**CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE**

**Faculty of Tropical AgriSciences**


# Factors Influencing Repayment Problem in Microfinance in Laos

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# Declaration

I hereby declare that I have done this thesis entitled “Factors Influencing Repayment Problem in Microfinance in Laos” independently, all texts in this thesis are original, and all the sources have been quoted and acknowledged by means of complete references and according to Citation rules of the FTA.

In Prague on 26 April 2018

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Maxly INTHAXAI

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## Abstract

Microfinance became an important part of socio-economic development especially for poverty reduction. However, Microfinance sector is still weak and faces multiple challenges. Several MFIs have not reached profitability yet and still depend on donor support. Therefore, the repayment problem is significantly important in order to make sure MFIs are operated in a sustainable basis which is reflected the purpose of this paper in order to investigate the factors that influence repayment problem of Microfinance in Laos, in Naxaithong District, Vientiane Capital.

126 respondents were conducted as a sample size by using logistic regressive model, the borrower's characteristic (Age, gender, marital status, educational level, occupations, dependency) and microcredit loan's characteristic (income, assets, purpose of credits using) are among the factors contributed in microcredit loan repayment problem. Empirical results showed that the most influencing factors that affected to repayment problem are the purpose of loan using and income of the borrowers by showing positive coefficient at significance levels.

In addition, as the purpose of loan using is considered as the most crucial factors that affects to the loan repayment problem and as loan characteristic it is showed the impact to the default group or overdue borrowers in this study. In income of borrowers considered also as loan characteristic which was positively directed to increase the probability of repayment performance. Due to income and purpose of loan using are among the factors that most influencing to repayment problem therefore, study also get some suggestion in order to reduce the possibility of repayment problem in the study conclusion.

**Key words**: Microfinance, Microcredit, Repayment problem, Vientiane, Laos

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## List of the abbreviations used in the thesis

| | |
|---|---|
| **ADB** | Asian Development Bank |
| **BOL** | Bank of Laos |
| **DTMFIs** | Deposit Taking Microfinance Institutions |
| **FAO** | Food and Agriculture Organization of United Nations |
| **GIZ** | Deutsche Gesellschaft für Internationale Zusammenarbeit |
| **ILO** | International Labour Organization |
| **JICA** | Japan International Cooperation Agency |
| **LVCA** | Lao Village Credit |
| **MFA** | Microfinance Associations |
| **MFIs** | Microfinance Institutions |
| **MIS** | Management Information Systems |
| **NDTMFIs** | Non-Deposit Taking Microfinance Institutions |
| **NERI** | National Economic Research Institute |
| **NGOs** | Non-Governmental Organizations |
| **SMEs** | Small Medium Enterprises |
| **SCUs** | Saving and Credit Unions |
| **UN** | United Nations |
| **UNCDF** | United Nations Capital Development Fund |
| **UNDP** | United Nations Development Programme |
| **USD** | United Stated Dollars |
| **VDF** | Village Development Fund |
| **VFs** | Village Funds |
| **VFPs** | Village Fund Promoters |
| **VSCGs** | Village Saving and Credit Groups |
| **WB** | World Bank |

# 1. Introduction

Microfinance became an important part of socio-economic development. In the specific terms, microfinance is a source of generating income for the poor in developing country. Microfinance is the provision of financial services to the financially excluded, usually the poor (Ashta et al. 2014). Generally, Microfinance exhibits a progression of stimulating potential outcomes for expanding markets, reducing poverty, and encouraging social change. It was also significantly introduced as a tool of financial instrument and initially found as microcredit back in 1970s by Muhammad Yunus as a formation of Grameen Bank (Amendáriz & Morduch 2010). The microcredit is a part of microfinance as a lending side and microcredit loans. It helps the poor in creating income and support to the possibility of improving living standard. Microfinance initially considered as rural finance or informal finance as well as providing money beside the formal banking and tailored to who has no access to formal finance (Mokhtar et al. 2012). Several studies demonstrated how microfinance contributing to the developing world especially the effectiveness of microfinance. Nevertheless, throughout the developing of microfinance, repayment problem has become an important issue in operating Microfinance Institutions (MFIs) sustainably. Indeed, less than half of MFIs could be gained a profit, most of them still needed subsidizing and helping from donors due to the lack of financial operation (Sengupta & Aubuchon 2008).

According to WB (2018) Lao PDR is a lower-middle income economy country with income per capita reaching $2,330 in 2017. The GDP growth averaged 7.8% over the last decade, thus Laos is one of the fastest growing economies in the East Asia and Pacific region and the 13th fastest growing economy globally. Back to the early 1990s the development of microfinance in Laos was introduced when the country opened up and began evolving towards a market economy with support by multilateral and bilateral organizations in order to establishing of village-based credit schemes and revolving funds (NERI et al. 2015). Despite microfinance sector over the last years has been growing significantly across the country. However, MFA (2016) reported that there is still a large unmet demand for financial services in the Lao PDR as the

outreach of the existing microfinance providers is still extremely constrained and scattered, which is estimated that only 25% of Lao households have access to some kind of financial services. Moreover, the sector is still weak and faces many challenges such as many MFIs deal with high portfolio at risk levels and the capacity of staff as well as the governance level is still low. In facts, MFIs are small in size with limited outreach. Several MFIs have unreached profitability yet and still depend on donor support. Furthermore, the level of transparency is still weak. There is not sufficient solid execution information accessible which could fill in as a benchmark for those institutions.

Even though there are a few providers of meso-level services in areas like accounting, auditing, management information systems (MIS) support, training, education, consulting and coaching, the demand for such services still exceeds supply in both quantitative and qualitative terms. Furthermore, regardless of the existence of a solid regulatory and supervisory framework, Bank of Lao's capacity to effectively regulate and supervise the growing number of MFIs is still limited. In addition, a lack of awareness on microfinance good practice combined with challenges in improving stakeholder cooperation and coordination are all obstructing in the whole development sectors. In order to establish efficiency and sustainability of MFIs, information about borrowers' repayment capacity in microfinance and all relevant factors influencing microcredit repayment is necessary (Bilau & St-Pierre 2017). The repayment performance is important to make sure that the MFIs are operated in a sustainable basis (Nawai & Shariff 2012). Therefore, the repayment problem is significantly important in order to make sure MFIs are operated in efficiency and sustainably which is referring to our objective to investigate the influenced factors of repayment problem among microfinance borrowers in Lao PDR.

# 2. Literature Review

In this literature review is covered the main part of previous researches and studies that more focus on the relevant factors and the characteristics of the borrowers in many parts of the world specifically in microfinance experiences from developing countries. This study tends to identify the influencing factors regarding to the characteristics of group characteristics, lender characteristics, loan characteristics and all related causes which affected to the repayment problem and performance.

## 2.1. Microfinance conceptions

There are many terms that used to describe microfinance. Several scientists or researchers have given significantly contributions in the conception of microfinance. The Food and Agricultural Organization (2000) stated the term of microcredit as a small loan which is intended to benefit low-income household and marginalized group of the borrower by offering collateral free loan through microfinance institution and non-organizations (NGOs) which can help the poor eliminated from poverty (Khiev 2017). Due to the limitation of formal credit access from formal financial institutions, microfinance allowed the poor people who need credits in order to invest in their agricultural activities and small businesses (FAO 2000). As argued by Ahmeti (2014); Bilau (2017); Sayvaya (2012), microfinance indicated as a tool or an instrument of financial services as well as it belongs to financial products of the financial institutions. In fact, microfinance also meant to the provision of financial services such as cash-based credit, saving, deposits, insurance, etc., to the poor, low-income households, and small enterprises. The most favorable conception of microfinance is microfinance has been widely accepted as a policy option for alleviating poverty (Mokhtar et al. 2012).

In spite of the fact that the terms of microfinance and microcredit frequently used reciprocally, it is imperative to perceive the distinction between the two. As specified before microcredit alluded to the demonstration of giving the loan. Microcredit introduced as a social innovation in order to response the social problem which

included social and financial exclusion, and poverty (Ashta et al. 2014). Microfinance, then again, is the demonstration of giving these same borrowers monetary services, for example, saving, lending, and insurance. In short microfinance incorporates the field of microcredit (Sengupta & Aubuchon 2008).

## 2.2. Overview of Microfinance in Laos

During the time that Laos opened up the country, microfinance was presented in order to supplant the microcredit term. The new term of microfinance was intended to indicate as financial services to whom interest especially for the low-income borrowers who had limited access to informal banking. According to government policy and strategy Bank of Laos (2012) decreed that the development of a sustainable rural and microfinance characterizes microfinance as "Microfinance means provision of financial service in varied forms. For instance, provision of loans, taking deposit, provision of security and others in the form of cash transactions to the poor, low income families and small enterprises", with the goal " that in the future people who currently do not have access to the banking system's services can satisfy their financial needs" (NERI et al. 2012). Microfinance Institutions (MFIs) indicated basically in three different groups included formal semiformal and informal institutions which providing services in micro-saving, microcredits and other financial services.

In Laos, microfinance covers with several terms, for example, 'inclusive finance', signifying as financial accessing for all, especially to low-income individuals, and 'responsible finance', referring among business banking institutions. It is actually no concurrence on what to define in micro-savings and microloans, which fluctuate in general measurement among nations and organizations. Indeed, micro-saving and microcredit measure as small size, which is relative to microfinance terms. Stimulatingly just a few countries have characterized what they mean by 'microloan', among them Laos is also defied the term of microloan, which is presented in a regulation that microloans should not exceed the roof of 10 million Kips (approximately 800 UDS) as maximum amount of microloan for all regulated MFIs.

