicting the outcome than using the mean as a best guess.

Table 4.23b: ANOVA for Access to Credit and Acquisition of business Assets

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.357	3	1.786	3.312	.020b
	Residual	159.560	296	0.539		
	Total	164.917	299			

Source: Study data, (2016)

Significance level = 0.05

a. Dependent Variable: Acquisition of Business Assets

b. Predictors: (Constant), Quantum of credit, Flexibility of access, Ability to repay loan

Results from table 4.23b above shows that the model overall is statistically significant with P< 0.05 (p=0.020). The F-ratio is 3.312 indicating that the model improved our ability to predict the outcome variable. From the foregoing, the sub-hypothesis, $H0_{2c}$ which states that access to credit does not have a significant effect on acquisition of business asset is hereby rejected.

Table 4.23c below presents results of the regression coefficient for access to credit and acquisition of business assets to indicate whether access to credit has a significant effect in explaining acquisition of business assets.

Table 4.23c: Coefficients for Access to Credit and Acquisition of business Assets

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1 (Constant)	2.153	0.239		9.027	0.000		
Ability to repay loan	0.200	0.075	0.163	2.671	0.008	0.876	1.142
Flexibility of access	-0.056	0.046	-0.074	-1.221	0.223	0.882	1.134
Quantum of credit	-0.090	0.048	-0.112	-1.892	0.059	0.939	1.065

Source: Study data, (2016)

a. Dependent Variable: Acquisition of business assets

Results from table 4.23c indicate that only ability to repay loan with P value of 0.008 is statistically significant access to credit indicator in explaining acquisition of business assets. The b-values tell us about the relationship between increase in consumption expenditure and each predictor. A positive beta indicates that there is a positive relationship between the predictor and the outcome, whereas a negative coefficient represents a negative relationship. Table 4.23c indicate that ability ot repay loan with a beta of 0.200 have a positive relationship with the outcome variable acquisition of business asset. The implication is that as access to credit increases by one unit, acquisition of business assets increases by 20%.

The research hypothesis is however not formulated given that flexibility of access and quantum of credit are not significant with P>0.05. This approach is supported by Omagwa (2014).

4.4.9 Access to credit and ability to educate children $H0_{2d}$

Table 4.24a to 4.24c presents the results of the above sub hypothesis. In table 4.24a below, the output of the regression function is modelled by taking access to credit (ability

to repay loan, flexibility of access and quantum of credits) as the predictor variable and ability to educate children as the outcome variable.

Table 4.24a: Model Summary - Access to credit and ability to educate children

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.725a	0.526	0.521	0.51358	0.526	109.453	3	296	0.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Quantum of credit, Flexibility of access, Ability to repay loan

b. Dependent Variable: Ability to educate children

From table 4.24a above, a high positive correlation is observed between access to credit and ability to educate children (R =0.725). The results indicate further that the R^2 measures the proportionate reduction in variation of Y, associated with the set of X predictors is 0.526 indicating that access to credit accounts for 52.6 percent of ability to educate children (R^2 = 0.526). The adjusted R^2 which gives us some idea of how well our model generalizes is 52.1 percent and therefore very similar to the outcome predicted by the R^2, indicating that the cross-variability of this model is very good.

Table 4.24b below presents results of the models overall significance in the form of analysis of variance. The ANOVA tests whether the model is significantly better at predicting the outcome than using the mean as a best guess (Field, 2013)

Table 4.24b: ANOVA for Access to credit and ability to educate children

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	86.610	3	28.870	109.453	.000b
	Residual	78.075	296	0.264		
	Total	164.686	299			

Source: Study data, (2016)

a. Dependent Variable: Ability to educate children

b. Predictors: (Constant), Quantum of credit, Flexibility of access, Ability to repay loan

The findings of table 4.24b above indicate that the model overall is statistically significant with a P-value less than 5 percent (p=0.000). The F-statistic is F=108.453 and indication that the model significantly improved our ability to predict the outcome variable. From the foregoing, the sub-hypothesis, $H_{02d,}$ which states that access to credit does not have a significant effect on ability to educate children is not supported and therefore rejected.

Table 4.24c below presents results of the regression coefficient (beta values) for access to credit and ability to educate children.

Table 4.24c: Coefficients for Access to credit and ability to educate children

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	-0.419	0.167		-2.509	0.013		
	Ability to repay loan	-0.063	0.033	-0.077	-1.873	0.062	0.939	1.065
	Flexibility of access	0.131	0.032	0.173	4.051	0.000	0.882	1.134
	Quantum of credit	0.814	0.052	0.666	15.570	0.000	0.876	1.142

Source: Study data, (2016)

a. Dependent Variable: Ability to educate children

Table 4.24c above indicate that flexibility of access and quantum of credit with $P<0.05$ are statistically significant in explaining ability to educate children as a poverty indicator. Ability to repay loan is however insignificant with $P=0.62$. The b-values tell us about the relationship between increase in ability to educate children and each of the predictors. A positive beta indicates that there is a positive relationship between the predictor and the outcome, whereas a negative coefficient represents an inverse relationship between the predictor and the outcome. Flexibility of access and quantum of credit have positive beta values of 0.131 and 0.814 respectively indicating that there is a positive relationship between the predictor, access to credit and the outcome variable, ability to educate children. The regression function for the sub-hypothesis ($H0_{2d}$) is extracted as follows:

$$Y_4 = -0.419 + 0.131X_2 + 0.814X_3$$

Where Y_4 = Ability to educate children, X2 = Flexibility of access and X_3 is quantum of credit.

The above finding is supported by empirical studies by Adjei *et. al.* (2009) and Ssewamala (2010) whose respective studies in Ghana and Uganda found significant positive relationship between access to credit and ability to educate children. Barnes *et. al.* (2001) and Shimamura (2009) however found mixed effect on ability to educate children. While Barnes et.al. (2001) found positive effect among schooling by boys, they also found negative effect among the education of girls especially among continuing clients in Uganda. Shimamura and Lastarria-Cornhiel (2009) Study in Malawi on the other hand found that micro-credit significantly decreases primary school attendance amongst borrowers' children, leading to a repetition of primary grades in young boys and delayed or lack of enrolment for young girls.

4.4.10 Access to Credit and Poverty Reduction Composite (H_{02})

Table 4.25a to 4.25c presents the results of the above sub hypothesis. The regression function is modelled by taking access to credit as the predictor variable and Poverty Reduction as the outcome variable.

Table 4.25a: Model Summary for Access to Credit and Poverty Reduction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.451[a]	0.204	0.195	0.44316

Source: Study data, (2016)

Significance level = 0.05

a. Predictors: (Constant), Quantum of credit, Flexibility of access, Ability to repay loan

b. Dependent Variable: Poverty reduction (Composite)

Results from table 4.25a above indicate a low positive correlation between Access to credit and Poverty Reduction (R = 0.451). The results further indicate that Access to Credit accounts for only 20.4 percent of Poverty Reduction (R = 0.204). The adjusted R^2 which tells us how much variance in Y would be accounted for if the model had been derived from the population is 19.5 percent indicating that the cross-variability of this model is relatively good because it is very closer to the R^2.

The overall significance of the model is presented in Table 4.25b below in the form of analysis of variance. The ANOVA tests whether the model is significantly better at predicting the outcome than using the mean as a best guess Field (2013)

Table 4.25b: ANOVA for Access to Credit and Poverty Reduction

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.853	3	4.951	25.209	.000[b]
	Residual	58.132	296	0.196		
	Total	72.985	299			

Source: Study data, (2016)

Significance Level = 0.05

a. Dependent Variable: Poverty Reduction

b. Predictors: (Constant), Quantum of credit, Flexibility of access, Ability to repay loan

Results from table 4.25b above indicate that the model overall is statistically significant with a P-value less than 5 percent (p=0.000). The F-ratio is 25.209 meaning that the model significantly improved our ability to predict the outcome. From the foregoing, the

null hypothesis $H0_2$ which states that Access to Credit does not have a significant effect on Poverty Reduction is hereby rejected.

Table 4.25c present results of the regression coefficient (beta values) for Access to Credit and Poverty Reduction to indicate whether Access to Credit is significant in explaining Poverty Reduction.

Table 4.25c: Coefficients for Access to Credit and Poverty Reduction

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1.291	0.144		8.965	0.000		
Ability to repay loan	0.389	0.045	0.477	8.613	0.000	0.876	1.142
Flexibility of access	-0.076	0.028	-0.151	-2.725	0.007	0.882	1.134
Quantum of credit	-0.005	0.029	-0.009	-0.170	0.865	0.939	1.065

Source: Study data, (2016)

a. Dependent Variable: Poverty Reduction

From the results in table 4.25c above, the study finds that ability to repay loan and flexibility of access have individual p values less than 5 percent ($p<0.05$) and therefore are statistically significant indicators in explaining Poverty Reduction. The results however show that flexibility of access with a beta of -0.076 is inversely related to poverty reduction while ability to repay loan with a beta coefficient of 0.389 has a direct positive relationship with poverty reduction. The highest VIF is 1.142 with the mean VIF being 1.114 which is closer to one and indicating that there is no collinearity issue in the data. The regression function for the hypothesis (H_{02}) is therefore extracted as follows:

$Y_1 = 1.291 + 0.389X_1 - 0.076X_2$

Where Y_1 = Poverty Reduction, X_1 = Ability to repay loan and X_2 = Flexibility of access.

4.4.11 Microinsurance and Growth in Income $H0_{4a}$

The objective of this hypothesis was to test the effect of microinsurance on poverty reduction. To test the effect, four sub hypotheses were formulated for each of the four outcome variables of poverty reduction (Growth in income, increase in consumption expenditure, acquisition of business assets and ability to educate children).

Table 4.26a to 4.26c presents the results of the above sub hypothesis. In table 4.26a, the regression function is modelled by taking microinsurance as the predictor variable and growth in income as the outcome variable.

Table 4.26a: Model Summary for Microinsurance and Growth in Income

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.846a	0.716	0.713	0.41513	0.716	247.705	3	295	0.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Depth of outreach, Amount of premium, Types of policies

b. Dependent Variable: Growth in income

Results from table 4.26a above shows the existence of a strong positive correlation between microinsurance and growth in income (R =0.846). The results further indicate that the R^2 which is a measure of the amount of variability in one variable that is shared by the other variables is 0.716 indicating that microinsurance accounts for 71.6 percent of

growth in income (R^2 = 0.716). The adjusted R^2 tells us how much variance in Y would be accounted for if the model had been derived from the population. The adjusted R^2 is 71.3 percent and therefore very similar to the R^2 indicating that the cross-variability of this model is very good.

Table 4.26b below presents results of the models overall significance in the form of analysis of variance. The ANOVA tests whether the model is significantly better at predicting the outcome than using the mean as a best guess Field (2013).

Table 4.26b: ANOVA for Microinsurance and Growth in Income

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	128.061	3	42.687	247.705	.000b
	Residual	50.837	295	0.172		
	Total	178.899	298			

Source: Study data, (2016)

Significance Level = 0.05

a. Dependent Variable: Growth in income

b. Predictors: (Constant), Depth of outreach, Amount of premium, Types of policies

Results from table 4.26b above indicate that the model overall is statistically significant with a P-value less than 5 percent (p=0.000). The F-ratio F=247.705 meaning that the model significantly improved our ability to predict the outcome variable better. From the foregoing, the sub-hypothesis, $H0_{3a}$ which states that microinsurance does not have a significant effect on poverty reduction is not supported and therefore rejected.

Table 4.26c below present results of the regression coefficient (beta values) for microinsurance and growth in income to indicate whether microinsurance is significant in explaining growth in income.

Table 4.26c: Coefficients for Microinsurance and Growth in Income

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	-0.176	0.165		-1.065	0.288		
	Types of policies	0.337	0.021	0.548	16.293	0.000	0.851	1.174
	Amount of premium	-0.096	0.068	-0.059	-1.422	0.156	0.567	1.764
	Depth of outreach	0.773	0.067	0.506	11.547	0.000	0.502	1.991

Source: Study data, (2016)

a. Dependent Variable: Growth in income

From the results in table 4.26c above, the study finds that the type of policy and depth of outreach are statistically significant microinsurance indicators in predicting growth of income as a poverty indicator. Results from table 4.26c indicate that amount of premium with P=0.156 is not statistically significant in predicting growth in income and is therefore eliminated from the regression equation. The beta values tell us to what degree each predictor affects the outcome if the effects of all other predictors are held constant. The implication of this is that as type of policies increases by one unit, growth in income increases by 0.337 units. Similarly as depth of outreach increase by one unit, growth in income increases by 0.773 units. The regression function for the sub-hypothesis ($H0_{3a}$) is extracted as follows:

$Y_1 = 0.176 + 0.337X_1 + 0.773X_3$

Where Y_1 = Growth in Income, X_1 = Type of policy and X_3 = depth of outreach.

Studies supporting the above findings include Morduch (2004), Hamid et. al. (2010) Armendariz and Morduch (2010) all of whom found significant relationship between microinsurance and poverty reduction.

4.4.12 Microinsurance and Increase in Consumption Expenditure $H0_{3b}$

Table 4.27a to 4.27c presents the results of the above sub hypothesis. In table 4.27a below, the final output of the regression function is modelled by taking microinsurance as the predictor variable and increase in consumption expenditure as the outcome variable.

Table 4.27a: Model Summary for Microinsurance and Consumption Expenditure

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.498a	0.248	0.240	0.32951	0.248	32.555	3	296	0.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Depth of outreach, Amount of premium, Types of policies

b. Dependent Variable: Increase in consumption expenditure

Results in table 4.27a above indicate a moderate positive correlation between microinsurance and increase in consumption expenditure (49.8 percent). The results further indicate that the R^2 which is a measure of the amount of variability in one variable that is shared by the other variables is 0.248 indicating that microinsurance accounts for only 24.8 percent of increase in consumption expenditure (R^2 = 0.248). Field (2013)

indicates that the adjusted R^2 gives some idea of how well the model generalizes and should be very close to the value of R^2 is 0.24 which is very close to the R^2 of 0.248 indicating that the cross validity of the model is very good.

Table 4.27b below presents results of the models overall significance in the form of analysis of variance (ANOVA). The ANOVA tests whether the model is significantly better at predicting the outcome than using the mean as a best guess Field (2013).

Table 4.27b: ANOVA for Microinsurance and Consumption Expenditure

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.604	3	3.535	32.555	.000[b]
	Residual	32.139	296	0.109		
	Total	42.743	299			

Source: Study data, (2016)

Significance level = 0.05

a. Dependent Variable: Increase in consumption expenditure

b. Predictors: (Constant), Depth of outreach, Amount of premium, Types of policies

Table 4.27b above shows that the model overall is statistically significant with P< 0.05 (p=0.000). The F-ratio is 32.555 indicating that the model improved our ability to predict the outcome variable. From the foregoing, the sub-hypothesis, $H0_{4b}$ which states that microinsurance does not have a significant effect in predicting increase in consumption expenditure is hereby not supported and therefore rejected.

Table 4.27c below present results of the regression coefficient (beta values) for microinsurance and increase in consumption expenditure to indicate whether microinsurance is significant in explaining increase in consumption expenditure.

Table 4.27c: Coefficients for Microinsurance and Consumption Expenditure

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	3.382	0.131		25.776	0.000		
	Types of policies	-0.517	0.053	-0.644	-9.680	0.000	0.574	1.742
	Amount of premium	-0.029	0.016	-0.097	-1.776	0.077	0.859	1.165
	Depth of outreach	0.267	0.052	0.360	5.104	0.000	0.511	1.955

Source: Study data, (2016)

Significance level = 0.05

a. Dependent Variable: Increase in consumption expenditure

Results from table 4.27c above indicate that the amount of premium with a p>0.05 is not statistically significant microinsurance indicators in predicting increase in consumption expenditure as a poverty indicator. Table 4.27c above also shows that type of policy with a beta of -0.517 has an inverse relationship with increase in consumption expenditure while depth of outreach with a beta of 0.267 has a direct positive relationship with the outcome variable increase in consumption expenditure. The implication of this is that as type of policies increases by one unit, increase in consumption expenditure will decrease by 51.7% units, similarly as depth of outreach increase by one unit, increase in consumption expenditure will increases by 0.267 units. Given that P=0.077 amount of premium is not significant and is therefore excluded from the regression equation. The regression function for the sub-hypothesis ($H0_{3b}$) is extracted as follows:

$Y_2 = 3.382 - 0.517X_1 + 0.267X_3$

Where Y_2 = Increase in consumption expenditure, X_1 = Type of policy, X_3 = Depth of outreach.

