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Ph.D PROGRAMME

**LIVING ARRANGEMENTS AND SOURCES OF FAMILIAL SUPPORT
FOR THE ELDERLY IN MYANMAR: A CASE STUDY
IN MONywa TOWNSHIP**

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**Submitted by
Phyu Phyu Khaing
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Certification

I hereby certify that the contents of this dissertation are drawn from the research done by the writer and appropriate citations are acknowledged where ever necessary. Information from sources is referenced with comments and ideas from the writer herself.

Phyu Phyu Khaing

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ABSTRACT

The elderly persons are among the fastest growing ones in the world. Yet, there are more studies documenting their welfare or focusing on the factors that determine their living arrangements. Studies focusing on the socio-economic and demographic correlates of living arrangements are rather scanty. Hence, this study analyses the socio-economic and demographic correlates of the living arrangement choices of older persons in the Monywa Township in Upper Myanmar. The data was taken from the sample survey of the elderly in Monywa Township. In Monywa Township, the number of elderly persons age 60 and above was 77182 persons in 2011 years. The sample design employed in this survey is two-stage cluster sampling with stratification. In this study, 1979 elderly persons (2.56% of the total elderly persons in Monywa Township) were successfully interviewed. Both Pearson's chi-square test statistics and multinomial logistic model were used in this study. Majority of the elderly (46.5 per cent) were in co-residence or lived without the spouse but with children; roughly nearly 40 per cent lived with their spouses and children and a small proportion (1.7 per cent) lived with nursing at home. The major demographic factors considered that determine the living arrangements of the elderly are age, sex, marital status, and number of children. The socio-economic factors include place of residence, education, occupation, health characteristics, source of income and economic dependency. The variables like sex, number of children, place of residence, female headed households, needs (Health) and resources (education and socio-economic) play an important role in determining the living arrangements of the elderly in Monywa Township. In view of the changing socio-economic and demographic variables, increasing education and income of their children and a simultaneous decline in fertility, there is likelihood of a higher proportion of elderly in Monywa Township in upper Myanmar living with their children in the future.

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LIST OF ABBREVIATIONS

ASEAN	Association of South East Asian Nations
DSW	Department of Social Welfare
GO	Governmental Organization
ICPD	International Conference on Population and Development
LA	Living Arrangements
NGO	Non-Governmental Organizations
NHP	National Health Plan
OR	Odds Ratio
SWAA	Second World Assemble on Ageing
UN	United Nations
WHO	World Health Organization

CHAPTER 1

INTRODUCTION

The growing population rate of the elderly now becomes a widespread concern around the world. The proportion of people age 60 and over is growing faster than any other group. Demographic trends since the second half of the last century in many developing countries have shown an unprecedented increase in the aged 60 and over population in absolute as well as relative terms. The rapid social and economic change in these countries has potentially profound implication for the future of the elderly. At the global level the number of elderly persons is projected to increase from 606 million in 2000 to 1.9 billion in 2050. In developing countries as a whole, 60 years and above population is about 8 percent and will increase up to 28 percent by 2050.

The magnitude of increase in the population of elderly persons depends upon the pace of demographic transition. World fertility rate has fallen from five children per woman in 1950 to less than three in 2000. There had been a continuous decline thereafter to two children per woman (United Nations, 2003). Similarly, life expectancy has also recorded significant improvement over the second half of the last century. This led to a considerable shift in the age structure of the population-shrinking at the younger ages and bulging at the older ones.

The total population of Myanmar is more than 59.13 million, and 4.6 million of whom are the aged above. Therefore, one in 12 persons is an elderly person. Because of the development of the bio-technologies, the global people come to live with increasingly longer lives. At present, the increasing number of elderly persons across the world is a serious social problem. Many countries have a wide range of tasks to take care of the elder persons. Hence, the United Nations is giving encouragement to all countries to take care of elderly persons by adopting five basic principles such as independence, participation, care, self-fulfillment, and dignity for the elderly persons to lead a better and pleasant life. Therefore, all the countries pay attention to taking care of the aged while adhering to the UN-adopted five principles.

In carrying out development tasks of the social sector, the Government laid down special plans to take care of children, disabled persons and the aged. It can be said that Myanmar people have a fine tradition to take care of senior citizens like their parents. Myanmar actively participates in the international activity to create better and

pleasant environments for the senior citizens with a view of preserving fine tradition and discharging duty as a member of the global family.

Myanmar people live in the society with extended families. Therefore, every elderly person expects to receive care and respect from his family members and relatives. Senior citizens in Myanmar were held in esteem and taken care of according to the culture, customs, social norms and teachings of the Buddha. However poorer their relatives are, elderly persons can enjoy assistance and tender care from their juniors. Therefore, caring elderly persons is not reckoned to be a serious social issue in the Myanmar society.

Today, life expectancy in Myanmar is on the rise due to better healthcare services. With better longevity, the number of elder people is burgeoning more and more, and so is that of elderly persons who have no children or relatives to rely on. So, proper arrangements have been made for the welfare of growing population of the aged. Other possible ways and means are to be sought in the drive to establish homes for the aged. While eastern Asian countries including ASEAN members are providing home care services, Myanmar is also trying to introduce new methods of home care services that are in conformity with her people, culture and tradition for the increasing number of elder people.

1.1 Rationale of the Study

The significant achievements of global declines in infant and maternal mortality, reductions in fertility, decreases in infectious and parasitic diseases, as well as improvements in nutrition and education, have resulted in numerical growth of elderly populations around the world. Simultaneously, the growth of elderly populations poses formidable challenges to national public policies because change in a society's needs and increase in population of elderly person. Define persons aged 60 years and over, the world's elderly population is expected to rise from 606 million in 2000 to almost 2 billion by 2050, representing an increase of about double the period. As a result of gains in life expectancy and decline in fertility, the elder population in most countries is growing faster than the population as a whole. Moreover, if the envisaged reductions in mortality and fertility occur as currently projected, population of the aged will inevitably become a universal phenomenon in Asia and all the other regions of the world in the coming decades. Even so, the rapidly expanding numbers of elderly persons represent a social phenomenon without any historical precedent.

It is expected that almost all of the countries might face a “population ageing” crisis. The first problem faced by the elderly persons is their health condition. Old age is the period of obvious changes in both physical and mental capacities, which result in many inevitable health problems. Another important problem faced by elder persons is their economic condition, for which of the average annual income or the median annual income of the elderly persons are required to be considered. Therefore, it calls for to solve their economic problems across the world. The main care providers for the elder persons are informal caregivers such as family, friends, neighbors, and formal institutions such as the state, private sector, agencies and NGOs.

Social services provided to support the elderly were initiated in the countries of Asia. However, the development of formal support services for the elderly people is still at an elementary stage for nearly all countries in the ASEAN region. In most cases, the programs have taken a community-based approach enabling the elderly to continue to live in community or together with their families.

Families in Myanmar are generally still expected to take care of their elderly members. Since it is difficult to quantify family support, it appears that the most convenient method of assessment lies in measuring the incidence of co-residence support for elderly people living with their families. So, living arrangements and family support are the most important patterns for the elderly persons.

1.2 Objectives of the Study

The objectives of the study are as follows:

- (i) To apply appropriate regression models of living arrangements and family support for the elderly in Monywa Township.
- (ii) To determine socio-economic variables affecting living arrangements and family support, based on the sample survey data collected in Monywa Township in the upper Myanmar.
- (iii) To provide suggestions and policy implications to government organization (GOs), and non-government organizations (NGOs) in adopting and implementing their specific national programs for better living arrangements and welfare of the ever growing elderly in Myanmar.

1.3 Method of Study

Method of study in this research work is an analytical one in which multinomial logistic regression model are employed to predict the characteristics of the elderly persons in different living arrangements and to test the modernization hypothesis in Monywa Township in upper Myanmar. In this attempt, the various types of living arrangements will be collapsed into four, namely, (i) living alone; (ii) living with spouse only; (iii) living with spouse and children; and (iv) living with other relatives, for case of interpretation. Additionally, four sets of regression model were run for each category of living arrangements to predict the odds of living arrangement. The first (initial) model is the effects of demographic variable. The second and third models control the effects of potential opportunity (number of children) and needs (daily activity), respectively, while the fourth (final) model adds further resources such as education and socio-economic status. These models will be carried out based on survey data.

Furthermore, this study sets the following hypotheses in order to validate the second objective of the study which is the relationship between demographic, socio-economic variables and living arrangements of elderly persons in Monywa Township in Upper Myanmar.

- H1 Owing to the out-migration of young people from rural area, location of elder people in an urban area will increase the likelihood of co-residence with children.
- H2 Female elder people who are heads of household are more likely to co-reside with other family members than male elder people who are heads of household.
- H3 Elder people's household with adult living children are more likely to co-reside with children.
- H4 Elder people who experience poor health and any disability in activities of daily living are more likely to co-reside with adult children.
- H5 Elder people with higher economic status are less likely to co-reside with other family members.
- H6 Elder people with a high level of education are less likely to co-reside with other family members.

1.4 Data and Information of the Study

The data to be used in this study are primary data collected from household survey conducted in Monywa Township in upper Myanmar. The target population consists of all individuals living in households in Township. A person in each household, usually the household head or the spouse / partner of the head, asked to fill in a household questionnaire. The proposed sample design which will be used for this study is stratified two-stage cluster sampling.

The other information concerned with this study for literature review was obtained from Yangon Institute of Economics Library, international sample survey journals, and internet document search as well.

1.5 Organization of the Study

The study is organized into six chapters which are the following:

Chapter 1 provides an introduction of the study. It focuses on the rationale of the study, objectives of the study, method of study and data and information of the study. It also provides the organization of the thesis at the end of this chapter. Chapter 2 deals with the literature review, which consists of defining old age, demography of ageing in developing countries, changing family structure, family support and living arrangements for the elderly, social status, roles and problem of the elderly and rational choice on living arrangements of elderly people. Chapter 3 reviews the theoretical background of the study. Chapter 4 describes the demography of ageing. It concerns with background of population ageing, global ageing, population ageing in Myanmar and social welfare services implemented by department of social welfare. Chapter 5 is the empirical results and findings. It also presents the research design, sampling methods, measures and analysis utilized in this study. Chapter 6 presents the conclusion including suggestions from the results of the study. Also, the chapter ends up with areas which need to be explored in further studies.

CHAPTER 2

LITERATURE REVIEW

Declining in fertility and mortality rates all over the world has focused the attention of policy makers and social scientists on the issues of aging population. Currently, there are more elderly people in the developed world than ever before, and life expectancies have increased in most countries of the world (Martin, 1988). Old age brings with it increasing vulnerability for the individual, in terms of both physical and financial well-being. This is the period when one's physical health starts declining. It is also the point at which individuals reduce the hours that they work, or stop working entirely. Hence, they no longer draw a steady income. An added factor for concern among older persons is that, with the passage of time, the odds of spending their lives alone increase because the chances of losing a spouse increase. Thus, old age is one of the most vulnerable periods in an individual's life.

The main focus of the present research on aging population has been on the determinants of the physical, mental and financial well-being of older individuals, and the sources of support that they can count on when they are in need. In the past, the main source of support for a vulnerable individual was the family. With the economic development, most governments in industrialized countries have been able to, first, supplement the role of the family in an elder's well-being, and then, play a more comprehensive role. Thus, formal systems have to be practiced to extend financial help and health care to the elderly, with the role of immediate families providing necessary social support.

2.1 Definition of the Elderly

In the study on the aged, there are some differences in the definition of the word "elderly".

An elderly is one whose age is 60 years or at the 5th cycles (cycles of 12 years) (Cowgill, 1992) and a person who is experiencing the decline of physical ability, mental process, memory system, learning, characteristics, including the changes in social status and role (Pornsiripong, et., 1991).

Moreover, there are different definitions of “elderly” which can be seen as follows:

Uay Katesing (1986) categorized the elder into four types that were

1. Elder of age, the number of year lived
2. Elder of body, according to the physical condition.
3. Elder of mind, old because of one’s perception.
4. Elder, as perceived by society and from work experiences, duties, responsibilities, etc.

Phon Saengsingkiew (1972) proposed three criteria in order to specify an elderly as follows:

(1) **Chronological age.** It specified that one who is older than 65 years is a senior citizen.

(2) **Working ability.** It specified that one who retired from work is an elderly. The criteria were changeable and different from country to country, sex, and occupation. For example, in USA, the retirement age was specified according to the occupation as the following: in industrial sector, the retirement age is 65 years, official government officer retirement age 70, and a doctor at age of 63 years.