However, some argued that in such definition of the regulation is better left to the individual institutions to consider case by case, otherwise this would be a reason to hamper some of borrowers from access to bigger loans and avoid in generating employment of small enterprises, while enabling the MFIs to broaden its risk in their operation of financial services (NERI et al. 2015).

## 2.3. Microfinance Institutions in Laos

Although microfinance has been widely introduced in Laos. Many microfinance institutions still not cover across the country. Almost MFIs are located in main cities over the country due to the unavailability of capital and fund from the MFIs and base on density of population, ability of clients because MFIs is considered as formal institutions and most of the clients is still in the middle range not that really the poor. Microfinance institutions pay a role as development organizations and mainly to serve the financial needs of un-served or underserved markets which lead to meet the development objectives as well as to create employment, reduce poverty, assist to develop business and even empower women or other underprivileged populations groups (Kinde 2012).

Microfinance institutions (MFIs) initially established in a purpose of filling the gap of financial services by providing funds to lowers-income as mainly involved in small and micro business activities. Majorities of MFIs are semi-formal institutions and informal institutions which usually are not profit-oriented organizations. Moreover, MFIs usually receive funds from government, local government and even donors, therefore many MFIs are not sustainably independent and more involved on subvention indeed (Nawai & Shariff 2012).

According to NERI et al. (2015) The regulations of microfinance established in June 2008 by Bank of Laos (BOL 2012) has defined formal microfinance. Nonetheless, the majority of microfinance institutions or activities is village based and continues to be non-formal institution. These have come under many different names and guises. In the mid-1990s, UNDP/ UNCDF (1997) used the term Lao Village Credit

Associations (LVCA) but the term association is now reserved for organizations that fall under the Decree on Associations of September 2009, which precludes the registration of funds as associations. In their own terminology government agencies and donors have promoted credit groups, revolving fund groups, village revolving funds, community-managed loan funds, village savings and credit groups (VSCGs), savings and credit societies, microfinance and rural financial services. According to the Prime Minister Decree of 2012 "Microfinance institutions" are those institutions established in conformity with this Decree, which comprise deposit-taking, non-deposit-taking microfinance institutions and microfinance projects. The early emphasis on credit groups' goes back to the assumption in the past that people in Laos are too poor to save and therefore need revolving funds.

Over the last decade many have learned that Laotians have a high propensity to save, particularly women as the holders of the family purse strings. Therefore, credit groups have shown to varying degrees a tendency to evolve into savings and credit groups. In recent years government agencies have mainly used the term Village Development Fund (VDF) to refer to village-based funds, expressing their concern for village development. Major donors like ADB, GIZ and ILO have referred to them as village banks, even though they do not fall under the banking law. The term village funds (VFs) for village-based financial institutions owned and managed by their members. These village funds comprise both credit funds and deposit-taking funds. The term of village fund promoters (VFPs) for governmental, nongovernmental and international organizations which establish village funds and provide assistance to them.

By that, microfinance in Laos has begun from village-based credit as a form of informal microfinance institution formulated by Bank of Laos (BOL). According to the microfinance sector in Lao PDR by the Microfinance Associations points that there are included three main sector of microfinance institutions.

Table 1: Type of Microfinance Institutions

| Type of Microfinance Institutions | Characters of institutions |
|---|---|
| Formal Microfinance institutions | BoL regulated |
| Informal Microfinance institutions | Village fund |
| Semiformal Microfinance institutions | Transaction institutions |

Source: Lao Microfinance Association, 2016

Formal microfinance institutions encompass three categories: deposit-taking microfinance institutions (DTMFIs), non-deposit-taking microfinance institutions (NDTMFIs) and saving and credit unions (SCUs). Beside that the term of informal microfinance institutions refer to deposit-taking village fund and deposit-taking village fund (MFA 2016).

Table 2: Number of Microfinance Institutions (MFIs) by Regions

| Region | DTMFIs | | NDTMFIs | | SCUs | | Total | |
|---|---|---|---|---|---|---|---|---|
| | No. MFI | No. Clients | No. MFI | No. Clients | No. MFI | No. Members | No. MFI | No. Clients / Members |
| Northern | 1 | 4,869 | 9 | 20,583 | 6 | 8,937 | 16 | 34,389 |
| Central | 10 | 73,945 | 13 | 4,218 | 7 | 14,534 | 30 | 92,697 |
| Southern | - | - | 2 | 85 | 5 | 4,901 | 7 | 4,986 |
| Total | 11 | 78,814 | 24 | 24,886 | 18 | 28,362 | 53 | 132,072 |

Source: Lao Microfinance Association, 2016

Remark: Northern region *(Phongsaly, Luangnamtha, Oudomxay, Bokeo, Luangprabang, Houaphan and Sayaboury provinces)*, central region *(Vientiane Capital, Xiengkhuang, Vientiane, Borikhamxay, Khammuane and Savannakhet provinces)* and southern region *(Saravanh, Xekhong, Champassak and Attapeu provinces)*

## 2.4. Borrower Characteristics in Microfinance

According to FAO (2000), stated that microfinance generated for the poor and intended to help the rural poor people to escape from poverty. Thus, the main clients of microfinance institutions usually refer to the poor as the leading borrowers of microfinance institutions. It is essential to identified borrower characteristics which remained as a factor that influenced to repayment performance in microfinance (Bilau & St-Pierre 2017), even MFIs are more flexible compare to formal banking institutions regarding to lending and repayment characteristics.

Table 3: Characteristic Features of Microcredit

| Lending | Borrowers |
|---|---|
| Small loan sizes | Poor |
| Little and no collateral required | Predominantly female |
| Non-credit services offered | Low education levels |
| Regular loan payments | Geographical remoteness |
| Peer group liability | Few assets |
| Donor-funded | Agriculture-related occupations |

Source: FAO, 2000

### 2.4.1. The Borrower's Gender

Several studies in developing country indicated Gender as one of the most important explanatory variable influencing repayment performance. According to Boehe and Barin Cruz (2013) showed the important of understanding the relationship between gender and repayment performance. In many results of those studies have shown significant probability of loan repayment problem was higher for males than for female (Mokhtar el al. 2012; Chaudhary & Ishfaq 2003; Bilau & St-Pierre 2017; Baklouti 2013; Papias & Genesan 2009). Likewise, some studies illustrated there were no differences between male and female borrowers in repayment performance (Dorfleitner et al. 2017; Godquin 2004). However, Gender effect depends on social

and cultural aspect. Women tended to be more positive in repayment performance and women's repayment rates are higher than men (Brana 2013).

### 2.4.2. The Borrower's Age

Considering to borrower characteristics, Age is one of the influencing factors to repayment problem. Some studies also concluded age as one of the significant factors in repayment performance (Pasha & Negese 2014; Nawai & Shariff 2012; Haile 2015). Traditionally, older borrowers are more responsible and less affected to loan default than younger borrowers. According to Doefleitner et al. (2017) found that older borrowers showed lower probability of loan default. However, Mokhtar et al. (2012) indicated that older borrowers have higher default risk more than younger borrowers as well as most of the borrowers of MFIs are older people which logically reasonable. Thence, age has more negative relationship to repayment performance which affect to repayment problem.

### 2.4.3. The Borrower's Marital Status

Referring to the borrower's characteristics, Marital Status was as one of the impact variable in considering of loan repayment (Dorfleitner et al. 2017). Even credit scoring in classical banking, Marital Status also included as one of the characteristics variables (Kozeny 2015). In addition, Marital Status meant to have more available source of income (possibly two sources of income) comparing to single or unmarried people (Avery et al. 2004). In contrast, Mokhtar et al. (2012) and Haile (2015) found that there was no significant in marital status that influencing to repayment problem. Hence, in this study the Marital Status of borrowers would not affected to or have no relationship with repayment problem.

### 2.4.4. The Borrower's Educational Levels

Education is also affected by microfinance. Most of the borrowers are relatively considered by MFIs due to microcredit facilities many purposes, including education (UN 2013). Many studies indicated educational levels affected to repayment performance which in both positive and negative. Traditionally, the borrowers who have higher educational levels have a positive repayment performance, while borrowers who have less educational levels have more negative effect to repayment performance (Chali & Ashe 2016). Regarding to Salazar (2008) examined the determinants for the repayment rate in the Dominican Republic. The study was indicated linear model which showing result that educational level has an effect on repayment practices. Particularly, several studies showed that education was important and significant factor that enhance the loan repayment performance. A more educated borrower is expected to use the loan effectively as compared to a less educated one (Pasha & Tolosa 2014; Eze & Ibekwe 2007). Education increases borrowers' productivity, and helps borrowers better understand microfinance programs (Chaudhary & Ishfaq 2003). Thus, borrowers with higher levels of education may have higher repayment performance.

### 2.4.5. The Borrower's Occupations

In occupations usually can refers by business types in microfinance terms. Mokhtar et al. (2012); Fatollahi & Samani (2015); Chaudhary & Ishfaq (2003) showed that in business types indicated the types of business either jobs of borrowers or clients which included farming activities and non-farming activities. In the study, the business types regarding to logistic model showed a positive and significant. This meant that borrowers who involved in agriculture or farming activities were likely having a problem in repayment problem than borrowers who were non-farming or small business activities. Meanwhile, borrowers involved in non-farming activities such as service or support sectors who had training in their particular business and who borrowed higher loans had lower probabilities of defaulting (Roslan & Abd Karim

2009). Then, borrower's occupations meant to be a positive and having relationship on repayment performance in this study.

