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The Research Journal of Yangon University of Economics has come out by the guidelines of the Minister for the Ministry of Education in Myanmar. The Journal aims at the advancement of research in all areas of Economics. It also has the aim of providing a scholastics platform to professionals, researchers, and academicians associated with the field of Economics. It is expected that the journal can provide implications for teaching and learning public policy, business policy and individual decision making.

The articles in this journal are contributed by researchers from all academic departments of our university. We fully appreciated the contributions of the researchers. We also admire their great efforts to contribute in this journal though gradually increasing numbers of the students enrolled in Yangon University of Economics make them occupied with teaching.

Yangon University of Economics has always been trying to promote the quality of education. This journal is a proof of such endeavour.

Editorial Board

Employment and Employability Skills of Graduates from Three Universities of Economics

Dr. Daw Soe Thu¹, Daw Cho Mar Lwin², Daw Thwe Thwe Tun³

Abstract

This study identifies graduates' employability level and their skills after graduation from Yangon/ Monywa/ Meikhtilar University of Economics. It studied the respondents' employment, perception of employability skills perceived by the respondents by using both qualitative and quantitative data analysis methods. The secondary data used in the study were collected from the Department of Higher Education, Ministry of Education; Department of Students Affairs of Yangon / Monywa / Meikhtila University of Economics in mid-2017. In relation to study the employment level of the respondents, most graduates were found to be employed in their first jobs within 3 to 12 months after graduation. Regarding employability skills, their highest perception of personal skills were only concerned with how they could improve social network and soft skill necessarily required for their working environment around the University of Economics that they had attended. The core skills perceived as the highest benefit to them was their critical thinking and strategic thinking obtained from attending the training classes before going into the workplaces. Concerning the process skills perceived, their feeling that they understand more about the business ethics that should have been practiced and held in market was the highest mean value perceived by each graduate. It could be found that the graduates' employment level after graduation from Three Universities of Economics was not be longer their time of waiting for getting fresher job where they could apply and utilize their employability skills they learnt in the universities than that of other waiting list of degree holders for employment in the Myanmar Labor Market.

Keywords: Graduates, Employment, Employability Skills

1. Introduction

Critically, university graduates employed at the respective workplaces should possess appropriate knowledge, skills and attitudes to survive everyday problems and grow in their career lives. Universities are now facing a great deal of both national and international pressures and challenges to adapt to more economical aims and to promote graduates' employability. It has therefore become a central developmental priority in any developing countries to boost the short- and long-term employability potential of their young people.

It is critical that graduates entering into the new workplace with the appropriate skills not only survive but also better their career (Richard James Rateau, 2011). Then, employers want the hired graduates to become leaders qualified for the top level management of the country in the future. (Peter Murphy and David Gawthorpe, 2013). Therefore, perfect outcomes (graduates) of universities with higher education must be qualified inputs or resources for the industries or employers.

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Not all young students entered and passed through higher education are orientated to pursue their future and their careers in similar ways and, therefore, can be disposed towards employability in different ways (O'Regan, 2009). One of the main reasons why people apply to higher education is to enhance their career prospects, so career progression is a key driver for many graduates (Peter Murphy and David Gawthorpe, 2013). University graduates occupy an interesting position in the economy and there are still competing interpretations about the outcomes of graduates when they enter the labor market (Elias & Purcell, 2004; Brown and Hesketh, 2004). When graduates are entering with various skills into the labour market, employers are more satisfied with graduates who possess skills such as critical and creative thinking, interpersonal, and leadership skills than those who simply possess skills specific to their vocation (Paranto & Kelkar, 1999). Employability means the development of skills and adaptable workforces in which all those capable of work are encouraged to develop the skills, knowledge, technology and adaptability to enable them to enter and remain in employment throughout their working lives (HM Treasury, 1997). But some graduates do not know how to utilize their knowledge and skills, or how to acquire the needed skills for success in their workplace. Consequently, there are expectation gaps between the employers and the employees, and then employers are facing many challenges about human resources (HR) section in an increasingly competitive marketplace. To diminish those gaps, educators and employers need to work together to prepare students for the complexities they will encounter as they leave school and enter the work place (Evers, Rush & Bedrow, 1998).

2. Theoretical Background

Employability is centered on the assumed transposition of skills and competences from the educational context into the workplace (Holmes 2000). Moreover, the graduate can accept the challenge, learn from it and shape his or her identity in their workplaces accordingly by employing the skills and attributes he or she has acquired at university. The employability of graduates has become an aim that governments around the world have, to varying extents, imposed on national higher education systems. This interest in employability reflects an acceptance of human capital theory (Becker, 1975). Under human capital theory, the task of a government is to foster conditions that encourage growth in the stock of human capital, since this is seen as vital to the performance of knowledge-based economies in a globalized society. The higher education system is subject to governmental steer in giving an emphasis to the enhancement of the employability of new graduates. Sometimes, some people get confused about the difference of these two words of "Employment" and "Employability" and mostly those two were interchangeably used and interpreted even in labor markets. In reality, employability is not the same as employment at all. Getting a graduate job has been for sometimes, an irregular and sometimes slow process. However, employability implies something about the capacity of the graduate to function in a job, and is not to be confused with the acquisition of a job, whether a graduate job or otherwise. Some scholars denied that employability of graduates stem from the curricular system for a specific degree program in a particular field of study in higher education institutions. Holmes (2001) analyzed "graduates'

employability” by using graduate identity approach to point out that the enhancement of an undergraduate curriculum in universities leads to increase employability of those graduates of the business school, University of North London. Employability is a consequential effect of a curriculum designed in universities. Therefore, Mantz Yorke (2010) argued that the curricular process has to facilitate the development of prerequisites appropriate to employment but does not guarantee it. Hence it is inappropriate to assume that university students are highly employable on the basis of curricular provision alone. It may be a good harbinger but it is not an assurance of employability. Employability derives from the ways in which the student learns from his or her experiences.

2. Objective of the Study

Myanmar's economy growth has led to the appearance of new local businesses and has affected businesses of all sizes. The government opens the policies and regulations that have led to an influx of international businesses and foreign investment. Therefore, lots of new jobs for educated youths are created. Some youths may be able to get jobs in their fields of study. There may be challenges for some young people to match their studies in university with job because of the more competition for a specific job, lack the necessary skills needed and/or demand higher salaries than employers are willing to provide, etc. Under these current labor market circumstances in Myanmar, the employability of graduates of the three Universities of Economics after their graduation was worth studying to find out their types of career motivation before graduation, perception of their employability and competencies that related to the current job and working fields. The main aims of this study are to examine how graduates specialized on academic field of Economics got their job career after their graduation and to identify their employability skills perceived by themselves as a knowledge learnt in the universities due to the impact of having different university entrance marks, taking different schooling time and learning courses by different curriculum of graduates between two groups their on employability skills of each respondent.

3. Background of the Study

There are 192 higher education institutions in Myanmar. Among them, only three Universities of Economics exist in Myanmar, namely Yangon University of Economics (YUEco) established since 1962, Monywa University of Economics (MUEco) opened in 1996, and Meiktila University of Economics (MEUEco) launched in 1999. Regarding the degrees offered by each university of economics, only Yangon University of Economics can offer eight kinds of bachelor degrees; Bachelor of Accounting, BAct, Bachelor of Business Administration, BBA, Bachelor of Commerce, (BCom), Bachelor of Economics majoring in Economics, (BEcon(Eco)), Bachelor Economics majoring in Statistics, (BEcon(Stats)), Bachelor of Public Administration, (BPA), Bachelor of Development Studies, (BDevS), and Bachelor of Population Studies, (BPS) during academic years of 2010-2011 to 2015-2016. According to the survey data, there are (9,097) total number of graduates offered by each

university of economics in academic year between 2010-2011 and 2012-2013 composing of (6,675) graduates offered in YUEco, (1,495) graduates delivered by MUEco, and (927) graduates conferred by MEUEco respectively. This graduates' number was assumed as Group I namely in the study. As Group II, there were (8,223) total number of graduates offered by each university of economics in academic year between 2013-2014 and 2015-2016 composing of (5,116) graduates offered in YUEco, (1,560) graduates delivered by MUEco, and (1,547) graduates conferred by MEUEco respectively. All responded graduates as population in the study could be divided into two groups in which the first group involved the graduates those who graduated between academic years of 2010-2011 and 2012-2013 and those who completed their learning within *three year schooling time and old curriculum system and learning design* in all universities. Another study group consisted of the graduates those who completed between academic years of 2013-2014 and 2015-2016 and those who were treated and trained by the *new upgraded curriculum and degree courses designed within length of schooling time four year* to get their respective degrees. Therefore, total sample units of working graduates from Group I were (650) out of population (9,097) and from Group II were (620) out of population (8,223) were selected by using sample size calculator in raosoft.inc to get the minimum recommended size of the study.

4. Analysis of Demographic Figures of Graduates of the Study

This section includes three parts, the first one presenting the demographic data whereas the second one examining about their waiting time to get first job after graduation, types of working organization, functional area to be responsible at work, and their income level at the current and as well the final portion of this analysis is to investigate skills of their employability perceived by the selected respondents in the study.

By gender, it could be said that (70%) out of total sample units of each group of respondents are female and the rest are male (30%) of the total sample unit of the study. Regard to the marital status of respondents, it could be concluded that only (5%) out of total respondents got married while working at the respective job whereas the remaining (95%) are working as single. Moreover, two - third of the total respondents are female graduates and almost of them are taking the role as the more responsible persons at workplaces than those of male respondents. This finding concluded partly that the real socio-economic patterns of Myanmar educated working youth and their life style nowadays.

5. Analysis of Graduates' Employment of the Study

This section investigates how long the respondents waited for getting their first job after graduation, which types of organizations they were working, what functional field they were assigned to work based on their specific degree in the respective academic field at work. In regard to the number of graduates having experience of different waiting time for getting their first job after graduation, only 42 out of 1270 graduates got their first job within

(3) months, 175 out of 1270 graduates within (6) months later, 546 out of 1270 sample graduates within (9) months later, 278 out of 1270 graduates within (1) year later, 192 out of 1270 graduates within (1.5) years later, only 37 out of 1270 graduates within more than (2) years later after their graduation respectively. It could be concluded that almost of responded graduates got their first job within (3) months and (12) months after graduation. Concerning the number of graduates working at the different types of organizations, more than (84%) of responded graduates are working in the private forms, (9%) of graduates responded are working at the Governmental Organizations as staff, (5.25 %) of graduates are working own businesses, and (1.3%) are working in the NGO. With respect to the number of graduates by management level of responsibility assigned to take part in the working activities, nearly 91% of total respondents were assigned to take part in the operations level of management whereas 8.3 % of total graduates were promoted to take part in the middle level of management at work places. Only 11 out of 1270 graduates are taking the responsibility of top management level in the study. It could be seen that all respondents have a specific degree in each six years ago from the university. Normally they all have to wait for one year in average to get their early job so that their skills required and working experiences are so far still lack to be assigned to the higher level of management rather than assigning to take part in the basic operations level of workplaces as fresher graduates for getting chance of doing by learning in their job. As exceptional case in the study, some of the outstanding graduates were assigned and promoted to participate as managers or leaders of middle level and top level of management in their respective area.

Regarding the number of respondents by function assigned to perform at their workplace, (60%) out of total graduates are responsible to perform the function of accounting & auditing, (11%) out of total respondents were assigned in office management/administration, (9%) out of total graduates are appointed as managers at the middle level of management, (7%) out of total graduates are responsible representatives for marketing and sales, (8%) out of respondents are taking part in negotiating, education, training, communication, customer services and public affairs respectively. It could be concluded that the majority of graduates finished from three Universities of Economics are taking part in the workplaces where they could deploy their employability skills, knowledge and experience acquired through learning and attending university. Concerning income level earned per month after joining their first job, the highest range of monthly income of working graduates was more than 400,000 MMKs and the lowest income level per month of graduates was less than and equal to 200,000 MMKs. It could be concluded that the income level for per month of respondents are getting more reasonably amount of income than those of other graduates in Myanmar.

6. **Comparative Analysis of Employability Skills of Graduates**

This section tested a hypothesis “Employability skills level perceived by selected graduates involved in Group II is higher than those of Group I”. Table (1) shows the test for normality by using Kolmogorov-Smirnov Test.

Table (1): Mean Value of Three Employability Skills by Respondents

No.	Skill	Group 1 Graduated in 3 years		Group 2 Graduated in 4 years	
		Mean	SD	Mean	SD
1.	Personal Skill	3.66	0.45	4.10	0.83
2.	Core Skill	3.30	0.57	4.06	0.53
3.	Process Skill	3.70	0.78	3.95	0.45

Source: Survey Data (2017)

Table (2): Test for Normality of Each of Employability Skills by Graduates

Skills	Kolmogorov-Smirnov Test		
	Statistic	df	Sig.
Personal Skill	.177	1270	.200*
Core Skill	.166	1270	.200*
Process Skill	.151	1270	.200*

*. This is a lower bound of the true significance.

Table (2) shows p values of the all test are 0.200 which is greater than 0.05. Hence, the data is distributed normal. Therefore, it can be concluded that normality can be assumed for those data set and provided t test assumption are satisfied; a parametric t test can be used.

Table (3): T test for Comparison of Personal Skill between Group I and II

Group	N	Mean	SD	Leven's Test		t	df	Sig
				F	Sig.			
Graduated in 3 years	650	3.66	0.45	2.170	0.148	11.66	1268	.000
Graduate in 4 years	620	4.10	0.83					

Table (3) presents the “t” value for comparison of personal skill between graduated in 3 years and 4 years. The p value of the Leven’s Test for equality of variance is 0.148, which is more than 0.05. Hence, the assumption of equality of variances is met. The two tailed p value of the test is 0.00, which is less than 0.05. Thus, it was found that there was significant difference of personal skill between graduated in 3 years and 4 years.

Table (4): T test for Comparison of Core Skill between Group I and II

Group	N	Mean	SD	Leven's Test		t	df	Sig
				F	Sig.			
Graduated in 3 years	650	3.30	0.57	2.254	0.618	24.209	1268	.000
Graduate in 4 years	620	4.06	0.53					

Table (4) shows the “t” value for comparison of core skill between graduated in 3 years and 4 years. The p value of the Leven’s Test for equality of variance is 0.618, which is more than 0.05. Hence, the assumption of equality of variances is met. The two tailed p value of the test is 0.00, which is less than 0.05. Thus, it was found that there was significant difference of core skill between graduated in 3 years and 4 years.

Table (5): T test for Comparison of Process Skill between Group I and II

Group	N	Mean	SD	Leven's Test		t	df	Sig
				F	Sig.			
Graduated in 3 years	650	3.70	0.45	4.605	0.463	6.751	1268	.000
Graduate in 4 years	620	3.95	0.78					

Table (5) presents the “t” value for comparison of process skill between graduated in 3 years and 4 years. The p value of the Leven’s Test for equality of variance is 0.463, which is more than 0.05. Hence, the assumption of equality of variances is met. The two tailed p value of the test is 0.000, which is less than 0.05. Thus, it was found that there was significant difference between two group’s process skills. All results supported to prove the hypothesis proposed in the study.

7. Conclusion of the Study

Based on the graduates’ perception of employability skills, and employability surveyed in the study, the majority of respondents were employed in their early jobs after waiting for 3 months at least and one year and 6 months at most. Almost the respondents agreed strongly that they got sufficiently skills of personal and core of employability already by taking part in the social networks and art and sports activities and study tours and being a university students if they had chance to stay hostels in the compound of the respective University with other students and teachers in 24 hours, they could get more chance to learn those personal and core skills. At the same time, they apologized commonly that only just attending the class regularly was not enough to gain process skills like technical ability that was required to perform best in the job so that they need to learn their studies by practical approaches and case studies and

self-participation in presentation and discussion with their teachers inside or outside classes. In this way the graduates got fulfilled the necessary skills of processes. Therefore, it could be suggested if the students gained sufficiently the skills of employability such as personal, core and process for them highly in the class, they were employed faster than others in the respective workplace.

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The Antecedents of Entrepreneurial Intentions among University Students

Than Soe Oo¹, Phyu Phyu Thant²

Abstract

This study examined the effect of three components of Theory of Planned Behavior (TPB) on entrepreneurial intention (EI) such as attitude towards behavior, subjective norms and perceived behavior controls. The sample of this study consisted of 263 final year students in Yangon University of Economics (YECO). The sample was taken by simple random sampling method. The findings of multiple linear regression analysis revealed that attitude towards behavior, subjective norms and perceived behavior controls have positive impact on entrepreneurial intention of university students. Among them, attitude towards behavior was the stronger predictor. The study makes theoretical contributions to body knowledge of entrepreneurial intention by using theory of planned behavior in different culture. Practically, the study provides useful knowledge for policymakers to improve the entrepreneurship in our country.

Keywords: Entrepreneurial intention, Theory of Planned Behavior (TPB).

I. Introduction

‘Entrepreneurship is a means of economic growth; a mechanism that assists employment generation, innovation and competitiveness; and stimulus of social development. Promotion of entrepreneurship is now accorded national priorities by many countries, specifically among developing ones’ (Grid & Bagraim, 2008). In facing with high unemployment and low poverty rate in developing countries in the world, entrepreneurship becomes a means to achieve the dreams of these countries.

In a country’s general population, they may be varied like students, workers, housewives, businessmen, administrators and intellects depend upon their occupation and status. Among these groups, attention pays on the students to become entrepreneurs for future. This is because the end of period of education is one of the three window periods to become entrepreneur throughout a person’s life. Therefore, the study focuses on

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entrepreneurial intention of final year students in Yangon University of Economics (YECO). The current study is significant in that government authorities may use its results to develop initiatives to promote entrepreneurship amongst people in younger generations, particularly those who are enrolled in university.

Objectives of the Study

The study mainly focuses on the following objectives:

- (1) To identify the entrepreneurial intention (EI) among the university students.
- (2) To analyze the effect of three components of Theory of Planned Behavior (TPB) on entrepreneurial intention (EI) of the university students.

Conceptual Framework of the study

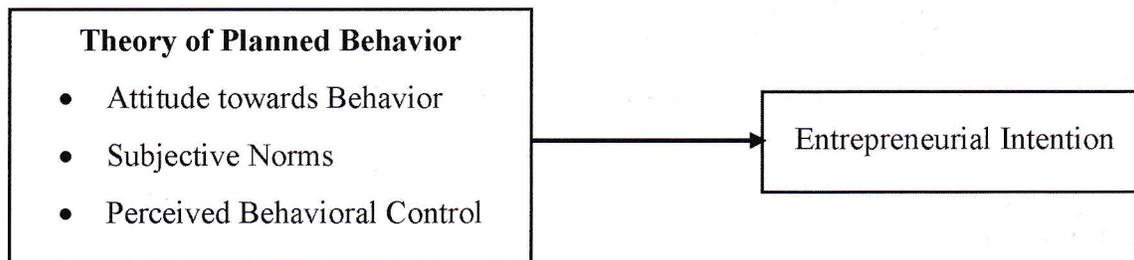


Figure 1 Conceptual Framework of the Study

II. Scope and Method of the Study

This study focuses on TPB of final year students and their intention to become entrepreneur. This empirical research used descriptive and causal research design. Study identify the EI among university students and analyze the effect of three components of TPB on EI of the university students. Data has been collected from final year students in Yangon University of Economics (YECO) who are attending in the 2018-2019 academic year. A total of 278 students were randomly selected. After that all filled questionnaire were collected by author and found 263 total valid questionnaires. A self-structured questionnaire was used for data collection. All variables of TPB were identified and selected through literature review. Response are collected on five-point Likert scale that range from 1 = strongly Disagree to 5 = Strongly Agree. The questionnaire is divided into three parts: demographic characteristics, three components of TPB and EI. The three components of TPB were adapted from previous

studies such as Solesvik et al. (2012), Souitaris et al. (2007) and Linan & Chen (2009). EI scale was adapted from Linan & Chen (2009). For demographic characteristics questions are not with Likert scales type. Entrepreneurship theoretical concepts were studied through secondary data. The secondary data were previous studies in this field on the internet.

Data were analyzed using the Statistical Packages for the Social Sciences version 25 (SPSS 25). Descriptive statistics were used for analyzing the demographic profile of respondents. The multiple linear regression was used for analyzing the effect TPB on EI.

III. Results

1. Demographic Characteristics of Respondents

Descriptive analysis was utilized to understand the overall profile of respondents. As for demographic data, the frequency and percentage were used for analysis. Table (1) shows the demographic data of the respondents of this research.

Table 1 Demographic Characteristics of Respondents

Attribute	Characteristics	Frequency	Percent
Gender	Male	41	16
	Female	222	84
Age (years)	Below 20	66	25
	21 – 23	194	74
	23 and above	3	1

Source: Survey Data (2019, July)

According to Table 1, the data was collected from 263 final year students in YECO. Among the total of 263 respondents, 84 percent are females while the other 16 percent are male. Most of the respondents are 21 – 23 years old with 74 percent, followed by 25 percent of the respondents who are below 20 years old and 1 percent who are 23 years old and above.

2. Descriptive Statistics

The following section contains descriptive statistics for each scale. It was used to analyze the mean and standard deviation of independent variables and dependent variable. Using SPSS, the mean and standard deviation was calculated for each variable (see Table 2).

Table 2 Descriptive Statistics of EI and three components of TPB

Variable	Mean	Standard Deviation
Entrepreneurial Intention	3.43	0.71
Attitude towards Behavior	3.67	0.63
Subjective Norm	3.14	0.79
Perceived Behavioral Control	3.32	0.58

Source: Survey Data (2019, July)

According to Table 2, it is found that the standard deviations for all variables are less than 1. So as to 'normal distribution the value of standard deviation must be ranging from 0 to 1' (Cohen, 2011). The deviation for EI is 0.71 from its mean, attitude towards behavior is 0.63, subjective norm is 0.79 and perceived behavioral control is 0.58. So, it can be concluded that data of this study is normally distributed.

3. Effect of three components of TPB on Entrepreneurial Intention

Multiple linear regression analysis was performed to find out the effect of three components of TPB on EI of final year students in YECO. In the regression analysis, EI was regarded as dependent variable and three components of TPB as independent variables.

The results of three components of TPB on EI was reported in Table 3.

Table 3 Effect of Personality Traits on Entrepreneurial Intention

Variables	Unstandardized Coefficients		t	Sig.
	B	Std. Error		
(Constant)	.023	.205	.114	.000
Attitude towards Behavior	.532***	.058	9.128	.000
Subjective Norm	.121***	.043	2.792	.006
Perceived Behavioral Control	.324***	.062	5.213	.000
R ²	0.527			
Adjusted R ²	0.521			
F-value	96.104 ***			
Sig.	0.000			

Source: Survey Data (2019, July)

According to Table (3), the results showed that together attitude towards behavior, subjective norm and perceived behavioral control explained by 52.1 percent (Adjusted R^2) of the variance of EI. the F-value shows the independents variables statistically significantly predict the dependent value, $F(3,263) = 96.104$, $p < 0.000$ that is the regression model is a good fit of the data.

The results also show that all components of TPB have positive and significant association with EI: attitude towards behavior ($\beta = .532$, $p < .01$), subjective norm ($\beta = .121$, $p < .01$) and perceived behavioral control ($\beta = .324$, $p < .01$). The analysis also indicated that attitude towards behavior ($\beta = .532$) was a stronger predictor. These results suggest that the EI of final year students can be significantly predicted by attitude towards behavior, subjective norm and perceived behavioral control.

Attitude towards behavior has the expected positive sign and highly significant coefficient because significant value is less than 1 percent level. The positive relationship means that the increase in attitude towards behavior leads to more EI. If there is an increase in forces of attitude towards behavior by 1 unit, this will also raise the EI by 0.532 unit.