(3) **The development and declining state.** A human experiences two processes: development and declining processes. In infants and youth, there are development processes more than declining processes, but in an elder, there are declining processes more than development processes.

Barilo and Smith presented the elderly as the following:

(1) **Raditional.** An elder is specified according to one’s age or retirement age. The age that is used to specify is different in country to country. In Myanmar, most of the elderly retire after 60 years of age.

(2) **Body function.** An elder is specified according to physical form or physiology, with a different declining state of physical form. In an elder, each organ would function less but cases are also different from person to person.

(3) **Mental function.** An elder is specified according to the declining abilities to create, memorize, learn and the general state of mind. In an elder, the states of discouragement and amnesia are often found. However, it does not mean that every elder must have these states of mind.

(4) **Self-concept.** An elder is specified according to the concept that the elder viewed himself. Usually, an elder would view himself as “I am an elder,

very old age” a perception that affects this physiology and lifestyle. The elder’s self-concept, thus, influences his well-being.

(5) **Occupation.** An elder is specified according to the ability to work. The criteria came from the concept of the decline in physical form and mind. Most people then specified that the elder is of the age when leisure is needed, and should therefore stop working.

(6) **Coping with stress and illness.** An elder is specified according to the conditions of both physical form and mind. An elder often suffers from illness because of the decline in physical form and also often faced social problems that caused emotional stress.

From the social point of view, ageing refers to the role changes of the elderly within the society. In other words, certain roles are associated with certain ages (Gerdes, 1988). The psychological age, on the other hand, refers to the individuals’ adjustment to growing older (Stokes, 1992). According to Louw, Van Ede and Louw (1988), the psychological age refers to an individual’s actual feeling regarding his/her age and the perception of how old he/she really is. In other words, an individual might feel younger or older than his/her chronological age. Birren and Schaie (1977) elaborated and suggested that the psychological element refers to the individual’s capacities in response to his/her changing environment. They indicated that the level of functioning of the brain contributes to the functioning of memory, to the learning process of new skills, and to the individual’s motivation and emotions.

From the above-mentioned information, it can be determined that aging is a complex process beginning with conception and ending with death. Brien and Schaie (1977) offered a multidimensional approach that considered the biological, social, chronological, psychological and developmental changes in functioning that occur over the lifespan; they refer to aging as "...the regular changes that occur in mature genetically representative organisms living under representative environmental conditions as they advance in chronological age".

Developmental theorists in the field of psychology struggle to agree on the actual beginning of late adulthood; some prefer 60 years while others prefer 65 years (Louw et al., 1998). Even though it appears that chronological age may not be the most favorable indicator of old age in all situations or for all individuals, the elderly are generally defined as those who are 60 or 65 years and older. A more specific indicator has been provided by the World Health Organization and the United Nations

in which the elderly are defined as people older than 65. The South African Elderly Persons Act (1967), for instance, states that females of 60 and older and males of 65 and older are considered to be elderly.

From the definition of the elderly presented above, the word “elderly” could be concluded as meaning one who experiences the decline in physical form, intelligence, memory, apprehension, mind, thinking, characteristics, and transformation of social status and role. In this study, the age specification is used to specify whether he is an “elderly”. An elderly is defined as one who is older than 60 years of age.

2.2 Demography of Aging in Developing Countries

The study of the demography of aging in developing countries is a relatively recent endeavor. Previously, anthropologists had been studying the economic and social aspects of aging in developing societies. Simmons’ classic work in 1945 stands out for calling attention to the idea that the elderly did not necessarily have high status in pre-modern societies. About 20 years later, Cowgill published his famous thesis that the status of elders declines with socio-economic development (1974) sparking much research within Sociology and Gerontology on the relationship between development and aging. Almost a decade later, declining fertility and mortality in Asia and Latin America, and the resulting aging of the population turned the attention of social scientists to the study of aging of populations in these regions. Further, these demographic projections raised the concerns of policy makers in developing countries, as well as the UN.

The result of initial demographic research on age structure in developing countries indicates that populations are indeed growing older. In 1991, 56% of the world’s 65 and over population lived in developing countries (Martin, 1988). The countries of East and South East Asia are aging at faster rates than the West (Chen and Jones, 1989). In South Asian countries, the proportion of elderly is not high when compared to other regions in Asia, but the numbers of elderly are. Further, the proportion of the population that is in the older age group is expected to double between 2000 and 2025 in most South Asian countries (Martin, 1988). In developing countries aging research is mostly focused on sources of support within the family because, here, the family is the main source of support for older adults.

In the past, the literature has tended to idealize the role of the family in developing countries (Nydegger, 1983). In Asian countries conventional wisdom holds that the family takes care of its vulnerable members. There are plenty of homilies on the duty of children toward their parents. Empirical research certainly supports this idea with studies showing that anywhere from 75% to 90% of Asian elders live with their adult children (Martin, 1988). However, it is not clear how much of this support is directed toward parents who need it. Ethnographic research in India shows that older parents consider the transfer of their property as an important mechanism to retain the attention of their children. Further, studies in Sri Lanka reveal that parents feel that they should make a contribution to the household in return for living with their offspring (Uhlenberg, 1996). These studies suggest that the interactions between older parents and their adult children are not clear cases of children taking care of their parents in their old age. Thus, the role of the family in eldercare needs to be critically studied.

2.3 Changing Family Structure

The literature on household and family structure relies on two distinct approaches to determining the average number of people living together: 1) the average size of households, which is simply the average number of individuals per household in a population; and 2) the average “experience household size,” which equals the number of household members found in the household of an average individual (Burch 1979; King and Preston 1990). The unit of analysis in the calculation of the former is the household, and in the latter it is the individual. These two measures differ consistently, as can be demonstrated with a simple hypothetical example. Assume that half of all households in a population have one member and the remaining half have nine members. In that case the size of the average household is five. However, if each individual is asked the size of his or her household, then 90 percent of the population will report a size of nine and the remaining 10 percent will report living alone. The average household size experienced by individuals therefore equals 8.2 members $(0.9 \times 9) + (0.1 \times 1)$. In general, whenever households vary in size, average household size is larger when the individual rather than the household is the unit of analysis. The reason for this finding is obviously that larger households contain more individuals than do smaller households.

Table 2.1 presents (unweighted) average household sizes for three developing regions (regional standard deviations noted in parentheses), as measured from these two perspectives (the household and the individual). The differences are in the expected direction in every region. For example, the average household size for all countries is 5.2 members, but the country average for experienced household size is 6.9 members.

Since the present discussion focuses on older adults, it is of interest to compare the size of households in which older persons reside (defined here as those aged 65 and older) with the household size experienced by all individuals. Across all countries, the average household size for older adults is 5.5 members. The regional estimates are quite similar for Asia (5.5) and Africa (5.8), but are somewhat lower for Latin America (4.5). (The last column shows P-values representing the significance level of F-ratios determined from an analysis of variance procedure. The regional differences for household size are statistically significant).

Table 2.1

Average Household Size and Percent Living Alone by Region and Gender

	Africa	Asia	Latin America	Total	P-value
Average household size	5.3 (0.7)	5.2 (0.9)	4.8 (0.5)	5.2 (0.8)	0.187
Experienced household size					
All individuals	7.4 (1.3)	6.5 (1.2)	6.0 (0.6)	6.9 (1.3)	0.009
All 65 +	5.8 (1.4)	5.5 (1.4)	4.5 (0.6)	5.5 (1.4)	0.034
Males 65 +	5.9 (1.3)	5.6 (1.3)	4.6 (0.6)	5.6 (1.3)	0.026
Females 65 +	5.8 (1.6)	5.4 (1.4)	4.4 (0.7)	5.4 (1.5)	0.067
Percent who live alone					
All individuals	2.0 (1.4)	1.0 (0.8)	1.4 (0.5)	1.6 (1.6)	0.068
All 65 +	9.7 (5.4)	7.3 (5.4)	8.4 (3.0)	8.8 (5.0)	0.416
Males 65 +	7.3 (4.4)	3.6 (2.0)	7.8 (2.4)	6.5 (3.9)	0.015
Females 65 +	12.3 (7.0)	10.2 (6.9)	8.9 (3.8)	11.1 (6.5)	0.364

Sources: Unweighted averages for 43 countries Standard deviations in parentheses.

All of these estimates are significantly lower than corresponding averages for all individuals, with the differences ranging from 1.0 in Asia to 1.6 in Africa. This indicates that while older adults typically live in households that are smaller than average, they nevertheless live with several other household members. Subtracting 1 from the estimates gives the number of other members. The average elderly adult across the 43 countries therefore lives in a household with 4.5 other members. The last two rows of the middle panel of Table 2.1 compare the household sizes experienced by older males and females. Males live in slightly larger households than do females, in part because of a greater likelihood that older females are widowed and living without a spouse, although further tests revealed that these differences are not statistically significant.

Although the presence of others in the household is often desirable for elder adults, and household sizes are generally large in the developing world, some elder adults, nevertheless, live alone. The third panel in Table 2.1 presents statistics on these circumstances. Only a very small percentage of individuals of all ages live alone- on average 1.6 percent across all countries. However, this percentage is substantially higher for older person (8.8). The average proportion living alone across all countries is nearly twice as high for women (11.1 percent) as for men (6.5 percent). Living alone is uncommon among older men in Asia (3.6 percent), probably because patriarchy is a stronger institution in this region than elsewhere. Differences are less noticeable across regions for women living alone.

One other regional difference worth noting is in the country variation of the indicators assessed in Table 2.1. For instance, the standard deviation for household size among adults 65 and older is more than twice as great across African and Asian countries than it is across countries in Latin America. This lack of variation in Latin America relative to other regions is evident for most indicators in Table 2.1, except for the percent of elder men living alone, where the smallest variation exists across Asia. The standard deviations are generally highest for African countries. This finding suggests that the greatest diversity in living arrangement patterns exists within Africa, and least diversity within Latin America.

Moreover, recent social and economic changes mean that there might be corresponding change in the willingness and/ or ability of the family to care for their aged members. A variety of macro factors influences the patterns of family support for elder people. These are demographic, economic and cultural. Demographic factors

such as fertility and mortality influence availability of family support. The level of economic development of the country determines the resources that are potentially available for redistribution within families. Cultural norms and expectations influence the ties that bind family members together and determine the structure of support patterns. Until recently, the concern about aging populations was seen as a luxury that could be afforded only by the more developed countries. Besides, it has been assumed that the Asian family was ideal, and unlike western ones, could be counted on to take care of its more vulnerable members.

Economic development has brought about an increase in education, urbanization, migration, and women's labor force participation. Urbanization is related to the increasing nuclearization of families, and corresponding life style changes. Rural to urban migration leading to increased distances between relatives is expected to create obstacles to reciprocal family support between households. These societal changes are likely to influence the ability and willingness of the family to support its vulnerable members. Thus, the intersection of age-related vulnerability, family support and social change is an important issue to examine in any context.

At the core of the analysis of family support for the elderly is the household, which is the basic unit around which domestic life is organized. Hence, living arrangements and kin availability are important lynchpins of the analysis of family support for the elderly. Further, elder women as a group are a particular cause for concern because of their dependence on men, and their likelihood of being widowed at the elder ages.

2.4 Family Support for the Elderly

The family has always been a major source of support for the elderly over the world. However, the responsibilities of families to their vulnerable members, have changed over time, and differ across cultures and individuals. Traditionally, kinship systems (with a lateral or bilateral focus) and family structure (nuclear or extended) determined the relationships between members and their living arrangements (Keith, 1992). The ties between family members might be strong or weak, depending on the time and the place. In low-income environments, where there are no formal social welfare programs for the elderly, demands for support from family members are high. In this regard, kin availability and residential patterns of elders are important factors in their well-being for they determine who is available for the elderly person to live

with, and who the potential providers of support are. While it is certainly not true that all elders are better off living with their family, or that, indeed, they would prefer to do so if they had a choice, a major assumption in the literature is that intergenerational co-residence is positively related to elder well-being. The rationale is an economic one. More people in the household mean that there are more potential resources available for the elder. In South Asian countries, the cultural and normative expectation is that children and sons in particular, are obligated to take care of their parents. Martin (1998), in her review of the literature on aging in Asia, concludes that 75% to 90% of Asian elders live in households containing at least one adult child. At the same time, family support and co-residence are not the same thing.

