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MASTER OF APPLIED STATISTICS PROGRAMME

IMPACT OF MICROCREDIT ON LIVING STANDARDS IN SUBURB AREA

TIN KYAWT KYAWT AYE

MAS – 31

MAS 2nd BATCH

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ABSTRACT

Low- Cost Housing plays an important role in response to housing needs of low-income and middle-income households. The objectives of the study are to identify the socioeconomic and microcredit factors and to explore the influencing factors of living standards among micro-credit users in suburb area at Shwe Lin Pan Low-Cost Housing. Two stage sampling technique and logistic regression analysis were applied to explore the significant factors of occupation, loan amount and loan repayment. The overall percentage classification indicates that the improvement of living standards predicted correctly. The binary logistic regression analysis shows that observed occupation of company staff is significant and negatively associated with the improvement of living standards. In this area, the most of the company staff are working at garment factories and their income are depending on day and night shift. So that not stabled monthly income. Government staff occupation is positively associated with the improvement of living standards and significant on improvement of living standards. The government staffs' monthly income is stability to pay loan repayment regularly. The coefficient of loan repayment is significant when influence of holding other independent variables because of monthly installment is lower amount, so that households can get extra money such as saving, buying assets, education, health and expenditure.

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LIST OF ABBREVIATIONS

CBM	Central Bank of Myanmar
CHDB	Construction and Housing Development Bank
CHIDB	Construction, Housing and Infrastructure Development Bank
DUHD	Department of Urban and Housing Development
GDP	Gross Domestic Product
JICA	Japan International Cooperation Agency
LHMC	Low-Cost Housing Management Committee
MOC	Ministry of Construction
R,F	Revolving Fund
SMEs	Small and Medium Entrepreneurs

CHAPTER I
INTRODUCTION

The issue of living standards has been a major concern to developing countries around the world, micro-credit was started in European countries during the 18th and 19th centuries and the Irish loan was found appeared in early 18th century. Asia was considered the most developed continent in the world, based on an analysis of 1,500 institutions from 85 developing countries. Myanmar is a one of the poorest countries in Southeast Asia, Yangon metropolitan areas and rural areas as the major target cities where the rapid urbanization and the associated housing problems were emerging; micro-credit was a financial undertaking which was focused on improving the standards of living of needy people in the society by reducing the poverty level. Department of Urban and Housing Department (DUHD) was provided housing units in Yangon at first and extend supply to other major to middle sized cities planned with loan scheme.

The most of the people are living at urban area that moves rural to urban, so that researcher chooses to investigate the suburb area in Yangon.

1.1 Rationale of the Study

The issue of living standards has been a major concern to many nations, particularly the developing countries, there are about three billion people, half of the world's populations are living on the income of less than two dollars a day (Barr, Michael S. 2005). There are about three billion people half of the world's population living on the income of less than two dollars a day. One study in 2006 had shown that the ration of the income between the 5 percent richest and 5 percent poorest of the population is 74 to 1 as compared to the ratio in 1960, which was 30 to 1. (Retrieved from http://www.planetfinance.org)

During the 18th and 19th centuries, in number of European countries, micro-credit evolved as a type of the informal banking for the poor. Informal finance and self-help had been at the foundation of micro-credit in Europe. The early history of micro-

credit in Ireland had traced back to 18th century. It was a history of how self-help led to financial innovation, legal backing and conductive regulation, and creating a mass micro-credit movement. But the unpleasant regulations were prompted by commercial banking brought it down. The Irish loan was found appeared in early 18th as charities, initially financed from donated resources and offering interest free loans. They were soon replaced by financial intermediation between savers and borrowers, loans were granted on short-term basis and installments were scheduled on monthly basis, to enforce the repayment, monitoring process from loan department was used. (Seibel, 2005)

Especially in developing countries, micro-credit has been enables very poor people to engage in self-employment projects that generate income, thus was allowing them to improve the standard of living for themselves and their families. Asia was considered the most developed continent in the world in terms of volume of activities by micro-credit institutions, based on an analysis of 1,500 institutions from 85 developing countries. Poverty has been defined as a situation where a population or a section of the population is able to meet only its bare subsistence, the essentials of food, clothing and shelter, in order to maintain a minimum standard of living. Micro-credit was the expansion of little advances (smaller scale advances) devastates borrowers who normally need guarantee solid job and evident financial record. It gives little advances to individuals who are unable to secure credit due to neediness. Related obstructions might incorporate unemployment or underemployment and an absence of security and financial record. (Seibel, 2005)

Myanmar is one of the poorest countries in Southeast Asia and the financial sector is small and highly underdeveloped. Access to financial services is severely limited, as reflected by the low outstanding loans-to-GDP ratio of 4.7 percent and deposits to-GDP ratio of 12.6 percent in 2011 (Seward 2012). According to the result of the census conducted in Myanmar in 2014, the total household of Yangon (Greater Yangon) was 1,368,556. Of these, 821,415 households own the house, 526,019 households resided in the rental housing, and 22,122 other households. Apart from owner-occupied houses and rental properties 57 percent of households in Yangon (Urban areas) were owned, 31 percent were rented, and others (free of charge/uncertain) were 12 percent. (JICA, 2018)

Department of Urban and Housing Department (DUHD), formerly DUHD was located in the Ministry of Construction (MOC), the main housing supply agency,

housing supply planed throughout the country and conducted construction in various places. Since it has been establishment in 1951, Department of Urban and Housing Department had a track record of building a total of 50,000 houses by 2015, about 80 percent of which were concentrated in the Yangon area. The number of housing units in need due to increasing population would be the mostly in Yangon, estimated of .at 590,000 by 2030. Therefore, it was important to provide housing units in Yangon at first and extend supply to other major to middle sized cities. Especially, Department of Urban and Housing Department (DUHD) had emphasized housing policy for low income and middle-income population, and DUHD said that 90% of the 200,000 houses to be built by themselves and it would be devoted to low-cost houses for low-income families. Furthermore, emphasis was placed on the housing finance system, supported the purchase of low income and middle-income groups and especially for the development plan of long-term low interest loans. (JICA, 2018)

Based on such recognition that housing finance system was very important for solving the housing related issues which Myanmar was facing today, various support had given by Japanese institutions such as the Ministry of Land, Infrastructure Transport and Tourism, Government of Japan, Japan Housing Finance Agency, JICA, etc. However, in order to expand these services and make it possible for more citizens in Myanmar to access to such housing finance, it was indispensable to analyses and solves issues in wide range of fields, including financing methods, arrangement of legal systems to support the loan system, and development of financial infrastructure. (JICA, 2018)

The Construction and Housing Development Bank (hereinafter CHDB), the executing agency of housing finance was founded in 2013 and after the pilot project start in 2015. The Construction and Housing Development Bank carried out the housing loan business for individuals from 2016. Some of private banks also offered loan service for purchaser of housings, but the target of such loan as well as the volume of the services were very limited. (JICA, 2018)

In response from Department of Urban and Housing Department formulated, the one million supply housing plan was appropriated within 5 years. Department of Urban and Housing Department (DUHD) planned to supply 20 percent of the total, of which 90 percent was low-cost housing and 10% was affordable housing. According to this plan, Department of Urban and Housing Department (DUHD) could supply 7,200 units per year, of which 90 percent or 6,480 units would be low-cost, and 10 percent,

or 720 units affordable. (JICA, 2018)

Yangon metropolitan areas and rural areas as the major target cities where the rapid urbanization and the associated housing problems were emerging; micro-credit was a financial undertaking which was focused on improving the standards of living of needy people in the society by reducing the poverty level.

The living standards of individuals in a society were said to be favorable when there was adequate consumption, high educational level, proper housing conditions, sample availability of food, friendly sanitary conditions, stable or non-restricted participation in the production system, free support in the systems of social joining and opportunity of taking after to a specific school of thought and qualities comparative or diverse those that were handover to the general public. (Hermes & Lensink, 2011)

Micro-credit was being considered as one of the most important and an effective mechanism for poverty alleviation. There was also effective mechanism through which to disseminate precious information on ways to improve the health, education, legal rights, sanitation and other living standards, which were of relevant concerns for the poor. Above all, many micro-credit programs had targeted one of the most vulnerable groups no assets. The main objective of this paper was to analyze the impact of microcredit on living standards, empowerment and poverty alleviation of low-income people.

1.2 Objectives of the Study

The main objectives of study are;

i. To identify the socio-economic and micro-credit factors in suburb area in Hlaing Tharyar Township.
ii. To explore the influencing factors of living standards among micro-credit users by using the binary logistic regression model.

1.3 Scope and Limitations of the Study

Decaying rural economy, natural disasters, climate-change negatively affected agricultural sector, so that poorest rural households more likely to opt for urban areas. The most of the people are living at urban area they move rural to urban, so that researcher chooses to investigate the suburb area.

The target populations of Low-Cost Housing units are 1759 units, totally finished, 768 rooms for Phase 1, 536 rooms for Phase 2 and 455 rooms for Phase 3, the sample size is 302 respondents of microcredit users. The researcher aims at

explaining the residents' support for Ministry of Construction had already built low-cost housing options such as the Shwe Lin Pan project at Hlaing Tharyar Township and Yuzanna project at Dagon Seikkan Township, Thanlyin Township and Mingalardon Township (DUHD Data). In this study, microcredit was a form of financial support that was set for the people in an effort to improve the living standards through provision financial services in Yangon, Shwe Lin Pan's Low-Cost Housing Plan such as Phase 1, 2 and 3, Hlaing Thar Township. Through there were Low-Cost Housing, Affordable Housing, Middle Housing, Condominium (High) Housing in Suburb areas, but it was hard to contact to people, time constraint and budget constraint so that would not collect data from those places. Depend on these reasons, those areas would be limited. The study was concerned with Low-Cost housing at Shwe Lin Pan in Hlaing Tharyar Township.

