YANGON UNIVERSITY OF ECONOMICS

DEPARTMENT OF STATISTICS

DETERMINANTS OF EMPLOYMENT STATUS OF WOMEN IN KONE GYI VILLAGE TRACT, HINTHADA TOWNSHIP

BO BO HTUN

M.Econ (Statistics)

Roll No.5

NOVEMBER, 2019

YANGON UNIVERSITY OF ECONOMICS

DEPARTMENT OF STATISTICS

DETERMINANTS OF EMPLOYMENT STATUS OF WOMEN IN KONE GYI VILLAGE TRACT, HINTHADA TOWNSHIP

BY

BO BO HTUN

M.Econ (Statistics)

Roll No.5

NOVEMBER, 2019

YANGON UNIVERSITY OF ECONOMICS

DEPARTMENT OF STATISTICS

DETERMINANTS OF EMPLOYMENT STATUS OF WOMEN IN KONE GYI VILLAGE TRACT, HINTHADA TOWNSHIP

This thesis is submitted to Board of Examination as partial fulfillment of the requirement for degree of Master of Economic (Statistics).

Approved by the Board of Examiners

Supervised by:

Daw Thida Win
Lecturer
Department of Statistics
Yangon University of Economics

Submitted by:

Bo Bo Htun
M.Econ (Statistics)
Roll No. 5

NOVEMBER, 2019

YANGON UNIVERSITY OF ECONOMICS

DEPARTMENT OF STATISTICS

This is to certify that thesis entitled **"Determinants of Employment Status of Women in Kone Gyi Village Tract"**, submitted as a partial fulfillment towards the requirements of the Degree of Master of Economics (Statistics) has been accepted by the Board of Examiners.

BOARD OF EXAMINERS

(Chairman)
Professor Dr. Tin Win
Rector
Yangon University of Economics

Prof. Dr. Ni Lar Myint Htoo
Pro-Rector
Yangon University of Economics

(Chief Examiner)
Prof. Dr. Maw Maw Khin
Professor and Head
Department of Statistics
Yangon University of Economics

(Examiner)
Prof. Dr. Cing Do Nem
Professor
Department of Statistics
Yangon University of Economics

(Exernal Examiner)
Dr. Daw Aye Aye Than
Associate Professor (Retd.)
Department of Statistics
Yangon University of Economics

(Examiner)
Daw Aye Aye Maw
Associate Professor
Department of Statistics
Yangon University of Economics

NOVEMBER, 2019

ABSTRACT

This thesis is attempted to study the employment status of women in Kone Gyi Village Tarct. The objectives of this thesis are to study the current socio-economic and demographic characteristics of women and to explore the determinants of employment status of women in Kone Gyi Village Tract. The sample survey was made from 280 women randomly selected from Kone Gyi Village Tract. According to the results, most of the women are 16.79% in the age group 28 to 32 years. Almost all respondents are Bamar and some of are Kayin. Most of the women have the primary school level and middle school level education. Nearly 37% of the women employed in own business and the number of 97 respondents were jobless. The multinomial logistic regression analysis has been applied to the data from these survey to determine the effective factors on the types of jobs. Furthermore, women age, educational level, marital status, enough income and previous paid job are statistically significant in multinomial logistic regression model.

ACKNOWLEDGEMENTS

First of all, I would like to express my deepest gratitude to Professor Dr. Tin Win, Rector of Yangon University of Economics, for allowing me to develop this thesis.

I am also thanks to Dr. Ni Lar Myint Htoo, Pro-Rector of Yangon University of Economics, for supporting to carry out this thesis.

I am greatly indebted to Professor Dr. Maw Maw Khin, Head of Department of Statistics, Yangon University of Economics, for her permission, valuable suggestions and recommendations to prepare this thesis study.

I would like to express my indebtedness to Professor Dr. Mya Thandar, Department of Statistics, Yangon University of Economics, for her valuable suggestions and recommendations to improve my thesis.

I would like to express my indebtedness to Professor Dr. Cing Do Nem, Department of Statistics, Yangon University of Economics, for her valuable suggestions and recommendations to improve my thesis.

I would like to express my indebtedness to Associate Professor Daw Aye Aye Than (Retd.), Department of Statistics, Yangon University of Economics, for her valuable suggestions and recommendations to improve my thesis.

I would like to express my indebtedness to Associate Professor Daw Aye Aye Maw, Department of Statistics, Yangon University of Economics, for her valuable suggestions and recommendations to improve my thesis.

I would like to express my special thanks and high indebtedness to my co-supervisor, Daw Khin Nu Win, Associate Professor and my supervisor, Daw Thida Win, Lecturer, Department of Statistics, Yangon University of Economics, for her valuable guidance, helpful advice and supervision.

Finally, I sincerely thank all my teachers, all my colleagues and my guardians and their families for their encouragements and helpful advice on my study.

CONTENTS

LIST OF TABLES

TABLES **PAGE**

LIST OF FIGURES

LIST OF ABBEREVIATIONS

DFID	UK Department for Implementation Development
FGD	Focus Group Discussion
INGO	International Non-Government Organization
UN	United Nation
WCED	World Commission on Environment and Development
CSOs	Civil Society Organization
LPM	Linear Probability Model
LR	Likelihood Ratio
NSPAW	The National Strategic Plan for the Advancement of Women
MDG	Millennium Development Goal
TVET	Technical & Vocational Education & Training

CHAPTER I
INTRODUCTION

1.1 Rationale of the Study

Myanmar is covered 15 states/regions, with 74 districts, 330 townships, 83 sub-townships, 396 towns, 3045 wards, 13276 village tracts and 67285 villages. The total population of Myanmar is estimated 51,486,253 million as of 2014 Myanmar Census. In all areas under study, 30 % of population is living in urban areas and 70 % of population is living in rural areas. Development of rural community is very important for the development of poor country. Inevitably, the consequences of poor economic performance affect more the population who are living in the rural areas. Since rural development and economic development of a country are largely interdependent each other, economic development cannot be obtained without rural development.

There are 24,824,586 millions of male population and 2,661,667 million of female population in 2014 Myanmar Census. The number of males and females are 48.21% and 51.78% respectively. Hence, female-population is greater than male-population. But working age population for male is 85.2% and female is 50.5% in Myanmar. There is a big difference between working men and working women with the decreasing of working age population of women. Decreasing of working age population will be decreased the national economic of Myanmar. There are many factors such as age, marital status, education, husband's income and the number of children to be considered for making decision of bearing a woman to be in the workforce.

In the rural areas, the scarcity of gainful employment is coupled with poverty has pushed people out of their villages in search of a better existence in the cities of developing countries. Besides, some people live in their villages or towns but they cannot sustainable their life in no livelihood. Furthermore, due to the unemployment and not enough income in rural, working people had been displaced from rural areas. Peasant and other people seeking work as well as comfortable to live, have moved to urban areas where employment opportunities in the formal sector are very limited. In addition to this, poverty and lack of gainful employment in the rural area move to large numbers of people in the cities for livelihoods.

These people generally possess low level of education but skill for the better paid jobs. In the absence of jobs in the public and private sectors, they had no option where to go but put up their own business to earn their livelihoods. Most of them have low skilled who have moved from rural areas in search of employment, some conflict affected, and others are well educated. These people are unemployment because they did not find other means of livelihoods. Though the income in this profession is low, the investment is low and the people do not require specials skills or training.

If the women is developed, family, society and country will be developed. Today's women are supplementing the family income using their potential and skills that they possess. Some women, they can work parallel with men in some business. It is good for family generating; enough income from both husband and wife. There is an evidence that gender equality significantly contributes to sustainable development. The working age population contributed and will continue to contribute their efforts and skills to enhancing productivity and competitiveness. It is very significant component of national economies for several reasons: it provides goods and service at a low price, do not have job opportunities for earning income to the indigenous city resident and migrant poor and, finally the role of a reservoir of the individual reserve government that holds down ways for the rural economy.

Since majority of Myanmar's population is living in rural areas, government should attempts to promote their community of rural and urban by all means without some succeed while others fail. People below the legal working age will also provide in the years ahead, subject to proper schooling, skills or professional training, the human capital necessary to drive Myanmar's economic transformation. The National Strategic Plan for the Advancement of Women 2013-2022 (NSPAW) also highlights that increasing women's livelihood opportunities in economic sectors help smart economics, enhancing productivity and improving other development outcomes.

The Ayeyarwaddy Region is of interest it has lagged behind in terms of economic development. The main GDP sectors such as agriculture, livestock and fishery are growing in Ayeyarwaddy Region. It is second largest population in Myanmar. But, most of the people in the rural area of this region are moved to other urban area of states and regions because of their education, family conditions, lack of jobs creation and etc. Hence, this thesis attempts to study socio-economic conditions of rural area and the condition of working age women on the basis of Kone Gyi Village Tract of Hinthada District in Ayeyarwaddy Region. The descriptive statistics

incorporate the use of tables and percentages in term of age, sex and occupational level, social and academic status and the logistic regression model will be used to study the employment status of women in Kone Gyi Village Tract in Hinthada District. Moreover, the finding can be used as a guide to creating effective strategies for improving manpower and employment as well as maximizing its business revenue.

1.2 Objectives of the Study

The objectives of the study are;

(i) To examine the demographic and socio-economic characteristics of women ` aged (15-64) years in Kone Gyi Village Tract.

(ii) To explore the determinants that are influence on employment status of women aged (15-64) years.

1.3 Method of Study

In this study, the determinants of employment status of women in Kone Gyi Village Tract has been analyzed based on the primary survey data. The total population of the study is 1024 women who lived in Kone Gyi Village Tract. The required sample sizes are 280 women by calculating with Cochran method in appendix I. The stratified random sampling method is used and each village in this tract is taken as each stratum. The sample size of each stratum is determined by using the proportional allocation method. The sample size determination and the corresponding allocation for each stratum are also presents in appendix II. The questionnaire was presented in appendix III. The descriptive method is conducted to investigate the socio-economic and demographic characteristics of women aged (15-64). Moreover, Multinomial Logistic Regression analysis was used to identify the factors affecting on the types of job of women in the village Tract.

1.4 Scope and Limitations of the Study

In this study, the required data were collected from Kone Gyi Village Tract, Hinthada Township. The face to face interview method was applied to obtain the employment status of women aged (15-64) years in this village tract. This survey was conducted during August 18^{th} to September 2^{nd} 2019.

1.5 Organization of the Study

This thesis is organized into five chapters. Brief outlines of these chapters are as follows: Chapter I is the introductory chapter, includes the rationale of the study, objectives of the study, method of study, scope and limitations of the study and organization of the study. Chapter II presents the literature review. Chapter III describes research methodology. Chapter IV contains results and findings. Chapter V is conclusion with discussions, suggestions and needs for further research.

CHAPTER II
LITERATURE REVIEW

2.1 Introduction

Women are the backbone of every family. As a daughter, wife and mother they are sincere towards their roles and responsibilities. They are a social and emotional supporter. They are a caretaker. When there is a time of crisis and misshapen for the family, then women come out from the seclusion of men. At time, there are unforeseen circumstances such as critical illness or death. In such case, the wages of a working woman provide the much-needed support and financial stability. An increasing number of girls in professional educational institutes determines their entry in the formal work sector. Now they have entered into the world of paid economy. They have one more role that demands more responsibilities. Working women have a dual role, dual burden and dual responsibilities. They are enough capable to prove their efficiency.

2.2 Education of Women and Labor Force Participation

Theories of human capital predict that an increase in skills would provide women a greater opportunity to earn higher wages, and this in turn would increase women's labor force participation (Smith and Ward 1985; Goldin 1990; England, Garcia-Beaulieu, and Ross 2004). In most developed countries, increases in education cause an increase in women's labor force participation (Cain 1966; Tienda, Donato, and Cordero-Guzman 1992; England, Gornick, and Shafer 2012). Interestingly, however, the story is often quite different in the low and middle-income countries. In Peru, King (1990) reported that while education was associated with a decline in women's labor force participation, it did increase the proportion of women in paid employment. On the other hand, in Ecuador, Jakubson and Psacharopoulos (1992**)** find that schooling has a positive effect on women's labor force participation even though the effect is small.

Reports from South Asia have often highlighted a generally negative relation between increased levels of education and decreases in women's workforce participation rate, noting that illiterate women are more likely to be employed than educated women (Satharzand Desai 2000; Das and Desai 2003). Other studies with more educational detail (e.g., Reddy 1979) find a J-shaped relationship between women's education and their labor force participation with increases only at the highest

educational levels. Others (Mathur 1994, Kingdon and Unni 2001, Das 2006) find a U-shaped relationship with schooling beyond the junior/middle level enhances women's wage work participation.

2.3 Family Income and Women's Labor Force Participation

Increases in women's labor force participation as education increases (as predicted by human capital theory) could be depressed somewhat due to the income effect of other family income. More educated women are likely to marry more educated men with higher incomes. If family income is high, women would have less incentive to work (Goldin 1990, England, Gornick, and Shafer 2012). Abraham (2013) argues that the rising incomes of Indian households have enabled Indian women to withdraw from the labor market and focus on their role in "status production". As with the United States at the turn of the century, one of the markers of the household having attained a middle class status may be to ensure that women from these burgeoning middle classes do not have to work (Treas 1987). Using unit level data from the National Employment Survey in urban areas of India, Klasen and Pieters (2015) have confirmed that rising levels of household income play an important role in declining rates of women's labor force participation.

2.4 Family and Women's Labor Force Participation

The family institution affects women's participation in the labor market in two ways. First, family drives women's economic activity in society. For much of history, men have had more economic independence than women. Although feminist movements around the world have aimed to achieve economic independence for women, many women worldwide are involved in the labor force because of economic need rather than for economic independence (Arun, Arun & Borooah, 2004; Eggebeen & Hawkins, 1990). Global economic changes have resulted in increased living expenses (e.g. health care, education, food, and utilities). As a result, in many countries the economic motive for women's work has changed from providing basic necessities for the family to covering the increased expectations of a higher standard-of-living. Therefore, economic pressures on dual-earner families may continue to increase the rate of women's participation in the labor market (Arun et al., 2004; Eggebeen & Hawkins, 1990). Second, family often supports women's participation in the labor

market. In many countries that have experienced declining birth rates or the movement of populations, the absence of the extended family negatively influences women‘s participation in the labor market. The extended family generally provides social support for women. For example, women may need less maternity and sick leave when an extended family member such as a grandmother, can provide childcare. In the nuclear family, working mothers tend to use childcare centers, more maternity leave and more sick leave so they can simultaneously manage work and family (Sullivan & Hodson, 2002).

