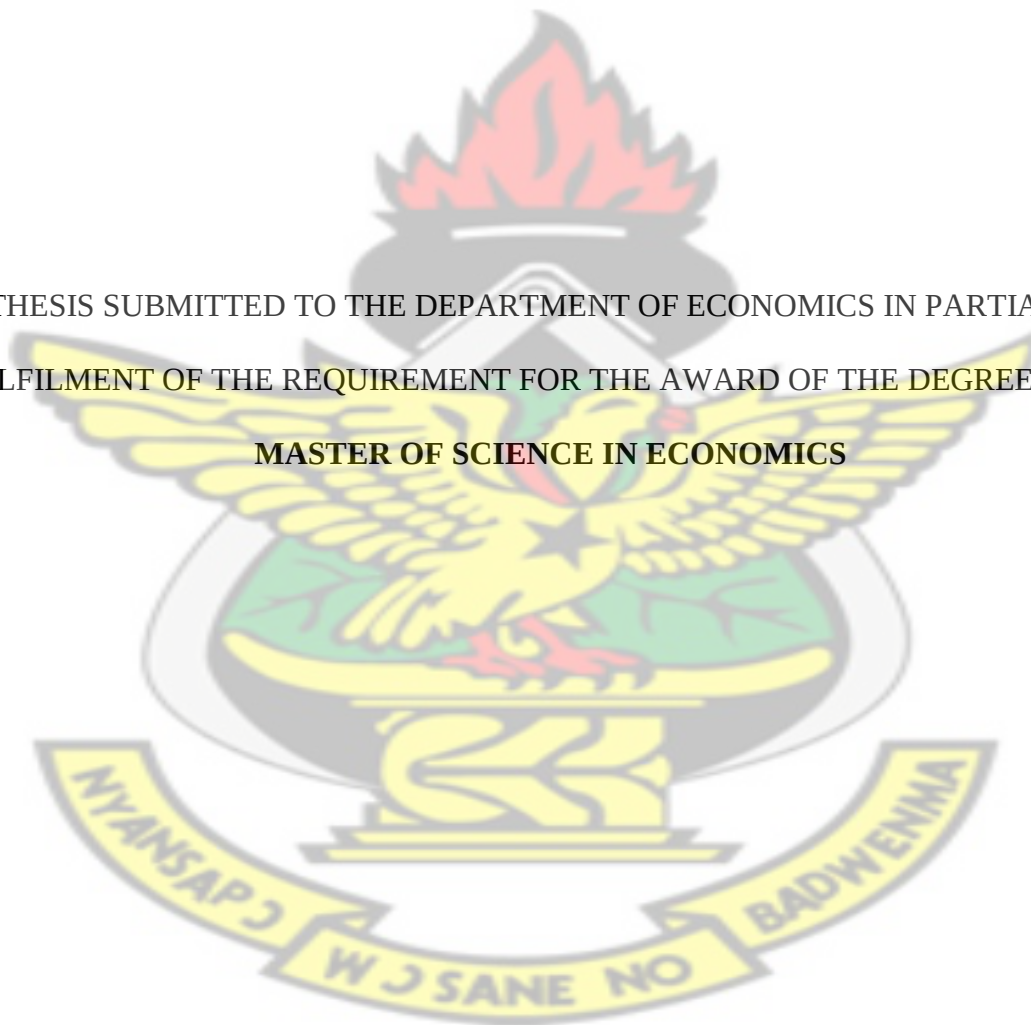


**THE BASIS FOR LOAN DEFAULT REPAYMENTS IN MICROFINANCE
INSTITUTIONS (MFIs) IN GHANA: A CASE OF MICROFINANCE
INSTITUTIONS IN KUMASI METROPOLIS**

KNUST

A THESIS SUBMITTED TO THE DEPARTMENT OF ECONOMICS IN PARTIAL
FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF
MASTER OF SCIENCE IN ECONOMICS



February 2018

DECLARATION

I hereby declare that this research work is part of the requirement toward the attainment of a Master of Science in Economics and that, to the best of my knowledge, it contains no material previously published by another person nor materials which have been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

.....

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SUPERVISOR'S DECLARATION

I declare that I have supervised the student in undertaking the study submitted herein and I confirm my permission to present it for assessment.

.....

DATE:

(E. F. Oteng-Abayie)

(Supervisor)

CERTIFIED BY:

.....

DATE:

Osei Fosu Anthony Kofi

Head of Department

DEDICATION

I dedicate this thesis to the Almighty God for His strength, wisdom, knowledge and guidance. I also dedicate this piece of work to my parents

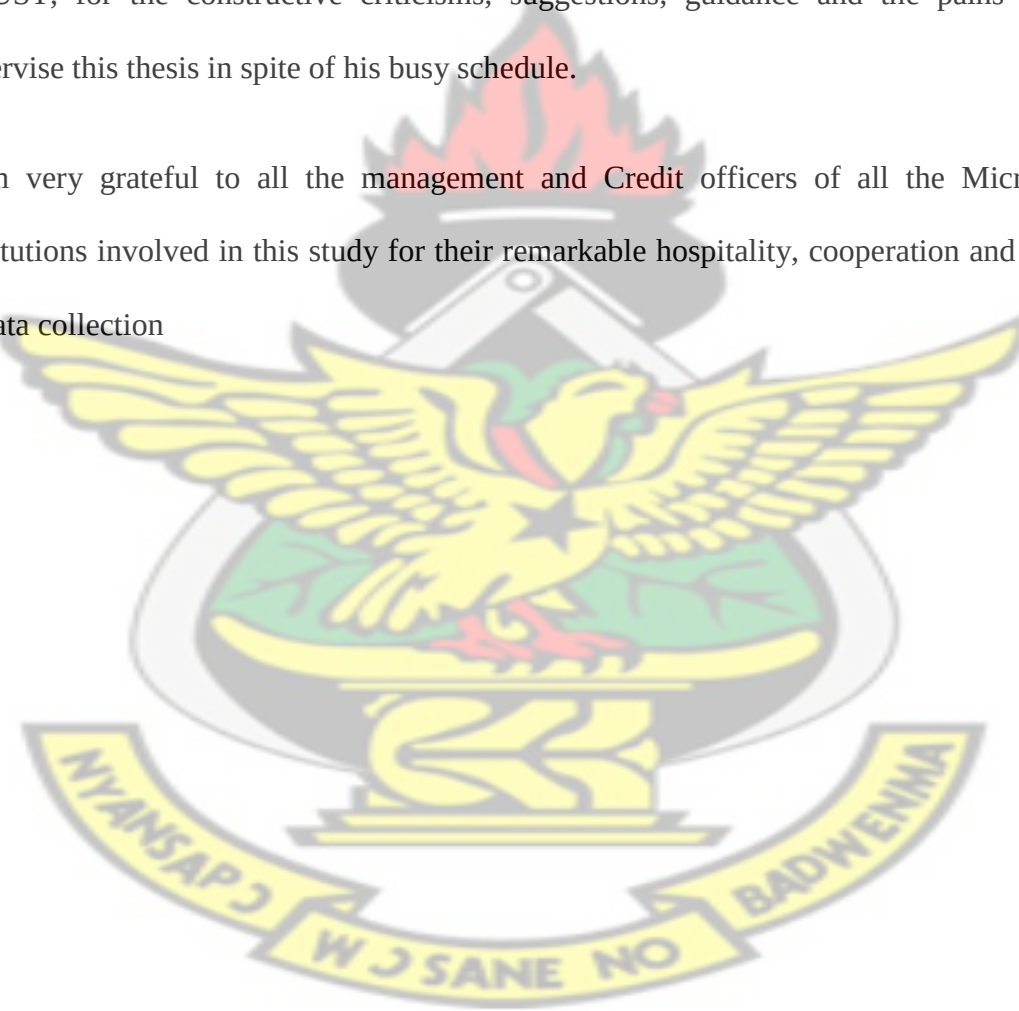
KNUST



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I am very grateful to all the management and Credit officers of all the Microfinance Institutions involved in this study for their remarkable hospitality, cooperation and supports in data collection



ABSTRACT

This study sought to evaluate the extent of which loans are defaulted among Microfinances Institutions in Ghana, investigate the factors that influence the default of loans among Microfinance Institutions in Ghana and also to examine the effects of loan default on MFIs in Ghana using Kumasi Metropolis as the study area. Thirty-two (32) MFI institutions were sampled. In each of the MFI, 20 customer and the credit officers were interviewed using a structured questionnaire. The responses from the credit officers were used to assess the extent and effects of loan default on the MFIs. Also, in order to evaluate those factors that are likely to influence loan default, a probit regression model was used with probability of loan default being the dependent variable. The independent variables were, age of respondents, marital status, household size (size of dependents), health condition of customer, health issues of dependents of customers, employment or business type, income, receipt of remittances, loan inadequacy, possession of multiple loans, financial literacy training and post loan customer supervision or monitoring. The results from the probit regression revealed that the significant determinants of loan defaults were age of customer, income level, level of education, loan inadequacy, possession of multiple loans, and health issues of customer. It was also revealed that over 65% of the MFIs have a default rate above 4% (above the international acceptable default rate of 3%). Furthermore, it was observed that the prevailing loan default rate of the various MFIs affected their profitability, lending potentials and led to worker lay off. The study therefore proposed that MFIs revise their lending policies and practices to incorporate those characteristics that are likely to influence their lending potential, adopt credit insurance and enhance the capacity of credit officers.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The introduction of Microfinance has served as a strategy that has eased citizens of developing countries in acquiring loans, which in the long run will alleviate the poverty level. Microfinance is seen as a suitable financial instrument that aims to reach a significant number of people, who do not get easy access to them. According to World Bank, financial services play a crucial role in the informal section of an economy by developing that sector and encouraging savings by the nationals or the individuals through offered investment capitals which end up in wiping out surplus liquidity for the development of a nation (World Bank, Africa Region, 1999).

According to Asiama et al. (2007) the poor gets easy acquisition of production capital amid with the available human capital through training and education by Microfinance finance institutions. This is realized through local organizational structure, which empowers the poor to get out of poverty. Making available material capital by the Microfinance institutions to the poor elevates the dignity of the individual, which aids the individual to partake in the economic activities of the society (Otero, 1999).

Introduction of Microfinance institutions in the Ghanaian environment is never new since there has been several traditional means of savings and taking loans from individual. Asiama et al (2007) established that the Canadian catholic missionaries were the first to introduce credit union in Africa specifically in the Northern sector of Ghana in 1955. They also made it clear that the so-called “susu” recognized among Ghanaians is one of the popular

instrument used by the MFIs, could have its root traced from Nigeria which later extended to other countries within the twentieth century.

The activities of the MFIs are mostly aimed in offering financial services to small, poor and micro enterprises. The BOG working paper on MFIs states the service the Microfinance institutions provide may include loans provision, encouraging saving by the individuals, purchasing of insurance packages, ensuring transfer of services and making available other financial packages. The MFIs long-term vision is to ensure sustainable financial services to the economically active poor individual who finds it difficult in accessing services from mainstream of financial services (Nyamsogoro, 2010). To achieve MFIs vision, they have ensured playing an essential role in the improvement of micro-enterprise in Ghana compared to the commercial banks, precisely serving as instruments to facilitate in the reduction of financial exclusion so as to ensure equity and economic growth.

There are number of challenges facing these Microfinance Institutions in Ghana which may include; inadequate donor funding, insufficient support from government, improper regulations, limited management capacity and loan defaults (Dahir, 2015). Considering these challenges, loan default is the major problem that threatens the financial operations of these MFIs (Cull et al, 2009; Aghion and Morduch 2005; Zeller and Johannsen, 2006).

1.2 Problem Statement

Loan default dwindles the financial operations of MFIs. In a bid to curtail this issue, various efforts have been adopted to address the setback. These efforts are articulated in various credit collection policies, which are implemented in managing the accounts receivables and loan portfolio of MFIs (Pandey, 1995). These policies, which may include lending

methodologies, screening mechanisms, collateral pledging, ensuring third party credit guarantee, ensuring credit rating and the use of other collection agencies are put into operation in various institutions as mechanisms to lessen the rate of loan default in the financial sector (Sewagudde, 2000).

In line with this, most MFIs have adopted various strategies available to them to lessen the risks involved in unsecured lending which includes; group lending, mandatory savings deposit to the amount borrowed, rewarding individuals for repayment of loans on time by ensuring higher loan amounts, penalty for late payments by individuals such as inflicting fees and depriving them of loan amounts in the future.(Mulema, 2011) In addition to the various strategies given earlier on, repayment history of the continuing borrowers and third party guarantor of new loan applicants are compulsory before the loan can be granted to the various users of the loans. The usual methods of ensuring the offer of loans to the individual is however built on the judgment of individual and experiences of preceding assessments, which are not objective but very subjective. Thus, to determine the possibility of a borrower to default, the lender must assess the borrower's ability to payback his or her loan from his or her current businesses, which may be favorable to the MFIs credit policies and also to the borrowers. Adopting statistical approach in estimating the possibility of default offers an objective and straightforward approach.

Loan defaults are predominant occurrence in MFIs despite all the strategies that are being implemented. Therefore, it is generally noticed that default risk is associated with economic and social factors (Berharm, 2005; Agarwal, 2009; Marjo, 2010; Vasanthi and Rajab, 2006 Marjo, 2010; and Bichanga, 2013). However, inadequate information on current businesses and microfinance institutions features determines the likelihood of default by borrowers.

Based on this context encouraged the proposed thesis to identify the basis for loan default repayments in Microfinance Institutions in Ghana.

1.3 Research Objectives

The general objective of this study is to examine the basis for loan default repayments in Microfinance Institutions in Ghana. The specific objectives include:

1. To assess the extent to which default of loans exists among MFIs in Ghana;
2. To identify the factors that impact on default of loans repayment in MFIs in Ghana;
3. To determine the effects of loan default repayment on MFIs in Ghana.

1.4 Research Questions

Based on the above stated specific objectives, the study will answer the following research questions:

1. To what extent does the default of loans exists in MFIs in Ghana?
2. What are the factors that are likely to influence default of loans repayment in MFIs in Ghana?
3. What are the effect of default loan repayment on MFIs in Ghana?

1.5 Significance of the Study

The substantial drive to the study is to help microfinance institutions and banks to have a model that can effectively and efficiently forecast the possibility of loan default and provide knowledge and help future researchers in attaining information about loan default in MFIs. This thesis will also serve as an instrument in aiding loan decisions making by the loan

officers, regulatory and examining risks associated with loan portfolio and segregating loans that need additional attention.

1.6 Scope of the Study

The principal goal of the study is to probe into the bases or factors of default loan among Microfinance Institutions (MFIs) in Ghana, precisely Kumasi Metropolis. Towards this end, thirty-two (32) MFIs were randomly selected from the list of thirty-five 35 MFIs in Kumasi metropolis who were in compliance with the Bank of Ghana regulations as at 31st August, 2017. Kumasi metropolis was selected because it is center for numerous business activities that contributes significantly to the economic growth of Ghana.

In each of the thirty-two MFIs, the head of credit department was purposely selected to be interviewed using printed questionnaires. With regards to the MFIs data collected pertained to their default rate and the effects of the default rate on their respective institutions. Also, 20 customers comprising of a quota of 10 defaulters and 10 non-defaulters were conveniently selected in each of the 32 MFIs, thereby totaling 620 respondents. These respondents were interviewed using structured questionnaires in order to assess the socio-economic factors that are likely to affect loan defaults. These factors include, age, marital status, household size, health conditions of customer, health conditions of customers' dependents, loan inadequacy, possession of multiple loans, income, financial literacy training, post loan disbursement customer monitoring or supervision, employment status and business types, receipts of remittances and level of education. The data collection period lasted from July 2017 to November 2017.

In order to uphold the codes of confidentiality, dignity, privacy and ethical standards, personal information of respondents were not collected nor reported. Also, their full consent was sought before the questionnaires were administered. In the data presentation and reporting, information of the MFIs and their customers which did not relate directly to the research objectives were omitted.

1.7 Organization of the Study

The thesis is organized in five chapters. Chapter one focused on the general introduction of the study. It comprises the background of the study, statement of problem, objective of the study, research questions, scope of the study and significance of the study. Chapter two is also devoted to literature review. This consists of review of theories and empirical studies. Chapter three encompasses methodology of the study. Specifically, the chapter comprises research design, model specification, data analysis procedures and ethical considerations among others. Chapter four is devoted to results and discussion whilst chapter five focused on summary of findings, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is devoted to the literature review of the study. This chapter is divided into sub-sections comprising concepts and definitions related to loan default, theoretical and empirical review, and conceptual framework and hypothesis development.

2.2.1 The Concept of Loan Default

Depending on the MFIs policies, loan default has many definitions. According to Pearson and Greeff (2006), the definition of loan default solely is a risk that defines a point in the history of repayment of a borrower where there's a failure in repaying of its loan in three installments within a particular month. These denote a period of time and also a sign of a behavior, where borrowers face high risk and will eventually default all loan repayment.

Default can also be defined as borrowers being incapable to pay off its loan interest and principal on a debt when it is due according to Ameyaw, (2011) and Murray, (2001). That is, if an individual or an institution fails in repaying its loans or interest payment when they are liable in meeting these obligations on time, they are classified as being in default. Loan acquisition requires any form of collateral being any property in which incase of any default the property will be confiscated. Defaulting a loan has a severe impact on credit history and credit score on borrowers, which makes it difficult for borrowers to borrow again in the future. It concludes that Pearson and Greeff definition of loan default is the most consistent definition for these studies.

2.2.2 The Concept of Microfinance

Microfinance according to many scholars have different definitions, which is mainly based on the type of financial services and loan offered to its customers. It may also be based on the people who receive the service. Quayel and Hartarska, (2016) clearly defined Microfinance as an institution that provide financial services to enable micro enterprises and low-income houses to assess those financial services. The definition of Microfinance according to Tamfi (2014) considers the establishment of financial services to the relative unfortunate and minor working class as well as micro enterprises, which includes of micro loan, leasing, insurance, savings and any other available services.

With respect to this study, microfinance may be defined as an institution aimed at the delivery of financial services specifically loans to the poor working class being in the urban and rural sectors that find it difficult in assessing those services from the formal financial sectors like the commercial banks.

2.2.3 Microfinance Institutions in Ghana

Microfinance in Ghanaian context deals with the delivery and management of services sand assets through a variety of existing products and a structure of intermediary roles that are aimed at low-income customers according to the Ministry of finance. Microfinance may also be termed as institutions with the aim of providing loans in small amount and other services such as the savings, the insurance and allocation of financial services to the deprived low-income family and micro enterprises.

Microfinance in the Ghanaian context comprises of diverse financial institution, which targets the poor low-income household using similar methods. It comprises of various types of institutions, which is grouped into four main categories namely are the formal, the semi-formal, the informal and also the public sector, developing programs being it financial and non-financial for their clients. According to the Bank of Ghana, there are 332 registered microfinance institutions as May 2017.

2.2.4 Microfinance Lending Models

MFI lending models are methodologies used to grant loans to its clients. The most and common microfinance lending models are the individual lending models and the group lending models.

The individual lending model is where loans are offered to the borrower directly to make full payments of the principal amounts plus its interest without supports from any group in event of any defaults. According to Hazeltine and Bull, 2003, the MFIs ensures the provision of assistance technically, ensures schedules of payment and training on managing business to the borrowers.

Granting loans to individual borrowers have a huge risk attached to it due to a default in making repayment, institutions cannot induce other individuals to make repayments for the defaulters. Kay (2005) explained lending as a mechanism where the lender makes loan provisions to borrowers with the promise of paying back the interest and principal in the future. Due to these high risks of default by the borrower in loan repayment, it is essential for lenders to compile all the important information of individual borrowers to make a proper screening of the credit worthiness of the borrowers.