1.4 Method of Study

In this thesis, was used structured questionnaires to collect primary data from the sample and secondary data from Department of Urban and Housing Department (DUHD) and The Construction and Housing Development Bank (CHDB) data.

Descriptive Statistics was used to identify the socioeconomic and microcredit factors in suburb area in Hlaing Tharyar Township. Binary logistic regression model was used to explore the influencing factors of living standards among micro-credit users by using the binary logistic regression model.

1.5 Organization of the Study

The study consists of five chapters. Chapter I includes the rationale of the study, objectives of the study, scope and limitations of the study, method of study and organization of the study. Literature review is presented in Chapter II. research methodology has been described in Chapter III. Collected data results and finding are discussed in Chapter IV. Chapter V is the conclusion of the study.

CHAPTER II
LITERATURE REVIEW

In this chapter presents about microfinance, microcredit, low-cost housing, measuring living standards, housing loan scheme, impact of housing development on families and communities, urbanization and low-cost housing development, reviews on previous studies.

The main objective of this study is to analyse the impact of microfinance on living standards, empowerment and poverty alleviation of poor people. Microfinance is now being considered as one of the most important and an effective mechanism for poverty alleviation. These are also effective mechanisms through which to disseminate precious information on ways to improve the health, education, legal rights, sanitation and other living standards, which are of relevant concerns for the poor. Above all, many micro-credit programs have targeted one of the most vulnerable groups in society–women, who live in households with little or almost no assets. Self-employment helps in improving women's security, autonomy, self-confidence and status within the household. This study is about the impact of microfinance on living standards, empowerment and poverty alleviation of poor people.

2.1 Microfinance

Microfinance indicates a number of financial services provided to the small entrepreneurs and enterprises who did not get finance from the banks or any other institutions. Microfinance services were provided to unemployed or individuals' low-income because most of those trapped in poverty, or who had limited financial resources, did not had enough income to do business with traditional financial institutions. Microfinance is not only this, but it also has broader perspective which also includes insurance, transactional service, and importantly, savings. (Barr, 2005)

Like conventional lenders, micro financiers must charge interest on loans, and they institute specific repayment plans with payments due at regular intervals duration.

Some lenders require loan recipients to set aside a part of their income in a savings account, which could be used as insurance if the customer defaults. If the borrower repays the loan successfully, then they had just accrued extra savings. ("Microfinance in Uganda", "Indonesia Financial Services Authority's", "Microfinance Institutions", "United Nations High Commissioner for Refugees", "Self-Reliance Assistance-Business Micro Loans Serbia", "International Finance Corporation", "Microfinance Yields Better Futures for Honduran Farmers").

The Key words of Microfinance are as follows:

(i) Microfinance is a banking service provided to unemployed or low-income individuals or groups who otherwise would have no other access to financial services.

(ii) Microfinance allows people to take on reasonable small business loans safely and in a manner that is consistent with ethical lending practices.

(iii) The majority of microfinance operations occur in developing nations, such as Uganda, Indonesia, Serbia, and Honduras.

(iv) Like conventional lenders, micro financiers charge interest on loans and institute specific repayment plans.

(v) The World Bank estimates that more than 500 million people have benefited from microfinance-related operations.

2.2 Microcredit

Microcredit did not only increase the income level of the poor people but also rise on their living standard. It provided the financial assistance to the extremely poor class of people in suburb and rural areas to help them become self-employed rather than depending on loan sharks for rising finance who charge exorbitant interest rates. Especially in developing countries, micro-credit was enabled very poor people to engage in self-employment projects that generate income, thus allowing them to improve the standard of living for themselves and their families. (European Bank, 2015)

Beginning in the 1970s, with the birth of the Grameen Bank in Bangladesh, micro-credit has played a prominent role among development initiatives. Dr. Muhammad Yunus discovered that even with some little measure of cash it is conceivable to help the needy to survive and make the activity of individual acknowledgment and venture in the general population that is important to enhance

their expectations for everyday comforts. So that Dr. Muhammad Yunus and Grameen Bank awarded Nobel Peace Prize on 13 October 2006. Grameen model has currently being considered as a standout amongst the best models in the micro-credit business. The Grameen Bank found the monetary dynamic poor, who were barred from formal budgetary administrations, and helps them by giving money related services. The bank was additionally stresses on the preparation of investment funds. The Grameen Bank was a foundation which gives little credits to poor people, particularly ladies in Bangladesh, utilizing imaginative methods for getting around their obtaining requirements. The Grameen Bank has been massively fruitful in creating feasible vocations, lessening neediness and driving advancement in Bangladesh. (Grameen Bank, 2004).

Both microfinance and microcredit are terms used to refer to activities that help those living under the poverty line or the unemployed to fulfill their personal needs and to help them utilize their skills to eke out a living. These activities also help fund social programs in many countries. (Olivia, 2011)

Microfinance means the broad spectrum of financial services such as loans, insurance, savings etc. provided to the people of low-income groups. Conversely, Microcredit alludes to a small loan provided, at a low-interest rate, to the persons of below poverty line to make them self-employed. (Surbhi, 2017)

The key differences between microcredit and microfinance are provided below:

(i) Microcredit is defined as the loan facility for poor customers. A broad range of financial services for the poor clients is known as Microfinance.

(ii) Microcredit is a component of microfinance.

(iii) Microcredit includes credit activities only, but microfinance includes credit as well as noncredit activities like savings, pension, insurance, etc.

2.3 Low-Cost Housing

Low-cost housing alludes to housing units that were affordable by that were reasonable by that segment of society whose wage was below the middle household income. In spite of the fact that different coutries had different policies for low-cost housing but it was largely the same. Low-cost housing ought to address the housing needs of the lowered middle-income households. Low-cost housing becomes a key issue particularly in developing nations where a majority of the population was not able to purchase houses at the market price. In fact, one definition of low-cost

housing was that it was housing which would not put the buyer into mortgage stress (Select Committee on Housing Affordability in Australia (2008)). Gabriel et al. (2006) introduces the concept of 'home ownership affordability' to differentiate the concerns of owner-occupiers from other groups. The idea of low-cost housing recognizes the needs of households whose incomes were not sufficient to allow them to access appropriate housing in the market without assistance (Milligan et al., 2004). Thus, the term low-cost housing describes housing that assists lower income households in obtaining and paying for appropriate housing without experiencing undue financial hardship (Milligan et al., 2004). A range of publicly or privately was initiated forms of housing may meet this specification (Milligan et al., 2004).

Low-cost housing usually focuses on the relationship between housing expenditure and household income, typically to establish a standard in respect of which the amount of income spent on housing was deemed unaffordable. Evidence still suggests that the groups most affected by the increase in housing costs were low-income households in the private rental market and moderate-income owner purchasers (Gabriel et al., 2005). Different countries had different low-cost housing policies in making financing more accessible, providing mechanisms such as interest rate subsidies and favorable terms on par with infrastructure financing.

In Canada and United States, local governments seem firmly committed to increasing the availability of low-cost housing through a variety of innovative subsidy programs. In China, low-cost housing involved the national construction program and organized by the real estate department of province government to provide a suitable housing environment for the low-income families (Jingchun, 2011). As a result, it became the increased responsibility of the government to provide the rising demand for low-cost housing.

2.4 Measuring Living Standards

Measuring living standards was important for economic policy. However, in practice, there were several difficulties in measuring living standards and therefore there are several different measured. However, income was only a rough guide to the goods and services you can actually buy. Some people might be very high living costs such as rental fees, council taxes and transport costs. Therefore, the quantity of goods and services could actually buy will give a better guide to living standards than just income. Another issue was that some people might receive benefits in kind. e.g., those

on means tested benefits often receive prescriptions and dentist visits for free. Therefore, their living standards were better than their actual income may suggest. (World Bank. 2008)

2.5 Housing Loan Scheme

Housing development is closely linked with sectors such as land management, water and sanitation, roads, transportation and finance and industry. To help meet the housing needs, the DUHD has recently announced a one million house policy, aiming to meet the housing need generated in the coming years. (UN-Habitat, 2017)

At present, private banks provide loans of up to 70 percent of the total cost for some development projects Construction, Housing and Infrastructure Development Bank (CHIDB) established and came into operation since January 2014. CHIDB is a joint-venture between MOC/DUHD and private sector construction firms, a profit motive business and provides loans to individual customers at interest rates as currently set by the Central Bank of Myanmar (CBM). (UN-Habitat, 2017)

Through the examination by CHDB, the applicant pays thirty percent of the house price as a down payment to CHDB, and a tri party agreement was concluded between DUHD, CHDB and a purchaser. Then one hundred percent of home purchase price was paid from CHDB to DUHD. DUHD issued and delivered a temporary residence certificate to the purchaser, and the purchaser becomes able to move in the property. In addition, the ownership book of the target housing was deposited as a collateral from DUHD to CHDB (the name remains as DUHD). Ownership of the target housing was not transferred to the purchaser at the time of the tri-party agreement. When the purchaser fully repaid the loan amount, it is transferred to the purchaser. (JICA, 2018)

Until the purchaser paid out the loan, the target housing could not be sold, gifted, nor rented to a third party. In addition, resale was forbidden for five years from the start of loan even if it pays off early. When the loan was paid off, the ownership book was delivered to the purchaser, and the ownership of the property was transferred to the purchaser. However, since unit ownership was not admitted in Myanmar, what had been referred to as “ownership” here was different from general meaning of ownership, and it was explained as “the right to live and transfer" as the right which is granted by the authority to citizens to live and transfer. The government keeps ownership of the land, though the purchaser did not have to pay the rent. (JICA, 2018)