2.5 Economic Development and Women's Rights

Empirically, there is a strong correlation between economic development and women's legal rights, in areas as diverse as property rights, access to land, access to bank loans, violence against women, abortion policy, etc. Doepke and Tertilt (2009) show a robust negative correlation of 0.4 or higher across countries between the lack of rights and GDP per capita. Historically, the expansion of economic rights to women in the United States and Europe preceded their access to political rights (Doepke and Tertilt 2009; Fernandez 2009). While it is of course impossible to infer causality from the data, two lines of argument suggest why economic growth could lead men to willingly surrender economic rights to their wives. Doepke and Tertilt (2009) argue that, when the importance of human capital in the economy increases (with technological progress), men start to be willing to surrender some rights to women to ensure that children get better educated (the argument requires that women care more about children's human capital and that bargaining power matter for household decisions, which we will discuss below). The trade-off is between their utility today and the utility of their offspring (children, grandchildren, and future generations). Fernandez's (2009) argument is slightly different, although related: she argues that as fertility declines, fathers' interest as husbands (who would like to have all the rights), start to conflict with their interest as fathers (who would like to protect their daughters against their future son-in-laws). With economic growth and a decline in fertility, the balance starts tilting towards the latter interest, and women's economic rights are expanded. Doepke and Tertilt provide some historical narrative that is consistent with their theory, and Fernandez some suggestive evidence from the granting of rights to women in the United States that states that had a faster reduction in fertility were more

likely to expand women's rights. Empirically, there remains much more to be done, and this is a very interesting area of research. These two papers provide convincing theoretical arguments, however, that economic growth can lead to a progression in women's rights. In fact, Doepke and Tertilt explicitly conclude that institutions such as the World Bank that are interested in women's rights would be well inspired to focus on programs favorable to economic development (such as education policy), rather than push for direct legislative changes for women's rights.

2.6 Culture and Women's Labor Force Participation

Hofstede and Hofstede (2005, p 6) state, ―Every person carries within himself or herself patterns of thinking, feeling, and potential acting that were learned throughout their lifetime.‖ These patterns manifest as culture and are an integral part of labor market development. Austen (2000) argues that culture largely determines the value and significance that individuals attach to alternative labor market actions and outcomes. Particular aspects of culture, such as social norms, also help to define individuals 'boundaries regarding their culturally defined objectives in the labor market. Cultural perspectives are relevant to a range of important labor market issues including the participation of women in the paid workforce, occupational choices, aspects of the wage structure and levels of effort and motivation. This cultural perspective has been recognized as a fundamental component in understanding how labor markets work, especially the dynamic aspects of the growth and survival of labor market institutions (Austen, 2000). Women's participation in the labor market, and consequently the work/care regime, has been associated with three main cultural aspects: gender roles, national culture and social expectations (Bolak, 1997; Clark, Ramsey & Adler, 1991; Cunningham, 2008b; Grimshaw, Murphy & Probert, 2005).

2.7 Challenges Faced by Working Women

There are various types of issues that woman have to face throughout her work life and home life. These issues create an environment of pressure for working women. They have to take care of their children and older in their homes, Rale of a care provider to the children and the aged, which predominantly requires physical labor. Balancing acts as a working woman and a wife, means they have to perform a dual responsibility. For balancing this type of dual pressure women are affected by various types of psychological, social and physical problems. There are being challenged by the

demands of their institutions versus the commitment of their home (Lakshmi & Gopinath, 2003). Family and work conflicts are more likely to apply negative influences in the family domain, resulting in lower life satisfaction and greater internal conflict within the family. Work and family have have increasingly become adversary spheres; both are equally demanding energy and time; both are equally responsible for work-life and family life conflicts (Balaji, 2014).

Gobalakrishnan and Gandhi (2003) in their study "Working Women and their problems in daily life: A Sociological Analysis" conducted a survey on the women who are working in the colleges in the Tiruvannamalai District to find out their daily life's problems. Even though most (72%) of the respondent is living in the joint family, but they are expressing the problems like anxiety, depression and inferiority complex in their daily life. The economic condition of the family pushes them to go to work, but nobody supports them in the family matters. So the study suggested that when the married women go for work, then the family members, including the husband should support them in various household activities and that they relieve them from various problems and the pressure of both families as well as work environment.

Joshi et al. (2014) examine the stress of working women in the education field. The study utilizes the sample of 50 Assistant Professors of different streams of Bhilai Mahila Mahavidyalaya Hospital Sector, Bhilai. By using self-designed questionnaire the study revealed that excessive work was the main reason the increasing rate of stress among working women. Over expectations and overburden of responsibilities made them anxious and depressed. They have to act, react and perform according to the role demands, they cannot say no to their families and office authorities.

Krishnan (2014) tries to analyze the mental and physical stress among working women, the various factors that contribute to stress. They study was conducted among 100 working women from different sectors in Bangalore city on the basis of stratified random sampling methods. The study reveals that multiple role demands and conflicting expectations create an environment of work pressure. Multitasking creates an environment of stress for women where they have to perform extra economic roles as well as the same household roles and responsibilities.

CHAPTER III
RESEARCH METHODOLOGY

3.1 Types of Relationship between Variables

Every day, all of people make personal and professional decisions based upon predictions of future events. To make these forecasts, they rely upon the relationship between what is already known is related to the future event, they can aid the decision making process considerably. That is the subsection of this chapter: how to relationship between variable.

The primary objective of regression analysis is to estimate the value of a random variable (the dependent variable) given that the value of an associated variable (the independent variable) is known. The dependent variable is also called the response variable, while the independent variable is also called the predictor variable. The regression equation is the algebraic formula by which the estimated value of the dependent variable is determined.

Regression and correlation analyses will show to determine both the nature and strength of relationship between two variables. To carry on the regression and correlation analyses, the value of unknown variable based on past observation of that variable and others. In regression analysis, the estimation equations (models) are developed. That is, a mathematical formula that related the known variable to the unknown variable. Then, after the pattern of relationship, correlation analyses are needed to determine the degree to which the variables are related. Correlation analysis, then, tell how the estimating equation actually describes the relationship.

In regression, dependent variables have only one in proposed estimating equation. However, the independent variables are used more than one variable. Often, the independent variables are adding to the model, improve the accuracy of prediction that is being studies.

3.2 Logistic Regression

Logistic regression, like multiple regression, are useful to predict an outcome or dependent variable from a set of predictor variables. They are similar to a linear regression in many ways. However, logistic regression analysis are more appropriate when the dependent variable is categorical. It is useful because it does not rely on some of the assumptions on which multiple regression analysis are based. As with other forms of regression, multicolinearity (high correlations among the predictors) can lead to problems for logistic regression.

Logistic regression is helpful to predict a categorical variable from a set of predictor variables. Binary logistic regression is similar to linear regression except that it is used when the dependent variable is dichotomous. Multinomial logistic regression is used when the dependent / outcome variable has more than two categories. Logistic regression is also useful when some or all of the independent variables are dichotomous; others can be continuous.

3.3 Assumptions of Logistic Regression

There are fewer assumptions for logistic regression than for multiple regression which is one reason that this technique has become popular, especially in health related fields. Binary logistic regression assumes that the dependent or outcome variable is dichotomous and, like most other statistics, that the outcomes are independent and mutually exclusive; that is, a single case can only be represented once and must be in one group or the other. Finally, logistic regression requires large samples to be accurate: Some say there should be a minimum of 20 cases per predictor, with a minimum of 60 total cases. These requirements need to be satisfied prior to make statistical analysis with SPSS. As with multiple regression, multicollinearity is a potential source of confusing or misleading results and need to be assessed.

3.4 Logit Model

Both theoretical and empirical considerations suggest that when the response variable is binary, the sample of the response function will frequently be curvilinear. The response functions are shaped either as a little S or a reverse titled S, and that they are approximately linear except at the ends. These response functions are often referred

to as sigmoidal. They have asymptotes at 0 and 1 and thus automatically meet constraints on E(Y).

The commonly used non-linear probability models are logit and probit models. The two distributions are most often employed the standard normal distribution and the standard logistic distribution. The standard normal distribution employed can be called a probit and the standard logistic distribution, as logit.

3.4.1 Functional Form

The simple logit model is expressed as

$$\pi_i = \frac{\exp(\sum \beta_k X_{ik})}{1+\exp(\sum \beta_k X_{ik})}$$

$$\pi_i = \frac{\exp(x_i' \beta)}{1+\exp(x_i' \beta)} \qquad (3.4.1)$$

Letting $Z_i = \sum \beta_k X_{ik}$

$$\pi_i = \frac{e^{z_i}}{1+e^{z_i}}$$

$$= \frac{1}{1+e^{-z}} \qquad (3.4.2)$$

3.4.2 Features

The features of the logit model are as follows:

Logistic regression effects can be expressed in terms of percent in the odds. Odds ratios are useful in estimating changes in the probability of event occurrences with changes in predictors once probability has been calculated.

$$\pi_i = \frac{e^{z_i}}{1+e^{z_i}}$$

$$1-\pi_i = 1- \frac{e^{z_i}}{1+e^{z_i}}$$

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

$$= \frac{1}{1+e^{z_i}} \qquad (3.4.3)$$

The ratio of Equation (3.4.2) to (3.4.3),

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

$$= e^{z_i} \qquad (3.4.4)$$

$\frac{\pi_i}{1-\pi_i}$ Can be called the odds ratio.

Take the natural log of Equation (3.4.2),

$$L_i = \text{Ln}\left(\frac{\pi_i}{1-\pi_i}\right)$$

$$= Z_i$$

$$= \sum \beta_k X_{ik} \qquad (3.4.5)$$

The logit L goes from -α to +α as π goes from 0 to 1. That is, although the probabilities (of necessity) lie between 0 and 1, the logits are not so bounded.

(1) Although L is linear in X, the probabilities themselves are not. This property is in contrast with the LPM model where the probabilities increase linearly with X.

(2) Although we have included only a single X variable, or regressor, in the preceding model, one can add as many regressors as may be dictated by the underlying theory.

(3) If L, the logit, is positive, it mean that when the value of the regressor(s) increases, the odds that the regressand equal 1 (meaning some event of interest happens) increases. If L is negative; the odds that the regressand equal 1 decreases as the value of X increase. To put it differently, the logit becomes negative and increasingly large in magnitude as the odds ratio decreases from 1 to 0 and becomes increasingly large and positive as the odds ratio increases from 1 to infinity.

(4) More formally, the interpretation of the logit model given in Equation (3.4.5) is as follows: β_2, the slope, measure the change in L for a unit change in X. The intercept β_1 is the value of the log-odds in favor of occurring an event if the other event does not occur (or) is zero.

(5) If odds ratio do not want to estimate in favor of event but the probability of event itself, this can be done directly from Equation (3.4.2) once the estimates of $\beta_1$and β_2 are available.

(6) Whereas the LPM assumes that π_i is linearly related toX_i, the logit model assumes that the log of the odds ratio is linearly related toX_i.

3.4.3 Estimation

A logistic response function is either monotonic increasing or monotonic decreasing, depending on the sign of the slope coefficients. It can be linearized easily. Logistic response functions, like the nature response function which have been considered are used for describing the nature of the relationship between the mean response and one (or more) predictor variable(s). They are also used for making predictions. The weighted least squares and maximum likelihood estimation procedures can be used to estimate the parameters of the logistic response function.

For estimation purposes, consider Equation (3.4.5), that is

$$L_i = \text{Ln}\left(\frac{\pi_i}{1-\pi_i}\right) = \sum \beta_k X_{ik} \qquad (3.4.6)$$

In estimating the above equation, Logit, L_i depends on the two types of data which are categorized by

(1) data at the individual, or micro level, and

(2) grouped or replicated data

Individual Data

Let π_i = 1 if the event occurs

π_i = 0 if the event does not occur.

If the values put directly into the logit, L_i , it is obtained as

L_i = Ln $(\frac{1}{0})$ if an event occurs

L_i = Ln $(\frac{0}{1})$ if an event does not occur.

Obviously, these expressions are meaningless. Therefore, if the data are situated at the micro, or individual level, the model cannot be estimated by the standard OLS routine. In this situation, maximum likelihood method can be used to estimate the parameters. This method is well suited to deal with the problems associated with the responses Y_i being binary. Instead of using the normal distribution for the binary random variable Y, Bernoulli distribution will be used to develop the joint probability of the sample observations.

Since each Y_i observation is an ordinary Bernoulli random variable, where;

$$P = (Y_i = 1) = \pi_i$$

$$P = (Y_i = 0) = 1 - \pi_i$$

Its probability distribution is represented as follows:

$$F_i = Y_i = \pi_i^{Y_i} (1 - \pi_i)^{1 - Y_i}; \; Y_i = 0, 1; \; i = 1, 2, \cdots, n \qquad (3.4.7)$$

Here, $F_i(1) = \pi_i$ and

$F_i(0) = (1 - \pi_i)$

Hence, $F_i(Y_i)$ simply respondents the probability that $Y_i = 1$ or 0.

Since the Y_i observations are independent, their joint probability function is:

$$g(Y_i, \ldots, Y_n) = \prod_{i=1}^{n} f_i(Y_i)$$

$$= \prod_{i=1}^{n} \pi_i^{Y_i} (1 - \pi_i)^{1 - Y_i} \qquad (3.4.8)$$

Again, it will be easier to find the maximum likelihood estimates by working with the logarithm of the joint probability function.

$$Log_e \, g(Y_i, \ldots, Y_n) = Log_e \prod_{i=1}^{n} \pi_i^{Y_i} (1 - \pi_i)^{1 - Y_i}$$

$$= Log_e \prod_{i=1}^{n} \left(\frac{\pi_i}{1 - \pi_i}\right)^{Y_i} (1 - \pi_i)$$

$$= \sum_{i=1}^{n} \left[Y_i Log_e \left(\frac{\pi_i}{1 - \pi_i}\right) \right] + \sum_{i=1}^{1} Log_e (1 - \pi_i) \qquad (3.4.9)$$

Since $E(Y_i) = \pi_i$ for a binary variable, it follows from Equation (3.4.1), and according to equation (3.4.9) can be expressed as follows:

$$Log_e \, L(\beta) = \sum_{i=1}^{1} Y_i \sum \beta_k X_{ik} - \sum_{i=1}^{1} log_e \, [1 + \exp(\sum \beta_k X_{ik})] \qquad (3.4.10)$$

Where $L(\beta)$ replaces $g(Y_i, \ldots, Y_n)$ to show explicitly that function can be viewed as the likelihood function of the parameters to be estimated, given the sample observation.