2.5 Living Arrangements for the Aged

Most of the multivariate analyses of support for elder parents in developing countries have focused on the living arrangements of the elder generation. The living arrangement for the aged persons is often considered as the basic indicator of the care and support provided by the family (Martin, 1989). However, it must be noted that this practice is more culturally based rather than development dependence. For example, in USA only about 15% of the aged persons lived with their children, whereas in India about 75% lived with their children (Martin, 1988 & 1989; Bose, 1982). In Singapore a survey conducted in 1982 found that 80% of the aged persons (defined as 60 years and over) were living with their children, while in Korea and Jilin Province of China this percentage was found to be 79%. Similarly, the WHO surveys have indicated that among the aged persons, 72% in Malaysia and 79% in the Philippines were living with their children (Martin, 1988).

These indicate the strength of cultural traditions over other factors in providing care and support to the aged by the families. It also cautions against concluding that the residential models adopted in many developed countries could be used in the developing countries in tackling this problem in the future (Powell Lawton, 1982). Thus, intergenerational co-residence has traditionally been a significant source of familial support for the elderly people. By co-residing with their adult children, the elderly can enjoy financial and social support, companionship and personal care (for a detailed discussion on the cost and benefit of co-residence see Burch and Mathews, 1987). Although being a traditional form of support for elders,

co-residence became less prevalent in most industrialized countries during the 20th century.

In the last half of the 20th century there was a substantial decline in the percentage of elderly people who lived with their adult children. In the US the shift towards residential independence has been documented extensively in a number of studies (Kobrin, 1976; Kramorow, 1995; Börsch-Supan, 1989; McGarry and Shoenni, 2000; Michael et al., 1980; Mancunovich et al., 1995; Costa, 1999). Similar trends are documented for the living arrangements of elderly Europeans. Pampel (1992), for example, showed that the proportion of elderly unmarried women living alone in Europe had increased substantially during the period 1975-1990. As a result most elderly people now live alone or with a spouse in most European countries. For Western and Northern European countries the proportion of elders living alone ranges from 75 to 95 percent (with the exception of Ireland and Austria where the percentage of elderly people living alone is about 60-70 percent) (Iacovou 2000a, b; Van Solinge, 1994; Keilman, 1988; Kinsella, 1990). In Southern European countries the percentage of elders living alone is somewhat lower (ranging from 55 to 70 percent) but recent trends suggest that the situation is changing rapidly.

Studies on living arrangements of the elderly tend to identify the characteristics of the elder generation that are associated with various types of living arrangements. The main children's variables of interest in the analysis of living arrangements of the elderly are number of living children and their composition. Important life course transitions – marital dissolution, disengagement from economic activities, and the onset of chronic health problems and functional impairments – often occur at the elder ages. These transitions have important implications for the well-being of the elderly, and thus, indirectly for transfers to them from their adult children. The assumption is that as people age there is a likelihood that their needs increase. In fact, co residence has been shown to be related to the special needs of the elderly – old age and widowhood. Being widowed increases the probability of living with a child in Korea, Fiji, Malaysia, Philippines, Singapore, Thailand, and Taiwan (De Vos & Lee, 1988; Martin, 1989; Casterline et.al, 1991; DaVanzo and Chan, 1994).

The effect of age of the elder on their living arrangements is not consistent. De Vos and Lee (1988) found that in Korea, the elder the person was the greater the likelihood of living with a child. However, including a control for the ability to

perform activities of daily living inverted the relationship between age and the likelihood of co residence (Martin, 1989). Casterline et.al. suggest that this puzzling effect is due to the presence of children in the households of the younger-old. On controlling for the age of the youngest child, the negative effect of age on co residence was eliminated (Casterline et. al., 1991). Having more children is likely to affect an elder's living arrangements since there are more options for elders to choose from. In Fiji, Korea, Malaysia, the Philippines, Singapore, Thailand and Taiwan, having a larger number of children was associated with the greater probability that the elder person was living with at least one of them (Martin, 1989; Casterline et al, 1991).

The relationship between health and co-residence is not well understood (Martin and Kinsella, 1994). Although it seems likely that elders who need help with day to day functioning are more likely to live with a child, Martin (1989) found no effect of the ability to perform activities of daily living on co residence in Fiji, Korea, Malaysia and the Philippines. DaVanzo and Chan (1994) suggest that this lack of effect in Malaysia might be due to the pooling of married and unmarried seniors in Martin's (1989) study. When they analyzed co residence separately by married and unmarried seniors, they found that married men with poor health were more likely to co reside than married men with good health. For married women, fair health was much more significantly associated with co residence compared to good health. Poor health was not found to be significant for married women. Health had no effect in the unmarried sample, which is again unexpected since unmarried elders are likely to be more vulnerable.

Researchers have also looked at the relationship between 'modernization' and living arrangements. Economic resources, education, urban-rural location are expected to influence the living arrangements of the elderly. Casterline et.al. (1991) found that in the Philippines, Singapore, Taiwan and Thailand, education was negatively associated with co residence. However, they also found that there was more co residence in the largest cities compared to smaller cities and rural areas. DaVanzo and Chan (1994) found the same effects for urban-rural location in Malaysia, even after controlling for the effects of housing costs on co-residence. The urban, peri-urban and rural differences in co residence require further exploration.

Studies which examine the determinants of the changes in the living arrangement among elderly people have produced mixed results concerning the

relative importance of each of the factors in accounting for the trend toward residential independence. Some studies have produced results indicating that the increase in the independent incomes of the elderly people had a strong negative effect on co-residence (Michael, et al., 1980; McGarry and Shoeni, 2000; Burr and Mutcher, 1992; Costa, 1999; Van Solinge, 1994). Others found that either the incomes of the elderly people played no role in the observed trend towards independent living (Schwartz, et al., 1984; Börsch-Supan, et al., 1992) or those demographic or cultural changes are more relevant in explaining the trend in the living arrangements of the elderly.

Studies that favor the cultural explanation for the change in co-residence point out that lower fertility and policy changes that increased the incomes of the elderly are not exogenous to the cultural changes. Lesthaeghe (1983) for example argued that a number of demographic changes including low fertility are attributable to individualism. Burch and Matthews (1987) argued that the increase in the incomes of the elderly has been the result of broad institutional changes which reflected societal values that encouraged independent living and transformed individual preferences. These explanations are likely to have different weight in different societies.

2.6 Social Status, Role, Problems of the Elderly

2.6.1 Social Status and Roles of the Elderly

From the study of Siriwun Siriboon (1992) entitled “The Fact and Attitude of Families Support of Thai Adult” it was found that in Thai traditional way of living, sons or daughters cared for and served their fathers and mothers until death vice versa. The elderly need to be cared for and looked after well by their descendants Napaporn Chayowan (1992). Generally, the elderly will be centre of related- family members. Sometime they are leaders and make decisions on the family’s affairs.

2.6.2 Problems of the Elderly

Generally, the elderly are concerned about their physical and mental conditions. They are worried about their changing bodies, loneliness, inability to make income, becoming burden, and dejection (Thongvichien and Silapasuwun, 1989). The study of the elderly in Chiangmai found that the elderly are worried about their health, financial problems or suffered from diseases and each one has at least

one disease that must be constantly treated. Moreover, the elderly feel anxious about their descendants more than themselves (Bunyanupong et al., 1991).

The study of Livelihood of Lone Elderly Woman by Kusuma Prachumchana (2000) found that those who live alone for more than 5 years will face more physical and mental problems than who do not. They took care of themselves visiting to the hospitals etc... For mental health, she found that those aged 60-69 years old are in normal health, those aged 70-79 are fearful, lonely, and sad and those aged 80 and over are anxious, and indifferent.

2.7 Rational Choice on Living Arrangements of Elder People

Rational choice recognizes the effects of demographic factors such as the availability of kin, which circumscribe living arrangements and support of different family members. Also, it accounts for the interdependence of needs, resources, and nonmaterial factors (Ofstedal, 1995; Wolf and Soldo, 1988). Accordingly then, rational choice framework includes resources, needs, kin availability, and preferences (see Figure 2.1). Preferences underlie family members' choice of living arrangements and support when needs, resources and other potential opportunities do not define these factors. Ruggles (1987) introduced the preference factor to capture non-material elements such as emotional bonds and social values.

Figure 2.1: Rational Choice Frame work Living Arrangements of Older People

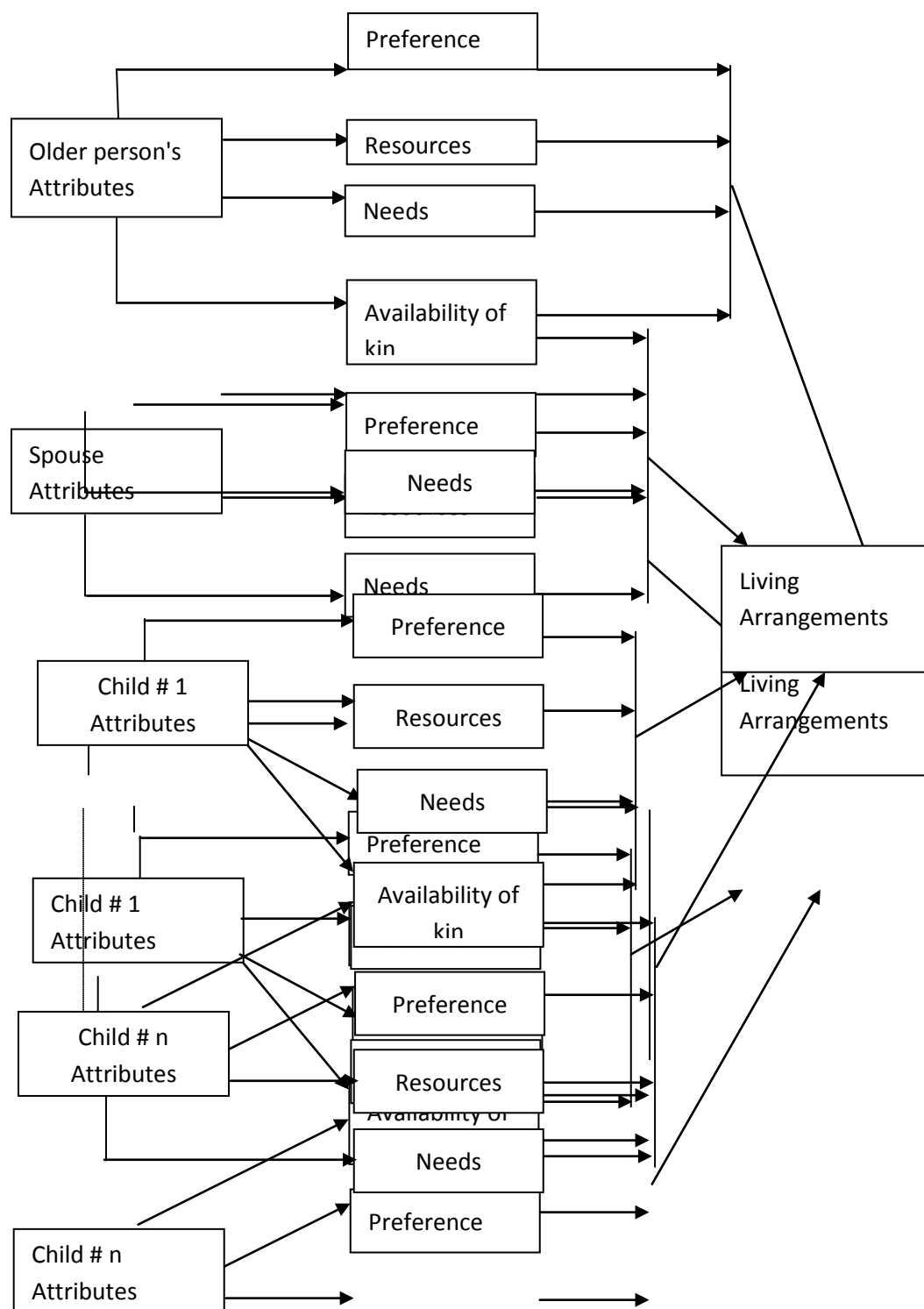
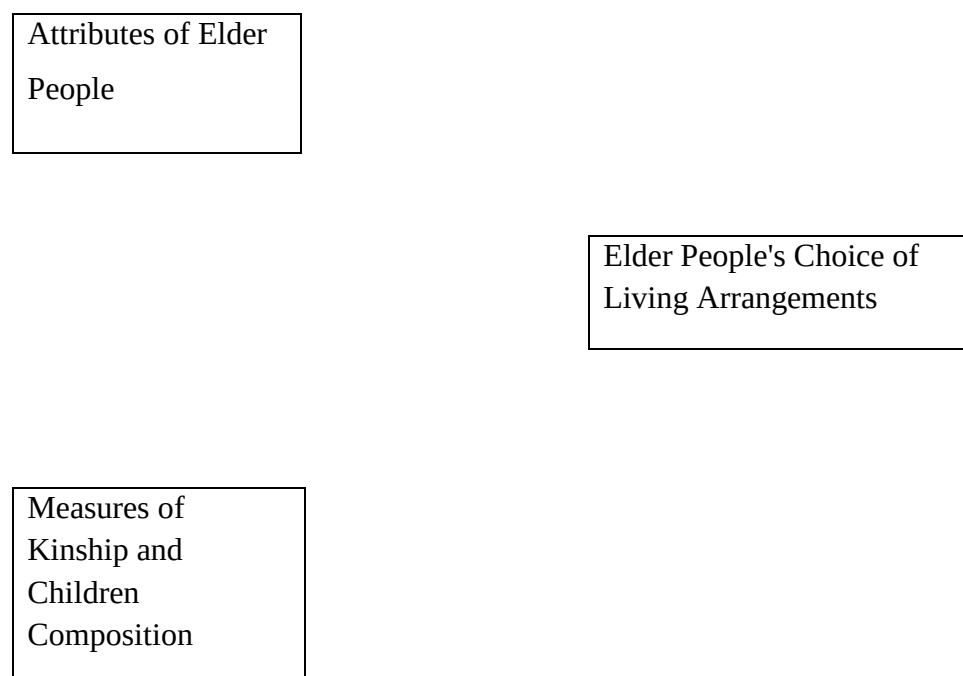