At present, the funding for DUHD's housing program is mainly based on a Revolving Fund (R.F) which amounts to about 100 billion MMK (72 million USD). This fund was established in 2014. Revenue flows into this fund mostly come from sales of housing units. From this amount, 50 billion MMK (36 million USD) are used for low-cost housing. A separate fund of about 10 billion MMK (72 million USD) from the national budget is used for housing-related infrastructure of low-cost housing. In details, land costs are not included in the calculation of project cost of low-cost housing. Therefore, the land input is a government subsidy for low-income people. (JICA, 2018)

2.6 Impacts of Housing Development on Families and Communities

The biggest dream of every family needs to have a home of their own. The housing development was fundamental require for every developing country. Housing development was always connected to urban development. Due to urbanization, increasingly individuals moved to city and as consequence city turned to be crowded (Byrne et al, 2007). Most immigrants could not afford to pay rent or a higher price for housing and make squatters in urban areas. In this way, low-cost housing for low-income families was an vital segment for all countries. In developing country, they might give way better housing and related community services, especially for low to middle income groups in urban and rural areas. The role of housing policy experiences significant changes in order to stimulate economic growth and redevelop under-performing areas. The casual segment of developing countries is more superior compared with that of developed countries. For this reason, government policies concerning the housing approaches and housing supply were weakening in the developing countries (UN-Habitat, 2003). The pressures of housing deficiencies represented the future success of the country's economy. In reality, the role of housing policy in boosting development and recovery ought to be way better adjusted.

In developing countries, the bulk of the poor work in the casual segment, informal employment was one perspective of the informal economy and informal housing was another. Angel (2000) defined that unauthorized housing to be housing that was not in compliance with current regulations concerning land proprietorship, land use and zoning or building construction and squatter housing to be housing that was currently occupying land illegally.

Since the bulk of the destitute in developing countries work in the casual division, government may not precisely degree their livelihood. This severely compromises the effectiveness of broad income-related transfer programs and more constrained the scope for redistribution (Arnott, 2008). At least in low-income countries, most households, and probably therefore the bulk of the neediest households, live in unauthorized housing. Since governments were reluctant to subsidize unauthorized housing, their housing programs, with the exception of public housing, were biased towards authorized housing and therefore against the neediest households (Angel, 2000).

Besides, the impacts of housing on families and communities were positive from seeing lives and communities changed and a large of growing study on housing security. According to the U.S. Department of Housing and Urban Development, the majority of the nation's cost-burdened households were low-income, making them vulnerable to a wide variety of negative impacts caused by housing insecurity. Families were received housing vouchers were 74 percent less likely to stay in a shelter or on the street than families without a housing subsidy. Over the past two decades, homeless families who were discharged from shelters to subsidized housing were more stable; live in higher quality and safer environments and less likely to return to shelter than families without a housing subsidy. Nearly 19 million U.S. households pay over half their income on housing, and hundreds of thousands more had no home at all. Access to decent, low-cost housing would provide critical stability for these families, and lower the risk that vulnerable families became homeless. (Enterprise Community Partner, 2014)

Housing instability could seriously threaten children's performance and success in school, and contribute to long-lasting achievement gaps. Quality low-cost housing helps create a stable environment for children, contributing to improved educational outcomes. Housing instability and homelessness had serious negative impacts on child and adult health. Low-cost housing could improve health by providing stability, freeing up resources for food and health care and increasing access to services in quality neighborhoods. Green improvements to low-cost housing could improve the health outcomes of low-income families particularly children at risk for asthma (Enterprise Community Partner, 2014).

2.7 Urbanization and Low-Cost Housing Development

Urbanization came from human activities that gather for the distribution of food, the living standard and the provision of infrastructure to create a better environment for human survival. In addition, the expansion of housing was the symbol of urban development because housing was the central need for the social and economic development of all (Yoshino et al, 2016). Urbanization and the pace of urbanization had increased considerably in recent decades. Cities are developing rapidly, in terms of population and size, exceeding the limits of municipal jurisdiction. More and more towns were now becoming cities.

2.8 Reviews on Previous Studies

Zeller and Meyer (2002) have concluded their study that savings and credit facilities help individuals or households build up or acquire funds for all kinds of investments. Multiple regression analysis was used and analysis between different variables related to standards of living. This study found that increase of respondents' income and provided not only with the financial help to their families but also had positive impact on other factors of daily life. These poor women brought about a positive change to their financial and social situation and started taking active part in the decision-making process of the family and society. The results obtained from our analysis regarding the success of increasing role in decision making process in the family, reveals that microfinance schemes are highly associated to build up of social and economic empowerment.

Khan, and Rahaman, (2007) stated that the Impact of Microfinance on Living Standards, Empowerment and Poverty Alleviation of Poor People: the study on Microfinance in the Chittagong District of Bangladesh. The dependent variable is improvement in the living standard of family and better access to education, better access to healthcare, better financial situation of the family as independent variables. The researcher was used Multiple Linear Regression Model. The results found that increased their income and provided not only with the financial help to their families but also had positive impact of microfinance on living standards, empowerment and poverty alleviation of poor people.

Duong, and Thanh, (2014) studied that the impact evaluation of microcredit on welfare of the Vietnamese rural households, especially for the poor, and investigates the determinants on the accessibility to microcredit programs. In order to identify the

groups for comparison, conduct a model to forecast the determinants on the households' accessibility to micro credit programs, there were two common modeling methods to determine the credit accessibility: logistic regression models probit modeling methods. Propensity score matching (PSM) method and difference in difference (DID) method was used. The results found that microcredit has impact on welfare via increasing income per capita per month and consumption per capita per month. It was consistent with many previous studies and research papers, but the impact of microcredit in this study was not great. Meanwhile, with the application of DID method with fixed-effects technique, it was found that microcredit program truly had positive impact on consumption of rural households, and the result of DID with fixed-effects technique was slightly higher than that of PSM. However, contrary to PSM, the impact of microcredit on income of the rural households using DID with fixed-effects was statistically insignificant.

Kawira, (2016) submitted the effect of microcredit in improving the living standards of the poor people in Tharaka Nithi Country. The methodology utilized ensured the precision and likeness of the study factors and information gathered. The sorted information was made accessible for investigation. Information investigation included the accompanying measurable methodology; Descriptive insights condensed the mean, standard deviation, rate, and recurrence of the information. Connection and Regression Coefficients was utilized to demonstrate the relationship between factors. Multiple linear regressions were used to predict a single dependent variable (Y) when there was more than one independent random variable (X). Pearson correlation was utilized to quantify the relationship between factors under thought. From the analysis that provision of loan facilities and acquiring the necessary skills on how to manage the funds to generate extra income and gain profits serves as a way to improve living standards. Also established from the study is that a community or a household that is financially empowered will be able to educate their children, have an access to clean water, electricity as well appropriate housing which are the basic measures of poverty.

San Yadanar (2019) studied that socio-economic situation of households in Yuzana Low-Cost Housing, Dagon Myothit (Seikkan), the descriptive method by used of primary data and some secondary data from sources of DUHD, YCDC and other relevant institutions, published references and internet websites. The researcher found the results is the most of the households have private businesses such as small grocery

shops and handicrafts shops so that it means small and medium enterprises (SMEs) sector has improved a lot and Yuzana Low-Cost Housing becomes a convenient place for doing small businesses.

Huang, (2020) described that Acadia University, microcredit and its impact on developing areas. The first one the author found the essential research conditions: whether the study occurs in a rural location, whether government participated, economic status measured by GDP per capita, and corruption scores. The second one includes these research conditions, three location variables on where the microcredit research is conducted: Africa, South America, South East Asia, and five dummy variables representing the type of effect being measured in the underlying study: financial well-being, health, education, female empowerment and venture growth. However, given the small sample size, sacrificing the degrees of freedom necessary to examine these outcome measures was material. The result of the regressions was to examine whether the effect size was relationship to specific research conditions, then identifying which research condition impact the effect of microcredit in developing areas.

Sultana1 et al. (2021) studied that the impact of microfinance on women empowerment through poverty alleviation: an assessment of socioeconomic conditions in Chennai city of Tamil Nadu. The logistic regression models were evaluated using classification and using cross tabulation of variable to ascertain whether there is an association or a relationship between the variables studied and membership religion wise and also to study the difference between mean values of the variables affecting empowerment. Hence, it has been observed that there is a significant difference between Muslim and non-Muslim respondents in terms of the variables mentioned which could be due to multifarious factors affecting the communities in terms of socio economic, religious and cultural inhibitions.

2.9 Conceptual Framework

A conceptual framework concerns with the influencing factors on living standards among microcredit users in suburb area in Hlaing Tharyar Township. It is presented in Figure (2.1).