Equation (3.4.10) can be expressed more clearly as follows:

$$\text{Log } (L(\beta)) = \sum_{i=1}^{1} Y_i Log(\pi_i) + \sum_{i=1}^{1} (1 - Y_i) \, Log(1 - \pi_i)$$

$$= \sum_{i=1}^{1} Y_i Log(F(x_i' \beta)) + \sum_{i=1}^{1} (1 - Y_i) \, Log(1 - F(x_i' \beta))$$

$$= \sum_{i=1}^{1} Log(1 - F(x_i' \beta)) + \sum_{i=1}^{1} Log(1 - F(x_i' \beta)) \qquad (3.4.11)$$

The maximum likelihood estimates of β in the logistic regression model are those values of β that maximize the log-likelihood function in Equation (3.4.10). No

closed-from solution exists for the values of β in Equation (3.4.10) that maximize the log likelihood function. There are many widely used numerical search procedures; one of these employs iteratively reweighted least squares.

Once the maximum likelihood estimates are found, these values are substituted into the response function in Equation (3.4.1) to obtain the fitted response function.

The fitted logit model is as follows:

$$\hat{\pi}_i = \frac{\exp\ (\sum b_k X_{ik}\ )}{1+\exp(\sum b_k\ X_{ik}\ )} \tag{3.4.12}$$

If the logit transformation is utilized in Equation (3.4.5), the fitted response function in Equation (3.4.11) can be expressed as follows:

$$\hat{L}_i = \sum b_k\ X_{ik} \tag{3.4.13}$$

Where,

$$\hat{L}_i = \ln\ (\ \frac{\hat{\pi}}{1-\hat{\pi}}\ ) \tag{3.4.14}$$

Once the fitted logit model has been obtained, the used next steps are to examine the appropriateness of the fitted response function and, if the fit is good, to make a variety of inferences and predictions.

Grouped or Replicated Data

Let N_i = total number of observations

n_i = no. of possibility among the interest category ($n_i \leq N$)

Therefore, π_i can be estimate of the true π_i corresponding to eachX_i. If N_i is fairly large, $\hat{\pi}_i$will be a responably good estimate of π_i .

Using the estimate$\hat{\pi}_i$, the estimated logit can be obtained as

$$\hat{L}_i = \ln\ (\ \frac{\hat{\pi}}{1-\hat{\pi}}\ )$$

$$=\hat{\beta}_1 + \hat{\beta}_2 X_{i2} + \hat{\beta}_3\ X_{i3} + \cdots + \hat{\beta}_k X_{ik} \tag{3.4.15}$$

Which will be a fairly good estimate of the true logit L_i if the number of observations N_i at each X_i is reasonably large.

If N_i is fairly large and if each observation in a given X_i is distributed independently as a binomial variable, then

$$u_i \sim \mathrm{N}\left[0, \frac{1}{N_i \pi_i (1-\pi_i)}\right]$$

That is, u_i follows the normal distribution with zero mean and variance equal to$1/[N_i\pi_i(1-\pi_i)]$. Therefore, as in the case of LPM the disturbance term in the logit model is heteroscedastic. Thus, instead of using OLS we will have to use the weighted least squares (WLS).

For empirical purpose, replace the unknown π_i by $\hat{\pi}_i$ and use

$$\hat{\sigma}^2 = \frac{1}{N_i\hat{\pi}_i(1-\hat{\pi}_i)} \text{ as an estimator of } \hat{\sigma}^2 \tag{3.4.16}$$

3.5 Multinomial Logistic Regression Model

Regression Analysis is a statistical process of estimating relationships among variables. There are different types of regression analysis for different types of data. The methodology used to model the crush data was Multinomial Logistic Regression. The raw data set consists of values which are ordinal and nominal. Multinomial Regression is used when the dependent variable is nominal and for which the number of categories are more than two. There is no natural ordering in the independent variables. One of the assumption of Multinomial Logistic Regression is that the dependent variable cannot be perfectly predicted by the independent variables for any case. Multinomial Regression uses the maximum likelihood ratio to determine the probability of the categorical membership of the dependent variable. One of the reasons of Multinomial Logistic Regression is a good choice for this data is that when dependent variable is a qualitative variable, the error term cannot follow normal distribution and they are hetroscedasticity.

In many cases, there are more than two choices of qualitative available. To make decision, there are several alternatives to be chosen. If a decision among multiple alternatives is truly made simultaneously, a better approach is used to build a multinomial logit model of the decision. It is an extension of the binomial logit technique that allows more than two discrete alternatives to be considered at the same time.

The expected value of Y_i is

$$E(Y_i) = \pi_i = \frac{e^{(\alpha+\beta_1 X_{i1}+\beta_2 X_{i2}+\cdots+\beta_p X_{ip})}}{1+e^{(\alpha+\beta_1 X_{i1}+\beta_2 X_{i2}+\cdots+\beta_p X_{ip})}} \tag{3.5.1}$$

In matrix natation,

$$\beta_{(p+1)\text{x}1} = \begin{bmatrix} \beta_0 \\ \beta_1 \\ . \\ . \\ . \\ \beta_p \end{bmatrix} X_{(p+1)\text{x}1} = \begin{bmatrix} 1 \\ X_1 \\ X_2 \\ . \\ . \\ . \\ X_i \\ . \\ . \\ . \\ X_p \end{bmatrix} X_{(p+1)\text{x}1} = \begin{bmatrix} 1 \\ X_{i1} \\ X_{i2} \\ . \\ . \\ . \\ X_{ip} \end{bmatrix} \quad (3.5.2)$$

The multiple logistic response function is as follows:

$$\text{E(Y)} = \pi = \left[\frac{\exp(\beta' X)}{1+\exp(\beta' X)}\right]$$

Where $\beta' X_i = \hat{\beta}_0 + \hat{\beta}_1 x_{i1} + \hat{\beta}_2 x_{i2} + \cdots + \hat{\beta}_p x_{ip}$

And the equivalent binary logistic response form extend to:

$$\text{E(Y)} = [1 + \exp(-\beta' X)]^{-1}$$

Similarly, the logit transformation is

$$\pi' = log_e(\frac{\pi}{1-\pi}) \quad (3.5.3)$$

The logit transformation of the probability π is

$$\text{Logit (Y)} = log_e(odds) = log_e(\frac{\pi}{1-\pi}) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_p X_p$$

Where,

π = Probability (Y= *outcome of interest* | $X_1 = x_1, X_2 = x_2, \ldots, X_p = x_p$)

In matrix notation,

$$\pi' = \beta' X$$

Since Y_i are independent Bernoulli random variables with expected value:

$$\text{E}(Y_i) = \pi_i = \left[\frac{\exp(\beta' X_i)}{1+\exp(\beta' X_i)}\right] \quad (3.5.4)$$

The estimates of the β parameters of the logistic response function are obtained by the method of maximum likelihood estimation.

In the above logistic regression model, X can be categorical or continuous but Y is an always categorical. According to Equation (3.5.1), the relationship between logit (Y) and X is linear while the relationship between the probability of Y and X is nonlinear according to Equation (3.4.16). For this reason, the natural log transformation of the odds is necessary to make the linear relationship between a categorical outcome

variable and its predictor(s) linear. The value of the coefficient of $\boldsymbol{\beta}$ determines the direction of the relationship between X and the logit of Y. When $\boldsymbol{\beta}$ greater than zero, lager (or smaller) X values are associated with lager (or smaller) logit of Y. Conversely, if $\boldsymbol{\beta}$ is less than zero, lager (or smaller) X values are associated with smaller (or larger) logits of Y.

Since the logistic regression is used for predicting outcomes rather than continuous outcomes, it is necessary to take natural logarithm of the odds (referred to as the logit or log-odds) to create a continuous criterion. Therefore, although the observed variables in logistic regression are categorical, the predictions can range from - ∞ to + ∞ but probabilities lies between 0 and 1.

3.6 Some Measures of Fitting the Model

The process by which coefficients are tested for significance for inclusion or elimination from the model involves several different techniques. Each of these are described in below.

3.6.1 Wald Test

Wald test is used to test the statistical significance of each coefficients (i.e. β´s)in the logistic regression model. Wald statistic follows a Chi-Square distribution. However, several authors have identified problems with the use of the Wald statistic. Menard (1995) has warned that for large coefficients, standard error is inflated, lowering the Wald statistic (Chi-square) value. Agresti (1996) has stated that the likelihood –ratio test is more reliable for small sample sizes than the Wald test.

The test statistic is

$$W = \left(\frac{\hat{\beta}_i}{S.E(\hat{\beta}_i)}\right)^2$$

3.6.2 Likelihood Ratio Test

The likelihood ratio test is performed to see whether the inclusion of an explanatory variable in a model tell us more about the outcome variable than a model that does not include that variable. This test uses the ratio of the maximized value of the likelihood function for the full model (L_1) over the maximized value of the likelihood function for the simpler model (L_0). The actual test statistic for the likelihood ratio test denoted by Chi-square (χ^2) is

$$\chi^2 = -2\log\left(\frac{L_0}{L_1}\right) = -2[\log(L_0) - \log(L_1)] = -2(l_0 - l_1)$$

3.6.3 Hosmer-Lemshow (H-L) Goodness of Fit Test

The Hosmer-Lemeshow goodness of fit test is well known when data are obtained from a simple random survey. The procedure involves grouping of the observations based on the expected probabilities and then testing the hypothesis that the difference between observed and expected events is simultaneously zero for all the groups. Most of the tests for goodness of fit of a model are carried out by analyzing residuals; however, such an approach is not feasible for a binary outcome variable. Hosmer and Lemeshow (1989) proposed a statistic that they show, through simulation, is distributed as Chi-Square when there is no replication in any of the subpopulations. This test is only available for binary response models. First, the observations are sorted in increasing order of their estimated event probability. The observations are then divided into G groups. The Hosmer-Lemeshow goodness-of-fit statistic is obtained by calculating the Pearson Chi-square statistic from the 2xG table of observed and expected frequencies, for the G groups. The statistic for the case of a simple random sample is defined as

$$\text{The H-L statistic, } \hat{C} = \sum_{k=1}^{g} \frac{(O_k - n'_k \bar{\pi}_k)^2}{n'_k \bar{\pi}_k (1 - \bar{\pi}_k)}$$

Where, n'_k is the total number of subjects in k^{th} group c_k denotes the number of covariate patterns in the k^{th} decile,

$O_k = \sum_{j=1}^{C_h} y_j$ is the number of responses among the c_k covatiate pattern and the average estimated probability is $\bar{\pi}_k = \sum_{j=1}^{C_h} \frac{m_j \hat{\pi}_j}{n'_k}$.

The test statistic approximately followed a Chi-Square distribution on g-2 degrees of freedom, when the model is correctly specified. This means that given fitted model, the P- value can be calculated as the right hand tail probability of the corresponding Chi-Square distribution using the calculated test statistic.

3.6.4 Cox and Snell R-Square

Cox and Snell R-Square as a transformation of the statistic of -2ln $\left[L(M_{intercept})/L(M_{Full})\right]$ is used to determine the convergence of a logistic regression. The ratio of the likelihood reflects the improvement of the full over the intercept model (the smaller the ratio, the greater the improvement). The Cox and Snell R-Square is

$$R^2 = 1 - \left[\frac{L(M_{intercept})}{L(M_{Full})}\right]^{2/N}$$

L (M) is the conditional probability of the dependent variable given the independent variables. If there are N observations in the dataset, then L (M) is the product of N such probabilities. Thus, taking the n^{th} root of the product L (M) provides an estimate of the likelihood of each Y value. Cox and Snell's pseudo R-Squared has a maximum value that is not 1. If the full model predicts the outcome perfectly and has a likelihood of 1, Cox and Snell's R-Square will be (1- $L(M_{interpect})^{2/N}$), which is less than one.

3.6.5 Nagelkerke R-Square

It adjusts Cox and Snell's so that the range of possible values extends to 1. To achieve this, the Cox and Snell R-Squared is divided by its maximum possible value, 1- $L(M_{interpect})^{2/N}$).

$$R^2 = \frac{\left[\frac{L(M_{intercept})}{L(M_{Full})}\right]^{2/N}}{1-L(M_{interpect})^{2/N}}$$

Then, if the full model perfectly predicts the outcome and has a likelihood of 1, Nagelkerke R-Square will equal one.

3.6.7 Omnibus tests

Omnibus tests are a kind of statistical test. This test whether the explained variance in a set of data is significantly greater than the unexplained variance, overall. In addition, Omnibus test as a general name refers to an overall or a global test. Other name include F-test or Chi-Squared test. Omnibus test as a statistical test is implemented on an overall hypothesis that regarding coefficients $\beta_1 = \beta_2 = \cdots = \beta_k$

vs at least one pair $\beta_j \neq \beta_{j'}$ in Multiple linear regression or in Logistic regression. Usually, it tests more than two parameters of the same type and its role is to find general significance of at least one of the parameters involved.

Omnibus tests commonly refers to either one of those statistical tests:

- ANOVA F test to test significance between all factor means and/or between their variances equality in Analysis of Variance procedure;
- The Omnibus multivariate F Test in ANOVA with repeated measures;
- F test for equality/ inequality of the regression coefficients in Multiple Regression;
- Chi-Square test for exploring significance differences between blocks of independent explanatory variables or their coefficients in a logistic regression.

Those Omnibus tests are usually conducted whenever one tends to test an overall hypothesis on a quadratic statistic (like sum of squares or variance or covariance) or rational quadratic statistic (like the ANOVA overall F Tests in Analysis of Variance or F Test in Analysis of covariance or the F Test in Linear Regression, or Chi-Square in Logistic Regression). While significance is founded on the Omnibus test, it doesn't specify exactly where the difference is occurred, meaning, it doesn't bring specification on which parameter is a different from the other, but it statistically determine that there is a difference, so at least two of the tested parameters are statistically different. If significance was met, none of those tests will tell specifically which mean differs from the others (in ANOVA), which coefficient differs from the others (in Regression) etc. The model tested can be defined by y_i, where as $y_i$is the category of the dependent variable for the i-th observation and x_{ij} is the j independent variable (j = 1, 2,…, k) for that observation, β_j is the j-th coefficient of x_{ij} and indicates its influence on and expected from the fitted model.