Subjective norm has the expected positive sign and significant coefficient value at 1 percent level. The positive relationship indicates that the increase in subjective norm leads to raise EI of final year students in YECO. An increase in subjective norm by 1 unit will raise the students' EI by 0.121 unit.

Perceived behavioral control has the expected positive sign and significant coefficient value at 1 percent level. The positive relationship indicates that the increase in perceived behavioral control leads to raise EI of final year students in YECO. An increase in perceived behavioral control by 1 unit will raise the students' EI by 0.324 unit.

In summary, the results show that all factors have significant value and the main determination of students' EI in YECO is found to be the attitude towards behavior. It indicates that the students have favorable of being self-employed.

IV. Conclusion

This study focuses on analyze the effect of three components of TPB on EI of the final year students in YECO. 263 respondents of final year students completed questionnaire composed of three parts.

The study contributes to the body of knowledge of EI by using the TPB. The results also show that all components of TPB have positive and significant association with EI: attitude towards behavior, subjective norm and perceived behavioral control. Among them, attitude towards behavior was the most influential factor.

The key contribution of this study is the empirical evidence of the factor affecting students' intention to become an entrepreneur. In the future, the fact that undergraduates are important source of emerging entrepreneurship. The implication of this study to policy makers and educators is, apart from offering entrepreneurship courses; the university should consider other factors to motivate the students to become an entrepreneur. It may require additional syllabus or programs for entrepreneurship study.

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Determinants of Under-Five Mortality in Chin State

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Abstract

This study tried to determine the factors effecting on under-five mortality in Chin State. Sample of 296 ever married women who aged are 15 to 49 years were drawn from 2015/16 Myanmar Demographic and Health Survey. Furthermore, the binary logistic model had been developed and estimated to investigate which factor has significant effect on under-five mortality. The finding of this study revealed that age of mother, number of children, age at first birth, mother's wealth status, source of water, sanitation facilities, source of cooking fuel, birth order, immunization, mother's education, contraceptive-use and mother's employment status are significant determinant factors of under-five mortality in Chin State.

Keywords: Demographic health survey, under-five mortality, ever married women

Introduction

Myanmar is a low-income country and the population is around 51.49 million with the annual population growth rate of 0.89 percent. Myanmar is a country of diversity and consists of 135 ethnic groups. The ethnic groups are arranged into eight major National Ethnic Races i.e. Kachin, Kayah, Kayin, Chin, Bamar, Mon, Rakhine and Shan. The country is divided administratively into Nay Pyi Taw Union Territory and seven States and seven Regions. These are divided into districts under which are townships. Classification of urban and rural area is made at the township level: the wards in town are classified as urban and the village tracts as rural. About 70 % of populations are living in the rural area whereas the others are living in urban area and more than half of the working population is in agriculture sector. Chin State is located in the North-west of Myanmar between 20° 40' and 24° 06' north latitude and 92° 37' and 94° 09' east longitudes. The north and east of Chin State is adjacent to Sagaing Division, to the south are Magway Division and Rakhine State, to the west are Bangladesh and India. The area of the State is 36,019 squarekilometers (13,907 square miles), State's capital is Hakha and this state is mountainous and hard to reach area. The population of Chin state is 478,801 persons: 229,604 are males and 249,197 are females. The total population of Chin State is 0.93 percent of the total population of Myanmar. In Chin State, more than three fourth (79%)of population lived in rural areas and only 21% of

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population lived in urban areas. There are 113,577 women aged (15-49) and 74, 971 were ever married women in Chin State. Chin people mostly live in this State. They also live in the nearby Indian states of Nagaland, Mizoram, Manipur and Assam. There are many tribes among the Chin people, more than forty sub-groups with different customs and languages. Traditionally, the Chin was animists. However, during the period of British colonialism, many Chin people converted to Christianity. [5]

According to the 2014 census, the total fertility rate (TFR) for all women aged (15-49) in Chin State is 5.0 children per woman, which is much higher than the Union's TFR of 2.3 and it has the highest rate of under-five mortality (89.6 deaths per 1000 live births) and infant mortality (75.5 deaths per 1000 live births). Under-five mortality is a leading indicator of child health and overall development of a nation, as it reflects the social, economic, and environmental conditions in which children (and others in society) live, including their healthcare [1].

When compared with other States and Regions in Myanmar, the mortality of Chin State is the highest among them. In Myanmar, there is few research studying determinants of mortality, particularly in the high mortality state like Chin State. More researches are needed to find out the factors affecting mortality in Chin State, Myanmar. That's why, this study aim is to find out the determinants of under-five mortality in Chin State.

Data and Method

This study used the secondary data from the Myanmar Demographic and Health Survey (MDHS) 2015-2016. The survey is the second comprehensive and nationally representative population and health survey. The two stages sampling method was used in this survey. The MDHS (2015-2016) is designed to provide estimates for the health and demographic variables of interest for the following domains; urban and rural areas of Myanmar and 15 geographic areas (7 States, 7 Regions and 1 Union Territory).

Thus, this study is based on 296 ever married women belonging to the age 15 to 49 years who lived in Chin State. The sample covered those women who lived in both urban and rural areas and also included women who had different level of education and occupation in this State. The questions used in the survey questionnaire included all of the important characteristics such as child mortality or number of children death under five year, education level, employment or working status, knowledge about contraceptive methods, place of residence, cooking fuel source, source of sanitation, source of water, tetanus toxoid injection, and age at first birth etc.

In order to meet the objective, descriptive analysis was used to present the general characteristics of women lived in Chin State under study such as gender of child, birth order, place of residence, wealth of household, source of cooking fuel, source of sanitation, source of water, and tetanus toxoid injection, contraceptive-use, employment or working status, education levels, and age at first birth. Furthermore, logistic regression analysis is applied to examine the most significant predictors influencing on under-five mortality. In this study, the average marginal effects were calculated to test the significance of logistic regression coefficients. Before analysis, various variables were regrouped such as birth order variable also divided by three groups namely first order, two-three order, and above third order, access to sanitation, and access to water and cooking fuel source were also grouped accordingly.

Results and Discussion

The demographic information of the respondents was analyzed in terms of gender of child, birth order, place of residence, wealth of the household, cooking fuel source, source of sanitation, sources of water, tetanus toxoid injection, contraceptive-use, employment, level of education and age at first birth.

Table (1) shows the demographic characteristics, environmental and socio-economic of 296 ever married women who aged are 15 to 49 years. From table, the proportion of male babies born stood at (49.5%) compared to female babies (50.5%). Concerning the birth order, above thirdorder is (45.5%) which is slightly larger than the remaining categories. Majority (85.4%) of ever married women live in rural area and more than one half of those women are poor.

With regard to the cooking fuel source, firewood (89%) is the main source of cooking fuel especially in the rural areas where it is easily accessible. Most of the women (60.5%) use flush toilet and (37.2%) of the women use pit toilet. Regarding the source of water, half (50.3%) of women use piped water is main source of water and only (12.9%) and (9%) of women use public tap and open wells. One fourth of women rely on spring and river.

Concerning the immunization, (52.6%) of women received the tetanus toxoid injection during pregnancy compares with only (47.4%) who reportedly did not receive the injection. Regarding the contraception, (25%) of women use contraception and (65%) of women are employed. Nearly (35%) of ever married women have primary education, (17.5%) of those women have no education, (44.3%) have secondary education and only (3.5%) have higher education respectively.

Table (1) Demographic, Environmental and Socio-economic Variables

Discrete variables	Percentage
Gender of the child	
Male	49.5
Female	50.5
Birth order	
First order	21.9
2-3 order	32.6
Above third order	45.5
Type of residence	
Urban	14.6
Rural	85.4
Wealth of the household	
Poor	59.7
Middle	25.1
Rich	15.2
Cooking fuel source	
Electricity	4.4
LPG/Gas	0.6
Coal	3.8
Wood	88.9
Others	2.3
Source of sanitations	
Flush toilet	60.5
Pit toilet	37.2
Others	2.3
Source of water	
Piped	50.3
Public tap	12.9
Open well	9.0
Spring	3.5
River	21.9
Others	2.4
Tetanus Toxoid Injection	
Immunized	52.6
Not immunized	47.4
Use of contraceptive	
Yes	25.3
No	74.7
Employment	
Yes	65.1
No	34.9
Education	
No education	17.5
Primary	34.7
Secondary	44.3
Higher	3.5

Age at first birth	
< 15 age at first birth	15.3
≥ 15 age at first birth	84.7

Source: MDHS Data (2015-16)

Table (2) shows the total number of live births, total number of deaths and under-five mortality rates by place of residence. Based on the survey data, it can be seen that under-five mortality rate in Chin State is 91 deaths per 1000 live births. The under-five mortality rate of rural (97 deaths per 1000 live births) is much higher than that of the urban area (61 deaths per 1000 live births).

Table (2) Under-five Mortality Rates by Place of Residence

Place of Residence	Total Number of Live Births	Total Number of Deaths	Under-five Mortality Rates
Rural	373	36	97
Urban	66	4	61
Chin State	439	40	91

Source: MDHS Data (2015-16)

The summary results and marginal effects of Logistic regression are shown in Table (3). In this analysis, the under-five mortality is a dependent variable (if under-five mortality occurs =1, if not = 0) and mother's age, number of children, age at first birth, types of residence, household wealth, source of water, sanitation facilities, source of cooking fuels, birth order, gender of child, immunization, education, contraceptive-use, and employment are independent variables.

The results of logistic regression model shows that mother's age, total number of under-five years children in a household, age at first birth, household wealth status, source of water, source of cooking fuel, birth order, gender of child, immunization, education, contraceptive-use, and employment are significantly explained under-five mortality in Chin State.

Starting from age of mother, an increase in the mother's ages by one year increases the probability of under-five mortality by one percent. Mothers with less than three children had a lower probability of child death by 12.54 percent as compared to those mothers who had more than two children. This can be attributed to education levels. Educated mothers prefer fewer children whom they are able to take proper care of thus reducing the probability of under-five mortality. The finding is in line with the earlier expectations where households

with more than two children under the age of five years in a household were expected to have high under-five mortality.

Concerning the age at first birth, ever married women who age at first birth is more than 15 years were less likely to reduce the under-five mortality than their counterparts. An increase in the household wealth from poor to middle lowered the probability of under-five's mortality reduces by 15 percent. This can be attributed to education; educated mothers are more likely to be categorized as middle class; this implies that with the increase in wealth and health knowledge, the risks associated with under-five mortality is lowered.

Source of water was expected to improve the status of health of child and thus reduce mortality levels. Thus, piped and public tap water sources can be lowered the probability of under-five mortality by 0.19 percent respectively relative to those remaining sources.

Clean cooking fuel source that is free from air pollution was expected to improve the status of health of the child and the can us reduce mortality levels. Thus, wood cooking fuel source lowered the probability of under-five mortality by 0.02 percent relative to those using others sources of cooking fuel.

In addition, immunized for Tetanus Toxoid injection (TTI) are also important for the status of child health and reduce mortality rates. And Mothers who were immunized for TTI have a 3.77 percent lower probability of under-five mortality as compared to mothers who were not immunized for TTI.

Educated mothers have a 2.22 percent reduced probability of under-five mortality respectively as compared to mothers with no education. This can be as a fact that with higher education, child mortality risk is lowered. Education is supposed to increase mother's knowledge with regards to child care, disease prevention, pregnancy care and general health.

With regard to the coefficient of women employment shows 0.0131 suggesting that the probability of under-five mortality are expected to be 1.31 percent less if mothers participate in income generating activities compared to their counterparts. Although mother's employment may results in less care and infrequent breastfeeding, the children may have higher likelihood of survival because of additional expenditure for their wellbeing with the income of the mother's paid employment. It may reduce the chance of under-five mortality.

Table (3) Marginal Effects of Under-five Mortality

Variable	Coefficients	Marginal Effects
Individuals factors		
Mother's age	0.2694 (1.12)**	0.0129(1.11)**
< 3 number of children	- 0.1325 (-0.43) *	- 0.1254 (-0.43)*
≥ 3 number of children (ref.)		
≥ 15 years (age at first birth)	-0.0151 (-0. 26)**	-0.0113 (-0.26)**
< 15 years (age at first birth) (ref.)		
Household factors		
Urban residence	-0.0574 (-0.06)	-0.0027 (-0.06)
Rural residence (ref.)		
Wealth middle	-0.3130 (-0.60)**	- 0.1500 (-0.60)**
Wealth rich	-0.1012 (-0.23)*	-0.0929 (-0.23)*
Wealth poorest (ref.)		
Source of water		
Piped and public tap	-0.0404 (-0.21)**	-0.0019 (-0.21)**
Others(ref.)		
Sanitation facilities		
Flush toilet	-0.0284 (-0.08)	-0.0013 (-0.080)
Pit toilet and others (ref.)		
Source of cooking fuel		
Electricity	0.7560 (1.53)	0.0362 (1.49)
Wood	- 0.0173 (-0.76)*	- 0.0221 (-0.76)*
Coal and others (ref.)		
Child factors		
First order	0.9191 (0.94)	0.0440 (0.93)
2-3 order	1.3035 (1.71)**	0.0624 (1.67)**
Above third order(ref.)		
Female	-0.6576 (-1.14)	-0.03152(-1.12)
Male (ref.)		
Health service variable		
Immunized for TTI	-0.7867 (-1.29)*	-0.0377 (-1.27)*
Not Immunized for TTI (ref.)		
Empowerment factors		
Educated	-0.4639 (-1.18)**	-0.0222 (-1.16)**
Uneducated(ref.)		
Contraceptive-use	-1.7935 (-1.61)***	-0.0859 (-1.55)***
No contraceptive-use (ref.)		
Employment	-0.2737 (-0.46)**	-0.0131(-0.46)**
Unemployment(ref.)		
Number of observations = 296: Iteration = 15: log likelihood = -54.8589: LR $\chi^2(31) = 14.77$, Prob > $\chi^2 = 0.0046$: Pseudo $R^2 = 0.3186$ *, **, *** significant at the 1%, 5% and 10% level respectively, Z statistics in parenthesis. Dependent variable: if under-five mortality occurs =1, not occur = 0.		

Conclusion

This study shows the determinants of under-five mortality in Chin State, Myanmar. The logistic regression model is used to analyse the factors determine the probability of under-five mortality. Among these factors, eleven variables were significant determinants and contribute negatively to the under-five mortality. This means that, mothers' wealth status, number of children, mothers' education, mothers' employment status, and contraceptive-use are the most important variables contribute to the reduction of under-five mortality in Chin State. However, place of resident, sanitation facilities, gender of child were found to be insignificant factors of under-five mortality in this State.

This study has been found that the probability of under-five mortality is substantially less for the children of those mothers who aged at first birth are more than 15 years, those women who have less than three children, those women who are richer, those women used the piped and public tap for source of water and used flush toilet facilities, women whose children have immunized for TTI, women used contractive, employment status, and particularly education. In this study, the male children are more likely to die than female children before age five. Economic conditions as measured by household wealth and access to sanitation affect under-five mortality negatively. Locations of the household also play a role in determining under-five mortality but this is insignificant in this analysis.

Policy Recommendation

The study has shown that women who were more educated would have better outcomes on child health, especially in reducing under-five mortality. It can be strongly indicated the need for policy to promoting women's education particularly in Chin State to improve achievement in health development, especially in reducing under-five mortality. Regional government should provide more health care facilities to reduce the under-five mortality.

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Variable Definitions and Priori Expectations

Variables	Measure	Priori expectation
Mother's age	Mother's age at the time of child birth measure dasa discretevariable with differentage groups.	Very young and very old women are likely to have high child mortality.
Mother's education	The level of education attained by the mother captured as no education, primary, secondary or higher education.	Higher education level is expected to be associated with low mortality levels.
Marital status of the mother	Mother's marital status; captured as either married or not married	Married women are expected to have lower risk of child mortality.
Number of children under 5 years	The number of live children a mother has had for the past five years.	Household with more than 2 children under the age of 5 years are expected to have high child mortality rate.
Gender	Sex of the child which is either male or female.	Girls are expected to have lower mortality risk than boys.
Residence type	Household's residence whether in rural or in urban area.	Urban residents are expected to have low mortality risks as compared to rural areas.
Wealth of the Household	The households are categorized as poor, middle or rich households.	Children born from poor families are expected to have high mortality risks.
Cooking fuel Source	Source of cooking fuel used by households. Itis categorized as use of electricity, LPG, wood, charcoal or dung.	Clean cooking fuel is associated with low mortality risks.
Access to sanitation	Availability of sanitation services in households, itis captured as no facility, flush toilet, pit toilet and ventilated improved toilet.	Clean human waste disposal availability reduces mortality risks.

Access to water	Source of drinking water for households. Whether piped, well, rain water, river water.	Clean drinking water is expected to improve child survival.
Tetanus Toxoid injection	Captures as whether mother received immunization or not.	Children whose mothers are immunized are expected to have lower mortality risks.

Reliability of Age Reporting in Myanmar (2014)

Khin Nu Win

Abstract

A change in the size and structure of a current population is closely related to change in socio-economic conditions and other development planning in a country. Reliability of age reporting is very important for government, public sector, private sector and further study of population. After having the age data from population censuses, this reporting data are needed to be reliable. Hence, the Whipple's index, Myers' index and United Nations Age-Sex Accuracy index are used to test the extent of inconsistencies and errors contained in 2014 Census data by sex for Union, Urban, Rural and each state and region. According to the results, Whipple's index is approximately accurate to be estimate of age reporting among states and regions. Myers' index and United Nations Age-Sex Accuracy index are more accurate and reliable of Whipple's index for Union, Urban and Rural areas. Generally, the reliability of age reporting in Urban areas is more accurate than Rural areas.

Key words: Whipple's index, Myers' index, United Nations Age-Sex Accuracy index

1. Introduction

In most developing countries the reliability of age reporting is a major problem of census. Age is one of the essential factors of population studies, especially fertility and mortality which strongly depend on age. It is the estimated interval of time between the date of birth and the date of census, expressed in completed years. A change in the size and structure of a population is related to change in variables such as sex, marital status, educational attainment, occupation, etc., which may vary by age. Furthermore, it is an essential for many purposes of demographic, economic and social characteristics.

The age structure of a population in various age groups constitutes an important factor of demographic analysis and development planning. Age structural dynamics includes fertility and mortality are related changes in family planning and social arrangements. The use of age structure goes beyond demographic analysis to other important areas. The data of age composition is to help the government plan and policies for future development of a nation. Public polices aim to improve the welfare of a population and population welfare in turn is determined by the needs of present and future population. Future development of a nation, it is important to obtain thereliability and accuracy of age reporting data at the national and sub-national levels. Therefore, the reliability of age reporting in Myanmar is studied in this paper.

1.1 Objectives of the Study

The objectives of the study are

- To investigate the age and sex structure of population in Myanmar.
- To test the reliability and accuracy of age data by state and region.

1.2 Scope and Limitations of the Study

The required information are collected from 1973 Census, 1983 Census and 2014 Census. The study area is focused in terms of the States and Regions of Myanmar. The main sources of data and information are secondary data derived from the 2014 Myanmar Population and Housing Census, Department of Population, Ministry of Immigration and Population.

1.3 Misreporting of Age

Errors concerning the reported age is a serious problem in every country. These errors occur mainly in countries with high proportion of illiterates, but even in countries with a well educated population or highly developed census system are not completely omitted. The basic forms of age misreporting occur as age heaping. It means that too many people report their age ending with 0 or 5. This error appears mainly of people are asked for their age directly and then do not know their exact age. In censuses, age misreporting is universal. The main sources of errors on age recording are:

- (i) Proxy reporting.
- (ii) Uncertainty in self reporting or document error.
- (iii) Use of different calendars.
- (iv) Ambiguous or ineffective questionnaire design.
- (v) Use of indirect procedures in estimating age.
- (vi) Inefficiency of interviewer process.
- (vii) Errors in processing.
- (viii) Deliberate miss-statement.

1.4 Types of Error

Errors may also occur at the stage of the data collection process. In a population census or demographic sample survey, errors may occur because of lack of adequate preparation and planning, ambiguities in the use of questionnaire, lack of proper training and supervision of the field staff and problems in processing the data. Before proceeding to test the reliability of demographic data, the types of error must be considered. Census data on age are subject to several types of error which vary from country to country. Errors may be divided into two broad categories described as:

- (i) coverage errors and
- (ii) content errors.

Coverage Errors

Coverage errors are the quantitative errors occurred due to the under or over enumeration of some parts of the area. These errors could be due to (i) failure to enumerate some geographical area or sub-group of population; (ii) omission or duplication of households; (iii) omission or duplication of individuals in the households; and (iv) omission or duplication of homeless persons. These errors are mainly due to under enumeration of the population at the time of enumeration. The under enumeration are due to (i) failure to enumerate the entire geographic area, and (ii) omission of some segments of the population.

Content Errors

Content errors due to inadequate information supplied or mistakes omitted in the reporting information, with reference to the characteristics of individuals (or households)

enumerated in a survey or a census are also commonly found in the result of any survey or a census. These errors are errors due to misreporting of age. These are mostly due to (i) ignorance of the respondents of their correct age or their date of birth and (ii) carelessness in age reporting by the respondents and carelessness in recording by the enumerators.

1.5 Some General Testing Procedures for Common Errors

Methods of testing the accuracy of demographic data usually fall under the headings:

- (i) Conducting a post-enumeration quality check
- (ii) Checking the internal consistency of the data and
- (iii) Comparing the data with some other data to check the plausibility of the data being tested.

To evaluate the census coverage, the following general methods can be applied:

- (i) **Re-enumeration:** complete or partial (if the area where errors occurred is known) re-enumeration can reveal the errors.
- (ii) **Post Enumeration Survey:** Usually after two weeks (to a month) of census taking a post enumeration survey take place. This is a kind of re-enumeration from some portion of an area. By comparing census and post enumeration survey data, level of coverage and content errors are unveiled by matching records of the persons (or households) in the area.
- (iii) **Record Checks:** When other reliable records for the area such as previous census, vital registration or administrative records are available, the census records can be cross checked with one of those records. However, the timing of two records are usually different and cannot be well checked for the whole area.
- (iv) **Comparison of Aggregate Counts:** If population registers or partial registers for some particular groups or areas are available, the comparison between aggregates can show the extent of errors.
- (v) **Internal Consistency Checks:** These checks include, checking the age-structure with some other standard age pattern such as stable or previous census structure by comparing the household sizes for geographical areas; and comparing age-sex ratios by geographical areas.
- (vi) **Comparison Successive Censuses:** Relative under enumeration or completeness can be obtained by using the demographic balancing equation, by computing and comparing cohort survival rates, or by computing intercensal growth rate for each group.

2. Methods

In this paper, age and sex composition of population in Myanmar is presented by population pyramid. Moreover, the Whipple's Index (WI), Myer's Index (MI) and United Nations Age-sex Accuracy Index (UNSI) are used for the reliability of age reporting in 2014, Population Census in Myanmar.

2.1 Age-Sex Composition

Age is defined as the times that pass from the birth to the moment of registration. Age structure is a crucial demographic attribute, because many characteristics and abilities change with age; especially fertility and mortality which strongly depend on age. Many of the social phenomena depend upon the age. The present age structure of a population is a determinant factor for the future development.

Age-sex composition of the human population is one of the basic demographic characteristics, which is extremely vital for any meaningful demographic analysis. Changes in age-sex composition largely reflect the underlying socio-economic and cultural patterns of

a society in different ways. It can be distinct from one country to another. The common three profiles of age-sex composition are

- (i) Expansive: Large numbers of people in the younger ages,
- (ii) Constructive: Small numbers of people in the younger ages, and
- (iii) Stationary: Roughly equal numbers of people in all ranges, tapering off gradually at the older ages.