Figure 2.1: Rational Choice Frame work

These four factors, resources, needs, kin availability, and preferences encompass many aspects of elder people's attributes including their current and past experiences. Socioeconomic factors such as age, gender, educational attainment, marital status, work history, income, place of residence, visiting patterns of kin and friends are implicitly or explicitly part of the four main factors of the framework. A model derived from the above framework (see Figure 2.1), which concentrates on the attributes of elder people is estimated in this study. This model has been widely used in the study of elder people's support systems (Tsuya and Martin, 1992; Spitze *et al.*, 1992; Spitze and Logan, 1990; Ofstedal, 1995). In addition to elder people's attributes, the model incorporates some measures of kinship network and elder people's children. Other measures include gender, age composition, marital status, educational attainment and occupation of children and kin, who might play a role in the relationship.

Figure 2.2 Conceptual Model for Living Arrangements of Elder People

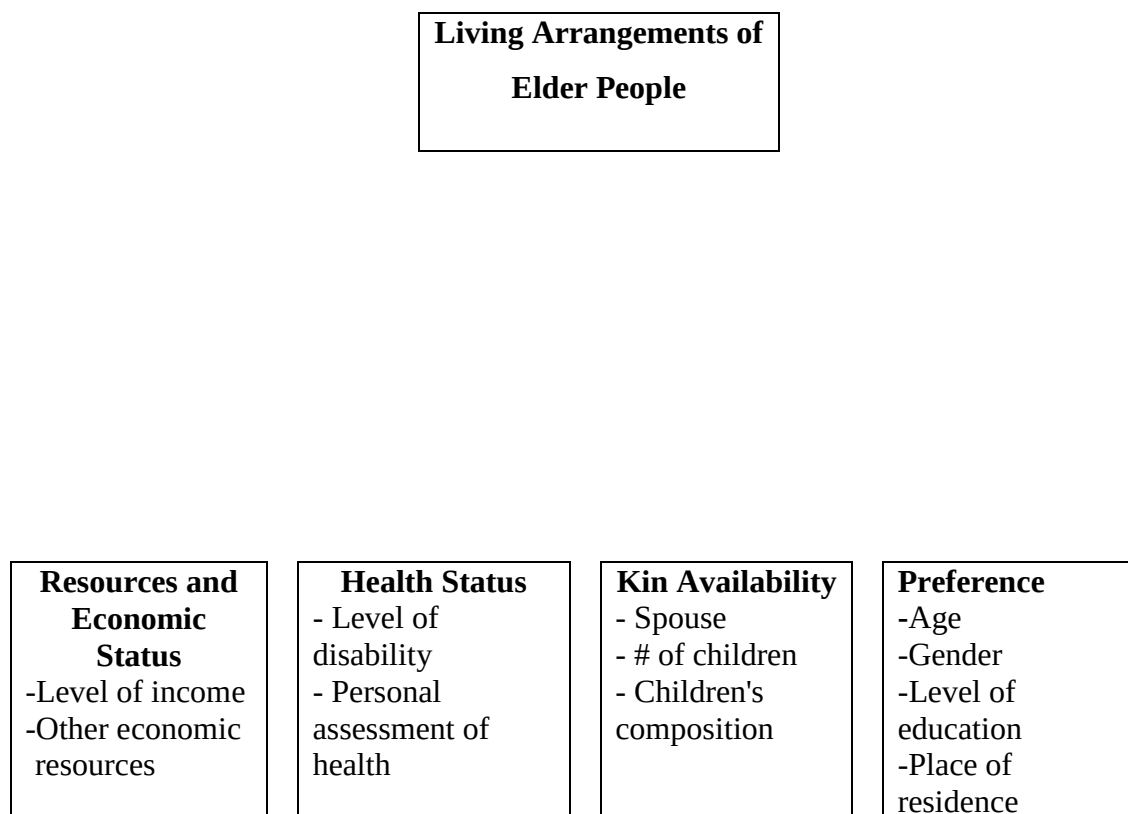


The contributions of the other family members' attributes are limited to defining the potential opportunities available to elder people (see Figure 2.2). The conceptual framework has been used in many studies of elder people's living arrangements and social support around the world (Burr, 1992; Da Vanzo and Chan, 1994; Wolf, 1984; Wolf and Soldo, 1988). The framework acknowledges that observed living arrangements and other aspects of social support within the family are the net outcome of the interactions between the significant attributes of different

family members. In other words, family members choose their living arrangements according to their resources and needs. For example, sufficient economic resources and good health have been cited as factors that promote solitary living arrangements. On the other hand, declines in health and economic need encourage co-residence with other family members (Adamchak *et al.*, 1991; Asis *et al.*, 1995).

Also, the model recognizes the effects of other factors, which are introduced through kin availability. These factors identify the opportunities that circumscribe living arrangements and support of different family members. Non-material factors are introduced through preferences, which underlie family members' choice of co-residence, when these are not defined by needs, resources and potential opportunities. The strength of the model is its ability to account for the influence of needs, resources, demographic and non-material factors in defining the living arrangements for different members of the family. We begin by describing the factors that determine co-residence of elder people.

Figure 2.3 Conceptual framework for the study of living arrangements of elder people



2.8 Resources of Elder People

Research has shown that the needs and resources of elder people determine the feasibility of the available living arrangements (Burr 1992). Feasibility relates the economic and health variables to the living arrangements of elder people. Thus, being healthy and having adequate resources would make independent living a possibility. Other research has stressed the effects of economic status on living arrangements and social support of elder people. However, there are distinct effects for two different types of economic resources: First, income levels and ownership of real assets and personal income, while the second, human capital, refers to the personal resources generated through time and experience, which also requires a certain level of education. In this study, resources are education and socio-economic status.

Heslop (1999) noted that elder people in rural locations engage in informal work or activity that does not guarantee steady income. In practice, eligibility is restricted to a small minority of workers previously employed in the formal sector in urban areas, such as government staff and employees of large-scale public or private enterprises. The World Bank estimates that over 70 percent of the world's elder people rely on informal systems of security (World Bank, 1994) and this percent is certainly higher among elder people in developing countries.

Research has shown that assets and personal income, which is associated with high levels of education, enable elder people to have privacy and reduce the likelihood for co-residence (Michael *et al.*, 1980). Others have indicated that elder people prefer to maintain a separate household but keep close contact with their family members, a phenomenon that researchers refer to as "intimacy at a distance" (Shanas, 1980; Soldo *et. al.*, 1990; Hashimoto, 1991). On the other hand, lack of resources or poverty increases the probability of co-residence. Another important factor that determines co-residence is the extent to which elder people provide economically valued resources to co-residing members in the household. For example, elder people may provide services such as childcare and other types of support to the family (Martin, 1989).

2.9 Elder People's Needs

In addition to sufficient economic resources, good health is the other major requirement for self-reliance and independent living (Soldo and Freedman, 1994). Self-reliance of older people is strongly related to their current economic situations, activity, health, living arrangements and availability of social support. With declines in health status and increased disability, elder people experience difficulties with many activities of daily living ranging from the preparation of meals to bathing, dressing, grooming, housework, planting, weeding, harvesting, collecting water and collecting firewood. These needs increase the chance of co-residence and social support. The tendency for co-residence due to disability also depends on the marital status of the elder person and the health of the spouse. The presence of an able spouse lessens the probability of co-residence with kin since the spouse can care for the disabled partner.

Single elder people including widows, separated and never married are more likely to depend on other family members in cases of poor health. The unmarried women face a double challenge in responding to the gender implications of aging. On the one hand, they are disadvantaged in the life expectancy “advantage” for women (Ewing, 1999) often-outliving husbands who might otherwise provide economic support. Elder women are one of the poorest population groups, yet they are often the primary caregivers for another group impoverished, children. The need component also recognizes the importance of cultural preferences. Even when older adults have adequate resources, they may still want to live with kin simply because it is culturally appropriate. In this study, need is the able to perform their activities of daily living.

2.10 Kin Availability

There is now a growing body of research on elder people's social networks and availability of kin, including some research on variations in these networks between, for example, rural and urban areas (Wenger, 1996). Other studies have identified kin availability as the major source of support available to elder people (Soldo et. al., 1990; Heslop, 1999; Gorman, 1999). The assumption underlying these studies is that a positive relationship exists between the size of kin network and the probability of co-residence and receiving social support. Waite (1995) found a relationship between kin and social network availability and psychological well being of elder people. Others have incorporated detailed information about kinship network

(Wolf and Agree, 1990; Spitze and Logan, 1990; Wolf, 1990; Wolf and Soldo, 1988). These studies found that the size and structure of kin network can significantly strengthen explanations of elder people's living arrangements. They argue that the number of children and their characteristics such as gender, marital and economic statuses may affect their ability to support elder people. However, research on poverty among older people has provided an understanding of its consequences beyond the lack of physical necessities, income and material assets (Chambers, 1995; 1997). Illiteracy, unemployment, powerlessness and physical weakness due to malnutrition and illness are often concomitant of poverty and lack of support for elder people.

In order to study the behavior of family in the support of the elder population, identifying the availability of support for elders in times of need is essential. The primary sources of support for elders within the family are children. The trend in numbers of children has to be taken into consideration when thinking about the future well-being of elderly populations because the decrease in children has the potential to reduce the number of the primary providers of support. For example, studies from Taiwan and China show that, though fertility has declined in the last four decades of the 20th century, the effect of the decline on the number of children available to elders will not be felt until after the first quarter of the 21st century (Hermalin and Christianson, 1992; Zeng, 1986, 1988, Tu et al. 1993).

Care is not always intergenerational. Spouses are also identified as primary providers of care for elders. This is more possible due to differences in age between spouses, and therefore, greater disability among men compared to their wives. Also, the age difference between spouses means that women are more likely than men to have lost their partners. Chen and Jones (1989) report a higher level of care from spouses for men compared to women (34% compared to 8%) in the ASEAN countries (South East Asian countries like Malaysia, Singapore etc), whereas, care from children showed the opposite trend with 48% of men and 72% of women reporting care from children. Further, types of support, whether physical or financial, are provided by different family members. Thus, in analyzing the receipt of support among the older population, identifying the types of support that kin can provide is crucial.

2.11 Preferences

The preference factor captures those elements of elder people's attributes that are not captured by the measures of needs, resources, kin availability and other opportunities. The preference factor assumes that there are differences between cultural and ethnic groups regarding elder people's living arrangements. Since such differences are difficult to capture, socio-economic and regional variables are commonly used as proxies for them (Wolf and Soldo, 1988; Da Vanzo & Chan, 1994). Studies of cross-cultural comparisons have used ethnic characteristics as proxies (Burr, 1992; Casterline *et al.*, 1990). In African societies, Chilungu (1989) noted that preference factors of elder people can be identified with their adoption of traditional and non-traditional attitudes. Traditionalists have a high level of co-residence and social support mainly provided by their families. This is because of elder people's respected status within the family and not necessarily because of needs. Conversely, with non-traditionalists, preferences will result in low levels of co-residence, and support is provided only on the basis of rationalization of resources versus needs. We use personal as well as regional (rural and urban) factors to examine preference factors in this study.

