"Strengthening Institutional Capacity, Extension Services and Rural Livelihoods in the Central Dry Zone and Ayeyarwaddy Delta Region of Myanmar"

(ASEM-2011-043)

STUDY ON DETERMINANTS OF LABOR MIGRATION IN MAUBIN TOWNSHIP

EI PHYO OO AND YU YU TUN

Research Document: 15-YAU-ASEM-2011-043

August, 2017

Organized by

Dr. Theingi Myint

Project Coordinator

Professor

Department of Agricultural Economics

Yezin Agricultural University

Email:theingi.myint@gmail.com

STUDY ON THE DETERMINANTS OF LABOR MIGRATION IN MAUBIN TOWNSHIP

EI PHYO OO AND YU YU TUN

August, 2017

ABSTRACT

The study was carried out to examine the determinant factors of labor migration by comparing migrants and non-migrants farm households in Maubin Township. The objectives were to find out the pull and push factors of migrants, cost and return analysis and factor share of the most common crops, conditions of agricultural labor availability in their farming activities and investigating the factors affecting the migration of farm households. A total sample of 120 farm households accounted each of 60 farmers from migrants and non-migrants from Khanaunggyi and Yelaekalay villages in Maubin Township, Ayeyawady region were selected and interviewed by using purposive random sampling methods. Descriptive statistics, cost and return analysis, factor share analysis and probit regression tools were used to analyze for fulfilling the objectives of this study.

The socioeconomic results indicated that majority of migrants and non-migrants household heads were male with an average age of about 55 years old. The educational level of migrant household heads found the highest in secondary level while non-migrants household heads found the highest in primary level. Total number of family member was higher in migrants than non-migrants households with average family size of 6 and 5 members per household, respectively. Among the migrants, number of female was higher than male migrants and majority of the migrants had the university education level. Before migration, most of them were farmers and students but after migration they changed to factory workers and government staffs respectively. Both types of internal and international migration can be found in the study area however international migration accounted only 9% of total migration. The major significant push factors of migration were low agricultural productivity and poor economic conditions. The pull factors were better employment opportunities and better living conditions in designated migrant places.

The benefit cost ratios of the common crops (summer paddy, monsoon paddy and black gram) grown in the area were higher in migrants compared with non-migrants households. Migrant households invested more in crop production such as hired labor in farming activities than non-migrant households. Migrant farm households obtained more profit than non-migrant farm households because they got higher output price than non-migrant households. According to factor share results, in summer paddy and monsoon paddy productions, non-migrant farm households received profit slightly higher farm incomes than that of migrant farm households because they could fully use their family labor properly. Moreover, migrant farm households received higher shares of farm income than that of non-migrants farm households in black gram production. Both of the migrants and non-migrants farm households faced the problems of agricultural labor availability during their farming activities. Majorities of the farmers were facing labor difficulties in their farming activities and they were using the different types of solutions in this area. According to probit analysis, migration was positively and significantly influenced by family size and the number of income sources. Dependency ratio and the number of family labor were positive impact on the probability of migration and significant at 1% and 5% level, respectively.

Migration was one of the important livelihood strategies for the rural people in the study area to increase their income and employment security and options. Moreover, the lack of availability of off-farm work and seasonality nature of agriculture sectors were the major causes of migration. Therefore, it can be seen that migration was generally a survival strategy than wealth accumulation in the study area.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1   Background Information of Agricultural Sector in Myanmar

Agriculture is very important in Myanmar's economy. Agriculture sector contributes 22.1% of GDP, 28.3% of total export earnings; and employs 61.2% of the labor force in 2014 - 2015 (MOAI 2015).

Major paddy growing areas of the country are Ayeyawady, Bago, Mandalay, Yangon and Sagaing Regions. Rice is predominantly dominated by small holders under rain-fed conditions. Historically, rice has been categorized under the staple food crop rather than commercial or cash crop.

The total sown area of rice in Myanmar has decreased from 7.39 million hectares to 7.17 million hectares, but the total production increased from almost 27.68 million metric ton to about 28.19 million metric tons between 2005-2006 and 2014-2015. Average yield per hectare was also increased from 3.75 metric ton to 3.94 metric ton (MOAI 2015). Labor absorption rate is the highest in the rice industry and nearly three-fourths of farm households income was derived from rice farming and related activities (Larry CY. 2013).

Presently, Myanmar is standing as a leading country in pulses production among ASEAN member countries. Major exportable varieties of pulses are black gram, green gram, pigeon pea, soy bean, butter bean, cow bean and kidney bean. In Myanmar, black gram is grown during winter season and it is harvested in March to April. Major producing states and divisions are Kachin, Kayar, Sagaing, Taninthayi, Bago (East and West), Mandalay, Mon, Shan (East, South and North) and Ayeyawady. Myanmar annually produces around 500,000 tones. About 85% of total production of black gram is exported to India, China, Singapore, Indonesia, Malaysia, Pakistan, Japan, Philippines, UAE, etc, by border trade (MPBSA 2013).

Agricultural activities are the most important source of income for rural households in Myanmar and make up 70 percent of total household income. The remaining 30 percent of the total household income originates from non-agricultural activities. At the same time, several non-agricultural activities also provide opportunities for income and employment to

the labor force belonging to both farmer and landless households. The small farmers and landless households depend on rural non-farm activities as the secondary source of income (World Visioin 2016).

Average farm size in Myanmar is 6.7 acres (2.7 ha) which is moderate by regional standards. Because of the importance of the agricultural sector in Myanmar, small farm size is correlated to poverty. Landlessness is found in most of the population which consider their primary occupation as agriculture. They are mostly employed as casual workers and tend to be poorer than land owning households (World Visioin 2016). Without land of their own to cultivate, most rural landless households depend on intermittent wage labor, frequently on neighboring farms for their income.

1.2 Migration and Myanmar

1.2.1 Overview of Myanmar

The Republic of the Union of Myanmar is situated in South East Asia between latitudes 9º North and 29º North, and longitudes 92º East and 102º East. The total area of Myanmar is 676,578 sq. km and it has contiguous coastline along the Bay of Bengal and Andaman Sea to the southwest and the south. The population was over 55 million and about 70% of the total population was living in rural areas. The population growth rate was 0.9% and population density was 83 per square kilometer in 2016 (MOAI 2016).

1.2.2 Migration trends

Migration within Myanmar and across it's along border, which covers Thailand, Laos, China, India and Bangladesh, is subject to a range of the drivers. Many people migrate internally as they want to improve their livelihoods, to follow their family members, for marriage, for education or to avoid poor socioeconomic conditions. It was accounted up to approximately 20% of total population in 2014. The Myanmar Government estimated that there were 4.25 million Myanmar nationals living abroad. Regionally, drivers of migration can include higher wages in neighboring countries, conflict and environmental migration due to natural disasters among other factors. It is also reported that up to 70% of the migrants living abroad were based in Thailand, which was included 3 million Myanmar migrants

living followed by Malaysia (15%), China (4.6%), Singapore (3.9%) and the USA (1.9%) (IOM 2016).

According to the survey result of ILO mid-2015, 7,295 internal labor migrants were found across all 14 states and regions in Myanmar. The respondents reported that the most commonly jobs in industries in the private sector, were construction, mining, agriculture, manufacturing, fishing, forestry, domestic work and others (ILO 2015).

Migration of population has been a recurrent phenomenon since the dawn of the human history. Though its form has changed over time; it remains a dominant event in the global social system. Modern days also witness considerable migration of people from underdeveloped to the developed areas in search of better opportunities. Several theories have been propounded to explain the occurrence of migration. A number of social, cultural, economic, spatial, climatic, and demographic factors induce migration. Among them, the economic factors are considered as primary reasons for inducing migration (Abhay, K. 2014).

The most effective theory for explaining migration is push and pulls theory which states that the migration generally takes place when the positive pull factors at the place of destination are outnumbered by push factors at the place of origin (Bague 1969).

The relationship between migration and technological change and production can be viewed in context of two conflicting hypotheses. The first being that out-migration stimulates development of the origin area through remittances and by inducing technological changes which ultimately results in higher output and income in the area. Another hypothesis on the contrary states that it leads to labor shortages and decline in the average quality of labor which is adversely affects output and productivity in native place (Abhay, K. 2014).

1.3 Rational of the Study

Migration is a crucial factor in the population growth and more importantly in the socioeconomic development in the country, especially in employment and provision of social services to the migrants and their families.

Unlike mortality and fertility, internal migration does not affect the entire population size of a country. But it has a very important role in redistributing the population size

between rural and urban areas and between rural areas of low potential and those of the higher agricultural potential. One of the most noteworthy demographic phenomena faced by many developing countries in the world is the shortage of skilled labor and food security, and conversely the rapid population growth in the urban centers, which is largely caused by the prevalence of rural-urban migration (Agesa & Kim 2001).

Rural-urban migration has been a challenging issue for the policy makers and or governments especially in the developing countries. The impact of out-migration on rural livelihoods is a moot case. Out-migration may result in drastic decrease in the labor which in turn reduces total cropped area and quality of work giving rise to reduced food production and reduced household wealth leading to increased vulnerability in many rural areas which may, brings about food insecurity. The impact of rural-urban migration may result in the speedy decline of the rural economy that leads to persistent poverty and food insecurity (Mini 2000).

Migration can be considered as a significant feature of livelihoods in the developing countries in pursuit of better living. Fundamental to the understanding of rural-urban migration flow is the traditional "push-pull factors". "Push factor" generally defines to circumstances at home that repel the migrants to leave home. Examples include famine, drought, low agricultural productivity, unemployment etc. Whilst "pull factor" refers to those conditions found elsewhere (abroad) that attract migrants. There are many factors that cause voluntary rural-urban migration, such as urban job opportunities, housing conditions, better income opportunities etc., (Yeboah 2008).

In Myanmar, agriculture is the major economic sector in the rural areas, and the internal migrants are mostly farmers or landless farm laborers, the impact of internal seasonal labor migration is high in agriculture sector. In destination locations, internal migration positively influences agriculture production. Reduction in internal seasonal labor migrants is considered an important challenge in the future performance.

Access to land is a major factor on decision to migrate internally as well as internationally. And migration, in turn, has an impact on access to land for migrant households. For the poor with little or no land, internal migration is a survival strategy. The small incomes from the internal migration are hardly sufficient to actually purchase a piece of

land, but it helps in paying off debts, thus reducing the loss of land to money lenders in the village. Moreover, migration has also an impact on education, the level of skills, both vocational and life skills of migrant workers (Amina & Theingi Myint 2015).

For rural un-/semi-skilled internal migrant, the most accessible jobs in the non-agriculture sector seem to be construction work, a finding also reported in other parts of the world (IOM 2005). As construction is not mechanized in Myanmar, it is highly the labor intensive. For many poor rural migrants, this provides one of the best options of employment in the urban areas in absence of any off-farm vocation and technical skills. As can be seen from the wages comparison, generally the highest wages are earned by unskilled migrant workers in construction work. Therefore, construction work can create not only high wages but also employ for farmers who are not working in the off season. While an unskilled worker earns 4000-4500 MMK/day, a mason or carpenter earns 6000 MMK/day. In the agriculture sector, wages range between 2000-5000 MMK/day. However, 5000 MMK is earned only for the peak duration in a year and only in few areas. In most cases the wages are 2000-3000 MMK/day.

Low product prices and high input prices have also made agriculture less attractive. This condition can create rural labor migration to look for high income opportunities. Although agriculture, rice farming in particular, is still the largest employer, its capacity to generate new employment is falling. Out-migration from the rural areas is now increasingly becoming an important livelihood strategy and escape out of poverty (Amina & Theingi Myint 2015).

In general, farming, in Myanmar is highly labor intensive, as there is little mechanization. Labor migration can also create labor shortages in origin villages, particularly during the peak agriculture season when the demand for the labor is at its highest. Thus, labor migration impacts labor scarcity which, in turn, high wages, agriculture production and decrease crop yields (Amina & Theingi Myint 2015).

The study area, Maubin Township which is not only one of the agricultural areas but rural area suffered from labor scarcity due to migration. Therefore, Maubin was chosen as a study area in order to find out the impact of labor migration on agricultural production, changes of agricultural labor utilization and their incomes.

1.4 Objectives of the Study

The main objective of this study was to explore the understanding of agricultural labor migration impact in the Maubin Township. For this general purpose, this study was carried out with the following specific objectives.

1. To find out the significant pull and push factors of migration in the study area
2. To compare the cost and return analysis and factor share calculation of major crops between migrants and non-migrants farm households
3. To examine the impact of labor migration on agricultural labor management in crop production
4. To investigate the determinants of migration on selected sample farm households

CHAPTER 2

LITERATURE REVIEW

2.1   Theoretical Background of Migration

2.1.1   Migration as a development problem or strategy

Several works in literature have studied the concept of migration as a homogenous act; however the works of (Wouterse 2008) presented a heterogeneous account of migration by differentiating between non-migration, temporary migration and permanent migration. Also, a study using empirical data from Australia came up with the comparison between temporary and permanent migration which showed that there are both similarities and dissimilarities in the flow composition and in functionality, they could act as complements or temporary migration could act as a substitute or harbinger to permanent migration (Bell & Ward 2000). Migration of labor out of agriculture is seen as a subsistence strategy which is not new at all because it occurred in the history of developed countries and it is still very evident in developing countries. This makes it an inevitable mark for the development of economy (Mendola 2008, Rozelle et.al. 1999). Having established migration as a subsistence strategy, the different strategies of migration when considered as heterogeneous (non-migration, temporary and permanent migration) may be a subject to different selective behaviors as well as different consequences to the farm household at origin of the migration (Mendola 2008). This therefore gives more impetus to analysis of the effect different categories of household members' migration (temporary and permanent) to the agricultural production of the household at origin.

Several thoughts and insights also exist about the role of migration in either promoting or reducing development at origin and destination of migration. Theoretically, migration is recognized to increase investment, trade and technology adoption through information transfer but only few studies have found evidence that migration improves wages and employment (Lucas 2003). Two important effects of the migration on migrant households are earning from remittances sent by migrants and also loss of labor due to migrants from the household. Remittances may have the positive potential effect of helping to alleviate the constraint of credit in production and also to absorb any risk eventualities in

production by the household. A negative effect may result when the household has to compete for human capital due to loss of members of the household through migration and this will be an addition to the existing constraint to investment in high productivity (Rozelle et al. 1999). Studies from Burkina Faso, a country in West Africa, revealed that though some migration typologies provided some liquidity in the form of remittances to households, productive investments in agriculture were not made. It demonstrated that, remittances alone were not enough to increase agricultural production if households respond to lack of productive investment opportunities in the rural areas by migration (Wouterse 2008).

2.1.2 Types and trends in global migration

The literature reveals that there are four types of internal migration, via, rural-urban, urban-urban, rural-rural, and urban-rural migration. The most important form of internal migration evident from the discussion is rural-urban migration (IOM 2002). However, recently, more attention has been paid to the other migration stream (Dao 2002) . Often, all these four types of the migration patterns are present in a country, and can sometimes be observed within the same locality. Almost, all these types of migration patterns are undertaken mostly by men. There are, however, an increasing the number of women also participating in migration (IOM 2005).

The pattern of migration that occurs in a country is usually indicative of its socio-economic situation, and can, therefore, be seen as a very important phenomenon for development (Zacharia & Conde 1981). These include urbanization and manufacturing in Asia, more circulation within urban areas in Latin America, and increased occupational diversification and the mobility in response to macroeconomic reforms in Sub-Saharan Africa (Guglar 2002, Yang 2004). However, this study is more concerned with rural-urban migration.

2.1.2.1 Rural - urban migration

Rural-urban migration is the movement of people from the countryside to the city. It can either be voluntary or forced. In most developing countries, especially in Sub Saharan Africa, a shift from subsistence to cash crop production or manufacturing has resulted in the temporary or permanent exodus of men, and sometimes women, from rural communities to

urban areas in search of wage employment opportunities (Deshingkar, Grimm 2005). Much of this migration is relatively long-distance to the larger cities and manufacturing centers (Zhao 2003). However, there are also smaller moves, typically undertaken by the poorer people, to smaller towns where they work as laborers, small traders and/or artisans (Dao 2002). Rural-urban migration was once regarded as a natural process of economic development, whereby the surplus labor released from the rural sector was needed for urban industrial growth (Todaro 1969). However, in more recent times, the perspective on rural-urban migration has undergone a sharp reversal (Deshingkar & Grimm 2005).

Rural-urban migration has come to be viewed by some policymakers and urban planners as having a negative effect on the development of cities in many countries by creating slum areas and increasing the crime rate (Gazdar 2003). As a result, the current policy climate in several countries continues to curtail this important route to poverty reduction and economic development, through regulations on population movements and limitations on informal sector activities (Hartveld 2004).