The Omnibus test relates to the hypotheses

H_0: $\beta_1 = \beta_2 = \cdots = \beta_k$

H_1: at least one pair $\beta_j \neq \beta_{j'}$

CHAPTER IV
RESULTS AND FINDINGS

4.1 Geographic, Demographic and Socio-Economic Conditions of Hinthada Township

4.1.1 Geographic and Demographic Conditions of Hinthada Township

Hinthada Township is situated in Hinthada District, Ayeyarwaddy Region. Hinthada Distirct consists of six townships such as Hinthada, Zalon, Lay Myat Nar, Myan Aung, Kyan Khinn and Ingapu Townships. Hence, Hinthada Township is the biggest township in this district. Hinthada Township lies between north latitude 17˚ 15' and 17˚ 50' approximately and east longitude 95˚10' and 95˚ 35'. There are 24 miles from east to west and 28 miles south to north in Hinthada Township. Hinthada Township has an area of 378.65 square miles.It is border by Bago Division to the East, Lay Myat Nar Township to the West, Kyon Pyaw and Da Nu Phyu Townships to the South and Ingapu Township to the North West.

According to the national census 2014 of Myanmar, there are 348139 population in Hinthada Township. In this region, Burmese and Kayin ethnic from the majority of the population. The majority of people follow Buddhism but there are also many Christians and Islam. Burmese is the official language of the country.

4.1.2 Economic Conditions of Hinthada Township

According to the economy, Hinthada Township is the main township in Ayeyarwaddy Region. The principal crop of this township is rice. In addition to rice other crops include maize, sesame, groundnut, sunflower, beans, flowers and jute. Drainage is the main problem facing the agriculture industry due to heavily rains, river flooding low land and close proximity to the sea. Fishery is also important Hinthada Township products as fish prawn, fish-paste, dry fish, dry prawn and fish sauce. River and sea products are popular and there are agriculture related industries such as rice mills, as well as shipping and trading industries in this region.

4.1.3 Social Conditions of Hinthada Township

Health is one of the major factors indicating the socio-economic conditions. Health means a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. Under the supervision of authorities concerned health situation such as water, sanitation and extension services are improved. These primary benefits are followed by rural projects and making for the long term benefits and transformed into improvements in health. There are nine hospitals in Hinthada Township.

Education is another basic factors of socio-economic conditions. The education system of Myanmar (also known as Burma) is operated by the government Ministry of Education. In this system, the level of school children are attend to their age 5, children are expected to start attending school; they spend 5 years at the primary level, 4 years at the middle level and 2 years at the higher level. Universities and professional institutes from upper Myanmar and lower Myanmar are run by two separate entities, the Departments of Higher Education (Lower Myanmar and Upper Myanmar). The literacy rate of Myanmar, according to the 2014 Myanmar Census stands at 89.5% (males: 92.6% and females 86.9%). There are three university such as Hinthada University, Computer University and Technology University. Hence, Hinthada University is the main University in this township.

4.2 Basic Characteristic of the Respondents

In this study, a survey conducts on 280 women aged (15-64) in Kone Gyi Village Tract were interviewed to collect the information on socio-economic and employment status. The distribution of respondents by age group, educational level, marital status, ethnicity and family size are presented.

4.2.1 Distribution of the Respondents by Age

There are seven different age groups of women were taken into consideration as less than 18 years, 18 to 22 years, 23 to 27 years, 28 to 32 years, 33 to 37 years, 38 to 42 years and over 42 years. It is shown in Table (4.1) and Figure (4.1).

Table (4.1)

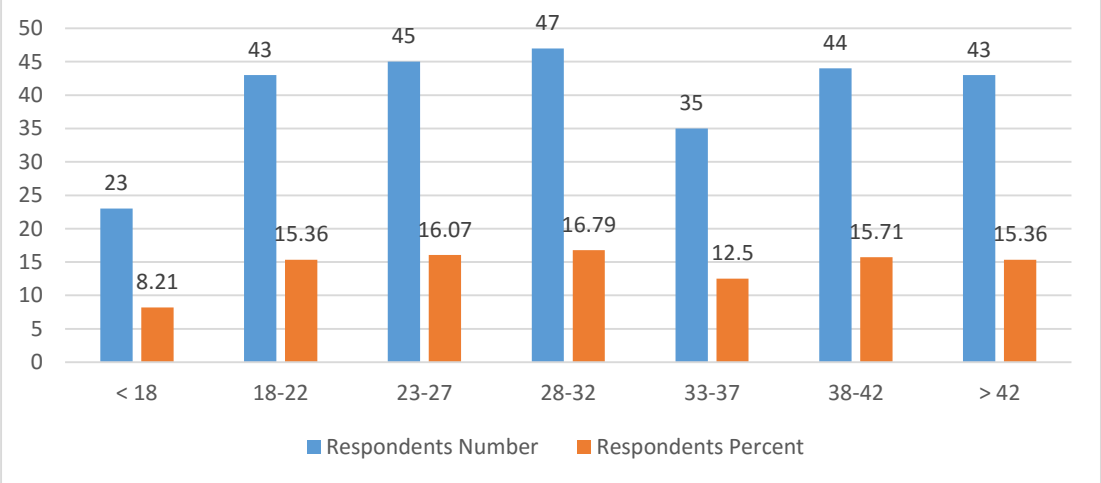
Distribution of Respondents by Age

Age(years)	Respondents	
	Number	Percent
< 18	23	8.21
18-22	43	15.36
23-27	45	16.07
28-32	47	16.79
33-37	35	12.5
38-42	44	15.71
> 42	43	15.36
Total	280	100

Source: Primary Survey Data (2019)

Figure (4.1)

Distribution of Respondents by Age



Source: Table (4.1)

In Table (4.1) and Figure (4.1), above 42 years are included between 43-47 years, 48-52 years, 53-57 years, 58-62 years and above 62 years because of these age groups have low frequencies and percent. The most largest concentration of women are belonged to 16.79 % in age group 28-32 years, the second largest concentration of women are belonged to 16.07 % in age group 23-27 years and the smallest concentration of women are belonged to age group less than 18 years. The other age group of women are the range from nearly 12% to 15% respectively.

4.2.2 Distribution of Respondents by Ethnicity

The following Table (4.2) showed the distribution of respondents by race in Kone Gyi Village Tract, Hinthada Township.

Table (4.2)

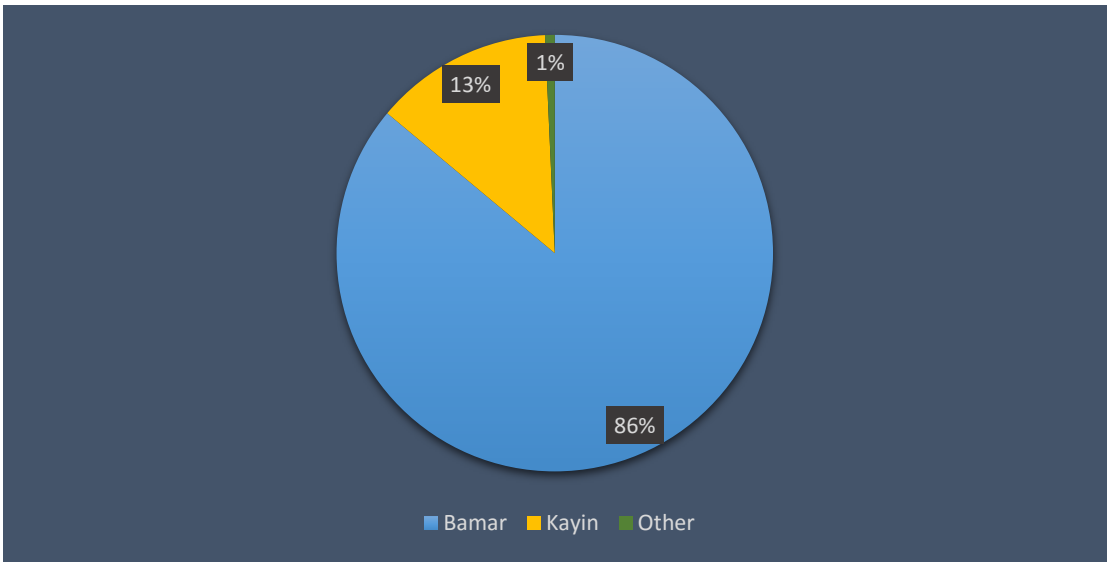
Distribution of Respondents by Race

Race	Respondents	
	Number	Percent
Bamar	241	86.07
Kayin	37	13.21
Other	2	0.72
Total	280	100

Source: Primary Survey Data (2019)

Figure (4.2)

Distribution of Respondents by Race



Source: Table (4.2)

In Table (4.2) and Figure (4.2), 86.07 % of the respondents is Bamar and it is the largest ethnic group. The second largest ethnic group is Kayin. Other ethnics are Mon and Rakhine. According to the survey result, most of the people are Bamar and Kayin ethnics living in Kone Gyi Village Tract.

4.2.3 Distribution of Respondents by Educational Level

Table (4.3) and Figure (4.3), shows the distribution of respondent by educational attainment.

Table (4.3)

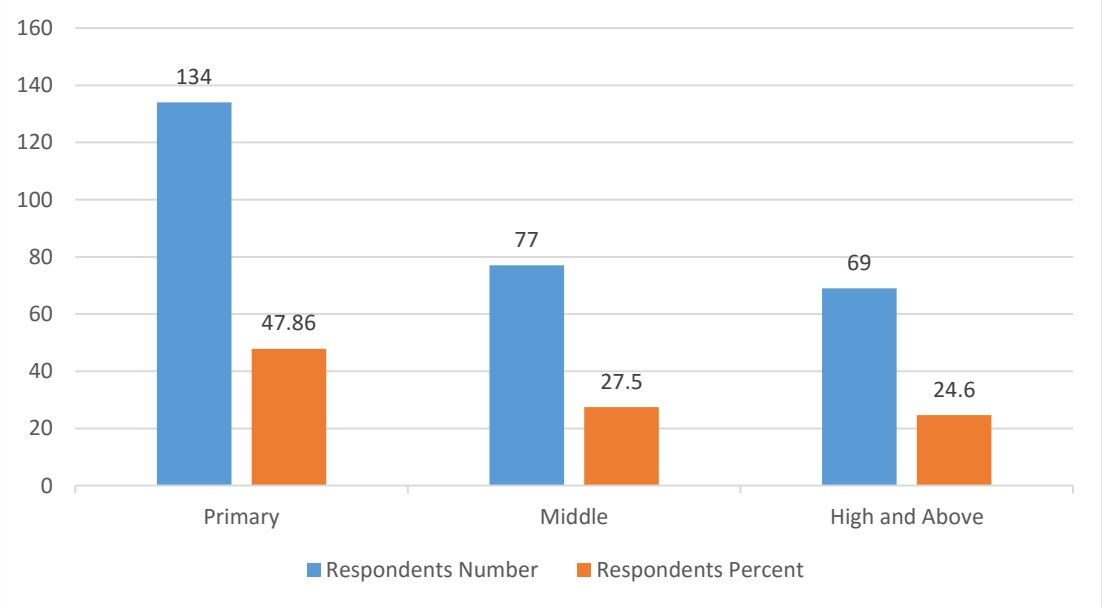
Distribution of Respondents by Educational Level

Educational Level	Respondents	
	Number	Percent
Primary	134	47.86
Middle	77	27.5
High and Above	69	24.64
Total	280	100

Source: Primary Survey Data (2019)

Figure (4.3)

Distribution of Respondents by Educational Level



Source: Table (4.3)

According to the survey result, most of the respondents 47.86% were primary level and 27.5% were middle school level. The respondents of 24.64% are high school and above level. In this level, high school, under graduate, graduate and post graduate level were included. It is assumed that women cannot carry on their education and start working without pay in their family's farms or household chores at the age of around 9

or 10 years old. Mostly, the respondents of women reached the primary level but only a few women finished the matriculated and university level.

4.2.4 Distribution of Respondents by Family Size

A family, literally is make up of husband, wife and their children, if any. The following Table (4.4) and Figure (4.4) shows the distribution of respondents by family size.

Table (4.4)

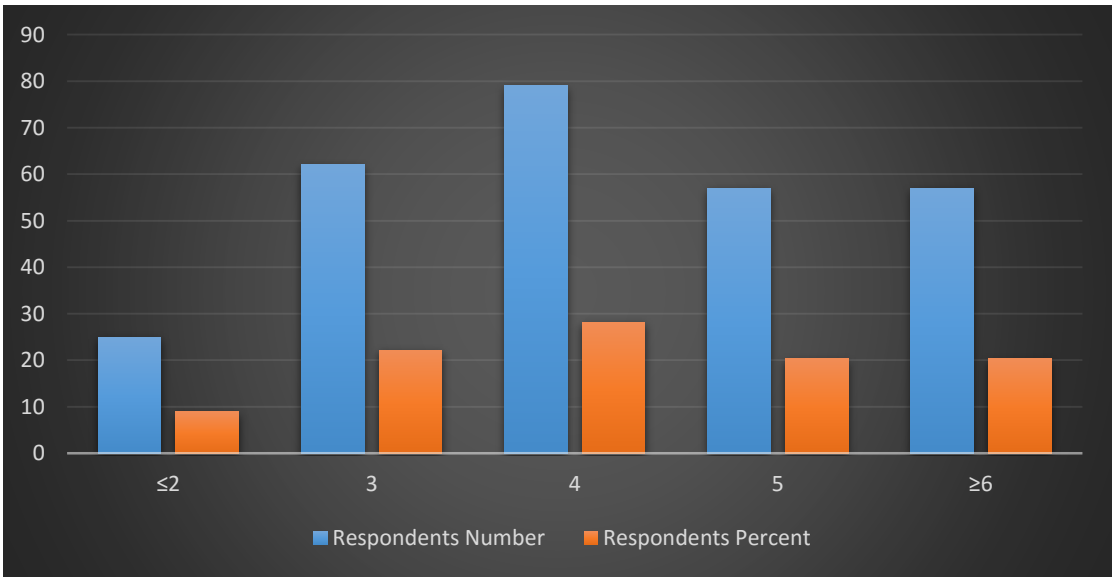
Distribution of Respondents by Family Size

Family Members	Respondents	
	Number	Percent
≤2	25	8.93
3	62	22.14
4	79	28.21
5	57	20.36
≥6	57	20.36
Total	280	100

Source: Primary Survey Data (2019)

Figure (4.4)

Distribution of Respondents by Family Size



Source: Table (4.4)

In Table (4.4) and Figure (4.4), the largest percent of family members is 4 and the second largest is 3. The smallest percent of family member is less than or equal to 2. Hence, it can be said that most of the family member are 3 or 4.