Although age, gender, educational attainment, and region are parts of the elder people's life course attributes and are implicitly included under other factors affecting living arrangements, these factors are used as proxies for preference because of their distinct effect on elder people's choices. Age is frequently associated with high levels of declining health and economic need. In developing countries, old age and poverty are intimately linked (Kalache and Sen, 1999). Health in old age is greatly determined by the patterns of living, exposure and opportunities for health protection over the life course. Age also reflects to some extent a cohort effect on elder people's preferences. That is, elder people tend to be more traditional than young people. Consequently, high levels of co-residence are expected. The same argument holds for educational attainment. Although educational attainment can provide elder people with means and resources that can influence their economic and health status, it has the distinct effects of exposing them to new and non-traditional attitudes (Da Vanzo and Chan, 1994; Chilungu, 1989; Burr, 1992).

Myanmar people have great attachment to the family. Great regards are shown to one's elders. By virtue of the culture as well as religion, the young are taught to show respect to the elders. The elderly have their own special place in the society and

family. There are specific duties and responsibilities towards certain persons well defined in civics. It is one of the duties of the children to look after their parents at the time of their old age. Senior citizens in Myanmar are regarded highly and hold special place at the family and societal levels. Their experiences are well recognized and their advices listened to. People look after their loved elders with tender care and also with some awe.

Elder persons do not experience serious problems in Myanmar at present because of Myanmar's extended family pattern and Myanmar's impressive characteristics of paying due respect to and taking care of elder persons, besides care from the community. However, the number of elder people is increasing with better longevity, including those who have no children or relatives to rely on. So, ways and means are to be sought in the drive to provide homes for the aged. Now, Myanmar has also introduced those ways and means that are in conformity with its people, culture and tradition in meeting the needs the increasing number of elder persons.

In this study, the contribution of different factors is examined in the living arrangements and family support of the elderly people in Monywa Township in upper Myanmar.

CHAPTER 3

METHODOLOGICAL BACKGROUND

The purpose of using multivariate analyses is to specify a model that identify would the determinants of living arrangements of an elderly person. This model is appropriate in this situation because the dependent variables are categorical in nature, with 0 or 1 as the two possible outcomes (Long, 1997). The aim of the multivariate analysis is to model the outcome (y) given a set of independent covariate (x). Since the outcome variables are probabilities, and the covariates can take on any real value, the probabilities have to be transformed so that the range restrictions are removed. To do this, the probabilities are first converted to odds, or the ratio of the probability to its complement. Next, we take the logarithm of the odds to calculate the log odds, and thereby, remove the bounds. Thus, as the probability varies between 0 and 1, the log odds vary between $-\infty$ and $+\infty$. Thus, the logistic model transforms the probability which is restricted (between 0 and 1) so that the transformed probability can be modeled as a linear function of the covariates.

The probability of predicting a successful outcome 1, given the independent variable (x) is as follows:

$$\text{let } \pi(x) = P(Y = 1 | X = x) = 1 - P(Y = 0 | X = x) .$$

The logistic regression model is

$$\pi(x) = \frac{\exp(\alpha + \beta x)}{1 + \exp(\alpha + \beta x)}$$

Equivalently, the log odds, called the logit, has the linear relationship

$$\log it [\pi(x)] = \log \frac{\pi(x)}{1 - \pi(x)} = \alpha + \beta x .$$

This equates the logit link function to the linear predictor.

The ordinal logistic model is based on the same assumptions as above, but now there are more than two outcomes, and log odds will be calculated for the probability of each possible outcome. A multivariate analysis was performed in order to determine the influence of selected covariates on the living arrangements of the elderly and to explore variations in trends and patterns of the living arrangements of elderly person. The analysis used the multinomial logistic specification for the probability distribution across possible households (Retherford and Choe, 1993, Demaris, 1992). Thus, given the K_i possible household structures that an older

individual faces, the probability that he/she will be observed in the k^{th} such household is expressed by:

$$P(Y_i = k) = \frac{\exp \left(\sum_{j=0}^J X_{ij} \beta_{jk} \right)}{\sum_{m=1}^k \exp \left(\sum_{j=0}^J X_{ij} \beta_{jm} \right)}$$

where, X_i is the column vector of the J covariates that describe the i^{th} elderly individual, and β_k is the line vector of the coefficient associated to the J covariates for the k^{th} household structures. As in logistic regression with a binary response, the β_k parameters are estimated by maximizing the likelihood function for the sample responses on the dependent variable. In the case of multinomial logistic regression, this function expresses the conditional distribution on the living arrangements, given the predictor set, in terms of the parameters in the $k-1$ equations.

The estimated coefficient of a specific variable in the logistic regression measures the increase on the logistic P resulting from a one-unit increase in this particular variable, controlling for the others. In other words, it provides an estimate of the log odds of each study were transformed into dummy variables; their coefficients represent the increment to the logistic associated with each category of a specific categorical variable relative to the reference category for that variable.

3.1 Formulation of a Statistical Model of Individual Choice Behaviour for Living Arrangement of an Elderly Person

In this Chapter III, a statistical model of individual choice behaviour for living arrangement of an elderly person, in which the objects of choice of an elderly person are discrete and dichotomous, is developed. Each elderly person may be described by a vector of observable characteristics socioeconomic variables, such as (i) elderly person's age, (ii) sex (gender), (iii) marital status, (iv) presence of surviving children, (v) place of residence, (vi) educational qualification, (vii) occupation, (viii) monthly income, (ix) possession of land and (x) state of economic dependence of elderly person, among other independent variables. The state of economic dependence may be categorized as (i) not dependent (ii) partially dependent and (iii) fully dependent on others.

These socio-economic variables (characteristic) are assumed to affect the ability of elderly person to live alone/with spouse or willingness of the elderly persons

to live with their children/relatives. In addition to the above said characteristics (socio- economic variables) of the elderly persons, other economic environment and conditions also affect the potential benefits and costs to the elderly persons in connection with living arrangement of (i) living alone/with spouse or (ii) living with their children/relatives. The economic environment and conditions faced by an elderly person may be described by amount of money saved and owned by the elderly, cost of living, rate of inflation and availability of economic and social safety net in the community and the country in which the elderly person lives.

Whether an elderly person decides to live alone/with spouse or to live with their children/relatives are tentatively assumed to depend on both the above mentioned socio-economic characteristics as well as on the economic environment and social condition faced by the elderly person. To the extent that an elderly person's attitude toward the risk of living alone/with spouse or living with their children/relatives is related to the socio-economic characteristics of the elderly person, it is taken into account through the characteristic variables.

3.2 A Statistical Model of Dichotomous Choice of an Elderly Person for Living Arrangement

An elderly person has to choose between two mutually exclusive and exhaustive alternatives: to live alone/with spouse or to live with their children/relatives. It is assumed that the net benefit function accruing to the i^{th} individual elderly person in the population from living alone/with spouse, denoted by $U_{iA}(\cdot)$, can be written as a function of the characteristics of the elderly person, variables representing the economic environment /conditions and a specific elderly person factor, in the following form:

$$U_{iA}(\mathbf{Z}_i) = U_A(\mathbf{Z}_i) + \mathbf{\epsilon}_{iA} \text{ for } i = 1, 2, 3, \dots$$

where $\mathbf{Z}_i$ is a vector of independent variables representing elderly person's socio-economic characteristics and economic environment/conditions, and $\mathbf{\epsilon}_{iA}$ is a random error (disturbance) representing i^{th} elderly person's specific preference for living alone/with spouse. The function $U_A(\mathbf{Z})$ does not depend on the individual elderly person. Similarly, the net benefit accruing to the i^{th} individual elderly person from living with their children/relatives, denoted by $U_C(\mathbf{Z}_i)$ can be written as a function of the same independent variables, and as a specific individual factor, in the form

$$U_{iC}(\mathbf{Z}_i) = U_C(\mathbf{Z}_i) + \varepsilon_{iC} \quad \text{for } i = 1, 2, 3, \dots$$

The disturbance ε_{iA} and ε_{iC} cannot be directly observed, but it is assumed that their joint distribution over the whole population of the elderly persons can be described by a probability density function (pdf).

It is assumed that the individual elderly person compared the net benefits of $U_{iA}(\mathbf{Z}_i)$ and $U_{iC}(\mathbf{Z}_i)$ accruing from the two alternatives of (i) living alone or with spouse (ii) living with children/relatives, and choose the alternative that gave a higher level net benefit. When the net benefits are equal, it is assumed that individual elderly person choose the status which is living alone. However, as pointed out below, the probability of the net benefits functions $U_{iA}(\mathbf{Z}_i)$ and $U_{iC}(\mathbf{Z}_i)$ being exactly equal to each other is zero. Thus, the probability of an individual elderly person randomly drawn from the population of elderly persons, with characteristics and environment represented by $\mathbf{Z}$, would choose the alternative to live with children/relatives is equal to

$$\begin{aligned} P_i(C | \mathbf{Z}) &= P_i[U_{iC}(\mathbf{Z}) > U_{iA}(\mathbf{Z})] \\ &= P_i[U_C(\mathbf{Z}) - U_A(\mathbf{Z}) > \varepsilon_{iA} - \varepsilon_{iC}] \end{aligned}$$

where, $U_C(\mathbf{Z})$ and $U_A(\mathbf{Z})$ are vectors. It is clear that this probability depends on the difference of the functions $U_C(\mathbf{Z})$ and $U_A(\mathbf{Z})$ and $(\varepsilon_{iA} - \varepsilon_{iC})$. Even with an infinite number of observations on the discrete choice behavior of the individual elderly persons, these functions and random variables cannot be identified separately. Only their differences can be identified. The difference $U_C(\mathbf{Z}) - U_A(\mathbf{Z})$ is specified to be a linear function of $\mathbf{Z}$; that is

$$U_C(\mathbf{Z}) - U_A(\mathbf{Z}) = \boldsymbol{\gamma}' \mathbf{Z} \quad (3.1)$$

where, $\boldsymbol{\gamma}$ is a vector of unknown parameters. The difference in the individual elderly person factors $\varepsilon_{iA} - \varepsilon_{iC} = \varepsilon^*$ is assumed to be identically and independently distributed as the logistic distribution over the population. A large value of random variable $(\varepsilon_{iA} - \varepsilon_{iC})$ implies that there is a small probability, given the vector $\mathbf{Z}$ of independent variables, that i^{th} individual elderly person will decide to live with children/relatives.

The logistic distribution function is given by

$$\begin{aligned} F(\mathcal{E}^*) &= 1 - \{1 + \exp[(\mathcal{E}^* - \mu)/\sigma]\}^{-1} \\ &= \{1 + \exp[-(\mathcal{E}^* - \mu)/\sigma]\}^{-1} \end{aligned}$$

where μ and σ are parameters of the logistic distribution function $F(\mathcal{E}^*)$

The probability density function $f(\mathcal{E}^*)$ is given by

$$f(\mathcal{E}^*) = \exp(\mathcal{E}^*) \mid [1 + \exp(\mathcal{E}^*)]^2 \quad \text{for } -\infty < \mathcal{E}^* < +\infty,$$

The probability of an elderly person deciding to live with his/her children/relatives under the assumption that $\mathcal{E}^*$ is distributed as the logistic distribution, is given by

$$\begin{aligned} P(C \mid \mathbf{Z}) &= P(\gamma' \mathbf{Z} > \mathcal{E}^*) \\ &= P(\mathcal{E}^* \leq \gamma' \mathbf{Z}) = F(\gamma' \mathbf{Z}) \\ &= [1 + \exp\{-(\gamma' \mathbf{Z} - \mu)/\sigma\}]^{-1}. \end{aligned}$$

Without loss of generality, μ and σ may be absorbed into $\gamma' \mathbf{Z}$ (by adding a constant term and rescaling of the parameters), so that the probability of deciding to live with children/relatives becomes

$$P(C \mid \mathbf{Z}) = [1 + \exp - (\gamma' \mathbf{Z})]^{-1}.$$

The probability of not deciding to live with children/relatives, that is, to live alone /with spouse, of course, given by

$$\begin{aligned} P(A \mid \mathbf{Z}) &= 1 - P(C \mid \mathbf{Z}) \\ &= [\exp - (\gamma' \mathbf{Z})] \mid [1 + \exp - (\gamma' \mathbf{Z})] \\ &= [1 + \exp (\gamma' \mathbf{Z})]^{-1}. \end{aligned}$$

This is the basic equation of the logistic model. The relative probabilities of deciding to live with children/relative versus not deciding are given by

$$\begin{aligned}
P(C | \mathbf{Z})/P(A | \mathbf{Z}) &= [1 + \exp(-(\boldsymbol{\gamma}'\mathbf{Z}))]^{-1} / \{[\exp(-(\boldsymbol{\gamma}'\mathbf{Z}))]/[1 + \exp(-(\boldsymbol{\gamma}'\mathbf{Z}))]\} \\
&= \exp(\boldsymbol{\gamma}'\mathbf{Z})
\end{aligned}$$

so that

$$\ln P(C | \mathbf{Z})/P(A | \mathbf{Z}) = \boldsymbol{\gamma}'\mathbf{Z}$$

$$\ln \left[\frac{P(C | \mathbf{Z})}{1 - P(C | \mathbf{Z})} \right] = \boldsymbol{\gamma}'\mathbf{Z}.$$

In other words, the logarithm of the relative odds of deciding to live with children/relatives versus not deciding is equal to $\boldsymbol{\gamma}'\mathbf{Z}$, a linear function of socio-economic variables of $\mathbf{Z}$. That is a standard feature of a dichotomous logistic model.