In South - East and East Asia, urbanization and expansion of manufacturing, especially for export, have led to massive increases in both short and long term migration (Yang 2004). According to Yang (2004), the Chinese situation has been greatly aided by relatively good road networks, communication technology and export market links that have emerged in China and other Asian countries, which has opened up their economies. However, contrary to the situation in Sub Saharan Africa (SSA), most of the rural-urban migrants in South-East and East Asia are women who work in the garment factories in the cities (Hugo 2003). In Bangladesh, two-thirds of all migration is from rural to urban areas, and is increasing rapidly (Afshar 2003). Zhao (2003) argues that the number of changes have occurred concurrently in China, thereby creating more internal movement of people. According to the author, China is a special case where economic policy, such as market liberalization, the lifting of employment and movement controls, and the spread of export-oriented manufacturing, has resulted in an exceptional increase in population movement.

In India where rural-rural movements from poor areas to rich areas have been the dominant form of migration, there has been a sharp increase in rural-urban migration in

recent years as more young men travel to urban centers to work in construction and urban services within the expanding informal sector (Hugo 2003). For example, studies in the areas of Bihar that have experienced a doubling of out-migration rates since 1970s, show that migration is now mainly to urban areas and not to the traditional destinations in irrigated Punjab where work availability has declined.

2.1.2.2 Urban – urban migration

Urban – urban migration is the predominant form of spatial movement in Myanmar which has fluctuated between 1991 and 2007. Due to the size of metropolitan agglomerations in Myanmar, a large fraction of migration takes place between small administrative regions within the same metropolises such as Yangon city metropolitan area, Mandalay and Bago. This type of migration flow usually takes place from the center to the periphery and has implications for urban de-concentration which require further study (Nyi 2013).

2.1.2.3 Rural – rural migration

In Myanmar, rural – rural migration accounted for roughly 18% of all movements in 1991. However, this kind of movement has almost doubled to about 32% and overtaken the rural – urban movement and was ranked as second biggest movement in 2001. One possible reason may be that laborers from poorer regions travels to the agriculturally prosperous these are often irrigated areas, which have more job opportunities. Rural – rural migration is typically undertaken by the poorer groups with little education and other assets as it requires lower investments. There is a strong case for devising support programs that cater especially to the needs of rural - rural migrants (Nyi 2013).

2.1.2.4 Urban – rural migration

Urban – rural movement can occur when people retire back to their villages or as in sub-Saharan Africa in the 1980s and 1990s with retrenchment under structural adjustment programmers especially in the case of Uganda and Zambia (Tacoli 2002). A crucial factor for this movement seems to have been access to land in both the city and rural areas.

A majority of urban - rural migrants are returnees. This trend has been noted especially in writings on Africa: in a study of Mambwe villages of Zambia. It was seen that

former migrants were returning to their villages in late 1970s as the copper belt economy went into decline. Like in other South - East Asian countries, urban – rural movement in Myanmar decreased from about 13% in 1991 to about 9% both in 2001 and 2007. It is the least significant movement among all movements (Nyi 2013).

2.1.3   Pull and push factors in migration

People migrate for the number of reasons. Push and pull factors are forces that can be either induced people to move to a new location them to leave old residences; they can be economic, political, cultural, and environmentally based. Push factors are conditions that can drive people to leave their homes, they are forceful, and relate to the country from which a person migrates. A few example of push factors are not enough jobs in a country; few opportunities; "primitive" conditions: famine/ drought, political fear, poor medical care, loss of wealth, and natural disasters. Pull factors are exactly the opposite of push factors; they are factors that attract people to a certain location. Examples of these push factors are job opportunities, better living conditions, political or religious freedom, enjoyment, education, better medical care, and security. To migrate, people place so attractive that they feel pulled towards it (Wikipedia 2016). The level of out-migration in a particular community also has direct impact on agricultural performance of that community. The resultant impacts on the rural area are perceived to be poverty and hardship because of low agricultural production, shortage of agricultural labor and food security.

2.2   Migration in Myanmar

Myanmar is the second largest country in Southeast Asia and is rich in natural resources including arable land, forests, minerals, natural gas, and fresh water and marine resources. Myanmar's population is estimated at over 55 million and is largely rural, still reliant on a primarily agrarian economy, contributing about 36% to the gross domestic product of the country and accounting for 60-70% employment. It is also one of the world's most ethnically diverse and politically complex countries. Internal migration in Myanmar is very high and that the predominant migration pattern is rural-rural rather than rural-urban (Nyi 2013). Depending on the nature of work and the distance between the work and the

origin village, all three types of internal migration – seasonal, temporary and permanent were observed.

A study based on the data collected in Fertility and Reproductive Health Survey (2001 & 2007), the highest in-migration rate is seen in the states of Yangon, Kayah, Kachin and Shan and highest out-migration in Kayah, Chin, Kachin, Mon, Tanintharyi and Ayeyawady.

Whereas internal migration is more a survival strategy, cross-border migration, when successful, has a clear wealth accumulation objective. According to the study conducted by IOM and ARCM in Thailand, 26.7% of Myanmar's migrants in Thailand are from Mon, 19% from Shan, 16.2% from Thnintharyi and 14.5% from Kayin, whereas migrants from the Dry Zone (Mandalay, Magway and Sagaing) were less than 5%. However, there is a recent tendency among young migrants from the Dry Zone to go for cross-border migration to Thailand, China and Malaysia.

The preference for cross-border migration, particularly to Thailand and China, is due to the higher wages. For example, daily wages for working in construction, rubber and agriculture sectors in Thailand and China range from 16-32 USD as compared to similar work in Myanmar for 6-13 USD. A semi-skilled person (scaffolder, plumber, and painter) can earn 16,000 MMK/day. At home, daily wage rate is 3000 MMK/ day. So, in Thailand, the wages are 3.5 times higher and living costs much cheaper. The return from cross-border migration, when successful, is high enough that it can make a significant shift in the socio-economic situation of the household, which is well beyond the impact of internal migration. There is high demand for low skilled labor in Thailand. So, finding job is never a problem. Cross-border migration is also seasonal in nature, particularly in Shan state, where even members from farm households migrate to China to work in farms during the agricultural off-season at home. Returns from cross-border migration are invested in high investment small enterprises, purchase of farmland, whereas from internal migration on livestock keeping or petty trading (Amina & Theingi Myint 2015).

2.3 Migration and Agricultural Production

The consensus in the literature about the relationship between migration and agricultural development remains thin. The study conducted by Aworemi et al. (2011) in Nigeria showed that rural-urban migration is a double-edged problem affecting the rural community as well as the urban destinations. They content that rural community is affected because the youths and adults that are supposed to remain in the community and contribute to the development of agriculture in particular and the community in general leave the rural areas for other destinations. The 'lost labor' of able-bodied (migrated) men and women is ascribed a key role in the process of agricultural decline. Interestingly, internal migration is associated with rural and agricultural stagnation or even decline (Regmi & Tisdell 2002). This has serious implications for agricultural production since most of the work which would have been done by the youths is now left for the aged to do (Anh 2003). Dehann (1999) suggested that migration does not usually lead to radical transformation of rural agriculture but that it often occupies a central part in the maintenance of rural people's livelihoods.

A couple of major effects showed the link between migration and agricultural production. First, loss of labor through migration which may tighten the labor constraint for agricultural production and second, the earnings in the form of remittances from migrants which may loosen credit constraints and help with investments in the agricultural production. These two effects in terms of agricultural income may be positive, negative or they may offset each other. A positive effect would imply that migration complements agricultural production while a negative effect would imply that loss of labor caused by migration reduces agricultural productivity however the finding of a significant effect is evidence in support of the New Economics of Labor Migration (NELM) (Rozelle et al. 1999).

In view of the fact that migration has been part of the economy, right from the supply and demand theories of Todaro (1969), it was quite clear that migration is no new thing. It is expected that agricultural households which have lost labor to migration will be able to adapt to shortage of labor. Existing methods of adaptation include transitioning to less labor intensive farming methods such as less labor intensive crops and mechanization (Jokisch 2002). Mechanization has however been found to be inefficient in situations of decentralized

small plots- which is the case in the most parts of Africa- causing agricultural labor productivity to be below potential (White 2005).

The existing research works of the relationship that lies between migration and agricultural household at origin of migration have brought to bear diversified views. (Rozelle et al. 1999) Work on the relationship between migration, remittances and agricultural production and their findings showed that the migration has a significantly negative effect on yields and also that remittances are positive function of migration is in support of the NELM theory however, the negative effect on agricultural production should be a disincentive for labor migration. Lucas (2003) and (Taylor 1999) in their works had a contrary result showing that migrants acted as financial intermediaries by sending remittances to loosen the constraints on agricultural investments which had a significantly positive impact on the agricultural production suggesting that the future incentives of the household to participate in migration would be large in this case. Another study with evidence from Kenya using panel data from rural households also supports the NELM theory that migration is associated with negative labor loss effects on crop income but does not find any evidence that the labor lost effects are partially or fully offset by remittances from migrants (Sindi and Kirimi 2006). The work of Mendola (2008) sought to find out if migration helped in the investment in new technologies by the rural household at origin and found that international migration which was "high-return" has a positive effect on the households investment into new agricultural technologies but domestic migration - including both temporary and permanent migration – has a negative effect on investment and productivity in agriculture.

Considering the empirical studies which have shown a negative effect of domestic rural-urban migration on agricultural production of rural households at origin, the use of the remittances received is then an open question. A couple of thoughts arise, the remittances are either not enough to offset the lost labor effects or they are channeled into other uses other than agriculture. Appleyard (1989) in explanation of the negative effects of migration on output of the agricultural household which receive remittances argued that remittances cause the rest of the household to substitute leisure for work which results in increased cost of labor and lands lying fallow. Mendola (2006) also argued that the use of remittances as payment for education of the future generation of the household is a very common practice which

would pass as a long run investment to boost agricultural production, however in the short run it may be seen as a misdirected investment. Similarly, other studied have found the positive effects of remittances of migration on education or household consumption and housing expenditure (Adams & Cuecuecha 2010). No long run impacts on the agricultural production can be established by channeling remittances into housing and household consumption. However, when the households needs on consumption and other expenditures have been fully met, the household may invest remittances into agriculture as well in order to enhance productivity in cases of extended length of migration period (Cohen 2005).

A study by Jokisch (2002) which involved an agricultural survey administered in two communities in Ecuador to determine land-use and agricultural production of the migrant and non-migrant households found that contrary to most reports on the subject, migration had neither led to a reduction in agricultural production nor have remittances been dedicated to agricultural improvements. The conclusion was that land use and agricultural production of the migrant households are not significantly different from non-migrant households. Cohen (2005) also had similar results which revealed no changes in the production of agricultural households at origin even though they received remittances from migrants. Turner, Hyden and Kates, (1993), employed a methodology that uses "natural experiments" by analyzing changes in agricultural inputs and outputs and the role that the external productive forces have played in these changes to explore whether population growth in densely settled areas of rural Africa has led to the intensification of agriculture. Their findings revealed that remittances are rarely used for investments in agriculture and also there was no tendency of migration stagnating agricultural intensification.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 General Description of the Study Area

Maubin Township of Ayeyawady region was selected as the study area in accordance with the ACIAR project's objectives with the title of Strengthening Institutional Capacity, Extension Services and Rural Livelihoods in the Central Dry Zone and Ayeyawady Delta Regions of Myanmar (ASEM - 2011 - 043). Ayeyawady region is made up of the districts of Pathein, Hinthada, Myaungmya, Maubin, Phyapon and Laputta and comprising 26 Townships. Maubin Township is situated in Maubin District that lies in latitude 16º 30' north and east longitude 95º 24'. The study area, Maubin Township, is bordered by Twantay Township on the east, Wakema Township on the west, Kyaiklatt Township on the south, and Nyaungdon Township on the north.

Maubin Township is located at 1362 feet high above sea level. The total area of Maubin Township is 1,404.2 km^2. There are 76 village tracts and 470 villages in Maubin Township. The total population is 314,093. Among them, 43,111 and 270,982 are urban and rural populations respectively. Population density of Maubin Township is 223.7 inch/km^2. The average annual rainfall is 0.3 inches. The daily average maximum temperature is 33º C and average minimum is 25º C. The area of Maubin Township was 133,540 ha and the cultivated area was 86,538 ha, 67.71 % of total area. The area of paddy land (Le) was about 57,348 ha and dry land (Yar) was about 33,747 ha. A map of the study area is shown in Appendix 1.

3.2 Data Collection and Sampling Procedure

To achieve the research objectives, both the primary and secondary data were collected in this study. Primary data collection included two villages from two village tracts namely Khanaunggyi and Yelaekalae of Maubin Township. The survey was taken from the respondents through the personal interview by purposive random sampling method during December 2015. The general descriptions of sampled villages are shown in Table 3.1. To obtain the primary data, 60 migrant farm households and 60 non-migrant farm households from two villages were interviewed. The primary data collection contained socioeconomic

characteristics of households, migrant profile, remittance, production costs of from summer paddy, monsoon paddy and black gram, and agricultural labor management for each sampled households.

Secondary data were gathered from the various sources such as several books, research literatures, articles, journals, thesis, official records of Ministry of Agriculture and Irrigation (MOAI) and other related publications. In addition, data of regional, township and community levels were collected which gave precise information for selecting the research areas.

Table 3.1 Description of sample villages and sample size

No.	Items	Villages		Total
		Khanaunggyi	Yelaekalay	
1.	Total households	320	293	613
2.	Total sample households	60 (18.75%)	60(20.48%)	120 (19.58%)
a.	Migrant FHH	30 (9.38%)	30 (10.24%)	60 (9.79%)
b.	Non-migrant FHH	30 (9.38%)	30 (10.24%)	60 (9.79%)

Note: FHH = Farm households

3.3 Analytical Method

Collected data were compiled in the Microsoft Excel program. The analysis was employed with demographical approach, descriptive method, and regression model using Excel Software and Statistical Packages for Social Science (SPSS) version 16. The analytical techniques included descriptive analysis, cost and return analysis, factor share calculation and probit regression functions.

3.3.1 Descriptive analysis

Descriptive analysis was used to know the socioeconomic characteristics and livelihoods of the migrants and non-migrants households in the study area. The comparisons analysis was taken place on outcome variables such as: household head demographic characteristic, household assets and household livelihood characteristics. Mean, percentages and frequency counts were included in descriptive measurement. Moreover, the problems and the constraints faced by the farmers in production due to labor migration impact were described by descriptive statistics methods.

3.3.2 Dependency ratio

Among the socio-economics characteristics, the dependency ratio with the number of children (0-14 years old) and older persons (60 years or over) to the working-age population (15-59 years old) and then multiply by hundred.

3.3.3 Cost and return analysis (Enterprise Budget)

The enterprise budgets (Olson 2009) was conducted to evaluate cost and returns of production processes. In this analysis, variable costs were taken into account;

    (1) Material input cost,

    (2) Hired labor cost,

    (3) Family labor cost, and

    (4) Interest on cash cost.

The interest was normally charged on cash expense in the early growing season.

The first measurement was the difference between the total gross benefits or total returns and total variable cash costs, excluding opportunity costs. This value was referred to as "return above variable cash costs".

The second measurement was the deduction of the opportunity costs and total variable cash costs from gross benefit. This return was referred to as "return above variable costs" or "gross margin".

The "return per unit of capital invested" could be calculated by gross benefits per total variable costs.

These measurements could be expressed with equations as:

Measurement (1)

Total gross benefit	= Average yield × average price
Return above variable cash cost	= Total gross benefit – total variable cash cost

Measurement (2)

Return above variable cost	= Total gross benefit – total variable cost
(Gross margin)	

Measurement (3)

Return per unit of capital invested	= Total gross benefit/Total variable cost

3.3.4 Analysis of factor shares

Factor shares are the ratio of costs of factor inputs used in a production process to the total value of output, i.e. total revenue. Consider a production process in which a firm uses four inputs, current input (C), capital (K), labor (L), and land (A), to produce a single output, paddy (Q). All variables are defined in terms of flow. If the firm purchases inputs and sells output at constant unit prices (p, i, w, r, and P, respectively), factor shares of the firm's input are: where C, K, L, and A are the physical quantities of each input factor used in production, and Q is the physical quantity of output produced (IRRI 1991).

$$\text{Material cost}(\%) = \frac{\text{Material cost}}{\text{Total revenue}} \times 100$$

$$\text{Family labor cost}(\%) = \frac{\text{Family labor cost}}{\text{Total revenue}} \times 100$$

$$\text{Hired labor cost}(\%) = \frac{\text{Hired labor cost}}{\text{Total revenue}} \times 100$$

$$\text{Interest cost}(\%) = \frac{\text{Interest cost}}{\text{Total revenue}} \times 100$$

Total input share (%)	= Material cost + Labor cost + Interest cost
Gross margin (%)	= Total revenue – Total inputs share
Farmer profit share (%)	= Gross margin + Family labor cost

3.3.5 Probit regression analysis

Probit analysis is the type of regression used to analyze binomial response variables. There are several statistical problems where the regressing was dummy to estimate the regression model with OLS. OLS are inappropriate for dichotomous choices since they can lead to heteroscedasticity variances. Maximum Likelihood Estimation (MLE) can solve this problem, although heteroscedasticity in MLE is also a potentially serious problem leading to inconsistent estimators (Greene 2000). However, such models are not often used in practice, since logit and probit models with flexible functional forms in the independent variables tend to work well.