### 2.4.6. The Borrower's Income

Borrower's income is matter in measuring the welfare of borrowers in daily life. The source of borrower's income usually from their activities included farming activities and non-farming activities such as salary, wage, small trade and services. Many studies indicated that income have an effective and influence on repayment problem both negative and positive effects (Oke et al 2007; Phengkhamon 2013; Pasha & Tolosa 2014). However, Nawai and Shariff (2012) showed that in terms of factors affecting repayment performance in microfinance program, income had a negative coefficient or negative relationship. Furthermore, In the study from Chaudhary & Ishfaq (2003) stated that high income of borrowers may have positive effect on repayment of loans. Indeed, the result showed the contrary which income had negative relationship to repayment performance. Thus, in this study conclude income have a negative relationship to repayment performance.

### 2.4.7. The Borrower's Assets

The assets and collateral typically are the same by the content of formal banking which borrowers usually needed to fulfill the requirement of loan borrowing. However, in microfinance theoretically offered free collateral due to the intention of providing benefit to low-income household from microfinance institution and non-organizations (FAO 2000). In some studies, on microfinance repayment performance in the case of developing countries indicated that borrower's assets is one of the influencing factor to repayment performance (Dorfleitner et al 2017; Hermes & Lensink 2011). By that, Brana (2013) also proved that that assets or amount of personal assets was positive significance and influencing to repayment. In addition, the study's results regarding to Phengkhamon (2013) and showed that there were no statistically affecting significantly of borrower's assets to the model with a positive coefficient to repayment performance. Thence, although assets may not have higher

effect to repayment performance regarding to previous studies, but according to Chaudhary & Ishfaq (2003) found that assets had and were continuously being considered by lenders as the most popular form of collateral for reasons of their expectations to increase the probability of repayment in cases where in this study assume that there is a positive relationship according to previous studies above.

### 2.4.8. Purposes of Loan Using

Generally, the purpose of loan divided into two main purposes which intended purpose, and unintended purpose, which considered as a loan characteristic. The purpose of loan using is one of the most important factors that impact to repayment problem and performance. Chaudhary & Ishfaq (2003) found that regarding to the results, the purpose of loan using discovered as a strong and significant at a very high level of significance. The purpose of loan using of borrowers were affected to the probability of repayment. Phengkhamon (2013) also found that loan using factor had a positive relation to the repayment of the borrowers by 95% of probability value. When the borrowers used the loan correctly according to their purpose or along with the loan contract, the chance of paying back the loan by the time of setting within the contract would increase by 40%. National Economic Research Institution (NERI) has detailed on loan purposes of all loan given in Laos as in following in the table.

Table 4: Loan purpose of all loan given in Laos

| Purpose of loan use | Northern | Central | Southern | Total |
|---|---|---|---|---|
| Agricultures and Livestock (%) | 35.97 | 44.39 | 15.00 | 37.08 |
| Trade and Services (%) | 8.94 | 18.71 | 1.78 | 12.43 |
| Handicraft | 3.40 | 5.62 | 0.99 | 4.09 |
| Emergency (%) | 2.91 | 18.40 | 1.29 | 9.70 |
| Other purpose (%) | 3.12 | 0.29 | 0.14 | 1.46 |
| Percentage (%) | 42.07 | 45.14 | 12.80 | 100 |

Source: National Economic Research Institute 2015

### 2.4.9. Dependency

Dependency in this microfinance terms meant to number of dependent members in family or household. In developing countries, the numbers of dependency are usually high. Many families have many members of household which is in average around 4 to 6 (UN 2017). According to Pasha & Negese (2014) number of dependents within and out household was found negatively and significantly to loan repayment performance at 1% significance level. If other variables held constant, having non-dependents or lower number of dependents' decreases the probability of defaulting by the 15.8%. Some studies found that if the number of dependents increased, the borrower needs more money to fulfill their requirements in addition to the obligation of loan repayment. As a result, it may delight the loan to meet the needs of those dependents families (Retta 2000). However, Abafita (2003) showed that it is inconsistent with the study from Retta. Hence, Dependency in this study define as negative relationship to repayment performance.

## 2.5. Influencing factors of microfinance repayment problem

Generally, many studies in Microfinance have stated significantly interesting results. Numerous of them are investigated in impact of microfinance in several terms especially microfinance repayment problem and microfinance repayment performance. According to the study locations, specific regions and even countries of the research or the study, some factors have significantly changed even though many studies used the same factors, but the result showed some differences or even contrastingly. In order to maintain the MFIs sustainable or able to return profitability, many researchers attempted to investigate the important factors that influenced to microfinance repayment problem.

Phengkhamon (2013) studied factors that affecting repayment of borrowers in Rural Development and Poverty Eradication Vientiane Capital in Laos. The study was used Logit Model to analyze the data from 56 borrowers as a sample size. The result of the study showed that loan using factor had a positive effect correlation to the repayment

of the borrowers by 95% of probability value. It meant that if the borrowers used the loan correctly according to their purpose or along with the loan contract, the chance of paying back the loan by the time of setting in the contract would increase by 40%. And other factors included Assets, Dependency, Education, Income, Age, and Sex have no significant effects to the repayment performance according to the probability of the statistic which the author stated that this might be caused from the sample size which is too small, thus the effect from those factors might got slightly no differences.

Chaudhary & Ishfaq (2003) highlighted some of the problems that lenders facing in uncertainty of non-repayment by borrowers. The study used information from 224 rural households to investigate the potential credit worthiness of borrowers by using Logit technique. The results showed that the education, occupation, purpose of loan using, and assets of the borrowers were affected to the probability of repayment. Specifically, in the education factor, primary education had affected loan repayment behavior negatively, whereas higher education and training have both affected loan repayment positively.

Oke et al (2007) studied empirical analysis of microcredit repayment in Southwestern Nigeria. Oke analyzed the socio-economic that affect microcredit repayment. Multi-stage stratified random sampling procedure was used to collect data from 200 members of microfinance institutions (MFIs) in the study area. Linear multiple regression was used to determine the variables that affected microcredit repayment. The variables that significantly influence repayment: income, distance between dwelling place and bank, amount of business investment, socio-cultural expenses, amount of loan borrowed, access to business information, penalty for lateness to group meetings, membership of cooperative society, number of days between loan application and disbursement and poverty indicator were analyzed. the study supports findings that members of microfinance groups are creditworthy. The study concluded that belonging to microfinance institutions will improve the status of members.

Haile (2015) conducted a study on factors affecting loan repayment performance of Harari Microfinance Institution in Eastern Hararghe Zone of the Harari Regional State, in Ethiopia. Firafis used the logistic regression (binary logit) to analyze the collected data from 120 borrowers as a sample size of the households by systematic random sampling between defaulter and non-defaulters of MFI. 50% were defaulter and the remaining were non-defaulters. The study results illustrated that there were nine significant influencing factors out of fifteen which included Saving habit of borrowers, loan size, perception of borrowers on repayment period, source of income, availability of training, business experience, business type, family size, and the purpose of saving were found influencing loan repayment performances evidenced from the model statistic (significant at 1, 5 and 10%). Nonetheless, the most important result revealed that the probability of default increased as family size increased, as same as when the borrowers have negative perception on repayment period, less training, low business experience, poor saving habit and only single source of income, the probability of default also increased, and they were the main factors that affecting the loan repayment performance. Also, the study found that sex, age, dependent family size, marital status, and business type of borrowers were less powerful in explaining loan repayment performance of the sample borrowers.

Nawai and Shariff (2012) determined the factors affecting repayment performance in microfinance programs in Malaysia by using multinomial logit regression model. 309 respondents of TEKUN Nasional Clients were gathered through surveys. The results showed that there were ten factors that affecting the repayment performance namely age, gender, formal religious, education, distance to the lender office, business formality, total sales per month, total loan received, loan monitoring and loan disbursement lag have significantly affected borrower's performance. Nevertheless, the study found that age, formal religious education, total income, business formality had negative coefficient while, gender, business experience, distance to the lender office, number of time visit, and loan approval had a positive coefficient. The positive coefficient indicated variable are associated with higher probability of being on time in paid category. More important, the improvement in income and total sales would

increase the repayment performance of the borrowers effectively regarding to the statistic prove within the study.

Mokhtar el al. (2012) investigated the determinants of the microcredit loan repayment problem among two microfinance institutions in TEKUN and YUM borrowers in Malaysia by using logistic regression. The model was divided into their main characteristics which included borrower characteristics, business characteristics, and microcredit loan characteristics. The results of this study showed that among the TEKUN and YUM borrowers, the borrower's characteristics (age and gender), business characteristic (business type) and loan characteristics (repayment period, repayment mode, and repayment amount) were among the factors that influenced borrowers in repaying their loans as the repayment factor's problem. In addition, male borrowers in TUKEN had problems in repaying their loans. In both microfinance institutions, borrowers aged between 46 to 55 years old and 18 to 25 years old, respectively, had loan repayment problems.

On the other hand, Pasha and Negese (2014) found that in Sidama Micro Finance Institutions (SMFI) in Ethiopia the age of respondents was negatively and significantly determined the loan repayment performance of borrowers. It indicated that the elders were more responsible to repay loan than youngsters. The study was examined the socio-economic factors and loan related factors that determine loan repayment performance of borrowers. Throughout the analyzing, the study was used Binary logistic model to determine 14 determinants for evaluation. The results showed the age, education level and dependency were mainly affected to the repayment performance. The education level determined loan repayment positively. The borrowers who attained higher education level able to pay better than the borrowers who were in lower level schooling and/or illiterates. In the dependency of the family, it indicated that the borrowers who had small number of or no dependents in the family were performed better in loan repayment.