The age structure of a population is presented graphically through a population pyramid, showing relative frequencies by sex and age. The pyramid visually provides the fundamental structure of population.

The pyramid of high fertility and mortality countries are illustrated a “bottom heavy” population age structure that is, a very large proportion of children and a very small proportion of elderly persons. This age structure can be seen in developing countries.

Moderately high fertility and mortality countries show age pyramids that is generally triangular shape. These countries are different from high fertility and mortality characterized by a younger age structure which has narrowed down marked. This age structure can be seen in developed countries.

The low fertility and mortality countries are quite different from the above types, with their smaller numbers of young people and rather even distribution of the elderly. These countries are graphically represented by an approximate barrel-shaped pyramid. Countries of this type exhibit steady low fertility and mortality trends with the majority of the middle age groups. This age structure can be seen in developed countries.

2.2 Whipple’s Index (WI)

Different methods have been developed for measuring heaping on individual ages or terminal digits. The simplest and widely used index is the Whipple's Index. This index measures the degree of age heaping on the 0 and 5 combine. In age range 23 to 62, the extent of heaping may be measured by the ratio of the sum of population at the ages in the range ending in "0" or "5" and one-fifth of the total population in the range: It is computed as:

$$WI = \frac{P_{25} + P_{30} + P_{35} + P_{40} + P_{45} + P_{50} + P_{55} + P_{60}}{\frac{1}{5} \sum_{X=23}^{62} P_X} \times 100$$

where:

P_x = the number of persons reporting their age as x years

WI varies from 0 to 500. A value of 0 indicates that digits ‘0’ and ‘5’ are not reported. If there is no heaping at “0” and “5” the index will have a value of 100. If there is complete heaping, the index will have a value of 500. The age of early childhood and old age are excluded because they are more frequently influenced by other types of errors than digit preference.

The general decision rules are:

- (i) If $WI < 105$, the age reporting is highly accurate.
- (ii) If $105 < WI < 109.9$, the age reporting is fairly accurate.
- (iii) If $110 < WI < 124.9$, the data is approximate.
- (iv) If $125 < WI < 174.9$, the data is rough.
- (v) If $WI \geq 175$, the data is very rough.

2.3 Myer's Index (MI)

This index is used for evaluating single-year-age-sex data. It can provide the extent of digit preference for all the digits 0, 1, 2, 3, ..., 9. It can be used to report errors for all ages 10-99 years. The underlying assumption of the method is that in the absence of systematic irregularities in the reporting of age, the blended sum at each terminal digit should be nearly 10% of the total blended population. If the sum at any given digit exceeds 10% of the total blended population, it indicates over selection of ages ending in that digit (i.e digit preference).

On the other hand, a negative deviation or sum that is less than 10% of the total blended population indicates an under selection of the ages ending in that digit (i.e digit avoidances). If age heaping is non-existent, the index would be approximately zero. The calculation of the Myers' index involves six major steps:

- (i) Sum the population ending in each digit over the whole range, starting with the lower limit of the range, that is, find the sums of the ages 10, 20, 30, 40, 50, 60, 70, 80; 11, 21, 31, 41, 51, 61, 71, 81; 12, 22, 32, 42, 52, 62, 72, 82 to 19, 29, 39, 49, 59, 69, 79, 89.
- (ii) Ascertain the sum excluding the first population combined in step (i), that is, find the sum of the ages 10, 20, 30, 40, 50, 60, 70, 80; 11, 21, 31, 41, 51, 61, 71, 81; 12, 22, 32, 42, 52, 62, 72, 82 to 19, 29, 39, 49, 59, 69, 79, 89.
- (iii) Weight the sums in step (i) and (ii) and add the results to obtain a blended population. The weight begins with 1 and increases till 10 for the sums in the step (i), and begins with 9 and decreases till 0 for the sums in step (ii).
- (iv) Convert the distribution of step (iii) into percentages.
- (v) Take the deviation of each percentage from 10.0, the expected value for each digit. These deviations indicate the extent of concentration on or avoidance of a particular digit.
- (vi) Compute a summary index defined as the one-half of the sum of all absolute deviation. The formula is

$$MI = \frac{\text{Sum of the absolute deviation}}{2}$$

The general decision rules are:

- (i) If $MI < 20$, the age reporting is reliable.
- (ii) If $20 < MI < 40$, the data is fair.
- (iii) If $MI > 40$, the data is very rough.

2.4 United Nations Age-Sex Accuracy Index (UNSI)

UNSI measures the quality of data rather than the digit preference or heaping only. This index uses both age ratios and sex ratios from 5 years age groups. It is calculated by combining three numbers:

- (i) Mean deviation of age-ratios for males from 100,
- (ii) Mean deviation of age-ratios for females from 100, and
- (iii) Three times the mean of the age to age differences in reported sex ratios. An age-ratio is defined as the ratio of the population in a given age group to one-half the sum of the populations in the preceding and following groups.

The calculation for this index is:

- (i) Find the sex ratios, for each age group, that is, $SR = \frac{M}{F} \times 100$
- (ii) Find the successive differences of sex ratios, that is $SR_{(i)} - SR_{(i-1)}$

- (iii) Compute the age ratios for males $AR = \frac{{}_sP_x}{\frac{1}{2}({}_sP_{x-5} + {}_sP_{x+5})} \times 100$
- (iv) Find the deviation of age ratios for males from 100. $(AR_{male} - 100)$.
- (v) Compute step (iii) and (iv) for females $(AR_{female} - 100)$.
- (vi) Compute the mean differences in sex ratios, that is the overage of the absolute values obtained in step (ii)
- (vii) The index is constructed by summing three times the mean difference in sex ratios, the mean differences in age ratios for females and males
- The formula is

$$UNSI = 3 \left[\begin{array}{c} \text{Mean differences} \\ \text{of sex ratios} \end{array} \right] + \left[\begin{array}{c} \text{Mean deviation of} \\ \text{the age ratio for} \\ \text{males form 100} \end{array} \right] + \left[\begin{array}{c} \text{Mean deviation of} \\ \text{the age ratio for} \\ \text{females form 100} \end{array} \right]$$

$$(iv) = 3 \left[\frac{\sum |SR_i - SR_{i-1}|}{n} \right] + \left[\frac{\sum |AR_m - 100|}{n} \right] + \left[\frac{\sum |AR_f - 100|}{n} \right]$$

The general decision rules are:

- (i) If $UNSI < 20$ the data is accurate.
- (ii) If $20 < UNSI < 40$, the data is inaccurate.
- (iii) If $UNSI > 40$, the data is too inaccurate to use for further analysis.

3. Results and Findings

In this section, age and sex composition of Myanmar for 1973, 1983 and 2014 are studied. In addition, the reliability of age reporting in Myanmar 2014 is calculated by using Whipple's Index, Myer's Index and United Nations Age-Sex Accuracy Index.

3.1 Age Structure

The following table presents the percentage of five year age group by age and sex distribution in Myanmar for 1973, 1983 and 2014. Moreover, these calculated data illustrate the Figure(3.1), Figure(3.2) and Figure(3.3).

Table (3.1) Percentage of Five-Year Age Group Distribution for 1973, 1983 and 2014

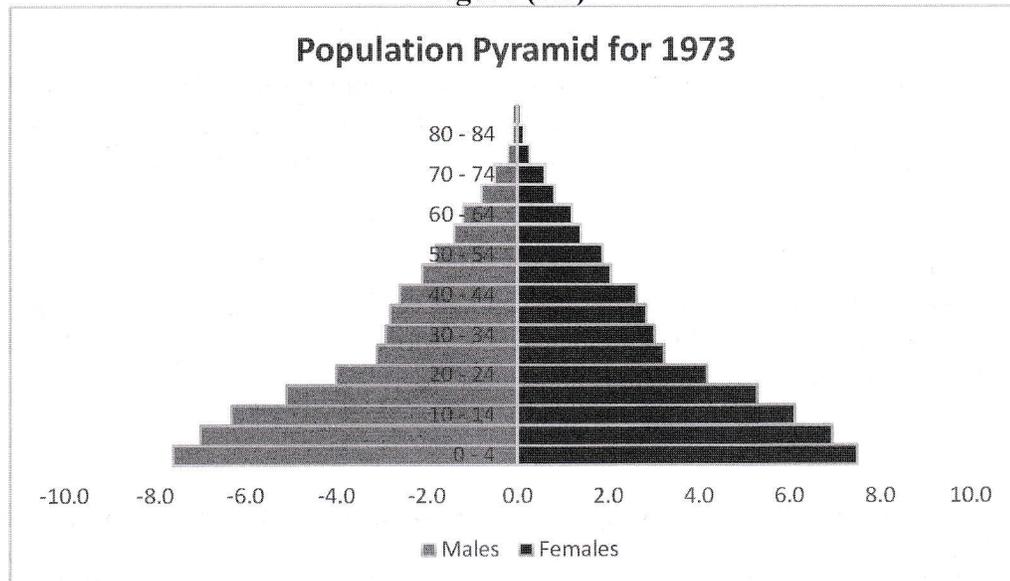
Age Group	1973		1983		2014 (%)	
	Male	Female	Male	Female	Male	Female
0 - 4	7.6	7.5	6.6	6.5	4.5	4.4
5 - 9	7.0	7.0	6.5	6.4	4.8	4.7
10 - 14	6.3	6.1	6.4	6.1	5.2	5.0
15 - 19	5.1	5.3	5.4	5.5	4.6	4.6
20 - 24	4.0	4.2	4.7	4.9	4.1	4.4

Yangon University of Economics

25 - 29	3.1	3.2	4.0	4.1	4.0	4.3
30 - 34	2.9	3.0	3.1	3.2	3.7	4.0
35 - 39	2.8	2.8	2.4	2.4	3.4	3.7
40 - 44	2.6	2.6	2.1	2.2	3.1	3.4
45 - 49	2.1	2.1	2.0	2.1	2.7	3.1
50 - 54	1.8	1.9	1.9	1.9	2.4	2.7
55 - 59	1.4	1.4	1.4	1.5	1.9	2.2
60 - 64	1.2	1.2	1.2	1.3	1.4	1.7
65 - 69	0.8	0.8	0.7	0.8	0.9	1.2
70 - 74	0.5	0.6	0.6	0.7	0.6	0.8
75 - 79	0.2	0.3	0.3	0.3	0.5	0.6
80 - 84	0.1	0.1	0.2	0.2	0.3	0.4
85+	0.1	0.1	0.1	0.1	0.2	0.3
Total	49.7	50.3	49.6	50.4	48.3	51.7

Source: 1973, 1983 & 2014 Censuses

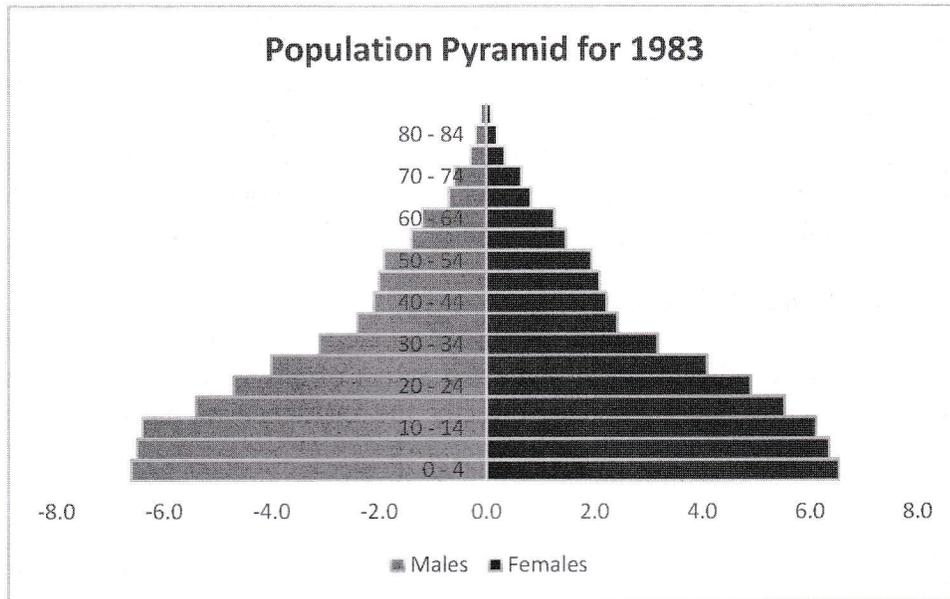
Figure (3.1)



Source: Table (3.1)

The pattern of age and sex population of five year age group is presented in Table (3.1) and Figure (3.1). In 1973, nearly 20% of the population is below the age of 15. It can be found that the age group 0-14, the population is exceeding to the other age group. The population pyramid has an expanding population with a large proportion of younger age group. It has a high fertility and low life expectancy. It might be due to the low level of education and poor health care in Myanmar

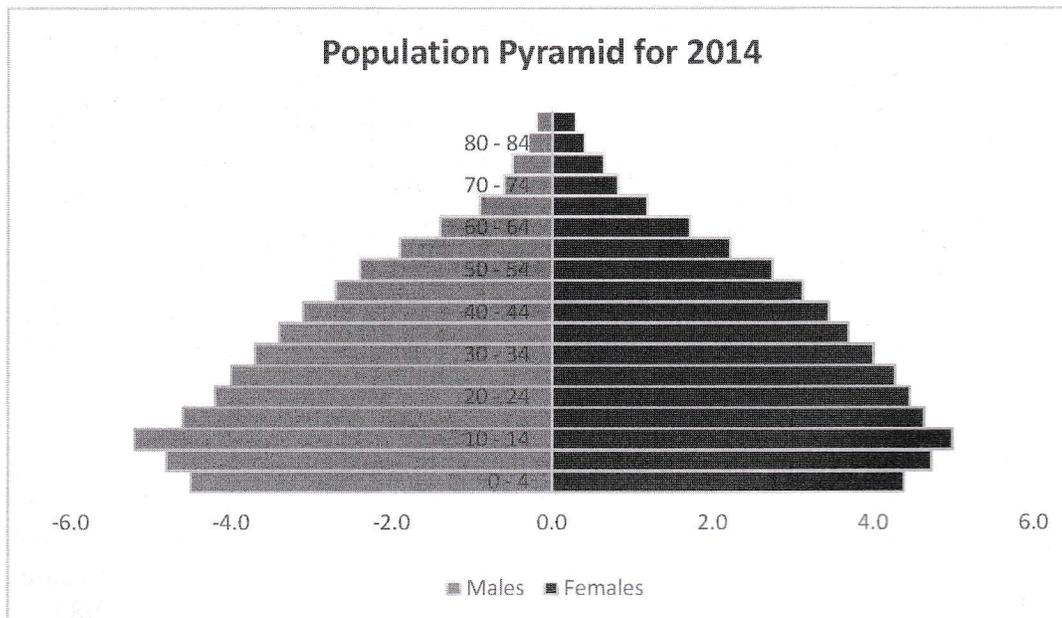
Figure (3.2)



Source: Table(3.1)

The data in above Table (3.1) and Figure (3.2) also shows the changes in age and sex composition of the 1983 census. Census result of 1983 shows that in Myanmar, nearly 7% of the populations are under five years of age. The age structure of Myanmar is found to be made up of a large proportion of children and small proportion of elderly persons. The population pyramid has a wide base and narrow top have high level of fertility. It has an expanding type. It can be observed that nearly the same age structure in 1973 census.

Figure (3.3)



Source: Table(3.1)

From Table (3.1) and Figure (3.3) indicates that the nature of age distribution is revealed in the five year age groups. The population pyramid has a narrow bottom. It has a low fertility and long life expectancy. The age structure has a constructive typical pattern. The age group 10-14, the population is excess to the other age group. Moreover, the older population gradually increased in other age group. Therefore, the government and aid agencies should be prepared to create job opportunities for the working age population and support the need for pensions and social security for the older population.

3.2 Sex Composition in Myanmar

Sex composition is defined as the number of males per 100 females in the population. It is an important social indicator to measure the extent of prevailing equity between males and females in a society and influences directly the incidence of marriage, birth, death, migration, economic activities, etc.

Table (3.2) Sex Composition by Five Year Age Group Distribution in Myanmar

Age Group	1973			1983			2014		
	Male '000	Female '000	Sex Ratio	Male '000	Female '000	Sex Ratio	Male '000	Female '000	Sex Ratio
0 - 4	2128	2106.4	101.0	2267.8	2234.1	101.5	2,262.8	2,209.3	102.4
5 - 9	1976	1952.6	101.2	2216.2	2172.7	102.0	2,438.4	2,380.7	102.4
10 - 14	1762.0	1719.2	102.5	2179.0	2089.7	104.3	2,595.7	2,512.6	103.3
15 - 19	1443	1488.1	97.0	1844.4	1891.0	97.5	2,291.0	2,335.0	98.1
20 - 24	1136	1172.9	96.8	1610.1	1676.2	96.1	2,091.5	2,239.5	93.4
25 - 29	884.4	911.1	97.1	1363.8	1399.7	97.4	1,995.5	2,150.7	92.8
30 - 34	815.5	849.3	96.0	1067.2	1085.8	98.3	1,884.5	2,014.3	93.6
35 - 39	794.6	800.1	99.3	835.2	833.5	100.2	1,705.6	1,857.9	91.8
40 - 44	730.8	739.5	98.8	716.6	762.9	93.9	1,548.9	1,734.1	89.3
45 - 49	579.8	579.3	100.1	695.8	717.9	96.9	1,375.0	1,571.1	87.5
50 - 54	517.5	526.2	98.3	634.2	664.9	95.4	1,182.3	1,376.9	85.9
55 - 59	387.1	394.4	98.1	489.8	505.6	96.9	936.0	1,116.0	83.9
60 - 64	323.7	338.2	95.7	398.9	431.4	92.5	712.0	864.8	82.3
65 - 69	214.6	231.5	92.7	254.0	281.5	90.2	466.6	597.9	78.0
70 - 74	153.8	173.4	88.7	192.7	223.5	86.2	301.7	411.5	73.3
75 - 79	68.9	77.9	88.4	99.0	115.8	85.5	228.3	325.0	70.2
80 - 84	33.0	41.8	78.9	52.3	68.2	76.7	130.9	204.7	63.9
85+	14.9	19.8	75.3	22.4	30.8	72.7	81.8	149.2	54.8
Total	13963	14122	98.9	16939	17185	98.6	24229	26051	93.0

Source : 1973, 1983 & 2014 Censuses

Generally, the overall sex ratio of a population is expected to be 100. From the above Table (3.2), the overall sex ratio for union is 98.9 in 1973, 98.6 in 1983, and 93.0 in 2014. A sex ratio above 100 indicates an excess of males and below 100 indicates an excess of females. According to the results, all sex ratios are below 100. It means that there are more females than males. The patterns of these ratios were nearly the same in 1973 and 1983. At the younger ages, there are more males than females, resulting in a sex ratio at birth over 100. At

the older ages, males tend to die more frequently than females; it is expected sex ratio to be below 100. In these three censuses, the pattern was nearly the same in younger age group. It is declined to less than 100 at other age groups except 45-49 age group in 1973 and 35-39 age group in 1983.

3.3 Reliability of Age Reporting by Using Whipple's Index

The reliability of age reporting is calculated by using Whipple's Index. The calculation of the Whipple's Index is shown in the following Table (3.3).

Table (3.3) Reliability of Age Reporting by Using Whipple's Index

States/Regions	Union		Urban		Rural	
	Male	Female	Male	Female	Male	Female
Kachin	124.98	124.52	122.57	123.77	126.25	124.98
Kayah	118.88	120.05	111.92	111.61	121.51	123.35
Kayin	131.28	128.99	120.23	117.67	134.96	132.56
Chin	120.29	128.50	118.64	127.58	120.78	128.78
Sagaing	123.80	122.84	120.16	119.98	124.57	123.46
Tanitharyi	120.39	117.89	114.20	113.20	122.53	119.61
Bago	117.84	117.11	114.90	114.81	118.67	117.82
Magway	119.86	119.24	116.23	117.13	120.50	119.64
Mandalay	122.27	122.04	117.68	117.85	124.85	124.35
Mon	123.07	120.71	117.55	115.99	125.39	122.72
Rakhine	131.06	130.97	123.30	122.75	132.78	132.80
Yangon	112.71	112.04	111.55	111.20	115.51	114.26
Shan	152.42	150.13	121.26	120.87	162.94	160.62
Ayeyawady	119.20	117.35	118.76	116.52	119.27	117.51
Nay Pyi Taw	119.97	118.37	114.49	113.85	122.92	120.82
Total	124.01	122.58	115.99	115.57	127.59	125.84

Source: 2014 Census

For male population, the age data obtained approximate estimate of reporting by all states and regions except Kayin, Rakhine and Shan States in Union. This indicates that age heaping by state and region in digit ending in 0 and 5 rather than other digits. For female population, the value of WI approximately heaping can be seen that for all states and regions except Chin, Kayin, Shan and Rakhine States in Union and Rural areas. A general, phenomenon is that the male population is more likely to have digit preference. On the basis of criterion, the age distribution of all states and regions for 2014 census are very likely to be affected by misreporting of age. The age reporting for Rural areas are nearly the same pattern of Union. Especially, the Urban age reporting are found to be no particular tendency of age heaping except Chin State. Moreover, it can be found that the reliability of reporting ages in Urban areas is better than Rural areas. It might be due to the educational levels of the enumerators as well as the respondents are relatively higher in Urban areas than Rural areas.

3.4 Reliability of Age Reporting by Using Myer's Index

The reliability of age reporting is calculated by using Myer's Index. The calculation of the Myer's Index is observed in the following Table (3.4)

Table (3.4) Reliability of Age Reporting by Using Myer's Index

States/Regions	Union	Urban	Rural
Kachin	5.20	5.01	5.24
Kayah	4.23	3.12	4.66
Kayin	6.56	4.56	11.44
Chin	4.90	4.74	5.08
Sagaing	5.06	4.60	5.16
Tanatharyi	4.69	3.53	5.09
Bago	4.10	3.71	4.28
Magway	3.90	3.62	3.95
Mandalay	4.78	4.12	5.15
Mon	5.08	4.25	5.40
Rakhine	7.51	5.75	7.91
Yangon	3.31	3.09	3.86
Shan	9.36	4.66	11.25
Ayeyawady	3.80	4.16	4.24
Nay Pyi Taw	4.28	3.74	4.64
Total	4.91	3.82	5.44

Source: 2014 Census

Myers' index indicates for each of the ten terminal digits from 0 to 9. This is one of the advantages of Myers' index over Whipple's index. From above Table (3.4), the indexes are found to be quite distinct between Urban and Rural areas. The values of the indexes for the Urban areas are found to be much lower than those for the Rural areas. Hence, the reliability of age reporting in Urban areas is more accurate than Rural areas. According to the results, all of the age reporting data is less than 20. Hence, the age reporting data of the whole country are accurate and reliable. On the basis of the criterion, the age distributions for the Union, Urban, Rural areas are found to have no particular tendency of age heaping.

3.5 Reliability of Age Reporting by Using United Nations Age-Sex Accuracy Index

The reliability of age reporting is calculated by using United Nations Age-Sex Index. The calculation of the United Nations Age-Sex Index is presented in the following Table (3.5).