In this study, the empirical analysis of the determinants or influencing factors on migrant farm households in the area of Maubin Township was carried out by using probit regression model. The dependent variable was migrant or non-migrant farm households and independent variables were socioeconomic characteristics of the household.

In a probit model, the endogenous variable is a dummy or categorical variable with 1 representing migrant farm households and 0 if the non-migrant farm households. Expressing differently and expanding the probit equation, it can be stated:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i}\ e_{ij}$$

Where,

Dependent Variable:

1 = if migrant farm households

0 = if non-migrant farm households

Independent Variables:

X_1 = Family size (no.)

X_2 = Number of income sources (no.)

X_3 = Dependency ratio (%)

X_4 = Number of family labor (no.)

X_5 = Land holding size (acre)

X_6 = Household heads age (year)

X_7 = Household heads education (year)

e_{ij} = Disturbance term

β_0 = Constant

β_i , b_j = Estimated coefficient; (i = 1,2,3…n; j = 1,2,3…n)

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Socioeconomic Characteristics of Sample Farm Households in the Study Area

4.1.1 Household heads

The demographic characteristics of the sample farm household heads in the study area are described in Table 4.1. The result of the chi-square-tests showed that male and female headed households were not significantly different between the migrant and non-migrant household heads. It was found that 95% of migrant farm household heads and 88% of non-migrant farm household heads were male while 5% of migrant farm household heads and 12% of non-migrant farm household heads were female. Therefore, male headed households were traditionally dominant in study area. The average age of the sample household heads was around 55 years in migrant farm households and 54 years in non-migrant farm households. According to the chi square test results, the different average age was not significant different between the migrant and non-migrant farm households. In study area, the education levels of migrant household heads were found the highest in secondary 33%, followed by primary 32%, high school 18%, monastery 12%, and university 5% respectively. And also, the education levels of non-migrant farm households' heads were found the highest in primary 36%, followed by secondary 33%, high school 14% monastery 13%, and university 4% respectively. Regarding the finding, it can be seen that educational levels of the migrant farm household heads were higher than that of the non-migrant farm household heads. Household head's level of education was important for decision making of migrant or not.

Table 4.1 Demographic characteristics of the migrant and non-migrant farm household heads

Items	Migrant farm HHH (N=60)	Non-migrant farm HHH (N=60)	Total farm HHH (N=120)
Gender (no.)			
Male headed HH	57 (95%)	53 (88.3%)	110 (91.7%)
Female headed HH	3 (5%)	7 (11.7%)	10 (8.3%)
Total	60 (100%)	60 (100%)	120 (100%)
chi square test	$P= 0.186^{ns}$		
Age (year)	55	54	
Educational level (year)			
Monastery	7 (11.7%)	9 (15%)	16 (13.3%)
Primary	19 (31.7%)	24 (40%)	43 (35.8%)
Secondary	20 (33.3%)	19 (31.7%)	39 (32.5%)
High School	11 (18.3%)	6 (10%)	17 (14.2%)
University	3 (5%)	2 (3.3%)	5 (4.2%)

***, ** and * significant at 1%, 5% and 10% probability levels respectively and ns = non-significant

Note: HHH = Household head

Note: Numbers in the parentheses represent percentage of sample farmers.

4.1.2   Household members

The demographic characteristics of the sample farm household members in study area are shown in Table 4.2. The total number of household members was 270 in migrant farm households and 220 in non-migrant farm households. The population of female in migrant farm households 66% and that of non-migrant farm households 63% were higher than male population in both migrant farm households 34% and non-migrant farm households 37%. The results of the chi-square-tests showed that the gender status were not significantly different between migrant and non-migrant household members. In order to find out the number of active working group among the migrant family member, four groups of age categories were

defined to analyze. Among them, the highest percentage of 65 and 50 found in the age of 20 - 59 years group in both migrant and non-migrant families. So, these active groups were one of the main factors to cause the migration. In migrant farm household members, 33% attained secondary while 37% of the non-migrant farm household members were found the highest. Therefore, it was observed that the educational level of the migrant farm households' members were also higher than non-migrant farm households' members in the study area.

The family size and dependency ratio were compared between the migrant and non-migrant farm households (Table 4.3). The average family size of migrant farm households and non-migrant farm households were 6 and 5 ranging from 2 to 10. The dependency ratio is a measure of showing the number of dependents, aged lower than 14 and over age of 60 years, to the total population, aged 15 – 60 years. By testing the dependency ratio, it can estimate the working capacity within the families. In Myanmar traditional custom, dependent members who are lower than 19 years and above 60 years are considered as school-age-children and elder people respectively. The working-aged household members have to take care for both dependent groups although they are partially concerned in household livelihood activities. The dependency ratio found that the number of dependents in non-migrant farm households was higher than migrant farm households.

Table 4.2 Demographic characteristics of the migrant and non-migrant farm household members

Items	Migrant farm HHM (N = 270)	Non-migrant farm HHM (N = 220)	Total farm HHM (N = 490)
Gender (no.)			
Male	93(34%)	82 (37%)	175(36%)
Female	177(66%)	138(63%)	315(64%)
Total	270(100%)	220(100%)	490(100%)
chi square test	sig = 0.516^{ns}		
Age group (year)			
0 – 19	71(22.0%)	81(28.9%)	
20 – 39	122(37.9%)	97(34.6%)	
40 – 59	86(26.7%)	44(15.7%)	
60 & above	43(13.4%)	58(20.7%)	
Educational level (year)			
Illiterate	5(2%)	17(8%)	22(4%)
Monastery	9(3%)	16(7%)	25(5%)
Primary	79(29%)	82(37%)	161(33%)
Secondary	90(33%)	68(31%)	158(32%)
High school	39(14%)	27(12%)	66(13%)
Graduated level	48(18%)	10(5%)	58(12%)

***, ** and * significant at 1%, 5% and 10% probability levels respectively and ns = non-significant

Note: HHM = Household member

Note: Numbers in the parentheses represent percentage of sample farmers.

Table 4.3 Family size and dependency ratio of the migrant and non-migrant farm households

Items	Migrant FHH (N = 60)	Non-migrant FHH (N = 60)	Total FHH (N = 120)
Family size (no.)			
Mean	6	5	5
Minimum	2	2	2
Maximum	10	10	10
Dependency ratio (%)			
Mean	34	76	55
Minimum	0	0	0
Maximum	20	30	30

Note: FHH = Farm household

4.1.3 Primary occupations of farm household heads and members

Maubin Township, Ayeyawady region which is not only the delta region but also major working area in agricultural sector. Primary occupations of the migrant and non-migrant farm household heads are illustrated in Figure 4.1. In the study area, farming which was the major occupation was found to be higher in migrant farm household heads (92% > 87%). Dependent member was relatively low in migrant farm households. Dependent means a person relies on another and they are doing only the households chores, especially a family member for financial support. Figure 4.2 stated that the primary occupations of farm household members 37% were more involved in agriculture than non-migrant farm household members 30%. Moreover, 29% of migrant farm household members were student which was higher than those of the non-migrant farm household members 25%. Dependent (housewife) and unemployed household members 34% in non-migrant households were higher than those of the migrant household members 26%. There were few migrant and non-migrant household members taken different kinds of jobs such as government staff, livestock & fisheries, motor cycle carrier, workers in factory, restaurants and shopping center.
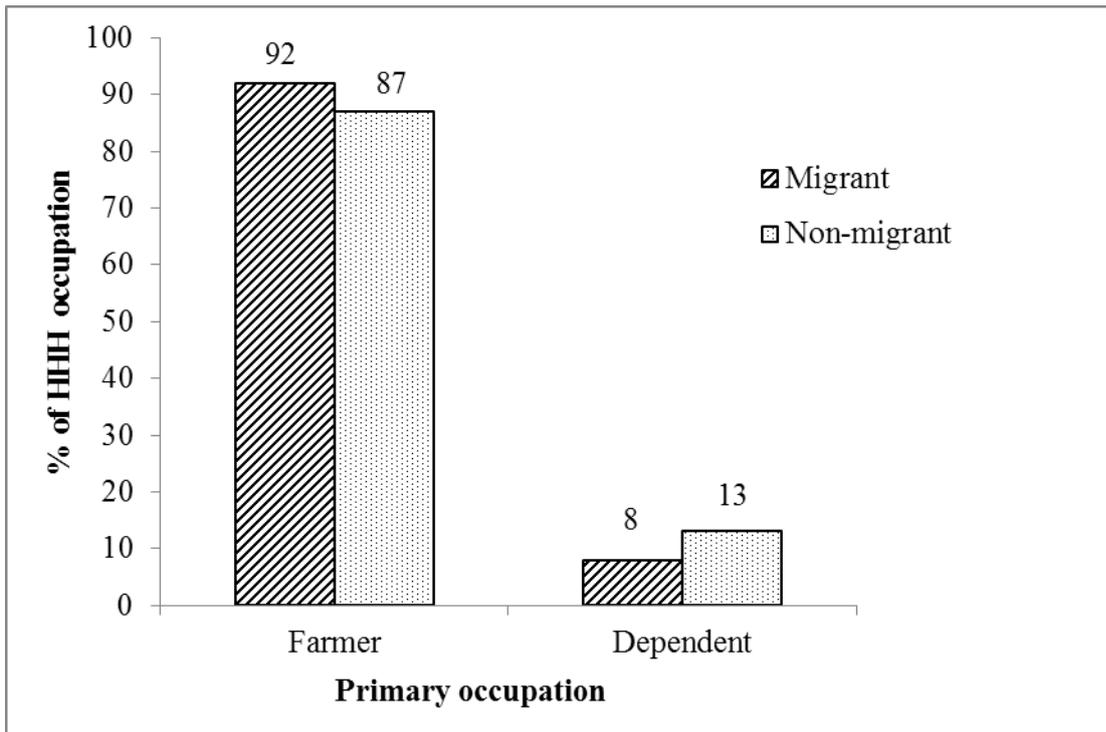
Figure 4.1 Primary occupations of farm household heads
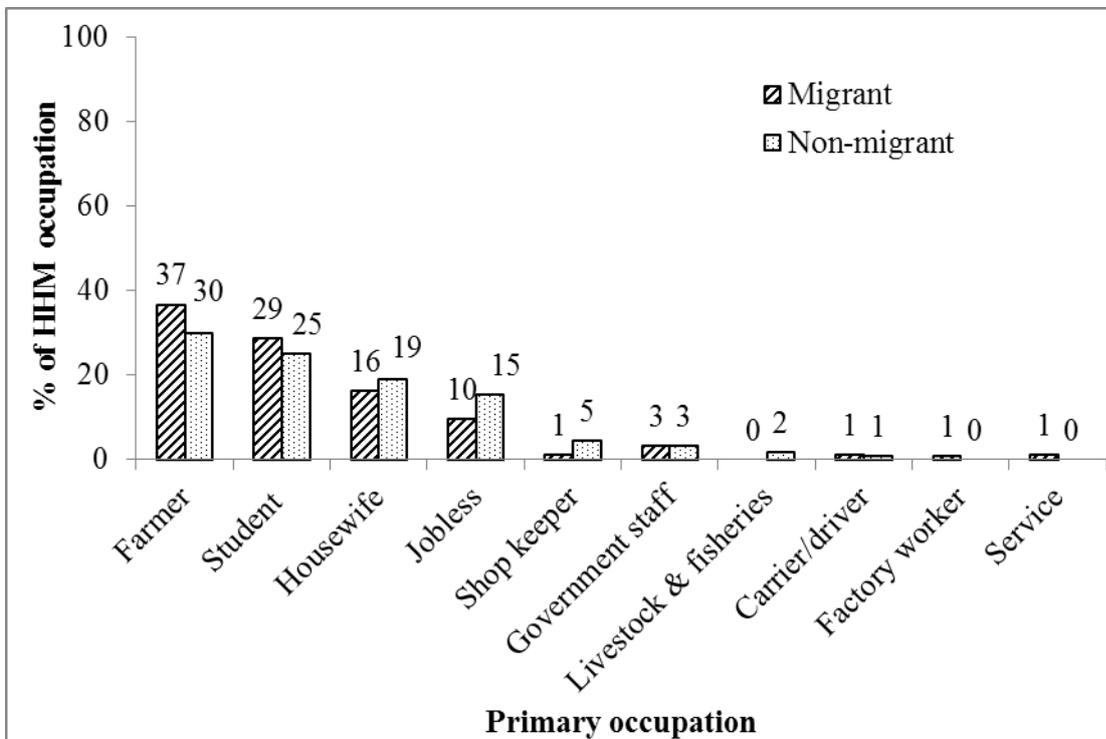
Figure 4.2 Primary occupations of farm household members

4.2 Profile of Migrants and Migration Patterns

4.2.1 Socioeconomic characteristics of migrants in the sample migrant farm households

When analyzed rate of migration (which measures the proportion of migrants as a percentage of the entire sample population), total number of migrants were 92 out of 270 population in the 60 sample migrant farm households. Therefore migration rate of the sample households was 34% in the study area. Among them, 45% were male and 55% were female. The average age of migrants was 25 years old and varying from 14 to 60 years. Most of these migrants were young people. In education level, it can be seen that university level 30% was the highest in migrants followed by primary 27%, high school 23% and the secondary level 20%. According to this result, it can be assumed that the higher education level of farmers, the more migration. So, education is one of the factor causes of migration. In the study area, the minimum migrated duration was one year and maximum was 25 years with an average of 4 years (Table 4.4).

Regarding status of migrants in their households, most of the migrants 46% were daughter and son 36% of the family household heads. The others were relatives, household heads and son-in law which are accounted for 13%, 3% and 2% of the migrants. According to the gender issue, most of the migrants were female in study area (Figure 4.3).

Table 4.4 Socioeconomic characteristics of the migrants in the sample farm households

Items	Migrant (N = 92)
Gender (no.)	
Male	41 (44.57%)
Female	51 (55.43%)
Age (year)	
Mean	25
Minimum	14
Maximum	60
Migration rate	34%
Educational level (year)	
Primary	25 (27%)
Secondary	18 (20%)
High school	21 (23%)
University	28 (30%)

Note: Numbers in the parentheses represent percentage of sample farmers.

Figure 4.3   Status of migrants in the sample migrant farm households

4.2.2   Types of migration in the migrant farm households

In the study area, two types of migrations were examined - rural to urban (internal migration) and abroad (cross-border migration). It was found that 91% of the sample migrants were rural-urban migration and only 9% was cross-border migration. The common destination places for internal migration were Yangon, Maubin, Mandalay, and Shan State. As international migration, most of migrants went to Malaysia, Singapore and Thailand (Table 4.5).

Based on the return home interval time after migration it can be grouped into three patterns of migrations in this study. These were permanent migration, temporary migration, and seasonal migration.

1. Permanent migration – Migration is considered to be the permanent when migrants/households have left their native place for good and settled in the destination

place indefinitely (with or without registering to the authorities). These migrants/households do not intend to return to their original place of residences.

2. Temporary migration – Migration is considered to be temporary, when an individual or household (fully or partly) settles in the destination location throughout the year, but still has the intention to return to the original place of residence.

3. Seasonal migration – Migration is considered to be seasonal, when he/she takes place only in a certain time of the year or when the migrant returns to his/her place of origin at least once a year (Amina & Theingi Myint 2015).

According to the above definitions, the highest percentage of migration can be seen in temporary migration pattern which is about 55% of total migration and followed by seasonal migration 30% and permanent migration 15% (Table 4.5). Most of the migrant farm households reported that their family members involved in out-migration was temporary in nature.