Moreover, microfinance repayment problem indicated the cause from multiple borrowing. Mpogole et al (2012) analyzed the frequencies of multiple borrowing, reasons for multiple borrowing, and effects of multiple borrowing on loan repayment at Iringa municipality in Tanzania. The results showed that several of multiple borrowing at Iringa in Tanzania was very high. More than 70% of the 250 microfinance clients had at least two loans from different MFIs at the same time. Moreover, about 16% had also borrowed from individual lenders. Main reasons for multiple borrowing were insufficient loans from MFIs, loan recycling, and family obligations. In addition, over 70% of the respondents had problems in loan repayment because of multiple pending loans. Interestingly, the study discovered that education level and number of dependents of the respondents significantly had influenced to the number of loan contracts as well as to repayment problem.

Microfinance has not only provided financing services to the poor but also to SMEs as a source to start business. Shu-Teng el al. (2015) analyzed the determinants of SMEs loan repayment performance in Malaysia. The results showed that there are four variables with significant relationship towards loan repayment namely educational level, business experience, amount of loan and loan tenure. However, the results also stated and found that the amount of loan is the most essential factors that affects the loan repayment performance among the respondents.

# 3. Aims of the Thesis

The main objective of this thesis is to investigate the influencing factors of repayment problems among microfinance borrowers in Microfinance Institutions in Naxaythong District, Vientiane Capital in Laos. Specifically, this study also sought to answer those following objectives as followed by:

1. To describe the repayment behavior among borrowers and loan characteristics.
2. To identify the impact of group characteristics including borrower characteristics, and loan characteristic on loan default.

## 3.1. Research Question

Repayment problems can be caused by many reasons and factors. The most important actor is the clients who came to borrow the loans or credits from the MFIs. The research questions designed to finding the answers related to the influenced factors of repayment problems among the microfinance borrowers in MFIs in Naxaythong District, Vientiane Capital by these following questions:

1. What are those repayment behaviors of borrower impact to the leading group of loan characteristics?
2. What are the group characteristics including borrower and loan characteristics that impact to loan default?
3. What are the most influencing factors that affected to the repayment problems?

## 3.2. Research Hypothesis

From the descriptive part in literature reviews and according to previous studies (Phengkhamon 2013; Shu-Teng el al. 2015; Mpogole et al ;2012; Pasha and Negese 2014; Mokhtar el al. 2012; Chaudhary & Ishfaq 2003), the hypotheses of this study has indicated regarding to the previous studies' results with the literature review on borrower characteristics and loan characteristics, these hypothesizes are considerably identified as following:

Table 5: The Hypotheses of the research

| No. | Variables | Hypotheses<br>Conditions (+/-) | |
|---|---|---|---|
| 1 | Gender | There is a positive coefficient at significance levels between gender and credit repayment performance | + |
| 2 | Age | There is a negative coefficient at significance levels between age and credit repayment performance | - |
| 3 | Marital status | There is a negative coefficient at significance levels between marital status and credit repayment performance | - |
| 4 | Educational Levels | There is a positive coefficient at significance levels between level of education and credit repayment performance | + |
| 5 | Occupations | There is a positive coefficient at significance levels between occupations and credit repayment performance | + |

| | | | |
|---|---|---|---|
| 6 | Income | There is a negative coefficient at significance levels between income and credit repayment performance | - |
| 7 | Assets | There is a negative coefficient at significance levels between assets and credit repayment performance | + |
| 8 | Purposes of loan using | There is a positive coefficient at significance levels between purposes of loan using and credit repayment performance | + |
| 9 | Dependent members of family | There is a negative coefficient at significance levels between dependent members of family and credit repayment performance | - |

# 4. Methods

## 4.1. Research Design

According to the similar studies on microfinance repayment Chaudhary & Ishfaq (2003); Oke et al (2007); Mokhtar el al. (2012); Mpogole et al (2012); Nawai and Shariff (2012); Phengkhamon (2013); Pasha and Negese (2014); Haile (2015) and regarding to the objective of the study which investigate the influencing factors of repayment problems among microfinance borrowers in Microfinance Institutions in Naxaythong District, Vientiane Capital in Laos. The specific objectives have been identified to obtain the necessary information regarding to actual situation of the study area, the possibility of the factors that would be the influence of the repayment problem included borrower characteristics and loan characteristics. The study conducted based on purposeful sampling method, which was applied to select study location and sample size. According to the data from Lao Microfinance Association (MFA 2016), the sample site was selected from the Microfinance Association members in Naxaythong district, Vientiane Capital. The sample size was received from the list of clients within MFI (Dokkhoun Microfinance Institute) in total 126 in six villages across Naxaythong district, Vientiane Capital.

## 4.2. Study Area

The study conducted in two main reasons in Naxaythong district, Vientiane Capital, Lao PDR. Firstly, the location was purposely selected according to the characteristics of urban and semi-urban features where like other parts of the country. Due to the information and report from Lao Microfinance Association (MFA) presented as most of microfinance borrowers and MFIs are located in Vientiane Capital or in central of the country and the study location was lied on this particular area (MFA 2016).

Secondly, the location was within the reach of the researcher especially in terms of associated travel and data collection costs since there was no external funding for this study. The study conducted in Vientiane Capital, Naxaythong district in Microfinance

Institution according to Creswell (2003) and Kumar (2011), the selection of the study location and data collection which depend on the resources available and demographic characteristics of the study population that purposely selected due to the report of MFA in Laos as maximum number of borrowers is presented in the region.


Figure 1: Map of Vientiane capital, Naxaythong Districts

Source: JICA, 2011

## 4.3. Data Collection

In this research, primary data collections were collected through interviews using a structured questionnaire. The questionnaires were distributed to sample size in total 126 borrowers regarding to the list of clients from MFIs in Naxaythong district, Vientiane Capital. The survey was carried out during August 2017. Key informant interview was used prior to collected initial information regarding to current situation on microfinance in Laos. During data collection, direct observation and survey were used for collecting qualitative data.

Quantitative data was drawn mainly through household questionnaire survey apart from secondary sources. The survey questionnaires contained data on demographic information of the respondents such as gender, age, marital status, dependency, educational levels, and occupations; also loan characteristics, income, assets, purpose of loan using, and status of borrowers in repayment on time were included in questionnaire survey.

## 4.4. Data Analysis

In terms of data analysis, the descriptive analysis was used to summarize and describe the sample characteristic of the respondents while disclosing the general pattern of the responses. Therefore, it was used to the associate demographic characteristics of respondents for generating frequency, and percentages. The data was entered into MS Office Excel, then a statistical software program, SPSS (Statistical Package for Social Sciences), and MATLAB were used for comprehensive data analyses.

Several researchers used to analyze the probability of repayment problem in microfinance and to examine whether there is a relationship between the independent variables and loan repayment performance (Nawai and Shariff 2012; Gebeyehu et al. 2013; Shu-Teng et al. 2015; Yibrie 2017). Thence, this study hypothesizes the repayment characteristics in microfinance regarding to borrower and loan characteristics include gender, age, marital status, educational levels, occupations, dependency, income, assets, and purposes of loan using.

### 4.5.1. Research Model Specification

Hosmer and Lemeshew (1989) stated that the logistic distribution (logistic) indicated the advantage over the others in the analysis of dichotomous outcome variable. It is exceptionally flexible and clearly used the model from mathematical standpoint and results in a meaningful interpretation. The cumulative logistic probability is econometrically specified as follows:

$$P_i = F(Z_i) = F(\alpha + \Sigma\beta_i X_i) = \frac{1}{1 + e^{-z_i}}$$

Where, $P_i$ is the probability that borrower will be defaulter;

e denotes the base of natural logarithms, which is approximately equal to 2.718;

$X_i$ represents the $i^{th}$ explanatory variables; and

α and βi are parameters to be estimated.

$Z_i$ is the function of a vector of $n$ explanatory variables;

$$(1 - P_i) = \frac{1}{1 + e^{-z_i}}$$

Therefore,

$$\left(\frac{P_i}{1 - P_i}\right) = \left(\frac{1 + e^{Z_i}}{1 + e^{-z_i}}\right) = e^{Z_i}$$

Or, taking natural logarithms

$$Z_i = Ln\left(\frac{P_i}{1 - P_i}\right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_m X_m$$

If the error term (ui) is taken in to account, the logistic model become:

$$Z_i = \alpha + \sum_{i=1}^{m} \beta_i X_i + u_i$$

The unknown parameter β are estimated by likelihood function.

In addition, the term of loan repayment is a non-continuous dependent variable. In this case the value of dependent variable is 0 and 1, where 1 stands if borrower is a non-overdue and 0 if the borrower is overdue. For this, it considered as a kind of binary nature dependent variable, thence logistic or logit regression model is appropriated (Gujirati 2004; Verbeehk 2008). In addition, Fikirte (2011) also employed logit regression model and to analyze the study. Hence, this study used logistic regression model for its mathematical simplicity. Mathematical function of the model is:

$$Y\ (i) = \alpha + \sum???? + \mu i$$

Figure 2: Logistic Model

Where:

Yi = loan repayment performance (0, 1) is dependent variable where 1 stands for non-overdue and 0 overdue.

α = constant (intercept)

Xi = independent variables

βi = parameters to be estimated and

μi = disturbance term (Million et al., 2012).

In this research, according to Lilay (2015) and Hair et al. (2003) Logistic Regression model is used in order to investigate the factors or independent variables, the main purpose of the research is to find out what are the most influenced factors that lead into the repayment problem. Regarding to several studies and literature review in this study, the model was developed logically due to the relevant variables which referred to characteristics variables by the following model:

$$\Upsilon i = \alpha + \beta_1(X1) + \beta_2(X2) + \beta_3(X3) + \beta_4(X4) + \beta_5(X5) + \beta_6(X6) + \beta_7(X7) + \beta_8(X8) + \beta_9(X9) + \mu i$$

Figure 3: Logistic regression model of the study

Where: Yi = repayment performance of borrowers 1 = Clients who have paid on time regularly less than 6 months (non-overdue); 0 = Clients who in debt more than 6 months (overdue borrowers)

α = Constant (intercept)

μi = Disturbance error

β1, β2… β11 = Slope coefficients of independent variables (the unknown parameters that reflecting the impact of change in independent variables).