4.2.5 Distribution of Respondents by Marital Status

The marital status are classified into 4 categories. There are single, married, widow and divorced. Table (4.5) and Figure (4.5) presents the distribution of respondents by marital status.

Table (4.5)

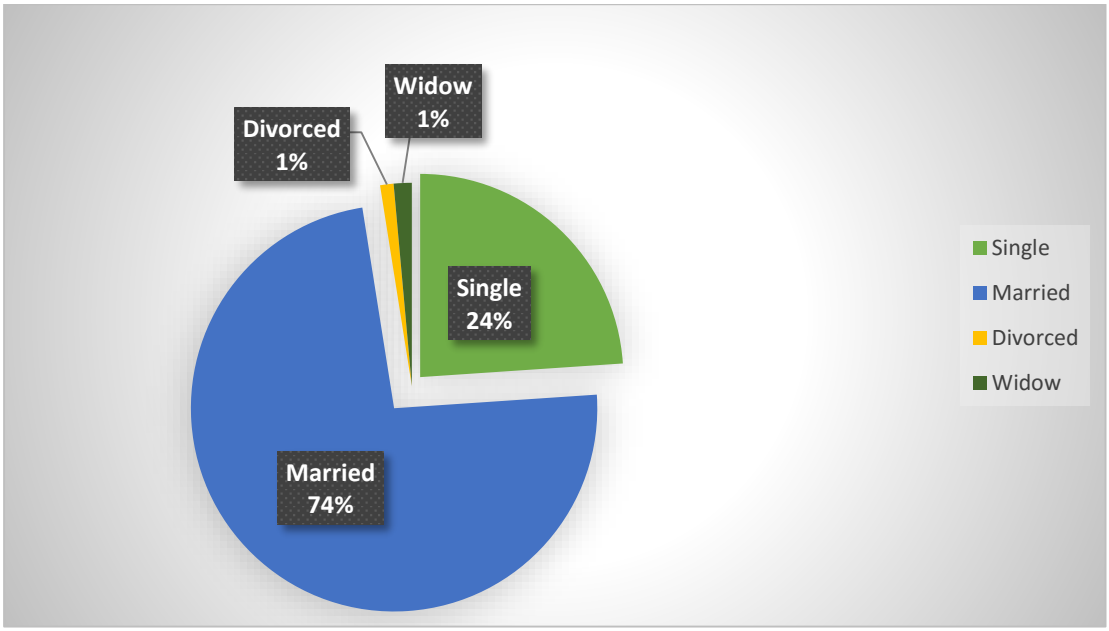
Distribution of Respondents by Marital Status

Marital Status	Respondents	
	Number	Percent
Single	67	23.93
Married	206	73.57
Divorced	3	1.07
Widow	4	1.43
Total	280	100

Source: Primary Survey Data (2019)

Figure (4.5)

Distribution of Respondents by Marital Status



Source: Table (4.5)

From the survey data, the respondents of about 74% are married and the respondents of nearly 24% are single. Moreover, the respondents of nearly 1% are widow and divorced. Therefore, most of the respondents women are married and it is more than 3 times of single women.

4.2.6 Distribution of Respondents by Types of Employment

In the following Table (4.6) and Figure (4.6) shows the percent of respondents with their types of job.

Table (4.6)

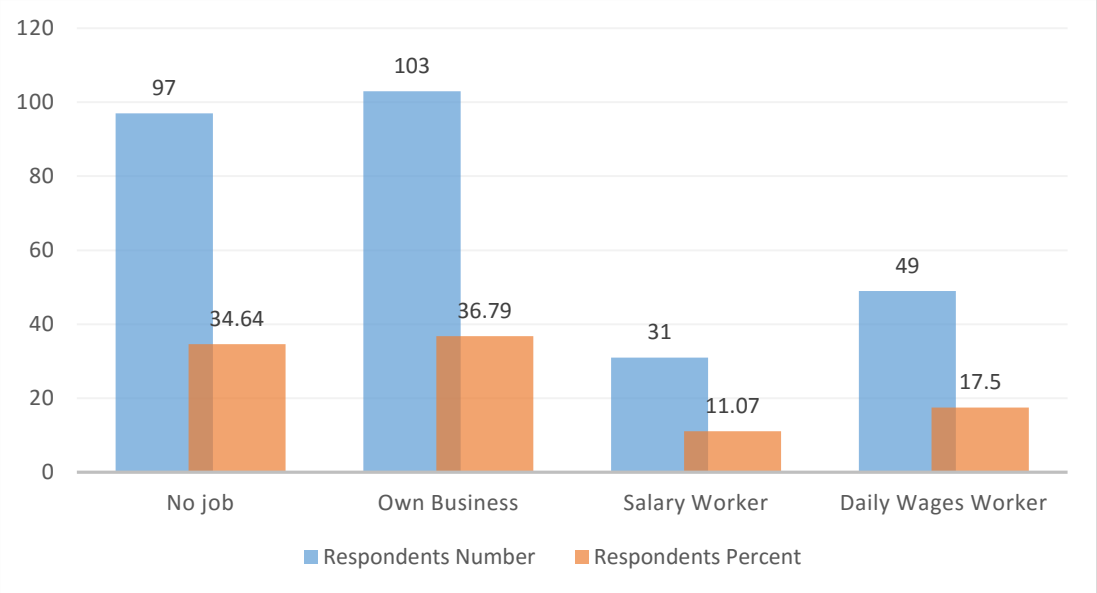
Distribution of Respondents by Types of Job

Types of Job	Respondents	
	Number	Percent
No job	97	34.64
Own Business	103	36.79
Wages Earner	31	11.07
Daily Wages Worker	37	17.5
Total	280	100

Source: Primary Survey Data (2019)

Figure (4.6)

Distribution of Respondents by Types of Job



Source: Table (4.6)

From the above Table (4.6) and Figure (4.6), the number of 183 respondents were had job and the rest of 97 respondents were jobless. A large majority of the respondents were found to be own business women. The second largest percent of respondents were found to be jobless and it contains still educate women, pregnancies, depends women.

4.2.7 Distribution of Respondents by Income

The distribution of respondents by income are presented in Table (4.7). It is classified into 7 categories. There are no income, under 100000 Kyats, between 100000 to 150000 Kyats, between 150000 to 200000 Kyats, between 200000 to 250000 Kyats, between 250000 to 300000 Kyats and above 300000 Kyats.

Table (4.7)

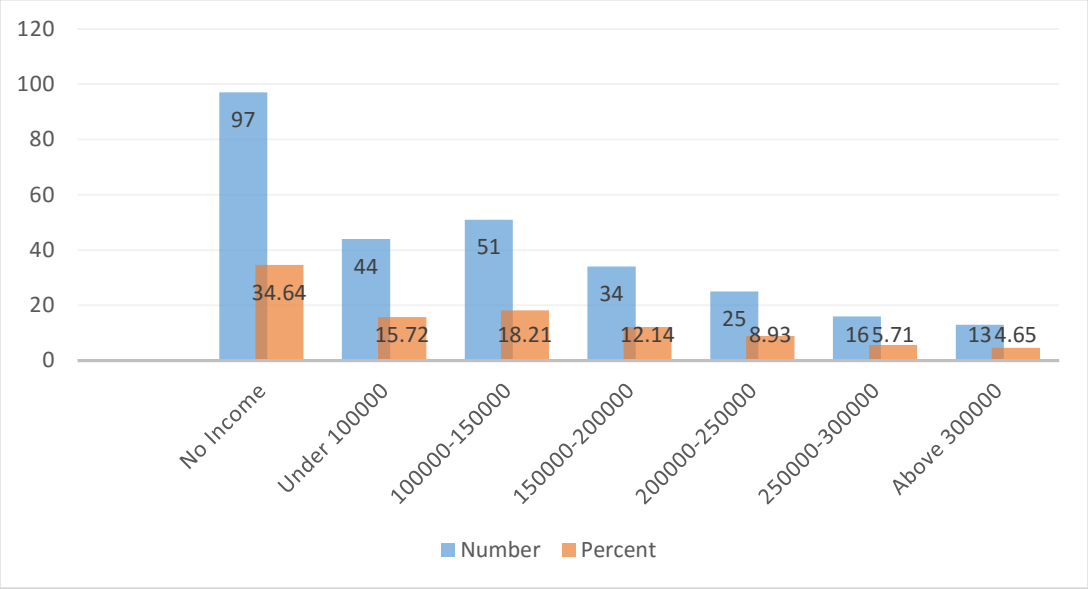
Distribution of Respondents by Income

Income (Kyats)	Respondents	
	Number	Percent
No Income	97	34.64
Under 100,000	44	15.72
100,000 – 150,000	51	18.21
150,000 – 200,000	34	12.14
200,000 – 250,000	25	8.93
250,000 – 300,000	16	5.71
Above 300,000	13	4.65
Total	280	100

Source: Primary Survey Data (2019)

Figure (4.7)

Distribution of Respondents by Income



Source: Table (4.7)

In the above Table (4.7) and Figure (4.8), most of the respondents have no income. Almost half of the respondents earn less than 200,000 Kyats in these village tract. Therefore, it is assumed that these women were depend on their husband, family and relatives for their living.

4.3 Cross-Classification of the respondents by Socio-Economic, Demographic Characteristics and Types of Job

Cross-Classification for the women is performed firstly as the respondent of women were having many kinds of job. Cross-Classification procedures measure the changes in one variable (types of job) when other variables (age, educational level, marital status, family member etc.) are accounted for. In this section, the association between types of job and age, educational level, marital status, family member by using Chi-Square Tests are presented for adult group.

4.3.1 Cross-Classification Distribution by Types of Job and Age of Women

It should also examine the association of Types of Job and age of women. Hence, Chi-Square Test is performed for association of such variables. Cross-Classification results shown in Table (4.8) and Result of Chi-Square test is shown in Table (4.9).

Table (4.8)

Distribution of Respondents by Types of Job and Age of Women

Types of Job	Age							Total
	< 18	18-22	23-27	28-32	33-37	38-42	>42	
Own Business	5 1.8%	13 4.6%	13 4.6%	18 6.4%	17 6.1%	14 5%	23 8.2%	103 36.8%
Salary/daily Wages Worker	9 3.2%	17 6.1%	11 3.9%	15 5.4%	7 2.5%	15 5.4%	6 2.1%	80 28.6%
No Job	9 3.2%	13 4.6%	21 7.5%	14 5%	11 3.9%	15 5.4%	14 5%	97 34.6%
Total	23 8.2%	43 15.4%	45 16.1%	47 16.8%	35 12.5%	44 15.7%	43 15.4%	280 100%

Source: Primary Survey Data (2019)

Table (4.9) Results of Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	**18.066**^{a}	12	0.114
Likelihood Ratio	18.286	12	0.107
Linear-by-Linear Association	3.431	1	0.064
N of Valid Cases	280		

According to the Table (4.8), the largest proportion of the respondents were found in over 42 years, 8.2% of women in own business. At salary and daily wages worker, the highest respondents of 6.1% having between 18-22 years and the smallest respondents of 2.1% in over 42 years. Most of the respondents, 7.5% between 23-27 years do not having job. In above Table (4.9), Pearson Chi-Square has a value of 18.066 with a 5% significant level. Since (p-value) = 0.114 > 0.05, it can be concluded that there is no association between types of job and age of women.

4.3.2 Cross-Classification Distribution by Types of Job and Educational Level of Women

It should be examined the association of types of job and educational level of women. Therefore, Chi-Square Test is applied for such association test. Cross-Classification results shown in Table (4.10) and Result of Chi-Square test is shown in Table (4.11).

Table (4.10)

Distribution of Respondents by Types of Job and Educational Levels of Women

Types of Job	Educational Levels			Total
	Primary	Middle	Higher and Above	
Own Business	43 15.4%	35 12.5%	25 8.9%	103 36.8%
Salary/ daily Wages Worker	44 15.7%	17 6.1%	19 6.8%	80 28.6%
No Job	47 16.8%	25 8.9%	25 8.9%	97 34.6%
Total	134 47.9%	77 27.5%	69 24.6%	280 100%

Source: Primary Survey Data (2019)

Table (4.11) Results of Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.560^{a}	4	0.335
Likelihood Ratio	4.545	4	0.337
Linear-by-Linear Association	0.216	1	0.642
N of Valid Cases	280		

In the above Table (4.10), it is found that the primary school and middle school levels proportion of the respondents who have job were more than the higher and above level of the respondents in own business. In this study, the largest primary school level proportion 16.8% of the respondents have not job. Generally, it is assumed that the primary and middle school levels proportion nearly 50% of the respondents have own business and salary/ daily wages work. According to Table (4.11), Pearson Chi-Square has a value of 4.560 with a 5% significant level. Since (p-value) = 0.335> 0.05, it can be concluded that there is no association between types of job and educational levels of women.

4.3.3 Cross-Classification Distribution by Types of Job and Marital Status of Women

In Table (4.12) and Table (4.13), the association of types of job and marital status of women are presented. This association is tested using Chi-Square Test.

Table (4.12)

Distribution of Respondents by Types of Job and Marital Status of Women

Types of Job	Marital Status		Total
	Married	Others	
Own Business	77 27.5%	26 9.3%	103 36.8%
Salary/ daily Wages Worker	51 18.2%	29 10.4%	80 28.6%
No Job	78 27.9%	19 6.8%	97 34.6%
Total	206 73.6%	74 26.4%	280 100%

Source: Primary Survey Data

Table (4.13) Results of Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	$\mathbf{6}.378^{a}$	2	0.041
Likelihood Ratio	6.275	2	0.043
Linear-by-Linear Association	0.752	1	0.386
N of Valid Cases	280		

In Table (4.12), others are contained single, divorced and widow respectively. Hence, the respondents of 27.5% and about 9% were married in own business. In this study, the largest of 27.9% respondents were married who have not job. Therefore, it is assumed that most of the respondents of about 45% were married and they have job. According to Table (4.13), Pearson Chi-Square has a value of 6.378 with a 5% significant level. Since (p-value) = 0.041 < 0.05, it can be concluded that there is association between types of job and marital status of women.