Table (3.5) Reliability of Age Reporting by Using United Nations Age-Sex Accuracy Index

States/Regions	Union	Urban	Rural
Kachin	34.85	28.74	41.20
Kayah	21.00	24.66	23.77
Kayin	21.30	20.65	23.15
Chin	24.58	24.99	27.12
Sagaing	18.30	21.36	19.40
Tanitharyi	22.76	25.67	22.56
Bago	18.36	16.20	18.88
Magway	20.31	23.43	21.86
Mandalay	18.10	24.02	18.98
Mon	19.21	22.07	19.37
Rakhine	26.15	23.59	28.42
Yangon	19.58	21.51	17.51
Shan	24.64	25.18	26.10
Ayeyawady	19.52	22.07	19.88
Nay Pyi Taw	25.12	28.86	24.49
Total	17.02	20.73	18.11

Source: 2014 Census

According to above Table(3.5), the joint scores of Ayeyawady, Bago, Mandalay, Sagaing, Yangon Regions and Mon State are accurate for Union. Generally, the remaining other States and Regions are inaccurate. But all States and Regions are nearly 20, it can be concluded that the reliability of age reporting of 2014 census of Myanmar is quite satisfactory. Compares the Rural and Urban areas on the basis of UNSI, some of the states and regions of Urban areas of age reporting are more accurate than Rural areas and some of the states and regions of Rural areas are more accurate than Urban areas. Among the Rural areas of states and regions, Kachin State was highly inaccurate. In most cases, it could be reasonably accepted by misreporting. The Union, Urban and Rural areas of the whole country are less than or nearly 20. Hence, it could be concluded that the age reporting are acceptable.

3.6 Comparison of Reliability in Age reporting

The following table illustrates the summary of age reporting is compared by three different methods: Whipple's index, Myer's index and United Nations Age-Sex Accuracy index.

Table (3.6) Comparison of Reliability in Age Reporting

	Value of Index	Assessing Degree
Whipple's Index		
Union		
Male	124.01	Approximate
Female	122.58	Approximate
Urban		
Male	115.99	Approximate
Female	115.57	Approximate
Rural		
Male	127.59	Rough
Female	125.84	Rough
Myer's Index		
Union	4.91	Reliable
Urban	3.82	Reliable
Rural	5.44	Reliable
United Nations Age-sex Accuracy Index		
Union	17.02	Accurate
Urban	20.73	Inaccurate
Rural	18.11	Accurate

Source: 2014 Census

Table (3.6) indicates the WI for male and female is 124.01 and 122.58 for union, 115.99 and 115.57 for Urban and 127.59 and 125.84 for Rural areas. According to the results, the value of WI is approximately accurate of reporting for Union and Urban areas. But, it can be found that as a rough reporting in Rural areas. Moreover, the age reporting was more accurate for the females than males in 2014 census.

The extent of terminal digit of '0' to '9' preference or age reporting can be measured by MI. From above table, the MI for Union, Urban and Rural is 4.91, 3.82 and 5.44. According to the results, the value of indexes in Union, Urban and Rural areas are less than 20. Therefore, it can be said that the whole country of age reporting are reliable.

Another way of checking the reliability of age data is measured by UNSI. Based on findings, the age reporting data in Union, Urban and Rural areas is 17.02, 20.73 and 18.11. It can be observed that the joint scores are less than 20 in Union and Rural areas and approximately 20 in Urban areas. Generally, the age reporting data for the whole country as well as for Urban and Rural areas are found to be provided quite acceptable or not highly accurate. It could be suspected that the age reporting are influence of age heaping.

Findings

Nowadays, the reliability of age data is important for developed and developing countries on the world. It is an essential factor of many practical fields. In every country, the reliability of age reporting is very important for many purposes such as labor supply, educational attainment and other demographic, social and economic variables, etc. All these variables are related to age. The pattern of digit preference and the extent of age misreporting are varied from country to country. Different countries have different social values attached to age and age heaping and digit preference.

Firstly, the age structure of population is illustrated the population pyramid. It is a graphical way to show the age and sex composition of a population. From the results, the size of the 0-14 age group has given the pyramid quite a large base in 1973 and 1983 but it has a narrow base in 2014. It is expected to be high level of fertility in 1973, in 1983 and low level of fertility in 2014.

Secondly, the sex composition of a population is presented to the distribution of the people by sex. The calculated sex ratio for the whole country in 1973, 1983 and 2014 censuses are 98.9, 98.6 and 93.0. These all sex composition of population is below 100. It indicates that more females than males in Myanmar.

Finally, the reliability of age data is measured by using WI, MI and UNSI. According to the results, WI is considered to be approximately accurate of age reporting among states and regions. Moreover, MI and UNSI are more accurate and reliable of WI for Union, Urban and Rural areas. Generally, the reliability of age reporting in Urban areas is more accurate than Rural areas.

Suggestions

Based on findings, demographers and researchers should be able

- (i) To proper training and supervision of the field staff.
- (ii) To adequate preparation of questionnaires and survey methods.
- (iii) To compare the results with other records or external checks.
- (iv) To recheck the original data going back to the stage up to which access is available.
- (v) To test the internal consistency by comparing different combinations of the data available.
- (vi) To compare the data of several census of several years to study the trends and check for consistency.

Furthermore, the multi-media should be able to contribute their knowledge and experience for awareness of accurate and reliable of age reporting among the public.

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The Influential Determinants of FDI Inflow in Myanmar

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Abstract

Many different factors affect the volume and distribution of FDI in developing countries around the world. Many researchers have found that the primary determinants of major FDI inflows include political stability, favorable tax and subsidy policies, the existence of an appropriate business environment, better administrative procedures and a low level of corruption. Inward FDI stock in Myanmar is much lower than that of neighboring countries. The government has initiated a broad range of reforms to open its economy to foreign trade and investment. The economic scholar point out that if Myanmar chooses the right national development strategy, enhances open trade and investment strategies and learns from economies with similar experiences, the country can catch up to its neighbors and partners in the region. Some economic experts point out that government promotions to attract FDI are irrespective of the realization of an investment boom in the country.

Key Words: FDI, Trade policy, economic growth

I. Introduction

Other things remaining the same, the effectiveness of FDI policy in any country may be gauged by examining the trends in foreign investment approvals and actual inflow. A great deal of evidence shows that FDI has contributed significantly to the economic and industrial development of ASEAN economies. FDI flows are often accompanied by valuable resources such as technology, organizational capability, managerial skills, and marketing know-how. In the last two decades, the involvement of developing countries in international trade has increased while FDI has expanded rapidly as capital inflows.

Many different factors affect the volume and distribution of FDI in developing countries around the world. Many researchers have found that the primary determinants of major FDI inflows include political stability, favorable tax and subsidy policies, the existence of an appropriate business environment, better administrative procedures and a low level of corruption. Since globalization, the world economy has been characterized by increased

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integration and ties between countries in which foreign direct investment (FDI) constitutes a business phenomenon of vital importance and frequency. FDI contributes to the improvement of macroeconomic outcomes of host countries and from there it can enhance a nation's economic growth.

According to international reports, Myanmar is one of the most difficult markets in the world in which to operate a business even though the government is implementing political and economic reforms aimed at promoting the country's participation in the global economy. Like other ASEAN countries, Myanmar has built its development strategy on export-led development based partly on FDI. However, FDI has played less of a role in Myanmar than other countries in the region. Previously, due to the impact of economic sanctions, potential investors from many OECD countries did not consider Myanmar as a location for investments. Myanmar experienced the largest economic impact among the countries in the Mekong region. Myanmar has a large amount of economic potential from the benefits of economic integration and infrastructure development in the Mekong region.

Most of the investment that Myanmar has received has gone to natural resource sectors with only a negligible role for foreign investors in manufacturing or services (OECD Investment Report, 2014). Nowadays, the Democratic government is adopting an open-door policy and favors creating economic opportunities to build a modern developed nation. The objective of this paper is to point out the influential determinants of FDI inflow in Myanmar using the current economy as a case study. This study is made up of the following four sections; exploring some perspectives from previous literature, current FDI trends in Myanmar, the influential determinants of FDI in Myanmar, and FDI policy implications.

II. Previous literature review

Previous studies have focused on the pull factors, features of the host countries that attract or deter FDI inflows, but foreign investment is not attracted to less developed countries except in cases with cheap labor or abundant raw materials. There has been a proliferation of policy-oriented studies seeking to make a country's investment climate more attractive to both foreign and local investors. Foreign direct investment contributes to the development of many countries by improving infrastructure, transferring technical skills, raising entrepreneurial abilities and elevating financial resources regarding both government revenue and foreign exchange.

Many researchers have analyzed FDI and foreign trade with the different points of view. This study mainly points out the determinants of FDI in developing countries. In

previous studies, the determinants of FDI have generally fallen into three categories; a focus on core factors influencing the decision to invest in a country or industry, a more macro-oriented functional relationship between FDI and possible determinants, and finally, why FDI is preferred to other forms of investment based on different resource allocation decisions. When analyzing the main determinants of FDI, country-specific characteristics are widely accepted, especially for factors related to the host country market.

FDI analysis is often based on either horizontal foreign direct investment or vertical foreign direct investment. Horizontal foreign direct investment is often done by multinational corporations which replicate their production processes in foreign facilities located near large customer bases. Vertical foreign direct investment is based on the theory of comparative advantage and it is one of the fastest-growing types of FDI into developing countries from developed countries. Vertical FDI requires a substantial fixed cost investment in a foreign affiliate in a country with the appropriate characteristics (Krugman, Obstfeld & Melitz, 2012).

A nation's chance of attracting and receiving FDI depends on the development of the host country's infrastructure and institutions by making efforts at fundamental reform.

Yousaf, Hussain & Ahmad (2003) analyzed the volume and determinants of FDI in a sample of 15 developing countries. The FDI flow into developing countries took various paths and its volume was modest at the beginning of the 1980s but has tended to rise in subsequent years. Ferris, S.P., Thompson, G.R. & Valsan, C.(1997) analyze FDI in Guyana in Latin America and pointed out the important determinants of FDI compared with 11 other Latin American countries. Goldberg & Kolstad (1995) analyzed exchange rate variability and demand uncertainty and explored the implications of short-term exchange rate variability for FDI flows.

Real exchange rate variability influences the location of production facilities for risk-averse parent companies and fixed productive factors. Yu-Chen & Santanu (2011) studied the relationship between labor cost and FDI in India, specifically the effects of foreign-owned firms paying higher wages than their domestic counterparts.

III. The Current Foreign Direct Investment Situation in Myanmar

Myanmar is the second largest country in Southeast Asia, and the 12th most populous country in all of Asia. With 55% of people under the age of 30, Myanmar's population is well positioned to capitalize on an expansion of the economy. Although the international record on natural resource-based exports as a means of promoting economic development is unsure,

Myanmar's natural resource exports can play a vital role in development, and a well-regulated resource sector can generate high growth in income, investment, and trade while laying a foundation for the diversification of exports and domestic activity over time.

After the Democratic government came into power in 2011, the United States, Japan, and ASEAN have started to seek ways to invest in Myanmar. According to data from the Asian Development Bank (ADB), the country's GDP expanded by 8.5% in 2014-15, and the government estimated 2015-16 GDP growth at 9-10%. In 2016, GDP reached US\$62.6 billion. Thirty years ago, there was very little foreign investment and Myanmar only engaged in small international trade. On November 30, 2015, the Directorate of Investment and Company Administration (DICA) stated that the total amount of FDI from 1988 to November 2015 had reached US\$58.2 billion, including manufacturing enterprises and oil and gas companies which were responsible for one-third of the total investment, at US\$19.6 billion. However, this amount has seen a significant drop after FDI reached a peak in 2014.

After adopting a liberalization policy, the government continues to open the economy to attract FDI and enhance trade. "Liberalization is a key word here right now. We have grown rapidly in recent years, and we expect to see increased economic activity for the foreseeable future", said U Aung Naing Oo, secretary of the Myanmar Investment Commission (MIC) and director-general of the Directorate of Investment and Company Administration (DICA).

IV. The influential determinants of FDI in Myanmar

Previous studies have focused on the pull factors, features of the host countries that attract or deter FDI inflows, but foreign investment is not attracted to less developed countries except in cases with cheap labor or abundant raw materials. FDI may be one key element for the development of Myanmar in the future. The government has initiated a broad range of reforms to open its economy to foreign trade and investment. Myanmar has a rich natural resources base, a young labor force and a strategic geographic location between the two economic giants India and China and stands to benefit from greater global and regional economic integration, including its membership in ASEAN. Many different factors affect the volume and distribution of FDI in developing countries around the world.

4.1. Myanmar Investment Law

The government released a draft of the Myanmar Investment Law in February 2015 which had been in the works since 2014 and was ratified by Parliament in 2016. The new law

replaced both the 2012 Foreign Investment Law and the Myanmar Citizens Investment Law of 2013 with comprehensive legislation aimed at bringing all investment regulations under one framework. The objective of this law was to develop responsible investment business which does not cause harm to the natural environment employs human resources, has a high production function for services, trading, technology, agriculture, livestock and industrial sectors. According to the Myanmar Investment Law, the MIC will also evaluate all investment permit applications according to specific key factors including whether the investment will result in a significant level of domestic employment, if the economic activity will involve the import and use of heavy equipment or advanced technology, how much economic activity will be added to the domestic economy and the degree that the economic activity will uplift the living standards of Myanmar's citizens.

4.2. Current Financial sector

Financial sector development is still at an early stage in Myanmar. It remains firmly underdeveloped and repressed, with financial intermediation almost entirely dominated by an unsophisticated banking sector. The government has prepared a financial sector roadmap to foster financial development with a new foreign exchange management law. There are further plans to open the banking industry to foreign participation, and developing the capital market with the launch of a stock exchange in 2016. Moreover, the Central Bank established a regular liberalization program to allow the entry of private domestic banks and the establishment of representative offices for private foreign banks.

In 2012, the Foreign Exchange Management Law was adopted, and it allows both locals and foreigners to deal with foreign currency in Myanmar. According to this law, it requires all foreign exchange transactions to occur through banks that have been authorized by the Central Bank of Myanmar to deal in foreign exchange. As such, foreign investors may now open foreign currency accounts at authorized banks within Myanmar and maintain these accounts abroad, as well as remit foreign currency abroad, subject to the approval of the relevant government authorities. As foreign exchange is absorbed and spent in the economy, the real exchange rate could appreciate, reducing the competitiveness of Myanmar's trade-exposed firms and sectors. Currently, Myanmar faces the devaluation of the kyat, and the exchange rate of the kyat with the US dollar is weaker than previous.

4.3. Special Economic Zones

The term Special Economic Zone (SEZ) is used to describe the delineated geographic areas within which have a different legal and regulatory regime relating to business and trading activities. (Responsible Investment in Myanmar, 2017). Nowadays, SEZs are powerfully linked to national economic development plans, and are a base for innovation and new institutions for market economy success. A growing percentage of inward investment has gone towards Myanmar's new special economic zones. SEZs play a central role in Myanmar's efforts to attract investment and to promote competitive semi-manufactured and manufactured goods with significant local value addition. If the SEZs become successful, they will continue to be a high priority target for the government as a means to attract foreign investment.

Table (1) Thilawa SEZ Investment (by Sector)

Sector	2017-2018		
	Amount	Value (US\$mil)	%
Manufacturing	6	185	74
Trade		47	19
Real Estate		8	3
Transport and Supporting		7.48	3
Services		1.35	0.5
Total		248.6	100

Source: Directorate of Investment and Company Administration in Myanmar

By September 2015, during the first phase of Thilawa SEZ, launched in 2013, 48 firms had signed contracts to set up operations in Thilawa, with many of those companies involved in garment manufacturing. The second SEZ is in Dawei, situated in southern Myanmar, with another SEZ in Kyaukphyu, in the state of Arakan, and both projects have begun to attract interest from foreign corporations. SEZs offer a variety of investment opportunities for foreign investors.

Table (1) shows the sectoral FDI inflow in Thilawa SEZ in FY 2017-2018. The foreign direct investment entered in the manufacturing sector was the largest with 74% of all

investment. Currently in the Thilawa SEZ, Japan is the largest investor, contributing 33% of all investment in 2017-2018.

4.4. Labor Utilization

According to the 2014 Myanmar Census, 65.6% of the population is of working age (15 - 64 years old). This population is well educated, with a high literacy rate of 93% and wide spread basic competency in English. As a labor abundant country, Myanmar has the comparative advantage of lower labor cost in attracting FDI to export-oriented labor-intensive sectors. There is growing evidence that factors such as the right to collective bargaining, worker safety, education, due process and a commitment to ethical, social and environmental norms provide an attractive and sustainable environment for investment. Although Myanmar's rank in basic literacy rate is high, education and labor skills need to improve in order to attract more FDI.

With the influx of FDI into Myanmar, the government need to confirm the positive effects of creating employment and needs to check whether workers have the ability to absorb and work with standardized technologies. At the same time, technology education and vocational training are crucial for human resource development. As the condition of the Greater Mekong Sub-region (GMS) East-West Economic Corridor and the Three Pagoda Pass Road are improved, and labor costs in Thailand rise, there is a chance for more labor-intensive industry to be relocated to Myanmar. However, the current infrastructures in these locations for investors are still limited.

Table (2) shows the employment opportunities in Myanmar from Investment Enterprises (2011-2012 to 2017-2018). The availability of adequately skilled labor is crucial for attracting firms engaged in export-oriented FDI. U Maung Nanda Aung, the executive director of Heritage Capital Investment, points out the challenge of finding skilled labor in Myanmar, and that the education level is low compared with the rest of the world. However, currently, employment opportunities are increasing compared due to higher FDI inflow. In the modern global investment climate, investors confer importance to labor and environmental standards, corporate governance, and political stability.

Table (2) Employment Opportunities from Investment Enterprises (2011-2012 to 2017-2018)

Fiscal Year	Foreign investment Enterprises		Nationality'investment Enterprise		Total	
	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
2011/12	6814	465	9015	160	15829	625
2012/13	62412	719	18871	198	81283	917
2013/14	77597	1373	17269	187	94866	1560
2014/15	115500	2587	12626	134	128126	2721
2015/16	94922	2341	29418	238	124340	2579
2016/17	65830	2019	9743	145	75573	2164
2017/18	78146	1964	12612	281	90758	2245
Total	501221	11468	109554	1343	610775	12811

Source: Directorate of Investment and Company Administration in Myanmar

4.5. Infrastructure Development

Good infrastructure is not only a driver of FDI inflow, but also a pre-requisite for positive spillovers from FDI onto the host country's economy. If a country's infrastructure is sufficient, the country will have spillover benefits from FDI and attain a higher level of growth. Therefore, especially for developing countries, the larger the investment in infrastructure, the greater the FDI inflows can lead to even faster growth.

Table (3) List of existing Infrastructure Enterprises under the Foreign Investment Law

<i>Sector</i>	<i>No.</i>	<i>Investment Amount (US\$ millions)</i>	<i>Percent (%)</i>
<i>Power</i>	14	14,685.1	63.6
<i>Transport (Air)</i>	2	666.2	2.9
<i>Transport (Port)</i>	9	527.1	2.3
<i>Telecommunications</i>	22	7,076.4	30.6
<i>Transport (Road)</i>	1	143.2	0.6
<i>FDI Infrastructure Projects</i>	48	23,098	100

<i>FDI Total Projects</i>		61,276	
<i>%of FDI total Projects</i>			37.7

Source: Directorate of Investment and Company Administration in Myanmar

The lack of infrastructure in Myanmar is an important obstacle to meeting the needs of society and to enterprise and economic development. The openness for FDI should be considered with the capacity of the macro economy and the location of Myanmar, compared with other ASEAN countries in various indicators of investment climates. A huge obstacle to attracting investment in the manufacturing sector is insufficient power, communications, roads, railways, bridges and ports. The government has stated that its investment priorities include the construction of road and rail networks, power plants, water treatment plants industrial parks and special economic zones(SEZ) to meet the demand for new infrastructure.

Although logistics infrastructure is an important factor for investment, Myanmar's current logistic infrastructure is poorer than other countries. The government is building physical roads to becoming Asia's "crossroads" through investments. Recently, the Oxford Business Group issued of The Report: Myanmar 2018, which states that Myanmar is expected to require at least US\$60 billion of new investment over the next 15 to 20 years to fulfill the country's rapid urbanization and massive infrastructure agenda set by the Ministry of Transport and Communication in September 2017. The government's emphasis on establishing effective national and international supply chains for future economic growth, improvements in infrastructure (particularly power infrastructure, road, rail, air, and ports) have the highest priority in order to attract FDI. Limited infrastructure capacity is also a major issue hindering the promotion of industrial activities. Table (3) shows a list of infrastructure enterprises and their existing value of investment as approved by the Foreign Investment Law.

FDI in hydroelectric power plants is permitted as a joint venture or build-operate-transfer (BOT) scheme. The Ministry of Construction seeks to encourage private sector investment in infrastructure development and uses BOT projects or joint ventures for the constructions of roads, inland cargo depots, ports, and airports. The government is conducting various infrastructural projects under BOT or other Public Private Partnerships (PPP)agreements with investors from the private sector.

4.6. Tax Exemption

Tax exemption is an influential factor for attracting FDI to a host country. From the spillover effects of the introduction of new technologies and the enhancement of human capital (skills), FDI can positively affect domestic income and policymakers frequently re-examine their tax rules to ensure the attractiveness of FDI. Moreover, governments should constantly check the competitiveness of their tax environment for FDI, but ensure that an appropriate share of domestic tax is collected from multinationals.

Some previous studies have found that FDI was becoming increasingly sensitive to taxation and the long-run impact of corporate tax reform is one uncertainty of how tax factors into FDI decisions, including what investors consider to be favorable tax rates. Similar to comparisons regarding location and market size, foreign investors normally compare tax burdens in different locations. It should be noted that a low tax burden alone cannot compensate for a largely weak or unattractive FDI environment. However, tax incentives can be a major factor in investment location decisions for some foreign investors, especially, export-oriented companies.

Employees of companies incorporated in Myanmar and established under the foreign investment law are treated as residents and their income is taxed at a rate of 25%. Commercial tax is payable on goods that are imported or produced in Myanmar as well as trading sales and services. Recently, as the next step to promote and invite FDI, the current government is preparing many incentive schemes and policies to attract multi-national enterprises with promulgation of a new foreign investment law established in October 2016. Under the new Foreign Investment Law, the government will give income tax exemptions in designated zones. Zone 1 is the least developed region and will have an exemption for seven years. Zone 2 is a moderately developed region and will have an exemption for five years. Zone 3 is an adequately developed region and will have an exemption for three years. The government may also allow more favorable exemptions and relief for locations where Myanmar citizen-owned businesses are operated or for other investor economic activities.

4.7. Trade Policy Issues

Appropriate trade policies are not only predictable, consistent and transparent, but lower the risks for investors, which is particularly important for foreign firms. Empirical researchers point out that if trade policies are unpredictable, FDI will be lower. Another problem is trade-related infrastructure shortages for exports. These trade facilitation challenges are compounded by broad investment climate weaknesses, especially those

affecting small to medium size businesses and entrepreneurs, with difficulties in access to finance to support export-oriented activities and capacity challenges in trade promotion institutions.

The previous government enacted the New Export and Import Law of September 2012, aiming to align Myanmar's trade policy with international rules and regulations, as well as promoting trade facilitation. Concerning the trade facilitation measures, the Ministry of Commerce is responsible for monitoring export and import license applications. However, the institutional, infrastructure and capacity challenges mentioned earlier are key impediments to Myanmar benefitting from trade development schemes, such as the Generalized System of Preferences (GSP) benefits reissued by the EU in July 2013 and the US in 2016. Since 2012, many of the previous trade sanctions have been lifted. An important trade policy and export promotion strategy was launched in March 2015 called NEX 2015-19, which was created in cooperation with the World Trade Organization. It is a road map to supporting workable, diversified economic development through trade. In line with this policy, the government started a 12-point economic strategy in July 2016 and set its trade policy objectives.