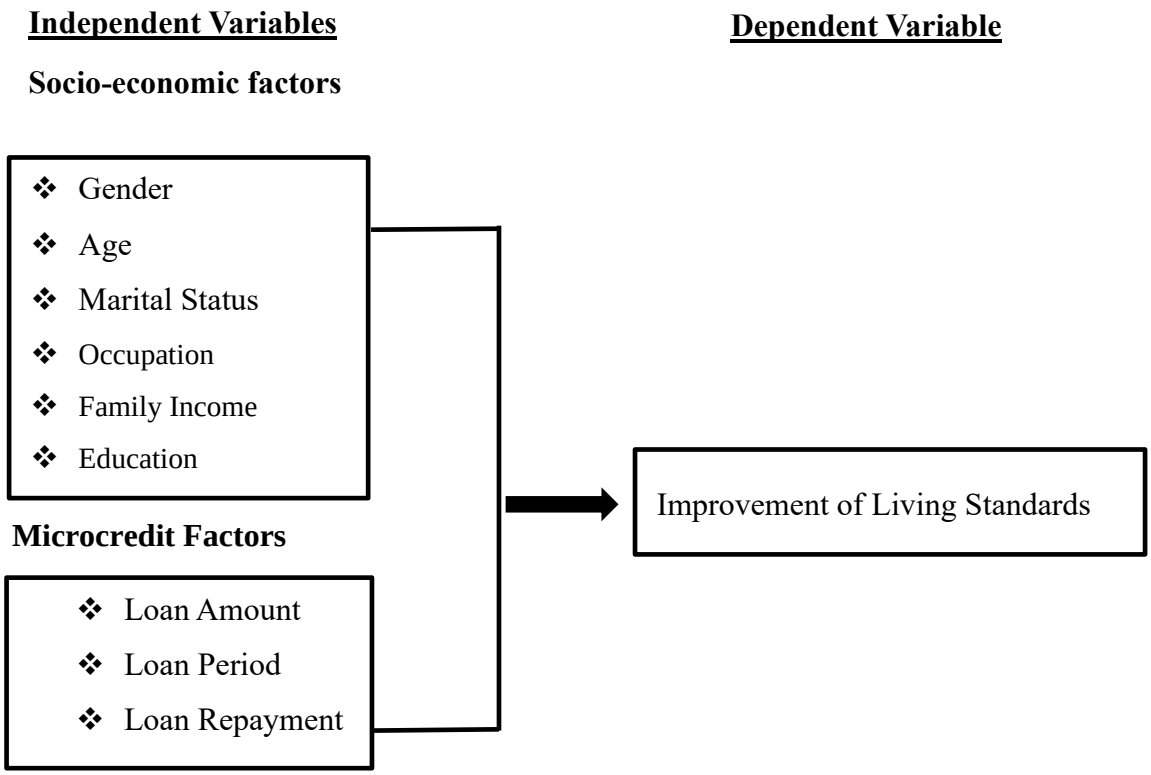


Figure (2.1) Conceptual Framework of the Study

The conceptual framework (Figure 2.1) for this study which shows the influencing factors of living standards among microcredit users in suburb area. The dependent variable is improvement for living standard of micro credit users at Shwe Lin Pan Low-Cost Housing in Hlaing Tharyar Township. Improvement of living standards measures are increase saving, better access education, better access health and increase general opportunities. Independent variables are socio-economics factors such as gender, age, marital status, occupation, family income (per month) and education level and micro-credit factors such as loan amount, loan period and loan repayment.

CHAPTER III
RESEARCH METHODOLOGY

This chapter presents the survey design, sample size determination, assumption of logistic regression model, binary logistic regression model, parameter estimating in the logistic regression model, goodness of fit test and selecting predictor variables for logistic regression, sampling technique.

3.1 Survey Design

The descriptive method was conducted to get primary data by using structured questionnaires, purpose of survey was explained and discussions after asked and complete the questionnaires. There are the characteristics related to microfinance management policies from CHDB's secondary data and Primary data were collected for the study. Qualitative approach was employed to carry out the study and semi-structure interviews to collect the data required for desired results. The members in the population were first assigned some numbers where the member coinciding to the set interval value was picked during February 2020. Households through face-to-face interview using questionnaires on the impacts of low-cost housing development in Hlaing Tharyar Township, whether there are differences in socio-economic conditions.

Survey and interview methods were used to collect primary data from the microcredit users and secondary data from DUHD and CHDB data. Structured questionnaires were made to distribute to some respondents who were able to answer by themselves and interviews was also applied to those who were not able to response by themselves. The questionnaire used in this study was already tested for validity and reliability so that it doesn't deviate from the intended research problem and questions answered by the researcher. In collection of data, first, researcher gathered 400 respondents who were credit users and non-users living in that area through structured questionnaires and then selected 302 microcredit users out of them.

3.2 Sample Size Determination

The sample contained all the population characteristics and correct and meaningful conclusions from the analysis of the data obtained. This study population was about 1759 households which living in the Shwe Lin Pan Low-Cost Housing, the sample size was selected 302.

In determining the require sample size, Krejcie and Morgan's (1970) formula adjusted to Cochran's method for qualitative variables was used.

The required sample size was;

$$n_0 \geq \left[\frac{pq\,(z)^2}{e^2}\right] = \frac{0.5\,(0.5)(1.96)^2}{(0.06)^2} = 267 \qquad (3.1)$$

Where,

n_0 = Sample size

z = 1.96 for 5% significance level

e = 6% (acceptable margin of error for proportion)

The households in selected were 1759 and the selected households (sample size) were 267. Since sample size exceeds 5% of the population (1759 x 0.05 = 88), Cochran's (1977) correction formula was used to calculate the final sample size. Therefore, the final sample size becomes;

$$n = \frac{n_0}{1+\frac{n_0}{N}} = \frac{267}{1+\frac{267}{1759}} = 232 \qquad (3.2)$$

In many education and social research surveys, the response rates are normally well below 100%. According to the pilot survey, the response rate was assumed 77%. The minimum sample size was (232 ÷ 0.77 ≈ 302). Therefore, the required minimum sample size was 302 households. This study has required using both quantitative data and qualitative data in the analysis. Therefore, the minimum sample size is 302 households was used in the study.

Proportional allocation sample size becomes;

$$n_i = n * \frac{N_i}{N} \qquad (3.3)$$

Table (3.1) Allocation of Sample Size

Phase Number	Number of households	P_i	Sample households n_i
1	768	0.436	132
2	536	0.305	92
3	455	0.259	78
Total	**1759**	**1**	**302**

Data Source: Survey Data (2020)

The sample size was calculated with proportional allocation, number of households was 768 and selected from each sample household who was used the microcredit after interview 132 households for phase-1. For phase-2, number of households was 536 and sample households was 92 and for phase-3, number of households was 455 and sample households was 78.

3.3 Chi-Square Test

The chi-square test use to determine whether the association between two qualitative variables is statistically significant. It is called the Chi-Square Test (Moore, et al., 2011). The chi-square test is the most common reported nonparametric statistic and is used when the two variables are independent of one another. It compares the actual number (or frequency) in each group with the expected number if the two variables were completely independent of one another. The expected number in each group is computed from the data.

The chi-square statistic is computed with the following formula:

$$\chi^2 = \sum_{i=1}^{n} \frac{(f_0 - f_e)^2}{f_e} \qquad (3.4)$$

Where, f_0 is the observed frequency in the cell

f_e is the expected frequency in each cell

The chi-square statistic is computed by adding together the results of these computations for each cell.

A Chi-square Test can be used when the following assumptions are met:

Assumption 1: Both variables are categorical.

It is assumed that both variables are categorical. That is, both variables take on values that are names or labels.

Assumption 2: All observations are independent.

It is assumed that every observation in the dataset is independent. That is, the value of one observation in the dataset does not affect the value of any other observation.

Assumption 3: Cells in the contingency table are mutually exclusive.

It is assumed that individuals can only belong to one cell in the contingency table. That is, cells in the table are mutually exclusive an individual cannot belong to more than one cell.

Assumption 4: Expected value of cells should be 5 or greater in at least 80% of cells.

It is assumed that the expected value of cells in the contingency table should be 5 or greater in at least 80% of cells and that no cell should have an expected value less than 1.

3.4 Logistic Regression Model

This section presents some types of logistic regression and goodness of fit test statistics and test statistics which are used to assess the significance of the individual coefficient.

Multivariate analysis commonly appears in general health science literature. Multivariate analysis refers to simultaneously predict multiple outcomes and uses multiple variables to predict a single outcome. It serves two purposes: (1) it can predict the value of dependent variable for new values of the independent variables, and (2) it can help describe the relative contribution of each independent variable to the dependent variable, controlling for the influences of the other independent variables. In logistic regression, the outcome variable is usually categorized. In discriminant analysis, the outcome variable is a category or group to which a subject belongs. For only two categories, discriminant analysis produces results similar to binary logistic regression. In proportional hazards regression, the outcome variable is the duration of time to the occurrence of a binary “failure” event during a follow-up period of observation. The logistic regression is the most popular multivariable method used in health science.

Binary logistic regression is typically used when the dependent variable is dichotomous and the independent variables are either continuous or categorical. When the dependent variable is not dichotomous and is comprised of more than two categories, a multinomial logistic regression can be employed (Hosmer and Lemeshow, 2000).

3.4.1 Assumptions of Logistic Regression Model

The assumptions of logistic regression model are (Schreiber-Gregory et al., 2018):

(i) Logistic regression typically requires sufficiently a large sample size.

(ii) Binary logistic regression requires the dependent variable to be binary and ordinal logistic regression requires the dependent variable to be ordinal.

(ii) Logistic regression requires the observations to be independent of each other. In other words, the observations should not come from repeated measurements or matched data.

(iii) Logistic regression requires there to be little or no multicollinearity among the independent variables. This means that the independent variables should not be too highly correlated with each other.

(iv) Logistic regression assumes linearity of independent variables and log odds. Although this analysis does not require the dependent and independent variables to be related linearly, it requires that the independent variables are linearly related to the log odds. logistic regression does not require a linear relationship between the dependent and independent variables.

(v) The error terms (residuals) do not need to be normally distributed.

(vi) Homoscedasticity is not required.

(vii) The dependent variable in logistic regression is not measured on an interval or ratio scale.