4.3.4 Cross-Classification Distribution by Types of Job and Family Member of Women

The association of types of job and family member of women are presented in Table (4.14) and (4.15). This association is tested using Chi-Square Test.

Table (4.14)

Distribution of Respondent by Types of Job and Family Member of Women

Types of Job	Family Member					Total
	≤ 2	3	4	5	≥ 6	
Own Business	8 2.9%	25 8.9%	27 9.6%	18 6.4%	25 8.9%	103 36.8%
Salary/ daily Wages Worker	10 3.6%	12 4.3%	22 7.9%	22 7.9%	14 5%	80 28.6%
No Job	7 2.5%	25 8.9%	30 10.7%	17 6.1%	18 6.4%	97 34.6%
Total	25 8.9%	62 22.1%	79 28.2%	57 20.4%	57 20.4%	280 100%

Source: Primary Survey Data

Table (4.15) Results of Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.720^{a}	8	0.366
Likelihood Ratio	8.636	8	0.374
Linear-by-Linear Association	0.442	1	0.506
N of Valid Cases	280		

In above Table (4.14), the largest respondents of 9.6% have 4 family members in own business. In salary worker, the respondents of 7.9% have 4 and 5 family member. In this study, the respondents of 10.7% have 4 family member and they have not job. According to Table (4.15), Pearson Chi-Square has a value of 8.720 with a 5% significant level. Since (p-value) = 0.366 > 0.05, it can be concluded that there is no association between types of job and family member of women.

4.3.5 Cross-Classification Distribution by Job and Educational Levels of Women

The association of types of job and educational levels of women are presented in Table (4.16) and (4.17). This association is tested using Chi-Square Test.

Table (4.16)

Distribution of Respondents by Job and Educational Levels of Women

Educational Levels	Job		Total
	No	Yes	
Primary	47 16.8%	87 31.1%	134 47.9%
Middle	25 8.9%	52 18.6%	77 27.5%
High and Above	25 8.9%	44 15.7%	69 24.6%
Total	97 34.6%	183 65.4%	280 100%

Source: Primary Survey Data

Table (4.17) Results of Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	0.249^{a}	2	0.883
Likelihood Ratio	0.250	2	0.882
Linear-by-Linear Association	0.006	1	0.937
N of Valid Cases	280		

In above Table (4.16), the respondents of 31.1% in primary school level has job. The respondents of 8.9% in middle school, high school and above level were not job. According to the result, the number of 97 women are jobless. Hence, it can be assumes that the government or businessman should be built the small industry or industrial zone in the Ayeyarwaddy Region and to create job opportunities, part-time

job for women in this region. In Table (4.17), Pearson Chi-Square has a value of 0.249 with a 5% significant level. Since (p-value) = 0.883 > 0.05, it can be concluded that there is no association between types of job and family member of women.

4.4 Multinomial Logistic Regression Analysis for Factor Affecting on the Types of Job

The Variables of the Model

In this section, the type of jobs is considered as dependent variable and multinomial logistic regression (MLR) (aaa, 101) is used to find out the factor affecting on the types of job. There are four types of job in this study. It is assigned own business as type 1, salary worker as type 2, daily wages worker as type 3 and no job as type 4. The dependent variable of the types of job is defined as:

Y = 1 if own business

Y = 2 if wages earner

Y = 3 if daily wages worker

Y = 4 if no job

Where, salary worker is included government staff and company staff, daily wages worker is contained daily wages worker, hawker and other.

Moreover, women ages, education level, family members, marital status, enough income and previous paid job are considered as independent variables. These variables are as follows:

X_{i1}= Women's Age

= 1, if the women's age group is 15-30

= 2, if the women's age group is 31-64 (Reference category)

X_{i2}= Women's Educational Level

= 1, if the women's education level is illiterate and primary

= 2, if the women's education level is middle

= 3, if the women's education level is higher and above (Reference category)

X_{i3}= Women's Family Member

= 1, if the women's family member is less than or equal 2

= 2, if the women's family member is 3

= 3, if the women's family member is 4

= 4, if the women's family member is 5

= 5, if the women's family member is greater than or equal 6 (Reference category)

X_{i4}= Women's Marital Status

= 1, if the women's marital status is married

= 2, if otherwise (Reference category)

X_{i5}= Women's Enough Income

= 1, if the women is enough income

= 2, if otherwise (Reference category)

X_{i6}= Women's Previous Paid Job

= 1, if the women is previous paid job

= 2, if otherwise (Reference category)

In this model, the types of job 4 is chosen as the reference category. The last category of each independent variable is used as the reference category. The results of overall model evaluation of Multinomial Logistic Regression are shown in Table (4.18).

Table (4.18) Model Fitting Information for the Types of Job with All Independent Variables

Model Fitting Criteria	χ^2 value	df	p-value
-2 Log Likelihood	116.644	30	0.000
Cox & Snell R-Square	0.341		
Nagelkerke R-Square	0.369		
Overall Correct Prediction	54.3%		

Source: Primary Survey Data (2019)

According to the results, the value of Chi-Square statistic is 116.644 and p-value is 0.000. It can be concluded that the Multinomial Logistic Regression model is statistically significant at 1% level. Therefore, this model can be explain the association of the types of job and women's age, education level, family member, marital status, enough income and past paid job. Cox & Snell R-Square is indicated that 34.1% of the variation in the types of job can be explained by the variation of independent variables. According to the Nagelkerke R-Square value, 36.9% of the variation in the types of job can be explained by the variation of independent variables. Overall, 54.3% of the women are predicted correctly.

The parameter estimates for socio-economic and demographic determinants in Multinomial Logistic Regression model of the types of job are presented in Table (4.19).

Table (4.19) Parameter Estimation for the Multinomial Logistic Regression Model for the Types of Job

Independent Variables	The Types of Job		
	Own Business	Wages Earner	Daily Wages Worker
Constant	1.038(0.567)	-1.685(0.950)	-2.478(1.033)
Age			
15-30	-0.820**(0.337)	0.387(0.597)	0.018(0.444)
Educational Level			
Group (1)	0.292(0.404)	-0.143(0.598)	2.907***(0.825)
Group (2)	0.742*(0.432)	-0.208(0.643)	2.188**(0.866)
Family Member			
Group (1)	0.043(0.648)	0.758(0.951)	0.980(0.780)
Group (2)	-0.080(0.458)	0.656(0.779)	-0.804(0.686)
Group (3)	-0.329(0.434)	0.509(0.708)	0.111(0.590)
Group (4)	-0.377(0.484)	0.728(0.730)	0.554(0.610)
Marital Status			
Married	-0.380(0.417)	-1.443**(0.579)	0.267(0.576)
Enough Income			
Group (1)	0.507(0.309)	2.128***(0.612)	0.453(0.401)
Previous Paid job			
Group (1)	-1.168***(0.339)	-1.502***(0.536)	-1.939***(0.421)

Source: Primary Survey Data (2019)

Note: Standard errors are described in parentheses.

Base category = No Job

*** denotes significant at 1% level, ** denotes significant at 5% level and * denotes significant at 10% level

According to the Table (4.19), it has been found that women's age, education level, marital status, enough income and previous paid job have significant effects on the types of job. Family member has insignificant effects on the types of job. Therefore,

model fitting information and parameter estimates of all significant effects for the types of job are shown in Table (4.20) and Table (4.21).

Table (4.20) Model Fitting Information for Multinomial Logistic Regression Model of the Types of Job with Significant Independent Variables

Model Fitting Criteria	χ^2 value	df	p-value
-2 Log Likelihood	103.311	18	0.000
Cox & Snell R-Square	0.309		
Nagelkerke R-Square	0.334		
Overall Correct Prediction	48.2%		

Source: Primary Survey Data (2019)

According to the calculated results, the value of Chi-Square statistic is 103.311 and p-value is 0.000. It can be concluded that the Multinomial Logistic Regression model is statistically significant at 1% level. Therefore, this model can be explained the association of the types of job and women's age, education level, marital status, enough income and previous paid job. Cox and Snell R-Square value is indicated that 30.9% of the variation in the types of job can be explained by the variation of independent variables. And then, Nagelkerke R-Square value is indicated that 33.4% of the variation in the types of job can be explained by the variation of the independent variables. Overall, 48.2% of the women are predicted correctly.

Table (4.21) Summary Results for the Multinomial Logistic Regression Model for the Types of Job

Independent Variables	The Types of Job		
	Own Business	Wages Earner	Daily Wages Worker
Constant	0.815(0.504)	-1.339(0.852)	-2.201(0.918)
Age 15-30	-0.751**(0.326)	0.457(0.587)	-0.108(0.409)
Educational Level Group (1) Group (2)	0.264(0.401) 0.706*(0.428)	-0.112(0.586) -0.142(0.632)	2.824***(0.812) 2.239***(0.854)
Marital Status Married	-0.348(0.404)	-1.277**(0.559)	0.095(0.550)
Enough Income Group (1)	0.527*(0.302)	2.129***(0.604)	0.496(0.387)
Previous Paid job Group (1)	-1.168***(0.334)	-1.509***(0.527)	-1.825***(0.407)

Source: Primary Survey Data (2019)

Note: Standard errors are described in parentheses.

Base category = No Job

*** denotes significant at 1% level, ** denotes significant at 5% level and * denotes significant at 10% level

The model compares own business with no job, salary worker with no job and daily wages worker with no job.

By comparing own business with no job, it has been found that the women's age is significant at 5% level and their coefficient is negative effects on own business. Women aged 15-30 has less chance to be own business (OR = 0.472, 95% CI: 0.249 – 0.893) (See Appendix: Table A-1) than no job.

It has been found that women's education level group 2 (middle school level) is significant at 10% level and their coefficient is positive relation to own business. Women's middle school level has the most chance to be own business (OR = 2.026, 95% CI: 0.876 – 4.687) (See Appendix: Table A-1)) than no job. Women's education level of group (1) is found insignificant.

It has been found that women's enough income is significant at 10% level and their coefficient is positive relation to own business. Women's enough income has the most chance to be own business (OR = 1.694, 95% CI: 0.161 – 0.599) (See Appendix: Table A-1) than no job.

It has been found that women's previous paid job is significant at 1% level and their coefficient is negative relation to own business. Women's previous paid job has less chance to be own business (OR = 0.311, CI: 0.161 – 0.599) (See Appendix: Table A-1) than no job.

By comparing salary worker with no job, it has been found that women's married is significant at 5% level and their coefficient is negative relation to salary worker. Women's married has less chance to be salary worker (OR = 0.236, 95% CI: 0.076 – 0.734) (See Appendix: Table A-1) than no job.

It has been found that women's enough income is significant at 1% level and their coefficient is positive relation to salary worker. Women's enough income has the most chance to be salary worker (OR = 8.4, 95% CI: 2.530 – 27.9) (See Appendix: Table A-1) than no job.

It has been found that women's previous paid job is significant at 1% level and their coefficient is negative relation to salary worker. Women's previous paid job has less chance to be salary worker (OR = 0.223, CI: 0.078 – 0.637) (See Appendix: Table A-1) than no job.

By comparing daily wages worker with no job, it has been found that women's education level group 1(primary level) and group 2 (middle level) are significant at 1% level and their coefficient are positive relation to daily wages worker. Women's primary school level has the highest chance to be daily wages worker (OR = 18.3, CI: 3.634 – 92.1) (See Appendix: Table A-1) than no job.

It has been found that women's previous paid job is significant at 1% level and their coefficient is negative relation to daily wages worker. Women's previous paid job has less chance to be daily wages worker (OR = 0.144, CI: 0.063 – 0.328) (See Appendix: Table A-1) than no job.

CHAPTER V
CONCLUSION

5.1 Conclusions

In this survey, 280 women were randomly selected from Kone Gyi Village Tract in Ayeyarwaddy Region. According to the results, most of the women i.e 16.8% belonged to the age group 28 to 32 years and the second largest concentration of women are belonged to 16.1% in age group of 23 to 27 years. The number of 86.07% is Burmese and it is the largest ethnic group. The second largest ethnic group is Kayin. The largest percent of family member is 4 and the smallest percent of family member is less than or equal to 2. The respondents of nearly 74% are married and the respondents of about 24% are single. Moreover, the respondents of nearly 1% are widow and divorced.

Due to the large family member where their household expenditure cannot to cover by the household members earn; actually the household income needs to double their present income. According to the results, most of the people do not live their native town for many reasons. Firstly, they move to urban areas for finding new jobs and opportunities. Because, their native town do not have sufficient job and opportunities. Secondly, most of the women move to the biggest city for their family conditions. The main reasons are they do not have family's farm, their family food, shelter, and healthcare and education fees. Thirdly, most of the women move to the foreign countries such as Thailand, Singapore, Japan and Malaysia to find the sufficient income and jobs opportunities. Because, they want to support their family and relative. And then, the want to return buy their farm in their native town. Moreover, there is no industry in Ayeyarwaddy Delta Region. Therefore, these regions of women have no job site and they are required small industry or industrial zone.

Most of the respondents, 46.07% have primary school level and 27.5% have middle school level. And then, under graduate, graduate and post graduate level were 3.93%, 5.36% and 0.35%. It is evident that the opportunity for women to earn income serves as an incentive to leave school early and to join either the rural or urban workforce to supplement the incomes of their families. Most of the women reached the primary school level but only a few finished the matriculated and university. Some of the respondents said that their parents do not allow to work while they are attending

university. They faced the challenges such as they do not have income so that they cannot buy learning text books, practical instruments at university and they cannot learn other professional skills, their family rarely take into account their advice for family's affairs.

The number of 183 respondents were had job and the rest of 97 respondents were jobless. Since, the largest majority of the respondents were found to be private business women. The second largest percent of respondents were found to be daily wages worker and less than 5% of the respondents were government staff and hawker.

It has been found that women's age group (15-30) is significantly effect on own business. Furthermore, it has negative effect on own business. Therefore, it can be concluded that those women are less likely to chance own business than no job.

It has been observed that women's education levels are significantly factor in own business and daily wages worker. It has positive relation to own business and daily wages worker. It can be explained that these women are more likely to chance own business and daily wages worker than no job. Women's education plays a critical role in having job.