The above finding is supported by Hamid et.al. (2010) who found statistically significant positive association between micro health insurance and a number of outcome measures relating to poverty status including but not limited to household income, stability of household income through food sufficiency and ownership of non-land assets, and also ability to educate children.

4.4.13 Microinsurance and Acquisition of business Assets $H0_{4c}$

Table 4.28a to 4.28c presents the results of the above sub hypothesis. In table 4.28a below, the final output of the regression function is modelled by taking microinsurance as the predictor variable and acquisition of business assets as the outcome variable.

Table 4.28a: Model Summary - Microinsurance and Acquisition of business Assets

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.745[a]	0.555	0.551	0.49792	0.555	123.066	3	296	0.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Depth of outreach, Amount of premium, Types of policies

b. Dependent Variable: Acquisition of household assets

Table 4.28a above indicate a strong positive correlation between microinsurance and acquisition of business assets (74.5 percent). Table 4.28a also indicate that the R^2 which is a measure of the amount of variability in one variable that is shared by the other

variables is 0.555 indicating that microinsurance accounts for only 55.5 percent of acquisition of business assets (R^2 = 0.555). The adjusted R^2 which gives some idea of how well the model generalizes and should be very close to the value of R^2 is 0.551 which is very close to the R^2 of 0.555 indicating that the cross validity of the model is very good

Table 4.28b below presents results of the models overall significance in the form of an analysis of variance (ANOVA).

Table 4.28b: ANOVA for Microinsurance and Acquisition of business Assets

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	91.532	3	30.511	123.066	.000[b]
	Residual	73.385	296	0.248		
	Total	164.917	299			

Source: Study data, (2016)

a. Dependent Variable: Aquisition of household assets
b. Predictors: (Constant), Depth of outreach, Amount of premium, Types of policies

Table 4.28b above shows that the model overall is statistically significant with P< 0.05 (p=0.000). The F-ratio represents the ratio of the improvement in prediction that results from fitting the model, relative to the inaccuracy that still exists in the model. The F-ratio for the model is 123.066 indicating that the model significantly improved our ability to predict the outcome variable. From the foregoing, the sub-hypothesis, $H0_{3c}$ which states that microinsurance does not have a significant effect on acquisition of business asset is hereby rejected.

Table 4.28c below presents results of the regression coefficient to test whether microinsurance has a significant influence on acquisition of business assets.

Table 4.28c: Coefficients for Microinsurance and Acquisition of business Assets

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-0.179	0.198		-0.902	0.368		
	Types of policies	0.086	0.081	0.055	1.072	0.285	0.574	1.742
	Amount of premium	0.242	0.025	0.410	9.810	0.000	0.859	1.165
	Depth of outreach	0.665	0.079	0.456	8.410	0.000	0.511	1.955

Source: Study data, (2016)

Dependent Variable: Aquisition of household and or business assets

From table 4.28c above, it can be observed that only amount of premium and depth of outreach with P<0.05 are statistically significant in explaining acquisition of business asset as a poverty indicator. Both variables have a positive beta of 0.242 and 0.665 respectively indicating that there is a positive relationship between the predictor (microinsurance) and the outcome acquisition of business asset. The implication of this is that as amount of premium increases by one unit, acquisition of business asset will also increase by 8.6% units, similarly as depth of outreach increase by one unit, acquisition of business asset will increases by 0.665 units. Given that type of policies with P=0.285 is not statistically significant it is excluded from the regression equation. The regression function for the sub-hypothesis ($H0_{3c}$) is extracted as follows:

$Y_3 = 0.086 + 0.242X_2 + 0.665X_3$

Where Y_3 = Acquisition of business asset, X_2 = Amount of Premium and X_3 Depth of Outreach.

The above findings is not consistent with McIntosh, Sarris, and Papadopoulos (2013) whose field experiment in Ethiopia found that willingness to pay for an insurance product is not significantly correlated with actual take-up and acquisition of farm implements.

4.4.14 Microinsurance and ability to educate children $H0_{3d}$

The objective of this hypothesis was to test the effect of microinsurance on ability to educate children. Table 4.29a to 4.29c presents the results of the above sub hypothesis. In table 4.29a below, the output of the regression function is modelled by taking microinsurance as the predictor and ability to educate children as the outcome.

Table 4.29a: Model Summary for Microinsurance and ability to educate children

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.681[a]	0.464	0.459	0.54600	0.464	85.471	3	296	0.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Depth of outreach, Amount of premium, Types of policies

b. Dependent Variable: Ability to educate children

From table 4.29a above, a strong positive correlation is observed between microinsurance and ability to educate children (R =0.681). The results further indicate the R^2 which is a measure of the amount of variability in one variable that is shared by the other variables is 0.464 indicating that microinsurance accounts for only 46.4 percent of ability to

educate children. Field (2013) indicates that the adjusted R^2 which gives some idea of how well the model generalizes and should be very close to the value of R^2 is 0.459 which is very close to the R^2 of 0.464 indicating that the cross validity of the model is very good..

Table 4.29b below presents results of the models overall significance in the form of analysis of variance (ANOVA).

Table 4.29b: ANOVA for Microinsurance and ability to educate children

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	76.442	3	25.481	85.471	.000[b]
	Residual	88.243	296	0.298		
	Total	164.686	299			

Source: Study data, (2016)

a. Dependent Variable: Ability to educate children

b. Predictors: (Constant), Depth of outreach, Amount of premium, Types of policies

The findings of table 4.29b above indicate that the overall model is statistically significant with a P-value less than 5 percent (p=0.000). The F-ratio is 85.471 meaning that the model significantly improved our ability to predict the outcome variable. From the foregoing, the sub-hypothesis, $H0_{3d}$ which states that microinsurance do not have a significant effect on ability to educate children is therefore not supported and rejected.

Table 4.29c below presents results of the regression coefficient (beta values) for microinsurance and ability to educate children.

Table 4.29c: Coefficients for Microinsurance and ability to educate children

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	0.508	0.217		2.337	0.020		
	Types of policies	0.252	0.088	0.160	2.851	0.005	0.574	1.742
	Amount of premium	-0.230	0.027	-0.391	-8.510	0.000	0.859	1.165
	Depth of outreach	0.864	0.087	0.593	9.963	0.000	0.511	1.955

Source: Study data, (2016)

a. Dependent Variable: Ability to educate children

Table 4.29c above indicate that all three variables with P<0.05 are statistically significant in explaining ability to educate children as a poverty indicator. However, while types of policies and depth of outreach have a positive beta of 0.252 and 0.864 respectively, amount of premium with a beta of -0.230 has an inverse relationship with ability to educate children. The implication of this is that as amount of premium increases by one unit, ability to educate children will increase by 50.8 percent, similarly as depth of outreach increase by one unit, ability to educate children will increase by 86.4 percent while an increase of one unit of amount of premium will result in a decrease of 23 percent in ability to educate chidren. The regression function for the sub-hypothesis ($H0_{3d}$) is therefore modelled as follows:

$$Y_4 = 0.508 + 0.252X_1 - 0.230X_2 + 0.864X_3$$

Where Y4 = Ability to educate children, X1 = Type of policy, X2 amount of premium and X3 depth of outreach.

The above finding is consistent with Beck (2015), McIntosh *et. al.* (2013) whose study in Ethiopia found statistically significant relations between microinsurance and farmers' ability to educate their children.

4.4.15 Microinsurance and Poverty Reduction (Composite) $H0_4$

Table 4.30a to 4.30c presents the results of the above sub hypothesis. In table 4.30a, the regression function is modelled by taking microinsurance as the predictor variable and Poverty Reduction as the outcome variable.

Table 4.30a: Model Summary for Microinsurance and Poverty Reduction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.830[a]	0.688	0.685	0.27715

Source: Study data, (2016)

Signifincance level = 0.05

a. Predictors: (Constant), Depth of outreach, Amount of premium, Types of policies

b. Dependent Variable: Poverty Reduction (Composite)

Results from table 4.30a above shows the existence of a strong positive correlation between microinsurance and Poverty Reduction (R =0.830). The results further indicate the R^2 which is a measure of the amount of variability in one variable that is shared by the other variables is 0.688 indicating that microinsurance accounts for only 68.8 percent of ability to educate children. Field (2013) indicates that the adjusted R^2 which gives some idea of how well the model generalizes and should be very close to the value of R^2 is 0.685 which is very close to the R^2 of 0.688 indicating that the cross validity of the model is very good.

Table 4.30b below presents results of the models overall significance in the form of analysis of variance.

Table 4.30b: ANOVA for Microinsurance and Poverty Reduction

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	50.248	3	16.749	218.061	.000[b]
	Residual	22.736	296	0.077		
	Total	72.985	299			

Source: Study data, (2016)

Significance Level = 0.05

a. Dependent Variable: Poverty Reduction

b. Predictors: (Constant), Depth of outreach, Amount of premium, Types of policies

Results from table 4.30b above indicate that the model overall is statistically significant with a P-value less than 5 percent (p=0.000). The F-ratio F=218.061 meaning that the model significantly improved our ability to predict the outcome variable better. From the foregoing, the null hypothesis ($H0_4$) which states that microinsurance does not have a significant effect on poverty reduction is not supported and therefore rejected.

Table 4.30c below present results of the regression coefficient (beta values) for microinsurance and Poverty Reduction to indicate whether microinsurance is significant in explaining Poverty Reduction.

Table 4.30c: Coefficients for Microinsurance and Poverty Reduction

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1 (Constant)	0.586	0.110		5.306	0.000		
Types of policies	-0.032	0.045	-0.031	-0.713	0.477	0.574	1.742
Amount of premium	0.111	0.014	0.282	8.067	0.000	0.859	1.165
Depth of outreach	0.682	0.044	0.703	15.497	0.000	0.511	1.955

Source: Study data, (2016)

a. Dependent Variable: Growth in income

From the results in table 4.30c above, the study finds that amount of premium and depth of outreach with P=0.000 are statistically significant microinsurance indicators in explaining poverty reduction. Type of policy with a beta of -0.032 is inversely related to poverty reduction, however P>0.05 and therefore not statistically signifincant. The implication of this is that as amount of premium increases by one unit, poverty reduction will increase by 11.1 percent, similarly as depth of outreach increase by one unit, ability to poverty reduction will increase by 68.2 percent. The regression function for the sub-hypothesis ($H0_3$) is extracted as follows:

$Y_1 = 0.586\ 0.111X_2 + 0.682X_3$

Where Y = Poverty Reduction, X_2 = Amount of premium and X_3 = depth of outreach.

The above finding is supported by PWC (2016), Morduch (2004), Hamid et. al. (2010) and Armendariz and Morduch (2010) all of whom found significant relationship between microinsurance and poverty reduction. It is important to call out that their respective findings is related to all forms of risk and not specifically related to increase in

consumption expenditure. However, by avoiding the various risks, income is saved and increase in consumption expenditure increases as funds that would have been used to replenish lost assets are ploughed back into the production process by MSME's.

4.4.16 Microfinance Interventions and Growth in Income

The general objective of the study was to establish the effect of microfinance interventions on poverty reduction. To test the effect, four sub hypotheses were formulated for each of the four outcome variables of poverty reduction (Growth in income, increase in consumption expenditure, acquisition of business assets and ability to educate children). Table 4.31a to 4.31c presents the results of the above sub hypothesis. In table 4.31a, the regression function is modelled by taking microfinance interventions as the predictor variable and growth in income as the outcome variable.

Table 4.31a: Model Summary - Microfinance Interventions and Growth in Income

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.788a	.621	.617	.47933	.621	161.212	3	295	.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Microsavings, Access to Credit, Microinsurance

b. Dependent Variable: Growth in income

From table 4.31a above, a strong positive correlation is observed between microfinance interventions (microsavings, access to credit and microinsurance) and growth in income (r =0.788). The results further indicate the R^2 which is a measure of the amount of variability in one variable that is shared by the other variables is 62.1 implying that

microfinance interventions account for 62.1 percent of growth in income (R^2 = 0.621). According to Field (2013) the adjusted R^2 gives some idea of how well the model generalizes and should be very close to the value of R^2. The adjusted R^2 is 61.7 percent and therefore very similar to the R^2 indicating that the cross-variability of this model is very good.

Table 4.31b below presents results of the models overall significance in the form of analysis of variance.

Table 4.31b: ANOVA for Microfinance Interventions and Growth in Income

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	111.120	3	37.040	161.212	.000b
	Residual	67.779	295	.230		
	Total	178.899	298			

Source: Study data, (2016)

Significance Level = 0.05

a. Dependent Variable: Growth in income

b. Predictors: (Constant), Microinsurance, Access to credit, Microsavings

Results from table 4.31b above indicate that the model overall is statistically significant with a P-value less than the alpha of 0.05 (p=0.000). The F-ratio which indicate the fit of the model is F=161.212 meaning that the model significantly improved our ability to predict the outcome variable better. From the foregoing, the sub-hypothesis, $H0_{5a}$ which states that microfinance interventions do not have significant effect on growth in income is hereby rejected. This finding is not supported by empirical study conducted by Awarwoyi (2014) who used PET/FAT and PEESE analysis to examine the robustness of

reported weighted averages and found insignificant relationship between microfinance and growth in income.

Table 4.31c below presents results of the regression coefficient for microfinance interventions and growth in income to indicate whether microfinance interventions are significant in explaining growth in income.

Table 4.31c: Coefficients for Microfinance Interventions and Growth in Income

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.105	.211		5.230	.000		
	Microsavings	.621	.039	.766	15.715	.000	.541	1.850
	Access to credit	-.189	.052	-.134	-3.642	.000	.953	1.049
	Microinsurance	.101	.084	.058	1.197	.232	.550	1.818

Source: Study data, (2016)

Dependent Variable: Poverty Reduction

Significance Level = 0.05

From table 4.31c above, the study finds that microinsurance is not statistically significant in predicting growth in income as a poverty indicator given that the p-value of 0.232 is greater than the 0.05 level of significance. Microsavings and access to credit are statistically significant given that their p values are less than the significant value of 0.05. The beta values tell us the degree to which each predictor affects the outcome if the effects of all other predictors are held constant. The implication of the above finding is that as microsavings increases by one unit, growth in income increases by 0.621 units., similarly an increase in one unit of access to credit results in a decrease of -0.189 in

growth in income. Given that microinsurance is not signifincant, it is eliminated from the regresion equation. The regression function for the sub-hypothesis ($H0_{5a}$) is extracted therefore extracted as follows:

$Y_{1a} = 1.105 + 0.621X_1 - 0.189X_2$

Where Y_{5a} = Growth in Income, X_1 = Microsavings and X_2 = Access to credit.

4.4.17 Microfinance interventions and Increase in Consumption Expenditure H^{05b}

Table 4.32a to 4.32c presents the results of the above sub hypothesis. In table 4.32a below, the final output of the regression function is modelled by taking microfinance interventions as the predictor and increase in consumption expenditure as the outcome variable.

Table 4.32a: Model Summary for MFI's and Consumption Expenditure [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	1	.372a	.139	.130	.35270	.139	15.862	3	296

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Microinsurance, Access to credit, Microsavings

b. Dependent Variable: Increase in consumption expenditure

Results in table 4.32a above indicate a weak positive correlation between Microfinance interventions and increase in consumption expenditure given that R=0.372. The resultant R^2 which is a measure of the amount of variability in one variable that is shared by the other variables is = 0.139. The adjusted R^2 gives indicates how well the model

generalizes and should be very close to the value of R^2. The Adjusted R^2 is 0.130 and therefore very close to the R^2 indicating that the cross variability of the model is very good.

Table 4.32b below presents results of the models overall significance in the form of analysis of variance (ANOVA). According to Field (2013) ANOVA tests whether the model is significantly better at predicting the outcome than using the mean as a best guess.

Table 4.32b: ANOVA for MFI's and Consumption Expenditure

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.920	3	1.973	15.862	.000b
	Residual	36.823	296	.124		
	Total	42.743	299			

Source: Study data, (2016)

Significance level = 0.05

a. Dependent Variable: Increase in consumption expenditure

b. Predictors: (Constant), Microsavings, Access to Credit, Microinsurance

Table 4.32b above shows that the model is statistically significant with P< 0.05 (p=0.000). According to Saunders, Lewis and Thornhill (2009) the F-ratio represents the ratio of the improvement in prediction that results from fitting the model, relative to the inaccuracy that still exists in the model. The F-ratio is 15.862 indicating that the model improved our ability to predict the outcome variable better. From the foregoing, the sub-hypothesis, $H0_{5b}$ which states that microfinance interventions does not have a significant

effect on increase in consumption expenditure is hereby not supported and therefore rejected.