3.4.2 Binary Logistic Regression Model

Binary logistic regression model is a prognostic model that is fitted where there is a dichotomous/binary dependent variable. Since logistic regression calculates the probability of an event occurring over the probability of an event not occurring, the impact of independent variables is usually explained in terms of odds (Hosmer and

Lemeshow, 2000). With logistic regression the mean of the response variable Y in terms of an explanatory variable X is modeled relating Y and X through the equation

$$Y = E(Y \mid X) + \varepsilon_i \tag{3.5}$$

$$\text{Logit}(Y) = \text{In}\left[\frac{p_i}{1-p_i}\right] = \beta_0 + \beta_1 X_i \tag{3.6}$$

Where,

p_i is the probability of the outcome of interest

$p_i = 1$, if the event will occur.

$p_i = 0$, if the event does not occur.

Unfortunately, the extreme values of $\hat{\beta}_0 + \hat{\beta}_1 X_i$ will give values of that does not fall between 0 and 1. The logistic regression solution to this problem is to transform the odds using the natural logarithm. The estimated logit model is

$$\hat{L} = \ln\left[\frac{\widehat{p_i}}{1-\widehat{p_i}}\right] = \hat{\beta}_0 + \hat{\beta}_1 X_i \tag{3.7}$$

Where, p is the probability of the interested outcome and X is the explanatory variable. The parameters of the logistic regression are β_i. Taking the antilog of the Equation (3.6) on both sides, one can derive an equation for the prediction of the probability of the occurrence of the interested outcome as

$$P = P(Y = \text{interested outcome} \mid X = x, \text{a specific value})$$

$$P = \frac{e^{(\beta_0 + \beta_1 X)}}{1 + e^{(\beta_0 + \beta_1 X)}} \tag{3.8}$$

Extending the logic of the simple logistic regression to multiple predictors, one may construct a complex logistic regression as;

$$\ln\left[\frac{p(Y=1 \mid X_1, \ldots, X_k)}{1 - p(Y=1 \mid X_1, \ldots, X_k)}\right] = \text{Logit}(Y) = \text{In (odds)} \tag{3.9}$$

$$= \text{In}\left[\frac{p}{1-p}\right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_k X_k$$

$$= \text{In}\left[\frac{p}{1-p}\right] = \beta_0 + \sum_{j=1}^{k} \beta_j X_j$$

Where, $p = P(Y \mid X_1 = x_1, \ldots, X_k = x_k)$

$$P = \frac{e^{(\beta_0 + \sum_{j=1}^{k} \beta_j x_j)}}{1+e^{-(\beta_0 + \sum_{j=1}^{k} \beta_j x_j)}} = \frac{1}{1+e^{-(\beta_0 + \sum_{j=1}^{k} \beta_j x_j)}} \quad (3.10)$$

$1-p = P(Y=0 \mid X_1 = x_1, \ldots, X_k = x_k)$

$$1-p = 1 - \frac{1}{1+e^{-(\beta_0 + \sum_{j=1}^{k} \beta_j x_j)}} \quad (3.11)$$

Binary Logistic Regression model was used to find the variables that influenced on living standard at Shwe Lin Pan Low-Cost Housing in Hlaing Tharyar Township. Since the study is interested the improvement of the living standard as the dependent variable, binary logistic regression model has been used. Independent variables are socio-economic factors and micro-credit factors are as follow;

(i) Gender (X_1)

(ii) Age (X_2)

(iii) Marital Status (X_3)

(iv) Occupation (X_4)

(v) Family Monthly Income (X_5)

(vi) Education Level (X_6)

(vii) Loan Amount (X_7)

(viii) Loan Period (X_8)

(ix) Loan Repayment (X_9)

3.4.3 Parameter Estimating in the Logistic Regression Model

In logistic regression analysis, the parameters are usually estimated by using the method of maximum likelihood. Maximum likelihood will provide values of β_0 and β_1 which maximize the probability of obtaining the data set. The function is used to estimate the probability of observing the data, given the unknown parameters (β_0 and β_1). A "likelihood" is a probability that the observed values of the dependent variable

may be predicted from the observed values of the independent variables. The likelihood varies from 0 and 1 like any other probabilities. Suppose each individual sample of size 'n' selected from a population has the same probability p, an event occurs, $Y_i = 1$ indicates that an event occurs for the i^{th} subject, otherwise, $Y_i = 0$. The observed data are $Y_1, \dots, Y_n$ and $X_1, \dots, X_n$. The joint probability of the data (the likelihood) is given by

$$L = \prod_{i=1}^{n} p^{y_i} (1-p)^{1-y_i} \tag{3.12}$$

$$= (p)^{\sum_{i=1}^{n} y_i} (1-p)^{n-\sum_{i=1}^{n} y_i}$$

Natural Logarithm of the likelihood is

$$L = \text{Log}(L) = \sum_{i=1}^{n} y_i \log p + [n - \sum_{i=1}^{n} y_i] \log(1-p) \tag{3.13}$$

Estimating the parameters β_0 and β_1 is done by using the first derivatives of log-likelihood, and solving them for β_0 and β_1. The iterative computing is used in this case. An arbitrary value for the coefficients (usually 0) is chosen first. Then log-likelihood is computed and variation of coefficient values is observed. Reiteration is performed until maximization of l (equivalent to maximizing L) and the results become the maximum likelihood estimates of β_0 and β_1 (Hosmer and Lemeshow, 2000).

3.4.4 Goodness of Fit Test and Selecting Predictor Variables for Logistic Regression

After estimating the Logistic regression model parameters using the maximum likelihood estimator, there is a need to assess the significance of the variables with regards to predicting the response variable. There are a number of statistical methods that can be used to carry out the assessment which include Deviance, likelihood ratio test, Hosmer-Lemeshow goodness of fit test, Omnibus test, Wald test. These test statistics are distributed as chi-square with degrees of freedom equal to the number of predictors.

Deviance

According to Hosmer & Lemeshow (2000), the statistic D, is called the deviance, and it plays an essential role in the assessment of goodness of fit of the model. Deviance (D) follows a Chi-square distribution with q- degrees of freedom, where q is the number of covariates in the equation.

$$D = 2\sum_{i=1}^{n}[y_i \text{ In } [\frac{p_i}{y_i}] + (1\text{-}y_i) \text{ In } [\frac{1-p_i}{1-y_i}]] \quad (3.14)$$

Likelihood Ratio Test

The likelihood ratio test is a test based on the difference in deviancies: the deviance without any predictor in the model (or the intercept only model) minus the deviance with all predictors in the model. The Likelihood ratio test, tests the significance of all the variables included in logistic regression model. The likelihood-ratio test is Chi-square distributed and if the test is significant then the dropped variable will be a significant predictor in the equation whilst on the other hand, if the test is not significant then the variable is considered to be unimportant and thus will be excluded from the model. The Log-likelihood ratio is the difference between the deviance of the null model (model with just the constant) and a model after adding independent variables.

The statistic is given by:

$$-2 \log [\frac{L_0}{L_1}] = -2 [\log(L_0) - \log (L_1) = -2(\ell_0 - \ell_1) \quad (3.15)$$

where, ℓ_o is the maximum value for the likelihood function of a simple model and, ℓ_1 is the maximum value for the likelihood function of a full model. The full model has all the parameters of interest and the simple model has one variable dropped (Hosmer and Lemeshow, 2000).

Hosmer – Lemeshow Goodness of Fit Test

The test compares the predicted values against the actual values of the dependent variable. The method is similar to the Chi-square goodness of fit. The Hosmer–Lemeshow test is to examine whether the observed proportions of events are similar to the predicted probabilities of occurrence in subgroups of the model population. The Hosmer-Lemeshow test is performed by dividing the predicted probabilities into deciles (9 groups based on percentile ranks) and then computing a Pearson Chi-square that compares the predicted to the observed frequencies in a 1-by-9 table.

The value of the test statistics is

$$\chi^2 = \sum_{i=1}^{9} \frac{(O_i - E_i)^2}{E_i} \quad (3.16)$$

Where, O_i and E_i denote the observed events, and expected events for the i^{th} risk decile group.

Omnibus Test

The omnibus test statistic is a measure of the overall model fit. The test is implemented on an overall hypothesis that the null hypothesis; all the coefficients of independent variables are equal to zero against at least one coefficient of an independent variable that is not equal to zero. The null hypothesis is rejected when the p-value is less than significance level. It implies that the logistic regression can be used to model the data.

Wald Test

The Wald statistic can be used to assess the contribution of individual predictors or the significance of the individual coefficients in a given model. The Wald test is obtained from a vector-matrix calculation that involves the parameter vector, its transpose and the inverse of its variance matrix (Hosmer and Lemeshow, 2000). The formula for computing the Wald statistic is;

$$W = \left[\frac{\hat{\beta}_i}{SE(\hat{\beta}_i)} \right]$$

Where, $\hat{\beta}_i$ is the estimate of the coefficient of the independent variable xi and SE ($\hat{\beta}_i$) is the standard error of $\hat{\beta}_i$. The squared value of the Wald statistics as indicated below is Chi-square distributed with one degree of freedom.

$$W^2 = \left[\frac{\hat{\beta}_i}{SE(\hat{\beta}_i)} \right]^2 \quad (3.17)$$

The Wald statistic follows a Chi-square distribution with 1 degree of freedom. The null hypothesis is rejected if the p-value of the test is less than α (Significance level). A coefficient with a p-value of the Wald statistic less than α (Significance level) implies that the variable is important in the model.

R Square for Logistic Regression

Cox and Snell R^2 is based on the log likelihood for the model compared to the log likelihood for the base line model.

CHAPTER IV
DATA ANALYSIS

The results and findings of the study are presented in this chapter. The findings involve the investigation of factors that affected on the dependent variables. The results and findings are based on the information provided by microcredit users at Shwe Lin Pann Low-Cost Housing in Hlaing Tharyar Township.