It has been found that women's marital status (married) is significantly effect on salary worker and it has negative influence on salary worker. It can be concluded that women's marital status (married) is less likely to chance to salary worker than no job.

It has been found that women's enough income is significantly effect on salary worker and it has positive influence on salary worker. It can be concluded that women's enough income is more likely to chance to salary worker than no job.

Finally, it has been found that women's previous paid job is significantly factor and it has negative influence on own business, salary worker and daily wages worker. It can be conclude that women's previous paid job is less likely to chance to be own business, salary worker and daily wages worker than no job.

5.2 Suggestions

The following suggestions could be drawn from the findings of this thesis. I support that the Government should be;

(i) It should be create job opportunities, vocational training and part time job.

(ii) It should be promote non-formal education.

(iii) It should be built the small industry or industrial zone.

(iv) The local government should be require to get electricity and roads because some villages do not have electricity and they used candle, battery and solar.

(v) Finally, it should provide free secondary education should be arrange immediately not only INGOs, NGOs but also business man and to prevent the awareness of human trafficking knowledge or workshop need to be conducted for the villagers in the Ayeyarwaddy Region.

5.3 Needs for Further Research

Because of times and financial limitations, this study focused only on determinants employment status of women in Kone Gyi Village Tract, Hinthada Township. If the other variables such as characteristics of men can be obtained, the further research will be analyzed.

REFERENCES

1. Chambars, R. and Conway, G.R (1991). "*Sustainable Rural Livelihoods: Practical Concepts for the* 21st *Century"*, Discussion Paper, 292, Institute of Development Studies.

2. David, G.K and Mitchel (2002). "*Logistic Regression*", A Self- Learning Text, Second Edition, Springer-Verlag, New York, Inc.

3. Ellis, F. (2003). "*A Livelihoods Approach to Migration and Poverty Reduction*", Paper Commissioned by the Department for International Development (DFID), Overseas Development Group, University of East Anglia.

4. Greenen, W.H. (2000). "*Econometric Analysis*", **4st** Edition. Prentice-Hall, Inc, upper Saddle River, New Jersey 07458. United States of America.

5. Guajarati, D.N. (1995). "*Basic Econometric*", Fourth Edition, McGraw-Hill, New York.

6. Houweling, E. V. (2009). "*Diversification and Differentiation; the Livelihood Experience of Men and Women in Sameness*". Virginia Polytechnic Institute and State University.

7. Nancy, L.L. (2005). "*SPSS for Intermediate Statistics: Use and Interpretation*". Second Edition, Lawrence Erlbaum Associates, Inc. 10 Industrial Avenue, Mahwah, New Jersey 07430.

8. Timalsina. K. P. (2007). "*Rural Urban Migration and Livelihood in the Informal Sector*", Philosophy Thesis. Norwegian University of Science and Technology.

9. Thida Than (2010). "*Linear Probability, Logit and Probit Models in Qualitative Data Analysis*", Unpublished M.Econ (Statistics) Thesis. Yangon University of Economics, Myanmar.

10. Aye Thida. (2018). "*On Some Socio-Economic and Demographic Aspects of Maternal Health Care Utilization in Myanmar*", Ph.D. Programme. Yangon University of Economics, Myanmar.

11. Zar Zar Lwin (2014). "*A Study on Knowledge and Practice of Reproductive Health of the Ever-Married Women in Ywar Thar Gyi Village*", Unpublished M.Econ (Statistics) Thesis. Yangon University of Economics, Myanmar.

12. Aye Thanda Kyaw (2015). "An *Application of Logistic Regression Model on Employment Status of Women (A Case Study of Maubin and Einme*

Townships)", Unpublished M. Econ (Statistics) Thesis. Yangon University of Economics, Myanmar.

13. Esha Chatterjee, Reeve Vannean. "*Indian Paradox: Rising Education, Declining Women's Employment*", Demographic Research: Volume 38, Article 31.

14. Doepke. M (2011). "*The Economics and Politics of Women's Rights*".IZA Discussion Papers 6215, Institute of Labor Economics (IZA).

15. Maryam Hamed Hamood Al Hasani (2015). "*Women's Employment in Oman*". The University of Queensland in 2015.

Websites

1. www. The 2014 Myanmar Population and Housing Census Ayeyawaddy Region, Hinthada District, Hinthada Township Report

2. www. Multinomial Logistic Regression with SPSS

3. www. Interpatation of Multinomial Logistic Regression

APPENDIX

APPENDIX I

Sample Size Determinations

In this study, Cochran's Sample Size Formula for Categorical Data is used. Assume that the alpha level is 0.05 and plans to use in proportional variable, set the level of acceptable error at 5% and the estimated standard deviation of the scale as 0.5.

$$n_0 = \frac{t^2 pq}{d^2}$$

$$= \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} = 384.16 = 385$$

Where,

t = value of selected alpha level of 0.025 in each tail = 1.96

(p)(q) = estimated of variance = 0.25

(Maximum possible proportion (0.5) produces maximum possible sample size)

D = acceptable margin of error for proportion being estimated = 0.05

Therefore, a population of (1024), the required sample size is 385. Cochran's sample size formula should be went to calculate the final sample size.

$$n = \frac{n_0}{1+\frac{n_0-1}{N}}$$

$$= \frac{385}{1+\frac{385-1}{1024}} = 280$$

Where; N = Population size

n_0 = required return sample size according to Cochran's formula = 385

n = required return sample size

APPENDIX II

Required Sample Sizes (n), $n_i = \left(\frac{n}{N}\right) N_i$

Where, N = Population size

N_i = Population size in each strata

n = Sample size

n_i = Sample size in each strata

Sample Size Determination and Allocation

Stratum	N	n	$\boldsymbol{N_i}$	$\boldsymbol{n_i}$
Kone Gyi	1024	549	280	150
East Takhun	1024	143	280	39
West Takhun	1024	193	280	53
Kyonpha	1024	139	280	38
Total				280

APPENDIX III

Questionnaire for Socio-economic and Employment Conditions Survey

1. Township ----------
2. Ward/Village Tract ----------
3. Village ----------
4. Number of House / Name of street ----------
5. Date ----------

Name of Interviewees / Code No. ----------

Name of Interviewer ----------

Interviewee's Phone ----------

Sr	Question	Answer	Code No.	Remark
1	Completed age	( ) Year		
2	Education Level	Illiterate Monastic education Primary school Middle school High school High school graduate University Graduate Post graduate Others	1 2 3 4 5 6 7 8 9 10	
3	Ethnicity	Burmese Kayin Shan Mon Rakhine Chin Kachin Kayah Other (specify)	1 2 3 4 5 6 7 8 9	
4	What religion do you belong to?	Buddhist Christian Islam Hindu Other (specify)	1 2 3 4 5	
5	Native Town State/Region	....		
6	No. of Family Members			
7	Living with Family	Yes No	1 0	If yes, No.9 and no,No.8

8	Why not living with them? If Confidential, it's OK	No job opportunity No safety For high-salary job For job site For education Other	1 2 3 4 5 6	
9	Marital Status	Single Married Divorce Widower	1 2 3 4	
10	Head of Household	Yourself Your husband Other(specify)	1 2 3	
11	Relationship to head of household	Head Wife Spouse Daughter Daughter in law Niece Sister	1 2 3 4 5 6 7	
12	What is your type of house?	Apartment / Condominium Bungalow / Brick house Semi-pacca house Wooden house Bamboo house Hut 2-3 years Hut 1 year Other (specify)	1 2 3 4 5 6 7 8	
13	Type of home ownership	Owner Renter Government quarters Private company quarters Other (specify)	1 2 3 4 5	

14	If you are not owner, how do you pay for rent per month if you were home rent?	( )Kyats / month		
15	What is the major source of lighting?	Candle Battery Generator (private) Solar (private) Electricity Other (specify)	1 2 3 4 5 6	
16	Does any member of your household own?	Bicycle Side-car Motorcycle/ Moped Car/ Truck / Van Cart(bullock) Canoe / Boat Motor boat 4-wheel tractor Other (specify)	1 2 3 4 5 6 7 8 9	
17	Do your house have?	Electricity Generator TV Non-mobile Telephone Mobile- Telephone Computer Internet Sewing machine Refrigerator Other (specify)	1 2 3 4 5 6 7 8 9 10	
18	Present Paid Job	Yes No	1 0	If yes, please No.19 and no,No.21

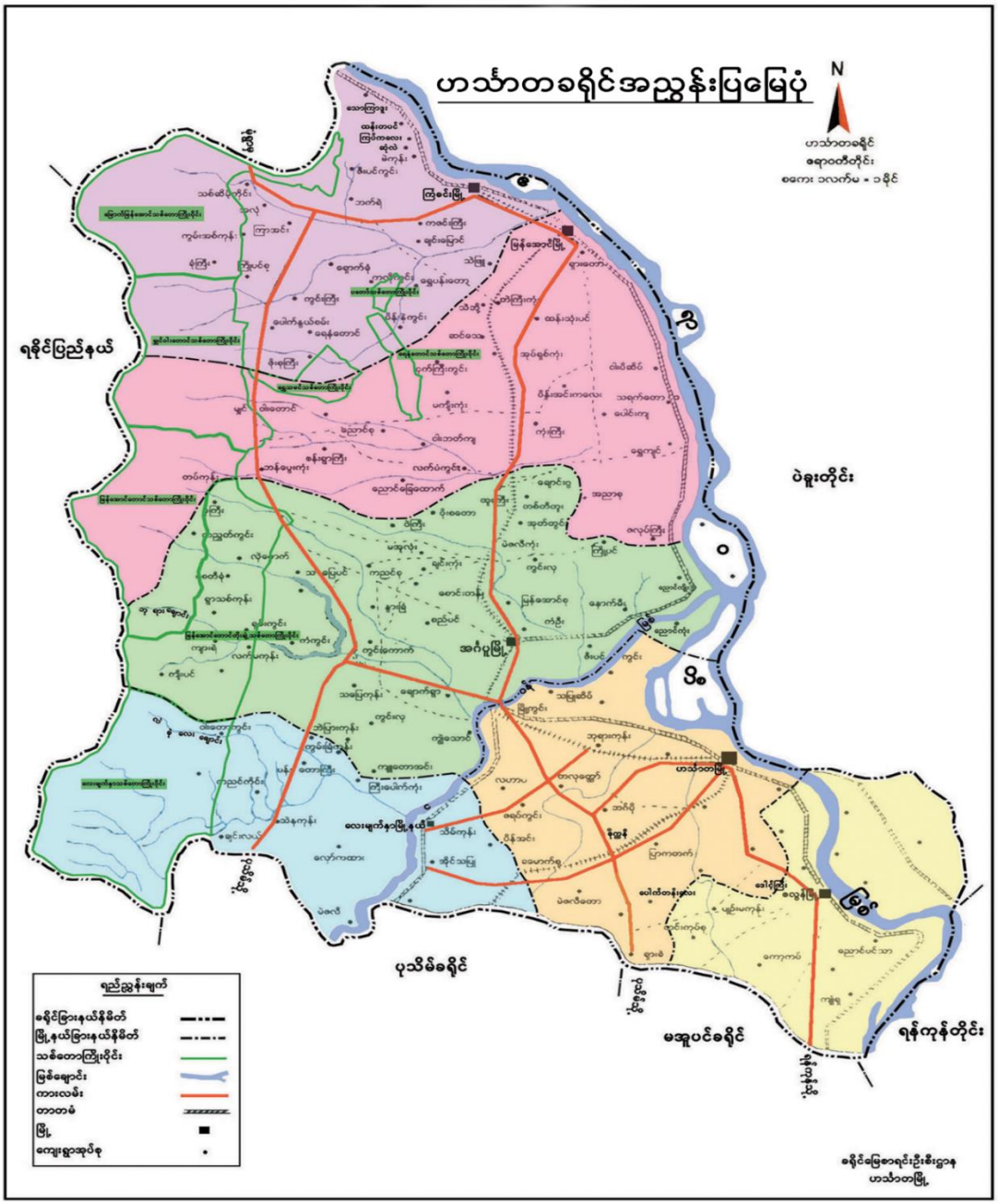
19	Present Job Tittle	Government Staff Company Staff Daily wages worker Private business Hawker Other (specify)	1 2 3 4 5 6	
20	Monthly Income			
21	Is your income enough for your monthly expense?	Yes No	1 2	If yes, Please No.23 and no,No.22
22	How to solve Insufficient Income?	Loan with interest Mortgage to family properties Selling to family properties Working another new job Other (specify)	1 2 3 4 5	
23	Past paid job	Yes No	1 0	If yes, No.24 and no,No.26
24	Past job title	No job Government Staff Company Staff Daily wages worker Private business Hawker Other (specify)	0 1 2 3 4 5 6	
25	Why did you resign your job?	Insufficient income No safety in job site No job Promotion/ Improvement Far away from family	1 2 3 4 5	

		No job satisfaction Other (specify)	6 7	
26	Are you satisfied with your present situation?	Yes No	1 0	If yes, No.28 and no,No.27
27	What will you do if you are not satisfied with your present situation?	Resigning from present job Finding new job Going other States to find a job Going Abroad to find a job Other(specify)	1 2 3 4 5	
28	How're you standing your life without a paid job?	Depending on parents Depending on spouse Depending on relatives Depending on CSOs Depending on NGOs Depending on Someone Other(specify)	1 2 3 4 5 6 7	
29	Is there anyone providing you?	Yes No	1 0	If yes, No.30 and no,No.31
30	If yes, what kinds of things are they providing you?	Finance Food Clothes Education expense Health care expense Other(specify)	1 2 3 4 5 6	
31	Why do you have no job at present?	No education Not high school graduate Not university graduate Not professional skill Low pay level Not enough employment	1 2 3 4 5 6	