This finding is supported by empirical studies carried out by Pitt and Khandaker (1998) Odell (2010), Stewart et.al. (2012), Duvendak et.al (2011) all of whom found significant relationship between microfinance intervention and increase in consumption expenditure. However, studies in Peru by Augsburg, Haas, Harmgart and Meghir (2015) found no significant effect on business consumption but rather a significant decrease in food consumption.

Table 4.32c below presents results of the regression coefficient (beta values) for microfinance interventions and increase in consumption expenditure.

Table 4.32c: Coefficients for MFI's and Consumption Expenditure

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1 (Constant)	2.525	.155		16.308	.000		
Microsavings	-.062	.029	-.157	-2.140	.033	.542	1.845
Access to credit	.138	.038	.201	3.633	.000	.953	1.049
Microinsurance	-.199	.062	-.233	-3.203	.002	.551	1.816

Source: Study data, (2016)

Significance level = 0.5

a. Dependent Variable: Increase in consumption expenditure

Results from table 4.32c above indicate that all three predictors are statistically significant microfinance interventions indicators in explaining increase in consumption expenditure as a poverty indicator. Table 4.32c above indicate that Microsavings and microinsurance with beta values of -0.062 and -0.199 respectively are inversely related to

increase in consumption expenditure. The implication is that as increase in consumption expenditure increases by one unit, Microsavings and microinsurance by 6.2 percent and 19.9 percent respectively. The regression function for the sub-hypothesis ($H0_{1b}$) is therefore extracted as follows:

$Y_{1b} = 2.525 - 0.062X_1 + 0.138X_2 - 0.199X_3$

Where Y_{1b} = Increase in consumption expenditure, X_1 = Microsavings, X_2 = Access to Credit and X_3 is Microinsurance.

The above findings is supported by empirical studies by Augsburg et.al. (2011) whose studies in Peru found an inverse relationship between increase in consumption expenditure and Microsavings. Studies by Brune, Giné, Goldberg and Yang (2011) however found no significant impact on expenditure from microfinance interventions.

4.4.18 Microfinance interventions and Acquisition of Business Assets $H0_{5c}$

Table 4.33a to 4.33c presents the results of the above sub hypothesis. In table 4.33a below, the final output of the regression function is modelled by taking microfinance interventions as the predictor variable and acquisition of business assets as the outcome variable.

Table 4.33a: Model Summary for MFI and Acquisition of Business Assets

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.787a	0.620	0.616	0.46027	0.620	160.824	3	296	0.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Microinsurance, Access to credit, Microsavings

b. Dependent Variable: Acquisition of business assets

Table 4.33a above indicate a strong positive correlation between Microfinance interventions and acquisition of business assets (78.7 percent). The resultant R^2 which is a measure of the amount of variability in one variable that is shared by the other variables is = 0.620. The implication is that microfinacne interventions account for 62% of acquisition of business assets. The adjusted R^2 which gives an indication of how well the model generalizes and should be very close to the value of R^2 is 0.616 The Adjusted R^2 is 0.616 and therefore very close to the R^2 indicating that the cross variability of the model is very good.

The overall significance of the model is presented in Table 4.33b below in the form of an analysis of variance (ANOVA).

Table 4.33b: ANOVA for MFI and Acquisition of Business Assets

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	102.210	3	34.070	160.824	.000b
	Residual	62.707	296	0.212		
	Total	164.917	299			

Source: Study data, (2016)

Significance level = 0.05

a. Dependent Variable: Acquisition of business assets

b. Predictors: (Constant), Microsavings, Access to Credit, Microinsurance

Table 4.33b above shows that the model overall is statistically significant with P< 0.05 (p=0.000). The F-ratio is 160.824 indicating that the model significantly improved our ability to predict the outcome variable. From the foregoing, the sub-hypothesis, $H0_{2c}$ which states that microfinance interventions do not have a significant effect on acquisition of business asset is hereby rejected.

Table 4.33c presents results of the regression coefficient for microfinance interventions and acquisition of business assets to determine the significance of microfinance interventions on acquisition of business assets.

Table 4.33c: Coefficients for MFI and Acquisition of Business Assets

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1.093	0.202		5.409	0.000		
Microsavings	0.566	0.038	0.728	14.954	0.000	0.542	1.845
Access to credit	-0.225	0.050	-0.167	-4.544	0.000	0.953	1.049
Microinsurance	0.185	0.081	0.111	2.288	0.023	0.551	1.816

a. Dependent Variable: Acquisition of household assets

b. Significance Level = 0.05

Source: Study data, (2016)

The findings from table 4.33c above indicate that microsavings with a P value of 0.00, access to credit with a p value of 0.00 and microinsurance with a p value of 0.023 are statistically significant in predicting the effect of microfinance interventions on acquisition of business asset as a poverty indicator. While Microsavings and microinsurance have positive beta values of 0.566 and 0.185 indicating that there is a

positive relationship between the predictors and the outcome, access to credit has an inverse relationship with the outcome variable. The implication is that an increase in a unit of microsavings will result in a 56.6% increase in acqusisition of business asset, similarly an increase in a unit of microinsurance will result in an increase of 18.5% increase in acquisition of business asset. An increase in a unit of access to credit will however result in a decrease of 22.5% in acquisition of business asset. The regression function for the sub-hypothesis ($H0_{5c}$) is therefore extracted as follows:

$Y_3 = 1.093 + 0.566X_1 - 0.225X_2 + 0.185X_3$

Where Y_3 = Acquisition of business asset, X1 = Microsavings, X2 = Access to Credit and X_3 Microinsurance.

The above findings on acquisition of business asset is supported by empirical studies by Bruno et.al., (2011) who conducted a study in Malawi on microfinance interventions and found significant positive relationship between microfinance interventions and acquisition of household assets. Similarly Odell (2010) who conducted a study for the Grameen Foundation on measuring the impact of microfinance also found significant growth in acquisition of business assets.

4.4.19 Microfinance interventions and ability to educate children $H0_{1d}$

Table 4.34a to 4.34c presents the results of the above sub hypothesis. In table 4.34a below, the output of the regression function is modelled by taking microfinance interventions as the predictor variable and ability to educate children as the outcome variable.

Table 4.34a: Model Summary for MFI's and ability to educate children

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.759a	.576	.571	.48583	.576	133.911	3	296	.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Rate of savings, Interest rates, Type of savings

b. Dependent Variable: Ability to educate children

From table 4.34a above, a high positive correlation is observed between microfinance interventions and ability to educate children (r =0.759). The results further indicate that microfinance interventions accounts for 57.6 percent of ability to educate children (R^2 = 0.576). The adjusted R^2 is 57.1 percent indicating that the cross-variability of this model is very good.

The overall significance of the model is presented in Table 4.34b below in the form of ANOVA

Table 4.34b: ANOVA for MFI's and ability to educate children

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	94.821	3	31.607	133.911	.000b
	Residual	69.865	296	.236		
	Total	164.686	299			

Source: Study data, (2016)

a. Dependent Variable: Ability to educate children

b. Predictors: (Constant), Microsavings, Access to Credit, Microinsurance

The findings of table 4.34b above indicate that the overall model is statistically significant with a P-value less than 5 percent (p=0.000). The F statistic is F=133.911 meaning that the model significantly improved our ability to predict the outcome variable. From the foregoing, the sub-hypothesis, $H0_{1d}$ which states that microfinance interventions does not have significant effect on ability to educate children is hereby rejected.

The regression coefficient (beta) is presented in Table 4.34c for microfinance interventions and ability to educate children.

Table 4.34c: Coefficients for MFI's and ability to educate children

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	-1.968	.213		-9.226	.000		
Microsavings	-.040	.040	-.052	-1.006	.315	.542	1.845
Access to credit	.697	.052	.517	13.323	.000	.953	1.049
Microinsurance	.857	.085	.511	10.025	.000	.551	1.816

Source: Study data, (2016)

a. Dependent Variable: Ability to educate children
b. Signifincance level = 0.05

Table 4.34c above indicate that microsavings with a p value of 0.315 is not statistically significant in predicting ability to educate children as a poverty indicator. Access to credit with a p-value of 0.00 and microinsurance with a p-value of 0.00 are statistically signifincant in predicting ability to educate children. The beta values tell us the extent to which each predictor affects the outcome variable if the effects of all other predictors are

held constant. The beta for access to credit is 0.697 while the beta for microinsurance is 0.857. The implication of these positive betas is that as access to credit increases by one unit, ability to educate children will increase by 69.7 percent, similarly an increase in microinsurance by one unit will result in an increase in ability to educate children by 85.7 times. The regression function for the sub-hypothesis ($H0_{5d}$) is extracted as follows:

$Y_4 = 1.968 + 0.697X_2 + 0.857X_3$

Where Y_4 = Ability to educate children, X_2 = Access to Credit and X_3 Microsavings.

The above findings suggest that microfinance interventions improved the ability to educate children of respondents in Central Region of Ghana. These findings are consistent with empirical findings by Duvendak et. al, (2011), Pitt and Khandaker 1998 and Armendariz and Morduch (2010) but at variance with Roodman and Morduch (2013) who found insignificant coefficients on credit, on female labour supply, and girls' and boys' school enrolment

4.4.20 Moderating effect of Regulatory Framework (composite) $H0_5$

The objective of this hypothesis was to ascertain moderating effect of regulatory framework on the relationship between microfinance interventions and poverty reduction. Regulatory framework was sub divided into liquidity and governance. Two sub-hypotheses were therefore formulated for each of the sub scales of regulatory framework (liquidity and governance). For the purpose of establishing moderation using Hayes (2013) approach, all categorical variables were dummy codded, the variables were centered and the interaction effect was manually created. Table 4.35a below presents results of the moderation analysis.

Table 4.35a: Moderation Output:

****
Model = 1
Y = Poverty_
X = Micro_Int
M = Regulato
Sample size 300
****
Outcome: Poverty_

Model Summary						
R	**R^2**	**MSE**	**F**	**df1**	**df2**	**P**
0.8083	0.6534	0.0855	249.3202	3	296	0.0000
Model						
	Coeff	**Se**	**T**	**P**	**LLCI**	**ULCI**
Constant	-1.8452	0.9413	-1.9602	0.0509	-3.6977	0.0074
Regulato	0.6429	0.2885	2.2281	0.0266	0.0750	1.2107
Micro_Int	1.4608	0.3347	4.3540	0.0000	0.8020	2.1196
int_1	-0.2101	0.1018	-2.0648	**0.0398**	-0.4103	-0.0098

Source: Study data, (2016)

int_1 Micro_Int X Regulato

Where Regulato = Regulatory framework and Micro_Int = microfinance interventions

According to Field (2013) in analysing moderation effect, emphasis should be placed on the interaction between the moderator, the predictor and the outcome. Additionally, the confidence interval should not cross zero. Results from table 4.35a above shows that the interaction between regulatory framework, microfinance interventions and poverty reduction is significant at the 95% confidence interval given that $\beta = -0.2101, 95\%\ \mathrm{CI}[-0.4103, -0.0098], t = -2.0648, p = 0.0398.$ It is also significant to note that the confidence interval does not pass through zero meaning that there is moderation.

The next step of determining moderation effect is to analyse the magnitude of the R^2 change and the conditional effect of X on Y at values of the moderator. Table 4.35b below presents the analysis of the R^2 change and the conditional effects.

Table 4.35b: R-square increase due to Interaction(s):

	R^2-chng	F	df1	df2	P	
int_1	0.0034	4.2635	1	296	0.0398	
Conditional effect of X on Y at values of the moderator(s):						
Regulato	Effect	Se	T	P	LLCI	ULCI
2.9153	0.8483	0.0471	17.9970	0.0000	0.7555	0.9411
3.1964	0.7892	0.0306	25.8256	0.0000	0.7291	0.8494
3.4776	0.7302	0.0358	20.3870	0.0000	0.6597	0.8007

Source: Study data, (2016)

Values for quantitative moderators are the mean and plus/minus one SD from mean.

Values for dichotomous moderators are the two values of the moderator.

Results from table 4.35b shows the R^2 change of 0.034 is significant given p=0.0398. The conditional effect of X on Y at the interaction of the moderator are all statistically significant with P<0.05. For instance when regulatory framework is at 2.9153 there appears to be a significant positive relationship between microfinance intervention and poverty reduction $\beta = 0.8483, 95\%\ \ CI[0.7555, 0.9411], t = 17.9977, p = 0.0000.$

Similar observations are made when regulatory framework is at 3.196 and 3.4776 respectively. The results tell us that the relationship between microfinance intervention and poverty reduction is moderated by regulatory framework. Accordingly, the null hypothesis $H0_5$ which states that regulatory framework does not have a statistically

significant moderating effect on the relationship between microfinance interventions and poverty reduction in Central Region of Ghana is rejected.

4.4.21 Moderating effect of liquidity Position $H0_{5a}$

The objective of this hypothesis was to ascertain the moderating effect of liquidity position on the relationship between microfinance interventions and poverty reduction. Table 4.36a below presents results of the moderation analysis using Hayes (2013) techniques.

Table 4.36a: Moderation Output:

```
**************************************************************************
Model = 1
    Y = Poverty_
    X = Micro_Int
    M = Liquidit

Sample size 300

**************************************************************************
Outcome: Poverty_
```

Model Summary						
R	**R^2**	**MSE**	**F**	**df1**	**df2**	**P**
0.8062	0.6499	0.0863	183.1596	3	296	0.000
Model						
	Coeff	**Se**	**T**	**p**	**LLCI**	**ULCI**
Constant	-1.1645	0.9437	-1.2339	0.2182	-3.0218	0.6928
Liquidit	0.4159	0.2839	1.4650	0.1440	-0.1428	0.9746
Micro_Int	1.2779	0.3584	3.5660	0.0004	0.5727	1.9832
int_1	-0.1479	0.1074	-1.3767	**0.1697**	-0.3592	0.0635

Source: Study data, (2016)

```
 int_1    Micro_Int    X     Liquidit
```

Where liquidit = Liquidity, Micro_Int = Microfinance interventions and int_1 is the interaction of the moderation effect.

Results from table 4.36a above shows that the interaction between liquidity, microfinance interventions and poverty reduction is not significant given P>0.05. $\beta = -0.1479, 95\%\ CI[-0.3592, 0.0635], t = 1.3767, p = 0.1697$. Table 4.36a above also shows that the confidence interval passes through zero and therefore there is no moderation. Accordingly the null hypothesis $H0_{5a}$ which states that liquidity does not have a statistically significant moderating effect on the relationship between microfinance interventions and poverty reduction is supported.

Table 4.36b presents the analysis of the R^2 change and the conditional effects of X on Y at values of the moderator.

Table 4.36b: R-square increase due to Interaction(s):

	R^2-chng	F	df1	df2	P	
int_1	0.0022	1.8952	1	296	0.1697	
Conditional effect of X on Y at values of the moderator(s):						
Liquidit	Effect	Se	T	P	LLCI	ULCI
2.9610	0.8401	0.0515	16.3173	0.000	0.7388	0.9415
3.2890	0.7916	0.0341	23.2277	0.000	0.7246	0.8587
3.6171	0.7431	0.0464	16.0089	0.000	0.6518	0.8345

Source: Study data, (2016)

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

Results from table 4.36b shows that the R^2 change is only 0.0022 or 0.22 percent which is not significant given that P=0.1697. Accordingly, there is no statistically significant relationship between liquidity, microfinance interventions and poverty reduction.

4.4.22 Moderating effect of Corporate Governance Practices $H0_{5b}$

The objective of this sub hypothesis was to ascertain the moderating effect of corporate governance practices on the relationship between microfinance interventions and poverty reduction. Table 4.37a presents results of the moderation analysis.

Table 4.37a: Moderation Output:

```
**************************************************************************
Model = 1
   Y = Poverty_
   X = Micro_Int
   M = Governan
Sample size 300
**************************************************************************
Outcome: Poverty_
```

Model Summary						
R	**R^2**	**MSE**	**F**	**df1**	**df2**	**P**
0.8078	0.6526	0.0857	185.3111	3	296	0.000
Model						
	Coeff	**Se**	**T**	**P**	**LLCI**	**ULCI**
Constant	-0.8736	0.7272	-1.2014	0.2306	-2.3048	0.5575
Governan	0.3509	0.2331	1.5050	0.1334	-0.1080	0.8097
Micro_Int	1.1180	0.2756	4.0562	0.0001	0.5755	1.6604
int_1	-0.1067	0.0883	-1.2089	**0.2277**	-0.2804	0.0670

Source: Study data, (2016)

int_1 Micro_Int X Governan

Where Governan = Corporate Governance Practices and,

Micro_Int = Microfinance interventions

Results from table 4.37a above shows that the interaction between governance, microfinance interventions and poverty reduction is not statistically significant at the 95 percent confidence interval given that

$\beta = -0.1067, 95\%\ CI[-0.2804, 0.06670], t = -1.209, p = 0.2277.$ Table 4.37a above also shows that the confidence interval passes through zero.