X = represented independent variables which are factors that influenced to repayment problem of borrowers in microfinance institutions in Naxaithong District, Vientiane Capital, Laos.

Table 6: Name of all independent variables

| No. | Variables | Name of variables and frequencies |
|---|---|---|
| 1 | X1 | Gender of borrowers *(Female =1 & Male = 2)* |
| 2 | X2 | Age of borrowers *(Years of age)* |
| 3 | X3 | Marital status *(Single = 1, Married = 2, Divorced = 3, Other…= 4)* |
| 4 | X4 | *Educational levels (Illiterate = 1, Primary school = 2, Secondary school = 3, High school = 4, Vocational school =5, Diploma = 6, Undergraduates & upon = 7, Other... (trainings, workshops) = 8)* |
| 5 | X5 | Occupations *(Governmental Officer = 1, Officers = 2, Workers = 3, Farmers = 4, Seller or Vendor = 5, Entrepreneur = 6, Others… (Wife house, unemployment) = 7)* |
| 6 | X6 | Income of borrowers *(Amount of income per month in LAK)* |
| 7 | X7 | Assets of borrowers *(Total value of assets in LAK)* |
| 8 | X8 | Purposes of loan using *(Revolving fund =1, Pay for other credits = 2, Agricultural Productivities = 3, Small Trading = 4, Family Spending = 5, Small Investment = 6, Others… = 7)* |
| 9 | X9 | Dependent members in family *(Number of persons)* |

# 5. Results

The results of this thesis have been conducted to address the aims of the research regarding to the main and specific objectives in order to investigate the influencing factors of repayment problems among microfinance borrowers and indicated the descriptive of borrowers' behaviors, and the impact of repayment behaviors of borrowers and loan characteristics, in Microfinance Institution in Naxaythong District, Vientiane Capital in Laos. In this part, the results from descriptive analyses and econometric analyses were presented accordingly. In the descriptive analysis part, the results were conducted in a form of percentage, and frequency distribution regarding to borrower characteristic included socio-economic, household characteristics, and loan characteristics which meant to the regular payment borrowers who have paid credit on time (less than 6 months) and borrowers who were in debt (more than 6 months).

## 5.1. Repayment Behavior of Borrower and Loan Characteristics

### 5.1.1. Demographic of borrowers

Based on sample of borrowers, 126 were collected as a sample size and respondents. The results as found that number of female respondents were higher than male. Over 65% were as female respondents, whereas 35.90% were male respondents.

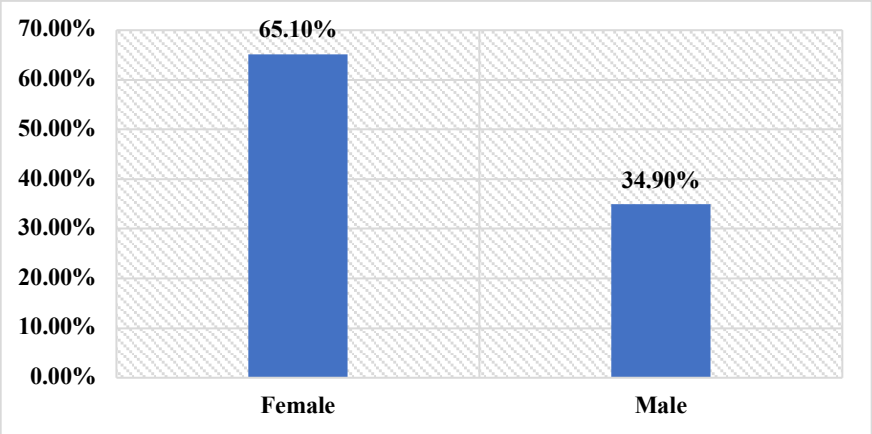


Figure 4: Genders of respondents

### 5.1.2. Repayment behavior of borrowers

Regarding to the descriptive analysis and the results, the repayment behaviors among borrowers in the leading group implied remarkably interesting. The results showed that the main borrower's genders are female, in average, the age of the borrowers are 46.55(±8.826) with almost all of them are married and lived together. The average of borrowers' education was also at primary school level and most of them are farmers and sellers. As farmers, the borrowers spent their loan with farming activities as their main purpose of using loan. As average on borrowers' income indicated that the monthly income of the borrowers covered almost 3.5 million kips (around 480 USD), which obtained mainly from farming activities. Surprisingly, the borrowers' asset was average high with the approximately 243 million kips (around 30,000 USD). Besides that, the results also showed the average of borrowers' dependent members of the household, which surprising low as equaled to 1.22 people in a family. In terms of repaying loan, it was highly notice that many of the borrowers in MFIs was notified to pay credits on time. It indicated that average of notified to pay credit back on time was highly more than half at 1.1(±0.305), which meant that the borrowers loved to wait until the MFIs sending a notification to pay the loan. On the other hand, many of borrowers were also considered as in debt or a defaulter. Even though the average mean of non-overdue were high, but the probability of overdue also constituted average highly as it showed in the Table 7.

Table 7: Repayment behaviors of borrowers

| Variables | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|
| Gender | 1.35 | 0.479 | 0.043 |
| Age | 46.55 | 8.826 | 0.786 |
| Monthly income | 3,415,738.10 | 2,293,505.20 | 204,321.685 |
| Assets | 242,561,190.50 | 161,972,179.00 | 14,429,628.540 |
| Dependent members | 1.22 | 0.971 | 0.086 |
| Notify to pay credit | 1.1 | 0.305 | 0.027 |
| Status of overdue and non-overdue borrowers | 1.43 | 0.497 | 0.044 |

### 5.1.3 The impact of repayment behavior of borrower characteristic and loan characteristic

Regarding to the results, the impact of group characteristics included borrower characteristics and loan characteristics of borrowers would identified. Meanwhile, it need to indicate the relationship between non-overdue and overdue borrowers as loan characteristics to borrower characteristics included Gender, Age, Marital Status, Dependency of household, Educational Levels, Occupations, and Purposes of loan using in the content of descriptive analysis by providing percentage from tables of the results in the study. the loan characteristics which meant to the regular payment borrowers who have paid credit on time regularly less than 6 months was considered as non-overdue and the borrowers who were in debt more than 6 months as overdue borrowers.

As regard to Marital Status of the borrowers in Table 10, from the total sample of the respondents, 122 borrowers of the respondents were contained 96.83% as most of the respondents were married, while just minor borrowers were divorced indicated as 2.38%, and only 0.79% was as in single status, respectively. The proportion of borrowers who paid credits on time regularly was 57.14% included both genders as total of respondents of non-overdue borrowers. However, over 42.82% were

borrowers who in debt or overdue borrowers. Interestingly, 24.60% of overdue borrowers were as female, whereas 18% of overdue borrowers were male.

Table 8: Gender of the borrowers

| **Gender** | Non-overdue | | Overdue | | Total sample | |
|---|---|---|---|---|---|---|
| | No. | Percentage | No. | Percentage | No. | Percentage |
| Female | 51 | 40.48% | 31 | 24.60% | 82 | 65.08% |
| Male | 21 | 16.67% | 23 | 18.25% | 44 | 35.92% |
| Total | 72 | 57.14% | 54 | 42.82% | 126 | 100% |

In Table 9 disclosed that, age of the respondents ranged from 18 to 73 years old. Initially, the respondents' age from 18-35 contained 9.52%. The ages ranged from 36-53 constituted 69.05%, and the remaining 21.43% of respondents were constituted under the ages' ranged from 54-73. In the proportion of ages of all respondents, the overdue borrowers were highly in the ages ranged from 36-53 contained as 30.16%, and lower in ages ranged from 18-35 constituted 3.17%. Otherwise, the non-overdue borrowers were especially high in same range of the of overdue borrowers, which ranged from 36-53 contained in 38.89%, whereas the ages that ranged from 18-35 constituted as lower percentage, which took 6.35% as showed in Table 8 below.

Table 9: Age of the borrowers

| **Age** | Non-overdue | | Overdue | | Total sample | |
|---|---|---|---|---|---|---|
| | No. | Percentage | No. | Percentage | No. | Percentage |
| 18-35 | 8 | 6.35% | 4 | 3.17% | 12 | 9.52% |
| 36-53 | 49 | 38.89% | 38 | 30.16% | 87 | 69.05% |
| 54-73 | 15 | 11.90% | 12 | 9.52% | 27 | 21.43% |
| Total | 72 | 57.14% | 54 | 42.86% | 126 | 100% |

Meanwhile, on marital status of overdue respondents were contained married status in 42.06%, whereas only 0.79% was divorce status of the respondents. In contrast, the marital statuses of non-overdue respondents were married, divorced, and single with

the percentage of 54.76%, 1.59%, and 0.79%, at the same order that illustrated in Table 9.