Table 4.4 Socioeconomic characteristics of the migrants in the sample farm households

Items	Migrant (N = 92)
Gender (no.)	
Male	41（44.57%）
Female	51（55.43%）
Age (year)	
Mean	25
Minimum	14
Maximum	60
Migration rate	34%
Educational level (year)	
Primary	25 (27%)
Secondary	18 (20%)
High school	21 (23%)
University	28 (30%)

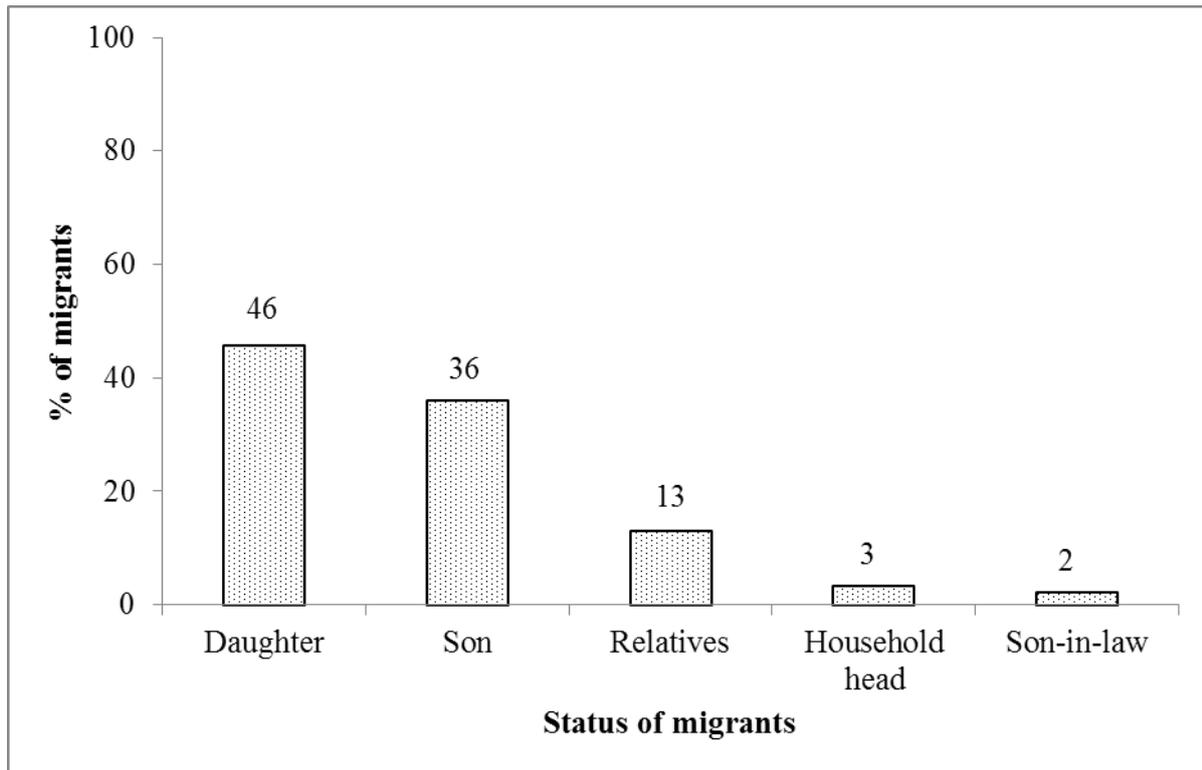Note: Numbers in the parentheses represent percentage of sample farmers.

Table 4.5   Types of migration in the migrant farm households

Items	Migrant (N=92)
Type of migration	
- Rural to urban (Internal migration)	84 (91%)
- Abroad (Cross-border migration)	8 (9%)
Patterns	
- (1) Temporary	51 (55%)
- (2) Seasonal	27 (29%)
- (3) Permanent	14 (15%)

Note: (1) Temporary migration = return to the original place of residence sometimes

(2) Seasonal migration   = take place only in a certain time of the year

(3) Permanent migration = left their native place for good

Note: Numbers in the parentheses represent percentage of sample farmers.

4.2.3   Sources of information about the migration

Among 92 migrants, 30% of the migrants got the information on migration from friends. About 23% of internal migrants got information through their family members working in a new destination place. Among them 22% of migrants worked in other places by their own decisions. The rest of migrant 25% decided to migrate and looked for a job by contacts with returned migrants and currently migrated people abroad and some other reasons (Figure 4.4).
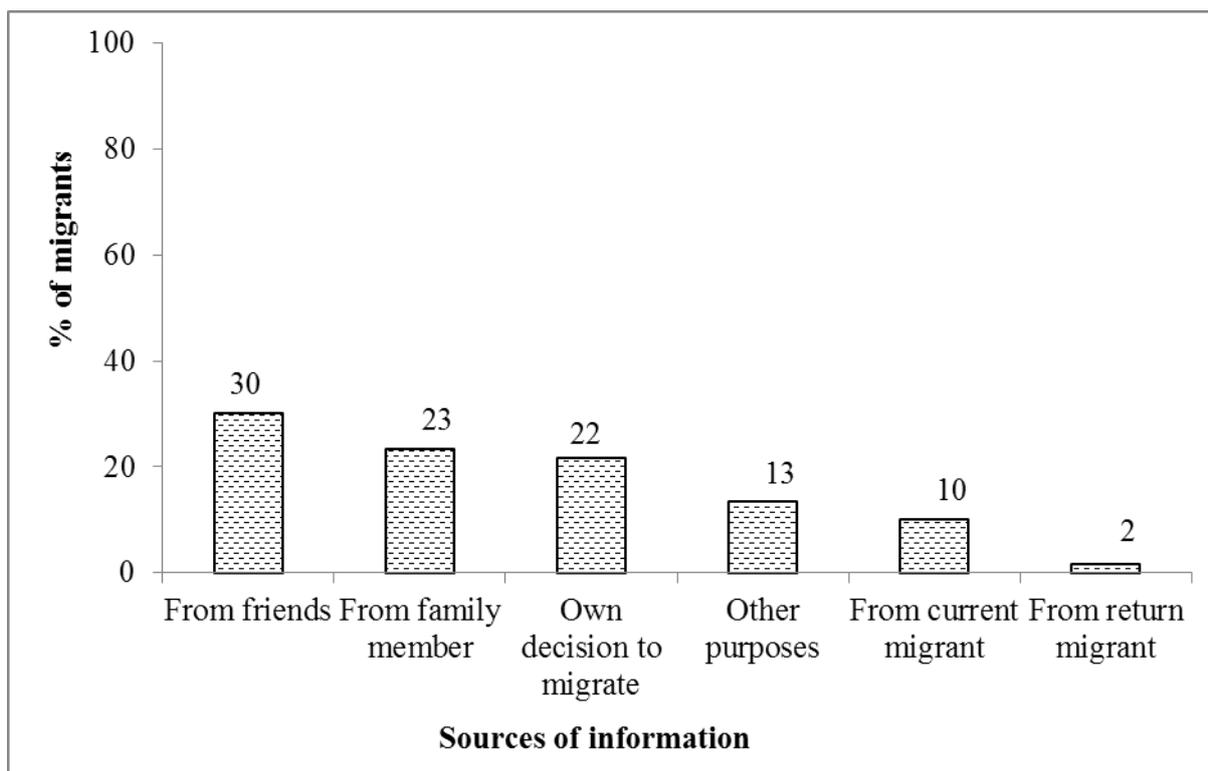
Figure 4.4 Sources of information about migration of sample migrants

4.2.4 Sources for initial migration cost of migrants

In case of initial migration cost, 68% of migrant workers anticipated covering the costs of migrating with their parents' money and 22% used their own saving. Some migrants reported that initial migration cost was covered by borrowing money from friends 5%, others 3% and relatives 2% in this study area (Figure 4.5).
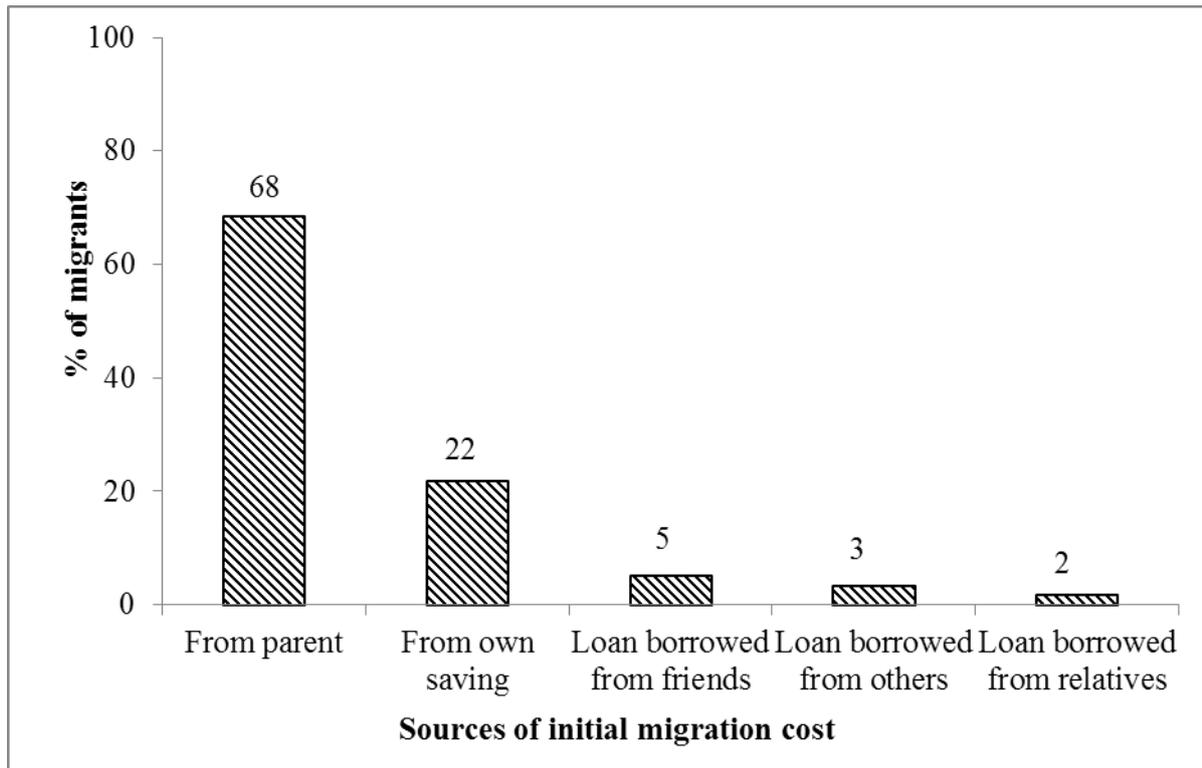
Figure 4.5 Sources of initial migration cost of the migrants in the study area

4.2.5 Time interval of returning home by migrants

In total 92 migrants, returning home interval of migrants was commonly found as 38% of seasonal basis (3 or 6 months interval) because these migrants returned to their home depending on labor needs of the family farm during the major agriculture season. Another 30% reported returned home daily or weekly or monthly intervals. Some migrants 26% were involved in annual return and most of them were worked in agriculture while they were in village. About 3% of migrants were permanent migration and have not returned home till the time of field survey. Other 3% of migrants responded that the return time interval was irregular (longer than one year) (Figure 4.6).
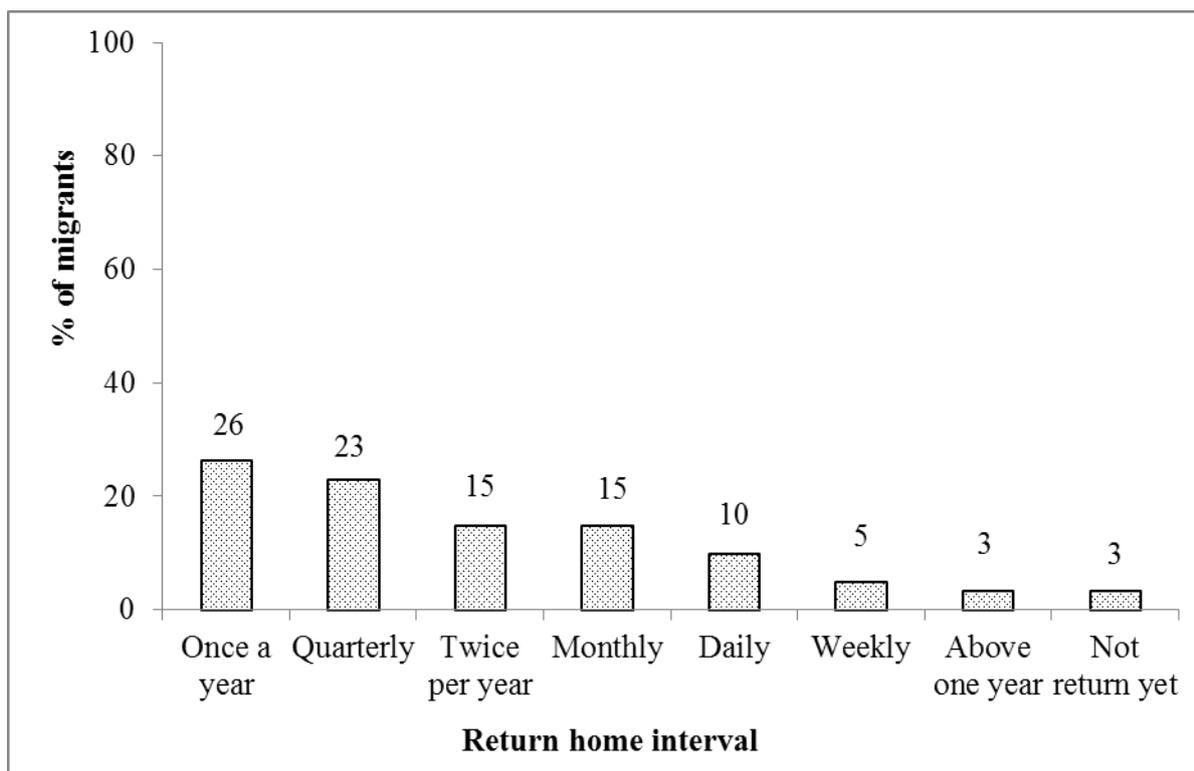
Figure 4.6 Frequency of returning home by the migrants in the study area

4.2.6 Types of occupation of migrants (before and after migration)

Table 4.6 shows types of occupation of migrants before and after migration. In case of occupation of the migrants before migration, the highest percentage of the migrants 53% had worked in farm activities as family labor. Another 38% of migrants were students before migration. Before migration few of them were jobless 5%, shopkeeper 2%, and working in restaurants or shopping center 1% respectively. After migration, 24% of migrants worked as industrial workers at the migrated places. Furthermore, after migration migrants worked in services providers (such as restaurants, shopping center) 21%, government employees 20% and attending school again 18% respectively.

It can be seen that most of the migrants worked as a family labor in their farming before migration. Then, they migrated to work in non-agricultural sectors and they worked as industrial workers, services providers and student etc. Therefore, they didn't involve in the agricultural sector during migration. After migration, their job was changed to non-agricultural sectors and worked as industrial workers.

Table 4.6 Types of occupations of migrants in the sample migrant farm households

Type of occupation	Before migration (%)	After migration (%)
Farmer	53.26	-
Student	38.04	18.48
Jobless	5.43	-
Shopkeeper	2.17	6.52
Services providers	1.09	20.66
Factory worker	-	23.91
Government staff	-	19.57
Company staff	-	3.26
Motorcycle/ car driver	-	2.17
Carpentry/ masonry	-	2.17
Tailoring	-	2.17
Livestock & fisheries	-	1.09
Total	**100**	**100**

4.2.7 Pull and push factors of migration in the study area

The reason of people migrate would be due to the push and pull factors. These factors are forces that can either induce people to a new place or oblige them to leave the old residence depend on their economic, political, cultural and environmental based. In this study, low agricultural productivity, poor economic conditions were defined as push factors of migrant farm households. Better employment opportunities and better living conditions were assumed as pull factors. The result showed that the push factors for migration were poor economic conditions 31% and low agricultural productivity 25% probably due to irregular rainfall and weed problem, and consequently they earned low wages 11% from agriculture. Some migrants reported that they were unemployment 18% and inadequate farm land holding 6%, poor education level 5%, lack of capital inputs 3% and dependency ratio 1% in their village. Therefore, they were unemployed and looked for job opportunities near urban area. Some villagers had migrated to other further places and neighboring countries to work as causal labors. Some rural households took loan from money lenders to invest agricultural production (Figure 4.7).