Table 4.37b below presents the analysis of the R^2 change and the conditional effects.

Table 4.37b: R-square increase due to Interaction(s):

	R^2-chng	F	df1	df2	P	
int_1	0.0017	1.4614	1	296	0.2277	
Conditional effect of X on Y at values of the moderator(s):						
Governan	Effect	Se	T	p	LLCI	ULCI
2,6846	0.8315	0.0497	16.7288	0.000	0.7337	0.9294
3,0883	0.7885	0.0336	23.4493	0.000	0.7223	0.8546
3,4921	0.7454	0.0483	15.4413	0.000	0.6504	0.8404

Source: Study data, (2016)

Values for quantitative moderators are the mean and plus/minus one SD from mean.

Values for dichotomous moderators are the two values of the moderator.

Results from table 4.37b shows that the R^2 change is only 0.0017 or 0.17 percent which is not significant given that P=0.2277. The conditional effect of X on Y at the interaction of the moderator are however significant at high levels of liquidity. Accordingly the null hypothesis $H0_{5b}$ which states that governance does not have a statistically significant moderating effect on the relationship between microfinance interventions and poverty reduction is supported and failed to be rejected

4.4.23 Effect of Regulatory Framework on MFI and Growth in Income $H0_{5c}$

Having found the composite of regulatory framework to be statistically significant in moderating the relationship between microfinance intervention and poverty reduction, it became necessary to access the nature and strength of the relationships between the

predictors and outcome as well as the predictive power of the model when regulatory framework is combined with microfinance interventions.

Results of the regression output are captured from table 4.38a to table 4.38c below. Table 4.38a below captures the results of the nature and strength of the relationships between the predictors and the outcome and the predictive power of the input in explaining the outcome growth in income.

Table 4.38a: Model Summary – Regulatory Framework and Growth in Income

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.789[a]	0.623	0.618	0.47887	0.623	121.537	4	294	0.000

Source: Study data, (2016)

a. Predictors: (Constant), Regulatory framework, Access to credit, Microinsurance, Microsavings

b. Dependent Variable: Growth in income

Table 4.38a show a strong positive correlation (R=0.789) between the predictor, (microfinance interventions), the moderator (regulatory framework) and the outcome (growth in income). Table 4.38a above further indicate that a combination of the three variables jointly accounts for 62.3 percent (R^2 = 0.623) of growth in income. The adjusted R^2 is 0.618 percent indicating that the cross-variability of this model is very good.

While testing sub-hypothesis $H0_{5a}$ in Table 4.31a above, the study found that microfinance interventions (without regulatory framework) accounted for 62.1 percent (R2 = 0.621) of poverty reduction compared to the 62.3% (R^2 = 0.623) accounted for by

the inclusion of regulatory framework. This suggests that some predictive power was added to the model with the inclusion of regulatory framework. Consequently, the null hypothesis ($H0_{5c}$) which states that the joint influence of regulatory framework and microfinance interventions do not have a statistically significant effect on growth in income greater than the influence of microfinance interventions alone is not supported and hereby rejected.

Table 4.38b below presents the significance of the model.

Table 4.38b: ANOVA for Regulatory Framework and Growth in Income

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	111.480	4	27.870	121.537	.000[b]
	Residual	67.418	294	0.229		
	Total	178.899	298			

Source: Study data, (2016)

a. Dependent Variable: Growth in income

b. Predictors: (Constant), Regulatory framework, Access to credit, Microinsurance, Microsavings

Table 4.38b above indicate that the overall model is statistically significant given that P<0.05 and F-ratio is 121.537.

Table 4.38c presents results of the regression coefficient (beta values) for the combined effect of regulatory framework and microfinance interventions on the outcome variable growth in income.

Table 4.38c: Coefficients Regulatory Framework and Growth in Income

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	0.732	0.365		2.007	0.046		
	Microsavings	0.621	0.039	0.766	15.736	0.000	0.541	1.850
	Access to credit	-0.191	0.052	-0.135	-3.683	0.000	0.953	1.050
	Microinsurance	0.094	0.085	0.054	1.111	0.268	0.547	1.827
	Regulatory framework	0.124	0.099	0.045	1.254	0.211	0.991	1.009

Source: Study data, (2016)

a. Dependent Variable: Growth in income

Results from table 4.38c above indicate that microinsurance and regulatory framework with P values of 0.268 and 0.211 respectively are not statistically significant in predicting growth in income as a poverty outcome. Comparing the outcome to table 4.31c, it is instructive to note that the inclusion of regulatory framework weakened the significance level of microinsurance from 0.232 to 0.268 supporting the conclusion that regulatory framework significantly moderate the relationship between microfinance interventions and growth in income. Accordingly, the regression function for the sub-hypothesis ($H0_{5c}$) is extracted as follows:

$Y_1 = 0.732 + 0.621X_1 - 0.191X_2$

Where Y_1 = Growth in income, X_1 = Microsavings and X_2 = Access to credit.

4.4.24 Effect of Moderator on MFI and Consumption Expenditure $H0_{5d}$

Results from the above sub hypothesis are captured in table 4.39a – 4.39c. Table 4.39a below captures the nature and strength of the relationship between the predictors and the

outcome are captured as well as the predictive power of the input in explaining the outcome (increase in consumption expenditure).

Table 4.39: Model for Regulatory Framework and Consumption Expenditure

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.372[a]	0.139	0.127	0.35330	0.139	11.858	4	295	0.000

Source: Study data, (2016)

a. Predictors: (Constant), Regulatory framework, Access to credit, Microinsurance, Microsavings

b. Dependent Variable: Increase in consumption expenditure

Table 4.39a above shows a weak positive correlation (r=0.372) between the predictors microfinance interventions and regulatory framework and increase in consumption expenditure as the outcome variable. The results above further indicate that a combination of the three variables jointly accounts for 13.9 percent (R^2 = 0.139) of increase in consumption expenditure. The adjusted R^2 is 0.127 percent indicating that the cross-variability of this model is very good.

While testing sub-hypothesis $H05_b$ in Table 4.32a above, the study found that microfinance interventions (without regulatory framework) accounted for 13.9 percent (R2 = 0.139) of poverty reduction similar to the findings above with the only difference being the adjusted R^2 of 0.130 as against 0.127 above accounted for by the inclusion of regulatory framework.

The above findings suggests that the inclusion of the moderator did not have any significant effect greater than the outcome of microfinance interventions tested singly on the dependent variable increase in consumption expenditure. Therefore the sub hypothesis $H0_{5d}$ which states that the joint influence of regulatory framework and microfinance interventions do not have a significant effect on increase in consumption expenditure greater than the influence of microfinance interventions tested singly is hereby supported and failed to be rejected.

The significance level of the model is presented in Table 4.39b below.

Table 4.39b ANOVA - Regulatory Framework Consumption Expenditure

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.921	4	1.480	11.858	.000[b]
	Residual	36.822	295	0.125		
	Total	42.743	299			

Source: Study data, (2016)

a. Dependent Variable: Increase in consumption expenditure

b. Predictors: (Constant), Regulatory framework, Access to credit, Microinsurance, Microsavings

Table 4.39b above indicate that the overall model is statistically significant since $P<0.05$ and F-ratio is 11.858.

Table 4.39c below presents results of the regression coefficient (beta values) for the combined effect of regulatory framework and microfinance interventions on increase in consumption expenditure.

Table 4.39c: Coefficients - Regulatory Framework and Consumption Expenditure

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	2.507	0.269		9.329	0.000		
	Microsavings	-0.062	0.029	-0.157	-2.136	0.033	0.542	1.845
	Access to credit	0.138	0.038	0.201	3.622	0.000	0.952	1.050
	Microinsurance	-0.199	0.062	-0.233	-3.196	0.002	0.548	1.824
	Regulatory framework	0.006	0.073	0.004	0.079	0.937	0.991	1.010

Source: Study data, (2016)

a. Dependent Variable: increase in consumption expenditure

Results from table 4.39c above indicate that Microsavings, access to credit and microinsurance are statistically significant with P values less than 0.05 respectively. Table 4.39c above also indicate that regulatory framework is not significant with P>0.05. The above results is similar to the findings of table 4.32c where all three variables were significant with beta coefficient of -0.062 for Microsavings, 0.138 for access to credit and -0.199 for microinsurances an indication that the inclusion of regulatory framework has an insignificant relationship on the output greater than the outcome when microfinance interventions are tested singly. The regression function is extracted as follows:

$Y_2 = 2.507 - 0.621X_1 + 0.138X_2 – 0.199X_3$

Where Y_1 = Increase in consumption expenditure, X_1 = Microsavings, X_2 = Access to credit and X3 is Microinsurance.

4.4.25 Effect of Regulatory Framework on MFI and Acquisition of Business Assets

Results from the above sub hypothesis are captured in table 4.40a – 4.40c. Table 4.40a below captures the nature and strength of the relationship between the predictors and the outcome as well as the predictive power of the input in explaining the outcome (acquisition of business asset).

Table 4.40a: Model - Regulatory Framework and Acquisition of Business Assets

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.790[a]	0.624	0.619	0.45836	0.624	122.488	4	295	0.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Regulatory framework, Microinsurance, Access to credit, Microsavings

b. Dependent Variable: Acquisition of household assets

Table 4.40a above indicate a strong positive correlation between Microfinance interventions and acquisition of business assets (79.0 percent). The results also show that microfinance interventions accounts for 62.4 percent of acquisition of business assets (R^2 = 0.624). While testing sub-hypothesis $H05_c$ in Table 4.33a above, the study found that microfinance interventions (without regulatory framework) accounted for 62.0 percent (R2 = 0.620) of acquisition of business assets compared to the 62.4% (R^2 = 0.624) accounted for by the inclusion of regulatory framework.

The above suggests that some predictive power was added to the model with the inclusion of regulatory framework. Consequently, the null hypothesis which states that

the joint influence of regulatory framework and microfinance interventions do not have a significant moderating effect on acquisition of business assets greater than the single influence of microfinance interventions on acquisition of business assets is not supported and hereby rejected.

Table 4.40b below presents the overall significance of the model in the form of an analysis of variance (ANOVA).

Table 4.40b: ANOVA Regulatory Framework and Acquisition of Assets

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	102.938	4	25.734	122.488	.000[b]
	Residual	61.979	295	0.210		
	Total	164.917	299			

Source: Study data, (2016)

Significance level = 0.05

a. Dependent Variable: Acquisition of business assets

b. Predictors: (Constant), Regulatory framework, Microsavings, Access to Credit, Microinsurance

Table 4.40b above shows that the overall model is statistically significant with P< 0.05 (p=0.000). The F-ratio is 122.488 indicating that the model significantly improved our ability to predict the outcome variable.

Table 4.40c below presents results of the regression coefficient for the combined effect of regulatory framework, microfinance interventions and acquisition of business assets to establish whether the combined effect of regulatory framework and microfinance interventions have a significant effect in explaining acquisition of business assets.

Table 4.40c: Coefficients Regulatory Framework and Acquisition of Assets

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	0.563	0.349		1.614	0.108		
	Microsavings	0.567	0.038	0.728	15.025	0.000	0.542	1.845
	Access to credit	-0.228	0.049	-0.169	-4.619	0.000	0.952	1.050
	Microinsurance	0.175	0.081	0.104	2.167	0.031	0.548	1.824
	Regulatory framework	0.176	0.095	0.067	1.861	0.064	0.991	1.010

Source: Study data, (2016)

a. Dependent Variable: Acquisition of Business Assets

The findings from table 4.40c above indicate that regulatory framework is not statistically significant. While Microsavings and microinsurance have positive beta values of 0.567 and 0.175 indicating that there is a positive relationship between the predictors and the outcome, access to credit on the other hand has an inverse relationship with the outcome variable. The result above is synonymous with the finding of table 4.33c above. The regression function for the sub-hypothesis ($H0_{5e}$) is extracted as follows:

$$Y_{5c} = 0.563 + 0.567X_1 - 0.228X_2 + 0.175X_3$$

Where Y_{5c} = Acquisition of business asset, X_1 = Microsavings, X_2 = Access to Credit and X_3 Microinsurance.

4.4.26 Effect of Regulatory Framework on MFIs and Ability to Educate Children $H0_{5f}$

Results from the above sub hypothesis are captured in table 4.41a – 4.41c. Table 4.41a below captures the nature and strength of the relationship between the predictors and the outcome as well as the predictive power of the input in explaining the outcome (ability to educate children).

Table 4.41a: Model - Regulatory Framework and Ability to Educate Children

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.759a	0.576	0.570	0.48650	0.576	100.204	4	295	0.000

Source: Study data, (2016)

Significance Level = 0.05

a. Predictors: (Constant), Regulatory framework, Microinsurance, Access to credit, Microsavings

b. b. Dependent Variable: Ability to educate children

Table 4.41a above indicate a strong positive correlation between Microfinance interventions and acquisition of business assets (75.9 percent). The results also show that microfinance interventions accounts for 57.6 percent of ability to educate children (R^2 = 0.576). While testing sub-hypothesis $H05_d$ in Table 4.34a above, the study found that microfinance interventions (without regulatory framework) also accounted for 57.6 percent (R2 = 0.576) of poverty reduction similar to the results above with the inclusion of regulatory framework.

The above findings suggest that no predictive power was added or removed from the model with the inclusion of regulatory framework. Consequently, the null hypothesis which states that the joint influence of regulatory framework and microfinance interventions do not have a significant effect on ability to educate children is supported and upheld.

Table 4.41b below presents the overall significance of the model in the form of an analysis of variance (ANOVA).

Table 4.41b: ANOVA of Moderator and Ability to Educate Children

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	94.865	4	23.716	100.204	.000b
	Residual	69.820	295	0.237		
	Total	164.686	299			

Source: Study data, (2016)

Significance level = 0.05

a. Dependent Variable: Ability to educate children

b. Predictors: (Constant), Regulatory framework, Microsavings, Access to Credit, Microinsurance

Table 4.41b above shows that the overall model is statistically significant with $P< 0.05$ ($p=0.000$). The F-ratio is 100.204 indicating that the model significantly improved our ability to predict the outcome variable.

Table 4.41c presents results of the regression coefficient for the combined effect of regulatory framework, microfinance interventions and ability to educate children to

establish whether the combined effect of regulatory framework and microfinance interventions have a significant effect on ability to educate children.

Table 4.41c: Coefficients of Moderator and Ability to Educate Children

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-2.098	0.370		-5.669	0.000		
	Microsavings	-0.040	0.040	-0.052	-1.002	0.317	0.542	1.845
	Access to credit	0.696	0.052	0.516	13.285	0.000	0.952	1.050
	Microinsurance	0.854	0.086	0.510	9.959	0.000	0.548	1.824
	Regulatory framework	0.043	0.101	0.016	0.432	0.666	0.991	1.010

Source: Study data, (2016)

a. Dependent Variable: Ability to educate children.

b. Significance level =0.05

The findings from table 4.41c above indicate that Microsavings and regulatory framework are not statistically significant. While access to credit and microinsurance are positively related to ability to educate children with beta values of 0.696 and 0.854. This finding is similar to that of table 4.34c above indicating that regulatory framework does not have a statistically significant relationship on microfinance interventions and ability to educate children. The regression function for the sub-hypothesis ($H0_{5d}$) is modelled as follows:

$$Y_{5d} = 2.098 + 0.696X_2 + 0.854X_3$$

Where Y_{5d} = Ability to educate children, X_2 = Access to Credit and X_3 Microinsurance.

4.5 Summary of Hypothesis

Table 4.42 presents a summary of the research findings. In All the study tested 26 hypotheses at a significance level of 0.05 using multiple regression analysis.