3.3 Maximum Likelihood Estimation of Parameters in Dichotomous Logistic Model

The parameters $\boldsymbol{\gamma}$ represent the effect of the independent variables $\mathbf{Z}$ on the probability of an elderly person deciding to live with their children/relatives. Our objective is to estimate these parameters in $\boldsymbol{\gamma}$. The method of estimation usually used is maximum likelihood method of estimation, which is briefly described below.

Define a variable Y_i which takes the value 1 if the i^{th} individual elderly person decided to live with children/relatives or $Y_i = 0$ if he/she decided to live alone/with spouse. Let $\mathbf{Z}_i$ be the vector of observable independent variables of characteristics of the i^{th} individual elderly person. Then the probability of $Y_i = 1$, given $\mathbf{Z}_i$, is

$$P(Y_i = 1 | \mathbf{Z}_i) = [1 + \exp(-\boldsymbol{\gamma}'\mathbf{Z}_i)]^{-1}.$$

The probability of $Y_i = 0$, given $\mathbf{Z}_i$, is

$$P(Y_i = 0 | \mathbf{Z}_i) = [1 + \exp(\boldsymbol{\gamma}'\mathbf{Z}_i)]^{-1}.$$

Each variable Y_i may be regarded as the result of a single Bernoulli trial (success-failure trial) from a binomial distribution with the probability of success given by $P(Y_i = 1 | \mathbf{Z}_i)$. Thus, the likelihood of the i^{th} observation is given by

$$L_i = P((Y_i = 1 | \mathbf{Z}_i)^{Y_i} P(Y_i = 0 | \mathbf{Z}_i)^{(1-Y_i)})$$

$$= [1 + \exp(-\boldsymbol{\gamma}' \mathbf{Z}_i)]^{-Y_i} [1 + \exp(\boldsymbol{\gamma}' \mathbf{Z}_i)]^{-(1-Y_i)} \quad \text{for } i = 1, 2, 3, \dots, n.$$

The likelihood function for a sample of n independent observations is given by

$$\begin{aligned} L &= \prod_{i=1}^n P(Y_i = 1 | \mathbf{Z}_i)^{Y_i} [1 - P(Y_i = 1 | \mathbf{Z}_i)]^{(1-Y_i)} \\ &= \prod_{i=1}^n [1 + \exp(-\boldsymbol{\gamma}' \mathbf{Z}_i)]^{-Y_i} \{[\exp(-\boldsymbol{\gamma}' \mathbf{Z}_i)] / [1 + \exp(-\boldsymbol{\gamma}' \mathbf{Z}_i)]\}^{-(1-Y_i)} \\ &= \prod_{i=1}^n [\exp(-\boldsymbol{\gamma}' \mathbf{Z}_i)]^{-(1-Y_i)} [1 + \exp(-\boldsymbol{\gamma}' \mathbf{Z}_i)]^{-1}. \end{aligned}$$

The value of $\boldsymbol{\gamma}$ is sought in such a way that the sample likelihood function is maximized. Instead of maximizing the likelihood function itself, the natural logarithm of the likelihood function L is maximized; that is;

$$\ln L = - \sum_{i=1}^n (1-Y_i) \mathbf{Z}_i - \sum_{i=1}^n \ln[1 + \exp(-\boldsymbol{\gamma}' \mathbf{Z}_i)] \quad (3.2)$$

Differentiating $\ln L$ in equation (3.2) with respect to $\boldsymbol{\gamma}$, and setting the derivative equal to zero, we obtain the maximum likelihood equations,

$$\begin{aligned} \partial \ln L / \partial \boldsymbol{\gamma} &= - \sum_{i=1}^n (1-Y_i) \boldsymbol{\gamma}' \mathbf{Z}_i - \sum_{i=1}^n 1/[1 + \exp(-\boldsymbol{\gamma}' \mathbf{Z}_i)] \mathbf{Z}_i \\ &= \sum_{i=1}^n \{(Y_i - 1) + 1/[1 + \exp(-\boldsymbol{\gamma}' \mathbf{Z}_i)]\} \mathbf{Z}_i = 0 \end{aligned} \quad (3.3)$$

Equation (3.3) may be solved by the iterative methods in the area of numerical analysis for $\hat{\boldsymbol{\gamma}}$, the maximum likelihood estimate of $\boldsymbol{\gamma}$ can be obtained.

Differentiating $\ln L$ with respect to $\boldsymbol{\gamma}$ a second time, we obtain:

$$\partial^2 \ln L / \partial \boldsymbol{\gamma} \partial \boldsymbol{\gamma}' = - \sum_{i=1}^n 1/[1 + \exp(-\boldsymbol{\gamma}' \mathbf{Z}_i)]^2 \mathbf{Z}_i \mathbf{Z}_i'$$

If the matrix of independent variables $\begin{bmatrix} \mathbf{Z}_1' \\ \mathbf{Z}_n' \end{bmatrix}$ is of full rank, then $\sum_{i=1}^n \alpha_i \mathbf{Z}_i \mathbf{Z}_i'$ where

$\alpha_i = [1 + \exp(-\boldsymbol{\gamma}' \mathbf{Z}_i)]^{-2} > 0, \forall i$, will be a positive definite matrix, implying that the matrix of second derivatives of the logarithm of the likelihood function ($\partial^2 \ln L / \partial \boldsymbol{\gamma} \partial \boldsymbol{\gamma}'$) is negative definite. Here, it should be noted that $\sum \alpha_i = [1 + \exp(-\boldsymbol{\gamma}' \mathbf{Z}_i)]^{-2}$. This ensures that a unique maximum exists for the likelihood maximization problem. It follows that the maximum likelihood estimator

of γ as defined in Equation (3.3) is consistent, asymptotically normal, and asymptotically efficient for parameters from the standpoint of statistical estimation in the study area of statistical inference.

3.4 Proposed Specification Models for Analysis of Data on Elderly Persons

In our empirical analysis of survey data on family arrangement and family support of elderly persons in this study, the probability of an elderly person deciding to live with children/relatives is specified to be as follows:

$$P(Y_i = 1 | Z_i) = [1 + \exp(-\gamma' Z_i)]^{-1}$$

where $\gamma' Z_i$, in its most general form, is set to be equal to

$$\gamma' Z_i = \begin{bmatrix} \gamma_0 + \gamma_A \ln(AGE_i) + \gamma_{RE} DRE_i \\ + \gamma_{FH} DFH_i \end{bmatrix} \quad (3.4)$$

where

AGE_i = complete age of the i^{th} elderly person

DRE_i and DFH_i are qualitative (dummy) independent variables defined as follows:

DRE_i = dummy variable of type of residence of the i^{th} elderly person

[$DRE = 1$ if the elderly person resides in rural area and $DRE = 0$ if the elderly person resides in urban area]

DFH_i = dummy variable of female headed household of the i^{th} elderly person

[$DFH = 1$ if the elderly person is female headed household and $DFH = 0$ if the elderly person is not female headed household]

The specification in Equation (3.4) will be referred to as model specification (I). It would be the basic form of the estimating equations used in the empirical analysis of data on elderly persons. Three other specifications would also be used. In model specification (II), the number of living children $\gamma_N \ln(NLCH_i)$ in Equation (3.4) is added.

Where

$NLCH_i$ is the number of currently living adult children of the i^{th} elderly person

$$\gamma' \mathbf{Z}_i = \begin{bmatrix} \gamma_0 + \gamma_A \ln(AGE_i) + \gamma_{RE} DRE_i + \gamma_{FH} DFH_i \\ + \gamma_N \ln(NLCH_i) \end{bmatrix} \quad (3.5)$$

The health status is added in model II. Then, model specification (III) is given by

$$\gamma' \mathbf{Z}_i = \begin{bmatrix} \gamma_0 + \gamma_A \ln(AGE_i) + \\ + \gamma_{RE} DRE_i + \gamma_{FH} DFH_i + \gamma_N \ln(NLCH_i) + \gamma_{HE} \ln(HEL_i) \end{bmatrix} \quad (3.6)$$

Where,

HEL_i = Health Status of the i^{th} elderly person.

Moreover, socio-economic status and education are also added in model III. Then model IV is given by

$$\gamma' \mathbf{Z}_i = \begin{bmatrix} \gamma_0 + \gamma_A \ln(AGE_i) + \gamma_{RE} DRE_i + \gamma_{FH} DFH_i + \gamma_N \ln(NLCH_i) \\ + \gamma_{EDU} \ln(EDU_i) + \gamma_{SE} \ln(SEO_i) + \gamma_{HE} \ln(HEL_i) \end{bmatrix} \quad (3.7)$$

Where,

EDU_i = Formal education of the i^{th} elderly person.

SEO_i = Socio-economic status of the i^{th} elderly person.

An attempt would be made to fit the logit regressions (logistic regressions) to the survey data collected on the elderly persons in this study, under the above three model specification I, II, III, and IV with the help of computer software of SPSS, which is now becoming the general purpose software for a wide variety of statistical analyses. Based on the estimated regression coefficients in different model specifications, their interpretations would be carried out.

CHAPTER 4

DEMOGRAPHY OF AGEING

4.1 Background of Population Ageing

Population ageing is increasingly being recognized as process of major significance for all societies, and particularly for those in less developed regions, as they enter the twenty-first century. The concern for older persons emerged strongly in the First World Assembly on Aging, held in Vienna, (1982) when United Nations International Plan for Action on Aging in the enunciation of Principles for Older Persons and Target on Aging for the year 2001 were adopted. It was further promoted by the General Assembly Resolution 46/91 of December 1991, which more explicitly recognized the importance of these issues in less developed regions.

The programme of Action of the 1994 International Conference on Population and Development (ICPD) provided a major impetus for addressing this theme and further progress has been made through a number of international meeting identifying needs and initiating programs and projects. Technical Meeting on Population Aging held in Brussels (Cliquet and Nizamuddin, 1999), and the proposals for key actions for further implementation of the programmed of Action of the ICPD in the Report of the Secretary-General for the 21st Special Session of the UN General Assembly. Recommended actions focused on fostering intergenerational dialogue and solidarity, gender sensitive research to meet the policy and program challenges of population aging, and the need to document catching positive experience of relevant policies and programs from the advanced nations and from those countries with relevant experience.