Some factors are essential to MFIs before granting loans to the individual, which may include; the characters of its borrowers, the amount being borrowed by its client, purpose of which the loan will be used for, the ability to manage the business successfully by the borrowers, means to repayment and available insurance policies.

The joint liability group model, also known as peer lending group or solidarity group, normally consist of four to five individual groups who borrows jointly. Self-selected partners based on their status and how they relate to each other and it is the entire members' responsibility of making entire payment on time as predefined in the repayment schedule. In case of any default, the whole group suffers possible consequences.

2.2.5 The Concepts of Credit Policy

Credit policies are referred to as policies set by financial officers with the aim of controlling loan portfolio based on its objectives, standards and parameters. Laid down procedures, guidelines and rules are set with the aimed of minimizing costs related to the credit and boosting its benefit (Ahimbishwe, 2002). Minimizing the number of default loans, which are bad debt, hence ensuring sustainability and profitability of Microfinance Finance Institutions is one of the main objectives of the credit policies.

Hulmes (1992) described three main element of credit policy, which can be rigid or flexible in subject of the directive of the variables that credit policies come with set by the managers. These are terms of credit, standards of credit and procedures of credit. These variables are used by Managers to determine its client's credit worthiness, ability and period of loan and

interest on loan, method of collection and procedures to guide MFI's in the case of loan defaults.

A rigid credit policy is normally implemented to only customers with good records of credit worthiness and a strong financial status are given loans, with the aim of minimizing the cost of collecting loan, incurring bad debts and other legal costs that is unnecessary (Pandey, 2001).

As compared to the Stringent credit policy, lenient credit policy offers loans to customers using simple loan terms and conditions, with the aim of increasing profit of financial institution by making available to the customers further loans (Kakuru1998 and Pandey 2001). It should be the aim of financial institutions to encouraged the formulate credit policy, which balances between stringent and lenient terms and conditions in order to enhance the performance of loan portfolio.

2.2.6 Microfinance and its Development

There is a provision of financial services due to the existence of Microfinance through a variety of services and products that aim at deprived low-income customers, which include loans, savings packages, insurance packages, transfer of services and other services and products. Microfinance can be seen as one of the financial tools that help in the development of the low-income earners by ensuring an easy access of resourceful funds leading to the enhancement of those resourceful activities.

Contemporary findings have proven that microfinance plays three essential functions in developing through assisting the deprived households in meeting their fundamental wants

and protecting them from any risks, improving the economic welfare of the poor household and empower women by ensuring participation of women in economic activities and promoting gender equity. This literature suggests that productive capital is made available to the poor by the microfinance with the aim of enabling people to improve their living standards amid with the available human capital by providing training and education. The social capital will be made available through building of local organization, which will also elevate the people from its state of poverty. The sense of dignity of the poor will be strengthened if material capital is provided to the poor, which can facilitate the empowerment of the individual's participation in the economic and social development (Otero, 1999). According to Otero (1999), the objective of the existence of Microfinance is not only geared to provision of capital to the deprived in a bid to curb poverty but also ensure that a essential task are taking care of in the institutional level by creating environment within institutions that offer services to the deprived individuals, who finds it difficult in accessing those financial services from the formal banking sector.

Based on Littlefield and Rosenberg (2004), financial service sector of the economy mainly excluded the participation of the poor therefore the emergence of MFI's. The existence of MFIs has resolved this market failure. MFI's plays an essential role in the financial system of a nation when it tackles the gap in the market where it can help in accessing the markets to get the available funds to support their lending portfolios, elevating the number of deprived individuals they can get to. (Otero, 1999)

2.3 Theoretical Literature Review

2.3.1 Agency theory

Agency theory studies can be described as how economic factors are employed in contractual arrangements whereby asymmetric information is present. A well standard practice of the agency essentially is to analyze the behavior of the decision maker under various circumstances and to be able to make optimal decisions. Then strength of this theory lies in identifying theoretical ways that will enhance and help agents take effective actions.

This mechanism has been implemented in various agency procedures, among such concepts can be prescribed in two sections namely moral hazard and adverse selection models. The two concepts are used to describe situations where one party is at a disadvantage. In the moral hazard models, the asymmetry information is caused by the failure of the principal to notice or validate the actions of the agent. In adverse selection models, there's an absence of information to the principal and unaware of agent's hidden characteristic. Therefore, adverse selection is where undesired results ensue when sellers and buyers have no asymmetric information in the market environment, which will enable bad clients likely to apply for the service more.

2.3.2 Agency Theory and Loan Defaults

This section recognizes the relationship between Agency theory and likelihood of borrowers to default their loan contracts. Information asymmetry between the Microfinance Institutions and their borrowers leads to some borrowers to get access to loan even when the probability of them to repay is low. Moral hazard as earlier identified as the inability of the principal to identify and verify the agent's action that contributes to loan default within most

microfinance institutions. On the other hand, adverse selection arises when the lender is unable to identify and verify features of the borrower, which effectively affects the probability of the loan repayment.

More often, borrowers are likely to default loan when they acquire such loan due to certain actions they take. It is normally expected that borrowers take actions that can lead to additional benefit of each action, which may equal to additional cost. This might be different if the lender has no perfect information concerning the borrower. If there is no collateral, the full cost of loan default is not directly borne by the borrower. There is no obligation on the part of the lender that specifically states how the borrower should run his or her business due to the fact that the borrower's actions are costly.

Principal according to this study represents MFIs while Agent represents the borrowers who have been entrusted with loans and expected to do the repayment as per MFIs requirements. Therefore, the MFIs inability to access information about socioeconomic characteristics of borrowers, business knowledge and experience and general business performance may lead to loan default. Also in the same instances the supervisors of the loans being an agents of Microfinance Institutions, usually flop in meeting the obligation of the MFI's acting as Principal to ensure that borrowers are well supervised and make available any detail information that may signal any defaults for immediate and appropriate actions.

2.3.3 Principle guiding loan repayment

The period of repayment of it loans by clients can be identified on the ground of liquidity position of the borrower and the economic forces surrounding the investments. The terms of the repayment should be flexible to enable the borrower to adjust to their cash flow pattern.

According to Zena (2009), banks use certain lending principles to guide credit facilitation. Among these principles include; the competence of the borrower in repaying the loans, the borrower's personal information and the repayment capacity.

2.3.4 Borrowers Perceived Need

Opportunity is supposed to be given to borrowers to enable them meet their perceived business needs. A viable credit facilitation system can address the issue of eligibility clearly through the establishment of precise and definite criteria.

2.3.5 Competency and repayment capacity

The competence of the borrower is determined by the repayment ability, which is largely dependent on the profitable and efficient use of the credit granted. In effect, this provides a clear determinant of a borrower's credit capability. It is very expedient that managers assess the borrower's repayment capacity through background checks of the borrower, profit record, past information and prosperity.

In simple terms, the ability of the borrower to repay a credit facility can be termed as the 'capacity' (Van 2002). An investment credit most often yields sufficient profit making it possible for the borrower to repay his or her loan. The surplus after taking out the living expenses of the family from its net income is channeled to the repayment its credit. Majority of the borrowers can simply pay back its principal and interest while some finds it extremely difficult in repaying the principal. The technique of cash flow budgeting is a suitable way or tool in assessing the repayment ability of borrowers. Ensuring suitable

financial management will enhance repayment ability and ensure the profitability of its credit.

2.4 Empirical Literature Review

2.4.1 Factors for the Occurrence of Loan Default

Many factors contribute to the occurrence of loan default in most microfinance institutions. According to Ahmed (1997), certain contributing factors to loan default in MFI's include negligence, diversion of funds, unwillingness to repay loans and improper assessment by credit officers. Some major cause of loan default was identified by Balogun and Alimi (1988), in which they stated that shortage of loans, delay in the delivery of loans, farm size being small, interest rate being high, the ages of farmers, lack of supervision, farm enterprise being unprofitable and also government intervention in the operations of credit programs which they sponsor.

In addition, Marjo (2010) cited by Mosha (2016) reported that socio-demographical and behavioral variables are one factor that has effects on loan default. They were of the view that among other socio-demographical variables such as age, income, education and nationality were found significant. There are also behavioral variables that can have significant influence on loan default such as size of loan and customers information on previous loan acquisition by the same company.

According to Hurts and Fesolyalyi (1998), the ability of loan repayment of borrowers is affected when real gross domestic product declines and the exchange rate also depreciates causing loan default, cited by Kwakwa, (2009). According to Olomola (1999) as cited by Amankwah (2011) identified that an increase in a borrower's transaction cost is due to lag in

disbursement of loan and the interest rate being high which will in the long run have adverse effect on repayment performance.

Further study by Mosha (2016), Bichanga (2013), outline the reasons of defaulting loan in MFI's in Trans Nzoia County, Kenya, which they concluded that default in loan was due to MFI's poor supervision of its borrowers and inadequate training of borrowers on how to utilize their loans before receiving them.

2.4.2 Existence of loan default in microfinance in Ghana

Asiama (2011), made it clear that the existence of Microfinance is not new in Ghana. People traditionally make acquisition of loans in small amount with the aim of opening a business or indulging in farming from individuals and group of people.

In addition to the studies, microfinance serves as a better role in ensuring that the nation develops, which will eventually eliminate or reduce the level of poverty in the nation. According to Asiama (2011), the main aim of the nationals of Ghana in the Growth and Reduction Strategy is to ensure a sustained equitable development, encourage reduction in poverty and protection of the vulnerable associated with a decentralized and democratic environment. Wiping out the spread of poverty is one of the main goals of the strategy. It also ensures that inequality in income growth is reduced within the productive deprived individuals who form the majority in the active working class. Considering how loans and other advances are given to the small businesses in Ghana as studied by Asiama (2011), a record of 50.97million in 2002 as against 39.64million Ghana cedi in 2001 comprise of individuals and groups by the non-bank financial institution (NBFI's) in Ghana which indicate 28.6% growth. It further increased from 70.63million Ghana cedi to 72.85million Ghana cedi in 2003 and 2004

respectively suggesting a growth of 3.1 percent. According to Asiama (2011), customers in the year of 2006 received 160.47 million, indicating 48.8 percent rise than that of the former years advances and loans giving to its clients by most MFI's in Ghana.

2.4.3 The effect of loan repayment default to microfinance institutions in Ghana

Loans perform an essential role in developing a nation's economy. Therefore, if a loan repayment is default it will hinder the progress of the economy. There are general effects of loan repayment default on microfinances and the nation as a whole. According to Mansoori (2009) lenders always find it expedient to implement various institutional mechanisms in a bid to curb the increasing default risk in loan; that is, ensuring mandatory guarantee of credit of the third party, implementing the rating of credit, use of agencies in the collection of loans, pledging of collaterals for loans.

Bad loans can be avoided when lenders only dispatch loans to borrowers capable of repayment and unlikely to become insolvent in the near future. Analysis of credit of the borrowers should be undertaking in a diligent manner to ensure effective judgment of the credit risk of the borrowers, which will ensure effective decision-making on lending. Effective monitoring of customers must be employed in way that ensures repayments of loans, and taken actions on any defaulters. Also, there should be an avoidance of loans dispatched to customers seen as risky, ensuring monitoring of repayments of loan and finally coming in terms with clients who seems having difficulties in loan repayment.

2.4.4 Estimating loan default occurrences

Several statistical methods are employed in estimating the credit scoring models for borrowers, which comprise of the use of discriminate analysis as stated by Dunn and Frey (1976), Linear probability models in which Turvey (1991) encouraged, also Lufbuttow et al. (1984) encouraged the use of Probit models and finally using Logit models as stated by Mortensen et al. (1988). Employing last three methods will be based on the past data on borrowers' loan performances and characteristics, which helps in estimating the rate of default. The use of linear probability model is based on the linear blending of the explanatory variables, which assumes a linear relationship between the rate of default and other available factors.

Considering the probit model, there is an assumption that the standard cumulative normal distribution function follows the probability of default of a borrower. Moreover, in the logit model, the probability is spread logistically. However, in the discriminant analysis there's a separation of borrowers into classes either being high or low default risk (Mester, 1997).

Additional studies conducted proposed that the linear probability model usually ensures a rational prediction of outcomes comparing it to the Logit model and discriminant analysis according to Collins and Green (1982). Conversely, Pyndick and Rubinfield (1998) and Judge et al. (1985) clarified that the rate of default is predictable by the linear probability model that in most cases the value predicted might not fall between zero and one. Generally, all variance models are heteroscedastic and usually creates problem with the consistent estimation and leads to unacceptable conventional measure of fit (R^2).

However, in reference to Hand and Henley (1997), considering two distinct classes being good or bad risks, described in a model, the more suitable statistical tool to be employed is the logistic approach than the linear regression because it provides the logistic approach greater rate in classification. Even though, the Logit model is comparable to the probit model, the former is most selected to the probit model due to its easiness (Barney et al., 1999; Novak and LaDue, 1999; Lee and Jung, 1999).

Clarke (2005) on the other hand, approves with other researchers that, most banks employ the logistic model in lending decisions because it significantly increases the general rate of classification and reduces the rate of error. Wiginto (1980) comparing the logistic approach to the discriminant analysis sees the logistic approach superior in classification.

Considering previous discussion, it is seen that issues on loan and behavior borrowers are key bases of defaults of loans. Stated by Makorere (2014), loan repayment depends on behaviors borrowers and the stability of economic. According to Kiyondo (2009), due to absence of education and absence of sanctions meted out to defaulters serves as the major causes of such loan defaults. On the other hand, absence of effective supervision of borrowers also poses as reasons for defaults (Bichanga, 2013). As stated by Onyeagocha et al (2012), other factors influencing loan defaults span from loan size, the expertise of credit officers to shocks. However, inadequate information concerning financial institutions and characteristics of business are also factor for defaults of loan. In addition, descriptive analysis was not considered as the important technique for analysis. However, the logistic approaches that is Logit models have been applied frequently in previous research and gives superior classification.

CHAPTER THREE

METHODOLOGY AND EMPIRICAL STRATEGY

3.1 Introduction

This Chapter considers the research method that was employed in this thesis. This has been composed into three (3) sections. The first section, the geographic area in which the study was conducted is defined, while the second section describes the design that was adopted in undertaking the study. The study design elaborates on the target population, sampling technique, sample size, instrumentation, data collection method, data analysis, model specification as well as the pretesting of the instrument deployed in data collection method. The third, and final, section of this chapter discusses the ethical concerns of this study.

3.2 Profile of Study Area

Kumasi Metropolis being the capital city of the Ashanti Region is where the study was undertaken. It represents one of the districts within the thirties (30) districts in the Ashanti Region. Kumasi Metropolis is situated amid Latitude 6.35° N and 6.40°S and Longitude 1.30°W and 1.35°E. It is further raised at 250 to 300metres above the sea level. The metropolis is enclosed to the north with Kwabre East districts, to the western side Atwima Kwamwoa districts, to the eastern side Ejisu – Juaben municipality and to the south with the Bosomtwe districts.

Per the Population and Housing Census in 2010, the Kumasi Metropolis represents the second populous city after the capital, Accra with a population of 1,730,249 of the total regional population. This represents 36.2% of the region's population. The household figures recorded totaled about 440,283, with an average household size of 4 persons. About

67 percent of those household aged between 15 years and above in Kumasi Metropolis formed the economically active group. Out of that total, 91.4% are employed while the remaining wallow in considerable unemployment. The economic activities of the working population cover a wide range of activities; predominantly wholesale and retail business, automobile repairs which employs (38.4%). The manufacturing industry (13.6%), accommodation and food services, tourism, financial and insurance, transportation and agriculture activities employ. The age dependency ratio (ratio of dependent individuals – people younger than 15 or elder than 64 to the total working age population) was found to be 58. This statistic indicates that per every 100 persons of the working group in the Kumasi Metropolis, there are about 58 persons who depend on the former for support. The age dependency ratio for men stands at 59.9% while that of women is 56.3%. In terms of literacy, 72% of the metropolis populates aged 11 years and older can read and write.

Socio – Economic Characteristics

Kumasi metropolis is a hub of numerous economic activities that contributes significantly to the economic growth of Ghana. Generally, it represents the Central Business District (CBD), which encompasses the Kumasi Central Market, the Adum Shopping Centre and the commercial Kejetia Lorry Park. There are other prominent economic ventures within the metropolis such as the Suame repair centre (Magazine), the Anloga wood market, and Asokwa industrial area. There are a number of satellite markets engrossed around the metropolis. Some include Bantama market, Oforikrom market, Atonsu markets and Asafo markets. Due to the presence of such bustling economic activities within the metropolis, it has attracted people of diverse economic background. Kumasi Metropolis has established itself as a major commercial hub for wholesale, retail, financial and non-banking activities.

There are also other non-ancillary services and informal activities offered on a large scale. It is against this backdrop that Kumasi Metropolitan was selected as the focus area for this study in order to yield results that are most representative.

3.3 Study Design

The thesis design outlines the overall strategies that were deployed in conducting this study in order to certify the effective realization of the research objectives. It constitutes the blueprint for target population, sampling techniques, the size of the sample, the instrument and method in data collection, analysis of data and the pretesting of data collection method.

3.3.1 Target Population

The target population of this thesis constituted all the thirty-four (34) Microfinance Institutions in Kumasi Metropolis who were in compliance with Bank of Ghana regulation as at 31st August, 2017, as well as the customers of the MFI's.

3.3.2 Sample size and Sampling Technique

In determining the representative number of MFIs to be used in the study, the Slovin formula (1960) was employed. According to the Slovin formula for sample size determination, the sample size can be computed as follows: Where: the value 'n' represents the sample size to be determined; N represents the target size of the population (thirty-four); and ϵ is the margin of error equivalent to 5%.

Accordingly, the result of the Slovin formula indicated that a sample constituting thirty-two (32) MFIs should be used for the study.

Furthermore, because the study collected data from the customer or clients of the MFIs, an appropriate sample size of the customers was derived using the proportion/ percentage confidence approach. In accordance to the formula, the least size of sample is derived as;

Where: p , 6%, is the proportion of target population that default loans. This was obtained from the pilot survey conducted. Also, Z is the standard 95% confidence interval and ϵ is the margin of error equivalent to 5%. Using this, the minimum sample of customers to be interviewed was three hundred and twenty-two (322) (approximately 320). However, in order to maximize the reliability of results and achieve greater precision and power, a sample size of six hundred and twenty (620) people was used.

Having obtained the needed sample size, the simple random sampling technique employed in selecting the thirty-two (32) out of the thirty-five (35) MFIs in Kumasi Metropolis. This technique is a probability sampling method whereby each member has an equal chance of being selected from a larger group. In each of the thirty-two (32) selected MFI, the Head of the Credit Department was purposefully selected to fill the questionnaire.

Furthermore, due to the unavailability of data on the customer base of each of the thirty-four (34) MFIs, convenient sampling was used in selecting any twenty (20) customers from each MFI. In convenience sampling approach, elements are selected for inclusion in the sample based on the ease of access. It is a non-probability sampling techniques, implying that, the probability of any elements in the target population to be selected into the sample is unknown. Also, for the purpose of achieving out research objectives, loan defaulters and non-defaulters were selected up to a quota of ten (10) each for each MFI.

3.3.3 Instrumentation

In light of the fact that the research relied on primary data sources, printed structured questionnaires were used as the principal tool for collecting data on the variables of interest. The contents of questionnaire were structured to obtain data on the demographic characteristics of the target population, their socio-economic features and other variables essential for the researcher to make valid inference with regards to the research objectives. Because the target populations comprised both the Microfinance institutions and their customers/ clients, two-structured questionnaire was designed to be completed by the respective target populations.