Unfortunately, crop productivity was low and they could not repay for the debt. Therefore, some migrants reported that they decided to migrate for repayment of the debt. The main pull factors for the migrants were better job opportunities 44%, better living conditions 24% and high salary income 19% in the new destination places. By doing short-term work or in factory work by migration during their off season, rural household got better income. Some migrants 13% reported that they migrated for education purpose (Figure 4.8).
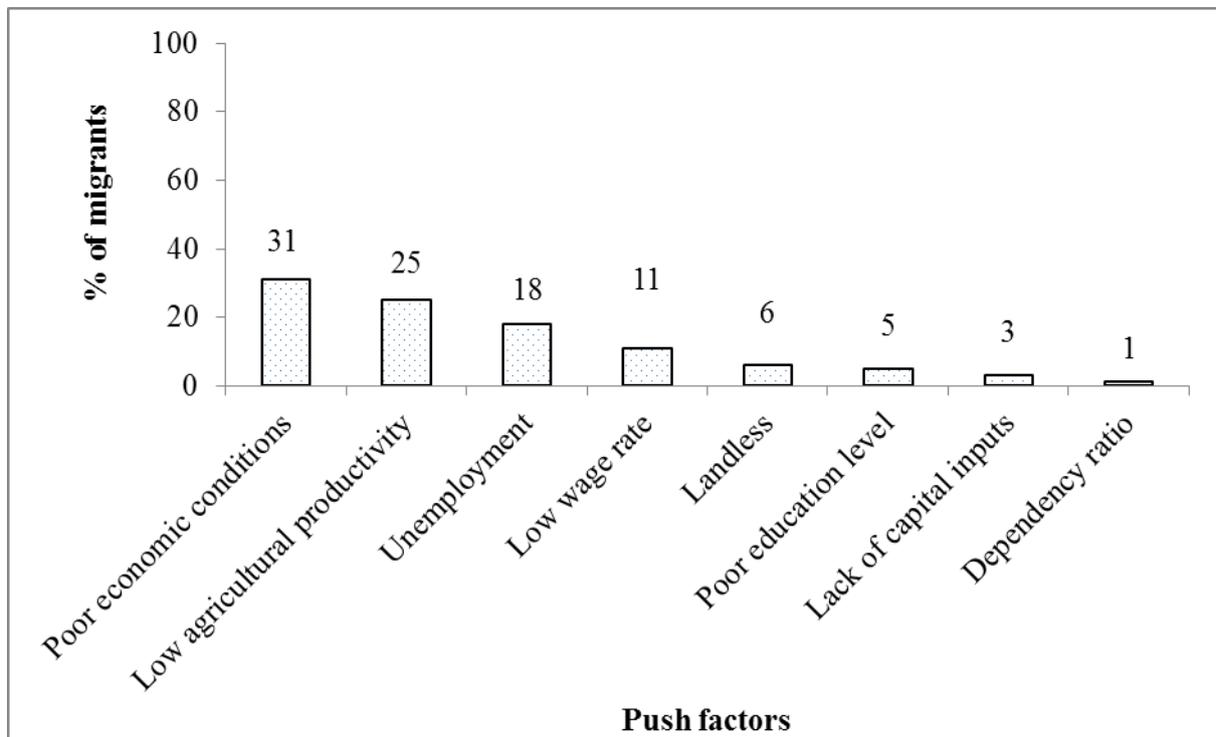
Figure 4.7   Push factors for out-migration of the sample migrant farm households
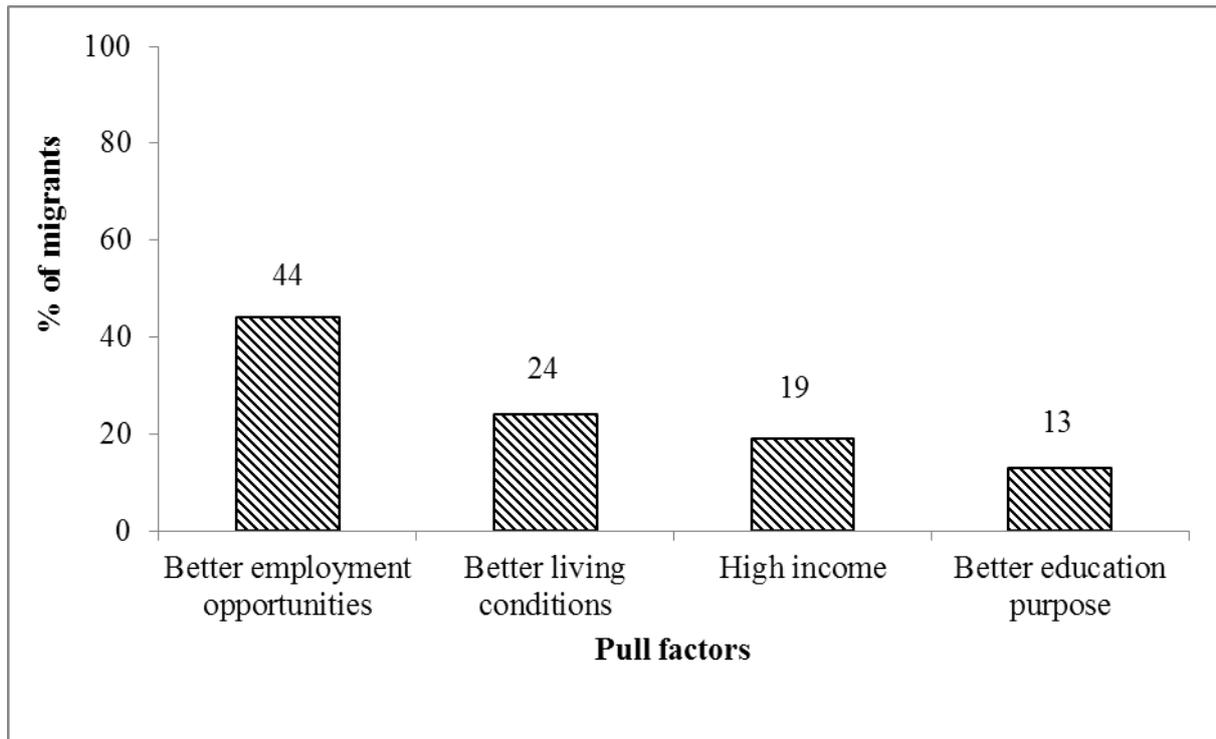
Figure 4.8 Pull factors for out-migration of the sample migrant farm households

4.3 Comparison of Income Compositions between Migrant and Non-migrant Farm Households

4.3.1 Income sources and share of income composition in migrant and non-migrant farm households

Income sources of the migrant and non-migrant farm households are described in Table 4.7. It can be seen that the total annual household income of migrant farm households 6,265,295 MMK was higher than 5,548,669 MMK of non-migrant farm households. According to the average annual crop income, migrant farm households got 4,396,245 MMK while non-migrant farm households earned 3,773,886 MMK. Migrant farm households got higher crop income than the non-migrant farm households in the study area but there was no significantly difference in crop income between the migrant and non-migrant farm households. Average annual remittance income received by migrant farm households 991,167 MMK was significant income source for them.

The income compositions in the migrant and non-migrant farm households are described in Figure 4.9 and Figure 4.10. In the study area, it was observed that migrant farm households earned their family income mainly from two sources, i.e., remittance and farm income while non-migrant farm households earned mainly from three sources, i.e., farm income, off-farm and non-farm incomes. For both of migrant and non-migrant farm households, farm income was obtained from sale of crops such as rice and black gram in the study area. Some farm households earned the household income from non-farm activities such as working in industry and construction sites, working in government and private services, handicraft and cottage.

According to the observed income composition, annual income from crop production was the largest amount and it took 45% of the total incomes. Annual income from remittance was the second largest amount 30% of the total incomes. Other sources of income were 12% from livestock raising, 9% from non-farm activities and 4% from farm activities. Therefore, the second main income of migrant farm households was remittance income and they relied on that kind of income for their survival and capital investment of agriculture. In income composition of non-migrant farm households, it was found that annual income from crop production 59% was the main income while non-farm income 21% and livestock raising 16% also contributed to the total household incomes.

Table 4.7 Income sources of the migrant and non-migrant farm households (MMK/Year)

Sources of income	Migrant FHH (N = 60)	Non-migrant FHH (N = 60)
Crop	4,396,245	3,773,886
Livestock & fishery	346,167	654,333
Remittance	991,167	0
Non-farm income	508,550	1,082117
Farm Labor	23,167	38,333
Total annual income	6,265,295	5,548,669
t-test	t = 0.79, sig= 0.430^{ns}, df = 118	
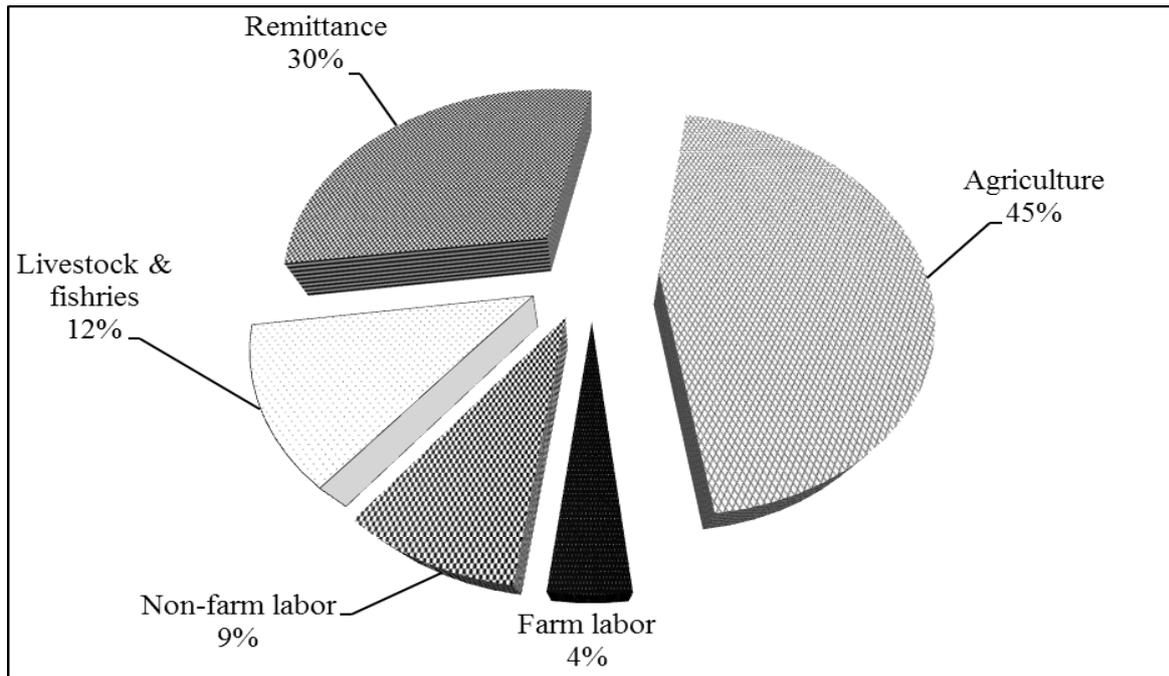
Figure 4.9   Income compositions of migrant farm households (N = 60)
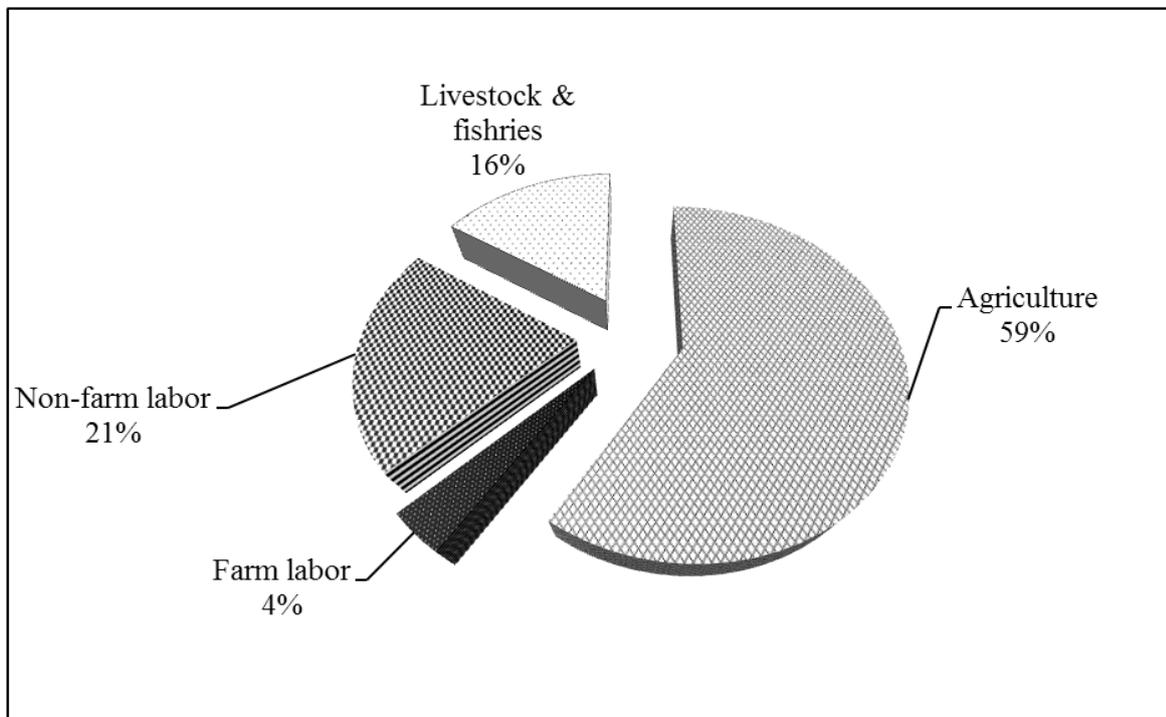
Figure 4.10   Income   compositions   of   non-migrant   farm   households   (N   =   60)

4.3.2 Remittance received and utilization of the sample migrant farm households

Although the crop income was primary income for both sample households, remittance was mainly secondary income for only migrant farm households. Remittances from migrants back to their families have played and continue to play a significant role in poverty reduction for Myanmar people. Migration may also affect the livelihoods of people in places of origin through remittance from migrant. It can play a central role in Myanmar's development also. Among 60 sample migrant farm households, about 78% have received remittances from migrant family members whereas 22% have not received remittances from migrant family members (Figure 4.11). The remittance received by migrant farm households was varied with different time interval. Among them, 57% of migrants sent money monthly to their families. Various remittance receiving intervals were once per 3 months 26%, once a year 13% and 6 months interval 4% respectively (Figure 4.12).