SUMMARY OF HYPOTHESES			
Hypothesis	**Results**	**Decision**	Findings and Conclusions
H_{01a}: Micro Savings does not have a statistically significant effect on growth in income in Central Region of Ghana	P<0.05	Rejected	Micro savings has a strong positive effect on growth in income at the 0.05 significance level
H_{01b}: Micro Savings does not have a statistically significant effect on consumption expenditure in Central Region of Ghana	P<0.05	Rejected	Micro savings has a weak positive effect on consumption expenditure at the 0.05 significance level
H_{01c}: Micro Savings does not have a statistically significant effect on acquisition of business assets in Central Region of Ghana	P<0.05	Rejected	Micro savings has a strong positive effect on acquisition of business asset at 0.05 significance level
H_{01d}: Micro Savings does not have a statistically significant effect on ability to educate children in Central Region of Ghana	P<0.05	Rejected	Micro savings has a moderate positive effect on ability to educate children at the 0.05 significance level
H_{01}: Micro Savings does not have a statistically significant effect on poverty reduction in Central Region of Ghana	P<0.05	Rejected	Micro savings has a significant effect on poverty reduction at the 0.05 significance level
H_{02a}: Access to Credit does not have a statistically significant effect on growth in income in Central Region of Ghana	P<0.05	Rejected	Access to credit has a weak positive effect on growth in income at the 0.05 significance level
H_{02b}: Access to Credit does not have a statistically significant effect on consumption expenditure in Central Region of Ghana	P<0.05	Rejected	Access to credit has a weak positive effect on increase in consumption expenditure at the 0.05 significance level
H_{02c}: Access to Credit does not have a statistically significant effect on acquisition of business assets in Central Region of Ghana	P<0.05	Rejected	Access to credit has a weak positive effect on acquisition of business assets at the 0.05 significance level
H_{02d}: Access to Credit does not have a statistically significant effect on ability to educate children in Central Region of Ghana	P<0.05	Rejected	Access to credit has a strong positive effect on ability ot educate children at the 0.05 significance level
H_{02}: Access to Credit services does not have a statistically significant effect on poverty reduction in Central Region of Ghana	P<0.05	Rejected	Access to credit has a significant effect on poverty reduction at the 0.05 significance level

Source: Study data, (2016)

SUMMARY OF HYPOTHESES – Continued			
Hypothesis	**Results**	**Decision**	Findings and Conclusions
H_{03a}: Micro Insurance does not have a statistically significant effect on growth in income in Central Region of Ghana	P<0.05	Rejected	Micro Insurance has a strong positive effect on growth in income at the 0.05 significance level
H_{03b}: Micro Insurance does not have a statistically significant effect on consumption expenditure in Central Region of Ghana	P<0.05	Rejected	Micro Insurance has a moderate positive effect on increase in consumption expenditure at the 0.05 significance level
H_{03c}: Micro Insurance does not have a statistically significant effect on acquisition of household and or business assets in Central Region of Ghana	P<0.05	Rejected	Micro Insurance has a strong positive effect on acquisition of business asset at 0.05 significance level
H_{03d}: Micro Insurance does not have a statistically significant effect on ability to educate children in Central Region of Ghana	P<0.05	Rejected	Micro Insurance has a moderate positive effect on ability to educate children at the 0.05 significance level
H_{03}: Micro Insurance does not have a statistically significant effect on poverty reduction in Central Region of Ghana	P<0.05	Rejected	Micro Insurance has a significant effect on poverty reduction at the 0.05 significance level
H_{04a}: Microfinance interventions does not have a statistically significant effect on growth in income in Central Region of Ghana	P<0.05	Rejected	Microfinance Interventions has a strong positive effect on growth in income at the 0.05 significance level
H_{04b}: Microfinance interventions does not have a statistically significant effect on consumption expenditure in Central Region of Ghana	P<0.05	Rejected	Microfinance Interventions has a weak positive effect on increase in consumption expenditure at the 0.05 significance level
H_{04c}: Microfinance interventions does not have a statistically significant effect on acquisition of household and or business assets in Central Region of Ghana	P<0.05	Rejected	Microfinance Interventions has a strong positive effect on acquisition of business asset at 0.05 significance level
H_{04d}: Microfinance interventions does not have a statistically significant effect on ability to educate children in Central Region of Ghana	P<0.05	Rejected	Microfinance Interventions has a strong positive effect on ability to educate children at the 0.05 significance level

Source: Study data, (2016)

SUMMARY OF HYPOTHESES – Continued			
Hypothesis	**Results**	**Decision**	Findings and Conclusions
H_{05}: Regulatory framework does not have a statistically significant moderating effect on the relationship between microfinance interventions and poverty reduction (Composite)	P<0.05	Rejected	Regulatory (composite) has a significant moderating effect on the relationship between microfinance interventions and poverty reduction
H_{05a}: Liquidity does not have a statistically significant moderating effect on the relationship between microfinance interventions and poverty reduction	P=0.1697; CI[-0.3592,0.0635]	DNR H_{05a}	Liquidity has no moderating effect on the relationship between microfinance interventions and poverty reduction
H_{05b}: Governance does not have a statistically significant moderating effect on the relationship between microfinance interventions and poverty reduction	P=0.228; CI[-0.2804, 0.0667]	DNR H_{05b}	Governance has no moderating effect on the relationship between microfinance interventions and poverty reduction
H_{05c}: The joint influence of regulatory framework and microfinance interventions does not have a statistically significant effect on growth in income greater than the single influence of microfinance interventions on growth in income	P<0.05	Rejected	The joint influence of regulatory framework and MFI has significant effect on Growth in income
H_{05d}: The joint influence of regulatory framework and microfinance interventions does not have a statistically significant effect on consumption expenditure greater than the single influence of microfinance interventions on increase in consumption expenditure	P<0.05	DNR H_{05d}	The joint influence of regulatory framework and MFI has no effect increase in increase in consumption expenditure
H_{05e}: The joint influence of regulatory framework and microfinance interventions does not have a statistically significant effect on acquisition of business assets greater than the single influence of microfinance interventions on acquisition of business Asset	P<0.05	Rejected	The joint influence of regulatory framework and MFI has significant effect on acquisition of business assets
H_{05f}: The joint influence of regulatory framework and microfinance interventions does not have a statistically significant effect on ability to educate children greater than the single influence of microfinance interventions on ability ot educate children	P<0.05	DNR H_{05f}	The joint influence of regulatory framework and MFI has no effect on ability to educate children

Source: Study data, (2016)

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses the findings and implications of the study and their significance and contributions to theory and practice. The chapter is divided into four sections. The first section discusses the findings of the study and how they are related to the research objectives and hypothesis, the second section deals with conclusions drawn from the findings; this is followed by recommendations of the study and suggestions for future study.

5.2 Summary of Findings

The study sought to examine the effect of microfinance interventions on poverty reduction by Micro Small and Medium Enterprises in Central Region of Ghana and determine moderating effect of regulatory framework on the relationship between microfinance interventions and poverty reduction. To achieve this, four specific objectives were formulated in addition to the general objective. As part of the process of drawing conclusions from the study, the study presented the background, the conceptual, theoretical and empirical issues explaining the study. The thesis also highlighted the anticipated value addition from the research effort. This was followed by an overview of the methodology used by justifying the positivist philosophy and the cross sectional research design that was adopted.

Three hundred and seventy clients of microfinance companies who are also entrepreneurs of Micro Small and Medium Enterprises in Central Region of Ghana were surveyed using structured questionnaire. A total of three hundred and thirty responses were received representing 89.1 percent. The data was analysed using descriptive statistics such as frequency distribution, cross tabulations, means and standard deviations as well as Spearmans rank correlation.

Diagnostic tests were performed to avoid violating assumptions of the classical linear regression model and the hypotheses were tested using multiple regression analysis.

5.2.1 Summary of findings on MFI's and Poverty Reduction

The general objective of the study was to determine the effect of microfinance interventions on poverty reduction in the Central Region of Ghana. To this end the researcher hypothesized that there was no significant statistical effect between microfinance interventions as a composite and poverty reduction.

Poverty was measured using the composite of growth in income, increase in increase in consumption expenditure, acquisition of business assets and ability to educate children as proxy for poverty reduction. The study established a statistically significant positive relationship between microfinance interventions and poverty reduction.

The first specific objective of the study was to establish the effect of microsavings on poverty reduction in Central Region of Ghana. To this end the researcher hypothesized that microsavings does not have statistically significant effect on poverty reduction in Central Region of Ghana (H_{01}) and constructed four additional null hypotheses. The four hypothesis measured microsavings against growth in income (H_{01a}), increase in consumption expenditure (H_{01b}) acquisition of business assets (H_{01b}) and ability to educate children (H_{01d}), as proxies for poverty reduction.

Using multiple regression analysis, the study established strong positive relationship between microsavings and poverty reduction, microsavings and growth in income, Microsavings and acquisition of business asset. The study however found a weak positive relationship between microsavings and increase in consumption expenditure and

a moderate positive relationship between microsavings and ability to educate children. This is in line with the theory of life cycle savings which view financial assets as vehicles for transferring resources across different times and outcomes over the life cycle, and that perspective allows households and planners to think about their decisions in a logical and rigorous way.

The second specific objective of the study was to determine the effect of access to credit on poverty reduction in Central Region of Ghana. To this end the researcher hypothesized that access to credit does not have statistically significant effect on poverty reduction in Central Region of Ghana (H_{02}) and constructed four additional null hypothesis The four hypothesis were measured using access to credit against growth in income (H_{02a}), increase in consumption expenditure (H_{02b}), acquisition of business assets (H_{02c}), and ability to educate children (H_{02d}) as indicators of poverty reduction.

The study found weak positive correlations between access to credit and poverty reduction; access to credit and growth in income; access to credit and increase in consumption expenditure and access to credit and acquisition of business asset. The study however found a strong positive correlation between access to credit and ability to educate children. These findings are consistent with the financial intermediation theory which seeks to channel funds from surplus spending units to deficit spending units. The financial intermediation theory is built on the models of resource allocation based on perfect and complete markets by suggesting that it is frictions such as transaction costs and asymmetric information that are important in understanding intermediation.

The third specific objective of the study was to determine the effect of microinsurance on poverty reduction in Central Region of Ghana. To this end the researcher hypothesized that microinsurance does not have statistically significant effect on poverty reduction in Central Region of Ghana (H_{03}). The four additional hypotheses formulated to test the effect were measured using microinsurance and growth in income as the outcome variable (H_{03a}), microinsurance and increase in consumption expenditure (H_{03b}), microinsurance and acquisition of business assets (H_{03c}), and microinsurance and ability to educate children (H_{03d}) as the outcome variable.

The study found strong positive relationship between microinsurance and poverty reduction, microinsurance and growth in income, microinsurance and acquisition of business asset and microinsurance and ability to educate children. The study however found moderate positive relationship between microinsurance and increase in consumption expenditure. These findings are consistent with the financial intermediation theory, the theory of utility and risk as well as the supply leading finance theory.

5.2.2 Summary of findings on the Moderating Effect of Regulatory Framework

The fourth specific objective of the study was to determine the moderating effect of regulatory framework on the relationship between microfinance interventions and poverty reduction in Central Region of Ghana. To this end the researcher hypothesized that regulatory framework does not have a significant moderating effect on the relationship between microfinance interventions and poverty reduction in Central Region of Ghana (H_{05}).

Four additional hypothesis were formulated to test the influence of regulatory framework and microfinacne interventions on growth in income (H_{05c}), the influence of regulatory framework and microfinance interventions on increase in consumption expenditure (H_{05d}), the influence of regulatory framework and microfinance interventions on acquisition of business assets (H_{05e}) and the influence of regulatory framework and microfinance interventions on ability to educate children.

The study found strong positive relationship between the influence of regulatory influence and microfinance interventions on growth in income, acquisition of business asset and ability to educate children. It also established that some predictive power was added to the model with the inclusion of regulatory framework on the outcome variables growth in income and acquisition of business assets. However, no increase was found in the predictive power on ability to educate children when regulatory framework was introduced. The study also found weak positive correlation on the influence of regulatory framework and microfinance interventions on increase in consumption expenditure. It was also established that the inclusion of the moderator (regulatory framework) did not have any significant effect greater than the outcome of microfinance interventions tested singly on increase in consumption expenditure.

5.3 Conclusions

In view of the above findings, the study makes several conclusions in relation to the research objectives and hypothesis. The general objective of the study was to establish the relationship between microfinance interventions and poverty reduction. The study concludes from the test of hypotheses that microfinance intervention overall do have a

statistically significant effect on poverty reduction on entrepreneurs of micro small and medium enterprises in central region of Ghana.

The first specific objective was to establish the effect of microsavings on poverty reduction. The test of hypothesis established a statistically significant positive relationship between microsavings and poverty reduction. With all the sub hypothesis of microsavings being statistically significant, and strongly positively correlated to poverty reduction, the study concludes that microsavings is perhaps the most important microfinance interveniton which influences poverty reduction as compared to the other forms of interventions in this study.

The second specific objective was to establish the effect of access to credit on poverty reduction. The test of hypothesis established a statistically significant weak positive relationship between access to credit and poverty reduction. This implies that although access to credit do have influence on poverty reduction, the effect is not as great as compared to the impact of microsavings on poverty reduction. Merely having access and not utilising it for productive purposes does not guarantee growth in income, increase in consumption expenditure or acquisition of business asset. With the entire sub hypothesis being statistically significant, the study concludes that access to credit influences poverty levels of entrepreneurs of central region of Ghana.

The third specific objective was to establish the effect of microinsurance on poverty reduction. The test of hypothesis established a statistically significant strong positive correlation between microinsurance and poverty reduction. With the entire sub hypothesis having a statistically significant relationship on the outcome variables, the

study concludes that microinsurance positively influences the poverty levels of entrepreneurs of micro small and medium enterprises in Central Region of Ghana. Implication of this is that through microfinance interventions the depth of outreach for insurance products has increased significantly.

The test of hypothesis five sought to ascertain whether regulatory framework have a statistical significant moderating effect on the relationship between microfinance interventions and poverty reduction. Regulatory framework was sub divided into liquidity and governance. Two sub-hypotheses were therefore formulated for each of the sub scales of regulatory framework (liquidity and governance). The test of hypothesis established that the interaction between liquidity, governance and microfinance was not statistically significant on poverty reduction. The test however found the composite of regulatory framework to be statistically significant. Accordingly, the study dropped the variables liquidity and governance and tested for the joint influence of the composite (regulatory framework) on the relationship between microfinance interventions and poverty reduction.

Further tests on the joint relationship between microfinance interventions, regulatory framework and poverty reduction found that the introduction of regulatory framework into the model increased the predictive power of growth in income and acquisition of business asset. The introduction of regulatory framework into the model did not however increase the predictive power of in increase in consumption expenditure and ability to educate children. Accordingly and given the small nature of the predictive power added to growth in income and acquisition of business assets, the study concludes that

regulatory framework has mixed moderating effect on the relationship between microfinance interventions and poverty reduction.

5.4 Recommendations

In line with the study findings and conclusions, the study makes the following recommendations to policy and finance practice. Firstly, since microfinance interventions overall were found to have significant positive influence on poverty reduction, the Central Bank of Ghana should review and strengthen its prudential regulations governing the operations of Non-Bank Financial Institutions Act 774 and the banking Act to ensure the maximum realisation of the benefits of the microfinance programme.

Secondly government should urgently tackle the problem of infrastructure development and maintenance. These include electricity, water and efficient transportation system which impact negatively on the operations of micro small and medium enterprises. Although most of the entrepreneurs in this study were found to have Higher National Diplomas, a greater number of them were commercially oriented. Accordingly, government should develop and embed the existing technical and vocational training programmes into the mainstream educational system of Ghana with particular emphasis on technology and entrepreneurship education to assist the expansion and growth of the MSMEs in the country.

The Central bank should carry out frequent and thorough institutional appraisal of the microfinance industry to ensure that its policies on lending are properly implemented. This will allow for better assessment of the industry and enable the regulators take

prompt and corrective action when necessary. Funding agencies such as Masloc, Empretec foundation, the Business Assisted Funds, NBSSI and all such institutions established to support the small scale sector should not adopt a blanket financing option for all categories of businesses and sectors within the economy. Rather, policies aimed at promoting the performance and growth of micro and small enterprises should adopt a sectorial approach. This will ensure that resources for each sector would address the most critical needs and growth of the sub sector.

From the descriptive statistics, the study found that the amount of loans granted MSME were very low. That apart, MSME were required to provide collateral securities before assessing funding. Accordingly, it is recommended that enterprises supported by microfinance institutions should be linked up with larger financing windows at the various microfinance institutions as well as specialized institutions of state such as NBSSI, Masloc and Empretec foundation among others. The conditions of granting loans to entrepreneurs should be based in part on the entrepreneurs' social capital. This will enable MFIs introduce loan products and strategies targeted at financing technology acquisition by MSMEs.