V. Policy Implications

Recently, a new trend in FDI of shifting investments from the natural resource and energy sectors to the manufacturing sector has improved FDI growth, but Myanmar's FDI is still not on a level comparable to neighboring countries. Inward FDI stock in Myanmar is much lower than that of neighboring countries. Some authors point out that if Myanmar chooses the right national development strategy, enhances open trade and investment strategies and learns from economies with similar experiences, the country can catch up to its neighbors and partners in the region. Some economic experts point out that government promotions to attract FDI are irrespective of the realization of an investment boom in the country. Facilitating labor intensive manufacturing and the accompanying support service activities would further raise trade, investment and income-earning opportunities as well as attract further foreign investment critical to transforming Myanmar's economy. Likewise, the country's success in getting the benefits from foreign direct investment will allow infrastructure development and better institutions through trade and investment liberalization.

Although the government is supporting value-added activities, exports continue to be heavily concentrated in raw materials such as natural gas, gems and other minerals with much of the incoming investment going to these areas in recent years. However, the government

transactions rules and regulations have some weakness. Domestic reforms are necessary to build international confidence in the growth of commercial and investment ties with Myanmar and to lift the country's trade and growth potential. Recent economic, political and social restructuring changes offer better reasons for investment since the party led by Daw Aung San Suu Kyi gained power in 2016. Effective public investment, policy-making and power sharing are fundamental to sustainable trade-oriented growth, the development of the capacities and welfare of Myanmar's people and the peace and political settlement necessary to sustain growth in the long term.

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Awareness on Reproductive Health Care among Married Women in Yangon Region

(Case Study in Bahan, North Okkalapa and Shwepyithar Township)

Soe Yu Hlaing¹

ABSTRACT

Reproductive Health mean that emphasizes on all features of the reproduction of human being, and it is a crucial for general health and well-being of women because of their ability to make decisions and choices concern with their lives and when or whether to consider having children. This study aims to explore about the awareness on reproductive health care among married women by investigating their family planning, current practices and available services in Yangon Region. Moreover, this research also focused on delivery care, contraception, abortion, and post-abortion care. A quantitative and qualitative case study research designed and cross-sectional descriptive method are used for this study. In studying the awareness on reproductive health care and family planning knowledge are different among married women within the three Townships due to the development level of townships. In summarizing, reproductive health care services are often available but inaccessible in the study areas where married women have misinformation, common and unsafe practices surrounding abortion and delivery, and a dearth of comprehensive sexual and reproductive health services for adolescent and unmarried populations.

Keywords: Reproductive Health, Family Planning, Delivery care, Contraception, Abortion, Post-abortion Care.

INTRODUCTION

Rationale of the Study

To establish a well-being and healthy family life, he or she need to awareness on the reproductive health care with the understanding of family planning concepts and methods. Because of a comprehensive progress of reproductive health care creates to lessen maternal and infant mortality rates, cure of sexually transmitted disease (STD) and assistance to sterile couples, etc which may lead to economic and social development with a fruitful way of health practices.

According to the world Health Organization defined that, reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health intends to people who are able to get a satisfying and safe sex life and that ensure their capability to give birth and freedom to choose if, when and how often to do so. If husband and wife informed to each other about and have access to safe, effective, affordable, and acceptable methods of family planning of their choice, and the right to appropriate health-care services, this situation would be enabled women to safely go through pregnancy and childbearing.

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As in international law stated, reproductive health is a human right which acts a major part in morbidity, mortality and life expectancy of people. Generally, reproductive health incorporates the satisfaction of human, safe sex life, ability to give birth, good maternal and newborn survival, freedom to manage proliferation, knowledge about and access to safe, effective, affordable methods of family planning, ability to lessen gynecologic disease through the whole of life. Reproductive health problems, however, create the women's ill health and mortality, it concerns are not restricted to a single gender or sexual orientation worldwide. Similarly, reproductive health care should be long-term goal that beyond the childbearing age that is women's reproductive years between ages 12 and 51.

At the same time, the National Strategic Plan for Reproductive Health supports the Myanmar Health Vision 2030 of the Ministry of Health through health promotion and service provide to improve the reproductive health of women, men and adolescents. One of the among specific objectives of the strategic plans is to reduce rate of maternal, perinatal and neonatal morbidity and mortality by increasing equitable access to maternal and newborn services; improving quality, efficiency and effectiveness of service delivery at all levels and improving responsiveness to the client needs which also intended to promote women's life and status.

In addition, Myanmar's reproductive health plan (1993-1996) was introduced and stipulated the Family health Care Project as well as reproductive health policy was formulated in 2002 which policy intends to provide comprehensive reproductive services covering adolescence to old age. The significance features of reproductive health care are reducing infant, child and maternal mortality and improving the quality and accessibility of birth spacing services. Therefore, this study focus on the prevalence of reproductive health care services and family planning knowledge and to what extent perform to the family planning methods and reproductive health care among the married women who stay within their townships respectively.

Objective of the Study

The objective of the study is to examine the awareness on reproductive health care that concerns with the understanding about the family planning methods and concepts among married women in three townships in Yangon Region.

Method of Study

The method of study is based on the quantitative and qualitative approach of primary data and cross-sectional descriptive method also used to satisfy the objectives of the study. A simple random sample of 200 married women respondents with a structure questionnaire to attain the intended information from this survey. Firstly, Bahan and North Okkalapa Township are selected areas as a pilot survey, after that Shwepyitha Township is selected as a main study area. Moreover, reliable secondary data are confined from the World Health Organization (WHO), Ministry of Health, Myanmar, relevant books and various internet websites related to the paper.

SURVEY ANALYSIS

Survey Profile

The survey area is focus on three townships in Yangon Region including Bahan, North Okkalapa and Shwepyitha Township. Firstly, Bahan Township is located in the north central part of Yangon, it comprises 22 wards and shares borders with Yankin and Mayangon Township in the north, Sanchang and Kamayut Township in the west, Tamwe Township in the east, and Dagon and Mingalar Taungnyunt Township in the south. The township has 21 primary schools, three middle schools and three high schools. This township is one of the most prosperous townships in Yangon. Shwetaunggya (formerly, Golden Valley) and Inya Myaing are two of Yangon's most exclusive neighborhoods and National League for Democracy and Air Bagan, an international airline, has their headquarters in Bahan.

The second township, North Okkalapa is situated in the east of Yangon with 19 wards. North Okkalapa was established in 1959 as one of the satellite town but it is a firmly established part of the city, albeit with nominal access to the city's electricity grid and sewer system. The township has 30 primary schools, seven middle schools and five high schools. It is also home to one of the most selective universities in the nation: the University of Medicine 2, Yangon, and the University of Pharmacy, Yangon.

The last township, Shwepyitha is established in the northwestern part of Yangon, which incorporated into the city of Yangon in 1986. It involves 15 yards and five village tracts which is still largely underdeveloped, lacks basic municipal services and large slum areas of Yangon in comparing to other township. The township has 43 primary schools, four middle schools and four high schools. The most famous high school is B.E.H.S no1 and B.E.H.S no.3.

And 200 married women are selected from three Townships with structured questionnaires and obtained the information from 150 respondents in the Shwepyitha Township and each 25 respondents from the two rest townships. Therefore, 75% represents for Shwepyitha Township, and 12.5% represents for Bahan Township and North Okkalapa Township, respectively. Because Bahan Township and North Okkalapa Township are selected areas as a pilot survey which is intended to compare the Shwepyitha Township as a main study area. The study period prolongs the whole month of May 2018.

Demographic Characteristics of the Respondents

The following table shows the demographic characteristics of the respondents in three Townships including with age, gender, marital status and having children.

Table (1): Demographic Characteristics of Respondents

Townships	Statements	Category	Frequency	Percentage
Bahan	Age	Under 20 years	1	4
		Above 20 years	24	96
		Total	25	100
	Gender	Male	-	-
		Female	25	100
		Total	25	
	Marital Status	Single	-	-
		Married	25	100
	Total	25		
Having Children	Less than 3	22	88	
	More than 3	3	12	
	Total	25	100	
North Okkalapa	Age	Under 20 years	-	-
		Above 20 years	25	100
		Total	25	
	Gender	Male	-	-
		Female	25	100
		Total	25	
	Marital Status	Single	-	-
		Married	25	100
	Total	25		
Having Children	Less than 3	23	92	
	More than 3	2	8	
	Total	25		
Shwepyitha	Age	Under 20 years	47	31.33
		Above 20 years	103	68.67
		Total	150	100
	Gender	Male	-	-
		Female	150	100
		Total	150	
	Marital Status	Single	-	-
		Married	150	100
	Total	150		
Having Children	Less than 3	98	65.33	
	More than 3	52	34.67	
	Total	150	100	

Source: Survey Data (2018)

From above table (1) shows that, there is no single, no male respondents and focus on only female respondents (married women) 200 by (100%) participated in this study. As far as **(When were you married?)** is concerned, 31.33% are under 20 years old although 68.67% are above 20 years in Shwepyitha. In Bahan, only 4% are under 20 years while 96% are above 20 years. By contrast, in North Okkalapa, all women (100%) are above 20 years.

Regarding (**How many children do you want to have?**), there are 65.33% who want to have children less than 3 while other 34.67% are considering for having babies more than 3 in Shwepyitha. Similarly, in Bahan, there are 88% who want to have children less than 3 while only 12% are considering to have babies more than 3. In North Okkalapa, in spite 92% want to have children less than 3, only 8% are considering for having babies more than 3. As a survey result, it can conclude that most of the women living in Shwepyithar Township are married at under 20 years and they desired to have more than 3 children since there has a difference between downtown area or proper development areas and urban slum or lack of municipal services apparently.

Reproductive Health Care

Centers for Disease Control and Prevention (CDC) presented that reproductive health refers to the health of women and men during their reproductive years, which are the years they can have a child. Similarly, Department of Health (DOH) described that reproductive health care are family planning services, counseling and information, prenatal, postnatal and delivery care, nutrition and health care for infants and children, treatment for reproductive tract infections and STDs, management of abortion-related complications, prevention and appropriate treatment for infertility, IEC on human sexuality, reproductive health, responsible parenthood, male involvement, adolescent reproductive health, management and treatment of reproductive cancers, services to victim/survivors of violence against women. Therefore the ability of women to take decisions on the family planning methods, concepts of family planning and promoting the role of women in reproductive health care may not only enhance their bargaining power but also reduce their vulnerability to STDs including AIDS. Therefore, the following table shows the condition of knowledge on reproductive health care among married women in three townships.

Table (2): Knowing Reproductive Health Care

Townships	Well Known	Know	Fairly Know	Unknown	Other	Total
Shwepyitha	7 (4.7%)	44 (29.3%)	66 (44%)	29 (19.3%)	4 (2.7%)	150 (100%)
Bahan	7 (28%)	17 (68%)	0 (0%)	1 (4%)	0 (0%)	25 (100%)
North Okkalapa	3 (12%)	19 (76%)	1 (4%)	2 (8%)	0 (0%)	25 (100%)
Total	17 (8.5%)	80 (40%)	67 (33.5%)	32 (16%)	4 (2%)	200 (100%)

Source: Survey data (2018)

According to table (2), the respondents answered about the reproductive health care in their environment know well (4.7%) , fairly know (44%) and know about (29.3%). In contrast, there are 29 respondents, (19.3%) who don't know and other 4 respondents, (2.7%) who left neutral. Simultaneously, Bahan Township is concerned the number of respondents

who know well 28% of respondents and know (68%) of respondents. There is only one respondent by (4%) who said don't know and no woman in the group of fairly know and other. In the case of North Okkalapa Township, there is (12%) of respondents answered know well and fairly know (76%) of respondents and (8%) is don't know. Totally, it can be noted that there are 80 married women respondents by 40% who know and 67 by 33.5% of respondents know fairly although these three townships have only 17 by 8.5% of respondents know well. This survey result explained that there are only 32 or 16% of respondents who absolutely don't know and 4 or 2% of respondents left neutral.

Awareness of Taking Care and Services on Pregnancy

Prenatal or antenatal care mean that the systematic take care of women during pregnancy to check the improvement of foetal growth and to confirm the health of mother and child. A better antenatal care presents necessary care to the mother and helps identify any complication of pregnancy risks such as HIV, anemia malnutrition, tuberculosis and Melina etc. Hence, every pregnant woman require to receive at least four antenatal visits. However, almost 50% of women don't receive proper antenatal care in low and middle-income countries. And women from relatively poor backgrounds, living in rural areas, and or with low levels of education are less likely to access antenatal care services, even if they are provided. If they don't have enough knowledge regarding antenatal services, it is more likely to increase risk of prenatal mortality and still birth. Therefore, awareness of take care and service on pregnancy is very important.

Table (3): Awareness of Taking Care and Services on Pregnancy

Township	Well Known	Know	Fairly Know	Unknown	Other	Total
Shwepyitha	3	28	113	5	1	150
Bahan	17	6	2	0	0	25
North Okkalapa	13	7	5	0	0	25
Total	33 (16.5%)	41 (20.5%)	120 (60%)	5 (2.5%)	1 (0.5%)	200 (100%)

Source: Survey data (2018)

As the table (3) describes the information regarding with the awareness of antenatal care for pregnancy in three townships: Shwepyitha, Bahan and North Okkalapa. There are 41 respondents by (20.5%) replied know which is followed by 33 respondents (16.5%) who know well. Significantly, there are 120 or (60%) of respondents fairly know. It can also be seen that only 5 or (2.5%) of respondents answered don't know and (0.5%) of respondent is other options.

Table (4): Taking Drugs and Inject Vaccines

Township	Statements	Yes	No	Total
Shwepyitha	need to inject vaccines	139 92.67%	11 7.33%	150 100%
	have taken drugs	24 16%	126 84%	150 100%
	take vitamin supplement during pregnancy	132 88%	18 12%	150 100%
Bahan	need to inject vaccines	25 100%	0 0%	25 100%
	Have taken drugs	3 12%	22 88%	25 100%
	take vitamin supplement during pregnancy	25 100%	0 0%	25 100%
North Okkalapa	need to inject vaccines	25 100%	0 0%	25 100%
	Have taken drugs	7 28%	18 72%	25 100%
	take vitamin supplement during pregnancy	25 100%	0 0%	25 100%

Source: Survey data (2019)

As the table (4) stated that about the necessary to inject vaccines during both antenatal and postnatal period, 92.67% of respondents answered YES, while 7.33% of respondents answered NO in Shwepyitha. And 100% or all respondents answered YES in Bahan and North Okkalapa Townships. There is no woman who answered NO in both townships.

Generally, most medicines are not harmful to the development of fetus but some drugs may hinder to its normal development and cause birth defects. As a result, some drugs should not be taken prenatal or postnatal period unless necessary or without instruction by physicians or a health care practitioner because many can harm the fetus or infant. In this survey that inquired about taking some drugs which can harm to the developing baby except that take certain vitamins and mineral with the recommendation of a health care practitioner. According to the survey result, the number of taken drugs during both antenatal and postnatal period in Shwepyitha, is concerned 16% answered YES and 84% answered NO. In Bahan, 12% answered YES while 88% answered NO. Similarly, in North Okkalapa, 28% answered YES although 72% answered NO. Concerning with take vitamin supplement during

pregnancy, 88% answered YES while other 12% answered NO in Shwepyitha. There is 100% of respondents answered YES in Bahan and North Okkalapa Townships.

Knowing HIV-AIDS and other Infectious Diseases

Infectious diseases in pregnancy are not just a risk for the mother; pathogens can be transmitted to the unborn child causing still birth, neonatal death, congenital abnormalities, or chronic lifelong disease.

Table (5):Knowing HIV-AIDS and other Infectious Diseases

Townships	Well Known	Know	Fairly Know	Unknown	Other	Total
Shwepyitha	2	86	59	2	1	150
Bahan	19	4	2	0	0	25
North Okkalapa	14	8	3	0	0	25
Total	35	98	64	2	1	200

Source: Survey data (2018)

According to the table (5) states that about the number of respondents who answered the survey questions concerning knowledge about the infectious diseases in three townships in Yangon Region in 2018. Obviously, although there are (98) respondents who know STDs, there are only (35) respondents who know well. While (64) respondents are knew fairly STIs, (2) respondents don't know about it and there is only (1) respondent to other situations.

Knowing Family Planning and Family Planning Method

Family planning is essential for women's health and their families which can stimulate a country's economic progress towards reducing poverty and achieving development goals. Because of its importance, universal access to reproductive health services including family planning is recognized as one of the targets of the United Nations Millennium Development Goals. Family planning reduce the need for abortion especially unsafe abortion.

Table (6): Knowing Family Planning and Family Planning Method

Townships	Statements	Yes	No	Total
Shwepyitha	know Family Planning	18 12%	132 88%	150 100%
	accessible to Family Planning methods	147 98%	3 2%	150 100%
	discuss with skillful doctors or nurses about contraception	54 36%	96 64%	150 100%
	heard of pre-eclampsia	135 90%	15 10%	150 100%
Bahan	know Family Planning	25 100%	0 0%	25 100%
	accessible to Family Planning methods	25 100%	0 0%	25 100%
	discuss with skillful doctors or nurses about contraception	12 48%	13 52%	25 100%
	heard of pre-eclampsia	25 100%	0 0%	25 100%
North Okkalapa	know Family Planning	25 100%	0 0%	25 100%
	accessible to Family Planning methods	25 100%	0 0%	25 100%
	discuss with skillful doctors or nurses about contraception	20 80%	5 20%	25 100%
	heard of pre-eclampsia	23 92%	2 8%	25 100%

Sources: Survey data (2018)

From above table (6) describes knowing Family Planning is concerned, in Shwepyitha, only 12% of respondents answered YES and 88% is NO when compare to Bahan and in North Okkalapa, (100%) of respondents answered YES and there is no woman who answered NO in both townships. As a survey result, most respondents in Shwepyitha Township have a poor knowledge concerning with the Family Planning concepts but

accessible to Family Planning methods is 92% of respondents who answered YES and 2% answered NO. In both Bahan and North Okkalapa, all respondents (100%) answered YES. Amazingly, all respondents know about the contraceptive methods.

When it comes to discuss with skillful doctors or nurses about contraception, 46% answered YES although 64% answered NO in Shwepyitha. In Bahan, 48% answered YES while 52% answered NO. In contrast, in North Okkalapa, 80% answered YES although 20% answered NO. As far as heard of pre-eclampsia is concerned, 90% answered YES although 10% answered NO in Shwepyitha. All women 100% of respondents answered YES while 92% of respondents answered YES and 8% answered NO in North Okkalapa

Engaging in Family Planning Method

If married women have enough knowledge concerning with the family planning methods, they can choose the suitable and useful methods for them. As a consequence, they can delay babies and follow education and career goals. This empowers them and increases their ability to earn more.

Table (7): Engaging in Family Planning Method

Townships	Shwepyitha	Bahan	North Okkalapa	Total
Injection	66	3	12	81
Oral contraceptive pill	53	8	4	65
IUD	1	4	7	12
Implant	2	5	1	8
Calendar Method	0	3	0	3
Condom	0	2	1	3
Others	28	0	0	28
Total	150	25	25	200

Source: Survey data (2019)

According to table (7), the number of the respondents who answered the survey questions concerned with the engaging in family planning methods in three townships in 2018. When it comes to injection, there are (81) women who use it. It is followed by (65) women who use oral contraceptive pill. Unlike injection and OC pill, there are only (12) women using IUD and (8) ladies who inserted implant. Slightly, there are only (3) ladies who use condom and (3) girls who uses other methods.

CONCLUSION

In the Reproductive Health field, ANTENATAL Care (ANC) is a major proponent for women and their unborn children, it is crucial to prioritize interferences based on what is suitable and what will be most valuable to the huge number of women. Moreover, education programs for pregnancy are proposed as majority of the women are lack of knowledge about ANC.

According to survey, in most of three township areas, some NGO are providing services in Health Sector and distributed condom free of charge, but there is no special program for birth spacing. On the other hand, male condom users are also not intended for birth spacing just for reducing the Sexually Transmitted Infections (STIs). In this study the awareness on reproductive health care and family planning knowledge are different among married women within the three Townships due to the development level of townships. Especially, Shwepyitha Township is one of the least perform in the implementation of reproductive health care services and using family planning methods because this township is still largely underdeveloped, lack of municipal services and the socioeconomic status is also low when compared to the other two townships. In summarizing, reproductive health care services are often available but inaccessible in the study areas where married women have misinformation, common and unsafe practices surrounding abortion and delivery, and a dearth of comprehensive sexual and reproductive health services for adolescent and unmarried populations.

Nevertheless, contraceptive distribution and service providing for birth spacing should be free of charge and this programs should reach end users. Because women from relatively poor backgrounds, living in rural areas, and low levels of education are less likely to access antenatal care services, even if they are provided. If they don't have enough knowledge regarding reproductive health care such as family planning and antennal services, it is more likely to increase risk of prenatal mortality and still birth which will turn to prevent for nation's economic growth and social welfare.

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Effect of Fear of Missing Out and Anxiety on Delegation

Myint Myint Kyi¹

Abstract

This paper aims to analyse the effect of psychological feelings of fear of missing out and anxiety on delegation of people who are playing at the managerial levels. In this study a person who has at least one subordinate can be identified as a person who are working at managerial level. Since the number of persons who are working at the managerial levels is the unknown data, sample size formula for unknown population is used. The sample size is 96. However, only from 75 respondents, data are received. Systematic random sampling is practiced. Personal interviews are conducted by using structured questionnaire. From descriptive analysis, it is found that most of the respondents are feeling fear of missing out and anxiety at above average level, and they are practicing delegation at high level. From multiple linear regression analysis, it is found that anxiety is positively relating to delegation, If superiors feel more anxiety, they will more delegate their responsibilities to subordinates. This is not the right way of delegation. They delegate their responsibilities not for organization's effectiveness and efficiency, only for their desire to escape from high responsibility. Thus, people playing at the managerial levels should practice delegation for total effect of their organizations.

Key Terms: Fear of Missing Out, Anxiety, Delegation

Introduction

In this turbulent world, businesses need managers who have delegation skills because forces and changes from business environment grab much time of managers to make strategic responses. Managers have to spend much of their time in searching new market segments, developing new marketing strategies, finding opportunities to launch innovative products and services, getting information about emerging customer-groups and so on. Thus, their subordinates should take over some responsibilities of managers. To focus on more important issues and to cope with new trends of market, managers would not have time to accomplish everything by themselves. They should hand over their responsibilities to subordinates by concerning subordinates' readiness level. Thus, in this time of fierce competition, businesses urgently need managers who are good at delegation. Delegation is the process managers transfer authority and responsibility to positions below them in the hierarchy (Daft, 2010). Managers must be smart in delegating both authority and responsibility to subordinates. Organizations also encourage managers to delegate authority and responsibility to possible lowest level employees. Although this is the time for delegation, some managers may be hesitating to transfer their authority and responsibility to subordinates. If they have strong fear of missing out and high anxiety, their delegation practice will not be effective.

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Rationale of the Research

To stand out in highly competitive and rapidly changing environment, businesses need contribution and commitment of all employees. They need larger pool of organizational talent. All people – from bottom to top – of the organization have to contribute suggestions for improvements and must participate in problem-solving activities and especially middle and lower level people must work on behalf of their superiors. In such progressive organizations, employees become flexible in doing multiple jobs, and they become familiar with doing as teams like autonomous organizational units. However, many organizations are still running in traditional manner: lack of delegation in these organizations. The root cause of this problem cannot be obviously seen. The potential causes are lack of delegation skills of managers, incompetency of subordinates, or psychological insecure feeling of managers. Among these causes, psychological insecure feeling of managers (superiors) may be the most probable one.