The utilization of remittance by households was analyzed separately in order to identify the allocation of remittance money in all households' expenditures and agricultural production activities. About one third 30% of the migrant farm households utilized remittance money for basic needs (food, clothing and shelter) and 24% of migrant farm households invested remittance in agricultural and livestock inputs. Another 11% of migrant farm households spent for social affairs, 9% for education, 8% for health care, 6% for household maintenance, 6% for saving and 3% for debt repayments, and a few percent of migrant farm households 2% allocated remittance in other purposes (Figure 4.13). Therefore, it was found that migrant farm households mainly allocated remittance money for agricultural inputs and basic needs.
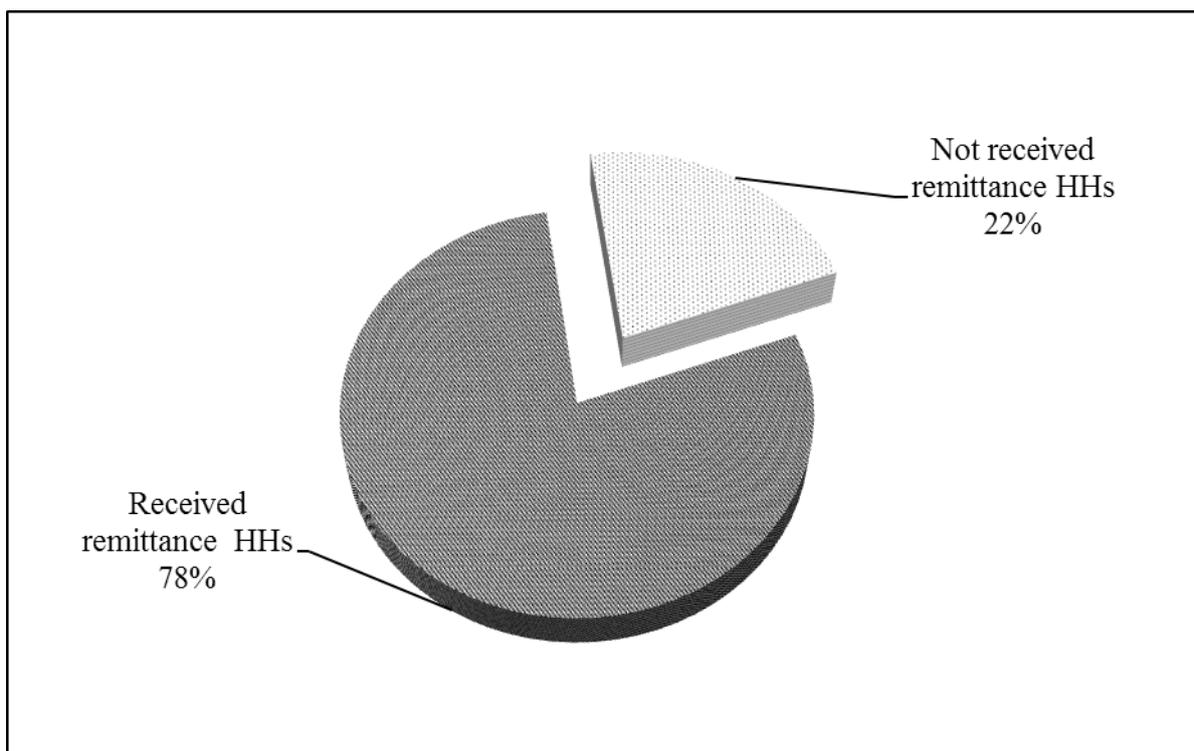
Figure 4.11 Remittance received by the sample migrant farm households
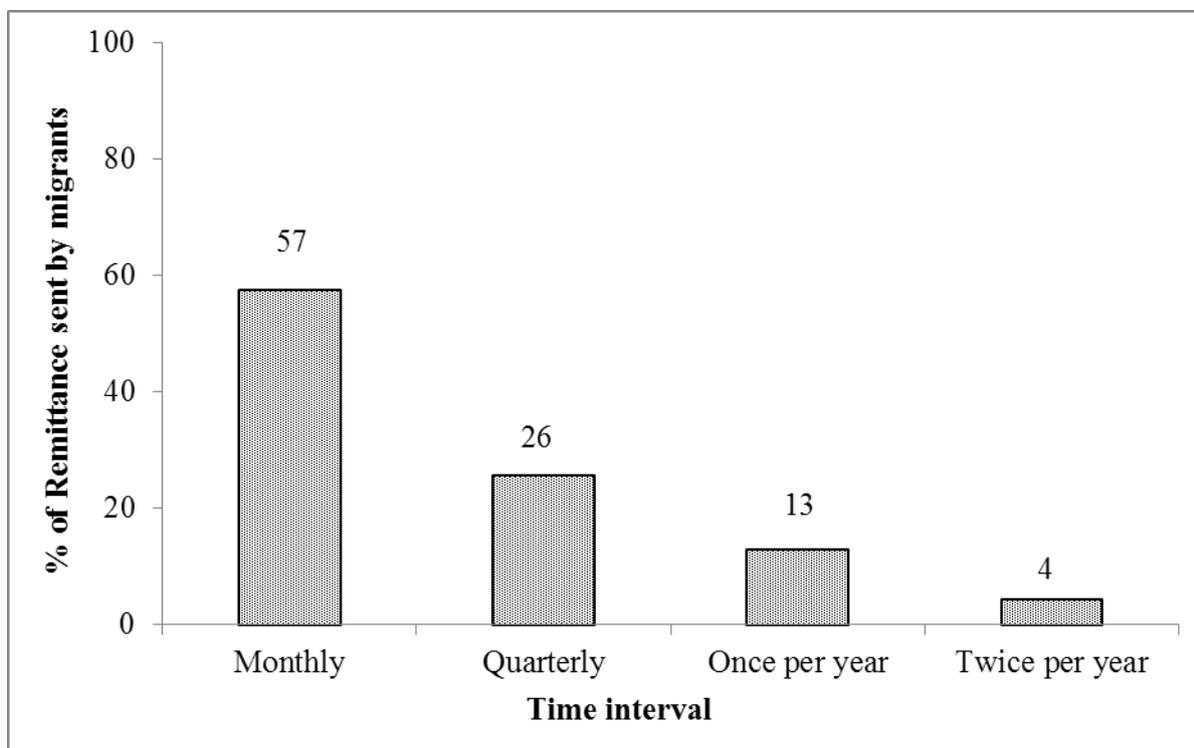
Figure 4.12 Time interval of sending remittance by migrants
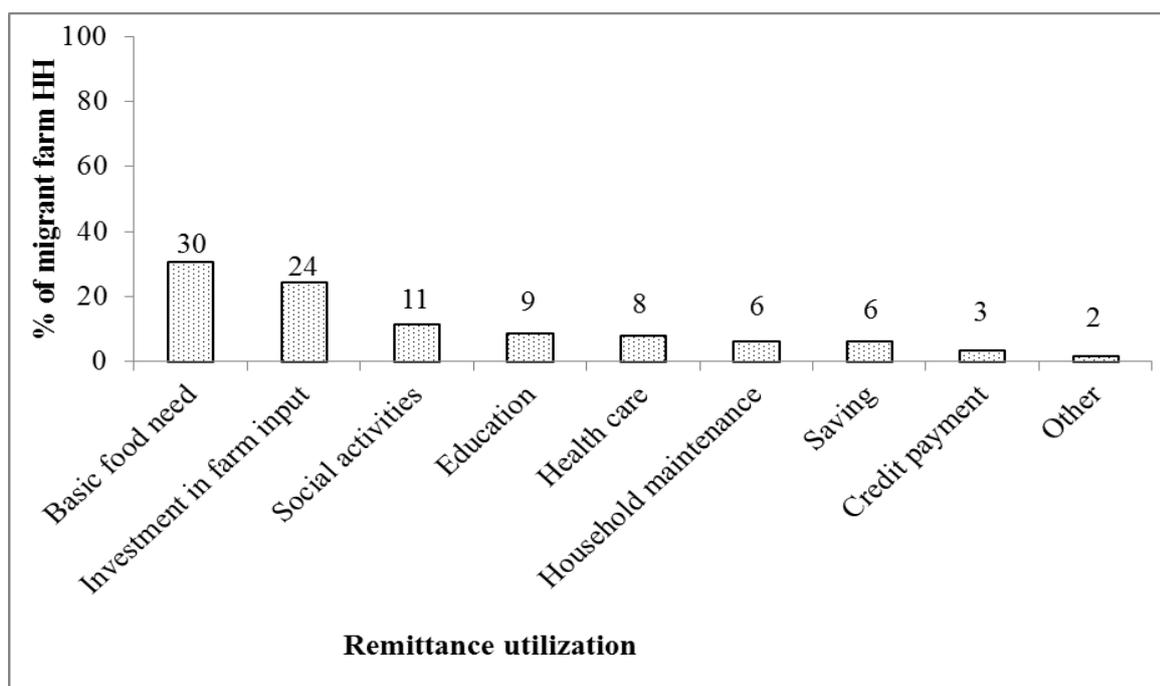
Figure 4.13   Remittance utilized by the sample migrant farm households

4.4   Analysis of Cost & Return and Factor Shares

4.4.1   Land holding size and cropping pattern

The land holding of sample farm households in Maubin Township is described in Table 4.8. In this study area, the average farm size for total migrant farm households was 4 ha. The maximum farm size was 18 ha and the minimum was 0.2 ha. In non-migrant farm households, average farm size was 4 ha and ranging from 0.4 to 16 ha. It was found that most of the farmers were small holder farmers in this study area.

The cropping patterns of the sampled farm households in study areas are presented in Table 4.9. In the study area, combination of monsoon paddy and black gram was the most dominant cropping pattern in migrant farm household while 50% of non-migrant farm households grew only summer paddy. Second dominant cropping pattern in migrant farm households was summer only 32% because they were not cultivated due to most of their farm were emerged at monsoon season whereas 50% of non-migrant households grew the double cropping of monsoon paddy and black gram. The rest of three cropping patterns (summer paddy + monsoon paddy+ black gram, summer paddy+ monsoon paddy, and summer paddy+ black gram) were not significantly different.

Table 4.8   Land holding size of the sample farm households

Items	Migrant FHH (N = 60)	Non-migrant FHH (N = 60)	Total FHH (N = 120)
Land holding size (ha)			
Mean	4	4	4
Minimum	0.2	0.4	0.2
Maximum	18	16	18

Table 4.9   Cropping pattern of the sample farm households

No.	Cropping patterns	Migrant FHH	Non-migrant FHH	Total FHH (N=120)
1.	Monsoon paddy - Black gram	30 (50.0%)	21 (35.0%)	50 (41.7%)
2.	Summer paddy only	19 (31.7%)	30 (50.0%)	46 (38.3%)
3.	Summer paddy - Monsoon paddy - Black gram	7 (11.7%)	2 (3.3%)	9 (7.5%)
4.	Summer paddy - Monsoon	3 (5.0%)	5 (8.3%)	8 (6.7%)
5.	Summer paddy - Black gram	1 (1.7%)	2 (3.3%)	3 (2.5%)

Note: Numbers in the parentheses represent percentage of sample farmers.

4.4.2 Cost and return analysis

Cost and return analysis is a listing of all the estimated incomes and expenses associated with a specific enterprise to provide an estimate of profitability and farm plan. In this study cost and return analysis of the common (summer paddy, monsoon paddy and black gram) crops grow were described.

4.4.2.1 Cost and return analysis of summer paddy production

Total 62 summer paddy farmers were calculated. Among them, 27 migrant and 35 non-migrant farm households were compared to know the benefit of these sample households. The cost and return for summer paddy production of migrant and non-migrant farm households groups are presented in Table 4.10. It was found that migrant farm households expensed average total variable cost 595,769 MMK/ha and non-migrant farm households expensed average total variable cost 603,944 MMK/ha. Average yield was 2,186 kg/ha in migrant farm households and 2,092 kg/ha in non-migrant farm households. Total gross benefit for migrant farm households was 1,085,063 MMK/ha and that of non-migrant farm households was 1,000,279 MMK/ha.

Total material cost was higher in migrant farm households 188,072 MMK/ha and it was lower in non-migrant farm households 174,989 MMK/ha. Total family labor cost of migrant farm households was higher than non-migrant farm households. The hired labor costs were 274,316 MMK/ha in migrant farm households and 246,531 MMK/ha in non-migrant farm households. In the total interest cost on cash cost, migrant farm households expended the higher amount than and non-migrant farm households. Return above variable cash cost (RAVCC) were 613,426 MMK/ha in migrant farm households and 570,329 MMK/ha in non-migrant farm households. Return above variable cost (RAVC) for migrant and non-migrant farm households were 489,294 MMK/ha and 396,335 MMK/ha respectively. Hence, the benefit-cost ratios were 1.82 and 1.66 for the migrant and non-migrant farm households, respectively (Appendix 2).

Table 4.10 Cost and return analysis of summer paddy production

Items	Unit	Migrant FHH (N=27)	Non-migrant FHH (N=35)
Yield	kg/ha	2,186	2,092
Price	MMK/kg	201	193
Total gross benefit	MMK/ha	1,085,063	1,000,279
Total variable cost	MMK/ha	595,769	603,944
Benefit Cost Ratio (BCR)		1.82	1.66

4.4.2.2 Cost and return analysis of monsoon paddy production

Among sixty-seven monsoon paddy farmers, 39 migrant and 28 non-migrant farm households were included and compared the benefit of these sample households. The enterprise budget for monsoon paddy production is indicated in Table 4.11. It was found that migrant farm households expensed average total variable cost 543,519 MMK/ha and the non-migrant farm households expensed average total variable cost 512,611 MMK/ha. Average yields obtained were migrant farm households 1,453 kg/ha and non-migrant farm households 1,393 kg/ha. Total gross benefits for migrant farm households was 818,514 MMK/ha and 729,047 MMK/ha for non-migrant farm households.

In Appendix 3, total material cost and total family labor cost were lower in migrant farm households 153,431 MMK/ha whereas they were higher in non-migrant farm households 174,545 MMK/ha. Hired labor cost of 308,751 MMK/ha in migrant farm households was relatively higher than 231,541 MMK/ha in non-migrant farm households. In the total interest cost on cash cost, migrant farm households expended the higher amount than and non-migrant farm households. Return above variable cash cost (RAVCC) were 347,088 MMK/ha in migrant farm households and 314,839 MMK/ha in non-migrant farm households.

Return above variable cost (RAVC) for migrant and non-migrant farm households were 274,995 MMK/ha and 216,436 MMK/ha respectively. Hence, the benefit-cost ratios were 1.51 and 1.42 for the migrant and non-migrant farm households, respectively.

Table 4.11 Cost and return analysis of monsoon paddy production

Items	Unit	Migrant FHH (N=39)	Non-migrant FHH (N=28)
Yield	kg/ha	1,453	1,393
Price	MMK/kg	229	216
Total gross benefit	MMK/ha	818,514	729,047
Total variable cost	MMK/ha	543,519	512,611
Benefit Cost Ratio (BCR)		1.51	1.42

4.4.2.3 Cost and return analysis of black gram production

In the study area, 37 migrant and 25 non-migrant farm households were compared to know the benefit of these sample households. The enterprise budget for black gram production among migrant and non-migrant farm households is presented in Table 4.12. It was found that migrant and non-migrant farm households expensed average total variable cost 405,964 MMK/ha and non-migrant farm households expensed almost the same average total variable cost 406,333 MMK/ha. Average yield was different between migrant farm households 199 kg/ha and non-migrant farm households 186 kg/ha. Total gross benefit for migrant farm households was 876,249 MMK/ha and non-migrant farm households was 808,876 MMK/ha.

Total material cost was the lower in migrant farm households of 140,707 MMK/ha and the higher in non-migrant farm households of 160,431 MMK/ha. Total family labor cost was the lower in migrant farm households and the higher in non-migrant farm households. It

was expensed for the hired labor cost of 209,570 MMK/ha in migrant farm households, 180,300 MMK/ha in non-migrant farm households. In the total interest cost on cash cost, migrant farm households expended the higher amount than and non-migrant farm households. Return above variable cash cost (RAVCC) were 522,469 MMK/ha in migrant farm households and 464,737 MMK/ha in non-migrant farm households. Return above variable cost (RAVC) for migrant and non-migrant farm households were 470,286 MMK/ha and 402,542 MMK/ha respectively. Hence, the benefit-cost ratios were 2.16 and 1.99 for the migrant and non-migrant farm households, respectively. These data are presented in Appendix (4).

Migrant farm households expensed higher more total hired labor cost and interest on cash cost while non-migrant farm households had spent higher total material cost and total family labor cost.

Although higher total variable cash cost was expensed migrant farm households, RAVC was relatively higher in migrant farm households due to the high gross return received by the migrant households.

Therefore, it can be concluded that the total variable cost and total hired labor cost of migrant farm households were higher than those of the non-migrant farm households. However, total family labor cost was higher in non-migrant farm households than in migrant farm households. Migrant farm households obtained higher yield than non-migrant farm households. And also, price of common crops for migrant farm households was higher than that of non-migrant farm households. It seemed that they were waiting until higher output price received. Hence, migrant farm households received more profit than non-migrant farm households by growing common crops in the study area.

Table 4.12   Cost and return analysis of black gram production

Items	Unit	Migrant FHH (N=37)	Non-migrant FHH (N=25)
Yield	kg/ha	199	186
Price	MMK/kg	1,804	1,774
Total gross benefit	MMK/ha	876,249	808,876
Total variable cost	MMK/ha	405,964	406,333
Benefit Cost Ratio (BCR)		2.16	1.99

4.4.3   Factor share analysis of summer paddy production

Factor shares are the ratio of costs of factor inputs used in a production process to the total value of output, i.e. total revenue. Calculating the factor shares based on the total revenue is to know its input costs how they were distributed. The factor shares in payments and percentages of the summer paddy production between migrant and non-migrant farm households are presented in Table 4.13. For migrant farm households, total input share 54.7% comprised with material cost, total labor cost and interest cost. Gross margin was attained by the difference between total revenue and total inputs share.

According to this table, non-migrant farm households' total input share was 60.5% and net margin left for farmers in 30%. Total input share 60.5% was incorporated by material cost 17.5%, total labor cost 42% and interest cost 1% Therefore when calculating the farm household income gross margin was combined with the share of family labor participation in the summer paddy production 56.9%.

Table 4.13   Factor shares of summer paddy production between migrant and non migrant farm households

No.	Variables	Factor share (%)	
		Migrant FHH (N=27)	Non-migrant FHH (N=35)
1	Total revenue	100.0	100.0
2	Material cost	**17.0**	**17.5**
3	Labor cost	**36.7**	**42.0**
	- Family labor	11.4	17.4
	- Hired labor	25.3	24.6
4	Interest cost	**1.0**	**1.0**
5	Total inputs share (2 + 3 + 4)	54.7	60.5
6	Gross margin (1 − 5)	**45.3**	**39.5**
7	Farmer's farm income	56.7	56.9

Note: Farmer's farm income = Gross margin + Family labor cost

4.4.3.1 Factor share analysis of monsoon paddy production

Table 4.14 illustrated that the factor shares in payments and percentages of the monsoon paddy production between migrant and non-migrant farm households. The factor shares of material input, labor input and interest for migrant farm households were 19%, 47% and 1% respectively. Therefore, gross margin factor share was 33% and farm income factor share was 42% for sample farmers. Factor share for material inputs, labor inputs and interest for non-migrant farm households were 24%, 45% and 1%. Therefore, gross margin factor share for non-migrant households was 29.5% and farm income factor share for non-migrant households was 43%.

Table 4.14 Factor shares of monsoon paddy production between migrant and non-migrant farm households

No.	Variables	Factor share (%)	
		Migrant FHH (N=39)	**Non-migrant FHH (N=28)**
1	Total revenue	100.0	100.0
2	Material cost	**19.0**	**24.0**
3	Labor cost	**47.0**	**45.5**
	- Family labor	9.0	13.5
	- Hired labor	38.0	32.0
4	Interest cost	**1.0**	**1.0**
5	Total inputs share (2 + 3 + 4)	67.0	70.5
6	Gross margin (1 – 5)	**33.0**	**29.5**
7	Farmer's farm income	42.0	43.0

Note: Farmer's farm income = Gross margin + Family labor cost

4.4.3.2 Factor share analysis of black gram production

In black gram production, the factor shares for material inputs, labor inputs, interest and gross margin for migrant households were 16%, 30%, 0.4% and 53.6% respectively (Table 4.15). Therefore, farm income factor share for migrant households was 59.6%. In non-migrant households received factor shares of material inputs 20%, labor inputs 30.2%, interest 0.4%, gross margin 49.4% and farm income factor share 57.4%. Therefore migrant households received higher factor shares of farm income than that of non-migrant households (59.6>57.4).