The Second World Assembly on Aging (SWAA), held in Madrid in April 2002, built upon the concept of a “Society for All Ages”, set a milestone and called upon member states for changes in attitude and adjustments in national and international policies, corporations and other organizational practices. The Madrid International Plan of Action on Aging that was adopted by the assembly, made several far reaching recommendations to the member states, such as:

- (i) Provide opportunities, programs, and support to encourage older persons to participate or continue to participate in culture, economic, political, social life and lifelong learning;

- (ii) Provide information and access to facilitate the participation of older persons in mutual self-help, intergeneration community groups and opportunities for realizing their full potential;
- (iii) Older persons should be treated fairly and with dignity, regardless of disability or other status, and should be valued independently of their economic contribution, encourage the establishment of organizations of older persons at all levels to, inter-alia, represent older persons in decision-making;
- (iv) Enable older persons to continue working as long as they want to work and are able to do so; make special efforts to raise the participation rate of women and disadvantaged groups, such as the long-term unemployed and persons with disabilities, thereby reducing the risk of their exclusion or dependency in later life; encourage appropriate social protection/social security measures for older persons in rural and remote areas;
- (v) Ensure equal access to basic social services for older persons in rural and remote area;
- (vi) Assist families to share accommodation with older family members who desire it;
- (vii) Encourage and promote literacy, numeracy and technological skills training for older persons and the aging workforce, including specialized literacy and computer training for older persons with disabilities;
- (viii) Organize, as a matter of urgency where they do not exist, social protection/social security systems to ensure minimum income for older persons with no other means of support, most of whom are women, in particular those living alone and who tend to be more vulnerable to poverty; and
- (ix) Set targets, in particular gender-specific targets, to improve the health status of older persons and reduce disability and mortality.

4.2 Global Ageing: An Overview of Major Trends in Developed and Developing World

In 2007, the United Nations undertook a detailed global review of the progress made since the Madrid International Conference 2002. The UN Population Dividing published a report, titled: World Population Aging 2007. The data of the report reflect the latest projections and revised estimates on population aging.

Declining mortality has improved survivorship among the middle aged and the elderly, further enhancing the prospects of extended life expectancy and contribution to the structure shift from younger to the older populations. Consequently, populations of older persons are not only growing numerically but also as a proportionate share of the total population. (United Nations, 2007).

Table 4.1 indicates the proportion of the population aged 60 and over in the world population in 2006 and 2050. It shows that in 2050 the population of 60+ persons will be doubled, which is a serious concern for the policy makers and program managers in both developed and developing world.

Despite the increasingly widespread occurrence of this phenomenon, however, the extent of population aging at the end of the twentieth century varies widely between regions. The large proportions of older persons in the more developed regions have attracted a great deal of supportive concern as those 60 years of age and over reached 20 percent of the total population by 2006, and projected to reach a level of 32 percent by 2050 (Table 4.1). By contrast, relatively little attention has been directed to the rapidly changing population structure in less developed regions.

The issue of living alone in old age is also considerable as in more developed regions, there are only 13 percent men living alone at old age in 2006 compared to 32 percent women. In less developed regions these figures are 5 percent and 9 percent for men and women respectively. Aged people 60 years or over, who are currently married, in more developed regions, 79 percent are men and 48 percent are men and 48 percent are women. In the less developed regions, situation is not much different having 81 percent men and 47 percent women married at this age. Thus, a large proportion of older women at age 60 and over are widowed, divorced or separated, which of course put those women in vulnerable position.

- (i) Population aging also causes in living arrangement resulting in increasing number of older people living alone (about 13% men and 35% women of older age in 2006, in Europe, lived alone (see Table 4.1).
- (ii) Population aging is particularly rapid among women, resulting in “feminization” of population aging (because of lower mortality rates among women). For example, in Asia, there were 10.4 percent older women and 8.9 percent older men in 2006 aged 60 years or over, or a sex ratio of 88 men for every 100 women (see Table 4.1).
- (iii) Since older persons have usually lower income and a higher proportion of them are living below the poverty line, population aging is associated with poverty, particularly in developing countries. (Gavrilov and Heuveline 2003)

Table 4.1
Populations Aged 60 Years or Older; World and Major Regions

Country or Area	POPULATION AGED 60 YEARS OR OLDER								
	Number (millions)		Percentage of total population		Percentage currently married	Percentage Living alone	60 and above population percentage in labor force	Sex ratio (men per 100 women 2006)	Life expectancy at age 60 2005-2010
	2006	2050	2006	2050	Men/Women	Men/Women	Men/Women	60+	Men/Women
World	687	1968	11	22	80/48	8/19	40/16	82	17/21
More Developed Regions	247	400	20	32	79/48	13/32	22/11	72	19/23
Less Developed Regions	440	1568	8	20	81/47	5/9	50/19	88	17/19
Least Developed Countries	39	171	5	10	85/39	4/8	71/37	85	15/17
Africa	48	192	5	10	85/39	6/11	64/32	83	15/17
Asia	374	1231	9	24	81/50	5/9	48/18	88	17/20
Europe	151	225	21	34	80/47	13/35	15/7	69	18/22
Latin America and the Caribbean	50	188	9	24	75/42	7/10	46/16	82	19/22

Source: United Nations Population Division 2007

Although most countries in these regions have younger populations, showing clear signs of aging. According to Table 4.1, in less developed regions as a whole, just 8 percent of the population in 2006 has aged 60 years or over but 2050, 20 percent of their population is expected to be in that age range. The proportion of older persons is lowest in Africa, though rising, but in the Latin America/Caribbean region the proportion is just below that for Asia which is expected to reach 24 percent in 2050. At that stage, Asia will have 85 percent of the less developed region's population aged 60 and over. Less developed regions are predicted to have 20 percent of their population in the over 60 years of age category by 2050.

Most of the elderly live in less developed regions. By 2006, the less developed regions had 64 percent of the world's older population and in 2050; this share is expected to be 80 percent and above. Translated into numerical terms, less developed regions had about 440 million persons aged 60 and over in 2006 compared with 247 million in more developed regions, and these totals will rise to 1568 and 400 million respectively in 2050 (see Table 4.1). The implication is clear; the less developed countries, where issues of reproductive health including family planning, infant, child and maternal mortality have long been the central focus of population policy, must now also include serious considerations of population aging.

A combination of longer life span and low birth rates is producing a population distribution that is skewed towards the elderly. This phenomenon is well advanced in developed countries in the region such as Japan Singapore, but is also advanced in developing countries.

A change in the size and structure of a population is related to change in the variables such as economic, social, political, geographical, biological, genetic etc. In a closed population, the change is brought about by natural increase in elderly population (people age 65 years and over developing countries is largely due to failing rates of fertility and mortality). As fertility and mortality rates decline in the developing countries, elderly population is growing rapidly.

Global population, which stood 2.5 billion in 1950, has risen to 6.6 billion in 2006. Middle-ground projections suggest the world will have 9.1 billion inhabitants by 2050. For the world as a whole, life expectancy increased from 46 years in 1980- 1955 to

65 years in 2000-2005. At in projected to rise to 75 years by the middle of this century, with considerable disparities between the wealthy industrialized countries, at 82 years, and the least developed countries, at 67 years. The number of people over the age of 60 in the world, currently at around half the number of those aged 15 to 24, is expected to reach 1 billion by 2020 and almost 2 billion by 2080. The proportion of individuals aged 80 and over is projected to rise from 1% to 4% of the global population by 2050. Demographic aging is taking place in both developed and developing countries. In the industrialized world, the proportion of people aged 60 and over will increase from 20 to 35% by 2050. In the developing world, it will rise from 8 to 20%.

In ordinary parlance, however, the meaning of the word “aged” is somewhat different from the meaning directly derived from the verb “to age” society recognizes that after a certain age, which varies according to time, place and customs, an individual becomes an “aged” person. If the proportion of aged persons in the population increases, it can therefore be said that the population is ageing (UN, 1956:1).

The term population ageing has become an important issue in Asian countries. Population Ageing can be viewed as a process causing shortages of young labour and higher tax burdens to support social security for the elderly. The ageing of a population is primarily a result of decline in the total fertility rate. According to the United Nations reports, the population is defined as “aged” when the percentage of old people aged 65 and over exceeds 7 percent (United Nations, 1956). Shryock and Siegel stated that the proportion of aged person 65 years and over exceeds 10 percent or more may be defined as aged (Shryock and Siegal, 1976).

The problem of population ageing is occurring and will occur in the countries where fertility reduction has been most successful, such as Japan, the Republic of Korea and Singapore, in Asia.

In Myanmar, the annual growth rate appears never to have exceeded 2.5 percent and the intercensal growth rate between the last two censuses was only two percent. The problem of the elderly in Myanmar was not serious in the past. According to the last nation-wide census 1983, the elderly population was only 6.2 percent of the total population. It was small and elderly were provided with social protection by the family

network, but owing to relatively recent socio-economic changes, ageing of the population is emerging as a problem that requires consideration before it become critical.

4.3 Demographic Impact of Population Ageing in Myanmar

Ageing is a common phenomenon in most parts of the world and Myanmar also follows the same trend of this global phenomenon. In Myanmar cultural and social context, the elder persons such as grandparents are a major familial changing point of moving into the generation of older people. On the other hand, when a kinship sphere comprises at least three generations, the oldest generation will be treated as the “elderly” of the family senior citizens in Myanmar are regarded highly and hold special place at the family and social levels. Basic background situation of ageing population in Myanmar shows the following socio-economic characteristics. The total size and growth rate of population aged sixty and over are increasing. Fertility decline, mortality decline, ageing index, median age, dependency ratio, potential support ratio, and parent support ratio are determinants of population ageing in Myanmar.

4.3.1 Fertility Decline

Fertility Decline has been the primary determinant of population ageing. Table 4.2 shows crude birth rates and total fertility rates (1973-2010).

Table (4.2)
Crude Birth Rates and Total Fertility Rates (1973-2010)

Year	Crude Birth Rate (CBR)	Total Fertility Rate (TFR)
1973	37.6	5.40
1983	34.4	4.60
1991*	27.9	2.90
2001**	25.1	2.40
2010***	15.9	2.03

Source: Population Census of Myanmar 1973 and 1983

*Population Changes and Fertility Survey 1991

**Fertility and Reproductive Health Surveys 2001

*** Central Statistical Organization, Statistical Yearbook, 2011

Table (4.2) shows the declining pattern of fertility in Myanmar. The trend in crude birth rate (CBR) also indicates a rapid decline from 37.6 live births per thousand populations in 1973 to 15.9 in 2010. The total fertility rate (TFR) has declined from 5.4 in 1973 to 2.03 in 2010 and it is expected to decrease in near future, but at a slower pace. Fertility decline was mainly due to the high mean age at first marriage and high proportion of never married female.

Apart from these, fertility decline was also due to the increasing awareness of the advantages of having a small family size and individuals have been considering limiting their family size.

4.3.2 Mortality Decline

Crude death rates (CDR) reflect the health decreasing services provided by the government of its citizens and may also signal the accessibility of service to its target population.

Table (4.3)
Crude Death Rates and Life Expectancy (1973-2010)

Year	Crude Death Rate (CDR)	Life Expectancy at Birth		
		Male	Female	Total
1973	14.20	51.00	55.80	52.50
1983	11.00	53.50	56.80	55.10
1991 [*]	9.10	57.00	61.00	59.00
2001 ^{**}	7.70	59.00	64.00	61.00
2010 ^{***}	5.60	64.20	68.30	66.30

Source: Population Census of Myanmar 1973 and 1983

*Population Changes and Fertility Survey 1991

**Fertility and Reproductive Health Surveys 2001

***Central Statistical Organization, Statistical Yearbook, 2011

It was found that in Table (4.3), the crude death rate (CDR) decreased from 9.1 deaths per thousand of population in 1991 to 5.60 in 2010. Declining mortality rates are

reflected in improvements in life expectancy at birth and the survival rate. Life expectancy at birth for both male and female rose from 52.5 in 1973 to 66.30 in 2010. From this evidence, it can be said that there will be more and more older people in the future.

4.3.3 Ageing Index

The index of ageing, the number of persons aged 60 years and over per 100 population aged 0-14 years. The ratio of the number of elderly persons to the number of children takes into account the numbers and changes at both ends of the age distribution simultaneously. The criterion is given below (United Nations: 1976, 133).

Index of Ageing	Population Type
Under 15 percent	young
15 to 30 percent	intermediate (mature)
30 percent and over	old

$$\text{Ageing Index} = \frac{\text{The number of person 60 +}}{\text{The number of person 0 - 14}} \times 100$$

Table (4.4)

Index of Ageing (1950- 2050)

Year	Ageing Index
1950	14.50
1973*	14.50
1975	15.70
1983*	16.50
2000	20.50
2025	52.60
2050	109.70

Source: World Population Ageing 1950-2050, United Nations.

*Population Census of Myanmar 1973 and 1983.