Table 10: Martial Status of the borrowers

| **Marital status** | Non-overdue | | Overdue | | Total sample | |
|---|---|---|---|---|---|---|
| | No. | Percentage | No. | Percentage | No. | Percentage |
| Single | 1 | 0.79% | 0 | 0% | 1 | 0.79% |
| Married | 69 | 54.76% | 53 | 42.06% | 122 | 96.83% |
| Divorced | 2 | 1.59% | 1 | 0.79% | 3 | 2.38% |
| Total | 72 | 57.14% | 55 | 42.86% | 126 | 100% |

According to Table 10, the result showed that the dependency or the number of dependent members of the family of the borrowers divided into borrowers who have paid credits on time regularly, and borrowers who was in debt or overdue. As result, the dependency ranged from 0-4 persons, with average dependency members of the family of 1.22 and standard deviation of 0.971. The dependency of borrowers who were overdue had average dependency members of 1.13 and deviation of 0.972, whereas the dependency of borrowers who were non-overdue had average dependency members of 1.29 and deviation of 0.971. This included the dependency of borrowers who paid credits on time contained 60.40%, while the dependency of borrowers who were in debt or overdue contained 39.60%.

Table 11: Dependent members of the family of borrowers

| **Dependency** | Mean | Numbers | Percentage of Total | Std. Deviation |
|---|---|---|---|---|
| Non-overdue | 1.29 | 72 | 60.40% | 0.971 |
| Overdue | 1.13 | 54 | 39.60% | 0.972 |
| Total | 1.22 | 126 | 100% | 0.971 |

The educational levels of the borrowers included in all educational levels regarding to the survey of the respondents. The result found that primary levels of all sample of respondents contained 46.03% as the highest. Secondary school levels constituted in

26.98%, while high school levels constituted 15.87%, whereas, the respondents who were in undergraduate levels constituted as lowest in only 0.79%. On the other hand, the educational level of overdue respondents were significantly regarding to 25.40% of respondent as primary school levels, 10.32% of respondents as secondary school levels, 3.97% of the respondents as high school levels, and 1.59% of respondents as illiterate and pre-collage levels, meanwhile for the non-overdue respondents were contained 20.63%, 16.67%, 11.90%, and 3.71% at the same order excepted the pre-collage was only 0.79% of the non-overdue respondents, respectively as the following details in the table 12.

Table 12: Educational Level of borrowers

| **Educational level** | Non-overdue | | Overdue | | Total sample | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Illiteracy | 4 | 3.71% | 2 | 1.59% | 6 | 4.76% |
| Primary | 26 | 20.63% | 32 | 25.40% | 58 | 46.03% |
| Secondary school | 21 | 16.67% | 13 | 10.32% | 34 | 26.98% |
| High school | 15 | 11.90% | 5 | 3.97% | 20 | 15.87% |
| Pre-collage | 1 | 0.79% | 2 | 1.59% | 3 | 2.38% |
| Diploma | 2 | 1.59% | 0 | 0% | 2 | 1.59% |
| Undergraduate | 1 | 0.79% | 0 | 0% | 1 | 0.79% |
| Other (Training, Workshop) | 2 | 1.59% | 0 | 0% | 2 | 1.59% |
| Total | 72 | 57.14% | 54 | 42.86% | 126 | 100% |

Regarding to Table 12, the information of occupation of the respondents were obtained regarding to the survey. The finding of the respondents' occupations indicated that 51.59% of respondents were farmers, 23.81% of the respondents were small sellers, 13.49% of respondents were included as unidentified in survey of the respondents which included wife house, and unemployment; 7.94% indicated as workers, whereas the remaining of respondents were government officer constituted in 1.59%, and entrepreneur was contained also in 1.59%.

According to the group respondents among non-overdue and overdue borrowers, the overdue respondents who were in debt mostly found as farmers, which contained 27.78% of overdue respondents. Other occupations of the overdue respondents included sellers and other occupations (wife house, unemployment) constituted in 5.56%, meanwhile workers of overdue respondents contained at 3.17%, only 0.79% was indicated for government officers of the overdue respondents in the study results.

Table 13: Occupations of borrowers

| **Occupations** | Non-overdue | | Overdue | | Total sample | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Governmental officer | 1 | 0.79% | 1 | 0.79% | 2 | 1.59% |
| Officer | 0 | 0% | 0 | 0% | 0 | 0% |
| Worker | 6 | 4.76% | 4 | 3.17% | 10 | 7.94% |
| Farmer | 30 | 23.81% | 35 | 27.78% | 65 | 51.59% |
| Seller | 23 | 18.25% | 7 | 5.56% | 30 | 23.81% |
| Entrepreneur | 2 | 1.59% | 0 | 0% | 2 | 1.59% |
| Others (wife house, unemployment) | 10 | 7.94% | 7 | 5.56% | 17 | 13.49% |
| Total | 72 | 57.14% | 54 | 42.86% | 126 | 100% |

Regarding to the result from the survey of the study, the purpose of loan using of the borrowers included 50% of the borrowers were used loan for the purpose of farming activities, while 19.05% of respondents were used the loan for the purpose of small trading and services. Interestingly, 15.87% of the respondents utilized the loan to pay for other credits. Finding also showed 9.52% of the respondents intended to use loan for revolving fund, while other respondents utilized the loan for family spending which constituted in 3.17% of the respondents. Some purpose of loan using also indicated that the respondents utilized the loan for small investments such as buying a new car and handicraft making which contained in 1.59% of the respondents, whereas other purpose of loan using that not identified constituted only 0.79%.

On the other hand, the proportion of overdue respondents mainly utilized loan in farming activities constituted in 22.22%, meanwhile 13.49% of overdue respondents were used the loan to pay for other credits. 4.76% of the overdue respondents used the loan in revolving fund into their business. Otherwise 2.38% of the overdue respondents spent the loan on their small trading and services regarding to the result of the Table 13 as following:

Table 14: Purpose of Loan Using

| **Purpose of loan using** | Non-overdue | | Overdue | | Total sample | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Revolving fund | 6 | 4.76% | 6 | 4.76% | 12 | 9.52% |
| Pay for other credits | 3 | 2.38% | 17 | 13.49% | 20 | 15.87% |
| Farm activities | 35 | 27.78% | 28 | 22.22% | 63 | 50% |
| Small trading, services | 21 | 16.67% | 3 | 2.38% | 24 | 19.05% |
| Family spending | 4 | 3.17% | 0 | 0% | 4 | 3.17% |
| Small investment | 2 | 1.59% | 0 | 0% | 2 | 1.59% |
| Other | 1 | 0.79% | 0 | 0% | 1 | 0.79% |
| Total | 72 | 57.14% | 54 | 42.86% | 126 | 100% |

## 5.2. Factors Influencing Repayment Problem

### 5.2.1. Regression analysis of influencing factors

To measure the influencing factors and behaviors of probability of repayment problem, the binary logistic model was used to analyze the variables from the regression on repayment performance of borrowers. In Table 15, presented the results of logistic model, which illustrated three out of ten predicted influencing factors were statistically significant, whereas six variables included dependent variables namely gender, age, marital status, educational levels, occupation, and dependency of members of household were found as insignificant variables in contributing to the repayment problem among MFIs borrowers.

Regarding to the results, the binary logistic regression was used to identify the determinant factors and to evaluate the potential effects of each explanatory variables on the loan repayment within group borrowers. The explanatory variables contained group characteristic as related factors, which included borrower characteristics and loan characteristics factors. In finding, the significant of those variables factors were Income of borrowers, Purposes of loan using, and Assets of borrowers. The estimated coefficients were statistically different from zero variously at the 1%, 5%, and 10% as levels of significance.

As results, overall variables factors were tested and regarding to the hypothesis testing, the explanatory variables are presented as the coefficients of those significant variables were positive, while the only income variables were hypothesized negative ,thus in this study income was positively and significantly coefficient to the repayment problem. In addition, according to the Table 15, Income of the borrowers, Assets of borrowers and the Purposes of loan using were the most influential explanatory variables from the group characteristic related factors in determining group loan repayment performance, while the other seven variables of the model were found insignificant on independent variables namely Gender, Age, Marital status, Educational levels, Occupations, Assets and Dependency. As overall, the binary logistic model successfully predicted factors contributing to 79.4% of microfinance

loan repayment problem among borrowers of MFIs in Naxaythong District, Vientiane capital, Lao PDR.

### 5.2.1. Influencing factors of repayment problem

Regarding to the Table 15, the results from logistic model was indicated the variables differently. The most influencing factors of repayment problem was obviously highlighted as positive coefficient at the different significance levels. Regarding to the results and the significance levels of the hypotheses in Table 5, there are three factors that considering as the most influencing factors and behaviors of the borrowers of the respondents to repayment performance and repayment problems.

1. **Purposes of loan using**: the purpose of loan using is significantly considered as the most influencing factors and behaviors of the borrowers as initially hypothesized positive relationship to repayment problem and the result also showed in the same way. The table 15, showed the purposes of loan using variable was positive coefficient at the significance levels at 1% ($p<0.01$). This means that the purpose of loan using have the positive relationship to the probability of repayment problem.

2. **Income of borrowers**: the income of the borrowers as hypothesized as negative coefficient at the significant level. At the result, income variable from Table 15, was found positively and significantly influencing to loan repayment problem at significance levels 1% ($p<0.01$). Therefore, the result was confirmed as same as in the hypothesis in the study.

3. **Assets of borrowers**: this variable was found to influence positively and significantly as in the hypothesis. The assets of borrowers were hypothesized as there were positive coefficient relationship at significance levels between repayment problem and assets of the borrowers. Furthermore, the result from Table 15, was found positively coefficient variable in a significance levels at 10% ($p<0.10$), which confirmed to the hypothesis on this study.