As a consequence of factor shares calculation for major three crop production, it can be observed that labor cost was the highest in farming activities of the study area. Non-migrant farm households received slightly higher farm incomes than migrant farm households because they could fully use their family labor properly.

Table 4.15 Factor shares of black gram production between migrant and non-migrant farm households

No.	Variables	Factor share (%)	
		Migrant FHH (N=37)	Non-migrant FHH (N=25)
1	Total revenue	100.0	100.0
2	Material cost	**16.0**	**20.0**
3	Labor cost	**30.0**	**30.2**
	- Family labor	6.0	8.0
	- Hired labor	24.0	22.2
4	Interest cost	**0.4**	**0.4**
5	Total inputs share (2 + 3 + 4)	46.4	50.6
6	Gross margin (1 – 5)	**53.6**	**49.4**
7	Farmer's farm income	59.6	57.4

Note: Farmer's farm income = Gross margin + Family labor cost

4.5 Impact of Migration on Agricultural Labor Problem

4.5.1 Labor scarcity

Generally, farming in Myanmar is mostly small scale and labor intensive. The problems in accessing hired labor for the migrant and non-migrant farm households are presented in Figure 4.14. Among 60 sample migrant farm households, 87% households faced the problem in accessing hired labor while only 73% of non-migrant farm households, faced this problem. In this case, migrant farm households faced the problem in accessing hired labor was higher than that of the non-migrant farm households.

Labor migration creates labor shortage in crop production which, in turn, high wages and decrease crop yields, particularly during the peak season are happened (Amina & Theingi Myint 2015). The reasons for labor scarcity in migrant and non-migrant farm households are presented in Figure 4.15.

According to the result, the most difficult problem was the unavailable labor in time was 50% in non-migrant and 53% in migrant sample farm household in the study area. It was followed by high wage rate of labor during the peak production season was 12% and 17% in non-migrant and migrant farm households. Therefore, some farm households were facing many difficulties along the crop production activities which were accounted about 12% to 13% of both farm households. Another reason of difficulty was the working capacities of some hired labors were not affective as family labor.
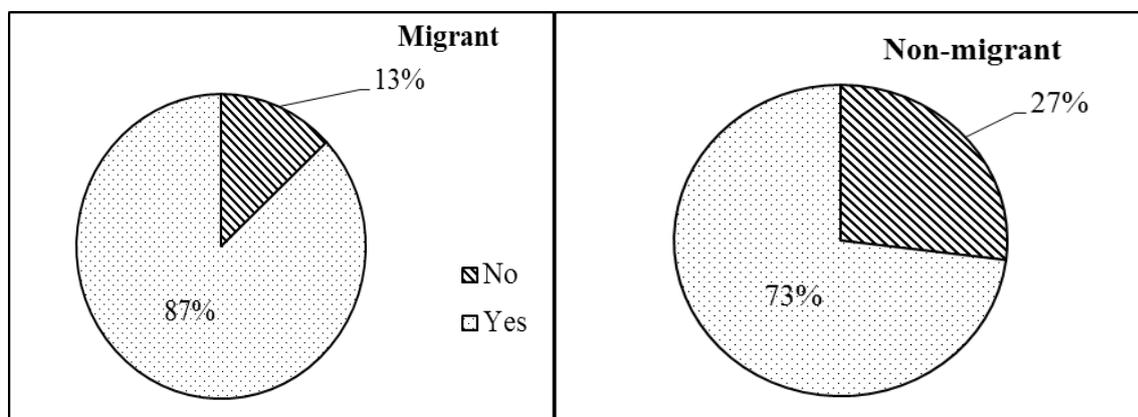
Figure 4.14 Labor scarcity problems
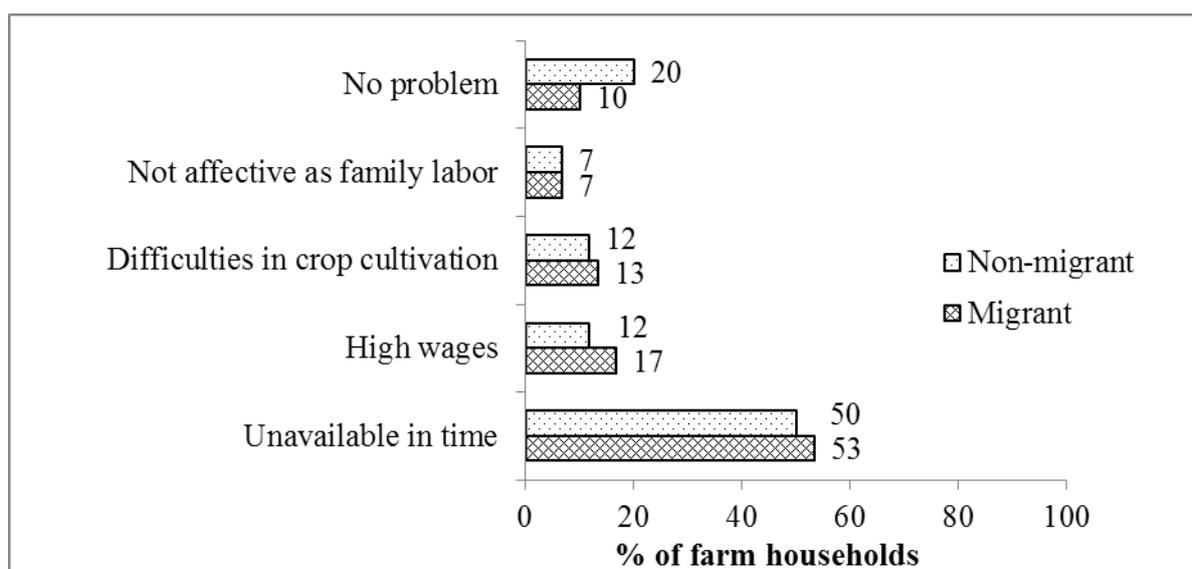
Figure 4.15 Reasons of labor scarcity

4.5.2 Labor availability management practices

Because of the labor scarcity problem, migrant farm households had to solve in various ways. This result was showed in Figure 4.16. Some migrant farm households solved the problem by hiring labor from other distance village 50%, while 45% of non-migrant farm households also solved the problem by this way. Another solution was advanced payment to hire labor in time in both sample farm households 20%. Other solution was the use of machinery in place of labor 20% in migrant farm households and that of 15% in non-migrant farm households. In few cases, 7% of migrant households and 10% of non-migrant households used mutual labor exchange system with other farm households to solve labor requirement problem. In this case, it was found that 10% of non-migrant farm households more ignored and didn't solve labor requirement problem than that of migrant farm households 3%. Therefore, migrant farm households had to more afford to solve the labor requirement problem than non-migrant farm households. There were no reducing farmland size and using mutual labor exchange system to solve this problem in non-migrant farm households. Most of the migrant farm households solved the problem by hiring labor from other distance village and giving advanced payment than those of the non-migrant farm households.

Since labor migration impacted on labor availability which, in turn, impacted on wages and value. As seen in Maubin Township, the labor shortage had increased the wages in agriculture work compared with before migration condition. As can be seen in the wages comparison, the hired labor daily wage increased from about 1500 MMK to 3000 MMK for male and about 1500 MMK to 2500 MMK for female during off-season. The daily wage increased from about 3000 MMK to 5000 MMK for male and about 2500 MMK to 4000 MMK for female during peak season in the study area.
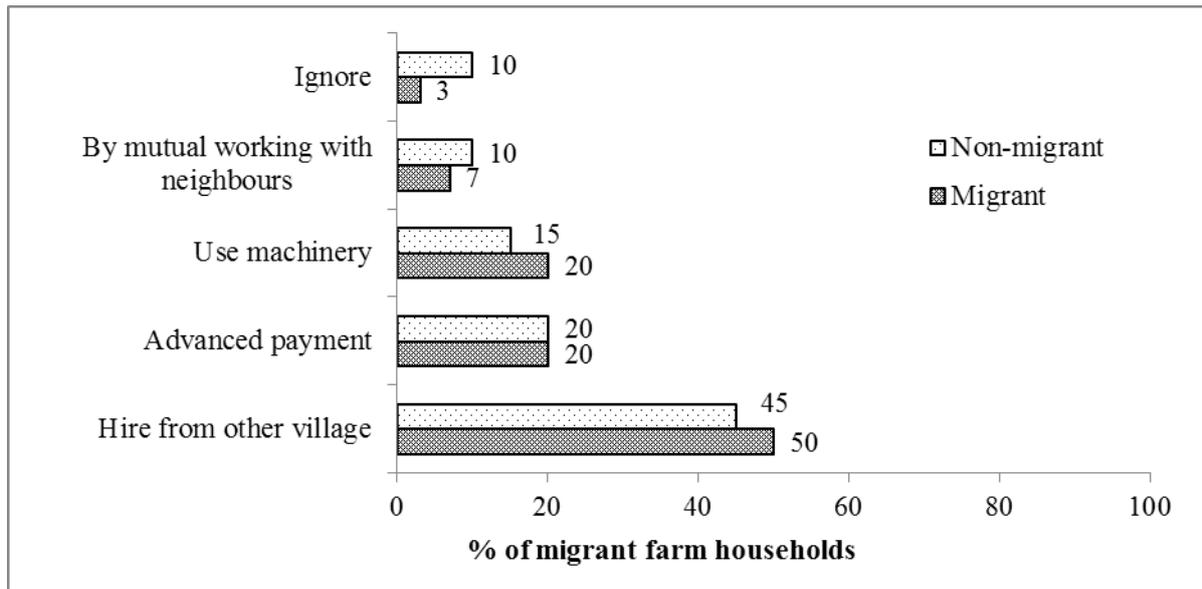
Figure 4.16 Labor availability management practices

4.6   The Empirical Results of Determinant Factors to Households' Out Migration Status

In this study, the empirical analysis of the determinants or influencing factors on households' out migration status was carried out by using Probit Regression Model. In Probit Model, the endogenous variable is a dummy or categorical variable with 1 representing migrant farm households and 0 representing non-migrant farm households. In the present study, some quantitative variables were considered.

In this analysis 1 for migrant farm households and 0 for non-migrant farm households as a dependent variable were used. There were seven independent variables in model. According to the descriptive statistics, average number of family size (5), average number of income sources (2), average dependency ratio (55%), average number of family labor (2), average agricultural land holding size (10 acre), average household heads age (55 year) and average household heads education (3) were independent variables (Table 4.16).

The estimated coefficients and the correspondents Z values which resulted from the Probit model were given in Table 4.17. Chi-Square value (170.003) and p-value (0.000) suggested that the estimated model was highly significant at 1% level.

Among the explanatory variables, family size was positively related to migration status and statistically significant at 1% level. The coefficient value of family size (0.364) indicated 10% increase in family size was expected to increase the probability of migration 3.6%. It suggests that the larger the family member the higher the probability of migration.

Number of income of sources was positively related to the probability of migration and statistically significant at 1% level. The coefficient value of number of income sources (0.667) showed that 10% increase in income source, the probability of migration will be increased by 6.7%. It indicates that many sources cannot support the stable income for the migrant farm households.

The dependency ratio, and the number of family labor were positive impacts on the probability of migration and significant at 1% and 5% level, respectively. The coefficient values of (0.013) and (0.212) indicates that 10% increase in the dependency ratio and the number of family labor were expected to increase the probability of migration 0.13% and 2.1% respectively. This implies that households with large amount of dependent people were likely to migrate more.

According to the probit regression results, agricultural land holding size, household heads' age and household heads' education was positively related to the probability of migration but not significant. This means that the probability of migration was not affected by household heads' age and household heads' education.

Table 4.16 Statistics of dependent and independent variables for households' out migration status (N=120)

Variables	Unit	Mean	Minimum	Maximum
Family size	no.	5	2	10
Number of income source	no.	2	1	5
Dependency ratio	%	55	0	30
Number of family labor	no.	2	0	5
Land size	acre	10	0	45
Household heads age	year	55	27	87
Household heads education	year	3	1	5

Table 4.17 Probit function of households' out migration status (N=120)

Independent Variables	Coefficient	Z -value	P- value
Family size	0.364***	3.011	0.000
Number of income sources	0.667***	3.349	0.001
Dependency ratio	0.013***	4.212	0.000
Number of family labor	0.212**	2.576	0.010
Land size	0.015 ^{ns}	0.954	0.340
Household heads age	0.011 ^{ns}	1.879	0.379
Household heads education	0.021 ^{ns}	0.159	0.847
Intercept	-2.253**	-2.218	0.011
χ^2	170.003***		0.000

Note: Dependent variable is migration status 1 for migrant farm households, 0 for non-migrant farm households

***, ** and * significant at 1%, 5% and 10% probability levels respectively and ns = non-significant

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1   Summary of Findings and Conclusion

Migration is an important livelihood strategy to increase income and employment security especially in the rural areas where the employment opportunities are limited. Understanding the migration characteristics and patterns are very useful information for planning and management of rural development and economics to a developing country like Myanmar. According to the study area, it can be seen that there is a relatively large percentage of internal migration to urban areas than international migration. Internal migration was mostly a survival and investment strategy for their living condition rather than wealth accumulation.

The result indicated that male headed household was traditionally dominant in the study area. Majority of migrants and non-migrants household heads were male with average age of about 55 years old. Average family size was 6 and 5 of migrants and non-migrants respectively. Working group age level within 20 – 59 years old was more migrate in migrant farm households. The average age of all sample migrant farm household heads was around 55 years and average family size was 5 persons. In the study area, the education levels of migrants' household heads were found the highest percentage in middle 33% and primary 32%. Meanwhile, education was very important for everyone to be able to migrate. The total number of household members was higher in migrant farm households than non-migrant farm households. Moreover, the population of female was higher than male in both farm households. It was observed that, middle aged members in migrant farm households were higher than non-migrant farm households. The educational levels of migrant farm household members were higher than non-migrant farm household member in the study area.

Among the migrants, number of female was higher than male migrants and both groups possessed the university education level. It was observed that the more female youngsters migrated and most of them were migrating to urban centers for non-farm work. According to findings, migrating patterns was changing nowadays. In the past years, male generally migrated but now female migrated to other places. Among them, the average age of

female migrants was 25 years old. Most of these migrants were young people with migration rate 34%. Most of the migrants worked as a family labor in their farming before migration. After migration, their job was changed to non-agricultural sectors and worked as industrial workers.

Before migration, most of their occupations were farming and students but after migration they changed to factory worker and government staffs respectively. Both types of internal and international migration could be found in the study area however international migration accounted only 9% of total migrants. Migration was categorized as rural-urban migration and mainly derived into temporary and seasonal migration. Permanent migration was the least.

They got their migration information mainly from friends and cost of migration incurred mostly from parents. Moreover, most of the migrant households received remittances. Based on the remittance information, about 60% remittance sent by migrants was received by monthly interval and over 50% of migrants came back quarterly and or once a year. Remittances have been utilized for meeting basic food needs and investment in farm inputs which have helped in improving the livelihood on migrant households. Migrant households also preferred to save money to meet their requirements in unforeseen situations.

Summarizing the push factors of rural out-migration, the determinants of migration were mostly associated with declining opportunities in agriculture due to low agricultural productivity, low employment opportunities of non-farm sectors in original local areas. The pull factors for out-migration to other places were better economic and employment opportunities, high income and better living standard.

Crop income was the largest portion of the total household income in farm households. The secondary income of migrant farm households was remittance income which was mainly used for basic needs and agriculture.

In the case of cost and return analysis, the average yield and average price of summer paddy, monsoon paddy and black gram in migrant households were slightly higher than that of non-migrant households. The benefit cost ratios of these common crops grown in the area

were not significantly different between migrants and non-migrants households. In factor share analysis of three common crop (summer paddy, monsoon paddy and black gram) productions, it can be seen that among two different farm households groups, factor shares for farm income were not significantly different between migrant and non-migrant farm households. However, factor share of family labor using for migrant farm households was lower than that of the non-migrant farm households in the common crop. Non-migrant farm households expensed significantly more material cost than those of migrant farm households in monsoon paddy and black gram production but expenditure slightly more in summer paddy production. On the other hand, migrant farm households expensed more hired labor cost than that of non-migrant farm households. It can be seen that migrant households can invest more hired labor than non-migrant farm households in the crop production s in farming activities etc. Furthermore, according to the result of this study the migrant farm households got higher crop prices than non-migrant farm households because they were waiting until higher output price received.