At present, managers become knowledgeable to practice modern management concepts including delegation. They can learn best practices of successful organizations through information technology. They are getting more knowledge from modern environment. They may know well how to delegate to subordinates. Moreover, it is not difficult for them to understand the readiness level and commitment of their subordinates. Subordinates may also have willingness to take high responsibilities. However, because of the psychological issues such as fear of missing out and anxiety, managers may not be delegating their responsibilities and authority to subordinates. When managers fear losing control they can inadvertently thwart the delegation process entirely (Anderson, 1992).

These two psychological feelings may cause reluctance of managers to do delegation. However, it is not sure that these psychological feelings (either fear of missing out or anxiety) may influence positively on delegation. People working at managerial levels may do over delegation due to their high level of anxiety. It is also not sure that the fear of missing out can influence on delegation positively or negatively or no effect on delegation.

If superiors practice delegation due to their anxiety, subordinates will feel burden and they will be tired at taking both their main responsibilities and their superiors' responsibilities. Similarly, if superiors do not delegate their responsibilities due to their feeling of fear of missing out, the tasks will not be accomplished effectively and efficiently. This study focuses on the effect of such psychological issues (fear of missing out and anxiety) on delegation of people who are playing at the managerial roles.

Research Questions

- (1) Are people who are working at the managerial levels delegating their authority and responsibilities to their subordinates?
- (2) Is the reason of not delegating is fear of missing out of people who are playing at managerial levels in their organizations?
- (3) Is the reason of delegating is anxiety of people who are working at managerial levels at their organizations?

(4) Is the fear of missing out and anxiety not influencing on delegation?

Objectives of the Research

- (1) To analyse the effect of fear of missing out on delegation.
- (2) To analyse the effect of anxiety on delegation.

Scope and Method of the Research

This study focuses only on the effect of fear of missing out and anxiety of delegation. Since there is no record of number of people who are working at the managerial levels, sample is from unknown population. The following formula is used:

$$n = \frac{Z^2 pq}{E^2} \text{ (Cochran, 2007)}$$
$$n = \frac{(1.96)^2 (0.5) (0.5)}{(0.1)^2}$$
$$n = 96$$

Thus, the sample size is 96. Primary data are collected randomly from 96 people who are working at the managerial level. In this study, a person who are working at managerial level is a person who has at least one subordinate at respective organization. Primary data are collected at down town area (bus stop near to Sule Pagoda) on 17th August (Saturday) from 1:00 p.m to 6:00 p.m. Systematic random sampling method is applied. At the bus stop, data are collected by approaching to every 5th person coming to the bus stop. Since many people refuse to participate, data are received from only 75 people. Personal interview method is applied by using structured questionnaire.

Research Instrument

The research instrument used for data collection is questionnaire. The questionnaire consists of four parts: fear of missing out, anxiety, delegation, and demographic data of respondent. Major three parts are representing to two independent variables (fear of missing out and anxiety) and one dependent variable (delegation). Question items are organized by adapting to the question items used by previous researchers. The question items are with Likert type five-point scale. The questionnaire consists of 10 items for fear of missing out variable, 12 items for anxiety variable, and 19 items for delegation variable (See in Appendix).

Literature Review

Doing the task oneself because of a reluctance to be perceived as “unwilling to get their hands dirty” is a factor that often prevents managers from delegating tasks (Master,

2001). Superiors may not be willing to transfer their responsibilities and authority to their subordinates because of their feelings of insecure: fear of missing out and anxiety.

Fear of missing out means the pervasive apprehension that others might be having rewarding experiences from which one is absent (Przybylski, Murayama, Dehaan, & Gladwell, 2013). According to the (State of New South Wales' Department of Education and Communities & Charles Sturt University, 2015):

"Trait anxiety refers to a general level of stress that is characteristic of an individual, that is, a trait related to personality. Trait anxiety varies according to how individuals have conditioned themselves to respond to and manage the stress. What may cause anxiety and stress in one person may not generate any emotion in another. People with levels of trait anxiety are often quite easily stressed and anxious".

Fear of missing out (FoMO) is the anxiety that occurs "because the possibility of a social connection is more important" than anything else (Grohol, 2011). He states that FoMO "is a very real feeling that's stating to permeate through our social relationships" (Grohol, 2011).

(Cargill, 2019) stated social media addiction, anxiety, the fear of missing out are the health issues of people and these issues are causing the interpersonal problems. From this article, it can be concluded that a person's fear of missing out can decrease his or her interpersonal skills. Persons who are weak in interpersonal skills will not be good at delegation. Managers cannot communicate effectively to their subordinates if they are poor in interpersonal skills. Thus, they cannot practice delegation to their subordinates. Anxiety is also one of the health issues. Anxiety can also influence on effectiveness of delegation. If managers feel anxiety, they will not be secure mentally to delegate their responsibilities and authority to subordinates. Delegation is a process managers use to transfer formal authority from one position to another within an organization and, thus, to put authority system they have designed into place (Dunham & Pierce, 1989). Upon acceptance, the manager will create the responsibility, transfer formal authority, and allow the delegate to do the assignment, with minimal oversight (Brown, 1998; Davidson, 1986).

Authority is the formal and legitimate right of a manager to make decisions, issue orders, and allocate resources to achieve organizationally desired outcome (Daft, 2010). However, some managers believe employees are just not ready to take on any responsibility (Wilson, 2010). Managers may be reluctant to hand over their authority to others if they have psychological feelings of fear of missing out and anxiety. They may be hesitating to transfer not only authority but also responsibility to subordinates. Responsibility is the duty to perform the task or activity an employee has been assigned (Daft, 2010). Managers may want to do every task and activity by themselves if they feel fear of missing out and anxiety. They may believe that they can do better than their subordinates. Some researchers also urge managers to practice delegation. Good leaders are different than good managers in that good leaders know how to give up control, even when they are tempted to do everything themselves; often it is much better for the organization when leaders delegate authority (Marti, 2006). Delegation is a critical factor in helping anyone become a leader (Lemberg,

2008). Delegating authority has even helped virtual teams perform better and when virtual team leaders were assessed by team members those who delegated authority were positively correlated with team member satisfaction (Zhang, S; Tremaine, M; EganR; Milewski, A; O'Sullivan, P; Fjermestad, J, 2009). Delegating discretion to employees will not only lead to a better use of the knowledge that they already control, but also to the discovery of new knowledge that they would not discover in the absence of delegation (Miles, et al., 1997).

From literatures mentioned above, at one hand, managers are reluctant to delegate to their subordinates because of various reasons. At the other hand, delegation is necessary thing to do at modern businesses. Thus, the research work is needed to examine some psychological feelings of superiors are influencing on delegation at the organizations. This study intends to explore the effect of these psychological issues on delegation.

Conceptual Framework

The conceptual framework of the study is shown in Figure (1).

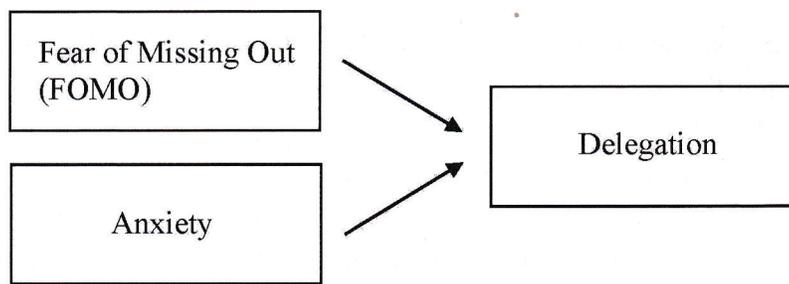


Figure (1) Conceptual Framework of the Study

Source: Developed for This Study, 2019

In this study, major assumption is that the fear of missing out and anxiety individually or collaboratively influence on delegation practice of people who are working at the managerial levels at the organizations.

Data Analysis

For data analysis, descriptive and linear regression methods are used. As descriptive method, mean value calculation has been done. Linear regression analysis is to investigate the effect of fear of missing out and anxiety on delegation. Before starting the correlation and regression analyses, data reliability and validity tests are conducted. The reliability test results are shown in Table (1).

Table (1) Results of Reliability Test

Sr. No.	Variable	Number of Items	Cronbach's Alpha
1	Fear of Missing Out	10	0.804
2	Anxiety	12	0.808
3	Delegation	19	0.930

Source: SPSS Output

As shown in Table (1), the cronbach's alpha values of both independent variables and dependent variables are above 0.7. Thus, the question items used to measure variables and the respondents' responses are reliable for further analyses(George & Mallery, 2003).

Findings from Analysis

Descriptive analysis has been conducted to present the average fear of missing out feeling, average anxiety, and average delegation practice of respondents. The results are shown in Table (2).

Table (2) Fear of Missing Out, Anxiety and Delegation of Respondents

Sr. No.	Description	Mean Value
1	Fear of Missing Out	2.404
2	Anxiety	2.316
3	Delegation	3.271

Source: survey Data, 2019

As shown in Table (1), most of the respondents are feeling fear of missing out and anxiety at the above average level. However, it is found that they are practicing delegation at high level in their organizations.

Person Correlation Result

To test the effect of independent variables on dependent variable with multiple linear regression analysis, correlation analysis is firstly done. The associations of variables are shown in Table (3).

Table (3) Correlations Result

		Fear of Missing Out	Anxiety	Delegation
Fear of Missing Out	Pearson Correlation	1	.673**	.410**
	Sig. (2-tailed)		.000	.000
	Sum of Squares and Cross-products	30.109	19.130	12.945
	Covariance	.407	.259	.175
	N	75	75	75
Anxiety	Pearson Correlation	.673**	1	.424**
	Sig. (2-tailed)	.000		.000
	Sum of Squares and Cross-products	19.130	26.824	12.624
	Covariance	.259	.362	.171
	N	75	75	75
Delegation	Pearson Correlation	.410**	.424**	1
	Sig. (2-tailed)	.000	.000	
	Sum of Squares and Cross-products	12.945	12.624	33.090
	Covariance	.175	.171	.447
	N	75	75	75

** . Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Output

As shown in Table (3), the dependent variables are associate with dependent variable. Thus, no variable has been tore moved in linear regression analysis. To reach the objectives of this study, multiple linear regression analysis is conducted to present the effect of fear of missing out and anxiety on delegation of people working at the managerial levels. The results from multiple linear regression analysis are shown in Table (4).

Table (4) Effect of Fear of Missing Out and Anxiety on Delegation

Model	Unstandardized Coefficients		t	Sig	VIF
	B	Std. Error			
Fear of Missing Out	0.239	0.149	1.610	0.112	2.829
Anxiety	0.300	0.158	1.904	0.061*	2.829
R Square	0.208				
Adjusted R Square	0.186				
F Value	9.459***				
Durbin Watson	2.187				

Source: SPSS Output

Notes: *** Significant at 1% Level, ** Significant at 5% Level, * Significant at 10% Level

Dependent Variable: Delegation

As shown in Table (4), it is found that anxiety is influencing on delegation, and this relationship is positive relationship. It seems that people feeling anxiety are good at delegation in their organizations. However, in reality, superiors are delegating their responsibilities to subordinates if they feel anxiety too much.

Limitation of Research

This study focuses only on two psychological issues (fear of missing out and anxiety) as the influencing factors on delegation at work. However, in some organizations, there are many other factors which are influencing on delegation. Moreover, in delegation part, only the transferring responsibilities are accounted for. Transferring authority is excluded in analysis. In survey, data are received from only 46 people who are working at managerial roles. Thus, the findings are represented to the situation of all other factors are constant, and only fear of missing out and anxiety can influence on delegation.

Conclusion

This study explored the psychological feelings influencing the practice of delegation at work. At first, the major assumption is that people will not delegate their responsibilities to subordinates if they feel fear of missing out and anxiety. However, from data analysis, it is found that high anxiety will generate high delegation. It seems good for organization's performance because delegation conceptually leads to effectiveness in tasks accomplishment. In reality, subordinates may take heavy workload due to irrelevant delegation of superior's responsibilities. Subordinates, who are working with superiors who feel too much anxiety, may be feeling unfair and bullying at work. Because of anxiety, superiors would not take responsibilities even though they are the most responsible persons. For their subordinates, these responsibilities are too high and they may not have enough time to take both their own responsibilities and to take over superiors' responsibilities. Thus, this research highlighted the fact that superiors should be psychologically healthy, and they should practice delegation not only transferring responsibilities but also transferring relevant authority.

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Product Safety of Preserved Foods in Myanmar

Dr. Hla Hla Mon¹

Abstract

Food safety for increasing population and the nature of seasonal food production make people to initiate developing technology for preserving foods; so that they can consume foods throughout the longer period of time. Traditional food preserving technologies have been improving to meet with the demand of consumers in terms of volume of production and speed of production. Many producers use inappropriate technologies and materials for preserving foods due to the economic reasons. Consumers take the risk to consume unsafe preserved foods knowingly or ignorantly.

The purpose of the study emphasizes on exploring the product safety of preserved foods in Myanmar. It includes examining the causes of producing unsafe preserved foods by the producers, investigating the reasons for consuming unsafe preserved foods by the consumers, and identifying consumer awareness on product safety of preserved foods in Myanmar.

Both qualitative research and quantitative research were utilized for collecting and examining the data of the study. The qualitative research, focus group discussion, was carried out for exploring the causes of producing and consuming unsafe preserved foods in Myanmar. The quantitative research was carried out to examine the consumer awareness of preserved foods safety.

It was found out that the producers offer the unsafe preserved foods because of lack of technology in food preservation and the attractiveness of ignorant consumer market. The consumers take the risk for consuming unsafe preserved foods because of their preferences, limited choices for reliable foods in the market, and lack of awareness regarding unsafe foods.

Key words: product safety, preserved food, food preserving technologies, consumer awareness

Introduction

The right of consumers to be protected from harmful products raises innumerable problems for manufacturers (Boatright, 2012). In 1962, John F. Kennedy proclaimed the consumer rights, which includes:

- the right to be protected from harmful products
- the right to be provided with adequate information about products
- the right to be offered a choice that includes the products that consumers truly want
- the right to have a voice in the making of major marketing decisions.

Product safety refers to the degree of risk associated with using a product (Velasquez, 2006). If consumers are able to make the rational decision in their consumption, producers will have to respond to this demand by producing more safe products. The producers and

¹The researcher received PhD in 2017 and promoted as Associate Professor at Department of Management Studies, Yangon University of Economics in 2017.

sellers also should take the moral duty of their business by providing safe products for their consumers.

People want safe, nutritious, inexpensive food for their well-being. Food safety for increasing population and the nature of seasonal food production make people to initiate developing technology for preserving foods; so that they can consume throughout the longer period of time. However, the seasonal foods are not available throughout the year. If storing the food throughout the year is impossible, in that case, once food is harvested, it begins to deteriorate immediately due to the following factors: microorganisms (yeast, mould, bacteria), intrinsic enzymes, temperature, moisture and insects and vermin. Because of the risk of spoilage, much of our food is processed in some way to increase the durability and availability of foods for consuming in longer period of time.

Food preservation is the process of treating and handling food to stop or slow down food spoilage, loss of quality, edibility, or nutritional value and thus allow for longer food storage. Preservation usually involves preventing the growth of bacteria, fungi (such as yeasts), and other microorganisms, as well as retarding the oxidation of fats which cause rancidity.

Traditional food preserving technologies have been improving to meet with the demand of consumers in terms of volume of production and speed of production. Many producers use inappropriate technologies and materials for preserving foods due to the economic reasons. Consumers take the risk to consume unsafe preserved foods knowingly or ignorantly.

When the food is to be preserved it should be stabilized with respect to product safety and quality. Product safety is a term used to describe policies designed to protect people from risks associated with thousands of consumer products they buy and use every day. In order to protect the consumers, laws are promulgated and authorities enforce the producers to make foods according to safety standards. However, for many reasons, the safety of preserved foods in Myanmar is still questionable, so that, consumers have to take the risk of consuming preserved foods in their everyday life.

The purpose of the study emphasizes on exploring the product safety of preserved foods in Myanmar. It includes examining the influencing factors on producing unsafe preserved foods by the producers, the reasons for consuming unsafe preserved foods by the consumers, and consumer awareness on product safety of preserved foods.

Preserved foods refer to the processed foods for the purpose of preventing or delaying spoilage and adding up the quality and durability of foods. Among different preserved foods in Myanmar, fish paste, fish sauce, dried fish, dried prawn, pickle mango, pickle tea, chili sauce, and condense milk were selected in the examination of the study. These products were chosen for the study because of two reasons. One is that these products are very common preserved foods, which are consumed in everyday life of Myanmar people. The other reason is that preservation technologies used in producing of these foods are likely to create unsafe products.

Objectives of the Study

The main objective of the study is discovering the problem and influencing factors of the problem relating to producing and consuming unsafe preserved foods in Myanmar. The study accepts that there are various factors influence on the problem. These influencing factors are presented from two main perspectives, producer perspectives and consumer

perspective. Therefore, the following specific objectives are set for the examination of the study.

- (a) To explore the product safety of preserved foods
- (b) To examine the reasons for producing unsafe preserved foods by the producers
- (c) To evaluate the reasons for consuming unsafe preserved foods by the consumers
- (d) To investigate the consumer awareness on product safety of preserved foods

Scope and Method of The Study

This research is an exploratory research, which was conducted to fulfill the objectives of the study. A qualitative research, focus group discussion, was carried for explore the problem from the broad perspective by using judgments of experienced consumers. It examined the product safety of preserved foods in Myanmar, the reasons for producing unsafe preserved foods, and the reasons for consuming unsafe preserved foods. A quantitative research was be utilized for collecting and examining the data and information of the study. It emphasized on investigating the consumer awareness on product safety of preserved foods.

Qualitative Research: Focus Group Discussion

Focus group discussion was carried out on 23rd March 2016 at Department of Management Studies, Yangon University of Economics. The discussion took two hours. One moderator from the Department of Management Studies organized the discussion and nine discussants were participated in the discussion. The profiles of the discussants are shown in Table (1).

Table (1)The Discussants of Focus Group Discussion

Sr. No.	Discussants	Profile of Participants
1.	U Wanna Kyaw	Consumer
2.	U Zarni Aung	Officer of Government Organization
3.	Dr. Theingyi Han	Medical doctor
4.	Dr. Ni Ni San	Medical doctor
5.	Daw Tyn Maw Maw Oo	Food technologist
6.	Daw Swe Swe Tint	Consumer
7.	Daw Sanda New	Consumer
8.	Daw Shwe Zin	Consumer
9.	U Zarni	Consumer

Source: Survey Data (2016) Data (2016)

Research questions discussed in the focus group are as follows:

- 1. Exploration of food preserving technologies
- 2. Identifying product safety in preserved foods
- 3. The reasons of producing unsafe preserved foods
- 4. The reasons for consuming unsafe preserved foods
- 5.

Quantitative Research

The quantitative research was carried out through interviewing 168 participants with structured questionnaire in 2018. The participants in the study were chosen with convenient

sampling. The characteristics of respondents are defined as educated middle age income earners. The reasons for choosing educated people as respondents are having more knowledge about unsafe preserve foods than other people and middle age income earners can have more experience in buying products than other people. They can decide buying their foods themselves. The personal profile of the respondents in the study is shown in Table (2).

As the research focuses on educated people, most of the respondents are graduate level and post-graduate level. The gender ratio between male respondents and female respondents is almost equal.

Table (2) Profile of Respondents in Quantitative Research

Particulars	No. of Respondents	Percent
Gender		
Male	74	44.05
Female	94	55.95
Total	168	100.00
Age Group (Years)		
31 to 35	83	49.40
36 to 40	51	30.36
41≥	34	20.24
Total	168	100.00
Education Level		
Graduate	110	65.48
Post-graduate	58	34.52
Total	168	100.00
Occupation		
Self-employed	31	18.45
Staff	137	81.55
Total	168	100.00

Source: Survey Data(2018)

The majority age group of respondents is nearly 80%, between 31 years to 40 years. The majority of respondents are employees of various organizations and 18 percent of respondents are self-employed. It can be seen that most of the respondents have matured age and they can spend their money because of their occupations.

Findings of Qualitative Research: Focus Group Discussion

As mentioned in objectives of the study, focus group discussion explored, firstly, food-preserving technologies applied in the preserved foods under the study. Then, it identified product safety in preserved foods under the study. Finally, the reasons of producing unsafe preserved foods and the reasons for consuming unsafe preserved foods were examined.

1. Food Preserving Technologies

Preservatives can expand the shelf life of food and can lengthen the time long enough for it to be harvested, processed, sold, and kept in the consumer's home for a reasonable

length of time. Maintaining or creating nutritional value, texture and flavor is an important aspect of food preservation.

The traditional food preservation methods involve drying, cooling or refrigerating, freezing, boiling, heating, salting, sugaring, smoking, pickling, lye, canning, jugging, burial, and fermentation.

Drying is one of the most ancient food preservation techniques, which reduces water activity sufficiently to prevent bacterial growth.

Refrigeration preserves food by slowing down the growth and reproduction of microorganisms and the action of enzymes, which cause food to rot.

Freezing is also one of the most commonly used processes for preserving a very wide range of food including prepared foodstuffs which would not have required freezing in their unprepared state.

Salting or curing is the process, which draws moisture from the meat through a process of osmosis. Meat is cured with salt or sugar, or a combination of the two. Nitrates and nitrites are also often used to cure meat and contribute to the characteristic pink color, as well as inhibition of *Clostridium botulinum*.

Sugar is used to preserve fruits, either in syrup with fruit such as apples, pears, peaches, apricots, plums, or in crystallized form where the preserved material is cooked in sugar to the point of crystallization and the resultant product is then stored dry.

Smoking is used to lengthen the shelf life of perishable food items. This effect is achieved by exposing the food to smoke from burning plant materials such as wood. Most commonly subjected to this method of food preservation are meats and fish that have undergone curing. Fruits and vegetables like paprika, cheeses, spices, and ingredients for making drinks such as malt and tea leaves are also smoked, but mainly for cooking or flavoring them. It is one of the oldest food preservation methods, which probably arose after the development of cooking with fire.

Pickling is a method of preserving food in an edible anti-microbial liquid. Pickling can be broadly categorized into two categories: chemical pickling and fermentation pickling.

Canning involves cooking food, sealing it in sterile cans or jars, and boiling the containers to kill or weaken any remaining bacteria as a form of sterilization.

Fermentation in preservation techniques usually implies to create lactic acid in sour foods such as sauerkraut, dry sausages, yoghurt, kimchi, vinegar (acetic acid) for use in pickling foods, and fish paste.

Preservatives are chemicals used to keep food fresh. Although there are a number of different types of food preservatives, antimicrobials, antioxidants, and products that slow the natural ripening process are some of the most common. Despite their important function, preservatives can pose a number of serious health risks. Common antimicrobial preservatives include calcium propionate, sodium nitrate, sodium nitrite, sulfites (sulfur dioxide, sodium bisulfite, potassium hydrogen sulfite, etc.), and disodium EDTA. Antioxidants include BHA and BHT. Other preservatives include formaldehyde (usually in solution), glutaraldehyde (kills insects), ethanol, and methylchloroisothiazolinone.

In Myanmar, the traditional food preservation methods are widely use for majority of our daily foods, such as fish paste, dried fish, fish souse, , pickled tea leaves, mango pickle, sausages, etc. These items are indigenous staple foods for Myanmar.

2. Product Safety of Preserved Foods

Increasing demand and price competition on preserved foods force the producers for mass production of preserved foods. But, food producers are using variety of preservatives and improper chemicals for efficient mass production of preserved foods. Nowadays, un-recommended preservatives are added to the rice noodles and bean curds, which are traditionally not preserved foods, to prolong the freshness during delivery. The perceived value of preserved foods has changed its meaning.