In order to encourage technology acquisition for MSME expansion, MFIs should categorize their loans into low and high interest loans. The conventional loans to clients for consumption and children's educational support can be maintained as high interest loans, while loans for capital assets or technology acquisition could be classified as low interest loans, which can be secured by a mortgage over the life of the asset. Additionally, microfinance institutions should consider granting moratorium for acquisition of business asset, increase the duration of such loans and spread the

repayment over a longer period of time. This will enable MSMEs to have greater use of the loan over a longer period of time.

Microfinance institutions should also be encouraged to reduce the gap between the rate of interest on savings deposit and the lending rate by mobilising more savings from the informal sector, which continues to remain untapped.

The study finding on microinsurance suggest that depth of outreach has increased significantly given that 43 percent of respondents subscribed to multiple policies. However there were many MSME who remained dissatisfied with the rate at which claims were settled. This study observed that the reasons for the non-payment of claims were one of education. Clients subscribe to policies without understanding the implications of it. Accordingly, MFIs should intensify their education on insurance services to enable clients understand and realise the full benefit of the policies they subscribe to.

5.4.1 Implication of the study

There are several noteworthy implications associated with the outcome of this study. Firstly, the study rejected all the four main hypotheses and its sub hypothesis. The implication of this is that microfinance interventions are important and efficient poverty reduction tools which could contribute significantly towards the enhancement of entrepreneurial development and growth in income, increase in consumption expenditure, acquisition of assets and ability to educate children and should therefore be given all the attention it deserves.

Secondly, the study found mixed effect of regulatory framework on the relationship between microfinance interventions and poverty reduction. The significant positive effect of regulatory framework and the increase in the predictive power on growth in income and acquisition of business assets on the interaction between microfinance interventions and poverty reduction implies that government should focus in ensuring that microfinance companies comply with all relevant regulations for the benefit of the programe to be fully realised.

5.4.2 Suggestions for Future Research

Research gaps observed out of the study effort provide some basis for further empirical investigations. There is need to consider similar study over a longer period of time using randomised control trials as against the cross sectional design used for this study to capture the time effects of changes in the implementation of the interventions.

Secondary, there is the need to duplicate the research effort in other parts of Ghana to confirm if the results of the research could be generalised across the whole country and if possible across the entire West African sub region. The research effort could be centred on household instead of MSME's.

Finally and given the findings on microinsurance, the study recommends the need to conduct more primary studies on the impact of microfinance interventions using various metrics for microfinance interventions other than access to credit, and Microsavings but focus on areas such as micro leasing and money transfer services and adopt a standard for measuring outcomes.

REFERENCES

Abor, J. & Biekpe, N. (2006). Small Business Financing Initiatives in Ghana. *Problems and Perspectives in Management / Volume 4, Issue 3, 2006*

Abor, J and Quartey,P (2010).Issues in SMEs in Ghana and South Africa International Research,*Journal of Finance and Economics* Issue 39 218-228

Adjei, J. K., Arun, T. & Hossain, F. (2009) The Role of Microfinance in Asset-Building and Poverty Reduction: The Case of Sinapi Aba Trust of Ghana. BWPI Working Paper 87. Brooks World Poverty Institute ISBN : 978-1-906518-86-8

Adu-Gyamfi, E. & Ampofo, A. K. (2014). A Study of Effects of Microfinance Credit on Community Farmers in Upper Denkyira East Municipality of Ghana. *Journal of Agriculture and Environmental Sciences,* 3(1) 66-88. ISSN: 2334-2404

Agyapong, D. (2010). Micro, Small and Medium Enterprises'Activities, Income Level and Poverty Reduction in Ghana – A Synthesis of Related Literature. *International Journal of Business & Management* Vol. 5, No. 12; December 2010

Agbozo, E & Yeboah, E.O. (2012). Exploring the financial gap for small and Medium-sized enterprises (SMEs) in Ghana: A case study of Ghana. A thesis submitted to the School of Management, Blekinge Institute of Technology

Ahiawodzi, A. K. & Adade, T. C. (2010). Access to Credit and Growth of Small and Medium Scale Enterprises in the Ho Municipality of Ghana

Ahmed-Karim, Z. & Alders-Sheya, J. (2014). The promise of microfinance and womens empowerment. What does the evidence say? An Ernst and Young Chartered Accountants Publication

Ahmeti, F. (2014). Microfinance as a tool for economic development in transitional countries: experience from Kosovo. *European Scientific Journal February 2014 edition vol.10, No.4 ISSN: 1857 – 7881 (Print) e - ISSN 1857- 7431*

Aiken, L. S., & West, S. G. (1991). *Multiple Regression: Testing and Interpreting Interactions*. Newbury Park, CA: Sage

Akerlof, G. (1970). .The market for lemons: quality uncertainty and the market mechanism., *Quarterly Journal of Economics*

Ampiah, J. G. & Adu-Yeboah, C. (2009). Mapping the incidence of school dropouts: a case study of communities in Northern Ghana. *Comparative Education Vol. 45 , Iss. 2,2009*

Ando, A. & Modigliani, F (1964). The "Life Cycle" Hypothesis of Saving: Aggregate Implications and Tests: *The American Economic Review, Vol. 53, No. 1, Part 1 (Mar., 1963), pp. 55-84*

Annim, S. K. (2010) Microfinance paradigm: institutional performance and outreach. A thesis submitted to The University of Manchester for the degree of Doctor of Philosophy in Economics

Armendariz de Aghion, B. & Morduch, J. (2010). *The Economics of Microfinance.* The MIT Press Cambridge, Massachusetts London, England.

Arun, T., Imai, K. & Sinha, F. (2006). Does microfinance reduce poverty in India? Propensity score matching based on a national-level household data. Development Economics and Public Policy Working Paper Series No. 17, IDPM, University of Manchester.

Arhin-Sam, K. (2013). Clients and Microfinance services. Akez working papers in development studies No. 0002

Ashim, K. K. (2010). Sustainability and mission drift in microfinance. Empirical studies on mutual exclusion of double bottom lines. Hanken School of Economics, Helsinki.

Attanasio, O., Augsburg, B., De Haas, R., Fitzsimons, E. & Harmgart, H. (2011), Group Lending or Individual Lending? Evidence from a Randomized Field Experiment in Mongolia", EBRD Working Paper No. 136, European Bank for Reconstruction and Development, London.

Awaworyi, S. K. (2014). Impact of Microfinance Interventions: A Meta-analysis. Monash University. Discussion Paper 03/14

Aryeetey, E. (2008): "From Informal Finance to Formal Finance in Sub-Saharan Africa: Lessons from Linkage Efforts," Paper presented at the High Level Seminar on African Finance for the 21st Century , IMF and Joint Africa Institute, Tunis, Tunisia

Aubert, C., Janvvry, A., & Sadoulet, E. (2009). Designing credit agent incentives, to prevent mission drift in pro-poor microfinance institutions. *Journal of development economics*, 90(1) 153 - 162

Augsburg, B., De Haas, R., Harmgart, H., Meghir, C. (2015). The Impacts of Microcredit: Evidence from Bosnia and Herzegovina. *American Economic Journal. Applied Economics* 7.1 (Jan 2015): 183-203

Banerjee, A., Duflo, E., Glennester, R. & Kinnan, C. (2013). The miracle of microfinance? Evidence from a randomized evaluation Working Paper 13-09 April 10, 2013

Banerjee, A., Karlan, D. & Zinman, J. (2015) "Six Randomized Evaluations of Microcredit: Introduction and Further Steps." *American Economic Journal*: Applied Economics 7, no. 1 (January 2015): 1–21.

Bank of Ghana. (2007). *A Note of Microfinance in Ghana*. WP/BOG-2007/01. Bank of Ghana: Accra.

Bank of Ghana, (2015). Annual Report and Accounts 2014. Retrieved on 15/01/2016 from http://www.bog.gov.gh/privatecontent/public/File/Bank per cent20of per cent20Ghana per cent20Annual per cent20Report per cent.pdf

Banthia, A., Johnson, S., McCord, J. M. & Mathews, B. (2009). "Microinsurance that works for women: Making Gender Sensitive microinsurance programs." ILO. Retrieved on April 2, 2017 from:
http://www.ilo.org/public/english/employment/mifacility/download/mpaper3_gender.pdf

Barnes, C., Gaile G, Kibombo, R. (2001a) The impact of three microfinance programs in Uganda. Washington, DC: Development Experience Clearinghouse, USAID

Baron, R. M. & Kenny, D. A. (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Penality and Social Psychology* 1986, Vol. 51, No. 6, 1173-1182. The American Psychological Association, Inc.

Bateman, M. (2010) Why doesn't microfinance work? The destructive rise of local neoliberalism. London: Zed Books

Beck, T. (2015). Microfinance: A Critical Literature Survey. IEG work ing paper 2015/NO.4

Bodie, Z., Treussard, J. & Willen, P. (2007) The Theory of Life-Cycle Saving and Investing. Public Policy Discussion Paper No. 07-3

Boeh-Ocansey, O., Agyeman, M., & Apau, O.S. (2009). SME Development in Ghana. *Nepad Business Investment Guide*, 4, 115-118

Brannen, C. (2010). An impact study of the Village Savings and LoanAssociation (VSLA) program in Zanzibar, Tanzania. BA Dissertation,Wesleyan University

Brau, J. C. & Woller, G. M. (2004) "Microfinance: Comprehensive Review of Existing Literature" *Journal of Entrepreneurial Finance and Business Ventures*, Vol. 9, Issue 1, pp. 1-26

Brooks, C. (2008). Introductory Econometrics for Finance. Cambridge: Cambridge University Press.

Bui, L. T. V. A. (2014). Microfinance and poverty alleviation: does credit access contribute to reduce household poverty in vietnam. Master thesis submitted to the Faculty of the Graduate School of Arts and Sciences of Georgetown University

Carson, D., Gilmore, A., Perry, C., & Gronhaug, K. (2001). Qualitative Marketing Research. London: SAGE Publications.

Carter, S. H. (2013). Financial Intermediation, Growth, and Microfinance in Turkey: A Quantitative Study

CGAP (2012). Microfinance Banana Skins, staying relevant. The CSFI survey of microfinance risk. ISBN: 978-0-9570895-4-8

CGAP (2014). Microfinance Banana Skins, facing the reality. The CSFI survey of microfinance risk. ISBN: 978-0-9926329-1-5 Retrieved on 10th April 2015 from http://www.microfinancegateway.org/p/site/m/template.rc/1.26.9183/#Q1

Chamlee, E. (2005). Fostering Sustainable Complexity in the Microfinance Industry: Which Way Forward? *Institute of Economic Affairs*. Oxford: Blackwell.

Chen, S., & Ravallion, M,. (2008), "The Developing World is Poorer than We Thought, but No Less Successful in the Fight against Poverty," Policy Research Working Paper 4703, World Bank, Washington D.C

Chen, G. & Rutherford, S. (2013). A Microcredit Crisis Averted: The Case of Bangladesh. Focus Note 87. Washington, D.C. July. ISBN 978-1-62696-016-9.

Cheston, S., Conde, T., Bykere, A. & Rhyne, E. (2016). The business of financial inclusion: insights from banks in emerging markets. Institute of International Finance

Churchill, G. A. (1996). *Basic Marketing Research* (*3rd Ed.)*, Fort Worth, TX: The Dryden Press.

CIDA (2012). Canadian International Development Agency's (CIDA) Role in Enhancing Smallholder Food Security: Insights from the Informal Economy

Claus, I. & Grimes, A. (2003). Asymmetric Information, Financial Intermediation and the Monetary Transmission Mechanism: A Critical Review. New Zealand Treasury Working Paper 03/19, September 2003

Cohen, J., & Cohen, P. (2003). Applied Multiple Regression/Correlation Analysis for the Behavioural Sciences (3rd ed.). Mahwah, NJ: Erlbaum.

Coleman, B. 2006. "Microfinance in northeast Thailand: Who benefits and how much?" *World Development Vol. 34, No. 9, pp. 1612–1638, 2006 2006 Elsevier Ltd*.

Collins, D., Morduch. J., Rutherford, S. & Ruthven, O. (2009). Portfolios of the poor: how the world's poor live on $2 a day. Princeton University Press.

Cooper, D. R & Schindler, P. S. (2008). *Business Research Methods* (10th ed.). New York: McGraw Hill.

Copestake, J. (2007). Mainstreaming microfinance: Social performance management or mission drift? *World Development*, 35(10): 1721-1738.

Copestake, J., Dawson, P., Fanning, J. P., Mckay, A. & Wright-Revolledo, K. (2005). Monitoring the Diversity of the Poverty Outreach and Impact of Microfinance: A Comparison of Methods Using Data from Peru. *Development Policy Review*, 23(6), 703-723.

Copestake, J., Johnson, S. & Wright, K. (2002). Impact Assessment of Microfinance: Towards a New Protocol for Collection and Analysis of Qualitative Data. Imp-Act. Institute of Development Studies, University of Sussex.

CSFI, (2014). Microfinance banana skins. The CSFI survey of microfinance risk, facing reality.

Deaton, A. (2009) Instruments of development: randomisation in the tropics, and the search for the elusive keys to economic development. Retrieved from

http://www.princeton.edu/~deaton/downloads/Instruments of_Development

DeCorse, C., Can, E., Chouin, G., Cook, G. and Spier, S. (2000). Central Region Project, Coastal Ghana - Perspectives 2000. *Nyame Akuma Journal Issue 053*

Deininger, K. & Liu, Y. (2013). Economic and social impacts of an innovative self-help group model in India. World Development 43: 149–163. 14.

De Mel, S., McKenzie, D. &Woodruff, C. (2012). Business Training and Female Enterprise Start-up, Growth, and Dynamics: Experimental evidence from Sri Lanka

Dupas, P. & Robinson J. (2013) Savings Constraints and Microenterprise Development: Evidence from a Field Experiment in Kenya, *American Economic Journal: Applied Economics*, 5, 163–92.

Demirgüç-Kunt, A., Laeven, L. & Levine R. (2003). "Regulations, market structure, institutions, and the cost of financial intermediation." Cambridge MA, National Bureau of Economic Research, Working Paper No 9890.

Duvendak, M., Palmer-Jones. R., Copestake, J. G., Hooper, L., Loke, Y. & Rao, N. (2011). What is the evidence of the impact of microfinance on the well-being of poor people? London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London. ISBN: 978-1-907345-19-7

Dzisi, S., & Obeng, F. (2013) Microfinance and the Socio-economic Wellbeing of Women Entrepreneurs in Ghana. *International Journal of Business and Social Research (IJBSR), Volume -3, No.-11, November, 2013*

Elliot, D. (2012). Response Rate to the National Household Survey. *Western Policy Analyst, 4*(5).

Fischer G (2010). Contract structure, risk sharing, and investment choice. Retrieved from: http://personal.lse.ac.uk/fischerg/Research.htm.

Frimpong, S. (2014). Effect of demand side factors on access to external finance by Micro, Small and Medium Manufacturing Enterprises in Kumasi Metropolis, Ghana Ph.D Thesis, Kenyatta University

George, D. & Mallery, M. (2010). Using SPSS for Windows step by step: a simple guide and reference. Boston, MA: Allyn & Bacon

Gezici, A. (2007). "Investment under financial liberalisation channels of liquidity and uncertainty

Ghana Statistical Service (2006). *Ghana in Figures, 2005*. Accra: GSS.

Ghana Statistical Service (2014). Ghana living standards survey round 6. Poverty profile in Ghana 2005 – 2013

Giné X, Karlan D (2011) Group versus individual liability: Short- and long-term evidence from Philippine microcredit lending groups. Working paper. New Haven, Connecticut: Yale University Press.

Gujarati, D. N., & Porter, D. C. (2009). *Basic Econometrics* (5th ed.). New York: McGraw-Hill Irwin

Gurley, J. G. & Shaw, E. S. (1961). "Financial Aspects of Economic Development." American Economic Review, September 1955, 45(4), pp. 515-38.

Gwet, K. L. (2014). Handbook of Inter-Rater Reliability, 4th Edition: The Definitive Guide to Measuring The Extent of Agreement Among Raters. Advanced Analytics, LLC, 2014. ISBN 0970806280, 9780970806284

Hamid, S. A., Roberts, J. & Mosley, P., (2010). Can Micro Health Insurance Reduce Poverty? Evidence from Bangladesh, Sheffield Economic Research Paper Series Department of Economics University of Sheffield 9 Mappin Street Sheffield.

Harper, M. & Vogel, R. (2005). The Role of Savings as a form of MFI Funding: Debate. Micro Banking Bulletin, 11, 5-9.