4.1 The Socio-economic Characteristics of the Respondents

The data sought to establish the information of the respondents. From the survey questionnaire, the following statistics described highest level of education, main occupation of the respondents and monthly level of monthly net income (in Kyats) per family. The results of calculations are shown in the following Table (4.1).

Table (4.1)
Socio-economic Characteristics of the Respondents

Characteristics	Classification	Number of Respondents	Percentage
Gender	Male	84	27.8
	Female	218	72.2
Age	Below 35	84	27.8
	35-55	81	26.8
	56 and above	139	45.4
Marital status	Single	24	7.9
	Married	278	92.1
Education	Non-graduate	141	46.7
	Graduate	161	53.3
Occupation	Unemployment	10	3.3
	Company Staff	68	22.5
	Government Staff	21	7.0
	Casual Workers	25	8.3
	Own Business	85	28.1
	Retired	31	10.3
	Dependent	62	20.5
Family Income	Below 300,000	8	2.6
	300,000 – 600,000	156	51.7
	Above 600,000	138	45.7

Data Source: Survey Data (2020)

According to the Table (4.1) shows the socio-economic characteristics of the respondents. In this study, males (27.8%) and Females (72.2%) were participated. The majority of the respondents are 46 years and above, representing (48.5%) of the sample respondents. Eighty-three respondents are below 35 years (28.3%) and between age 36 and 45 years old are (23.2%) respectively.

Among the respondents, (92.1%) are married and (7.9%) are single. Regarding the education, non-graduate (46.7%) is more than the graduate (53.3%). The study of occupation shows that unemployment is (3.3%), the most of company staffs (22.5%) are working at Garment Factories, government staff is (7%), casual workers are (8.3%), own business is (28.1%), retired is (10.3%) and dependent is (20.5%). The company staffs are higher than the government staffs. The respondents of 28.1% have private businesses such as small grocery shops, handicrafts shops, tea shop and tailor shop so that Shwe Lin Pann Low-Cost Housing becomes a convenient place for doing small businesses. The retired persons who live in Shwe Lin Pan Low-Cost Housing increase gradually because they want to live in good and peaceful environment and can afford to buy the low-cost housings with their retired money. Family income of each respondent, below 300,000 Kyats is (2.6%), the range from 300,000 Kyats to 600,000 Kyats per month is (51.7%) and above 600,000 kyats is (45.7%) are respectively.

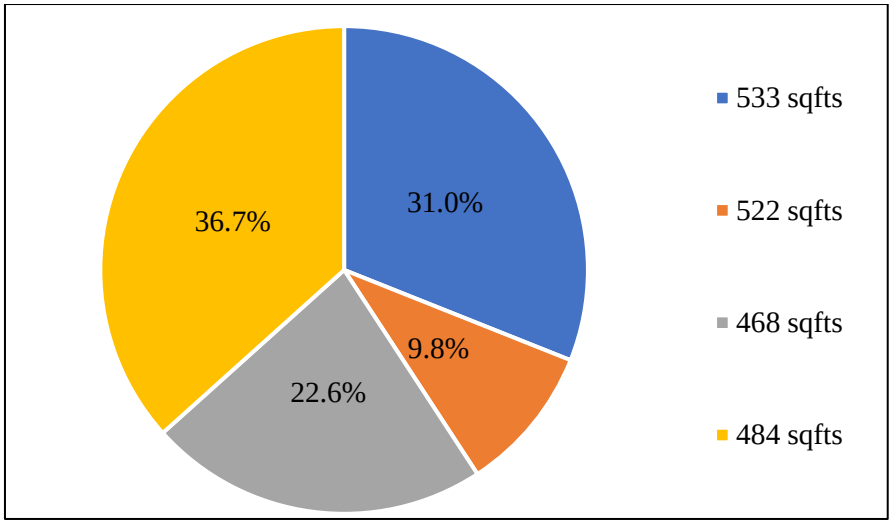
Apartments' Characteristics

The following Table (4.2) and Table (4.3) show the frequency distribution of room space and price.

Table (4.2) Frequency Distribution of Rooms' Space

Room Space	Frequency	Percentage
533 sqfts	95	31.5
522 sqfts	31	9.9
468 sqfts	67	22.9
484 sqfts	109	37.2
Total	**302**	**100**

Data Source: Survey Data (2020)



Data Source: Survey Data (2020)

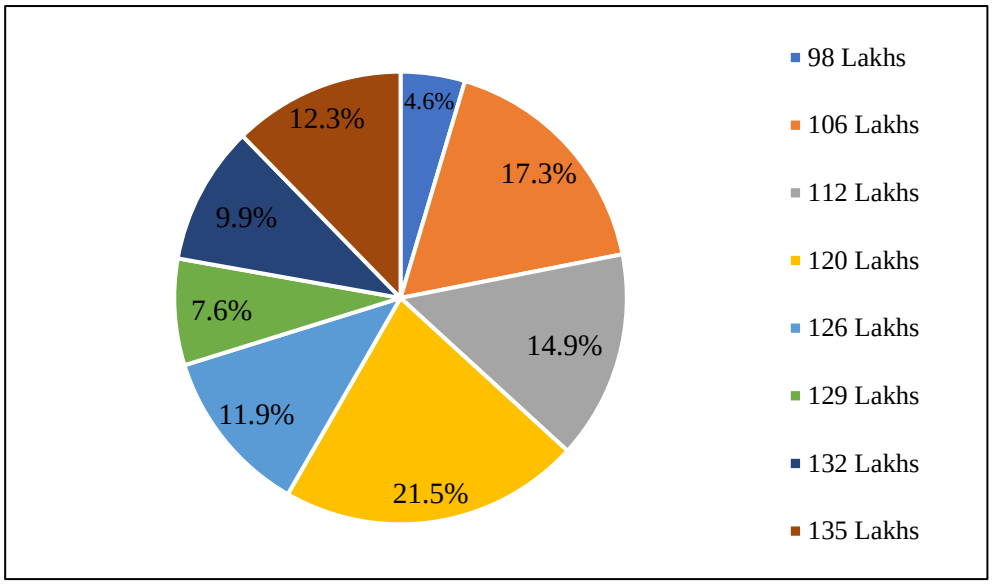
Figure (4.1) Percentage of Rooms' Space

According to the Table (4.2) and Figure (4.1), shows the source of the DUHD data information where are Phase 1, 2 and 3, Shwe Lin Pan Low-Cost Housing, Hlaing Tharyar Township. There are four stories' buildings and different square feet of room space for each building. The ground floor 484 Sqfts is 109 rooms and the percentage is 37.2 percent, the first floor 468 Sqfts is 67 and 22.9 percent, the second floor 522 Sqfts is 29 rooms and the percentage is 9.9 percent and the third floor 533 Sqfts is 88 rooms and the percentage is 30.0 percent respectively.

Table (4.3) Frequency Distribution of Rooms' Price

Room's Price	Frequency	Percentage
98 Lakhs	14	4.6
106 Lakhs	52	17.3
112 Lakhs	45	14.9
120 Lakhs	65	21.5
126 Lakhs	36	11.9
129 Lakhs	23	7.6
132 Lakhs	30	9.9
135 Lakhs	37	12.3
Total	**302**	**100**

Data Source: Survey Data (2020)



Data Source: Survey Data (2020)

Figure (4.2) Percentage of Rooms' Price

According to the Table (4.3) and Figure (4.2) shows the source of the DUHD data information where is Phase 1, 2 and 3, Shwe Lin Pan Housing, Hlaing Tharyar Township. There are specified price from DUHD which are different levels and different prices. The ground floor is expensive than the others floor. Top floor is cheaper than the other floor. At the ground floor of room price 135 Lakhs and middle two corner middle room price is 132 Lakhs. The first floor of room price is 129 Lakhs and middle two room price is 126 Lakhs. The second floor of room price is 120 Lakhs and middle room price is 112 Lakhs. The top floor of room price is 106 Lakhs and middle room price is 98 Lakhs. The number of highest price of rooms are (21.5%) households, the number of lowest price of rooms are (4.8%) households.

4.2 Respondents' Opinion

The Table (4.4) below shows the findings from the respondents' opinion after accessing of the microcredit.

Table (4.4) Respondents' Opinion after Accessing of the Microcredit

Variables	Mean	Std. Deviation
Better living condition	3.83	0.759
Better increased general opportunities and living standards	3.80	0.920
Better increased assets	3.39	1.102
The savings has increased	3.78	0.857
Better access to education	3.72	0.804
Better access to health care	3.78	1.01
The expenditure has increased	1.98	0.471

Data Source: Survey Data (2020)

According to Table (4.4), it was the respondents (M=3.8, S.D = 0.8) that the living condition is increased after access to micro credit. The respondents also increasing general opportunities and living standards after access to microcredit (M=3.8, S.D = 0.9). The assets increased (M=3.7, S.D = 1.0) as well after access to microcredit. The respondents (M= 3.8, S.D = 0.9) is saving increased after access to microcredit. The education also (M=3.8, S.D = 0.8) after access to microcredit. The respondents (M=3.7, S.D = 1.0) that the health care after access to microcredit. The study also noted that the respondents (M=2.0, S.D=0.5) that the expenditure was not increased after access to microcredit because of the respondents have to pay monthly loan repayment. Mostly of the means were found above 3.0 except expenditure. Therefore, it was concluded from the findings that there were better living standards at Shwe Lin Pan Low-Cost Housing Phase 1,2 and 3 in Hlaing Tharyar Township after access to microcredit.

4.3 Association between Improvement of Living Standards and Socio-economic and Microcredit

Cross-tabulation and Chi-square test were done to determine the association between the socio-economic characteristics of respondents and microcredit users and improvement of living standards. The major socio-economic variables included gender, age, marital status, education, occupation, monthly family income, loan amount, loan period and loan repayment.