The questionnaire is to be filled by the microfinance institutions were structured into four (4) sections and contained thirty-one (31) questions. The first section requested data on the demographic characteristics of MFI's. Information pertaining to the various loan or credit facilities and extent of loan default were requested for the second part. Also in the third section, it's centered on data for the factors that could potentially lead to debt repayment default. The fourth section collects data on how debt repayment defaults affects Microfinance institutions.

The Customers or clients of Microfinance institutions filled questionnaires that contained twenty-three (23) questions and was divided into 3 main sections. Data on the demographic characteristics of the customers were collected in the first section. The second section collected data that sought to assess economic factors that could potentially affect customers' ability to pay for the loans/ credit they contracted. In the last section, customers were requested to give information on the reasons why they defaulted repayment of loans.

3.3.4 Data Collection

In collecting data, face-to-face interviews and self – administration approaches were used. These approaches were employed in the data collection because they minimized biases; enhance accuracy of responses by offering respondents adequate time to think through their answers. This thereby made it easier for respondents to seek clarifications on unclear questions and it can be used for a large sample size. The data collection period lasted from July 2017 to November 2017. Data collection on the MFIs and their customers was undertaken in the premises of the MFIs. It took roughly eight (8) to ten (10) minutes to complete a questionnaire by respondents fluent in English. For customers who could not speak, read or write English, the questionnaire was verbally translated into their dialect in order to obtain the right responses. Respondents who were capable of reading, writing and speaking English were given the questionnaire to fill with some guidance from the researcher.

3.3.5 Data Analysis

For the purpose of performing analysis, STATA, Econometric Views (EViews), Microsoft Excel, and the Statistical Package for Social Sciences (SPSS) tools were used. These software were used in diverse ways for the purposes of data editing, data coding and classification of data collected on the questionnaires as well as the descriptive and inferential analysis. Also, in portraying the visual outlook of variables, pie charts, clustered bar graphs, tables, percentages and proportions were used. These reporting tools were used because the variables or data collected are nominal (categorical) in nature.

In performing the descriptive and causal analysis, the probability regression (probit) method with multiple regressors was deployed. Probit is a nonlinear regression model specifically designed for binary dependent variables. This method uses the cumulative normal distribution function to model the probability of the dependent variable (loan default) premised on a set of independent variables. The probit was used in this thesis because regression of a binary dependent variable (loan default) models the probability that (loan default equals 1, equivalently, that loan default occurs). Hence it is statistically justifiable to use a non-linear expression that restricts the predicted values to fall within 0 and 1. Moreover, the Probit method was chosen over the other regression models such as the Linear Probability model because, unlike the Probit, the conditional probabilities of Linear probability model can assume negative (less than zero) or be greater than one and this does not make statistical sense.

The proposal of the reliability test by Cronbach (1951) was used to determine how reliable data in a questionnaire are when administered several times to the same individuals. The closer an alpha coefficient is to a value of 1.0, the better the internal stability using the specific elements. Furthermore, Chi-square test of association was conducted in order to assess the statistical association between the demographic and the characteristics of customer in socio economic environment and their default of loan status.

3.3.6 Model Specification

This research thesis uses the statistical model elaborated below to investigate the determinants of loan defaults in MFIs in Ghana. The Probit regression model with multiple regressors is specified as:

$$\Pr (Y=1|X_i) = \Phi (\beta_0 + \beta_i) \dots\dots\dots (3.1)$$

Where: the value Y represents the dependent binary variable and the value Φ represents the cumulative standard normal distribution function, X_i is the set of regressors or independent/explanatory variables and β_i , is the set of corresponding Probit coefficients.

$$\text{Probability that a customer default a loan: } P_i = \Pr (D_L^{ef} = 1) \dots\dots\dots (3.2)$$

$$\text{Probability that a customer does not default a loan: } 1 - P_i = \Pr (D_L^{ef} = 0) \dots\dots\dots (3.3)$$

Hence;

$$\Pr (D_L^{ef} = 1|X_i) = \Phi (\beta_0 + \beta_i) \dots\dots\dots (3.4)$$

Equation (3.3) estimates the predicted probability that $D_L^{ef} = 1$, in other words, it estimates the predicted probability that a customer default a loan based on the set of independent variables (X_i).

where:

$X_i = \{\text{AGE, EDU, MRGSTAT, HEALTH}^L, \text{HEALTH}^D, \text{HSIZE, OTHLOAN, EMP, Y}^M, \text{REM, LOANINADQ, TRN}^{BF}, \text{MNTR}^{AFT}\}.$

The interpretations of the probit coefficients are not straightforward because they affect probabilities of defaulting a loan through the z – values. However, the sign and statistical significance of the probit coefficients are easily explained in terms of correlation. A positive

coefficient implies a positive association amid the loan default probability and the independent variable, while a negative coefficient means otherwise. Also, the outcome of a change in a regressor on the loan default probability is estimated by, first determining the predicted probability of the initial regressor value, followed by calculating the predicted probability of the new regressor value and finally determining the difference that exists between the two respective values.

3.3.6.1 Definition and measurement of Variables and their expected sign

The focus of this section is to expound the definition of the dependent variable and the independent or explanatory variables as well as how they were measured.

3.2.6.1.1 Dependent Variable

Loan Default (D_L^{ef})

The dependent variable, loan default, is expressed as the predicted probability that a customer/ client defaults in the repayment of loan contracted from an MFI. It is expressed as a dummy or dichotomous variable that assumes the value one (1) for a customer that is defaulting a loan or a value zero (0) is a customer not defaulting a loan.

3.3.6.1.2 Independent Variables

Age

This refers to the age category of the respondent. It was observed that most people are unwilling to tell their actual ages, as such the age of respondents were ordered in a categories of age range. Category 1 represented ages from 18 – 25, category 2 for ages 26 –

35, category 3 for ages 36 – 45, category 4 for ages 46 – 55 and category 5 for respondents aged above 55 years. A positive or negative relationship is envisaged between, Age and Loan default. Consistent with the Life Cycle Hypothesis, when an individual commences work, he or she accumulated wealth and savings up to the age of retirement (60 years in the case of Ghana) after which the individual stop saving. Consequently, the individual converts savings to consumption and hence has a higher possibility of defaulting a debt, thereby proposing a positive relationship amid probability of loan default and age. The study of Boyle et al. (1992) establishes that because older borrowers pose as more risk averse and they hardly default in repayment. As a result, financial institutions are less likely to dispatch loans to younger borrowers because they are considered as more risk averse. This thereby implies a negative relation between age and probability of loan default.

Education (EDU)

Education is defined as the highest level of formal education attained by the respondent (customer). It is nominal variables that are represented by five (5) categories. It takes the value; 0 representing individuals with no formal education; the value 1 representing person with formal education; 2 for persons with junior secondary education; the value 3 representing persons with secondary level education and the value 4 for tertiary educated persons. The relationship between education and loan default is predicted to be negative. Persons with higher level of education are most likely to obtain higher paying or lucrative jobs as compared to less educated individuals. In addition to this, individuals who attain higher level of education are mostly to be enlightened on matters pertaining to financial prudence. Consequently, more educated individuals are often less likely to default in loan

repayment hence a negative relation between education and probability of loan default (Mkandawire and Duan, 2016, Baklouti, 2013).

Marital Status (MRGSTAT)

This refers to the marriage status of respondents. The marital status of respondents was classified into four (4) categories; it assumed the value 1 for single; 2 for married (customary/ ordinance/ consensus); 3 for divorced or separated; and 4 for widowed. The relationship between Marriage and Loan default is expected to be positive. Borrowers who are married are most likely to spend more on the consumption and needs of their families hence are likely to divert loan funds to unintended purposes. According to Dinh and Kleimeier (2007), individual marital status is usually linked to the number of dependents, which ultimately turns to adversely affect the borrower's financial capability to repay a loan. This therefore, indicates the positive association between marriage and probability of defaulting (Kwofie et. al., 2015).

Chronic Health condition (HEALTH¹)

This variable ascertains whether the customer has any chronic health condition for which he/she pays regular visits to the hospital on his/ her own cost. It is measured as a dummy variable, where 1 means Yes and 0 means No to the above question. A positive relation is expected between the propensity of loan default and the occurrence of borrower having health issues. Moodie, (2013), revealed that the borrowers' health issue might lead to challenges on loan portfolio quality.

Chronic health condition of Dependents (HEALTH^D)

This variable seeks to verify if any of the dependents of the respondent has a chronic health condition for which the respondent regularly expends on health care. Similarly, this variable was represented as a dichotomous variable; 1 meaning the respondent (customer) indeed spends regularly on health care of dependents and 0 denotation otherwise. It is estimated that regular expenditure on health of dependents will positively impact the probability of default of loan. This is because, all things being equal, if borrowers spend more on the health of dependents they are more likely to divert loan funds to that purpose which was initially unintended. (Tundui & Tundui 2013)

Household Size (HSSIZE)

This variable represents the number of dependent of the respondents within his household. Here, household defined as the number of persons living together sharing some arrangements and being catered for as one unit with a recognized person as the head of the unit (GSS, 2013). Accordingly, the respondent's dependents consist of the respondents', spouse (s) (if any), children, relations and non-relatives being catered for directly. They were ordered into five (5) categories as follows; 1 for size of 1 – 3, two (2) for household size of 4 – 6, three (3) for household size of 7–9 and four (4) for a household size ten (10) and above. Positive relationship is envisaged between household size and probability of loan default and that larger the size of the individual's dependents, the higher that individual's expenditure on consumption and health (Tundui and Tundui, 2013). This eventually may lead to diversion of funds to unintended purpose. Consequently, a positive relation is envisaged between the household size and the possibility of loan default (Wongnaa and Awunyo-Vitor 2013).

Other Forms of Loan/ Credit facility (OTHLOAN)

This variable shows whether the respondent is servicing other loan facility in any other financial facility at the time of the survey. This variable seeks to identify if the respondents had multiple small or big loans in other financial institutions. It is a dummy variable with 1 meaning the respondent was servicing another loan during the time of the study and 0 meaning otherwise. The association between possessing multiple loans and possibility of default could be positive or negative. If an individual has multiple loan obligations there are possibility in defaulting loans than other borrowers with a single loan of the same total size. This perhaps is due to lack of self-control or the heterogeneity in credit demand. (Mitchell and Utkus 2010) On the contrary, having several bigger loans is equivalent to having a larger loan size, which in turn could enhance borrower's ability to access inputs and invest into business. Consequently, productivity is accelerated and profit is maximized, thereby increasing the borrower's ability to pay for the loan (Ezihe, Oboh, and Hyande, 2014).

Monthly Income (Y^M)

Monthly income variable represents the gross monthly income of the respondents from source of work and was measured in GH¢. In order not to strain respondent to think of their exact monthly earnings, the variable was categorized into 5 categories; one (1) for monthly income less than GH¢ 400, two (2) for monthly income from GH¢ 401 – GH¢ 600, three (3) for monthly income from GH¢ 601–800, four (4) for monthly income from GH¢ 801–GH¢ 1000 and five (5) for monthly income above GH¢ 1001. Ceteris paribus, a negative association is expected between income level and probability of loan default. In other words, the higher a borrowers income, the more likely it is for that borrower not to default a loan.

Hence, the lower default risk associated with a higher income (Jacobson and Roszbach, 2003).

Remittances (REM)

The variable Remittances ascertains whether the respondent receives remittances regularly from relative home or abroad. Remittances are measure of alternative income sources. Remittances were also measured as a dummy variable, where 1 implied that the respondent receives remittance regularly from relatives home or abroad and 0 meant otherwise. A negative relationship is expected between receipt of remittances and the probability of loan default. This is because; having alternative income sources increases the borrower's capacity to repay the loan hence decreases the probability of a loan default. (Ojiako and Ogbukwa 2012).

Loan Inadequacy (LOANINADQ)

This variable represents the difference between the loan amount requested (LONAREQ) by the customer in GH¢ and the loan amount that was received (LOANREC) in GH¢. Loan Inadequacy is a continuous variable and computed as Loan amount requested less the loan amount received: $LOANREQ - LOANREC$. The relationship between loan inadequacy and loan default is likely to be positive. By implication, there is a higher predicted probability of a loan default if their loan inadequacy is larger (Kodongo and Kendi 2013), (Ezihe, Oboh and Hyande, 2014). Increasing the loan size is expected to enhance borrowers' access to input and management that can potentially accelerate productivity and profits (Ojiako, Idowu and Ogbukwa 2014). By contrast low small loan size is more likely to lead to default because borrowers are most like to fail to realize higher profit which eventually diminishes

their ability to pay loans back (Ezihe et al., 2014). Accordingly, a positive relation is expected between loan inadequacy and possibility of loan defaults.

Employment/ Business Type (EMP)

For the purpose of assessing the interdependence between employment and business type of the respondent and the probability of loan default, these variables were introduced. It was categorized into seven (7); 1 for Farming and Animal rearing, 2 for Civil servants, 3 for Food vending and hawking; 4 for trading in goods and agriculture produce; 5 for manufacturing and processing; 6 for all other services; and 7 for those who were unemployed.

Financial Training (TRN^{BF})

This variable finds out whether the respondent received some form of training in areas such as; prudent financial management, loan payment procedure, penalty for default of credit and among others from the MFI before the loan or credit was disbursed. The aim inter alia of this training is to ensure that borrowers are conscious of the purpose for which the loan was taken and the need to conform to its intended use. Holding all other things equal, the relation between financial training and the probability of loan default is expected to be negative. It is envisaged that, if borrowers are given adequate financial training in areas pertaining to the use of book keeping skills, credit management skills, and budgeting skills they are possible to pay their loans on time (Tuyisenge, Mugambi and Kemirembe, 2015), therefore, an inverse relation between financial training and default of loan.

Monitoring (MNTR^{AFT})

This variable determines whether the respondent was regularly monitored by the MFI (perhaps through the credit officer) after the loan was disbursed to the respondent. It is a dummy variable with 1 signifying that the MFI after the loan was disbursed and 0 implying the opposite regularly monitored the respondent. This ends up in negative relationship between loan default and supervision or monitoring of borrowers. This is because the regular visit by credit officer to borrower is probable to ensuring that the funds are not diverted to unintended purposes. This enhances the borrower's productivity as well as the ability of borrower to repay his loan, thereby the negative relation. (Wongnaa and Awunyo-Vitor, 2013)

3.4 Pre-testing of Instrument of Data Collection

In order to disclose possible weaknesses in the various components of the questionnaires, Pilot Survey was conducted from February 2017 to April 2017. The pilot survey sought to identify possible flaws in the general form, ethical consideration of questions, the sequence of questions and the formulation and wording of the questionnaire, as well as verify the need for adjustment in the stratification plan. Accordingly, a pilot survey comprising sixteen (16) microfinance institutions and eight (8) of each MFI's customers was conducted in the Kumasi Metropolis.

3.5 Ethical Issues

The research sought to obtain the full consent and uphold the dignity, privacy, confidentiality and anonymity of the respondents. Accordingly, the researcher approached

the appropriate management and staff of the selected MFI's to discuss in totality the objectives of the research as well as the contents of the questionnaires. Upon their approval, the questionnaires were administered. Similarly, customers of the selected MFI's were also allowed to voluntarily decide to respond to the questionnaires after the researcher had explained the objective of the thesis and the contents of the questionnaires. To further uphold the confidentiality and anonymity of the respondents, questions requiring names, telephone number, residential address and any other identification were eradicated from the questionnaires. In addition, when reporting the result of the research, personal identification of respondents was totally excluded.



CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter focused on the results and discussion. It begins with the investigation of the demographic and socio economic features of the six hundred and twenty (620) customers of the MFIs. This was followed by the reliability test and inter-item correlation results. The next were analysis of the data in terms of the existence of loan default payment and its effect on MFIs. Finally, the results from the probit regression with respect to the factors that influence loan repayment default was discussed.

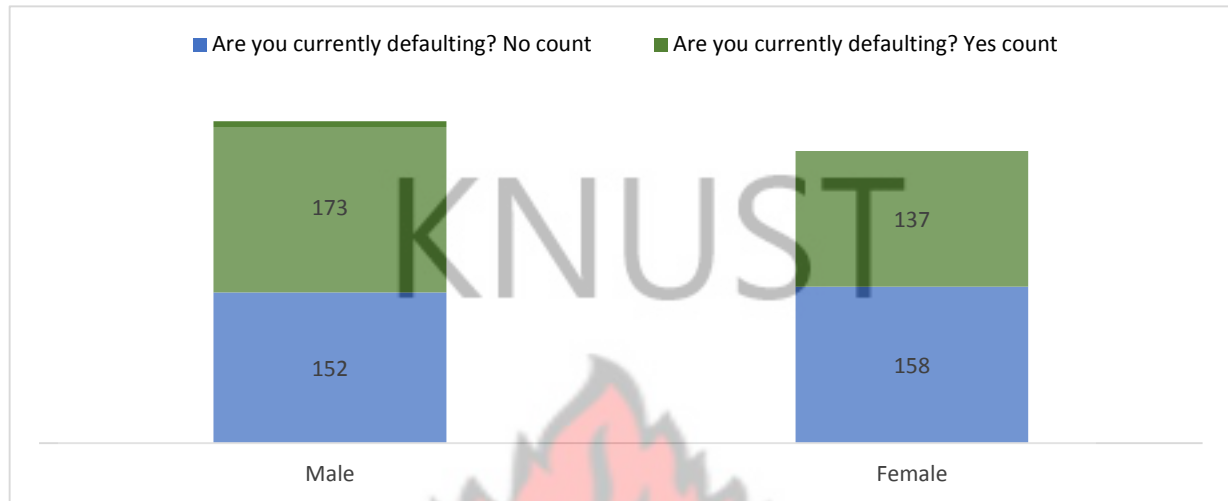
4.2 Descriptive Analysis

The focus of this section is to portray the descriptions of the characteristics of the MFIs as well as their customers on the socio economic demographic and as interviewed. It provides description on the characteristics of the demographic and socio economic within the six hundred and twenty (620) customers of MFI with regards to the variable of interest.

4.2.1 Sex of Respondents

The Figure 4.1 displays the sex of the respondents that were interviewed in this study with reference to the dependent variable. Three hundred and twenty-five (325), representing 52%, of the respondents are male while females constitute two hundred and ninety-five (295), equivalent to 48%, of the respondents.

Figure 4.1: Distribution of Sex of Respondents



Source: Authors construction using field survey data, July 2017 to November 2017.

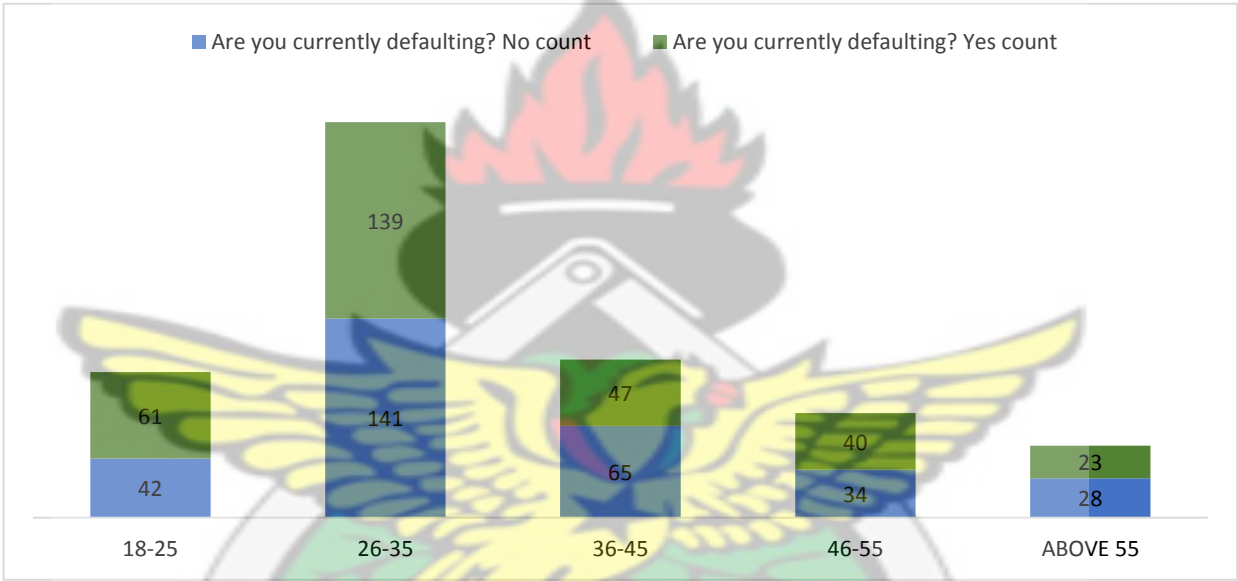
Of the total number of male, 173, representing 53%, of them were defaulting their loan payment while, among the female respondents, 137, representing (46%) were defaulting. Clearly, the result of the Figure above reveals that more men default their loans as compared to the female counterparts. This could be due to popular belief that females are more discipline financially than males and will make sure useful resources given to them are used for their proposed reasons. This assertion conforms to the findings of Ojiako and Ogbukwa (2012). The Chi – square test of homogeneity however asserts that loan default is homogenous between the two sexes, which lead a deduction contrary to the findings of Ojiako and Ogbukwa (2012).