Table 15: Regression Analysis for overall samples

| Model | B | S.E. | Sig. | Exp(B) |
|---|---|---|---|---|
| Constant | -4.453 | 3.715 | 0.231 | 0.012 |
| Gender | -0.432 | 0.496 | 0.383 | 0.649 |
| Age | 0.001 | 0.027 | 0.971 | 1.001 |
| Marital status | 0.035 | 1.469 | 0.981 | 1.036 |
| Education | 0.167 | 0.252 | 0.508 | 1.182 |
| Occupation | 0.063 | 0.202 | 0.755 | 1.065 |
| Income | 13.686 | 4.712 | 0.004*** | 878950.2 |
| Assets | 3.279 | 1.803 | 0.069* | 26.548 |
| Purpose | 0.753 | 0.261 | 0.004*** | 2.123 |
| Dependency | 0.104 | 0.242 | 0.667 | 1.11 |

Source: Survey result, 2017. B=regression coefficient, Exp (B) = odds ratio Overall, correct prediction = 79.4% Sig. = significance S.E = standard error
-2 Loglikelihood = 127.031 Cox & Snell R Square = .301 Negelkerke R Square .404

Note: ***significant at 1% confidence, *significant at 10% confidence interval.

# 6. Discussion

Throughout the thesis, the main objectives of this study focused on investigate the influencing factors of repayment problems, which included the impact of repayment behavior among borrowers and loan characteristics on loan default in Microfinance Institutions in Naxaythong District, Vientiane Capital in Laos. Regarding to the demography of the respondents, the mean of age of borrowers is 46.55 years, though, the ages of borrowers was showed insignificantly to repayment problem. This might be the reason that most of the borrowers are more adults and the size of the sample was limited, thus the variety of the sample was so tight, then in this study, there is no relationship between ages of borrowers and repayment problem of MFIs. Besides, in this study, the other studies also in an agreement that age has no significant impact on loan repayment performance which is age does not have any impact towards loan repayment performance. This is consistent with the study from Brehanu and Fufa (2008). However, Shu-Teng et al. (2015) revealed age has no significant impact towards the determinant of loan repayment performance for non-default borrowers. Due to the situation in MFIs in Malaysia, younger borrowers who missed their payment are afraid of punishment, which they were afraid that the default in their loan might affect their personal reputation and how public identify them. This reason, younger borrowers to have a better performance in paying their monthly repayment compared to older borrowers. In addition, for non-default group, his study showed age could not determine the loan repayment performance.

Regarding to the result, 65% of respondents are female as covered higher than male. However, the gender of this study was indicated as insignificant, which gender has no relationship between gender and repayment problem. Indeed, many studies on repayment performance in MFIs, indicated that most of borrowers of MFIs were female, this is because of female are more active and responsible more than male, which is affected to the behavior of borrowers (Mokhtar et al. 2012; Haile 2015). This result is similar with the outcomes of Nawai and Shariff (2013); Chong et al. (2010) showed that female borrowers have higher probability of being in the delinquent or overdue borrowers, whereas the result of this study showed either a male or a female

borrower does not have any influence on the loan repayment performance in MFIs in Naxathong districts. Moreover, the study implies that being male/females were not related to loan repayment performance as expected, although the difference was not statistically significant. This result is also in agreement with the findings of Retta (2000) and Fikirte (2011). In contrast, regards to gender, the result is contradicted with the most previous result that found female borrowers are more creditworthy than male borrowers such as Sharma & Zeller (1997), Papias and Ganesan (2008), Derban et al., (2005), Roslan and Mohd Zaini (2009).

Nevertheless, the study showed indifferent of educational levels of the borrowers. Most of them are obtained primary and secondary school levels whereas only 4.76% of the sampled borrowers were illiterate. This might be the site of the sample of the location in the study is urban and semi-urban. In addition, the result from the data indicates that non-overdue borrowers have better educational background than overdue borrowers. However, there was no significant of borrowers that affected to repayment problem and also there is difference between non-overdue and overdue borrowers regarding with educational levels on loan repayment problem. This result is also in agreement with the findings of Haile (2015) and Fikirte (2011). On the other hand, Pasha and Negese (2014) found that the education level was positively and significantly influencing loan repayment. The study also figures revels that the borrowers whose educational level increased have the probability of increasing the loan repayment performance than the borrowers who have lesser education level or illiterates. This suggests that more educated borrower may affected on loan repayment positively on repayment practices. (Chaudhary & Ishfaq 2003; Salazar 2008). Moreover, Fatollahi (2015) states an interesting finding of education which is does not support the findings of previous studies in that educated farmers are more likely to repay their loans Abafita (2003); Bhatt and Tang (2002). According to Bhatt and Tang (2002), educated borrower is more capable in managing the businesses, comprehend information, keep business in good records and conduct a cash flow analysis, which showing an effective possibility of paying credit on time.

The study results also indicated the occupations of borrowers. Most of the borrowers' occupation are farmers and sellers. Indeed, the terms of occupation also reflected to the sources of income factors that expected affecting to the loan repayment problem. Similar to education, occupation of the borrowers is also expected to be affecting straightforwardly significant to the behavior of borrowers. However, the results obtained indicate that there is no significance relationship among loan repayment problem of borrowers and occupation of borrowers. The reason may be the fact that returns to investment in agricultural are more unstable than those from non-farm activities due to the notions of weather, infestation, market and prices of the farming product. Likewise, Chaudhary & Ishfaq (2003) confirmed in same result of this study that the non-farming sector is more flexible and returns from its investment are relatively more stable.

Considering to dependency of the borrowers, the study showed the average mean of dependent members of the family estimated around 1.22, which is most of non-overdue household has more numbers of dependent members of the family compared to overdue household by almost 61% of the sample borrowers. Household dependency determine amount of the labor force in the household and expected to bring about difference in decision behavior of households as well as affecting to repayment performances (Semgalawe 1998). However, the result of this study found that there is no difference between overdue dependency and non-overdue dependency household, which illustrated in Table 15, that the dependency has no significance positive effects to repayment problem. This due to the fact that, the number of the borrowers in the sample is tiny and the most of them are lived in semi-urban area, therefore the perspective of having more members of family was not occurred in the area. This also agree by Phengkhamon (2013) which study at the same country area and the same city. Nevertheless, Haile (2015) stated that number of economically active household members who live and work for the household also determines the labor available of the household, which determines the loan repayment performance of households. Furthermore, households with more economic status may decide to use the loan which is effective and efficient in loan repayment performance. As the

number of dependents increases, the borrower needs more money to fulfill their requirements in addition to the obligation of loan repayment. However, it is inconsistent with the study made by Pasha and Negese (2014) found that dependent members of family determine negatively and significantly borrowers' loan repayment performance at 1% significance level. If other variables held constant, having non-dependents or lower number of dependents' decreases the probability of defaulting by the 15.8%.

In addition, in the finding of this study has more positively coefficient in model variables. As regard to the finding of the study, Assets of the borrowers, Income of the borrowers, and Purpose of loan using were hypothesized as significantly and positively correlation to the repayment problem except only income was hypothesized negatively relationship to repayment problem. Regarding to the results of binary logistic model from the Table 15, the purpose of loan using of borrowers and income were the most affected factors that influencing to the repayment problem by considering at significance levels of 1% ($p<0.01$); and second affected factors was assets of borrowers that also influencing to repayment problem as a positive coefficient relations at significance levels 1% ($p<0.10$).

The borrowers used the loan for farming activities more than non-farming activities. Over 50% (Table 14) of the borrowers were used the loan for farming activities in order to enhancing their productivity and capacity of farmers. However, over 13% out of 15.87% of the total overdue borrowers used the loan for paying other credits, which means the borrowers have more probability to repay back the loan due to the multiple borrowing gain probability in repayment problem as agree by Mpogole et al. (2012). The study revealed purpose of loan using is another socio-economic factor that was positively and significantly influencing borrowers' loan repayment problem of the borrowers at 1% ($p<0.01$) probability level. It became significant predictor of borrowers' loan repayment performance at significance level as proved by the hypothesis of the study. As indicated table 15, purpose of loan using increases the borrowers' loan repayment probability by 2.123 (Table 15). Therefore, these positive preconditions enable borrowers to enhance loan repayment performance better, which

meant that if the borrowers used the loan correctively regarding to the purpose or along with the loan contract, the possibility of paying loan on time of setting in the contract would increase of a chance in being overdue borrower as well. On the other hand, Phengkhamon (2013) showed that loan using factor had a positive effect correlation to the repayment of the borrowers by 95% of probability value, which borrowers have the chance of paying back the loan by the time of setting in the contract almost 40%. Moreover, Gebeyahu et al. (2013); Mohammad (2009) also came up that farmers are the beneficiary of the use of loan that would increase their income and generating their capacity of repaying their loans considerably in time and increases probability of being non-defaulter. In addition, this analysis also supports the earlier results of the positive effect of the loan using for investment on its repayment. More specifically, this analysis shows that if the loan is used for investment purpose, the weighted log of the odd ratio in favor of repayment increases by 1.1811, which is statistically significant at 5% level of significance. Similarly, the pervious repayment record of rural borrowers has a positive impact on their current loan repayment. The log-odds ratio on loan repayment for the previous repayment record of bank borrowers increases by 1.8734 if it has paid back previous loan using for investment purpose is more likely to be repaid than that used to finance consumption expenditure Chaudhary and Ishfaq (2003).

Another influencing factor to repayment problem is income regarding to the result in Table 15. As low-income people were the main clients of MFIs (Amendáriz & Morduch 2010), therefore income in this study considered in hypothesis as income have an effective to repayment problem. In fact, income is a source of repaying loan, the study showed as average on borrowers' income as monthly income that 3.5 million kips (around 480 USD) were the average income of the borrowers, which obtained mainly from farming activities. Additionally, the result regarding to binary logistic model in table 15, income of borrowers was found positively and significantly influencing loan repayment problem at significance level 1% ($p<0.01$). The result was proved that hypothesis of the study was rejected, which there is a positive coefficient relationship at a significance levels. Eventually, an increase in monthly income increases the probability of the loan repayment. This figure reveals that the borrowers

whose monthly income increased have the probability of increasing the loan repayment performance by 1 time more than the borrowers who have less monthly income (Table 15). Notwithstanding, Nawai and Shariff (2012) stated that income had a negative coefficient or negative relationship in terms of factors affecting repayment performance in microfinance program. Oke et al 2007; Phengkhamon 2013; indicated that income also have no significant effectively on repayment problem. In addition, the study from Chaudhary & Ishfaq (2003) stated that high income of borrowers may have positive effect on repayment of loans.