Table (4.5) Association between Improvement of Living Standards and Socio- economic and Microcredit

Variable	Classification	Improvement of Living Standard		χ^2	P-value
		No	Yes		
Gender	Male	39	45	0.140	0.708
	Female	96	122		
Age	Under 35	35	49	1.077	0.584
	35-55	40	41		
	Above 55	60	77		
Marital Status	Single	7	17	2.546	0.111
	Married	128	150		
Education Level	No Graduate	64	77	0.051	0.822
	Graduate	71	90		
Occupation	Unemployment	5	5	10.834	0.094*
	Company Staff	37	31		
	Government Staff	4	17		
	Casual Workers	9	16		
	Own Business	38	47		
	Retired	17	14		
	Dependent	25	37		
Family Income	Below 300,000 Ks	3	5	1.576	0.455
	300,000 – 600,000 Ks	65	91		
	Above 600,000 Ks	67	71		
Loan Period	6 Months	4	5	2.674	0.263
	8 Years	76	109		
	10 Years	55	53		
Loan Repayment	Below 130000	80	85	2.106	0.147
	130000 and above	55	82		
Loan Payment	Below 130 Lakhs	54	76	0.924	0.336
	130 lakhs and above	81	91		

***, **, * Statistically significant at 1%, 5% and 10% level.

Data Source: Survey Data (2020)

According to the results of Table (4.5), (70.8%) of the sample of female are improvement of living standards. Among the sample size of age above 55 years old contribute the highest percentage (58.4%) who are improvement of living standards. Married has more percentage than single percentage on improvement of living standards.

Concerning with aspect of education level, the percentage of graduate ((82.2%) is higher than the non-graduate on improvement of living standards.

In the analysis of occupation, the number of own businesses is more than the other occupations. The results of Chi-square analysis suggest that occupation is associated with the improvement of living standards at 10% level.

Among the family income, between 300,000 Kyats and 600,000 Kyats contribute the highest percentage on the improvement of living standards.

Concerning with the aspect of loan period 3 years are the highest on the improvement of living standards.

In the analysis of the loan repayment amount below 130 Lakhs and 130 Lakhs and above are not quite different.

4.4 Model Fitting of Improvement of Living Standards

The results of findings for improvement of living standards are following;

Table (4.6) Model Fitting of Improvement of Living Standards

Model Fitting Criteria	Chi-square	df	P value
Hosmer and Lemeshow Test	9.373	8	0.312
Omnibus Test Model Coefficients	26.784	17	0.061
Cox & Snell R Square	0.085		
Nagelkerke R Square	0.114		
Overall Correct Percentage	62.3		

Data Source: Survey Data (2020)

According to Table (4.6), the values of R square 0.085 (Cox and Snell R square) indicate that 8.5% and 0.109 (Nagelkerke R square) indicate that 11.4% improvement of living standards can be explained by variation of independent variables. The overall percentage classification indicates that 62.3%, the improvement of living standards predicted correctly. According to the results of Chi-

square statistics 26.784, p-value is found to be 0.061, the model is significant at 10% level. Since -2log likelihood statistics is 388.480, it can be said that the existence of a relationship between the dependent variable and independent variables is supported. Hosmer and Lemeshow statistic is (Chi-square 9.373, df = 8, p-value = 0.312>0.01) indicates that there is no evidence for lacking of fit of the model.

4.5 Parameter Estimates of Binary Logistic Regression Model of Improvement of Living Standards

The parameter estimates for the socio-economic characteristics in Binary Logistic model for the improvement of living standards are shown in Table (4.7). For independent variables, age group 55 and above, married for marital status group, non-graduate for level of education, Dependent for occupation group, income level above 600,000 (Kyats), ten years loan period, for the loan repayment 130 Lakhs (Kyats) and above are classified as the reference categories for analysis.

Table (4.7) Parameter Estimates of Binary Logistic Regression Model of Improvement of Living Standards

Sources of Information	B	Wald	Sig	Exp(B)
Constant	-1.402	1.092	0.296	0.246
Gender				
Male	0.175	0.352	0.553	1.191
Female (Ref:)				
Age				
Under 35	0.178	0.242	0.623	1.195
35-55	-0.095	0.088	0.767	0.910
55 Above (Ref:)				
Marital status				
Single	0.856	2.629	0.105	2.353
Married (Ref:)				
Education				
Non-Graduate	0.037	0.019	0.889	1.038
Graduate (Ref:)				
Occupation				
Unemployment	0.143	0.034	0.853	1.154
Company Staff	-0.763	3.505	0.061*	0.466
Government Staff	1.184	3.451	0.063*	3.267
Casual Workers	0.341	0.415	0.519	1.406
Own Business	-0.013	0.001	0.974	0.987
Retired	-0.520	1.172	0.279	0.595
Dependent (Ref:)				
Family Income				
Below 300,000 Ks	-0.129	0.024	0.878	0.879
300,000 – 600,000 Ks	0.097	0.134	0.714	1.102
Above 600,000 Ks (Ref:)				
Loan Period				
6 Months	0.312	0.153	0.696	1.366
8 Years	0.507	2.112	0.146	1.661
10 years (Ref:)				
Loan Repayment				
Under 130000ks	-0.655	3.754	0.053*	0.519
130000ks and above (Ref:)				
Loan Amount				
Below 130 Lakhs	0.698	4.512	0.034**	2.009
130 Lakhs and above (Ref:)				

Data Source: Survey Data (2020)

***, **, *, Statistically significant at 1%, 5% and 10% level.

a. Variable (s) entered on step: Gender, Age, Marital status, Education, Occupation, Family income, Loan period, Loan frequency, Loan repayment, Loan amount

According to Table (4.7), it has been observed that occupation of company staff is significant at 10% level and negatively associated with the improvement of living standards. The coefficient of company staff occupation is -0.763 and odds ratio is 0.466. The odds ratio suggests that the company staffs are less likely to occur the improvement of living standards than dependent when the influence of other variables are held constant. Government staff occupation is positively associated with the improvement of living standards and significant at 10% level. The coefficient of government staff occupation is 1.184 and odds ratio is 1.406. Its suggest that company staff and government staff have more likely to occur the improvement of living standards when the influence of other variables held constant.

The coefficient of loan repayment below 130,000 (Kyats) is significant at 10% level and negatively associated with the improvement of living standards. The odds ratio indicates that the family income below 130,000 (Kyats) is less likely to occur the improvement of living standards when the influence of other variables held constant.

The coefficient of loan amount below 130 Lakh is statistically significant at 10% level and positive associated with the improvement of living standards. The odds ratio is 2.009 suggest that the loan amount below 130 Lakhs are 2 times more likely to occur the improvement of living standards when influence of holding other independent variables constant at the reference point.

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CHAPTER V
CONCLUSION

5.1 Findings

The main objective of the study was to determine the relationship between living standards and micro-credit users at Phase 1, 2 and 3, Shwe Lin Pan Low-Cost Housing, Hlaing Tharyar Township. There are about 1759 households living in the Shwe Lin Pan Low-Cost Housing, in this study, total sample size was 302.

From the results from descriptive, it was noticed that larger part of the respondents concurred (M=3.8, S.D =0.8) that the living condition has increased after access to microcredit. The respondents also increasing general opportunities and living standards after access to microcredit (M=3.8, S.D = 0.9). The study also noted that the respondents (M=2.0, S.D=0.5) that the expenditure was increased but less than the others respondent opinion after access to microcredit because of the respondents have to pay monthly loan repayment.

According to the results, it has been observed occupation of company staff is significant at 10% level and negatively associated with the improvement of living standards. In this area, the most of the company staff are working at garment factories and their income are depending on day and night shift. So that not stabled monthly income. Government staff occupation is positively associated with the improvement of living standards and significant at 10% level and positively associated with the improvement of living standards. The government staffs' monthly income is stability to pay loan repayment regularly.

The coefficient of loan repayment below 130,000 (Kyats) is significant at 10% level when influence of holding other independent variables because of monthly installment is lower amount, so that households can get extra money such as saving, buying assets, education, health and expenditure.

The coefficient of loan amount below 130 Lakh is statistically significant at 10% level, which the loan amount was taken less, the loan repayment was less as well.

5.2 Discussions

In this study, results found that the respondents reveal they're of living standards was increased after access the microcredit. Zeller and Meyer (2002) found from the analysis regarding the success of increasing role in decision making process in the family, reveals that microfinance schemes are highly associated to build up of social and economic empowerment.

The results found that that 300,000-600,000 (Kyats) of the family income is improvement of living standards in Shwe Lin Pann Low-Cost Housing. Khan et al. (2007), Impact of Microfinance on Living Standards, Empowerment and Poverty, the results were increased their income and provided not only with the financial help to their families but also had positive impact of microfinance on living standards, empowerment and poverty alleviation of poor people.

This study could not improve that microcredit has impact on welfare provided for microcredit in Shwe Lin Pann Low-Cost Housing. Duong et al. (2014), studied that the impact evaluation of microcredit on welfare of the Vietnamese rural households, especially for the poor, and investigates the determinants on the accessibility to microcredit programs. The researcher found that microcredit has impact on welfare via increasing income per capita per month and subsumption per capita per month.

The results found that impact of microcredit on living standards such as increased living condition, increased general opportunities, increased assets, increased saving, better access education and better access health at the Shwe Lin Pann Low-Cost Housing., NP. (2016), submitted the thesis the effect of microcredit in improving the living standards of the poor people in Tharaka Nithi Counrty. From the analysis that provision of loan facilities and acquiring the necessary skills on how to manage the funds to generate extra income and gain profits serves as a way to improve living standards.