4.2.2 Age of Respondents

In Figure 4.2, the Age Distribution of respondents are displayed with regards to loan defaulters and non-defaulters. The result of Figure 4.2 indicates that, 103, 280, 112, 74 and

51 of the respondent are of the age range 18 – 25 year, 26-35 years, 36-45 years 46-55 years and above 55 years respectively. These number meant that respondents of age ranges 18 – 25 year, 26-35 years, 36-45 years 46-55 years and above 55 years constituted 17%, 45%, 18%, 12% and 8% respectively of the total respondents.

Figure 4.2: Age Distribution of Respondents



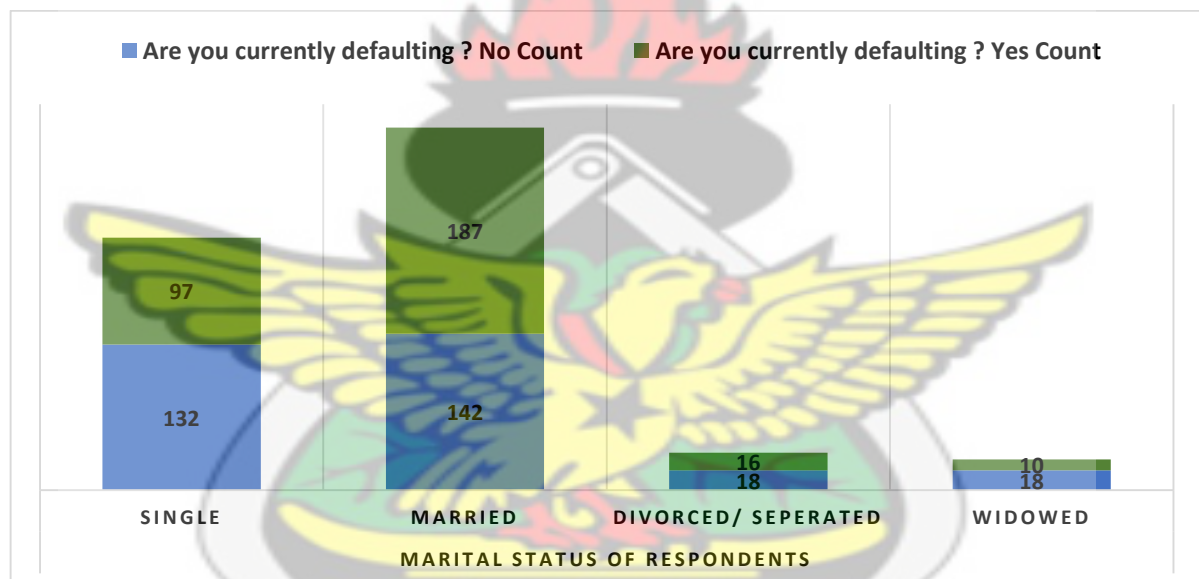
Source: Authors construction using field survey data, July 2017 to November 2017.

The results of Figure 4.2 shows that, 59%, 50%, 42%, 54%, and 45% of respondents of age ranges 18 – 25 year, 26-35 years, 36-45 years 46-55 years and above 55 years respectively were defaulting their loan payment. Cleary, it can be seen that, the proportion of defaulters among those aged between 18-25 years is largest. This outcome verifies with the findings of Boyle et al. (1992). However, a greater share, (54%), of the more elderly aged between 46-55 years, were also loan defaulter.

4.2.3 Marital Status of Respondents

The distribution of marital status respondent in order of loan defaulters and non-loan defaulters are exhibited in Figure 4.3. It was disclosed from the Figure 4.3 that, number of respondents that were single, married, divorced/separated and widowed were 229, 329, 34 and 28 respectively. These figures indicate that, 37%, 53%, 5% and 5% of the respondents are single, married, divorced/ separated and divorced correspondingly.

Figure 4.3: Marital Status of Respondents



Source: Authors construction using field survey data, July 2017 to November 2017.

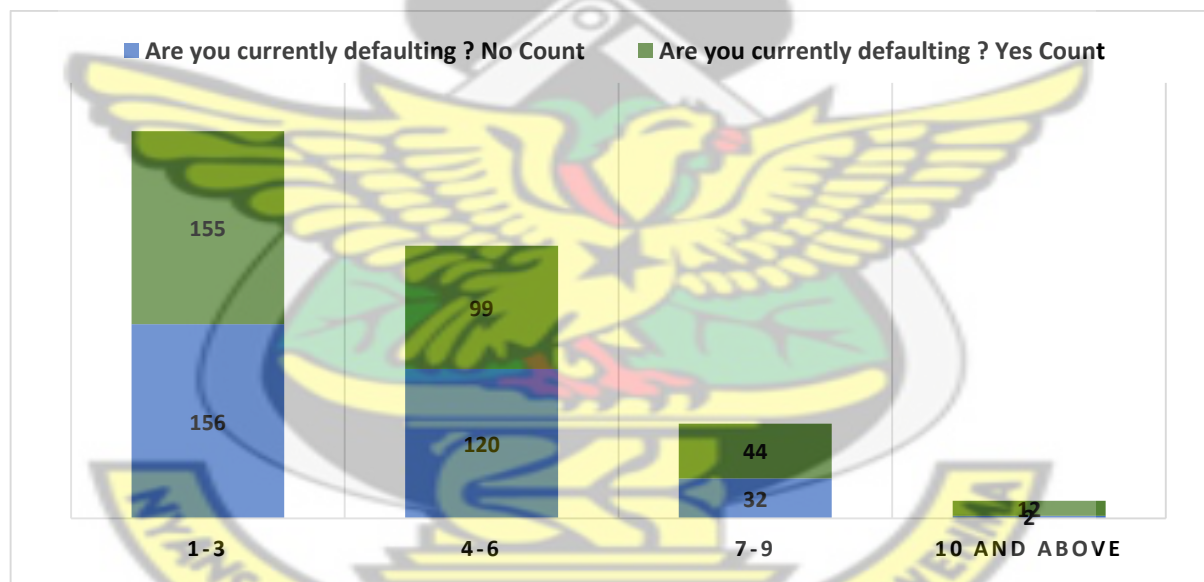
Ninety-seven (97), representing 42%, of the respondent who were single were loan defaulter. Of those respondents who were married, 57% of them were loan defaulter. Out of the number of respondents who were divorced/ separated and those Widowed, 47% and 36% of the respective numbers were loan defaulters. The result suggests that, greater percentage of those who are married are defaulting their loans, and this is in agreement with the outcomes of Dinh and Kleimeier (2007) and Kwofie, Owusu-Ansah and Boadi (2015). This

is also confirmed by the chi-square result, which revealed that loan default is not homogeneous across the various marriage groups.

4.2.4 Distribution of Household Size of respondents

The sizes of dependent based on the loan default status of the respondents are exhibited in Figure 4.4. Majority (311, representing 50%) of respondents have a dependency size of between 1 – 3 persons. Respondents with dependent size 4-6, 7-9 and 10 & above constituting 35%, 12% and 2% followed this respectfully.

Figure 4.4: Distribution of Respondents' Household size (size of dependents)



Source: Authors construction using field survey data, July 2017 to November 2017.

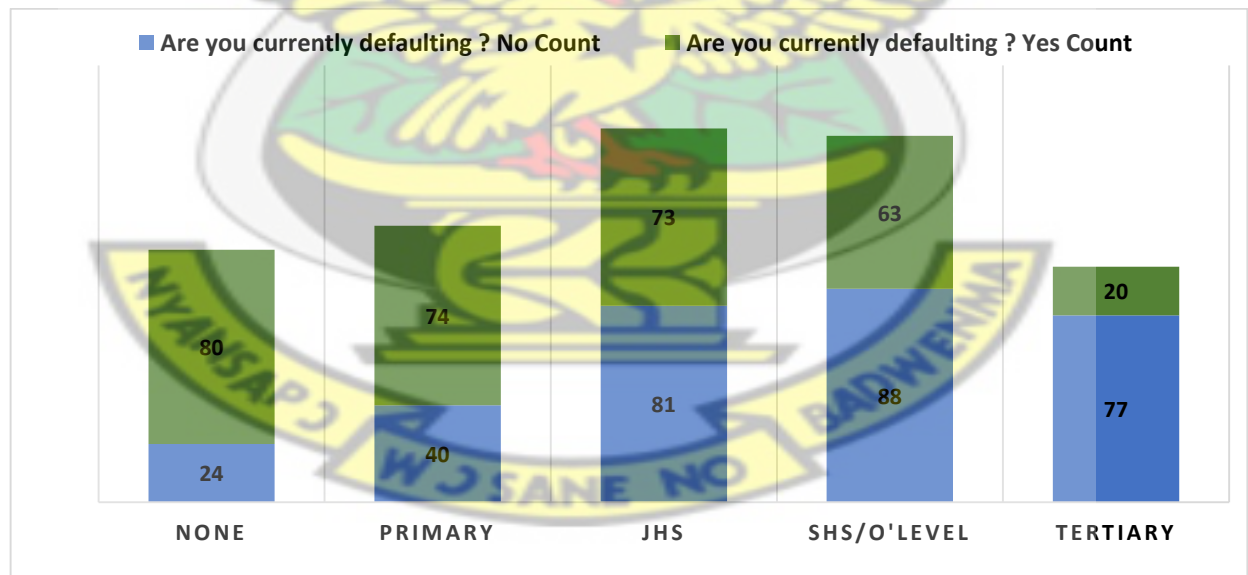
Again, the results of Figure 4.4, suggests that the number of defaults status of respondent with dependency size of 1-3 are evenly distributed. However, 45% of respondents with dependency size from 4-6 persons are defaulters. For respondents with dependency size of 7-9, the defaulter makes up 58%. For respondents whose dependents were 10 and above,

86% of them were loan defaulter. This result, which is consistent with the conclusions of Tundui and Tundui (2013), Wongnaa and Awunyo-Vitor (2013) and Ojiak and Ogbukwa (2012), suggest that the loan repayment capability of borrowers is adversely affected as the household size increases.

4.2.5 Education Level of Respondents

Figure 4.5 provides a graphical display of the Education Level of respondents as well as their default status. One hundred and four (104), representing 17%, of the respondents, had no formal education. 114, equivalent to 18% of the respondent, had only reached the Primary level while, 154 and 151 of the respondents, equivalent to 25% and 24% of the respondents had attained JHS and SHS/ O'Level education respectively.

Figure 4.5: Distribution of Education Level of Respondents



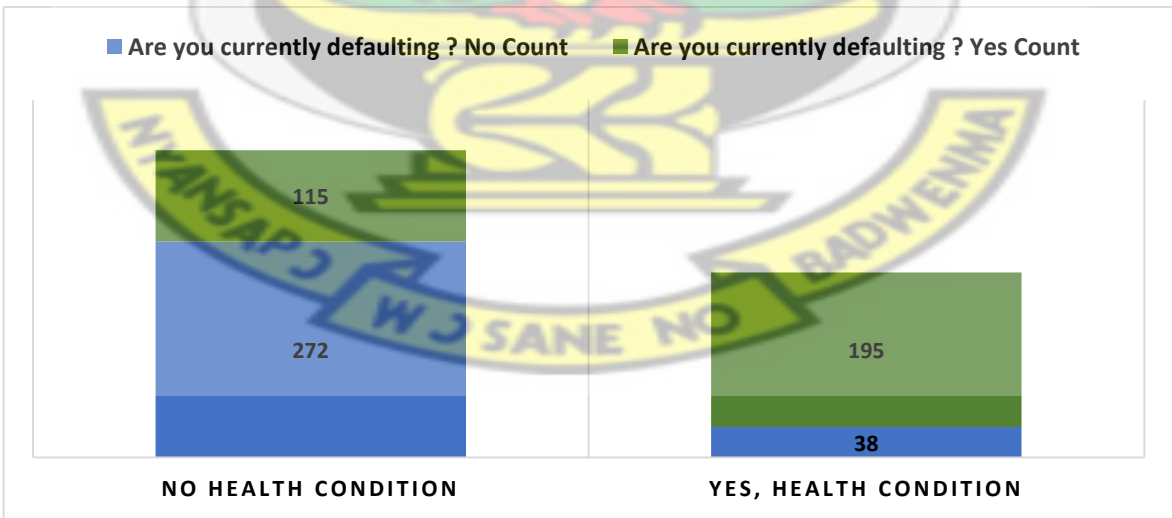
Source: Authors construction using field survey data, July 2017 to November 2017.

Figure 4.5 shows that, 77% of respondent with no formal education are loan defaulter. For respondents whose level of education is primary level, 65% of them are loan defaulters. The loan defaulter constitutes 42% and 21% of those whose highest level of education is the SHS/ O’Level and Tertiary respectively. It was deduced from these results that, a higher level of education often lowers the possibility of defaulting a loan repayment. The conclusion is in line with the results of the chi-square test and the deductions of Mkandawire and Duan (2016) and Oni, Oladele and Oyewole (2006), who asserted that there is an indirect relation between loan default and education level.

4.2.6 Health of Respondents

In Figure 4.6, shows the default status against the health conditions of respondents. Two hundred and thirty-three (233), equivalent to 38%, of the respondents indicated that they had health conditions for which they spent regularly on health care.

Figure 4.6: Distribution of Respondents with respect to health condition



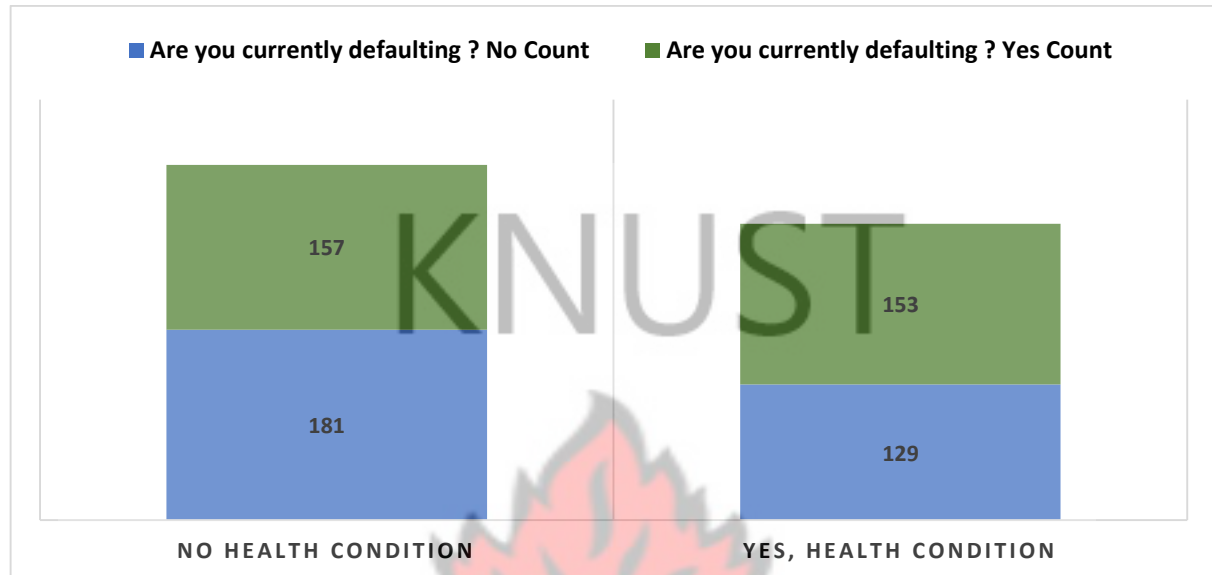
Source: Authors construction using field survey data, July 2017 to November 2017.

In addition, Figure 4.6 shows that, one hundred and ninety-five (195), equivalent to 84% of the respondents with health condition were loan defaulters. However, for respondents who did not have any health condition, one hundred and fifteen (115), corresponding to 30%, of them were loan defaulter. The findings are consistent with the outcome of Moodie (2013), who revealed that health issues of borrower pose an immense challenge to loan portfolio quality. This may be traced to the fact that health issues stifle the productivity and income of the borrower and may lead to diversion of loan funds to unintended health care. This is also confirmed by the chi-square test of which revealed that dissimilarity between the two groups with regard to loan default.

4.2.7 Health Condition of Respondents' Dependents

The result, when respondents were asked if any of their dependents had any health condition for which they directly spent regularly on health care is displayed in Figure 4.7. Three hundred and eighty-eight (388), corresponding to 55%, of the respondents stated that some of their dependents had chronic illness, which they directly spent on regularly.

Figure 4.7: Health condition of Dependents of Respondents



Source: Authors construction using field survey data, July 2017 to November 2017.

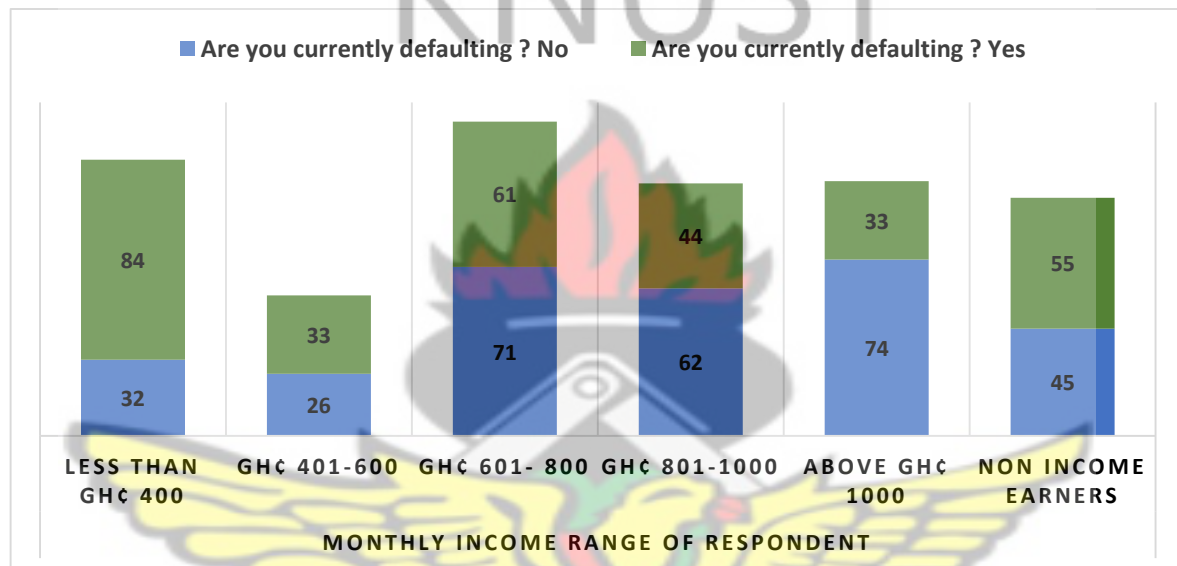
For respondents who stated that their dependents had health conditions, 153, relating to 54%, of them were loan defaulters, while 46% were honoring their loans. 157, corresponding to 46%, of the 388 respondents who indicated that none of their dependents had any health condition, which requires regular expenditure on health care, were defaulting their loan. It is evident that the proportion of loan defaulters among those who spend regularly on the health issues of their dependent was not significantly different from their counterparts. This deduction is also confirmed by the chi-square result, which indicates that the loan default situation is homogeneous across the two groups.