Table (3) Processing Time and Durability of Preserved Foods

Preserved Foods	Normal Processing Time	Advanced Processing Time	Durability (Normal Process)	Durability (Advanced Process)	Unsafe Advanced Preserving Technologies
Fish Paste and Fish Sauce	4-6 months	1 week	2 years	2 years	Addition of urea for faster protein break down and use of unpermitted dyes
Dried Fish	1 week	1 week	6 months	>10 months	Immerse in insecticide solution before sun drying to protect flies
Dried Prawn	3 days	3 days	6 months	>10 months	High concentration of potassium nitrate to prevent decaying and use of unpermitted dyes
Pickle Mango	2 weeks	2 weeks	1 year	1 year	
Pickle Tea	1 week	1 week	1 year	1 year	Unpermitted dyes
Chili Sauce	1 day	1 day	3 months	3 months	Unpermitted dyes
Condensed Milk			1 year	2 year	Addition of formalin to lengthen shelf life

Source: Survey Data (2016)

Table (3) shows the processing time and durability of selected preserved foods in Myanmar. Producers use unsafe preserving technologies because they want to produce the durable goods in shorter production time. Traditional food preserve technologies take time to produce goods. Therefore, they use inappropriate technologies for producing in large quantity, reduce production time, and create better appearance of their products.

3. The Reasons for Producing Unsafe Preserved Foods

Respondents discussed why producers use unsafe way to preserve foods. Many factors influence on commercial scale manufacturing of preserved foods: consumer's

preferences on appearance and taste profile, competition within the industry, economy of scale, faster return on investment, and lack of technical know-how. Findings of the focus group discussion can be summarized as follows.

- Consumer Demand: The consumption of preserved foods is increasing. Increase population calls for more foods for wellbeing. At the same time, some foods can be produced seasonally. Therefore, producers use inappropriate ways to speed up their production to meet with consumer demand.

- Cost of Production: Since the production costs are increasing, producers apply inappropriate ways to create perceived values of unqualified materials in the preserved foods they produce, instead of utilizing good quality materials in order to save the production costs.

- Consumer Preference: Consumers prefer foods in colorful, artificial taste, which is, sometimes, not possible to create in natural way. Therefore, producers use the chemical substances to prepare the consumer preferable tastes and appearance.

- Profit Motive: Producers prefer to seize the opportunities of increase in demand for their products due to the increase consumption.

- Competition: If they cannot increase their production, they may lose their market share to compare with their competitors.

- Lack of Technology: Myanmar businesses are weak in research and development. Therefore, food technologies applied in commercial foods manufacturing is rather very low. Instead of developing advanced food technologies in systematic way, they use short technologies for producing foods.

4. The Reasons for Consuming Unsafe Preserved Foods

The respondents of the focus discussion also explore the reasons for consuming unsafe preserved foods by the consumers.

- Availability of Choice: Commodities in Myanmar market is still not so much abundant to choose. Consumers have the limited alternatives of products in the market. Majority of preserved foods are locally produced with low technologies.

- Lack of Knowledge: Myanmar consumers, mostly, do not know about the ingredients of foods they eat. They are lack of technological knowledge of the foods. Sometimes they are also lack of knowledge in choosing healthy foods.

- Consumer Needs: Consumer needs for preserved foods are increasing because of changes in their life style and changes in their consumption habit. Families require more income for their expenditure, so that, housewives become career women. Along with the changing lifestyle of Myanmar families, their consumption habit also changed.

- Costs of Foods: Healthy and qualified foods are expensive.

- Income Level: The income level of most Myanmar consumers is low. Therefore, people cannot effort to consume qualified preserved foods.

Findings of Quantitative Research

Consumer Awareness on Product Safety of Preserved Foods

Consumer awareness on product safety of preserved foods was examined with mean values. Findings of quantitative research consists of consumption of preserved foods, considering factors of consuming preserved foods, consumer awareness on using hazardous substances in preserved foods, reasons for consumption of unsafe preserved foods, and consumers' perception toward unsafe preserved foods.

1. Consumption of Preserved Foods

The following Table depicts the consumption of preserved foods by respondents in the study. Majority of respondents regularly consume fish paste, fish source, dried fish, dried prawn, pickle mango, pickle tea, chili sauce, and condensed milk.

Table (4) Consumption of Preserved Foods

Preserved foods	Consume		Do not Consume		Total	
	No. of Respondents	Percent	No. of Respondents	Percent	No. of Respondents	Percent
Fish Paste	120	71.43	48	28.57	168	100.00
Fish Sauce	115	68.45	53	31.55	168	100.00
Dried Fish	147	87.50	21	12.50	168	100.00
Dried Prawn	157	93.45	11	6.55	168	100.00
Pickle Mango	148	88.10	20	11.90	168	100.00
Pickle Tea	156	92.86	12	7.14	168	100.00
Chili Sauce	63	37.50	105	62.50	168	100.00
Condensed Milk	114	67.86	54	32.14	168	100.00

Source: Survey Data (2018)

Table (4) shows that dried prawn, pickle tea, pickle mänge and dried fish are consumed by majority of respondents because of their habits. Respondents in Myanmar have consumed these preserved foods since their childhood.

2. Considering Factors of Choosing Preserved Foods

There are a number of considering factors of choosing preserved foods. Respondents consider these factors when they choose preserved foods for consumption. The considering factors are availability, colorful, durability, antibacterial, hygiene, natural taste and preferences. The importance of considering factors in choosing preserved foods is shown in Table (5).

Table (5) Considering Factors of Choosing Preserved Foods

Considering Factors	Mean
Availability	2.24
Colorful	2.54
Durability	2.23
Antibacterial	1.47
Hygiene	1.45
Natural Taste	1.46
Preference	2.41
Overall Mean	1.97

Source: Survey Data(2018)

According to the data, hygiene, natural taste and antibacterial factors are the least considering factors to choose the preserved foods. The mean score shows that they do not pay attention for healthy when respondents choose the preserved foods. They also consider the colorful foodstuffs and their preference to choose preserved foods.

3. Consumer Awareness on Hazardous Substances in Preserved Foods

Respondents are asked whether they have known that hazardous substances like fertilizer, dying chemical, formalin and pesticide are contained in the preserved foods. The following results show consumers' knowledge upon preserved foods containing hazardous substances, such as fertilizer, dying chemical, monosodium glutamate, formalin, and pesticide.

(a) Consumer Awareness on Fertilizer Substance in Preserved Foods

Hazardous substances are used not just by producers, but also by retailers. Producers use fertilization to the preserved foods because adding fertilizer to foodstuffs such as fish sauce and fish paste can reduce production time of those products. Retailers also use the hazard substances because they want to ensure that their products retain a fresh look for a longer period. The respondents were asked whether they aware of containing fertilizer in preserved foods. The following Table shows the consumer awareness on containing fertilizer in preserved foods.

Table (6) Consumer Awareness on Fertilizer Substance in Preserved Foods

Preserved Foods	Consumer Awareness (No. of Respondents)	Percent
Fish Paste	106	63.10
Fish Sauce	121	72.02
Dried Fish	8	4.76
Dried Prawn	1	0.60
Pickle Mango	10	5.95
Pickle Tea	15	8.93
Chili Sauce	5	2.98
Condensed Milk	9	5.36

Source: Survey Data (2018)

The finding points out that more than 100 respondents have known the preserved foods have fertilizer substance especially in fish sauce and fish paste. Although they are aware on fertilizer substance in fish sauce and fish paste, they are unable to avoid consuming because of eating habits.

(b) Consumer Awareness on Monosodium Glutamate Substance in Preserved Foods

Food producers use monosodium glutamate in their products for tasty purpose. Mango salad, pickle tea-leaves, fish sauce, dried prawn, dried fish, and fish paste are prepared with monosodium glutamate.

Table (7) Consumer Awareness on Monosodium Glutamate Substance in Preserved Foods

Preserved Foods	Consumer Awareness (No. of Respondents)	Percent
Fish Paste	28	16.67
Fish Sauce	56	33.33
Dried Fish	31	18.45
Dried Prawn	39	23.21
Pickle Mango	96	57.14
Pickle Tea	90	53.57
Chili Sauce	9	5.36
Condensed Milk	5	2.98

Source: Survey Data(2018)

Only some consumers are aware that among the preserved foods, mango salad and pickle tea-leaves are prepared with huge amount of monosodium glutamate. Following these products, respondents are aware fish sauce.

(c) Consumer Awareness on Chemical-Dye Substance in Preserved Foods

The consumer awareness on chemical-dye substance in preserved foods is shown in Table (8). Producers prepare preserved foods by using chemical-dye to have attractive colour of the products. There are many preserved foods containing chemical-dye such as chili sauce, dried prawn, pickle tealeaves, dried fish, fish paste, fish sauce, mango pickles, and bamboo shoot.

Table (8) Consumer Awareness on Chemical-Dye Substance in Preserved Foods

Preserved Foods	Consumer Awareness (No. of Respondents)	Percent
Fish Paste	37	22.02
Fish Source	25	14.88
Dried Fish	55	32.74
Dried Prawn	109	64.88
Pickle Mango	23	13.69
Pickle Tea	73	43.45
Chili Sauce	118	70.24
Condensed Milk	3	1.79

Source: Survey Data(2016)

Respondents are aware that chili sauce, dried prawn, pickle tea-leaves, dried fish, fish paste, fish sauce are dyed with chemical substance. They believe that Chili sauce and dried prawn are containing more chemical-dye substance than others.

(d) Consumer Awareness on Formalin Substance in Preserved Foods

Some producers use formalin to preserve the food. Based on the results of respondents, they recognize that vermicelli, fish paste, tofu, fish sauce, dried fish, milk, chili sauce, and pickle tealeaves are preserved with formalin.

Table (9) Consumer Awareness on Formalin Substance in Preserved Foods

Preserved Foods	Consumer Awareness (No. of Respondents)	Percent
Fish Paste	20	11.90
Fish Sauce	17	10.12
Dried Fish	14	8.33
Dried Prawn	11	6.55
Pickle Mango	2	1.19
Pickle Tea	11	6.55
Chili Sauce	12	7.14
Condensed Milk	1	0.60

Source: Survey Data, 2018

Majority of respondents are not aware using formalin in these preserved foods. From focus group discussion, they think that tofu and rice noodle are prepared by using formalin to lengthen the shelf-life of their product though they consume these products.

(e) Consumer Awareness on Pesticide Substance in Preserved Foods

Producers use pesticide in preserved foods due to protect their food from insects. Table (10) shows the consumer awareness on pesticide substance in preserved foods.

Table (10) Consumer Awareness on Pesticide Substance in Preserved Foods

Preserved Foods	Consumer Awareness (No. of Respondents)	Percent
Fish Paste	35	20.83
Fish Sauce	25	14.88
Dried Fish	53	31.55
Dried Prawn	30	17.86
Pickle Mango	12	7.14
Pickle Tea	38	22.62
Chili Sauce	7	4.17
Condensed Milk	0	0

Source: Survey Data, 2018

In relation to pesticides, it was found in dried fish, pickle tea leaves, fish paste, and dried prawn. As shown in Table (10), dried fish is the most containing pesticides, followed by pickle tea-leaves, fish paste, and dried prawn.

4. Reasons for Consumption of Unsafe Preserved Foods

Regarding with consumption of unsafe preserved foods, the following questions are asked respondents to explore their reasons of consumption.

Table (11) Reasons for Consumption of Foodstuffs Containing Hazardous Substances

Reasons	Consume		Do not Consume	
	No. of Respondents	Percent	No. of Respondents	Percent
Consuming although I have already known that the foodstuffs are unsafe.	4	2.38	164	97.62
No consuming because I have already known that the foodstuffs are unsafe.	137	81.55	31	18.45
Consuming because it seems safe and reliable food.	52	30.95	116	69.05
Consuming because I don't know whether safe or unsafe food.	15	8.93	153	91.07
Consuming because of no choice.	66	39.29	102	60.71

Source: Survey Data (2018)

Table (11) shows that the majority of respondents did not consume if they know the preserved foods are unsafe. They consume the preserved foods if they think that the foods are safe and reliable. It is notice that some respondents consume because of no choice.

5. Perceptions toward Unsafe Preserved Foods

To measure the respondent degree of knowledge about foodstuffs, the opinion relating with responsibility and objectives of food producers, technology used by food producers and taking law action are shown in the following Table (12).

Table (12) Perceptions toward Knowledge about Unsafe Preserved Foods

Perceptions of Respondents	Mean
Taking full responsibility for the quality of products by producers of preserved foods	2.02
Considering only on profit rather than producing healthy food by producers of preserved foods	3.65
Using harmless technology in producing preserved foods by producers of preserved foods	1.96
No producing the safe foods due to lack of technology by producers of preserved foods	2.40
Having willingness to consider customers' well-being by producers of preserved foods	2.22
No notice the harmfulness of products they produce because of lack of knowledge by producers of preserved foods	2.60
Enacting food safety law	2.38

Always inspecting production of unsafe preserved foods by respective authorities	2.52
Taking effective actions If the businesses produce unsafe preserved foods	2.03
Being available to inspect unsafe preserved foods using advanced technologies and sufficient expertise	1.88

Source: Survey Data (2018)

The mean values upon consumer perceptions towards unsafe preserved foods are shown in Table (12). Respondents agree that the priority objective of food producers is profit –orientation and producers do not concern with customers’ wellbeing. They do not agree that food producers concern with the healthy, safety and reliable food for consumers. Respondents agree that although food safety law is enacted, enforcement of law is still weak. They perceived that technology and experts to inspect unsafe foods are insufficient.

Conclusion

In conclusion, in Myanmar, consumers choose unsafe preserved foods because of the availability of choices, their needs, costs of preserved foods, lack of knowledge, and their low-income level. Producers sell out unsafe preserved foods because of consumer demand, reduction in cost of production, consumer preferences, profit motive, competition, and lack of technologies.

It can also be concluded that respondents have knowledge about the safety, healthy and reliable food. If they have a chance to choose safety food, they will choose hygiene, natural taste and antibacterial food. At present they are having foodstuffs containing hazards substances even they know that foodstuffs are unsafe for them because they have no choice to choose the safety food.

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Rural Area:

A Case Study of Maubin Township, Ayeyarwady Region

Khin Aye Mu

Abstract

The paper tries to present Paddy Cultivation affecting Local Economy in rural area. Maubin Township is located Ayeyarwaddy Deltaic area known as Myanmar Granary. In the study area, 269,754 persons (87%) of the total population live in rural area and twenty six percent of total population engages in agriculture. Agriculture land occupies 67 percent of the total township's area and the land is 89 percent of total agriculture land. Extensive land and physical condition are very suitable for paddy cultivation. Although the paddy cultivation is major economy of the rural area, most of the villages are of medium productivity and its economic return is low due to low productivity and price fluctuation. As the investment is insufficient for paddy cultivation because of small amount of loan, farmers do not follow the instruction and guidance of Agriculture department, they use insufficient inputs in paddy cultivation. The objectives of the paper are to examine monsoon paddy cultivated area of to understand the productivity of monsoon paddy cultivation, to explore cost and economic benefit of monsoon paddy cultivation, to find out strength, weakness, opportunity and threat of monsoon paddy cultivation. To present the paper, productivity method, cost benefit analysis, benefit cost ratio and swot analysis (Strength, Weakness, Opportunity and Threat) were applied.

Key words: Productivity, Economic Return, Cost and Economic Benefit, Strength, Weakness, Opportunity and Threat

Introduction

Myanmar's agricultural sector grew rapidly from the last quarter of the nineteenth century until it became a success story for agricultural commercialization and specialization. At present, agriculture's share of GDP fell from 38.1% to 30.5% (Tin Htoo Naing, 2013). To raise the agriculture's share of GDP, it is necessary to boost agricultural production but productivity of the paddy is lower than set target production.

Agriculture is the backbone of the Myanmar economy: the sector accounts for about 30% of GDP, over 50% of total employment and approximately 20% of exports. Cultivated land, covering 12.8 million hectares, has the potential to be increased by nearly 50%. As in neighbouring countries, small holder paddy production dominates Myanmar's agricultural economy: paddy production accounts for roughly half of all cropped area (Agriculture in Myanmar, 2016).

Rice is a major export crop as well as a staple food both in Myanmar and Asean Countries. Myanmar used to be the world's largest exporter in the 1930s, and its annual exports of milled rice reached around 3 million tons. However, the annual exports have shifted to several hundred thousand tons in the past two decades (Kubo, 2005).

The Ayeyarwady Delta is known as the “rice bowl” of the country because of the vast paddy farms occupying the whole region. Its rich alluvial soil is very suitable for agricultural production (Kan Zaw, 1990). In Myanmar, Monsoon paddy cultivated area was 16 million acre and summer paddy cultivated area 3 million acre in 2010 (Zaw Ye Tun, 2012).

Maubin Township is one of the twenty-six townships in Ayeyarwady Region and monsoon paddy is extensively cultivated due to high cost in summer paddy cultivation. But, productivity of monsoon paddy is lower than set target production and low productivity gives low economic return for the local people. Economic return is low due to low productivity and price fluctuation but low productivity was stressed in the paper.

Therefore, Maubin Township was selected to present paddy cultivation particularly monsoon paddy cultivation and economic return of monsoon paddy cultivation from the geographic point of view.

Objectives of the paper are:

- To examine monsoon paddy cultivated area
- To understand the productivity of monsoon paddy cultivation
- To explore cost and economic benefit of monsoon paddy cultivation
- To find out strength, weakness, opportunity and threat of monsoon paddy cultivation

Material and methods

To collect primary data, 8 village tracts of 76 village tracts were chosen. Then, one paddy farmers who experience more than 20 years in paddy cultivation from sample villages was interviewed and 160 questionnaires were distributed to eight village tracts by using stratified sampling based on paddy cultivated area.

Data collected from field observation, interviews and questionnaire survey such as size of paddy farms, paddy yield, income, and cost of farm inputs including fertilizer, pesticide, herbicide, seeds, labour and capital were applied.

Secondary data were mainly used in presenting the paper and geographical methods are also used to illustrate changes in paddy cultivation. To present low net economic return derived from low productivity, productivity method was applied. To high light, high cost and low net economic return, cost benefit analysis were used.

Benefit Cost Ratio proposed by Hussain, A.H. et al was used for finding based on total cost and net revenue. SWOT analysis that highlights strength, weakness, opportunities and threat was applied in presenting the paper.

Geographical Background of Study Area

Maubin Township is situated between North latitudes 16° 30' and 16° 56' and also between East longitudes 95° 24' and 95° 53' (Khaing Myint Cho, 2007). It is lying in the southern part of Ayeyarwady Region. It has an area of 511.86sq. miles or (1325.73 sq.

kilometers). It is compact shape. Maubin Township comprises 12 wards in urban area and 76 village tracts in rural area.

The study area has numerous streams: Panhlaing River, KattiyaYegyaw Stream, Khamon Stream, Thaungtu Stream and U Yin Stream, etc. The Ayeyarwady and Toe rivers are major rivers of Maubin Township.

The optimum temperature for rice cultivation is between 25°C and 35°C (Ghadirnezhad & Fallah, 2014). The mean monthly temperature in Maubin is highest in April with 29.7°C (85.46°F) and lowest in January with 22.6°C (72.68°F). Temperature available in the area support paddy cultivation of the area. Annual rainfall in Maubin is 2,513mm (98.8 inches) of which 94 per cent falls in the rainy season. Paddy cultivation is greatly dependent on rainfall and the availability of water (Kiran, 2016). But, the rain fall in harvesting period causes crop loss.

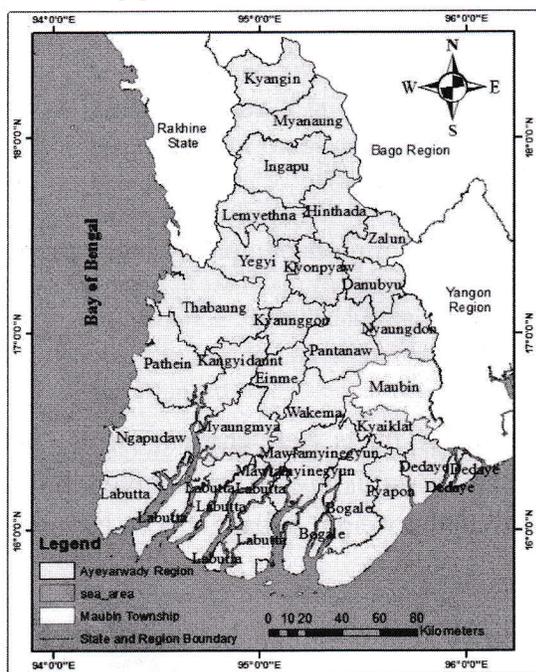


Figure1: Location of Maubin Township in Ayeyarwady Region
Source: MIMU (Myanmar Information Management Units)

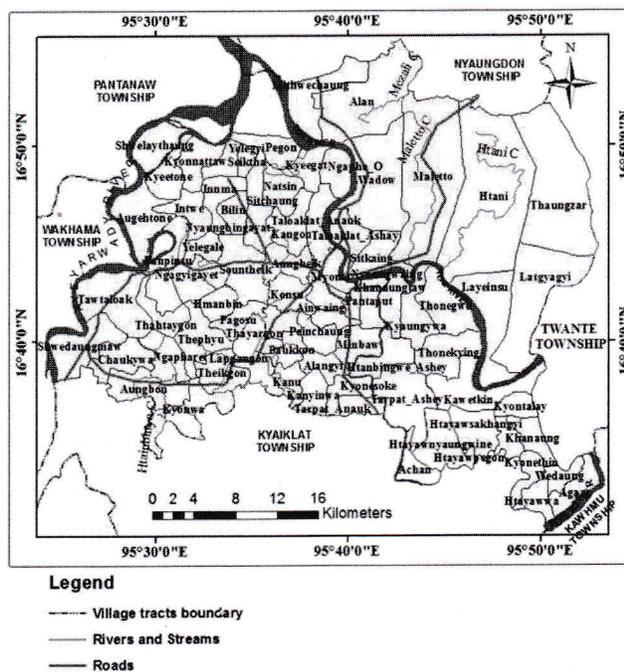


Figure 2: Village Tracts in Maubin Township

Source: Township and Village Tracts Boundaries are based on Topographic Map (1:50000) (1695-05, 1695-06, 1695-07, 1695-9, 1695-10, 1695-11, 1695-13, 1695-14, 1695-15 and 1795-04, 1795-08, 1795-12, 1795-16)

Young et al, 1998, said that the three main soil groups in the country that are important for paddy cultivation is alluvial soils. As Maubin Township is one of the 26 townships in Ayeyarwady Region and located in deltaic area, alluvial soils cover most of the area and existing soils support for paddy cultivation. Moreover, existing meadow soils are suitable for paddy cultivation.

In 2019, the total population is 310,062 persons of which 159,101 are female and 150,961 male. Therefore, gender ratio is 95. Twenty six percent of total population

engages in agriculture. 269,754 persons (87%) of the total population live in rural area and rural population depend on agriculture including paddy cultivation. According to interviews, most farmers are small holders and they possess less than 2 ha (5 acres).