Both of the migrants and non-migrants farm households were faced the problems of agricultural labor availability during their farming activities. Majorities of the farmers were facing labor difficulties in their farming activities and they are used the different types of solutions in this area.

According to probit analysis, migration was positively and significantly influenced by family size, dependency ratio, the number of income sources and number of family labor. Based on the probit regression results, the probability of migration in the study area in mostly related to the family labor and income source conditions. With the number of family labor and dependency ratio can encourage migration. It can be assumed migration was an important livelihood strategy for rural people in the study area to increase their income and employment security and options. If there is increasing in income sources the more probability of the migration indicating many income sources cannot support the stable income for the migrant farm households.

5.2 Recommendations

Migration is an important livelihood strategy for rural people in the study area to increase their income and employment security and options. The major reason for internal migration is the lack of year-round and sufficient income opportunities in the source locations and the demand for the labor in destination locations. Therefore, migration is a generally a survival strategy than wealth accumulation strategy in the study area. After Nargis, migration is one of the serious problems in delta region. Moreover, the lack of availability of off-farm work and seasonality of nature agricultural production is the major cause of migration.

Internal migration takes place based on the existing social networks. This will not only improve the people's job prospects, but will also reduce unacceptable disparities between rural and urban people. The resulting increase in the agricultural production also means increases in the rural per capita income. This will attract more youth in the rural areas into agriculture and serve as a disincentive for further migration.

Provision of social amenities and establishment of cottage industries in the study area is necessary. It is required to establish the projects which should be provided by the government, NGOs and the rural people with the aid of community driven development to this area. Government should encourage private sector to invest in this area especially more emphasize on agricultural activities to generate the safe and strong income stream. Cross-border migration should be legally approved because of unstable conditions facing by the migrants workers. Labor recruitment agencies involved in migration should be strictly regulated.

The implications of these findings for the achievement of the national policy goal of agricultural development suggests that policies should be targeted towards coping strategies for loss of labor which includes investing in agricultural machinery, agrochemicals and credit in the form of input supplies and it should be introduced labor saving technology. Myanmar should develop a policy to enhance skills of returned migrants with training in business creation and personnel management alongside provision of funds to provide the impetus for returning migrants to set up small to medium scale enterprises.

Myanmar should consider a development perspective on the advantages to be offered by migration of Myanmar workers oversea in terms of a poverty reduction strategy and their eventual return, when the time is right, with new skills to develop Myanmar's society.

REFERENCES

Abhay Kumar. (2014). Labour Out Migration from Rice Based Cropping System: A Case of Bihar,India.

Adams, R., & Cuecuecha, A. (2010). Remittances, Household Expenditure and Investment in Guatemala. World Development. Washington, DC.: Bank Policy Research Working Paper.

Afshar, O. (2003). Effects of Rural-Urban Migration of Youth on Agricultural Labor Supply in Umea North Local Government Area of Abita State, Nigeria. Journal of Agricultural Research 3(2): 77-83 pp.

Agesa, R., & Kim, S. (2001). Rural to Urban Migration as Household Decision: Evidence from Kenya. Review of Development Economics 5: 60-75 pp.

Amina, M., & Theingi, M. (2015). Internal Labor Migration Study: In the Dry Zone, Shan State and the Southeast of Myanmar.

Anh, D. (2003). Migration and Poverty in Asia: with Reference to Bangladesh, China, the Philippines and Viet Nam. Ad Hoc Expert Group Meeting on Migration and Development, Organized by the Economisc and Social Commission for Asia and the Pacific. Bangkok 27.

Appleyard. R,T. (1989). General Conclusion,International Migration.

Aworemi,J.R, Abdul-Azeez,I.A, & Opoola, N.A. (2011). An Appraisal of the Factors Influencing Rural-Urban Migration in Some Selected Local Government Areas of Lagos State Nigeria. Journal of Sustainable Development. 4 (3).

Bague, D. (1969). Principles of Demography. New York.

Bell, M., & Ward, G. (2000). Comparing Temporary Mobility with Permanent Migration. Tourism Geograpjies 2: 97-107 pp.

Cohen, J. (2005). Remittance Outcomes and Migration: Theoretical Contests, Real Opportunities. Studies in Comparative International Development 40: 88-112 pp.

Dao, M. (2002). Determinants of Internal Migration in Developing Countries. Eastern Illinosis University.

Dehann, A. (1999). Livelihoods and Poverty: The Role of Migration- A Critical Review of the Migration Literature. The Journal of Development Studies36(2): 1-47 pp.

Deshingkar, P., & Grimm, S. (2005). Internal Migration and Development: A Global Perspective.IOM. United Nations Publication.

Gazdar, H. (2003). A Review of Migration Issues in Pakistan. Paper Presented at the Regional Conference on Migration, Development and Pro-poor Policy Choices in Asia. Organized by the Bangladesh Refugee and Migratory Movements Research Unit. Bangladesh/DFID UK, Dhaka,22-24 June.

Greene. (2000). Econometric Analysis. Fifth Edition, Upper Saddle River. New York University: New Jersey.

Guglar, J. (2002). The Son of the Hawk Does Not Remain Abroad: The Rural-Urban Connection in Africa. African Studies Review 45(1): 21-41 pp.

Hartveld, W. (2004). Rural- to - urban Migration and Female Livelihoods: The Case of Dagara Women in Ghana. . Unpublished MA Thesis, Amsterdam, Free University.

Hugo, G. (2003). Migration and Development: A Perspective from Asia.

International Labor Organization. (2015). Internal Labor Migration in Myanmar: Buildingan Evidence - based on Patterns in Migration, Human Trafficking and Forced Labor.

International Organization for Migration. (2002). The Migration-Development Nexus: Evidence and Policy Option. Geneva.

International Organization for Migration. (2005). Internal Migration and Development: A Global Perspective.

International Organization for Migration. (2016). World Bank.

International Rice Research Institute. (1991). Basic Procedures for Agroeconomic Research. International Rice Research Institute. Philippines.

Jokisch, B. (2002). Migration and Agricultural Change: The Case of Smallholder Agriculture in Highland Ecuador. Human Ecology (Vols. 30: 523-550).

Kikuchi,M, & Hayami, Y. (1980). Inducements to Institutional Innovations in an Agrarian Community. Econoomic Development Cultural Change 29.

Larry CY. (2013). Rapid Value Chain Assessment:Structure and Dynamics of the Rice Value Chain in Myanmar.

Lewis, A. (1994). Economics of Development with Unlimited Supplies of Labor, The Economics of Under Development. Ed: Agrawal, A.N. and Singh, S.P. Oxford Press, New Delhi.

Lucas, R. (2003). Ecoonomic well-being of Movers and Stayers: Assimilation, Impacts, Links and Proximity. Johannesburg, South Africa, 4-7 June, 2003, Johannesburg: In: Conference on African Migration in Comparative Perspective.

Mckenzie, D., & Rapoport, H. (2004). Network Effects and the Dynamics of Migration: Evidence from Mexico. Washington, DC: BREAD Working Paper, 063.

Mendola. (2008). Migration and Technological Change in Rural: Complements or Subsitutes? Journal of Development Economics 80: 150-175 pp.

Mini, S. (2000). The Impact of Rural-Urban Migration on Rural Economy in Rural Village. www. geofileonline.com.

Ministery of Agriculture and Irrigation. (2016). Myanmar Agriculture in Brief. Ministery of Agriculture and Irrigation. Nay Pyi Taw, Myanmar.

Ministery of Agriculture and Irrigation. (2015). Myanmar Agriculture in Brief. Ministery of Agriculture and Irrigation,. Nay Pyi Taw, Myanmar.

MPBSA. (2013). eTrade Myanmar Co Ltd.

Nyi, N. (2013). Levels, Trends and Patterns of Internal Migration in Myanmar. Department of Population, Ministry of Immigration and Population, Republish of the Union of Myanmar.

Regmi, G., & Tisdell, C. (2002). Remitting Behaviour of Nepalese Rural-Urban Migrants: Implications for Theory and Policy. Journal of Development Studies 38(3): 76-94 pp.

Rozelle, S, Taylor, E.J, & deBraw, A. (1999). Migration, Remittances, and Agricultural Productivity in China. The American Economic Review. 89: 287-291 pp.

Sindi K., & Kirimi, L. (2006). A Test of the New Economics of Labor Migration Hypothesis: Evidence from Rural Kenya. In: 2006 American Agricultural Economics Association Annual Meeting. Long Beach.

Stark, O. (1986). The Migration of Labor. Cambridge,MA, Blackwell.

Tacoli, C. (2002). "Les Transformations Dans Les Rapports Entre Villes et Campagne En Afrique Sub-Saharienne et Leur Impact Sur Les Modes De Vie", IIED, Briefing Paper Series on Rural-Urban Interactions and Livelihood Strategies.

Taylor, J. (1999). "The New Economics of Labor Migration and the Role of Remittances". International Migration, 37 (1), 63-88 pp.

Todaro, M. (1969). A Model of Labor Migration and Urban Unemployment in Less Developed Countries. The American Economic Review Vols. 59 (1969) 1: 138-148 pp.

Weeks, J. (1989). Population: An Introduction to Concepts and Issues (Vol. P438).

White, B. (2005). Between Apologia and Critical Discourse: Agrarian Transtions and Scholarly Engagement in Indonesia. In: Hadizand, V.R., Dhakidae, D. (Eds.).

Wikipedia. (2016). Migration Push and Pull Factors (Vols. lewishistoricalsociety.com/wiki2011/tiki-read- artical.php?articleId=28).

Wooldridge. (2000). Econometric Analysis.Fifth Edition,Upper Saddle River. New York University: New Jersey.

World Visioin. (2016). Coach and Mentor, Small Business Start-ups from Landless Households and Marginal Farmers in Bogale Township.

Wouterse. (2008). Migration and Technical Efficiency in Cereal Production: Evidence from Burkina Faso. International Food Policy Research Institute. Washington, DC: IFIPRI Discussion Paper 815. International Service for National Agricultural Research Division.

Yang, L. (2004). Rural Labor Migration in China and its Impacts on Rural Housseholds in Eassays on the Determinants and Consequences of Internal Migration. Unpublished PhD thesis, Department of Economics, University of Chicago.

Yeboah, M. (2008). Gender and Livelihoods: Mapping the Economic Strategies of Porters in Accra,Ghana,Unpublished PhD Thesis. Department of Geology and Geography, Morgantown, West Virginia.

Zacharia, K., & Conde, J. (1981). Migrations in West Africa: Demographic Aspects. . Oxford: Oxford University Press.

Zhao, Y. (2003). Rural-urban Migration in China- What do We Know and What do We Need to Know? China Center for Economic Research, Peking University.

APPENDIX

Appendix   1   Map of Maubin Township
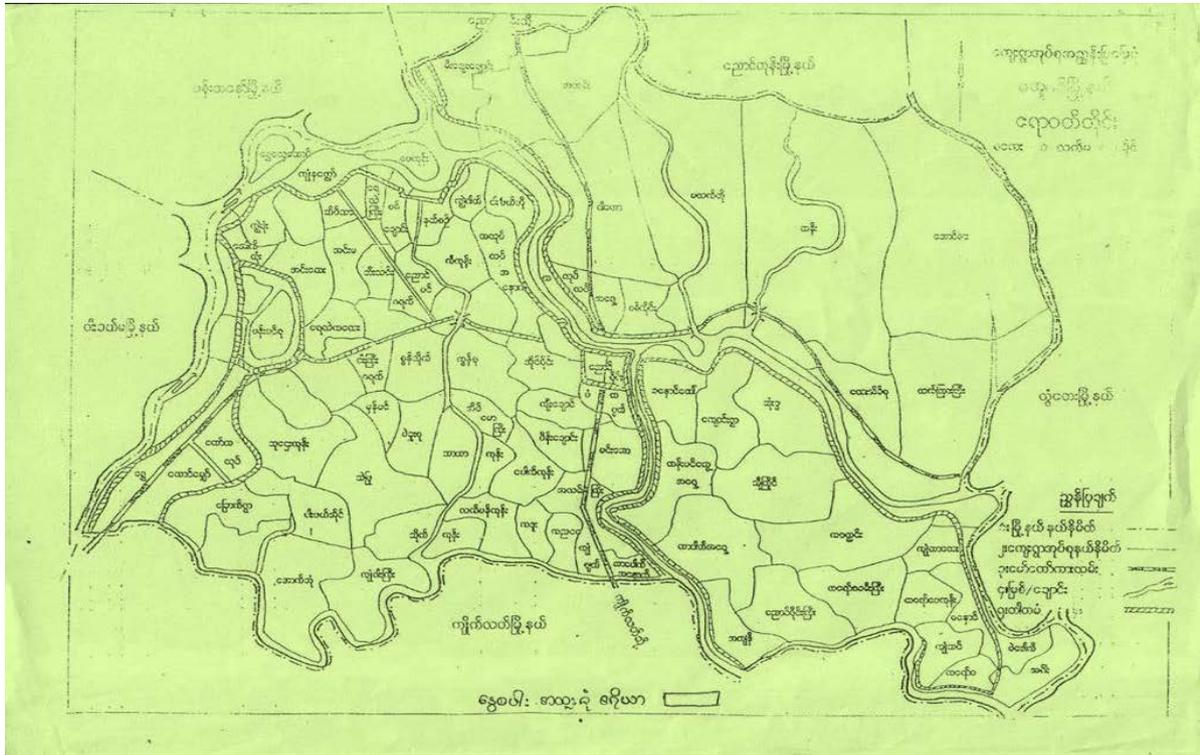
Appendix 2 Enterprise budget for summer paddy production between migrant and non-migrant farm households

No.	Items	Unit	Average Value	
			Migrant (N=27)	**Non-migrant (N=35)**
1	Average yield	kg/ha	2,186	2,092
2	Average price	MMK/kg	201	193
3	Gross return (GR){(1)*(2)}		1,085,063	1,000,279
4	Total material cost (a)	MMK/ha	188,072	174,989
5	Total family labor cost (b)	MMK/ha	124,131	173,994
6	Total hired labor cost (c)	MMK/ha	274,316	246,531
7	Interest on cash cost (d)	MMK/ha	9,248	8,430
8	Total variable cost (a+b+c+d)	MMK/ha	595,769	603,944
9	Total variable cash cost (a+c+d)	MMK/ha	471,636	429,950
10	Return above variable cost (GR-TVC)	MMK/ha	489,294	396,335
11	Return above variable cash cost (GR-TVCC)	MMK/ha	613,426	570,329
12	Benefit cost ratio (GR/TVC)	MMK/ha	1.82	1.66

Appendix 3   Enterprise budget for monsoon paddy production between migrant and non-migrant farm households

No.	Items	Unit	Average Value	
			Migrant (N=39)	**Non-migrant (N=28)**
1	Average yield	kg/ha	1,453	1,393
2	Average price	MMK/kg	229	216
3	Gross return (GR){(1)*(2)}		818,514	729,047
4	Total material cost (a)	MMK/ha	153,431	174,545
5	Total family labor cost (b)	MMK/ha	72,093	98,403
6	Total hired labor cost (c)	MMK/ha	308,751	231,541
7	Interest on cash cost (d)	MMK/ha	9,244	8,122
8	Total variable cost (a+b+c+d)	MMK/ha	543,519	512,611
9	Total variable cash cost (a+c+d)	MMK/ha	471,426	414,208
10	Return above variable cost (GR-TVC)	MMK/ha	274,995	216,436
11	Return above variable cash cost(GR-TVCC)	MMK/ha	347,088	314,839
12	Benefit cost ratio (GR/TVC)	MMK/ha	1.51	1.42

Appendix 4   Enterprise budget for black gram production between migrant and non-migrant farm households

No.	Items	Unit	Average Value	
			Migrant (N=37)	**Non-migrant (N=25)**
1	Average yield	kg/ha	199	186
2	Average price	MMK/kg	1,804	1,774
3	Gross return (GR){(1)*(2)}		876,249	808,876
4	Total material cost (a)	MMK/ha	140,707	160,431
5	Total family labor cost (b)	MMK/ha	52,184	62,195
6	Total hired labor cost (c)	MMK/ha	209,570	180,300
7	Interest on cash cost (d)	MMK/ha	3,503	3,407
8	Total variable cost (a+b+c+d)	MMK/ha	405,964	406,333
9	Total variable cash cost (a+c+d)	MMK/ha	353,780	344,139
10	Return above variable cost (GR-TVC)	MMK/ha	470,286	402,542
11	Return above variable cash cost(GR-TVCC)	MMK/ha	522,469	464,737
12	Benefit cost ratio (GR/TVC)	MMK/ha	2.16	1.99

Photos are books which have been published by YAU_ACIAR_ Strengthening Institutional Capacity, Extension Services and Rural Livelihoods in the Central Dry Zone and Ayeyarwaddy Delta Region of Myanmar (ASEM-2011-043)

Arranged by Dr. Theingi Myint, Coordinator, Professor of Agricultural Economics, Yezin Agricultural University