4.2.8 Monthly Income of Respondents

Figure 4.8 provides a graphical exhibition of the distribution of monthly income of respondents clustered on the default status. It is shown that, the modal monthly income groups of the six hundred and twenty (620) respondents is GH¢ 601 – 800 as 132,

representing 21% of the respondent fell into this income group. The second most occurring income groups were less than GH¢ 400, were 116, representing 19%, of the respondents fell within this income groups.

Figure 4.8: Distribution of Monthly Income of Respondents



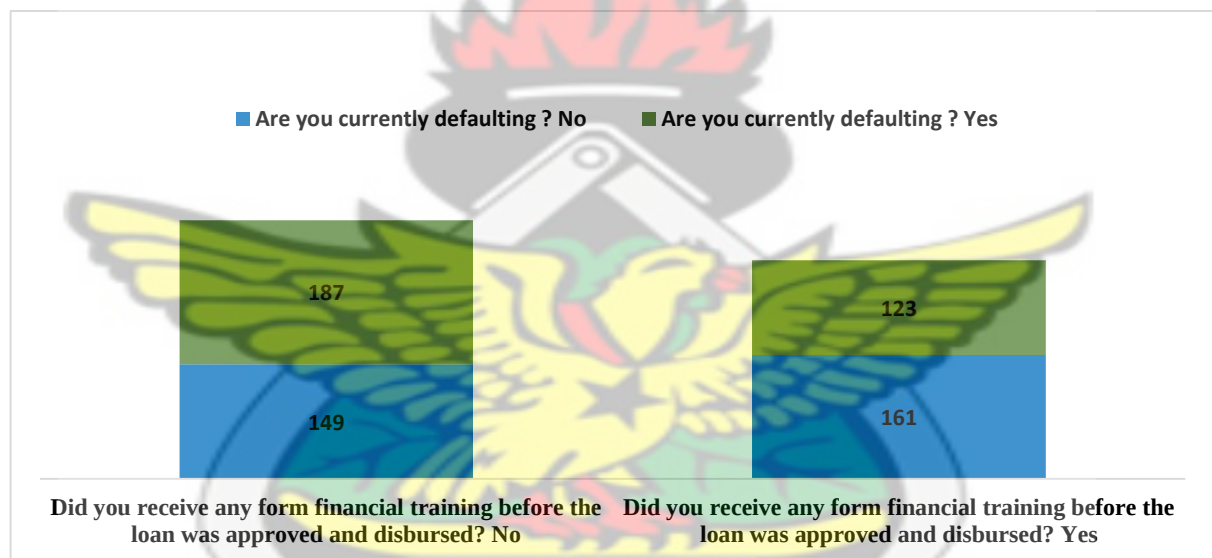
Source: Authors construction using field survey data, July 2017 to November 2017.

It is observed from Figure 4.8 that, the proportion of loan defaulters within each income groups declined, 72% for respondents whose monthly income falls below GH¢ 400.00 to 56% for income groups of GH¢ 401 -600 to as low as 31% for income range of above GH¢ 1000. It is evident from the results above that the occurrence of loan default declines with increased in income of customers. This conclusion is also consistent with the results of Jacobson and Roszbach (2003).

4.2.8 Financial Prudence Training before Loan approved

The results, when respondents were asked whether they received some financial prudence training before the loan was approved, are exhibited in Figure 4.8. Figure 4.8 indicated that, three hundred and thirty-six (336), corresponding to 54%, of the respondents did not receive any form of financial prudence training or sensitization prior to receiving the loan whiles, two hundred and eighty-four (284), representing 46% stated otherwise.

Figure 4.9: Financial Prudence Training



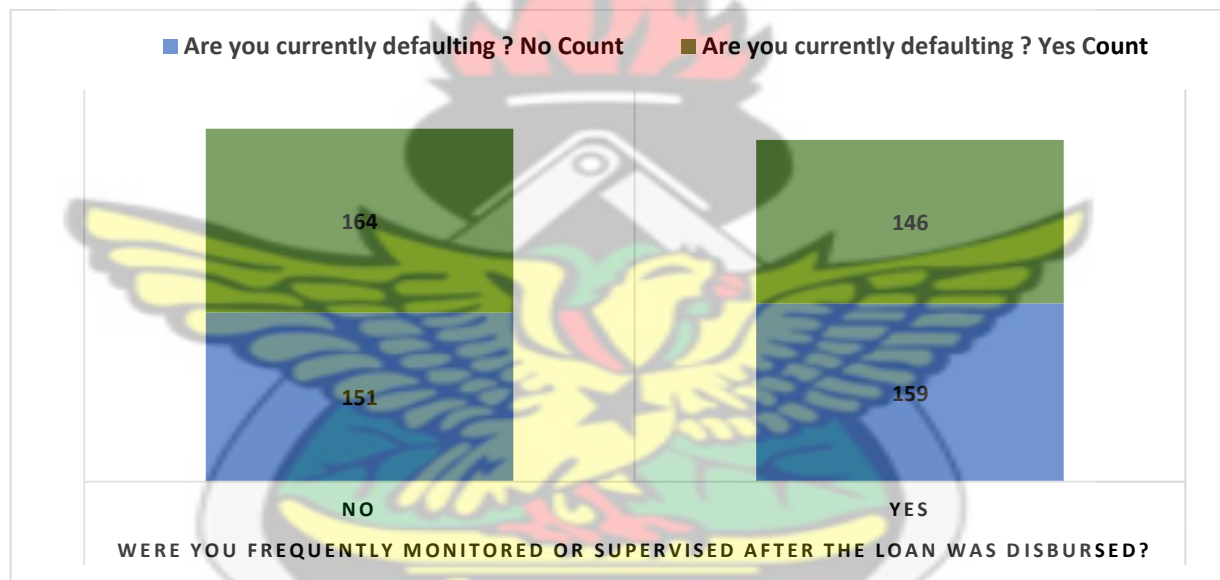
Source: Authors construction using field survey data, July 2017 to November 2017.

It is discovered from the Figure 4.8 that, 56% of respondent who did not receive some financial prudence training prior to the loan are defaulting the loans. On the other hand, among the defendants who received financial prudence training prior to the loan, 43% are defaulting their loans. Similar to the outcome of Tuyisenge, Mugambi and Kemirembe (2015), this finding emphasize the importance of financial literacy training to the success of loan repayment.

4.2.9 Monitoring of respondents

Figure 4.9 features the graphical representation of the findings where respondents were asked if credit officers regularly monitored them after the loan was disbursed. Three hundred and five (305), analogous to 49%, of the respondents cited that they were regularly monitored or supervised after the loan was disbursed, while three hundred and fifteen (315) stated opposite.

Figure 4.10: Monitoring of Respondents



Source: Authors construction using field survey data, July 2017 to November 2017.

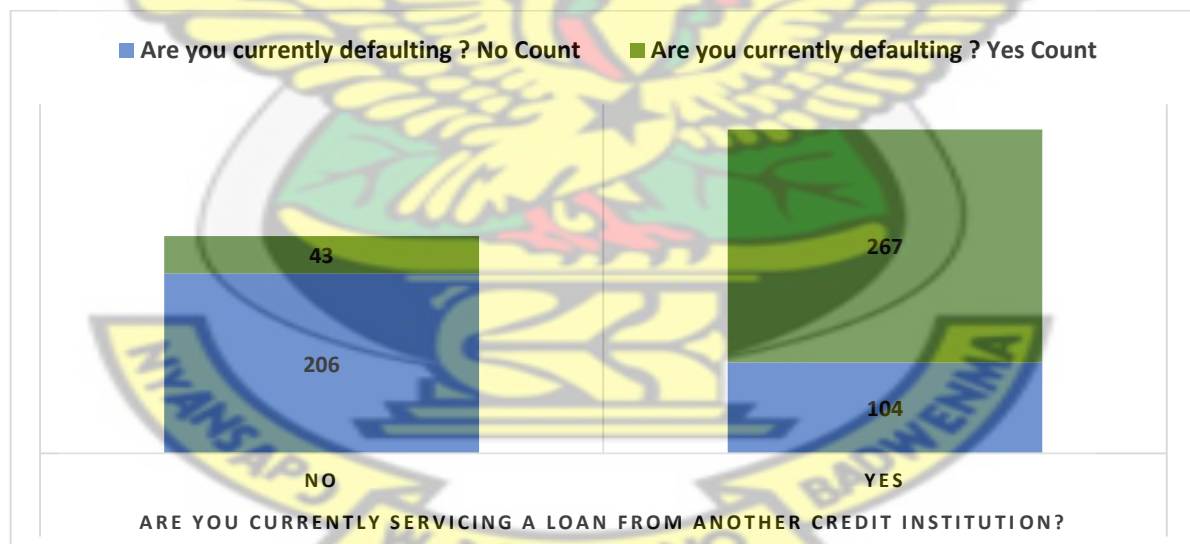
Whereas a relatively greater proportion, 52%, of those who were not monitored or supervised are defaulting their loans, 146, corresponding to 48%, of respondents who were regularly monitored or supervised are defaulting their loans. These finding reaffirms the results of Wongnaa & Awunyo-Vitor (2013) and Okorie (1986), who revealed that regular

trips by the credit officers to supervise borrowers (farmers), led to better repayment abilities and minimized the possibility of farmers diverting loans to unintended reasons.

4.2.10 Other Loans (Simultaneous or multiple loan servicing)

Exhibited in Figure 4.10 shows when respondents were asked if they were currently servicing loans or credit facilities from other financial institutions in addition to the loans they currently have in the MFI when they were interviewed. Three hundred and seventy-one (371), analogous to 60%, of the respondents stated that they were servicing other loans in addition to the loan they had contracted at the MFI where they were being interviewed while two hundred and forty-nine (249) stated otherwise.

Figure 4.11: Other Loans and Loan default status



Source: Authors construction using field survey data, July 2017 to November 2017.

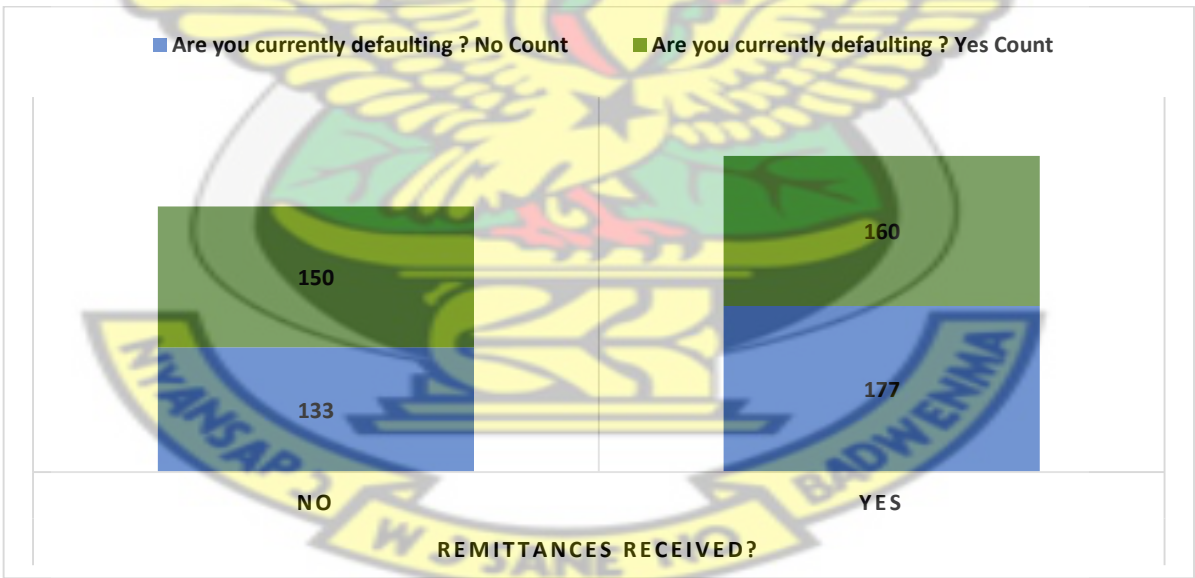
Findings from the Figure 4.10 indicates that, 267, identical to 72%, of the respondents who are simultaneously servicing loans are also defaulting their current loan at the MFI where

they were being interviewed. However, for respondents who were not having coexisting loans, 17% of them were also defaulting their loans. By inference, the possibilities of individuals who possess multiple loans are likely to default their loans and this is in concurrence with the deductions of Mitchell and Utkus (2010).

4.2.11 Remittances received by respondents

Figure 4.11 present the results on respondents who receive remittances regularly from relatives home or abroad. Respondents who receive remittances regularly are 337, account for 54% of respondents while 283, equivalent to 46%, of the respondents do not receive remittances.

Figure 4.12: Remittances received by respondents



Source: Authors construction using field survey data, July 2017 to November 2017.

It is evident from Figure 4.11 that majority, 53%, of those who do not receive remittances regularly are defaulting their loans. On the other hand, 48%, the minority, of those who receive remittances are actually defaulting their loans. It is observed that relatively greater portions of those who do not receive remittances are defaulters as compared to those who receive remittances. Remittances offer individuals a supplementary source of income, which in turn can boost their ability to repay. These outcomes are comparable to the results of Wongnaa and Awunyo-Vitor (2013) and Mashatola and Darroch (2003) who found alternative incomes to be significant contributor to loan repayment.

4.2.12 Loan Inadequacy

Loan inadequacy is continuous variable measured as the loan amount requested less the loan amount received. Table 4.12 provides a descriptive on the loan inadequacy of loan defaulters and non-loan defaulter.

Table 4.1: Loan Inadequacy

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Level of Loan Inadequacy	620	520.00	2230.00	1352.8065	381.44339

Table 4.2: Loan Inadequacy based on loan default status

Group Statistics					
	Are you currently defaulting?	N	Mean	Std. Deviation	Std. Error Mean
Level of Loan Inadequacy GH¢	No	310	1029.0000	190.66049	10.82879
	Yes	310	1676.6129	211.51284	12.01312

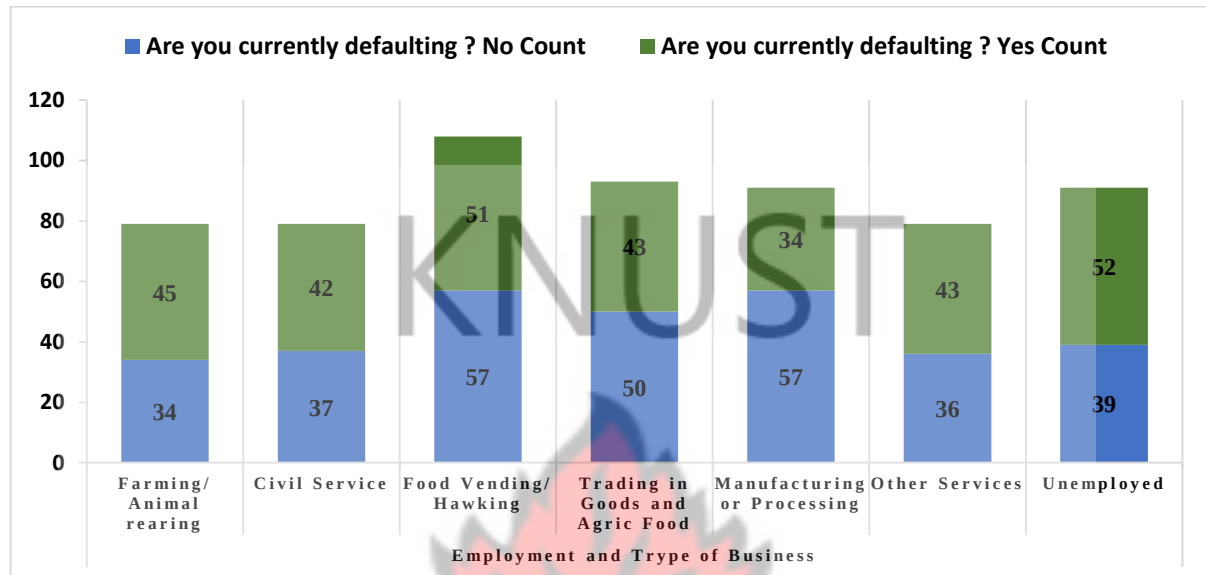
From Table 4.12, the minimum loan inadequacy is GH¢ 520.00 while the maximum loan inadequacy is GH¢ 2,230.00. On the average, the loan inadequacy of the 620 respondents is GH¢ 1,352.80.

According to the Independent Sample T-test, (results in Appendix) the average loan inadequacy for loan defaulters is GH¢ 1,676.6 which is greater than the loan inadequacy of non-loan defaulters whose average loan inadequacy is GH¢ 1,029.00 (As shown in Table 4.12.1). These results propose a positive association between loan inadequacy and possibility of loan default and are in accord with the findings of Kodongo and Kendi (2013), Ezihe, Oboh and Hyande (2014) and Ojiako, Idowu, and Ogbukwa (2014).

4.2.13 Employment and Business type

In Figure 4.13, the employment and business type of the respondents are clustered on their loan default status. One hundred and eight (108), the highest share, representing 17% of the respondents were engaged in Food vending and hawking. This was followed by those engaged in Trading of Goods and Agricultural produce; Manufacturing and Processing; each constituting 15% apiece. Those engaged in Farming/ animal rearing; Civil Service; and other Services each constituting 13% apiece.

Figure 4.13: Employment and Business Type of Respondents



Source: Authors construction using field survey data, July 2017 to November 2017.

From Figure 4.13, it is further deduced that, 53%, 47%, 46%, 37% and 54% of those engaged in Civil Service; Food vending/hawking; Trading in good and agricultural produce; manufacturing and processing; and other services respectively were defaulting their loans. However, the business types, which recorded the highest of its portion being loan defaulters, were those engaged in Food vending. Of those who were unemployed, 57% were also loan defaulters. It is apparent that the proportion of loan defaulters is higher in some business types than others. This is also confirmed by the chi-square test of homogeneity.

4.3 Reliability test

This section provides the results of the reliability test conducted on the questionnaires used in retrieving data from the customers. This test was conducted using the Cronbach's alpha mean. To propose a measure of core inconsistency of a test or scale, Lee Cronbach

developed the Alpha in 1951. This is expressed as a number between the values 0 and 1. The degree to which all the items in a test deals with the same idea defines the Internal consistency hence it is linked to the inter relatedness of the items within the test. The alpha calculates the inter item correlations or covariance for all pairs of variables and Cronbach's α statistic for the scale molded from them. In a situation where alpha experiences a low value, it depicts a series of possibilities such as the number of questions being low, interrelations between objects or heterogeneous constructs becomes poor. However, in the case where the alpha is considered too high, thus above the value 0.90, this could propose that some elements are unneeded because the same questions are tested but in particularly diverse forms. Accordingly, the results of the reliability test are briefed in below in Table 4.3:

Table 4.3: Summary of Reliability Test results

Avg inter item correlation	Inter item correlation	Scale reliability coefficient
0.0732	13	0.5067

Source: Author's

The Cronbach's alpha value of 0.5067 implies that the level of internal consistency is 51%. By implication, there is a relatively high level of internal consistency between the items in the questionnaire and consequently conclude that the questionnaire used is consistent. Also, the average inter item correlation value of 0.0732 indicates that the independents variables are not correlated. This result thereby denotes that the explanatory variables are not highly related indicating the absence of multicollinearity (*Details are in Appendix 2*).