Harper, M. (2011). 'The commercialisation of microfinance: resolution or extension of poverty?' In: Bateman, M. (op cit)

Hart, S. F. (1987). The use of the Survey in industrial market research. *Journal of Marketing Management*, 3 25-28

Hayes, A. F. (2013). Introduction to mediation, moderation, and conditional process analysis: A regression-based perspective. New York: The Guilford Press.

Hayes, A. F. (2015). An index and test of linear moderated mediation. Multivariate Behavioral Research, 50, 1–22.

Howell, D. C. (2013). Statistical methods for psychology (8th ed.). Wadsworth Cengage Learning Belmont.

Hubka, A. and Zaidi, R. (2005). Impact of Government Regulation on Microfinance. Prepared for the World Development Report 2005: Improving the Investment Climate for Growth and Poverty Reduction. Retrieved on February 10, 2017 from: http://siteresources.worldbank.org/INTWDR2005/Resources/Hubka_Zaidi_Impact_of_Government_Regulation.pdf

Hulme, D. & Arun, T. (2003). Balancing Supply and Demand: the Emerging Agenda for Microfinance Institutions, *Journal of Microfinance*, 5(2), 1-6.

Hulme, D. & Arun, T. (2009). The Future of Microfinance. In D. Hulme and T. Arun (Eds.), *Microfinance: A Reader* (pp. 225-232). London: Routledge.

Israel, G. D. (2009). Determining Sample Size. PD006. Gainesville: University of Florida Institute of Food and Agriculture Sciences. http://edis.ifas.ufl.edu/pd006

Janssen, C. W. J. & Kraft, P. (2012) Research Conducted Using Data Obtained through Online Communities: Ethical Implications of Methodological Limitations. Retrieved on March 20, 2016 from https://doi.org/10.1371/journal.pmed.1001328

Jensen, P. C. (2014). Microfinance as a paradigm for development In Kenya is Danida making the right investment. Internship report.

Johnson, S. & Copestake, J. (2002). FINCA-Malawi Impact Assessment Research-Final Report. Bath Centre for Development Studies, University of Bath.

Kast, F., Meier, S., & Pomeranz, D. (2012). Under-Savers Anonymous: Evidence on Self-Help Groups and Peer Pressure as a Savings Commitment Device. NBER Working Paper, (18417), Sept. 2012.

Karlan, D.S. & Zinman, J. (2008a). Credit Elasticities in Less-Developed Economies: Implications for Microfinance. *American Economic Review*, 98(3): 1040–68.

Karlan, D.S. & Zinman, J. (2008b). *Expanding Credit Access: Using Randomised Supply Decisions to Estimate Impacts*. New Haven, Conn.: Innovations for Poverty Action.

Karlan, D., Osei, R., Osei-Akoto, I. & Udry, C. (2013). Agricultural decisions after relaxing credit and risk constraints. Retrieved on March 20, 2017 from: http://www.econ.yale.edu/~cru2/pdf/eui.pdf

Karlan, D.S. & Zinman, J. (2009). Expanding Microenterprise Credit Access: Using Randomised Supply Decisions to Estimate the Impacts in Manila. New Haven, Conn.: Innovations for Poverty Action.

Kerlinger, F. N., & Lee, H. B. (**2000**). Foundations of behavioral research. Belmont, Calif.: Wadsworth. Chicago (Author-Date, 15th ed.)

Kessy, A. S. S. (2013). Microfinance Interventions and Impact Assessments on Enterprises Growth: Conceptual Model, Methodologies and Approaches. *Berlin Working Papers on Money, Finance, Trade and Development. Working Paper No. 03/2013*

Kiiru, J. & Mburu, J. (2007). User Costs of Joint Liability Borrowing and their Effects on Livelihood Assets for Rural Poor Households. *International Journal of Women, Social Justice and Human Rights* 2, No. 2: 87-100.

Kintzel, D. (2007). Portfolio Theory, Life-Cycle Investing, and Retirement Income. Policy Brief No. 2007-02. Social Security Administration Offi ce of Policy 500 E Street, SW, 8th Floor Washington, DC 20254 SSA Publication No. 13-11702

Kipesha, E. F., & Zhang, X. (2013). Sustainability, Profitability and Outreach Tradeoffs: Evidences from Microfinance Institutions in East Africa. 5 (8).

Kirsten, M. A. (2011). Improving the well-being of the poor through microfinance: Evidence from the Small Enterprise Foundation in South Africa. *Dissertation presented for the degree of Doctor of Philosophy in the Faculty of Economic and Management Science at the University of Stellenbosch*

Khan, M.H. (2000). Rural Poverty in Developing Countries: Issues and Policies. Working Paper No. WP/00/78. Washington D.C: IMF.

Khandker, S.R. (2003). Micro-Finance and Poverty: Evidence Using Panel Data from Bangladesh. Policy Research Working Paper No. 2945, Washington D.C: World Bank.

Khandker, S.R. (2005). Microfinance and Poverty: evidence using panel data from Bangladesh. *The World Bank Economic Review*, 19: 263-286.

Korth M., Stewart R., van Rooyen C., and de Wet T (2012). Microfinance: development intervention of just another bank? *Invited paper to Journal of Agrarian Change (special issue on microfinance)* 12(4): 575-586

Lacalle Calderon M, Rico Garrido S, Duran Navarro J (2008) Estudio piloto de evaluacion de impacto del programa de microcreditos de Cruz Roja Espanola en Ruanda. *Revista de Economia Mundial*(19): 83‑104.

Ledgerwood, J. (2013). *Microfinance Handbook: An Institutional and Financial Perspective*. Washington D.C: World Bank.

Levine, R. (2005). Finance and Growth: Theory and Evidence. Department of Economics, Brown University and the NBER, 64 Waterman Street, Providence, RI 02912, USA

Littlefield, E., Morduch, J. & Hashemi, S. (2003). Is Microfinance an Effective Strategy to Reach the Millennium Development Goals? Focus Note Series No. 24. Washington D.C: CGAP.

Marr, A. (2001). Studying Group Dynamics: An Alternative Framework for the Study of Microfinance Impacts on Poverty Reduction. *Journal of International Development*, 14(4), 511-534.

Marr, A. (2002). Microfinance and Poverty Reduction: The Problematic Experience of Communal Banking in Peru. SOAS Working Papers 122, SOAS: London, UK.

Marr, A. (2003). A Challenge to the Orthodoxy Concerning Microfinance and Poverty Reduction. *Journal of Microfinance*, 5(2), 7-42.

Mason, J. (2002). Qualitative Interviewing: asking, listening and interpreting. In T. May (Ed.) *Qualitative Research in Action* (pp.225-241). London: Sage.

Matin, I. & Hulme, D. (2003). Programs for the Poorest: Learning from IGVGD Program in Bangladesh. *World Development*, 31(3), 647-665.

McIntosh, Craig, Alexander Sarris and Fotis Papadopoulos (2013) Productivity, Credit, Risk, and the Demand for Weather Index Insurance in Smallholder Agriculture in Ethiopia. Agricultural Economics 44, 399-417..

McLeod, L., MacDonell, S. G. & Doolin, B. (2007). User participation in contemporary is development: An IS management perspective. *Australasian Journal of Information Systems*, 15(1), 113-136.

Mensah, S. (2004). A review of SME financing schemes in Ghana. *UNIDO Regional Workshop of Financing*

SMEs, 15-16 March, Accra.Microfinance Information Exchange (MIX). (2003). Micro banking Bulletin, Issue No. 9, July 2003. Washington D.C: MIX.

Mknelly, B. & Kevane, M. (2003). Improving Design and Performance of Group Lending: Suggestions from Burkina Faso. *World Development*, 30, 2017-2032.

Montgomery, R. (1996). Disciplining or Protecting the Poor? Avoiding the social cost of peer pressure in micro-credit schemes. *Journal of International Development, Special Issue, Sustainable Banking for the Poor*, 8(2), 289-305.

Morduch, J. (2005). Smart Subsidy for Sustainable Microfinance. ADB Finance for the Poor, 6(4).

Morduch, J. (2008). How can the poor afford microfinance? Financial Access Initiative, Wagner Graduate School, New York University, New York.

Morduch, J. (2013). How microfinance really works. Milken Institute Review Second Quarter, 51–59

Muganga, D. L. (2010). The Role of Regulation and Supervision of Microfinance Institutions: Evidence From South Africa, and Its Implications For The Development of Non-Deposit Taking Microfinance Regulation In Kenya. The State University of Bergamo – Italy.

Mugenda, O. M. & Mugenda, A. G. (2003). Research Methods: Quantitative and Qualitative Approach. African Centre for Technology studies. Nairobi, Kenya

Myers, S. C. (1990). Classical and modern regression, with applications (2^{nd} ed.). Boston, M. A: Duxbury

Nanor, M.A. (2008) *Microfinance and its impact on selected districts ineastern region of Ghana*. College of Art and Social Sciences, Kumasi:Kwame Nkrumah University of Science and Technology

Nyamsogoro, D.G. (2010). Financial sustainability of rural microfinance institutions in Tanzania. A thesis submitted to the University of Greenwich for the degree of Doctor of Philosophy

Nyarko, S. H., Aidoo, E. K., Essaw, D. & Pepra J. A. (2014). Impact of microfinance interventions on market women in Ghana: a study of selected markets in the

Sekondi-Tarkoradi metropolis. *International Journal of Current Research* Vol. 5, Issue, 12, pp.3789-3794, December, 2013

Oguejiofor, A. and Unachukwu, U. (2014). Achieving Poverty Reduction Through Microfinance: Evidences From the Philippines. *Developing Country Studies* ISSN 2224-607X (Paper) ISSN 2225-0565 (Online) Vol.4, No.8, 2014

Olasupo, M.A., Afolami, C.A. & Shittu, A. M. (2014). Outreach and Financial Sustainability of Microfinance Banks in Southwest Nigeria. *International Journal of Economics and Finance*, Vol. 6, No.2

Oladele, I. & Ward, L. (2016) Determinants of loan repayment patterns among Micro Agricultural Financial Institution of South Africa beneficiaries in North West Province, South Africa. *Journal of Agricultural and Environment for small development. Vol 110, No 2 (2016)*

Odell, K. (2009). Measuring the impact of microfinance. Grameen Foundation publication series

OECD (2015). Economic Surveys, Luxembourg. March 2015

Omagwa, J. O. (2014). Demographics, housing search, asymetric information and housing decisions amongst apartment households in Nairobi County, Kenya. Ph.D Thesis submited to the University of Nairobi.

Osei-Assibey, E. (2014). A paper presented to the Pan-African conference on inequalities in the context of structural transformation 28th - 30th April 2014, Accra Ghana

Owusu, J., Akanbasiam, J. C. & Anyesepar, A. A. (2013). Microfinance Schemes and Poverty Reduction among Women in Northern Region of Ghana. *International Journal of Humanities and Social Science Vol. 3 No. 19; November 2013*

Pitt, M. M. & Khandker, S. R. (1998). The Impact of Group-Based Credit on Poor Households in Bangladesh: Does the Gender of Participants Matter? *Journal of Political Economy* 106(5), 958–96. 334

Polit, D.F., Hungler, B.P. (1999) Nursing Research: Principles and Methods 6th ed. Philadelphia: J.B. Lippincott

Prina, S. (2015). "Banking the Poor via Savings Accounts: Evidence from a Field Experiment." Journal of Development Economics 115: 16–31.

PWC (2016) *Shifting trends in the microfinance ecosystem* November 2016**.**

Rachdi, H. & Mbarek, H. B. (2011). The causality between financial development and economic growth: Panel Data Co-integration and GMM system approaches. *International Journal of Economics and Finance, 3(1), 143–151. http://dx.doi.org/10.5539/ijef.v3n1p143*

Ravallion, M. (2008). The Welfarists rational for relative poverty lines. World bank Policy Research Working Paper 4486

Remer, L. (2014). The Regulations of Systematically Important Financial Institutions in the European Union Governance of the Fittest. Masters Thesis submitted to the University of Twente

Reiter, B. & Peprah J. A. (2015). Assessing African Microfinance, an exploratory case study of Ghana's Central Region. *Journal of International Development*, J. Int. Dev. 27, 1337–1342 (2015) Published online 19 January 2015 in Wiley Online Library retrieved from: (wileyonlinelibrary.com) DOI: 10.1002/jid.3066

Rhyne, E. (2005). Maintaining the Bottom Line in Investor-Owned Microfinance Organizations. *Micro Banking Bulletin,* No 11, 13-16.

Richardson, D.C. (2003). Going to the Barricades for Microsavings Mobilization: A View of the Real Costs from the Trenches. *Micro Banking Bulletin,* No. 9, 9-13. 335

Robinson, M.S. (1995). The Paradigm Shift in Microfinance: A Perspective from HIID. Discussion Paper No. 510. Cambridge, MA: Harvard Institute for International Development.

Robinson, M.S. (2001). The Microfinance Revolution: Sustainable Finance for the Poor. Washington D.C: World Bank.

Robinson, M. (2003). The Microfinance Revolution: Sustainable Finance for the Poor. Vol. 1. Washington D.C: World Bank.

Robinson, J. (2012) Limited Insurance within the Household: Evidence from a Field Experiment in Kenya, *American Economic Journal*: Applied Economics, 4, 140–64

Roodman, D. & Morduch, J. (2013). The Impact of Microcredit on the Poor in Bangladesh: Revisiting the Evidence. Center for Global Development Working Paper No. 174.

Roodman D (2010) You can't have it all. David Roodman's microfinance open book blog, 24 April 2010

Rosenburg, R. (2010) Does Microcredit Really Help Poor People? https://www.cgap.org/sites/default/files/CGAP-Focus-Note-Does-Microcredit-

Rutherford, S. (2006). What Is Grameen II? Is it up and Running in the Field Yet? Micro Save Briefing Notes on Grameen II 2. Nairobi: Micro Save.

Sarma, G. K. (2013). Microfinance repayment performance and related issues in microfinance model. An empirical examination in Branhmaputra valley of Assam, India. Ph.D Thesis submitted to India Institute of Technolgy.

Santomero, A. M., & Allen, F. (1998). The theory of fnancial intermediation. *Journal of Banking & Finance 21 (1998) 1461-1485.* The Wharton School, University of Pennsylvania, Philadelphia, PA 19096, USA

Saunders, M. N. K., Lewis P., & Thornhill, A. (2009). Research methods for business students. (5th Edition) Harlow, England: Pearson Education

Saunders, M. N. K., Lewis P., & Thornhill, A. (2012). Research methods for business students. (6th Edition) Harlow, England: Pearson Education

Saunders, M.N.K. & Rojon, C, (2014). There's no madness in my method: Explaining how your research findings are built on firm foundations Coaching: An *International Journal of Theory, Research and Practice, vol 7, no. 1*, pp. 74-83. DOI: 10.1080/17521882.2014.889185

Schreiner, M. (2001). Seven Aspects of Loan Size. *Journal of Microfinance*, 3(2), 27-48.

Schumpeter, J. (1969)"The Theory of Economic Development: An inquiry into profits, capital, credit, interest and the business cycle." Oxford: Oxford University Press.

Shimamura Y, Lastarria-Cornhiel S (2009) Credit program participation and child schooling in rural Malawi. *World Development* 38 (4): 567‑580.

Sileshi, M., Nyikal, R & Wangai, S. (2012). Factors Affecting Loan Repayment Performance of Smallholder Farmers in East Harare, Ethiopia. Developing Country Studies. ISSN 2225-0565 (Online). Vol 2, No.11

Sinn, M. (2012). Sequential Group Lending: A Mechanism to Raise the Repayment Rate in Microfinance. The London School of Economics and Political Science

Spence, M. (1973), Job market signalling, *Quarterly Journal of Economics 87, 355-374.*

Stewart R, van Rooyen C, Dickson K, Majoro M, De Wet, T (2010). What is the impact of Microfinance on poor people? A systematic review of evidence from sub-Saharan Africa page 4. World Bank Technical Report.

Stewart R, van Rooyen C, Korth M, Chereni A, Da Silvade N. R., De Wet, T (2012). Do micro-credit, microsavings and micro-leasing serve as effective financial inclusion interventions enabling poor people, and especially women, to engage in meaningful economic opportunities in low- and middle-income countries. A systematic review of the evidence. EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

The Economist (2010) Big trouble for microfinance. Economist blog, 2 December. http://www.economist.com/blogs/free exchange/2010/12/microfinance

Triki, T. & Faye, I (2013). Financial Inclusion in Africa. 2013 - African Development Bank (AfDB) African Development Bank Group 15, avenue du Ghana, Angle des rues Pierre de Coubertin et Hedi Nouira BP 323, 1002 Tunis Belvédère Tunisia ISBN: 978-9938-882-19-3.