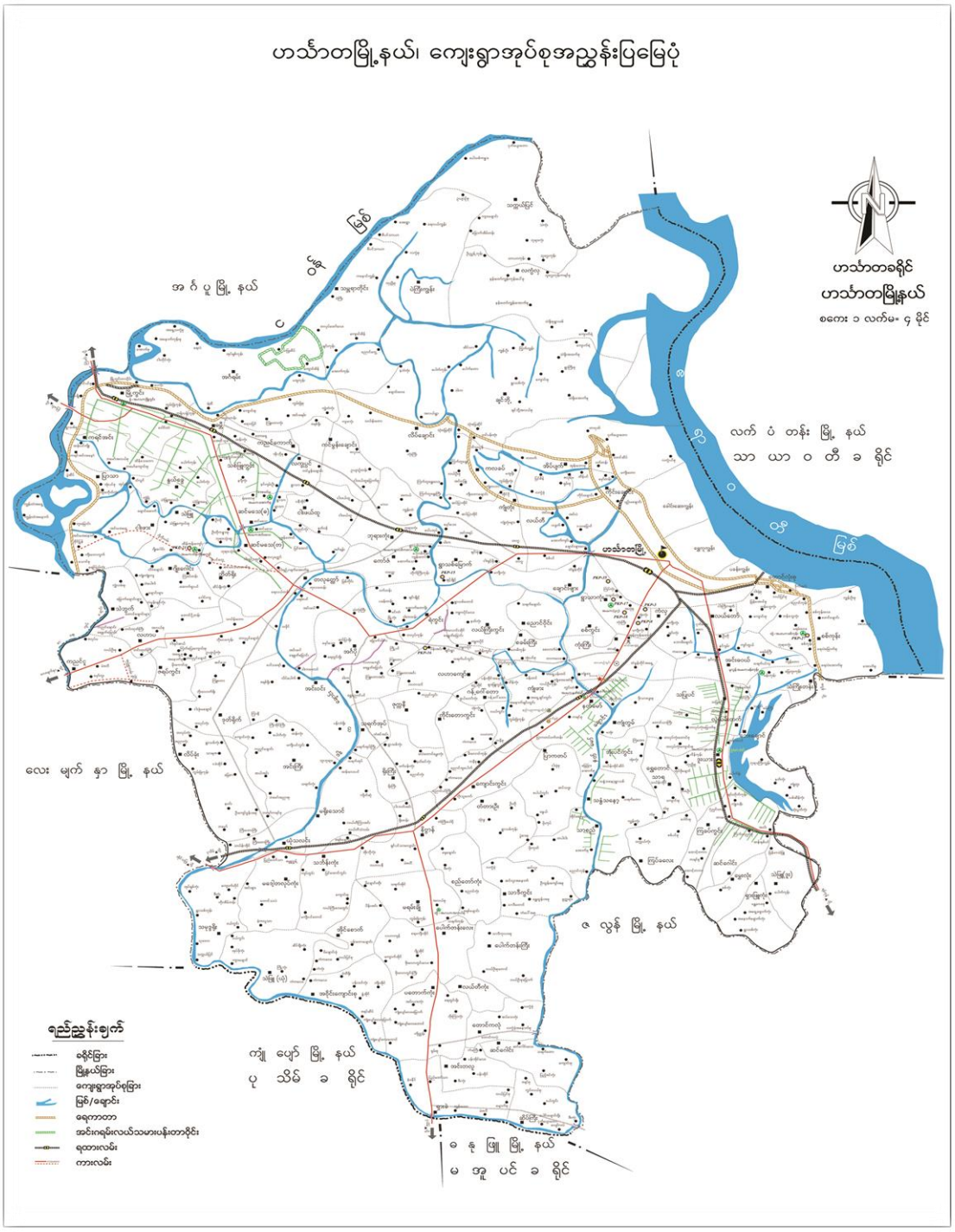
		Not allowed parents No good health Other(specify)	7 8 9	
32	Which challenges are you facing?	Difficulty in food & clothes Bad family relationship Problem in community Depression Bad health Others(specify)	1 2 3 4 5 6	
33	Is there anyone depending you?	Yes No	1 0	If yes, No.34 and no,No.35
34	What kinds of things are you providing them?	Finance Food Clothes Education care expense Health care expense Others(specify)	1 2 3 4 5 6	
35	If you have no paid job at present, what kind of job are you interested to work?	Government staff Company Daily wages worker Private business Small industry Small indoor business Others(specify)	1 2 3 4 5 6 7	
36	Which kind of Government Ministry do you want to advise for unemployment issue?	Ministry of Labor Ministry of Transport Ministry of Forestry Ministry of Agriculture & Irrigation Ministry of Livestock-Fisheries Ministry of Commerce	1 2 3 4 5 6	

		Others (specify)	7	
37	What kind of advice/ proposal do you give the Private Business Sector for unemployment?	Giving jobs to apprentices Employment to only local workers Increasing industry Providing technical skills Paying right enough salary Others(specify)	1 2 3 4 5 6	
38	What kinds of advice/proposal do you want to give CSOs/NGOs Sector for unemployment?	Linking with job vacancy Providing vocational training Training to produce good products Providing technical skill Paying right enough salary Other(specify)	1 2 3 4 5 6	
39	What do you want to share more on your no paid job?	Creating job opportunity Creating part-time job Providing social welfare Providing vocational training Providing small industry Other(specify)	1 2 3 4 5 6	
40	Do you has any suggestions upon the employment conditions?			

Map of the Hinthada District



Map of the Hinthada Township



Multinomial Logistic Regression

Case Processing Summary			
		N	Marginal Percentage
The Types of Job	Own business	103	36.8%
	wage earner	31	11.1%
	daily wages worker	49	17.5%
	no job	97	34.6%
Age	15-30	140	50.0%
	31-64	140	50.0%
Family Member	less than or equal 2	25	8.9%
	3	62	22.1%
	4	79	28.2%
	5	57	20.4%
	greater than or equal 6	57	20.4%
Marital Status	married	206	73.6%
	other	74	26.4%
Income_enough	Yes	152	54.3%
	No	128	45.7%
Previous paid job	Yes	149	53.2%
	No	131	46.8%
Educational levels	illiterate and primary	134	47.9%
	middle	77	27.5%
	higher and above	69	24.6%
Valid		280	100.0%
Missing		264	
Total		544	
Subpopulation		123[a]	

Model Fitting Information				
Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	540.043			
Final	423.399	116.644	30	.000

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	402.560	336	.007
Deviance	317.866	336	.754

Pseudo R-Square	
Cox and Snell	.341
Nagelkerke	.369
McFadden	.162

Classification					
Observed	Predicted				
	private	company	daily wages worker	no job	Percent Correct
Own business	51	10	7	35	49.5%
Wage Earner	8	12	3	8	38.7%
Daily wages worker	13	2	17	17	34.7%
no job	19	3	3	72	74.2%
Overall Percentage	32.5%	9.6%	10.7%	47.1%	54.3%

Multinomial Logistic Regression with All Significant Independent Variables

Case Processing Summary			
		N	Marginal Percentage
The Types of Job	Own business	103	36.8%
	wage earner	31	11.1%
	daily wages worker	49	17.5%
	no job	97	34.6%
Age	15-30	140	50.0%
	31-64	140	50.0%
Educational levels	illiterate and primary	134	47.9%
	middle	77	27.5%
	higher and above	69	24.6%
Marital Status	married	206	73.6%
	other	74	26.4%
Income enough	Yes	152	54.3%
	No	128	45.7%
Previous paid job	Yes	149	53.2%
	No	131	46.8%
Valid		280	100.0%
Missing		264	
Total		544	
Subpopulation		41[a]	
a. The dependent variable has only one value observed in 8 (19.5%) subpopulations.			

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	352.305			
Final	248.994	103.311	18	.000

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	158.253	102	.000
Deviance	130.947	102	.028

Pseudo R-Square	
Cox and Snell	.309
Nagelkerke	.334
McFadden	.144

Likelihood Ratio Tests				
	Model Fitting Criteria	Likelihood Ratio Tests		
Effect	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	248.994[a]	.000	0	.
Age	257.385	8.391	3	.039
Educational levels	275.595	26.601	6	.000
Marital Status	255.306	6.312	3	.097
Income_enough	265.340	16.346	3	.001
Past_paid_job	275.421	26.427	3	.000

Classification					
	Predicted				
Observed	private	company	daily wages worker	no job	Percent Correct
Own business	63	8	3	29	61.2%
Wage earner	13	10	3	5	32.3%
Daily wages worker	27	4	4	14	8.2%
no job	33	3	3	58	59.8%
Overall Percentage	48.6%	8.9%	4.6%	37.9%	48.2%

(A) Multinomial Logistic Regression with All Independent Variables

Parameter Estimates							
The Types of Job		B	Std. Error	Wald	df	Sig.	Exp(B)
Own Business	Intercept	1.038	.567	3.350	1	.067	
	[Age=1]	-.820	.337	5.926	1	.015	.441
	[Age=2]	0[b]	.	.	0	.	.
	[Family member=1]	.043	.648	.004	1	.947	1.044
	[Family member=2]	-.080	.458	.031	1	.861	.923
	[Family member =3]	-.329	.434	.573	1	.449	.720
	[Family member =4]	-.377	.484	.607	1	.436	.686
	[Family member =5]	0[b]	.	.	0	.	.
	[Marital Status=1]	-.380	.417	.831	1	.362	.684
	[Marital Status =2]	0[b]	.	.	0	.	.
	[Income enough=1]	.507	.309	2.697	1	.101	1.660
	[Income enough=2]	0[b]	.	.	0	.	.
	[Previous paid job=1]	-1.168	.339	11.903	1	.001	.311
	[Previous paid job=2]	0[b]	.	.	0	.	.
	[Education =1]	.292	.404	.521	1	.470	1.339
	[Education =2]	.742	.432	2.949	1	.086	2.100
	[Education =3]	0[b]	.	.	0	.	.
Wage Earner	Intercept	-1.685	.950	3.144	1	.076	
	[Age =1]	.387	.597	.421	1	.517	1.473
	[Age =2]	0[b]	.	.	0	.	.
	[Family member =1]	.758	.951	.635	1	.426	2.133
	[Family member =2]	.656	.779	.711	1	.399	1.928
	[Family member =3]	.509	.708	.516	1	.472	1.664
	[Family member =4]	.728	.730	.994	1	.319	2.071
	[Family member =5]	0[b]	.	.	0	.	.
	[Marital Status =1]	-1.443	.579	6.216	1	.013	.236
	[Marital Status =2]	0[b]	.	.	0	.	.
	[Income enough=1]	2.128	.612	12.079	1	.001	8.400
	[Income enough=2]	0[b]	.	.	0	.	.
	[Previous paid job=1]	-1.502	.536	7.840	1	.005	.223
	[Previous paid job=2]	0[b]	.	.	0	.	.
	[Education=1]	-.143	.598	.057	1	.811	.867
	[Education =2]	-.208	.643	.104	1	.747	.813
	[Education =3]	0[b]	.	.	0	.	.
Daily wages worker	Intercept	-2.478	1.033	5.756	1	.016	
	[Age =1]	.018	.444	.002	1	.968	1.018

	[Age =2]	0[b]	.	.	0	.	.
	[Family member =1]	.980	.780	1.576	1	.209	2.664
	[Family member =2]	-.804	.686	1.375	1	.241	.448
	[Family member =3]	.111	.590	.036	1	.850	1.118
	[Family member =4]	.554	.610	.825	1	.364	1.740
	[Family member =5]	0[b]	.	.	0	.	.
	[Marital Status =1]	.267	.576	.215	1	.643	1.306
	[Marital Status =2]	0[b]	.	.	0	.	.
	[Income enough=1]	.453	.401	1.281	1	.258	1.574
	[Income enough=2]	0[b]	.	.	0	.	.
	[Previous paid job=1]	-1.939	.421	21.187	1	.000	.144
	[Previous paid job=2]	0[b]	.	.	0	.	.
	[Education =1]	2.907	.825	12.423	1	.000	18.300
	[Education =2]	2.188	.866	6.377	1	.012	8.918
	[Education =3]	0[b]	.	.	0	.	.
a. The reference category is: no job.							
b. This parameter is set to zero because it is redundant.							

(B) Multinomial Logistic Regression with All Significant Variables (A-1)

Parameter Estimates							
The Types of Job		B	Std. Error	Wald	df	Sig.	Exp(B)
Own Business	Intercept	.815	.504	2.615	1	.106	
	[Age =1]	-.751	.326	5.318	1	.021	.472
	[Age =2]	0[b]	.	.	0	.	.
	[Education =1]	.264	.401	.433	1	.510	1.302
	[Education =2]	.706	.428	2.724	1	.099	2.026
	[Education =3]	0[b]	.	.	0	.	.
	[Marital Status =1]	-.348	.404	.742	1	.389	.706
	[Marital Status =2]	0[b]	.	.	0	.	.
	[Income enough=1]	.527	.302	3.041	1	.081	1.694
	[Income enough=2]	0[b]	.	.	0	.	.
	[Previous paid job=1]	-1.168	.334	12.220	1	.000	.311
	[Previous paid job=2]	0[b]	.	.	0	.	.
Wage Earner	Intercept	-1.339	.852	2.469	1	.116	
	[Age =1]	.457	.587	.606	1	.436	1.580
	[Age =2]	0[b]	.	.	0	.	.
	[Education =1]	-.112	.586	.036	1	.849	.894
	[Education =2]	-.142	.632	.051	1	.822	.867
	[Education =3]	0[b]	.	.	0	.	.
	[Marital Status =1]	-1.277	.559	5.222	1	.022	.279

	[Marital Status =2]	0[b]	.	.	0	.	.	
	[Income enough=1]	2.129	.604	12.416	1	.000	8.410	
	[Income enough=2]	0[b]	.	.	0	.	.	
	[Previous paid job=1]	-1.509	.527	8.202	1	.004	.221	
	[Previous paid job=2]	0[b]	.	.	0	.	.	
Daily wages worker	Intercept	-2.201	.918	5.743	1	.017		
	[Age =1]	-.108	.409	.070	1	.791	.898	
	[Age =2]	0[b]	.	.	0	.	.	
	[Education =1]	2.824	.812	12.092	1	.001	16.846	
	[Education =2]	2.239	.854	6.869	1	.009	9.386	
	[Education =3]	0[b]	.	.	0	.	.	
	[Marital Status =1]	.095	.550	.030	1	.864	1.099	
	[Marital Status =2]	0[b]	.	.	0	.	.	
	[Income enough=1]	.496	.387	1.636	1	.201	1.641	
	[Income enough=2]	0[b]	.	.	0	.	.	
	[Previous paid job=1]	-1.825	.407	20.075	1	.000	.161	
	[Previous paid job=2]	0[b]	.	.	0	.	.	

a. The reference category is: no job.

b. This parameter is set to zero because it is redundant.