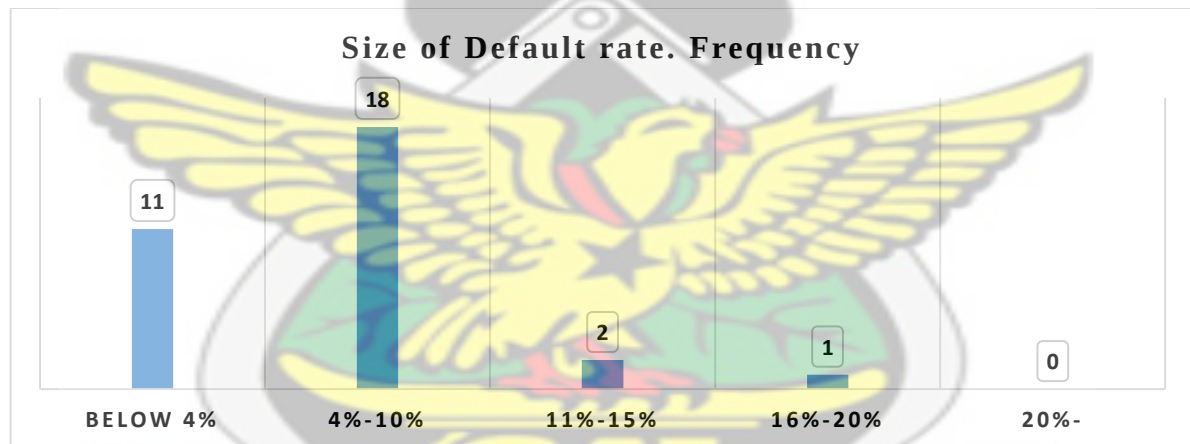
4.4 Descriptive of MFIs

The focus of this section is to assess the degree and existence as well as the effects of loan defaults among the MFI. The results of this section were obtained from the results of the interviews with the Credit officers in the respective MFI studied.

4.4.1 Existence of Loan Defaults in MFIs

Figure 4.14 displays the frequencies of the various prevailing default rate as indicated by the various MFIs.

Figure 4.14: Existence of Loan Default rates



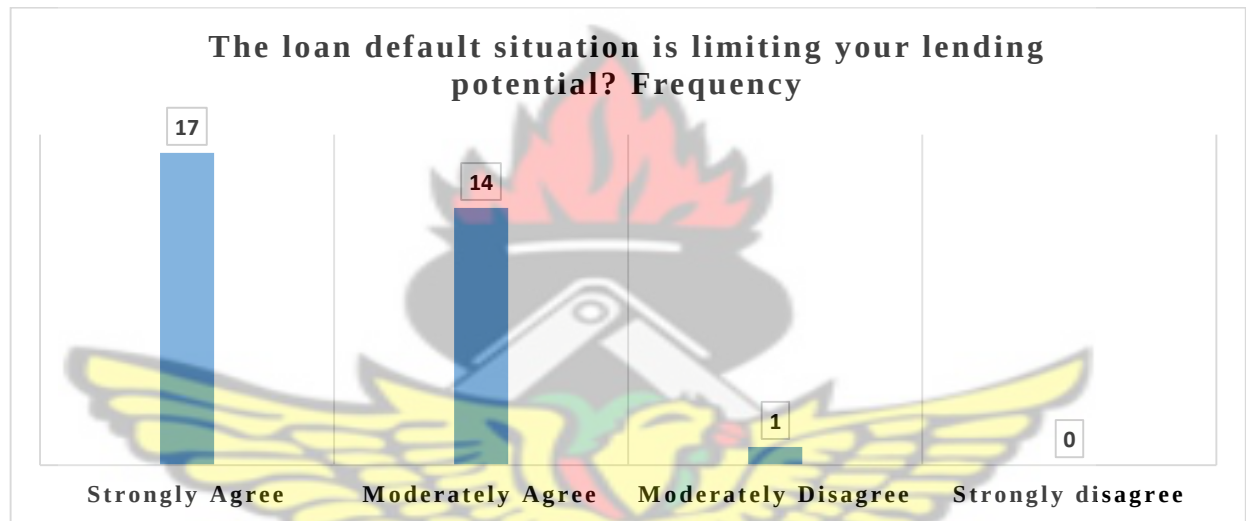
Source: Authors construction using field survey data, July 2017 to November 2017.

It is observed from Figure 4.14 above that majority of 11, (equivalent to 34.4%), of the MFIs are experiencing a loan default rate below 4% while over 65% of loan defaults were above 4%. This result is similar to the findings of Addae- Korankye (2014) who studied the default rate in Ghana involving 25 MFIs and revealed that, about 60% of MFI's were experiencing defaults rates of more than 3% marginally above the conventionally accepted rate.

4.4.3 Effects of Loan Default on MFIs

When the various credit officers in the various MFI were probed on extent to which they believed the existing loan default situations in their various institution was affecting them, the following results were obtained.

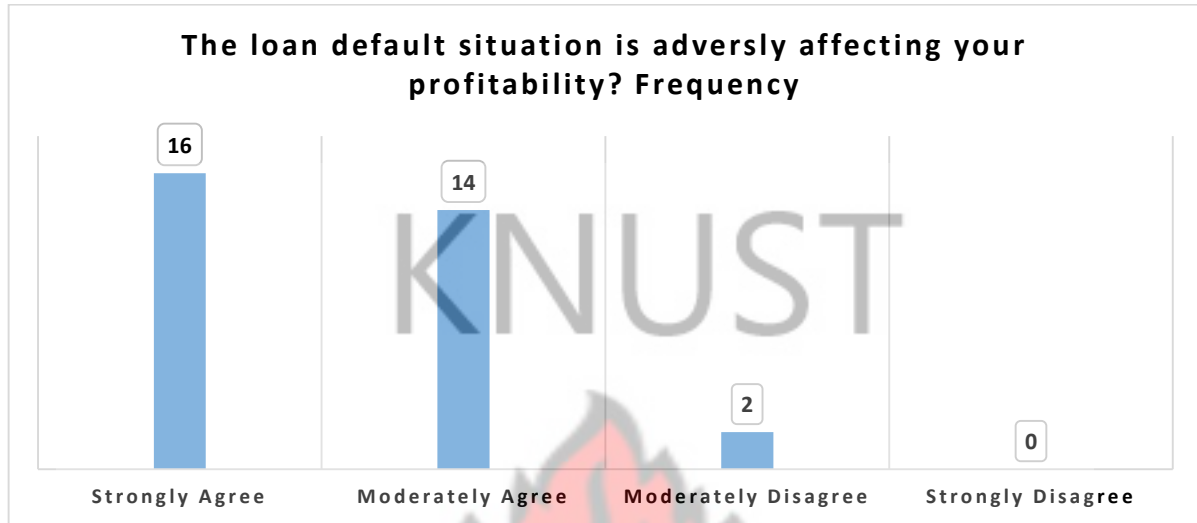
Figure 4.15: Effect of Loan default on Lending Potential



Source: Authors construction using field survey data, July 2017 to November 2017.

Over 96% of MFIs studies were highly assertive that the prevailing default rate in their respective institutions had intense adverse effect on their lending potential. These finding is confirmed by the work of Asante and Tengey (2014) who undertook research of the scathing effects of lending loans being bad and potentially, banks financial abilities of in Ghana. They further disclosed that a high negative correlation between bad loans and lending potentials existed in most of such MFI's.

Figure 4.16: Effects of Loan Default on Profitability



Source: Authors construction using field survey data, July 2017 to November 2017.

About 93% of these MFIs were highly emphatic that the prevailing default rate was having drastically negative impact on the profitability of their respective institutions. Asantey and Tengey (2014) also emphasized that bad loans have high negative impact on the returns to investment and net profit of MFIs.

4.5 Analysis of Regression results

This section is devoted to the analysis of the various coefficients of the Probit Regression model that was conducted, with the ultimate motive of assessing the significant determinant of loan default as the dependent variable. Accordingly, Equation (3.4) is estimated in order to define the magnitude and signs of the various coefficients of the independent variables. These results are shown in Table 4.4.

Coefficient of Determination (Pseudo R^2)

Generally, results of a probit regression model indicate that a Coefficient of Determination (R^2) is equivalent to 97%. Coefficient of determination statistical measures that indicates how the regression line fits or approximates the actual data point. It is a measure of accuracy by establishing the extent of the dependent variable variation, which are explained via the dependent variable. Hence, 97% coefficient of determination implies that the probit regression model explains the 97% of the variations in the predicted probability of loan default.

Overall Significance of model

Also, the chi – square test of significance, which seeks to measure the null hypothesis of the coefficients of the model which generally equate to zero against the alternative hypothesis that assert otherwise. The results of the overall test of significance indicate the coefficients of the probit model are jointly or generally important in forecasting the dependent variable (loan default).

Table 4.4: Probit results for determinant of Loan Default

Variables	Coefficient	Dependent Variable: Loan Default		
		Std. Err.	P>z	Marginal Effect (dy/dx)
AGE	-1.4091	0.4632	0.030	
EDU	-0.7401	0.3370	0.028	
MARSTAT				
Single				0.4930
Married	0.9200	0.5969	0.123	0.5060
Divorced/ Separated	-1.8739	1.2661	0.139	0.4741
Widowed	3.1018	1.2415	0.012	0.5377
HEALTH ⁱ	4.1655	1.3474	0.002	
HEALTH ^d	1.2663	0.7696	0.100	
HSSIZE	0.0675	0.4256	0.874	
LOANINAD	0.0381	.00073	0.000	
OTHLOAN	3.00493	0.4761	0.002	
Y ^m	-3.2086	0.7089	0.000	
Farming/ Animal Rearing				0.4041
Civil Service	1.1661	1.0908	0.285	0.4209
Food vending/ Hawking	5.1128	1.5028	0.001	0.4757
Trading in goods & agro products	8.3892	2.1464	0.000	0.5259
Manufacturing/ Processing	10.1961	2.2762	0.000	0.5512
Other services	10.6213	2.4373	0.000	0.5573
Unemployed	15.6380	3.8168	0.000	0.6296
REM	0.5209	0.6567	0.428	
TRNBF	-0.4038	0.4607	0.381	
MNTAFT	-0.3101	0.5540	0.576	
Constant	-45.6285	8.6065	0.000	
Number of observations = 620			Wald chi2(20) = 44.24	
Probability > chi2 = 0.0014			Pseudo R2 = 0.9665	

Age

A negative coefficient was realized for the variable age in table 4.4, which implies that age and the probability of loan default were negatively correlated. In other words, the likeliness to default loans by elderly customers is substantially less. The marginal effect, which measures the change in Probability of default due to a change in the age, is also negative. Considering the life cycle hypothesis, as individuals start work at the age of 18-25 years, all things being equal, they start making income and are able to save portion of it for investment, wealth accumulation as well as future consumption. The income and wealth accumulation affirms the individuals' ability to repay loan and hence diminishes the potential of loan default. In addition, this coefficient is statistically significant at 5% confidence level and hence implies that Age is considered as a significant factor of loan default. These results, however, does not coincide with the field study in which the chi – square test of homogeneity revealed that the proportion of loan defaulters was similar across all age groups.

Education

Considering the variable Education in table 4.4, a negative association was realized between level of education and the probability of default loan. This relation implies that the higher levels of education, individuals who acquire loans are often less expected to default the repayment of their loans. Perhaps, a good explanation of this phenomenon is that, individual who attain education to higher levels have a higher probability to acquire lucrative and high paying jobs. This thereby enhances their income generation capacity and hence their repayment abilities. This outcome confirms the results from the field study in which the percentage of loan defaulters reduced significantly among customer who had attained higher

level of education. To further reaffirm this result, the result of the chi-square test of homogeneity led to the rejection of the hypothesis that, the proportion of loan defaulters is uniform across all levels of education. Again, this finding is consistent with the results of Mkandawire and Duan (2016), Baklouti (2013) and Oni, Oladele, and Oyewole (2006), who asserted that there is an inverse relation between loan default and education levels.

Marital Status

Both positive and negative relationship was realized for the various marital statuses in table 4.4. Customers who are married as well as those who are widowed were found to be more likely to default. It was observed that selecting a customer who is married as well those widowed increases the possibility of default that is the marginal effect by 50% and 54% respectively. A negative relationship however, was observed between those divorced and the possibility of default loan. The marginal effect of a customer who is divorced elevates the probability of default loan by 47%. The result suggests that, the married ones are most vulnerable to default their loans, and this is in agreement with the studies of Dinh and Kleimeier (2007) and Kwofie, Owusu-Ansah and Boadi (2015).

Health Conditions of Respondent

The respondent's possession of health issues for which they expend on health care regularly was founded to be positively and significantly impacts the probability of default loan. This is because, individuals with health condition are most likely to be less productive at times and impede their income generation potential. Similarly, these individuals are most likely to divert the loan funds to expenditure on health care, which was initially unintended. Consequently, individuals with health condition are most likely to default their loans. Accordingly, it was revealed from results of marginal effects in Table 4.4 that, individuals'

possession of health condition increases the probability of loan default by 5.49%. It can therefore be deduced that, health conditions of customers is usually an important factor of defaulting a loan. This result is similar to the outcome of Moodie (2013). Additionally, the outcome is in line with the field study, where the chi-square test of homogeneity revealed that loan default was not statistically equal among those with health issues and their counterparts since 84% of those with health conditions were defaulting their loans.

Health conditions of Respondent's dependents

Even though a positive relationship was observed between probability of loan default and respondents' dependents possession of health conditions, as expected, this relationship is found to be statistically insignificant. This result suggests that, health condition of respondents' dependents is not a significant determinant of loans default. This result is in line with the result of the field survey, where the proportion of loan defaulters between two groups of respondents was not statistically different.

Household size

The household size and probability of loan default was positively observed. What this meant is that, customer with larger households (dependents) are most likely to default their loans. An appropriate explanation of this is that, individuals with larger dependents are most likely to spend more on consumption and health care. Even though the household size was found to be statistically insignificant, the estimated relation between household size and loan default is in line with the studies of Tundui and Tundui (2013). The chi – square test of homogeneity between the two groups with regard to loan default yielded the same deduction.

Loan inadequacy

A positive and statistically significant dependency relationship was observed between the loan inadequacy and the possibility of loan default. This suggests that, the smaller the loan size (as compared to what was requested) the more likely for a default to occur. In other words, the larger the loan inadequacy the bigger the possibility of a loan defaults. This result is in harmony with the findings of Kodongo and Kendi (2013), Ezihe, Oboh, and Hyande, (2014).

Other loan

A positive and statistically significant relationship was realized between the respondent with multiple loans and the probability of loan default. This result implies that, individual possessing other loan obligations in addition to their current loan are more likely to default. This outcome is also in concurrence to the results of the chi-square

Monthly Income

The coefficient of the variable monthly income was observed to be negative and significant. Similarly, the negative coefficient of the monthly income suggests that, upward advancement in the income ranges reduces the probability of loan default. The chi – square results also led to a conclusion that confirms the results of the regression analysis. This conclusion is also consistent with the results of Jacobson and Roszbach (2003). The significant impact of income on probability of loan default indicates that income is a predominant indicator for a loan default.

Remittances

The impact of remittances on probability of loan default was observed to be positive, contrary to what was envisaged. These suggest that individuals who receive remittances regularly are more likely to default a loan. But this coefficient was found to be statistically insignificant at a level of 5%. Remittances serve as an extra source of income for individual and hence boost their income base. The insignificant impact of remittances on loan default can be attributed to the factors including, huge expenditure on consumption and health of dependents. This finding reaffirms the results of the field survey, as the portion of defaulters among those who receive remittances was statistically equal to that of those who do not receive remittances. These outcomes are related to the findings of Wongnaa and Awunyo-Vitor (2013) and Mashatola and Darroch (2003) who found alternative income to be significant contributor to loan repayment. Hence, receipt of remittances is an insignificant determinant of loan default.

Training Prior to Loan Disbursement

In line with the expected relationship, a negative relationship was observed between financial literacy training and loan default. This implies that individual who are given financial literacy training before taking the loan are less likely to default their loan. Similar to the outcomes of Tuyisenge, Mugambi and Kemirembe (2015), this finding emphasized the importance of financial literacy training to the success of loan repayment. However, this relationship was found to be statistically insignificant, thereby implying that, financial literacy training wasn't a significant determinant of loan default.

Monitoring/ Supervision after Loan is disbursed

A negative relationship was found between loan default and frequent supervision or monitoring of customers after loan disbursement, as expected. Like the findings of Wongnaa and Awunyo-Vitor (2013) and Okorie (1986), this implies that when borrowers are frequently visited by credit officers to be supervised this reduces the likelihood of loan default.



CHAPTER FIVE

SUMMARY OF MAJOR FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The focus of this Chapter is to provide brief on the major outcomes and deductions of this study as well as the researcher recommendation.

5.2 Summary of results

This research sought to accomplish three major objectives. The first objective was to critically examine the factors of loan default among Microfinance Institutions in Ghana. Secondly, the study sought to assess the extent of default in loans among MFIs in Ghana and finally probe into the effects of loan defaults on MFIs in Ghana.

Accordingly, in achieving the first objective, it was revealed that the significant determinant of loan defaults were, the Age of respondent, Loan Inadequacy, Income (measured by the monthly income), level of education, chronic health issues of customer and the possession of multiple loans. It was observed that loan inadequacy, chronic health issues of customer and the possession of multiple loans had positive impact on the possibility of loan default while age of respondents, level of education and income had negative influence on the probability of loan default. Even though, Marital Status, Household size and Financial Literacy training had positive effect on loan default, these impact were observed to be statistically insignificant. Similarly, Receipt of remittances, and credit officer supervision had negative but insignificant impact on loan default.

With reference to the second objective, it was observed that over 65% of the MFIs have a default rate above 4% and is in line with the finding of Addae- Korankye (2014) where he disclosed in study in Ghana involving 25 MFIs. In this study, it was revealed that about 60% of the Microfinance Institutions have their rates of default more than the acceptable international rate of 3%.

The effects of loan defaults on MFIs are far-reaching and diverse. From the responses given by the credit officers of the various MFIs, over 96%, of the MFIs were affirmative that the prevailing default rate has stifled their lending potential. Also 93%, of the MFIs were confirmatory that the prevalent default rate that they experience has made a drastic negative impact on their interest, revenue and profit. Furthermore, some 97% of the 32 MFIs indicated that they had to lay off some worker due to the adverse effect of the loan default situation.

5.3 Conclusion

The objectives of this research was to probe into the extent of default of loan among Microfinance Institutions in Ghana, investigate the factors that are likely to influence loan default among MFIs in Ghana and examine the effects of loan default on MFIs in Ghana using Kumasi Metropolis as the study area.

Accordingly, the Slovin formula was deployed in determining the required sample of 32 MFIs in Kumasi Metropolis to be used in this study. Having obtained the sample size for the MFIs, the simple random sampling technique was used in the selection of the 32 MFIs out of the 35 MFIs in the Kumasi Metropolis. Structured questionnaires were subsequently used as the data collection instruments in interviewing the credit officers of the respective MFIs.

In order to assess those factors that are likely to influence loan default, a probit regression model was conducted with Probability of loan default being the dependent variable. The independent variables were, Age of respondents, Marital status, household size (size of dependents), health condition of customer, health issues of dependents of customers, income, receipt of remittances, loan inadequacy, possession of multiple loans, financial literacy training and supervision of customer.