Within this study, assets are continuously being considered by lenders as the most popular form of collateral. However, in microfinance in Laos there is no direct collateral in MFIs but in order to get loan, the borrowers need to declare their assets as a prove of collateral for their loan. Surprisingly, the borrowers' asset (Table 7) was average high with the approximately 243 million kips (around 30,000 USD). This due to the wealthy of population differences, which showed the high gap between the rich and poor and MFIs is unique characterized by individual, thence the limit of amount of loan was as individual settlement of MFIs. In this study regarding to the result on Table 15, this variable was positively and significantly influencing borrowers' loan repayment performance. It also became important interpreter of borrowers' loan repayment performance at 10% ($p<0.10$) significance level. Thence, from this result if the assets of borrowers increase, the borrowers' loan repayment probability rate also increase, which these positive preconditions enable borrowers to enhance loan repayment performance as when borrowers have more assets, the possibility of paying loan on time is better in MFIs repayment. In addition, Brana (2013) also proved that assets or amount of personal assets was positive significance and influencing to repayment as due to an indirect effect: women borrow less because they have fewer personal assets, less. In contrary, Phengkhamon (2013) and found that there were no statistically affecting significantly of borrower's assets to the model with a positive coefficient to repayment performance. Hence, although assets may not have higher effect to repayment performance regarding to previous studies but agreeing to Chaudhary & Ishfaq (2003) found that assets were continuously being considered by lenders as the most popular form of collateral for this reasons the expectations to

increase the probability of repayment depends on cases where in this study also assume that there is a positive relationship according to previous studies above.

## 6.1. Limitation of the study

This study also has some limitations regarding to the mainly focus on factors influencing repayment problem. Firstly, the study site was conducted purposely due to the convenience sample and the sample size was quite small only 126 borrowers from 6 villages of MFIs were selected as respondents.

Secondly, the results presented in this paper only from the perspectives of country area with specific characteristics, therefore some factors identified in this paper may not suffice to explain repayment factors of MFIs. Therefore, there is need to examine more cases and more factors in order to broaden the study terms which is referred to repayment problem and repayment performance of borrowers in both groups of non-overdue and overdue borrowers. Thirdly, during the survey, the questionnaires were asked individually with a limited time.

## 6.2. Suggestion for further study

Based on the results of the study and regarding to the observation in the study site, there are several suggestions for further research study. Initially, we suggest future study to analyze the group of two overdue and non-overdue in a big scale of case study and the sample size in Microfinance Institutions.

Future research projects should consider extending the analysis and an intense deterioration of all economic and social indicators witnesses. Also, the study should be take more factors especially the loan characteristics into consideration in the study, which it may have a significant impact on repayment ability. Future research should include continuous variables in order to add depth to the results.

Moreover, the study has only throw a light on some factor that able to gain, thence other factors that determine group of loan repayment performance need to investigate as well. Although, comprehensive and comparative studies are recommended, in order to have a complete group loan repayment performance, the study should be considering in wide area and all the sectors such as construction, urban agriculture, and manufacturing, and trade. Within the service sector, there are many factors which are not considered in this study. Factors include amount of loan, initial capital, loan frequency, repayment periods, interest rate, working experiences, and access in infrastructure. Consequently, more effective finding may be reached by taking the above-mentioned factors in to consideration of further study.

# 7. Conclusions

In the study of factors influencing repayment problem of Microfinance Institutions in Naxaythong District, Vientiane, Laos was to investigate influencing factors of repayment problem and describe the impact of repayment behavior to the group characteristic which include borrower and loan characteristic. The study used the sample from microfinance institutions as convenience sample in order to identify the factors affecting loan repayment by using the logistic model to analysis the significance factors. Indeed, nine variables hypothesized to affect loan repayment problem of borrowers, however three variables were found to be statistically significant. In finding results, the most influencing factors that affected to repayment problem are the purpose of loan using and income of the borrowers by showing positive coefficient at significance levels. In addition, as the purpose of loan using is considered as loan characteristic which is impact to the default group or overdue borrowers in this study. In addition, the purpose of loan using is the most crucial factors that affects to the loan repayment problem. Hence, it is recommended that the institution should consider and follow up the borrowers in order to ensure the borrowers to pay credit correctly regarding to the loan contracts.

Moreover, the study found that in income of borrowers considered also as loan characteristic which was positively directed to increase the probability of repayment performance. Due to income is a source of repaying loan therefore, by providing training to the borrowers such as how to market their products, financial management and accounting course will help them improve their business and increase their profits as a prove of income of the borrowers. The study also intended to describe the repayment behavior among borrowers and loan characteristic to the group leading by providing a descriptive analysis. The outcomes indicated that female borrowers and elder respondents were the most participated in microfinance. In addition, most of the borrowers are married with a basic educational levels as primary educational levels. Farmers are the most important clients of MFIs as well as the main purpose of loan using is for farming activities.

As finally suggestion, the study suggests that in order to deny the probability of overdue borrowers, the MFIs should be implements a good strategy in credit scoring as well as establishment of a formal specialized microfinance banking institution to provide for the financial needs of micro and small entrepreneurs. by considering the borrowers profile especially to the purpose of loan using have to be correct regarding to the loan or credit contract of given. Moreover, the study also suggests that MFIs should conduct background checks on borrowers to identify their purpose of loan using and normal income before providing loans to them.

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# Appendices

**List of the Appendices:**

# Appendix 1: Questionnaires

Questionnaire Survey

1. This questionnaire is a part of final diploma thesis in Master study in the topic "Factors influence repayment problems of Microfinance institutions in Laos" case study Naxaythong District, Vientiane Capital, Laos.
2. The data collection of this thesis is willing to analyze the factors influence to repayment problem of Microfinance institutions in Naxaythong District, Vientiane Capital, Laos.
3. I would like to have your cooperation to answer this questionnaire by your truly valuable information.
4. Please answer the questions by filling in the blank or ☑ if it is applicable.

I. Personal Information

1. Gender

□ Male

□ Female

2. Age……..

3. Marital status

□ Single

□ Married

□ Divorced

□ Other (Please Specify) ……..

4. Educational Levels

□ Illiterate

□ Primary school

□ Secondary school

□ High school

□ Vocational school

□ Diploma

□ undergraduate and upon

□ Others (Please Specify) ……..

5. Occupations

□ Governmental officers

□ Officers

□ Workers

□ Farmers

□ Sellers

□ Entrepreneurs

□ Others (Please Specify) ……..

II. Factors influence to repayment problems among borrowers of Microfinance institutions in Naxaythong District, Vientiane Capital, Laos.

6. Income of borrowers…….LAK

7. Assets value to insuring of borrowers

□ House……(How many) if know

Value……LAK

□ Land……. (How many) if know

Value……LAK

□ Vehicles (Car, Tractors, Pick up car)…… (How many) if know

Value……LAK

□ Vehicles (Motobike) ……..(How many) if know

Value……LAK

□ Others assets (Please specify) .....(How many) if know

Value……LAK

8. Purposes of credit borrow

□ Small business running

□ Pay for other credits

□ Agricultural productivities

□ Small trading

□ Family spending

□ Small investment

□ Others (Pleasing specify) ……..

9. If you have any enterprises please specify:

……..

10. Total of members household…….people

11. Member household who has no income……people

12. Have you ever notified to pay the principle and interests of your credit borrow?

□ Yes, I have

□ No, I have not

# Appendix 2: Model Summary

| Model Summary | | | |
|---|---|---|---|
| Step | -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
| 1 | 127.032[a] | .301 | .404 |
| a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001. | | | |

# Appendix 3: Classification table

| Classification Table[a] | | | | | |
|---|---|---|---|---|---|
| | Observed | | Predicted | | |
| | | | satus | | Percentage Correct |
| | | | overdue | non_overdue | |
| Step 1 | satus | overdue | 41 | 13 | 75.9 |
| | | non_overdue | 13 | 59 | 81.9 |
| | Overall Percentage | | | | 79.4 |
| a. The cut value is .500 | | | | | |

## Appendix 4: Variable in equation

| Variables in the Equation | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | B | S.E. | Wald | df | Sig. | Exp(B) |
| Step 1[a] | gender | -.432 | .496 | .761 | 1 | .383 | .649 |
| | age | .001 | .027 | .001 | 1 | .971 | 1.001 |
| | marital | .035 | 1.469 | .001 | 1 | .981 | 1.036 |
| | education | .167 | .252 | .439 | 1 | .508 | 1.182 |
| | occupation | .063 | .202 | .098 | 1 | .755 | 1.065 |
| | income | 13.686 | 4.712 | 8.437 | 1 | .004 | 878950.168 |
| | assets | 3.279 | 1.803 | 3.309 | 1 | .069 | 26.548 |
| | loanuse | .753 | .261 | 8.330 | 1 | .004 | 2.123 |
| | dependency | .104 | .242 | .185 | 1 | .667 | 1.110 |
| | Constant | -4.453 | 3.715 | 1.437 | 1 | .231 | .012 |
| a. Variable(s) entered on step 1: gender, age, marital, education, occupation, income, assets, loanuse, dependency. | | | | | | | |