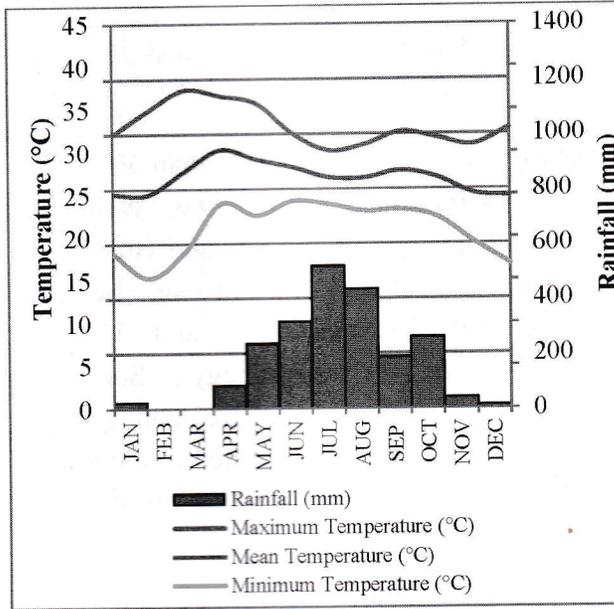


Figure 3: Climograph of Maubin Township
Source: Agriculture Department

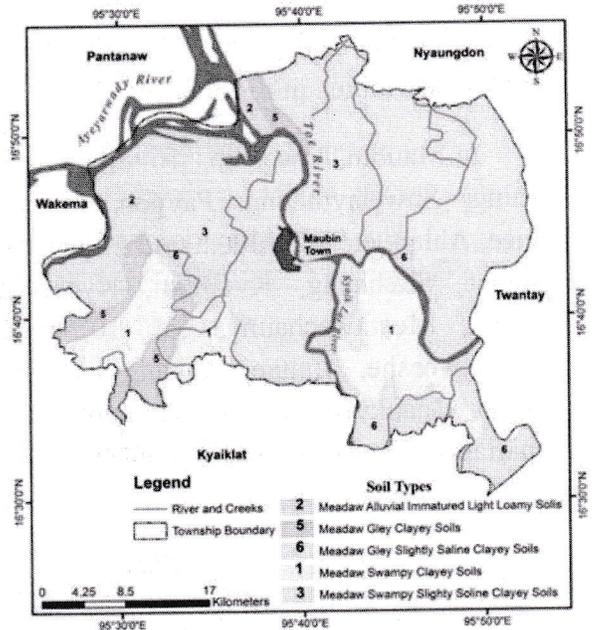


Figure 4: Soils of Maubin Township
Source: Land Use Department, Yangon

Results and Findings

Agricultural land is largest in area among land uses in Maubin Township and it occupies 67 percent of the total township's area including culturable waste land (1 percent) and fallow land (1percent). In area of agriculture land, le land is 89 percent and it ranks first in area. Therefore, major economy of the Maubin Township is agriculture and most rural people engage in agriculture and depend on paddy cultivation.

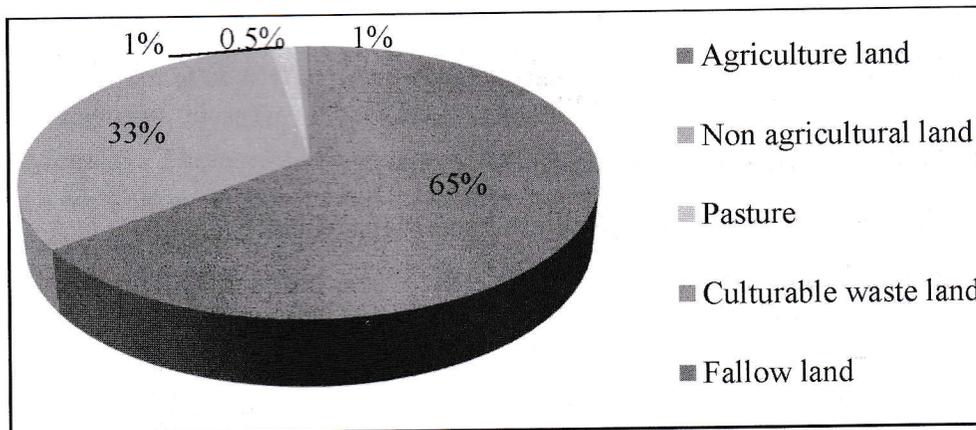


Figure 5: Land Uses of Maubin Township in Ayeyarwady Region
Source: Based on data of Department of Agriculture Land Management Statistics

Major crops grown in the area are paddy, pulses, oilseeds, corn, vegetables and chili but paddy is extensively cultivated because of staple food, major export item and existing physical condition that is very suitable for paddy cultivation.

Monsoon paddy cultivated area

Monsoon paddy is widely grown in Maubin Township but cultivated areas are unevenly distributed in the area.

In Maubin Township, 16 village tracts having cultivated area of less than 500 ha are Sitkaing, Shwelaythaung, Paygon, Letkyargyi, Talokelatashe, Nyaungwine, Weldaung, Htanee, Ahlan, etc, 47 village tracts with the cultivated area of between 501 and 1000 ha are Pantaput, Sitchaung, Kyonthin, Kyeechaung, Htayawpaykone, Htawyawwa, Seikthar, Eiyargyi, Meethwechaung, etc, 10 village tract with between 1001 and 1500 ha Htanbinkweashe, Inntae, Sakangyi, Thonegwa, Kankon, Nyaungwinegyi, Soonthike, Aungbo, Chaukywa, Shwetaunghmaw, etc and 3 village tracts with more than 1500 ha Tarpantashe, Tawtaloke and Thaunzar. Paddy cultivated area are concentrated in the eastern part.

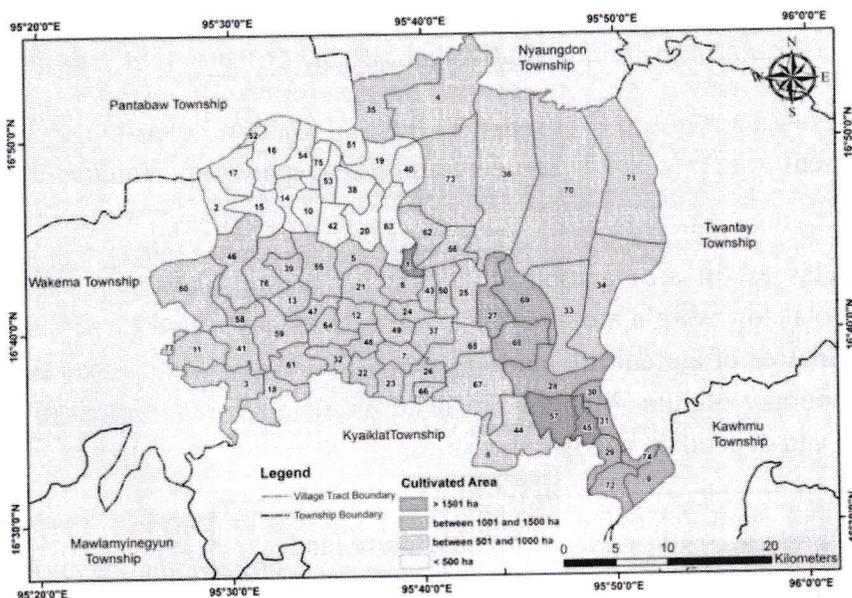


Figure 6: Paddy Cultivated Area of Maubin Township (2019)

Source: Based on data of Department of Agriculture Land Management Statistics

Table 1: Paddy Cultivated area of Maubin Township (2018)

Cultivated area	Village Tracts
<500 ha	16
between 501 and 1000 ha	47
between 1001 and 1500 ha	10
> 1501 ha	3
Total Village Tracts	76

Source: Based on data from Department of Agriculture land Management Statistics

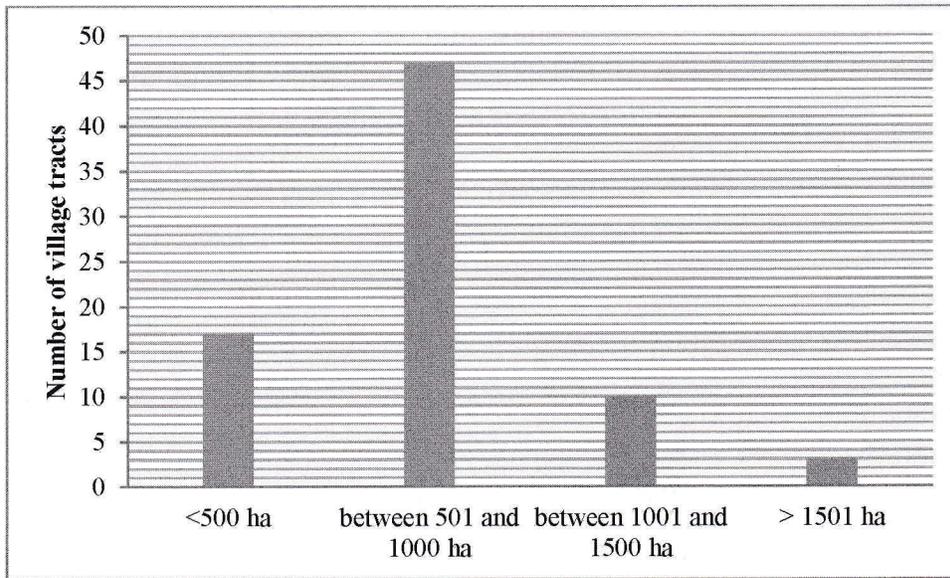


Figure 7: Paddy Cultivated area of Maubin Township (2018)

Source: Based on data from Department of Agriculture land Management Statistics

Monsoon Paddy Productivity

Rice productivity in Myanmar has stagnated in comparison with other rice producers in the region (Denning, et al, 2013). Although government tried to get high yield, the paddy productivity is lower than set target production of 6 ton /ha (120 basket/ acre). The low productivity affects the economic return of the paddy cultivation and income derived from paddy cultivation is small.

To present different productivity level of paddy, productivity of monsoon paddy is grouped as high, medium and low productivity.

High productivity areas are distinctly found in the northern part. The village tracts in the southern part possess medium productivity.

In the area, there was only one village tracts with low productivity, 59 village tracts: Kyontarkalay, Natsin, Chaukywa, Htanbinkweashe, Beelin, Nyaungbingayet, Kankon, Yaylegalay, Thonegwa, Kywedon, Seikthar, Tarpantanauk, Kyeechaung, Khanaungtaw, etc have medium productivity and 17 village tracts: Kyonwar, Ngapie, Meethwechaung, Aungbo, Thonkying, Outhton, Thaunzar, Talokelatashe, Paygon, Shwelaythaung, Layeisu, Letkyargyi, Wartaw, etc high productivity.

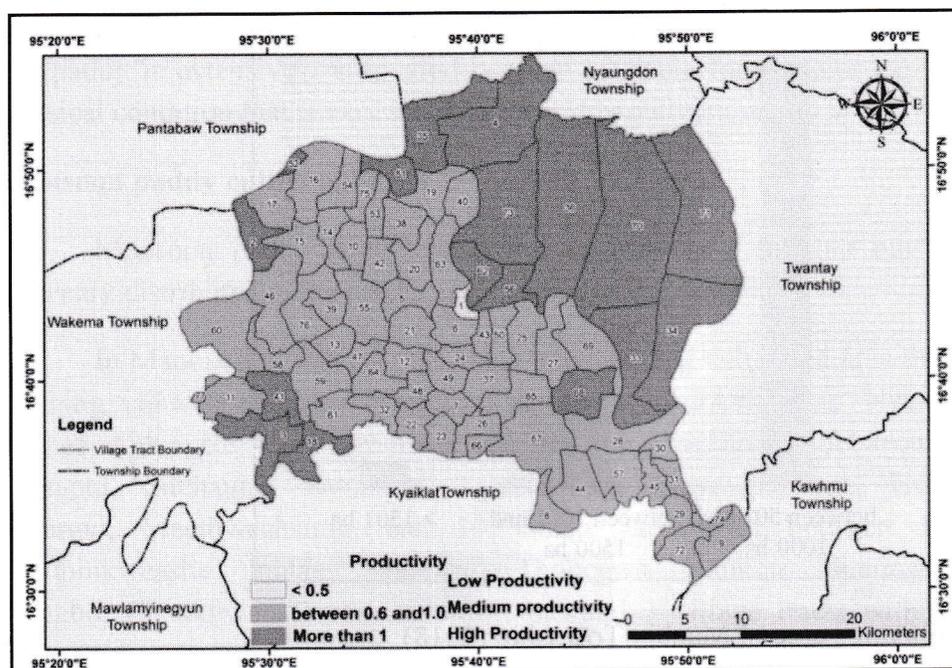


Figure 8: Paddy Productivity of Maubin Township (2018)

Source: Based on data from Department of Agriculture land Management Statistics

Table 2: Paddy Productivity of Maubin Township (2018)

Productivity	Index	Number of Village
Low Productivity	>0.5	0
Medium productivity	between 0.6 and 1.0	59
High Productivity	More than 1	17

Source: Based on data from Department of Agriculture land Management Statistics

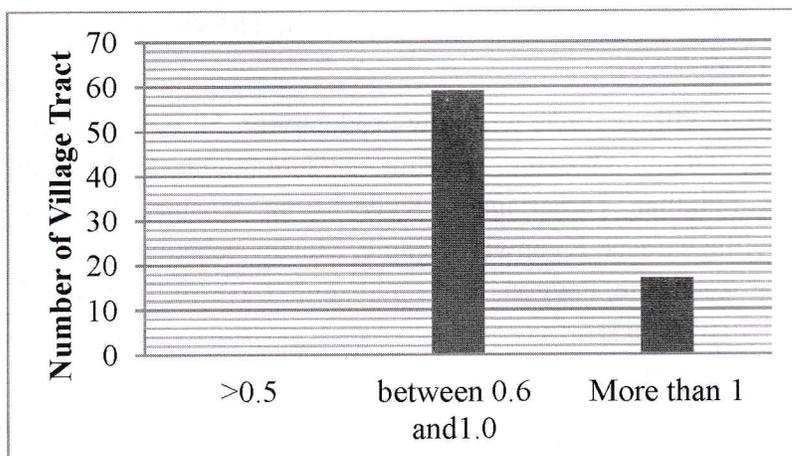


Figure 9: Paddy Productivity of Maubin Township (2018)

Source: Based on data from Department of Agriculture land Management Statistics

Cost- Benefit analysis

To present low net return caused by high investment and low economic return of paddy cultivation, cost- benefit analysis was applied.

Table 3: Cost-benefit Analysis of Monsoon Paddy Cultivation (2018)

Items	Cost/ acre	Cost/ ha	Percent
Tillage	35,000	86,450	12.8
Seed (10000x2)	20,000	49,400	7.3
Planting cost	50,000	123,500	18.3
Urea 1 bag	28,000	69,160	10.2
Potash 0.35 bag	9,500	23,465	3.5
Harvesting	65,000	160,550	23.8
Labour cost	60,000	148,200	21.9
Weedicide and pesticide cost	6,000	14,820	2.2
Total Cost	273,500	675,545	100
Return (56 baskets x7000ks)	392,000	968,240	
Net return	118,500	292,695	

Source: Interviews with farmers (2018)

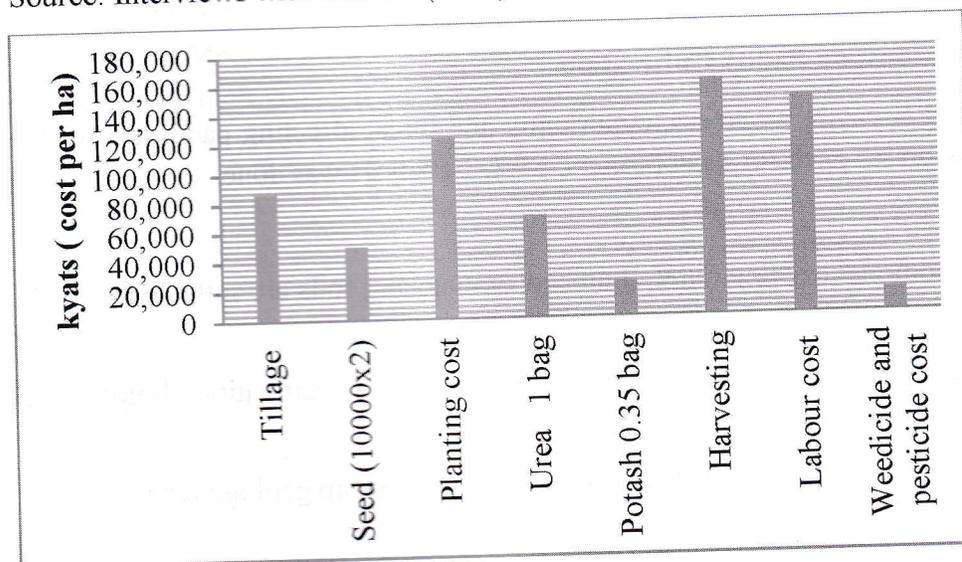


Figure 10: Cost-benefit of Monsoon Paddy Cultivation (2018)

Source: Table 3

According to interviews, they use agriculture machinery in plowing. They mainly use hand-pushed tractors which are made in China. Some farmers lend agriculture machinery from the agricultural company. A hand-pushed tractor takes only 8 hours to plough a farm with an area of a hectare (2.471 acre). Rental cost is 20,000 ks per day. Diesel cost is 3,000 Ks per ha. To drive it, labour cost is 5,000 ks per day. Therefore, total cost of plowing is about 35,000 ks. They tilled their land twice to get high yield in paddy cultivation.

The seeds cultivated are high yield varieties because they have sufficient investment and they intend to get higher yield per unit area. Quality seeds are more expensive and the price is 10,000 ks per basket.

Chemical inputs uses differ from one farmer to another. At the stage of tilling, they use we edicide to kill weeds. They also applied chemical fertilizer according to guidance of agriculture staff. Most farmers use 1 bag of Urea and Potash 0.35 bag per acre of potash in paddy cultivation.

Labour cost includes costs of plowing, harvesting and spraying pesticides. Although machineries are extensively used in plowing, manual labour is still mainly used in harvesting, pumping water and spraying pesticides. Average labour cost is 5,000 ks per day and total labour cost is round about 60,000 ks.

Harvesting is also done by using harvesting machine. The price of harvesting machinery is too high and they cannot afford to agriculture machinery. Most of them rent it and the cost is 135,850 ks per ha (55,000 ks per acre).

Therefore, average economic income derived from paddy cultivation is 968,240 ks per ha (392,000 ks per acre) and farmers get bet benefit and they get 292,695 ks per ha (118,500 ks per acre). Although farmers take nearly 5 months for paddy cultivation, the net benefit is low because of low production and price fluctuation.

SWOT Analysis of Monsoon Paddy Cultivation

To understand strength, weakness, opportunity and threat affecting paddy cultivation and its effect on economic return for local farmers, SWOT analysis was done.

Strength

Suitable physical conditions- existing relief, drainage, climate and soils are suitable for paddy cultivation.

Farm Mechanization-Agriculture machinery use supports paddy cultivation through less labour cost, less risks caused by irregular and untimely rain.

Using high yield varieties- All farmers cultivate high yield varieties to get high return.

Weakness

Insufficient farm machinery use- Small holder farmers cannot afford to buy agriculture machinery.

Unsystematic cultivation method - They practice broadcasting method because of labour shortage.

Small Farm Size- Their farm size is small and mostly rectangular in shape. It is difficult to use machinery in tilling and harvesting. Therefore, work efficiency is low.

Low yield- As a consequence of low input use, their productivity is low.

No external support and Insufficient loan- Amount of loan for paddy cultivation is about 370,500 ks per ha (150,000 ks per acre). It is insufficient for paddy cultivation.

Less awareness on pests- Poor farmers do not have sufficient knowledge on pest and pesticide.

Labour shortage

Poor farmers cannot hire agricultural machinery to plow the land. They depend manual labour and labour cost is high due to labour shortage.

Small holder farmers

According to field observation, most farmers are small holders and possess less than 2 ha (5 acres) of paddy land and it affects mechanized farming as well as systematic paddy cultivation.

Climatic irregularity

Irregular and untimely rain reduces paddy productivity because rain falls in harvesting period destroys the paddy plant and crop loss occurs.

<p>Strength</p> <ul style="list-style-type: none"> ❖ Suitable physical conditions ❖ Farm Mechanization ❖ Using high yield varieties 	<p>Weakness</p> <ul style="list-style-type: none"> ❖ insufficient farm machinery use ❖ Unsystematic cultivation method ❖ Small Farm Size ❖ Low yield ❖ No external support and Insufficient loan ❖ less awareness on pests ❖ Labour shortage ❖ Small holder farmers ❖ Climatic irregularity
<p>Opportunity</p> <ul style="list-style-type: none"> ❖ Locational advantage ❖ Greater rural population ❖ strong market demand 	<p>Threat</p> <ul style="list-style-type: none"> ❖ Environmental deterioration ❖ Human health problem

Opportunities

Locational advantage- Maubin is situated in deltaic area which is one of the best areas for summer paddy cultivation.

Greater rural population - In the study area, rural population is greater than urban population and most labours are engaged in agriculture. It supports summer paddy cultivation.

Strong market demand- Summer Paddy is extensively cultivated in the area due to staple food and strong market demand.

Threat

Environmental deterioration- Most farmers cultivate paddy twice per year. They use much chemical fertilizers and it affects environment.

Human health problem- Farmers really know the effects of pesticide on paddy cultivation but they use them to protect their plant. It affects not only environment but also health of labours.

Conclusion

Maubin Township is located in deltaic area which is one of the best cultivated lands in Myanmar. Physical conditions: relief, drainage, climate and soils, support paddy cultivation. Topographically, it is located on deltaic low land area and the temperature and rainfall are favourable for paddy cultivation. Most area is covered with meadow soils which are favourable for paddy cultivation.

Although physical conditions are suitable for paddy cultivation, most farmers are small holders and they do not use sufficient amount of inputs due to low investment. Farmers get the loans only 370,500 ks per ha (150,000 ks per acre).

It is necessary to finish harvesting in time to reduce crop loss caused by untimely rain. Therefore the best way is the purchase of machineries by private groups, Agriculture Machinery Department and non-government for the purpose of hiring them to poor farmers.

Some farmers practice unsystematic fertilizer use and it causes such environmental deterioration as soil degradation and pollution. Therefore, education programs on paddy cultivation that causes less environmental impact should be initiated. Moreover, Education programs that enhance the capacity and skills of farmers to understand and solve problems of pests should be undertaken in close collaboration with government organization and nongovernment organizations.

In the future, the importance of paddy cultivation will be higherto meet the need for increasing population. Therefore, it is necessary to extend paddy cultivated area to get high productivity. By cooperating between farmers, local authorities' concerned, governmental and non-governmental organization, paddy cultivated area and productivity will be increased with less environmental impacts which lead to sustainable bases.

Further researches on seed availability, farmers' perception and awareness on paddy cultivation, price fluctuation etc should be done to get higher income derived by paddy cultivation.

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CONTENTS

- * Employment and Employability Skills of Graduates from Three Universities of Economics
Dr. Daw Soe Thu,
Daw Cho Mar Lwin,
Daw Thwe Thwe Htun
- * The Antecedents of Entrepreneurial Intentions among University Students
Dr.Than Soe Oo,
Daw Phyu Phyu Thant
- * Determinants of Under-Five Mortality in Chin State
Dr. Maw Maw Khin,
Daw Sanda Thein
- * Reliability of Age Reporting in Myanmar (2014)
Daw Khin Nu Win
- * The Influential Determinants of FDI Inflow in Myanmar
Dr. Khin Mar Thet
- * Awareness on Reproductive Health Care among Married Women in Yangon Region;(Case Study in Bahan, North Okkalapa and Shwepyithar Township)
Daw Soe Yu Hlaing
- * Effect of Fear of Missing Out and Anxiety on Delegation
Dr. Myint Myint Kyi
- * Product Safety of Preserved Foods in Myanmar
Dr. Hla Hla Mon
- * Geographic Analysis on Paddy Cultivation as Local Economy in Rural Area: A Case Study of Maubin Township, Ayeyarwady Region
Daw Khin Aye Mu