The findings of probit disclosed that the significant determinant of loan defaults were, Loan Inadequacy, Income, level of education, chronic health issues of customer and the possession of multiple loans. A positive relationship was observed between loan inadequacy, chronic health issues of customer and the possession of multiple loans and the dependent variable (possibility of loan default). On the other hand, level of education and income had negative influence on the probability of loan default. Even though, Marital Status, Household size and Financial Literacy training had positive effect on loan default, these impact were observed to be statistically insignificant. Similarly, Age, Receipt of remittances, and credit officer supervision had negative but insignificant impact on loan default.

Also, it was revealed that over 65% of the MFIs have a default rate above 4% (above the international acceptable default rate of 3%). Furthermore, it was observed that the prevailing loan default rate of the various MFIs affected their profitability, lending potentials and led to worker lay off.

5.4 Recommendations

Following the findings of this research, a number recommendation and suggestions are proposed in order to ensure the survival of MFIs and their profitability.

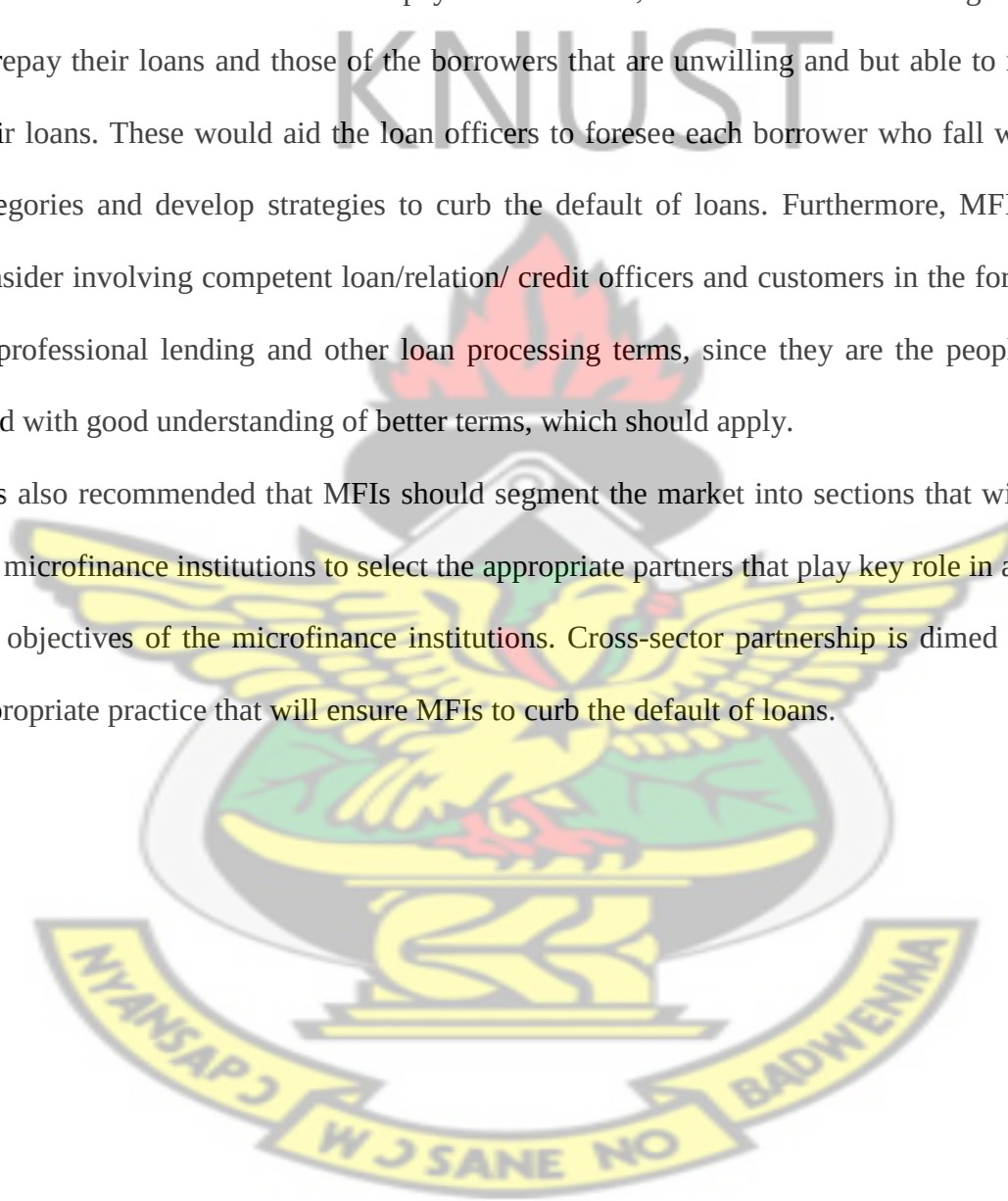
Firstly, there is a need for MFIs to consider revising their lending and credit policies and practices such that it takes cognizance of the factors that can significantly influence the payment abilities of customers. In the policy making, there should be an inclusion of policy that will take consideration of economically poor individual, who have been in business for about 12 months since it is believed that the individual business is likely to fail within the first year of its operations. Notwithstanding this, it is essential for MFIs to modify their design of products and the uniqueness in the services they offer like providing incentives to borrowers who frequently pay off their principal loan with the interest on time and punish those who fails in the payment of the principal and the interest. This will require that adequate sources be earmarked for the purpose of research to understand the loan product demands of their market.

Also, microfinance institutions should consider the adoption of credit insurance for the loans they give to borrowers. Doing this will to a large extent, ensure that loans disbursed to borrowers are potentially free from risk of defaulting loan. This is due to the significance of insurance on repayment of loan security. Ensuring the use of credit insurance will reduce the outcome of defaulting borrowers in losing their collateral properties and the resultant loss of revenue and profits to microfinance institutions.

It is also recommended that building of the capacity of the MFIs personnel is essential to the microfinance institutions, especially the credit/ relation/ loan officer. This is because these

officers are usually in the field, serve as the first point of contact to borrowers and have good firsthand information on the customers. In training of the personnel, the officers should be enlightened on portioning of borrowers into sections that will enable them to access those borrowers who will and be able to pay off their loans, borrowers that are willing but unable to repay their loans and those of the borrowers that are unwilling and but able to repay off their loans. These would aid the loan officers to foresee each borrower who fall within the categories and develop strategies to curb the default of loans. Furthermore, MFIs should consider involving competent loan/relation/ credit officers and customers in the formulation of professional lending and other loan processing terms, since they are the people on the field with good understanding of better terms, which should apply.

It is also recommended that MFIs should segment the market into sections that will enable the microfinance institutions to select the appropriate partners that play key role in achieving the objectives of the microfinance institutions. Cross-sector partnership is diked to be the appropriate practice that will ensure MFIs to curb the default of loans.



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APPENDICES

APPENDIX I QUESTIONNAIRES

(To be completed by the MFI)

The underneath questionnaire is meant to collect data for academic purposes only. All responses shall be treated strictly very confidential. Your response to the following questionnaire would be highly cherished.

- **DEMOGRAPHIC CHARACTERISTICS OF MFI**

- Country of Origin of Parent Organization (if applicable):
- Town/ City of Location:
- Year of commencement:
- Type of Microfinance Business: ☐ Formal Supplier ☐ Semi-Formal Supplier
☐ Informal Supplier ☐ other (please specify).....
- Number of workers (permanent and commission):
☐ Less than 10 ☐ 11 – 30 ☐ 31-50 ☐ 50-100 ☐ Above 100

- **EXISTENCE OF LOAN DEFAULTS AMONG MFIs IN GHANA;**

- Which loan facilities do you offer? ☐ Personal ☐ Group Business loan
☐ Individual Business loans ☐ Education loans ☐ Salary loans
- What loan/ credit facilities do you are often applied for in your MFI?
☐ Personal ☐ Group Business loans ☐ Individual Business loans ☐
Education loans ☐ Salary loans
- Which of your loan/ credit facilities are mostly defaulted?

☐ Personal ☐ Group Business loans ☐ Individual Business loans ☐
Education loans ☐ Salary loans

- What form of loan default do you usually suffer? ☐ Delayed payment ☐ Bad loans
- What is your loan default rate? ☐ Less than 3% ☐ 3% - 5% ☐ 6% - 10% ☐ above 10%

• **REASONS FOR LOAN DEFAULT REPAYMENT IN MFIs IN GHANA (BY MFI)**

- What is the average interest rate on your loans/ credit facilities?

☐ Less than 5% ☐ 5% - 10% ☐ 11% - 15% ☐ 16% - 20% ☐ Above 20%
- What is the average maturity period on the credit facilities that are most patronized your offer?

☐ Less 6 months ☐ 6–11 months ☐ 1–2 year ☐ 2–5 years ☐ above 5 years
- When do clients start making payment for their loans after they been disbursed to them?

☐ 1 week ☐ 2 weeks ☐ 1 month ☐ 1 – 2 months ☐ other (specify)
.....
- Do you charge transaction fee? ☐ Yes ☐ No
- If yes, how much is?
- How long does it take for you to disburse loans to approved clients?

☐ Within 1 week ☐ 1 month ☐ 1 – 3 months ☐ 4 - 6months
- Do you perform credit risk analysis on prospective clients in determining whether they are offered loan? ☐ Yes ☐ No.

- Do you offer financial literacy to your clients before disbursing loans to them? ☐ Yes ☐ No

- If yes to Q27, how do you train your clients?

☐ One-on-one ☐ Workshops ☐ Electronic Media ☐ Print media

☐ Others (please specify).....

- With reference to Q28, how often do you train your clients?

☐ Weekly ☐ Bi –weekly ☐ Monthly ☐ other (please specify)

.....

- Do you train your clients after disbursing loans to them? ☐ Yes ☐ No

- If yes to Q23, how do you go about the training?

☐ one-on-one ☐ Workshops ☐ Electronic Media ☐ Print media

☐ others (please specify)
.....

- With reference to Q31, how often do you train your clients?

☐ Weekly ☐ Bi –weekly ☐ Monthly ☐ other (please specify)

.....

- Do you supervise your clients after loans/ credit are disbursed? ☐ Yes ☐ No

- If yes to Q33, how often do you supervise them? ☐ Weekly ☐ Bi-weekly

☐ Monthly ☐ other (please specify)
.....

- In your opinion, what factors contribute to loan default by your customers?

☐ ineffective loan monitoring ☐ diversion of funds by customers ☐ poor credit assessment
☐ failure of customers' businesses ☐ unwillingness of customers to pay
☐ age of clients ☐ other (please specify)

.....

• **EFFECTS OF LOAN DEFAULT REPAYMENT ON MFIs**

- In your opinion, is the loan default rate of your institution a threat or problem to your institution? ☐ Yes ☐ No

- The loan default affected your institution's lending potential?

☐ Strongly Agree ☐ Moderately Agree ☐ Moderately Disagree ☐ Strongly Disagree

- The loan default situation affected your institution's profitability?

☐ Strongly Agree ☐ Moderately Agree ☐ Moderately Disagree ☐ Strongly Disagree

- The loan default situation caused you to lay off some workers? ☐ Yes ☐ No

- In your opinion, how does loan default affect your institution's operation?

.....

.....

(To be completed by MFI customers)

The underneath questionnaire is meant to collect data for academic purposes only. All responses shall be treated strictly very confidential. Your response to the following questionnaire would be highly cherished.

DEMOGRAPHICS OF THE CUSTOMERS

- Sex: ☐ Male ☐ Female
- Age: ☐ 18 – 25 ☐ 26 – 35 ☐ 36 – 45 ☐ 46 – 55 ☐ above 55
- Nationality: ☐ Ghanaian ☐ Non-Ghanaian
- Ethnicity: ☐ Ewe ☐ Akan ☐ Ga ☐ Ashanti ☐ Krobo
☐ Guan ☐ Dagomba ☐ Frafra ☐ other (please specify).....
- Marital Status: ☐ Married ☐ Single ☐ Divorced ☐ Widow/Widower
- Household size (number of dependents):
☐ 1-3 ☐ 4 – 6 ☐ 7 – 9 ☐ 10 and above
- Are you the family Head: ☐ Yes ☐ No
- Highest Level of Education: ☐ Primary ☐ JHS ☐ SHS/O' Level ☐ Tertiary
- Type of Business: ☐ Trading in goods ☐ Farming ☐ Food Vending/ Hawking
☐ Civil Service ☐ Other Services ☐ Manufacturing and Processing
☐ Unemployed
- Do you have any health condition for which pay regular visit to the hospital? ☐ Yes ☐ No
- Do any of your dependents have any health condition for which they pay regular visits to the hospital? ☐ Yes ☐ No

ECONOMIC CHARACTERISTICS OF RESPONDENTS (ability to pay)

- How much is your monthly income?

☐ Less than GH¢ 400 ☐ GH¢ 401 – 600 ☐ GH¢ 601 – 800
☐ GH¢ 801 – 1000 ☐ above 1000

- Do you have relatives who regularly send your money? ☐ Yes ☐ No
- Do you own any property (car/land/house)? ☐ Yes ☐ No

REASON WHY CUSTOMERS DEFAULT

- For what purpose did you take the loan? ☐ Start business ☐ Expand business ☐ Vehicle

☐ Finance education or that of dependent ☐ finance health care

☐ other (please specify).....

- What did you use the loan/ credit for? ☐ Start business ☐ Expand business ☐ Vehicle ☐ Finance my education or that of dependent ☐ finance health care

☐ other (please specify).....

- How much loan/ credit did you request for?

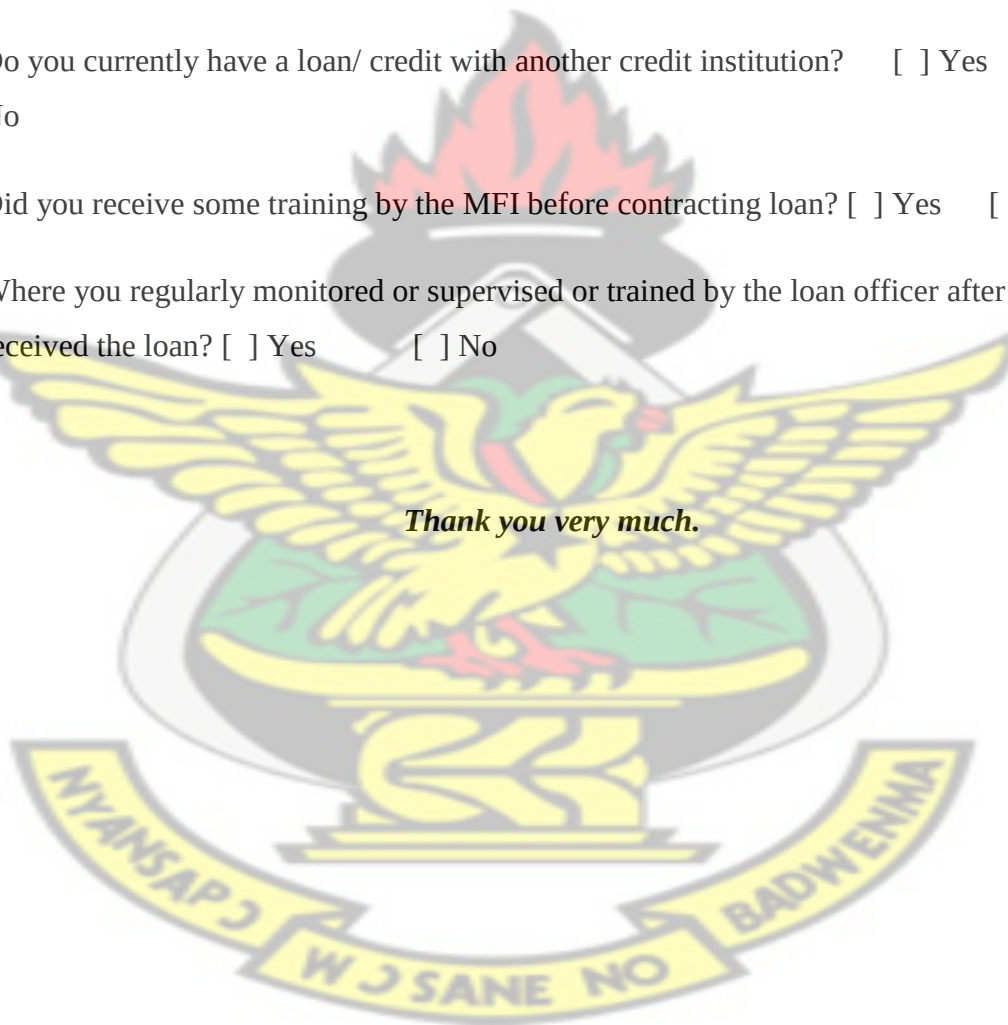
☐ Less than GH¢ 2000 ☐ GH¢ 2001 – 5000 ☐ GH¢ 5001 – 7000
☐ GH¢ 7001 – 10,000 ☐ Above 10,000

- How much were you given?

☐ Less than GH¢ 2000 ☐ GH¢ 2001 – 5000 ☐ GH¢ 5001 – 7000
☐ GH¢ 7001 – 10,000 ☐ Above 10,000

- **Are you defaulting a loan?** ☐ Yes ☐ No
- If yes, why did you default the loan repayment? (Tick all that apply)
 - ☐ Business failure ☐ unfavourable payment process ☐ inadequate loan size ☐ delay delivery of loan ☐ high interest rate ☐ unwillingness to pay
 - ☐ diversion of fund to unforeseen events (funeral, health, accident)
 - ☐ other (please specify)
- Do you currently have a loan/ credit with another credit institution? ☐ Yes ☐ No
- Did you receive some training by the MFI before contracting loan? ☐ Yes ☐ No
- Where you regularly monitored or supervised or trained by the loan officer after you received the loan? ☐ Yes ☐ No

Thank you very much.