As the result of investigation, identified which research condition is impact of microcredit on living standards in Shwe Lin Pan Low-Cost Housing, Hlaing Tharyar Township. Huang, (2020), Acadia University, microcredit and its impact on developing areas. The result of the regressions was to examine whether the effect size was relationship to specific research conditions, then identifying which research condition impact the effect of microcredit in developing areas.

In this study, occupation, loan amount and loan repayment factors are impact on living standards in Shwe Lin Pann Low-Cost Housing. Sultana1, Jamal et al. (2021),

the impact of microfinance on women empowerment through poverty alleviation: an assessment of socioeconomic conditions in Chennai city of Tamil Nadu. The results found that there is a significant difference between Muslim and non-Muslim respondents in terms of the variables mentioned which could be due to multifarious factors affecting the communities in terms of socio economic, religious and cultural inhibitions.

It was concluded from the analysis that provision of loan facilities and acquiring the necessary skills on how to manage the funds to generate extra income and gain profits serves as a way to improve living standards. Also established from the study is that a community or a household that is financially empowered will be able to educate their children, own apartment and increased living standard, more assets, saving account, health care and more expenditure.

5.3 Recommendations

In view of the recommendations, the study suggests that the measure of advance given to the general public should be expanded to empower their organizations develop to medium scale ventures. From the results of analysis, loan amount and loan repayment are depended on the occupations, occupation is significant at 10% level to improvement of living standards in Shwe Lin Pann Low-Cost Housing.

5.4 Suggestions for Further Studies

It would be better if the government could provide the public recreation center and supermarkets in the compound of low-cost housing with low-income group. The amount of loans given to individuals should be increased to propel transition from their poor living standards. The people were given access to micro credit services should be allowed a grace period before they start repaying the loans. The microfinance institutions demand for the payment immediately of the loans advanced to borrowers should be extended. The main target of the study was to set up the impact of microcredit in enhancing the expectations for daily comforts of the needy individuals in Phase 1, 2 and 3, Shwe Lin Pan Low-Cost Housing, Hlaing Tharyar Township. Further studies concerning the impact of microcredit on living standards of its' users should be conducted in any other suburb areas and urban areas.

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APPENDIX (I)

General Information for Micro-credit Users		
1.	Gender	1. Male 2. Female
2.	Age	1.Below 35 2. 36 - 45 3. Above 45
3.	Marital Status	1.Single 2. Married
4.	Level of Education	1. non-Graduate 2.Graduate
4	Occupation	1. Unemployment 2. Retired and Dependent 3. Public and Private Staff
5.	Monthly family income	1.low 500,000 Ks 2. 500,000 – 700,000 Ks 3. Above 700,000 Ks
6.	Expenditure per month	1. Below 300,000 Ks 2. 300,000 – 600,000 Ks 3. Above 600,000 Ks
7.	Status of accommodation	1. Own 2. Rent 3. Share Living 4. Parents House
8.	Space of room	1. 533 Sqfts 2. 523 Sqfts 3. 468 Sqfts 4. 484 Sqfts
9.	Room's price	1. 98 Lakhs 2. 106 Lakhs 3. 112 Lakhs 4. 120 Lakhs 5. 126 Lakhs 6. 129 Lakhs 7. 132 Lakhs 8. 135 Lakhs

General Information for Micro-credit Users		
10.	Loan amount	1. Below 130 Lakhs 2. 130 Lakhs and above
11.	Loan Period	1. 8 Years 2. 10 Years
12.	Loan Interest Rate	1. 8% 2. 12%
13.	Loan Repayment	1. Below 130,000 Ks 2. 130,000 Ks and Above
14.	Luxury	1. Phone 2. Car 3. Electronic Products
15.	Convenience for you go to downtown	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree
16.	Spend more money after get microcredit	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree
17.	Better living condition	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree
18.	Better increased for food allowance	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree
19.	Better increased assets	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree

General Information for Micro-credit Users		
20.	The savings has increased	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree
21.	Better access to education	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree
22.	Better access to health care	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree
23.	After joining the microfinance improved of your quality of life	1. Yes 2. No

APPENDIX (II)

Table (4.1)

Socio-economic Characteristics of the Respondents

Characteristics	Classification	Number of Respondents	Percentage
Gender	Male	84	27.8
	Female	218	72.2
Age	Below 35	84	27.8
	35-55	81	26.8
	56 and above	139	45.4
Marital status	Single	24	7.9
	Married	278	92.1
Education	Non-graduate	141	46.7
	Graduate	161	53.3
Occupation	Unemployment	10	3.3
	Company Staff	68	22.5
	Government Staff	21	7.0
	Casual Workers	25	8.3
	Own Business	85	28.1
	Retired	31	10.3
	Dependent	62	20.5
Family Income	Below 300,000	8	2.6
	300,000 – 600,000	156	51.7
	Above 600,000	138	45.7

Source: Survey Data (2020)

APPENDIX (III)

Table (4.2)
Frequency Distribution of Rooms' Space

Room Space	Frequency	Percentage
533 sqfts	95	31.5
522 sqfts	31	9.9
468 sqfts	67	22.9
484 sqfts	109	37.2
Total	**302**	**100**

Source: DUHD Data and Primary Data (2020)

Table (4.3)
Frequency Distribution of Rooms' Price

Room's Price	Frequency	Percentage
98 Lakhs	14	4.6
106 Lakhs	52	17.3
112 Lakhs	45	14.9
120 Lakhs	65	21.5
126 Lakhs	36	11.9
129 Lakhs	23	7.6
132 Lakhs	30	9.9
135 Lakhs	37	12.3
Total	**302**	**100**

Source: DUHD Data and Primary Data (2020)

Table (4.4)
Respondents' Opinion after accessing of the Microcredit

Variables	Mean	Std. Deviation
Better living condition	3.83	0.759
Better increased general opportunities and living standards	3.80	0.920
Better increased assets	3.39	1.102
The savings has increased	3.78	0.857
Better access to education	3.72	0.804
Better access to health care	3.78	1.01
The expenditure has increased	1.98	0.471

Source: Primary Data (2020)

APPENDIX (IV)

Table (4.5)

Association between improvement of Living Standards and Socio-economic and Microcredit

Variable	Classification	Improvement of Living Standard		χ^2	P-value
		No	Yes		
Gender	Male	39	45	0.140	0.708
	Female	96	122		
Age	Under 35	35	49	1.077	0.584
	35-55	40	41		
	Above 55	60	77		
Marital Status	Single	7	17	2.546	0.111
	Married	128	150		
Education Level	No Graduate	64	77	0.051	0.822
	Graduate	71	90		
Occupation	Unemployment	5	5	10.834	0.094*
	Company Staff	37	31		
	Government Staff	4	17		
	Casual Workers	9	16		
	Own Business	38	47		
	Retired	17	14		
	Dependent	25	37		
Family Income	Below 300,000 Ks	3	5	1.576	0.455
	300,000 – 600,000 Ks	65	91		
	Above 600,000 Ks	67	71		
Loan Period	6 Months	4	5	2.674	0.263
	8 Years	76	109		
	10 Years	55	53		
Loan Repayment	Below 130000	80	85	2.106	0.147
	130000 and above	55	82		
Loan Payment	Below 130 Lakhs	54	76	0.924	0.336
	130 lakhs and above	81	91		

*** ** * , , Statistically significant at 1%, 5% and 10% level.

Source: SPSS Output

APPENDIX (V)

Table (4.6)

Model Fitting of Improvement of Living Standards

Model fitting criteria	Chi-square	df	P value
Hosmer and Lemeshow Test	17.061	8	0.029
Omnibus Test Model Coefficients	16.412	12	0.173
Cox & Snell R Square	0.054		
Nagelkerke R Square	0.109		
Overall Correct Percentage	89.1		

Source: Own Calculation

APPENDIX (VI)

Parameter Estimates of Binary Logistic Regression Model for Improvement of Living Standards

Sources of information	B	Wald	Sig	Exp(B)
Constant	-1.402	1.092	0.296	0.246
Gender				
Male	0.175	0.352	0.553	1.191
Female (Ref:)				
Age				
Under 35	0.178	0.242	0.623	1.195
35-55	-0.095	0.088	0.767	0.910
55 Above (Ref:)				
Marital status				
Single	0.856	2.629	0.105	2.353
Married (Ref:)				
Education				
Non-Graduate	0.037	0.019	0.889	1.038
Graduate (Ref:)				
Occupation				
Unemployment	0.143	0.034	0.853	1.154
Company Staff	-0.763	3.505	0.061*	0.466
Government Staff	1.184	3.451	0.063*	3.267
Casual Workers	0.341	0.415	0.519	1.406
Own Business	-0.013	0.001	0.974	0.987
Retired	-0.520	1.172	0.279	0.595
Dependent (Ref:)				
Family Income				
Below 300,000 Ks	-0.129	0.024	0.878	0.879
300,000 – 600,000 Ks	0.097	0.134	0.714	1.102
Above 600,000 Ks (Ref:)				
Loan Period				
6 Months	0.312	0.153	0.696	1.366
8 Years	0.507	2.112	0.146	1.661
10 years (Ref:)				
Loan Repayment				
Under 130000ks	-0.655	3.754	0.053*	0.519
130000ks and above (Ref:)				
Loan Amount				
Below 130 Lakhs	0.698	4.512	0.034**	2.009
130 Lakhs and above (Ref:)				

Source : SPSS Output

***, **, *, Statistically significant at 1%, 5% and 10% level.

a. Variable (s) entered on step: Gender, Age, Marital status, Education, Occupation, Family income, Loan period, Loan frequency, Loan repayment, Loan amount