Tung, S. T. (2015). A critical examination of poverty reduction initiatives in Vietnam. PhD thesis submitted to Auckland University of technology.

UNDP (2010). The real wealth of nations: pathways to human development http://hdr.undp.org/en/reports/global/hdr2010/chapters/

UNESCAP-ADB-UNDP (2012) Accelerating Achievement Of The Millennium Development Goals In South Asia Jointly Organized By United Nations Economic And Social Commission For Asia And. *The Pacific Asian Development Bank United Nations Development Programme 17-18 February 2012 New Delhi, India*

van Rooyen C., Stewart R., and de Wet T. (2012). The impact of microfinance in sub-Saharan Africa: A systematic review of the evidence. *World Development.* Vol 40(11): 2249–2262

Wells, C.S. & Wollack, J.A. (2003). An Instrument‟s Guide to Understanding Test Reliability. Testing & Evaluation Services, University of Wisconsin, Madison

Wagner, C. (2013). Growth and crises in microfinance. PhD Thesis submitted to the Frankfurt School of Finance & Management.

World Bank (2014). World Development Report 2012/2013. Washington DC, Oxford: Oxford University Press

World Bank (2015). A Measured approach to ending poverty and boosting shared prosperity concepts, data, and the twin goals. Policy research report 2015 International Bank for Reconstruction and Development / The World Bank 1818 H Street NW, Washington DC 20433

Yeboah, E. R. (2010). Microfinance in Rural Ghana. A thesis submitted to the University of Birmingham for the degree of doctor of philosophy

Zaman, H. (2000). Assessing the Poverty and Vulnerability Impact of Micro-Credit in Bangladesh: A Case Study of BRAC. Policy Research Working Paper Series 2145. Washington D.C: World Bank

APPENDIX 1 – QUESTIONNAIRE FOR MICROFINANCE CLIENTS

KENYATTA UNIVERSITY
DEPARTMENT OF ACCOUNTING AND FINANCE
DOCTOR OF PHILOSOPHY IN BUSINESS ADMINISTRATION (FINANCE)

TOPIC: MICROFINANCE INTERVENTIONS AND POVERTY REDUCTION IN CENTRAL REGION OF GHANA

This questionnaire is designed to obtain data for academic purposes only and not for any microfinance institution. All responses will be treated in strict compliance with the ethics governing the conduct of academic research.

SECTION 1: BIO DATA (Please tick where applicable)

1. How age is respondent?
    a) Less than 25 ☐
    b) 25 – 34 ☐
    c) 35 - 44 ☐
    d) 45 – 54 ☐
    e) above 55 years ☐
2. What is your marital status?
    a) Single ☐
    b) Married ☐
    c) Divorced ☐
    d) widow/widower ☐
3. Highest completed educational qualification or equivalent of respondent
    a) Junior High School ☐
    b) Senior high school or equivalent ☐
    c) HND/Diploma ☐
    d) Bachelor's Degree ☐
    e) Post graduate degree ☐
4. Number of Children/dependents?
    a) None ☐
    b) 1 – 4 ☐
    c) 5 – 10 ☐
    d) Above 10 ☐

SECTION 2: BUSINESS INFORMATION (Please tick where applicable)

5. How would you classify yourself?
    a) Self-employed ☐
    b) Formal worker ☐
    c) Business Owner ☐
6. What is the nature of your occupation or business activity?
    a) Chemical and pharmaceutical ☐
    b) Artisan (Carpentry, mechanic, painter, Driver ☐
    c) Trader/businessman ☐
    d) Service provider (Comm. Centre, Restaurant etc) ☐
7. What is the legal form of your business?
    a. Sole Proprietor ☐
    b. Partnership ☐
    c. Company ☐
    d. Co-operative society ☐
    e. Other (please explain)…… ☐
8. How long have you operated your business?
    a. 0 – 4 years ☐
    b. 5 to 9 years ☐
    c. 10 years and above ☐
9. What is the size of your enterprise in terms of total number of employees?
    a. less than 5 ☐
    b. 6 – 10 ☐
    c. 11 – 20 ☐
    d. Above 20 ☐
10. How long have you been with microfinance, Credit Union or a bank?
    a. 0 - 3 years ☐
    b. 4 - 6 years ☐
    c. 7 years and above ☐
    d. I have never joined one ☐

SECTION 3: MICROSAVINGS (Please tick where applicable)

1. Which of these institutions are you saving with?
    a. Commercial bank ☐
    b. Community/Rural Bank/Co-operative ☐
    c. Savings and Loans Scheme/Credit Union ☐
    d. Multiple Banks ☐
    e. Susu Scheme ☐
    f. I do not have a savings account ☐
2. What type of account do you have with the financial institution or the Microfinance company?
    a. Current Account ☐
    b. Savings ☐
    c. Fixed Deposit ☐
    d. Multiple accounts ☐
    e. Other (please explain) (please explain) ☐

    ……..……..…….
3. What is the reason for not having a savings account or not contributing to a savings scheme?
    a. There is no financial institution in my locality ☐
    b. Process of obtaining account is too cumbersome ☐
    c. Don't have enough money for savings ☐
    d. Don't have regular income ☐
    e. Other (please explain) ☐

    ……..……
4. What was your savings habit prior to joining the MFI scheme?
    a. Regular saver ☐
    b. Irregular Saver ☐
    c. Did not save at all ☐
5. On the average how much do you save in a week?
    a. Less than Ghs20 ☐
    b. Less than Ghs 50 ☐
    c. Less than Ghs 100 ☐

d. Above Ghs100 ☐

6. How often do you withdraw money from your savings account?

a. Weekly ☐

b. Fortnightly ☐

c. Monthly ☐

d. Once in a while (please explain) ☐

	Microsavings	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
7	Your savings pattern has improved considerably since you joined the microfinance scheme	1	2	3	4	5
8	In your opinion has the savings product met your expectations?	1	2	3	4	5
9	Clients receive advisory services from the MFI on how to save or utilize their investments.	1	2	3	4	5
10	Such advise has influenced clients spending or savings pattern positively	1	2	3	4	5
11	Being a member of the microfinance scheme has enabled my firm build up capital for my business.	1	2	3	4	5
12	Many clients prefer microcredit to microsavings do you agree?	1	2	3	4	5
13	Are interest rates charged by microfinance companies too high for their services	1	2	3	4	5
14	Did interest rates played a role in the type of account you opened	1	2	3	4	5
15	Is your Savings habit influenced by the rate of interest	1	2	3	4	5

SECTION 4: ACCESS TO CREDIT (Please tick where applicable)

1. What was the source of your initial capital?
    a. Personal savings ☐
    b. Family and Friends ☐
    c. Microfinance loan ☐
    d. Other (please explain) …….. ☐
2. How many times have you accessed a facility from the MFI in the last five years?
    a. Once ☐
    b. Twice ☐
    c. Annually ☐
    d. Bi-annually ☐
    e. I have never accessed a facility ☐
3. What are some of the reasons assigned for the refusal of loans?
    a. Lack of collateral ☐
    b. Insufficient time with the scheme ☐
    c. Not a member of the scheme ☐
    d. Not a member of a group ☐
    e. No savings with scheme ☐
4. How would you describe the process of obtaining a loan.
    a. Very cumbersome ☐
    b. Cumbersome ☐
    c. Normal ☐
    d. Easy ☐
    e. Very Easy ☐
5. Have you ever defaulted in servicing your loan and did the bank institute any punitive measure, if so in what form?
    a. Denied access to future loans ☐
    b. Expelled from group ☐
    c. Guarantor was called upon to pay ☐
    d. Was made to build my account for some time ☐
    e. I was prosecuted ☐

	Access to Credit	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
6	Microfinance officers monitor the use to which loans granted to their customers are applied in order to avoid diversion of funds	1	2	3	4	5
7	It is easier to obtain loans from microfinance banks if customers belong to a group than as an individual.	1	2	3	4	5
8	Microfinance institutions ask for collateral/guarantor in all cases before granting a loan?	1	2	3	4	5
9	Amount of loan granted by microfinance companies are sufficient to start a business	1	2	3	4	5
10	Micro, Small and Medium enterprises are able to obtain start-up funding from microfinance companies than with traditional banks.	1	2	3	4	5
11	Microfinance companies assist its clients to acquire household and or business asset?	1	2	3	4	5
12	Microfinance companies assist its clients to pay children's' school fees or medical bills?	1	2	3	4	5
13	Microfinance clients are able to service loans on time without borrowing from Other (please explain) sources.	1	2	3	4	5
14	Microfinance clients borrow in order to service their debt?	1	2	3	4	5
15	Interest rates on microfinance loans are too high compared to commercial banks?	1	2	3	4	5
16	Loans are forced on clients making them worse off than they were before?	1	2	3	4	5

SECTION 5: MICROINSURANCE (Please tick where applicable)

1. What type of policies do you subscribe? (Select all that is applicable)
    a. Life insurance ☐
    b. Children's education policy ☐
    c. Vehicle/motor policy ☐
    d. Medical insurance policy ☐
    e. Property insurance ☐
    f. Commercial/ business ☐
    g. Travel ☐
    h. Loan default insurance ☐
    i. Multiple policies ☐
    j. Other (please explain) ☐

    ……..……
2. What was the reason for the rejection of your claim?
    a. Claim not covered under policy ☐
    b. Claim in excess of policy taken ☐
    c. Lack of full disclosure of relevant information ☐
    d. Non-payment of premium ☐
    e. Other (please explain) ☐

    …..…….……
3. Would you consider taking up an insurance policy in case you don't have one?
    a. Yes, if it will be beneficial to me ☐
    b. Yes, if the premiums are reasonable ☐
    c. No, I can't afford the premiums ☐
    d. No I don't see the need ☐

	Microinsurance	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
4	The Microfinance company offer insurance services or partners with Other (please explain) insurance companies to underwrite our risks?	1	2	3	4	5
5	The policy offered by the MFI has been beneficial to my household and business	1	2	3	4	5
6	Insurable claim under the microfinance scheme are processed faster than claims with normal insurance companies?	1	2	3	4	5
7	Clients' claims under microfinance policies are usually not paid?	1	2	3	4	5
8	Premiums under microinsurance schemes are lower than schemes under the normal insurance companies?	1	2	3	4	5
9	Taking up insurance product in addition to your savings has lowered your default risk.	1	2	3	4	5

SECTION 6: POVERTY REDUCTION OUTCOMES (Please tick where applicable)

1. On the average, expenditure on food in a month per person in the household is?
    a. Less than GH¢120 ☐
    b. Less than GH¢150 ☐
    c. GH¢151 and above ☐
2. On the average expenditure on utilities per month is?
    a. Less than GH¢50 ☐
    b. GH¢51 – GH¢100 ☐
    c. GH¢101 – GH¢150 ☐
    d. GH¢151 and above ☐

	Income Levels	**PLEASE TICK APPROPRIATE BOX AGAINST EACH YEAR BELOW**				
3	Please indicate the range that best describes your income levels for the three years below	Gh¢ 1 - Gh¢15,000	Gh¢ 15,001 - Gh¢30,000	Gh¢ 30,001 - Gh¢45,000	Gh¢ 45,001 - Gh¢60,000	Above Gh¢60,000
	2013					
	2014					
	2015					
4	**Consumption Expenditure**					
	Please indicate your annual consumption expenditure for the following years **(please tick as appropriate)**	Gh¢ 1 - Gh¢5,000	Gh¢ 5,001 - Gh¢10,000	Gh¢ 10,001 - Gh¢15,000	Gh¢ 15,001 - Gh¢20,000	Above Gh¢20,000
	2013					
	2014					
	2015					
5	Please estimate your business annual expenditure on utilities (Water, Electricity and Telephone etc.) over the last three years (**Tick as appropriate**)	Gh¢ 1 - Gh¢5,000	Gh¢ 5,001 - Gh¢10,000	Gh¢ 10,001 - Gh¢15,000	Gh¢ 15,001 - Gh¢20,000	Above Gh¢20,000
	2013					
	2014					
	2015					
6	**Acquisition of Business Assets**					
	Please indicate the number of assets acquired over the past three years **(Pease tick box below)**	1 - 3	3 - 5	5 - 7	Above 7	
7	On the average, expenditure on fixed assets over the three years was **(Please tick the box below as appropriate)**	Gh¢ 1 - Gh¢5,000	Gh¢ 5,001 - Gh¢10,000	Gh¢ 10,001 - Gh¢15,000	Gh¢ 15,001 - Gh¢20,000	Above Gh¢20,000
8	**Ability to Educate Children**	**1 - 3**	**3 - 5**	**5 - 7**	**Above 7**	
	Please indicate number of dependents in school over the last three years					
9	Please indicate expenditure on school fees for the relevant years	Gh¢ 1 - Gh¢1,000	Gh¢ 1,001 - Gh¢5,000	Gh¢ 5,001 - Gh¢10,000	Gh¢ 10,000 and above	
	2013					
	2014					
	2015					

QUESTIONNAIRE FOR MICROFINANCE COMPANIES

SECTION 7: MODERATING VARIABLE – REGULATORY FRAMEWORK

Please Circle the appropriate one

	REGULATORY FRAMEWORK	A greater positive extent	A large Positive Extent	Neutral	Negative Extent	Extremely negative
1	To what extent has regulatory framework affected your ability to expand credit	1	2	3	4	5
2	To what extent has regulatory framework affected your ability to mobilise savings	1	2	3	4	5
3	To what extent has regulatory framework affected your ability to insure clients	1	2	3	4	5
4	To what extent has regulatory framework affected your portfolio investment	1	2	3	4	5
5	To what extent has regulatory framework affected the setting of your interest rates on loans	1	2	3	4	5
6	Has the increase in the minimum capital affected your ability to generate credit	1	2	3	4	5
7	Has the increase in the tax rate from 8% to 25% affected your ability to expand credit	1	2	3	4	5
8	Current regulatory framework is sufficient for effective monitoring of microfinance institutions in Ghana?	1	2	3	4	5
9	Does current regulatory framework protect stakeholders (customers)	1	2	3	4	5
10	Is current regulatory framework sufficient to prevent collapse of MFI	1	2	3	4	5
11	Does Current regulatory framework promote responsible lending	1	2	3	4	5
12	Does Current regulatory framework prevents charging of arbitrary interest rates	1	2	3	4	5

Thank you

Samuel Nathaniel Ampah
+27 780 652 805 & +27 820 569 721
kwamenaampah@gmail.com or SKAmpah@scj.com

APPENDIX 3 – MAP OF GHANA

APPENDIX 2 - SUMMARY OF HYPOTHESIS

Research Objectives	Hypothesis	Statistical Model	Hypothesis Test	Interpretation
To establish the effect of Access to Credit on poverty reduction among the people of Central Region of Ghana	Microsavings does not have a significant effect on Poverty reduction among the people of the Central Region of Ghana	$Y=\beta_0 + \beta_1 MSave + \varepsilon$	H_{01}:μ=0 or H_{01}::≠0, t-test F-test	Reject H_{01}, t or F, if P≤0.05, Otherwise do not reject if P≥0.05
To determine the effect of access to credit schemes on poverty reduction among the people of Central Region of Ghana.	Access to credit do not have a significant effect on Poverty reductions among the people of the Central Region of Ghana	$Y=\beta_0 + \beta_1 AccCred + \varepsilon$	H_{02}:μ=0 or H_{02}::≠0, t-test F-test	Reject H_{02}, t or F, if P≤0.05, Otherwise do not reject if P≥0.05
To establish the effect of microinsurance on poverty reduction among the people of Central Region of Ghana.	Microinsurance does not have a significant effect on poverty reduction among the people of the Central Region of Ghana	$Y=\beta_0 + \beta_1 Msure + \varepsilon$	H_{03}:μ=0 or H_{03}::≠0, t-test F-test	Reject H_{03}, t or F, if P≤0.05, Otherwise do not reject if P≥0.05
To determine the moderating effect of Regulatory framework on microfinance interventions and poverty reduction among the people of Central Region of Ghana.	There is no moderating effect of Regulatory framework on microfinance interventions and poverty reduction among the people of Central Region of Ghana.	$Y= \beta_0 + \beta_1 X_1 Z + \beta_2 X_2 Z + \beta_3 X_3$	H_{04}:μ=0 or H_{04}::≠0, t-test F-test	Reject H_{04}, t or F, if P≤0.05, Otherwise do not reject if P≥0.05

Source: Researcher, 2016