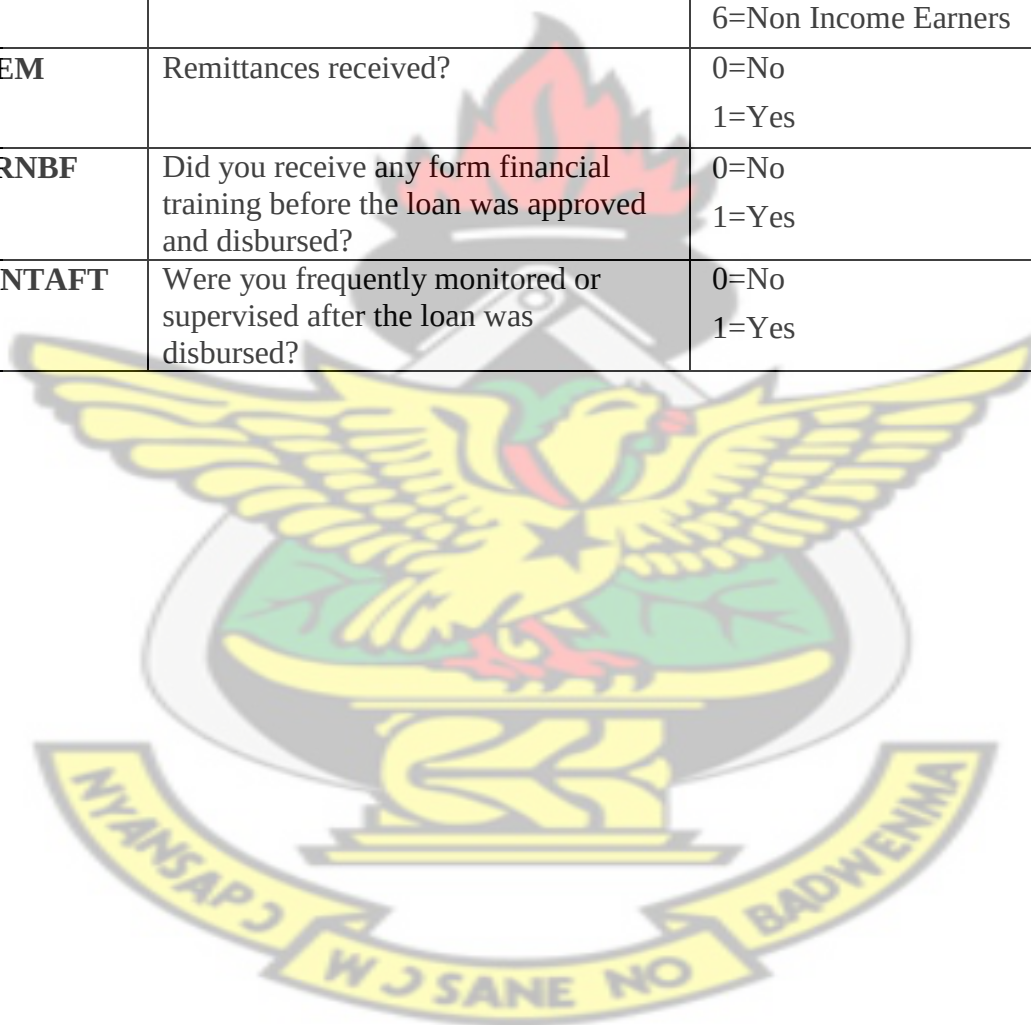


APPENDIX II

VARIABLE DESCRIPTION AND MEASUREMENT

Abbrev.	Label	Values
DEFL	Are you currently defaulting?	0= No 1= Yes
SXR	Sex of Respondent	1= Male 2=Female
AGR	Age group of Respondents	1=18-25 years 2=26-35 years 3=36-45 years 4=46-55 years 5=Above 55 years
EDUR	Highest Level of Formal Education of Respondents	0=None 1=Primary 2=JHS 3=SHS/O'Level 4=Tertiary
MRGSTAT	Marital Status of Respondents	1=Single 2=Married 3=Divorced/ Separated 4=Widowed
HEALTHi	Do you have any chronic Health Condition?	0=No 1=Yes
HEALTHd	Do any of your dependents have any Health Condition?	0=No 1=Yes
HSSIZE	Size of Dependents	1=1-3 2=4-6 3=7-9 4=10 and above
JB	Employment and Type of Business	1=Farming/ Animal rearing 2=Civil Service 3=Food Vending/ Hawking 4=Trading in Goods and Agriculture Food 5=Manufacturing/Processing

		6=Other Services 7=Unemployed
OTHLOAN	Are you currently servicing another loan from another credit institution?	0=No 1=Yes
Ym	Monthly Income range of respondent	1=Less than GH¢ 400 2=GH¢ 401-600 3=GH¢ 601- 800 4=GH¢ 801-1000 5=Above GH¢ 1000 6=Non Income Earners
REM	Remittances received?	0=No 1=Yes
TRNBF	Did you receive any form financial training before the loan was approved and disbursed?	0=No 1=Yes
MNTAFT	Were you frequently monitored or supervised after the loan was disbursed?	0=No 1=Yes



APPENDIX III
RELIABILITY TEST RESULTS AND INTER-ITEM CORRELATION MATRIX
Reliability Test

Test scale = mean(standardized items)

Item			item-test	item-rest	average interitem	alpha
	Obs	Sign	correlation	correlation	correlation	
DEF	620	+	0.7872	0.6882	0.0427	0.3489
AGE	620	-	0.1252	-0.0776	0.0923	0.5497
EDU	620	-	0.4050	0.2164	0.0714	0.4798
MARSTAT	620	+	0.1797	-0.0230	0.0882	0.5373
HEALTHi	620	+	0.5374	0.3692	0.0615	0.4400
HEALTHd	620	+	0.2734	0.0736	0.0812	0.5148
HSSIZE	620	+	0.2531	0.0524	0.0827	0.5198
LOANINAD	620	+	0.7458	0.6321	0.0459	0.3657
OTHLOAN	620	+	0.5545	0.3897	0.0602	0.4345
Ym	620	-	0.3462	0.1516	0.0758	0.4959
REM	620	-	0.2048	0.0025	0.0864	0.5315
TREBF	620	-	0.3013	0.1033	0.0791	0.5077
MNTAFT	620	-	0.2285	0.0269	0.0846	0.5258
Test scale					0.0732	0.5067

Inter Item Correlation Matrix

	DEF	SEX	AGE	EDU	MARSTAT	HEALTHi	HEALTHd
DEF	1.0000						
SEX	-0.0678	1.0000					
AGE	-0.0563	-0.0127	1.0000				
EDU	-0.3502	-0.0097	0.0370	1.0000			
MARSTAT	0.0368	0.0049	0.3693	0.0646	1.0000		
HEALTHi	0.5228	-0.0591	0.0015	-0.1412	0.0726	1.0000	
HEALTHd	0.0777	0.0053	-0.0311	-0.0382	-0.0164	0.0336	1.0000
HSSIZE	0.0685	-0.0187	0.1694	-0.0369	0.0574	-0.0524	0.0757
LOANINAD	0.0496	-0.0512	-0.0361	-0.3383	0.0450	0.4462	0.0894
OTHLOAN	0.5363	-0.0562	0.0330	-0.1924	0.0670	0.2621	0.0017
Ym	-0.1722	0.0523	0.0427	-0.0349	-0.0016	-0.0975	0.0007
REM	-0.0550	0.0107	-0.0127	-0.0703	0.0111	-0.0110	-0.0083
TRNRF	-0.1230	0.0316	-0.0282	0.0135	-0.0406	-0.0851	-0.0141
MNTAFT	-0.0419	-0.0331	0.0295	0.0238	-0.0287	-0.0374	0.0018
	HSSIZE	LOANINAD	OTHLOAN	Ym	REM	TRNRF	MNTAFT
HSSIZE	1.0000						
LOANINAD	0.1145	1.0000					
OTHLOAN	0.0842	0.4829	1.0000				
Ym	0.0182	-0.1373	-0.0735	1.0000			
REM	0.0522	-0.0113	-0.0308	0.2180	1.0000		
TRNRF	-0.0591	-0.0961	-0.0524	0.0407	-0.0479	1.0000	
MNTAFT	-0.0464	-0.0392	0.0098	-0.0187	-0.1281	0.0407	1.0000

APPENDIX IV

CHI SQUARE TEST OF ASSOCIATION AND INDEPENDENT SAMPLE T-TEST

Sex of Respondent * Are you currently defaulting? Crosstabulation

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.852 ^a	1	.091		
Continuity Correction ^b	2.587	1	.108		
Likelihood Ratio	2.854	1	.091		
Fisher's Exact Test				.108	.054
Linear-by-Linear Association	2.847	1	.092		
N of Valid Cases	620				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 147.50.					
b. Computed only for a 2x2 table					

Age group of Respondents * Are you currently defaulting? Crosstabulation

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.389 ^a	4	.117
Likelihood Ratio	7.423	4	.115
Linear-by-Linear Association	1.960	1	.162
N of Valid Cases	620		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 25.50.			

Highest Level of Formal Education of Respondents * Are you currently defaulting?

Crosstabulation

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	78.344 ^a	4	.000
Likelihood Ratio	82.434	4	.000
Linear-by-Linear Association	75.920	1	.000
N of Valid Cases	620		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 48.50.			

Do you have any chronic Health Condition? * Are you currently defaulting?

Crosstabulation

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	169.482 ^a	1	.000		
Continuity Correction ^b	167.330	1	.000		
Likelihood Ratio	181.315	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	169.209	1	.000		
N of Valid Cases	620				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 116.50.					
b. Computed only for a 2x2 table					

Do any of your dependents have any Health Condition? * Are you currently defaulting? Crosstabulation

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.747 ^a	1	.053		
Continuity Correction ^b	3.441	1	.064		
Likelihood Ratio	3.751	1	.053		
Fisher's Exact Test				.064	.032
Linear-by-Linear Association	3.741	1	.053		
N of Valid Cases	620				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 141.00.					
b. Computed only for a 2x2 table					

Size of Dependents * Are you currently defaulting? Crosstabulation

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.055 ^a	3	.011
Likelihood Ratio	11.848	3	.008
Linear-by-Linear Association	2.908	1	.088
N of Valid Cases	620		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.00.			

Monthly Income range of respondent * Are you currently defaulting? Crosstabulation

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	44.665 ^a	5	.000
Likelihood Ratio	45.945	5	.000
Linear-by-Linear Association	18.350	1	.000
N of Valid Cases	620		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 29.50.			

Did you receive any form financial training before the loan was approved and disbursed? * Are you currently defaulting? Crosstabulation

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.382 ^a	1	.002		
Continuity Correction ^b	8.895	1	.003		
Likelihood Ratio	9.407	1	.002		
Fisher's Exact Test				.003	.001
Linear-by-Linear Association	9.367	1	.002		
N of Valid Cases	620				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 142.00.					
b. Computed only for a 2x2 table					

Were you frequently monitored or supervised after the loan was disbursed? * Are you currently defaulting? Crosstabulation

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.091 ^a	1	.296		
Continuity Correction ^b	.929	1	.335		
Likelihood Ratio	1.091	1	.296		
Fisher's Exact Test				.335	.168
Linear-by-Linear Association	1.089	1	.297		
N of Valid Cases	620				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 152.50.					
b. Computed only for a 2x2 table					

Are you currently servicing a loan from another credit institution? * Are you currently defaulting? Crosstabulation

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	178.317 ^a	1	.000		
Continuity Correction ^b	176.136	1	.000		
Likelihood Ratio	190.161	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	178.030	1	.000		
N of Valid Cases	620				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 124.50.					
b. Computed only for a 2x2 table					

Remittances received? * Are you currently defaulting? Crosstabulation

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.879 ^a	1	.170		
Continuity Correction ^b	1.664	1	.197		
Likelihood Ratio	1.880	1	.170		
Fisher's Exact Test				.197	.098
Linear-by-Linear Association	1.876	1	.171		
N of Valid Cases	620				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 141.50					
b. Computed only for a 2x2 table					

Marital Status of Respondents * Are you currently defaulting ? Crosstabulation

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.908 ^a	3	.003
Likelihood Ratio	13.980	3	.003
Linear-by-Linear Association	.839	1	.360
N of Valid Cases	620		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.00.

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Level of Loan Inadequacy	Equal variances assumed	1.712	.191	-40.042	618	.000	-647.61290	16.17337	-679.37432	-615.85149
	Equal variances not assumed			-40.042	611.460	.000	-647.61290	16.17337	-679.37499	-615.85082

Probit Results (robust)

Number of obs	=	620
Wald chi2(20)	=	44.24
Prob > chi2	=	0.0014
Pseudo R2	=	0.9665

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Delta-method

Number of obs = 620

Expression : $\Pr(\text{DEF})$, `predict()`

	Delta-method					
	Margin	Std. Err.	z	P> z	[95% Conf. Interval]	
MARSTAT						
Single	.492969	.0053779	91.67	0.000	.4824286	.5035094
Married	.5059632	.005733	88.25	0.000	.4947266	.5171997
Divorced/ Separated	.4741306	.0066616	71.17	0.000	.4610742	.487187
Widowed	.5377103	.0161417	33.31	0.000	.5060731	.5693475

Number of obs = 620

Expression : Pr(DEF), **predict()**

	Delta-method					
	Margin	Std. Err.	z	P> z	[95% Conf. Interval]	
EMP						
Farming/Animal rearing	.4040776	.0161224	25.06	0.000	.3724782	.4356769
Civil Service	.4209181	.0130902	32.16	0.000	.3952618	.4465744
Food vending/ Hawking	.4757277	.0082552	57.63	0.000	.4595478	.4919076
Trading in G/S & agro products	.5259131	.0087123	60.36	0.000	.5088374	.5429889
Manufacturing/ Processing	.5512282	.0128488	42.90	0.000	.5260451	.5764112
Other services	.5573465	.009339	59.68	0.000	.5390424	.5756506
Unemployed	.6295599	.0214777	29.31	0.000	.5874643	.6716555

Non-robust Probit results

Iteration 0: log likelihood = -429.75125
 Iteration 1: log likelihood = -36.211514
 Iteration 2: log likelihood = -20.453357
 Iteration 3: log likelihood = -15.820839
 Iteration 4: log likelihood = -14.509831
 Iteration 5: log likelihood = -14.405952
 Iteration 6: log likelihood = -14.404593
 Iteration 7: log likelihood = -14.404592

Probit regression Number of obs = 620
 LR chi2(20) = 830.69
 Prob > chi2 = 0.0000
 Log likelihood = -14.404592 Pseudo R2 = 0.9665

DEF	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
AGE	-1.409053	.6511338	-2.16	0.030	-2.685252	-.1328542
EDU	-.7401202	.5044778	-1.47	0.142	-1.728879	.2486381
HEALTHi	4.165547	1.872694	2.22	0.026	.4951343	7.83596
HEALTHd	1.266282	1.079694	1.17	0.241	-.8498786	3.382443
BSSIZE	.0674982	.5936995	0.11	0.909	-1.096131	1.231128
LOANINAD	.0381179	.0126406	3.02	0.003	.0133428	.0628931
EMP						
Civil Service	1.166138	1.960535	0.59	0.552	-2.676439	5.008716
Food vending/ Hawking	5.112796	2.488817	2.05	0.040	.2348054	9.990787
Trading in G/S & agro products	8.38921	3.094491	2.71	0.007	2.324119	14.4543
Manufacturing/ Processing	10.19614	3.973419	2.57	0.010	2.408385	17.9839
Other services	10.62131	3.991671	2.66	0.008	2.797776	18.44484
Unemployed	15.63799	5.845882	2.68	0.007	4.180269	27.09571
MARSTAT						
Married	.9200264	.8022234	1.15	0.251	-.6523026	2.492355
Divorced/ Seperated	-1.873888	1.819698	-1.03	0.303	-5.44043	1.692655
Widowed	3.101772	2.42825	1.28	0.201	-1.65751	7.861054
OTHLOAN	3.80493	1.881925	2.78	0.005	.884396	5.125464
Ym	-3.208604	1.147172	-2.80	0.005	-5.45702	-.9601876
REM	.5208542	.8434191	0.62	0.537	-1.132217	2.173925
TRNRF	-.4038387	.9042577	-0.45	0.655	-2.176151	1.368474
MNTAFT	-.3100759	.9446244	-0.33	0.743	-2.161506	1.541354
_cons	-45.62858	15.14649	-3.01	0.003	-75.31515	-15.94202

Note: 247 failures and 269 successes completely determined.

Delta-method				
Margin	Std. Err.	z	P> z	[95% Conf. Int.]

Number of obs = 620

	Delta-method				
	Margin	Std. Err.	z	P> z	[95% Conf. Interval]
EMP					
Farming/Animal rearing	.4048776	.027835	14.52	0.000	.349522 .4586332
Civil Service	.4209181	.0195326	21.55	0.000	.3826349 .4592813
Food vending/ Hawking	.4757277	.01819	46.69	0.000	.4557557 .4956996
Trading in G/S & agro products	.5259131	.0110596	47.55	0.000	.5042367 .5475895
Manufacturing/ Processing	.5512282	.0181627	30.35	0.000	.51563 .5868263
Other services	.5573465	.0124059	44.93	0.000	.5330315 .5816616
Unemployed	.6295599	.03307	19.04	0.000	.5647439 .6943758

Number of obs = 620

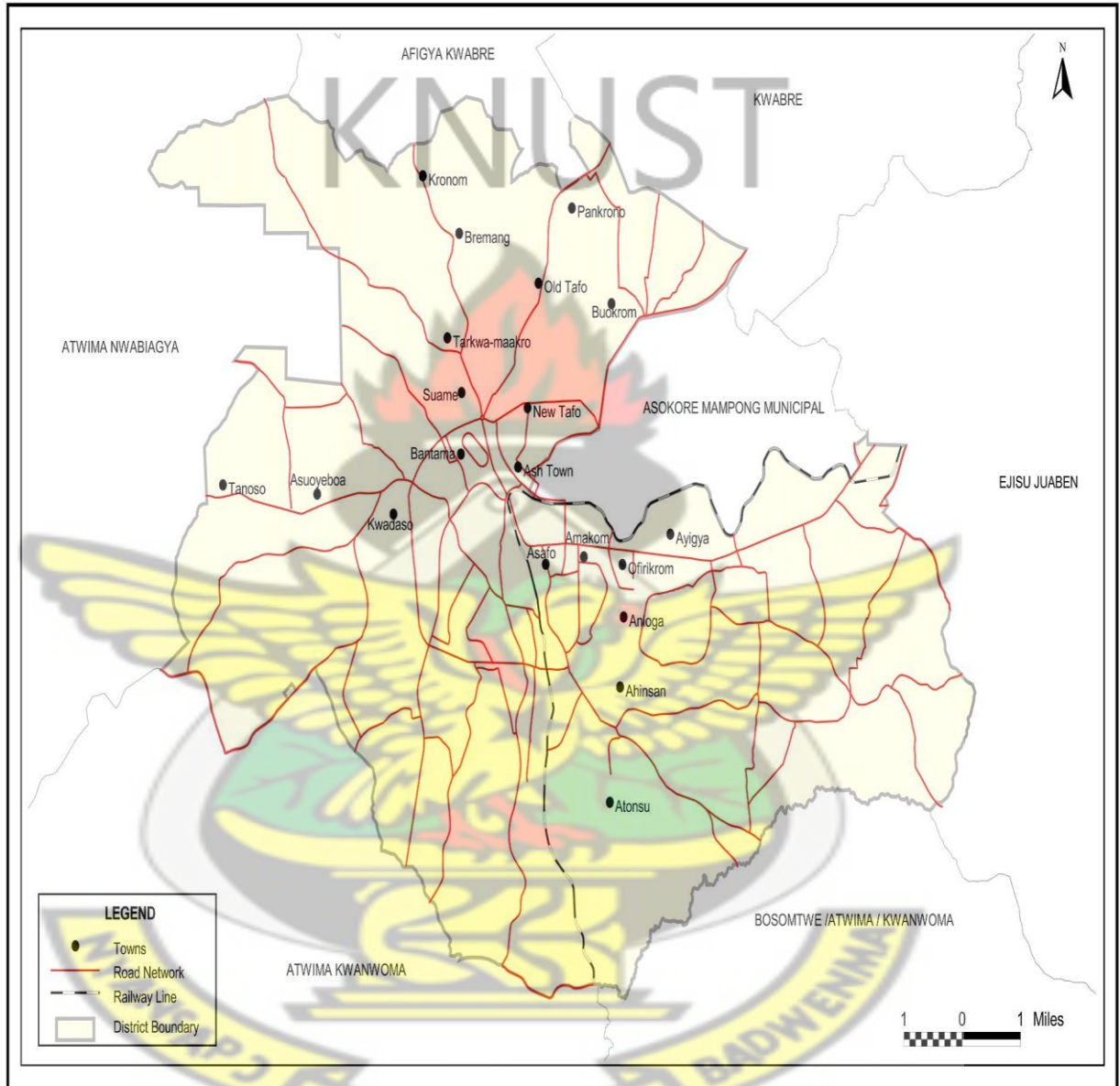


	Delta-method					
	Margin	Std. Err.	z	P> z	[95% Conf. Interval]	
MARSTAT						
Single	.492969	.006356	77.56	0.000	.4805114	.5054265
Married	.5059632	.0071772	70.50	0.000	.4918961	.5200302
Divorced/ Separated	.4741306	.0137126	34.58	0.000	.4472543	.5010069
Widowed	.5377103	.0320842	16.35	0.000	.4732585	.6021622

APPENDIX VI

MAP OF KUMASI METROPOLIS

MAP OF KUMASI METROPOLIS



Source: Ghana Statistical Service (GSS)