According to Table (4.4), the data indicate a consistent increase in the values of the index of ageing from 14.5 in 1950 to 20.5 in 2000. It shows that as fertility declines a shift of age structure from the younger to older ages occurs and subsequently the index

of ageing becomes larger. In 2025, there were only 53 people of 60 years or older for every hundred children under 15 in Myanmar. In 2050, this ratio is projected to be double. There will be 110 people of 60 years or older for every one hundred children 0-14 years in Myanmar. This trend may lead to compelling demands for changes in the way a society's resources are shared between the generations.

4.3.4 Median Age

The median age generally increases with an increase in the proportion of older persons in the population. Increasing in median age is a significant factor of ageing process. The median age of a population is that age that divides a population into two groups of the same size, such that half the total population is younger than this age, and the other half older.

Table (4.5)
Median Age (1950- 2050)

Year	Median Age
1950	21.80
1973*	19.10
1975	19.50
1983*	20.30
2000	23.40
2025	31.80
2050	37.90

Source: World Population Ageing 1950-2050, United Nations.

*Population Census of Myanmar 1973 and 1983.

The median age of the population in Myanmar was about 23 years in 2000, up from 22 years in 1950 (Table 4.5). By 2050, the increase will be approximately 15 years.

4.3.5 Dependency Ratio

The total dependency ratio is a commonly used measure of potential social support needs. It is based on the simple notion that all persons under 15 and those 60 or older are likely to be, in some sense, dependent on the population in the working ages of 15-59. The old age dependency ratio provides an indication of the economic burden that younger generations may face in supporting the older generation.

Table (4.6)

Elderly Dependency Ratios (1950- 2050)

Year	Elderly Dependency Ratios
1950	5.50
1973*	11.50
1975	7.40
1983*	11.60
2000	7.40
2025	11.80
2050	24.50

Source: World Population Ageing 1950-2050, United Nations.

* Population Census of Myanmar 1973 and 1983.

The dependency ratio can roughly measure the demographic weight of burden that the current working age population has to support. From 1950 to 2000, the dependency ratio increased from 5.5 to 7.4 (Table 4.6). Similarly the dependency ratio will be 11.8 in 2025 and it is projected to be 24.5 in 2050. Therefore, the increasing old age dependency ratio can indicate increasing burden on the family as they attempt to support their aged members. As the number of family members in the working ages fall relative to the number of their elderly dependents, the task of supporting the elderly becomes more difficult.

4.3.6 Potential Support Ratio

The potential support ratio is the ratio of the number of persons aged 15 to 64 and persons of aged 65 years and over that is, it is the inverse of the old age dependency ratio. The potential support ratio indicates the dependency burden on potential workers. The impact of demographic ageing is visible in potential support ratio, which has fallen or will continue to fall. Potential support ratios have important implications for social security schemes in which current workers pay for the benefit of current retirees.

$$\text{Potential Support Ratio} = \frac{\text{The number of persons aged 15 - 64 years}}{\text{The number of persons aged 65 and over}} \times 100$$

Table (4.7)

Potential Support Ratios (1950- 2050)

Year	Potential Support Ratios
1950	18.20
1973*	15.00
1975	13.50
1983*	14.60
2000	13.60
2025	8.50
2050	4.10

Source: World Population Ageing 1950-2050, United Nations.

* Population Census of Myanmar 1973 and 1983.

The potential support ratio is an alternative way of expressing the numerical relationship between those people more likely to be economically productive and those more likely to be dependents. The potential support ratio in Myanmar decreased from 18.2 in 1950 to 13.6 in 2000. Large decreases, however, are expected to take place in 2050. By the year 2050, the number of people in the working ages for every person 65 or older is projected to be 4.1 (see table 4.7).

4.3.7 Parent Support Ratio

The parent support ratio is the ratio between the number of persons aged 85 years and over and persons of aged 50 to 64 years. The health of older persons typically deteriorates with increasing age, and the great demand for long-term care is necessary as the numbers of the oldest old grow. The parent support ratio provides an indication of the family's support that family may need to provide their oldest members. However, since the people in the numerator and those in the denominator are not necessarily related by kinship ties, the parent support ratio should be taken only as a rough indicator of changes in the family support system required for the oldest old (Kinsella and Toeuber, and 1993).

$$\text{Parent Support Ratio} = \frac{\text{The number of persons aged 85 years old +}}{\text{The number of persons between 50 - 64 years}} \times 100$$

Table (4.8)

Parent Support Ratios (1950- 2050)

Year	Parent Support Ratios
1950	0.90
1973*	6.50
1975	1.40
1983*	8.00
2000	2.40
2025	3.00
2050	7.40

Source: World Population Ageing 1950-2050, United Nations.

* Population Census of Myanmar 1973 and 1983.

The parent support ratio is a measure that has been commonly used to assess the demands on families to provide support for their oldest-old members. In Myanmar, there was less than one person over 85 years per hundred persons 50-64 in 1950. By 2000, this ratio had more than doubled to reach 2 per hundred, and by 2050 it is projected nearly to triple (Table 4.8).

4.3.8 Future Trends

The global trend towards a decreasing proportion of young compared to the elderly is has begun to emerge in Myanmar. Table 4.9 shows the results of projections of the ageing population.

Table 4.9
Proportion of the population which is elderly (2010-2050)

Year	Elderly Population					Total (60+)
	60-64	65-69	70-74	75-79	80+	
	Total					
2010	2.9	2.3	1.7	1.2	1.0	9.1
2015	3.5	2.4	1.8	1.2	1.2	10.1
2020	4.0	3.0	1.9	1.2	1.3	11.4
2025	4.5	3.4	2.4	1.4	1.3	13.0
2030	4.9	3.8	2.8	1.7	1.5	14.7
2035	5.1	4.2	3.1	2.0	1.8	16.3
2040	5.5	4.5	3.5	2.3	2.1	18.0
2045	6.3	4.9	3.8	2.6	2.5	20.0
2050	6.8	5.6	4.1	2.8	2.9	22.2
	Male					
2010	2.7	2.0	1.6	1.1	0.9	8.2
2015	3.3	2.2	1.5	1.1	1.0	9.1
2020	3.8	2.7	1.7	1.1	1.1	10.4
2025	4.2	3.2	2.1	1.2	1.1	11.8
2030	4.6	3.6	2.5	1.5	1.2	13.4
2035	4.9	3.9	2.8	1.8	1.5	14.9
2040	5.3	4.2	3.1	2.0	1.8	16.4
2045	6.2	4.5	3.4	2.3	2.1	18.4
2050	6.7	5.4	3.7	2.4	2.4	20.6
	Female					
2010	3.2	2.5	1.9	1.3	1.2	10.1
2015	3.8	2.7	2.0	1.3	1.3	11.1
2020	4.2	3.2	2.1	1.4	1.4	12.4
2025	4.7	3.7	2.6	1.6	1.5	14.1
2030	5.1	4.1	3.0	1.9	1.7	15.9
2035	5.4	4.6	3.5	2.3	2.1	17.7
2040	5.7	4.8	3.9	2.6	2.5	19.5
2045	6.4	5.2	4.1	3.0	2.9	21.6
2050	6.8	5.8	4.5	3.2	3.4	23.7

Source: Projections are undertaken based on vital calculated from 2007 FRHS

Table 4.9 shows a 13.1 percentage point increase in the proportion of the population aged 60 and above over the period 2010 to 2050, from 9.1 per cent in 2010 to 22.2 per cent in 2050. By 2050, one in every five persons in Myanmar will be age 60 or older. There are marked gender differences in the projections of the aged population. The elderly female population is larger than the elderly male population in each age group. The male population aged 60 and over is projected to increase to 20.6 per cent in 2050, from 8.2 per cent in 2010. A greater increase is projected for females compared to males, from 10.1 per cent in 2010 to 23.7 per cent in 2050, which can be explained by the higher life expectancy at birth for women than men.

Table 4.9 also shows that the proportion of the population in the oldest old group- aged 80 and over – is projected to increase almost threefold, while the proportion of the population aged 60 and over is projected to increase more than twofold. Although the oldest old still constitutes a small proportion of the total population, their numbers are growing very rapidly. In Myanmar, the percentage of the population aged 60-64 is projected to be almost the same for males and females in the year 2050. However, by age 80 and above, there is projected to be a more than 1.0 percentage point gap in the proportion of females (3.4 per cent) to males (2.4 per cent).

4.4 Healthcare Services for Elderly People in Myanmar

In Myanmar, health care of the elderly is reflected in the general health care system. With the support of World Health Organization, Health care for the Elderly program has been implemented in various areas in Myanmar. In National Health Plan (NHP) (1993-1996), Health Care for the Elderly has become one of the sub-programs under the umbrella of Community Health Care Program, continued to NHP (1996-2000) and there after. It is an integral part of the primary health care.

The general objective of the program is to promote the health of the elderly in Myanmar and to increase the accessibility of geriatric care services for the elder people. To fulfill the general objective, Elderly Health Care Program aims to provide at least 20% of the ambulatory elderly with geriatric clinic services through primary health care approach in the project townships. It also encourages home based geriatric care through families, health volunteers and Non Governmental Organizations. Training programs for

health staffs, voluntary health workers, and family members and community volunteers are also included in the program. Now, with the support of WHO, Elderly Health Care program has been implementing in 88 townships in various States and Regions covering 20% of the total townships in the whole country including the rural areas.

The important part of the program is establishing Wednesday geriatric clinics in the project areas including the Rural Health Centers. The program increases awareness of ageing issue in the community. Research on the elderly situation in both urban and rural areas is also one of activities. To implement these objectives, there is coordination and collaboration among local NGOs such as Myanmar Maternal and Children Welfare Association (MMCWA), Myanmar Red Cross Society, Fire Brigade, Myanmar Women Affairs Federation (MWAF), Voluntary Home Care services from Social Welfare Department and various NGOs both local and international. Elderly clinics also serve as an initial place to indentify people who need social care and arrange appropriate further actions to meet services like home care services.

In Myanmar, Elderly Day is held on 1st October, when the elderly all over the country are offered gifts, receive medical care and eye and oral care by health personnel, assisted by local NGOs. Health talks are also given to the elderly attending the celebrations.

4.5 Myanmar's Culture, Customs and Tradition

Myanmar's society has been living within a thriving circle of families, relatives, neighbors and communities. According to the Myanmar norms and values of tradition and cultures, grandparents, parents and their off-springs living together happily and peacefully for lifelong. Myanmar society values and treats older people as respectable and good examples. Myanmar people recognize that elder people have great things such as knowledge, experience, education and ability.

At the Second World Assembly on Ageing, Madrid, Spain which was held on 12th April 2002, the statement on Myanmar's ageing population was made by the Deputy Minister for Social Welfare, Relief and Resettlement. It was emphasized in the statement that the affairs of elder people do not cause a serious social problem in Myanmar yet because the cultural traditions and religious teachings stress on paying respect to the

older generations. It was also mentioned that there are the supports of the government for the elderly, including the provision of homes for the aged, the elderly health care project, and the social security scheme that provides entitled elderly workers with free medical care and cash benefits.

The national report on ageing presented to the 2nd ASEAN and Japan High Level Official Meeting on Caring Societies also made the statement that there is no serious problem in Myanmar regarding the affairs of older people. However, the report also mentioned that due to the rapid changes occurring, Myanmar would continue making every effort to maintain the existing traditions, raising public awareness of the important role elder persons play in the society, mobilizing government agencies, NGOs and voluntary organizations and the community to actively participate in caring for the elder persons, promoting the existing health care services and doing more research of old age.

At the Help Age Asia Pacific regional conference on ageing which was held on 7th May 2012, the keynote address concerning about religious, cultural background and ageing in Myanmar was made by the Deputy Minister. “In Myanmar, religion and cultural are closely linked together and play a central role in care of the elderly. Traditionally care of the elderly is considered as a noble practice. Younger family members serve the needs of the elderly with great pride. People used to live in extended family pattern with younger generations. The nature of the family structure enable family member to take care of the elderly. Elderly people also have some meaningful role as advisors, community leaders within their capacities”¹.

However, traditional family care system is gradually eroding due to decreased childbirth, migration of younger people, engagement of more family member in jobs and rapid urbanization. Thus, a Myanmar’s impressive practice has somewhat decreased in some rural, urban and periurban areas.

¹ Department of Social Welfare

4.6 National Policy for Elder People

In the Constitution of Union Myanmar, the article 32(a) states that the Union shall care for mothers and children, orphans, fallen defense services personnel's children, the aged and disabled.

Myanmar has not made a policy for elder people, yet a draft has been made for the policies for elder people which can be described as follows:

- To form the National Committee for elder people.
- To establish a network on caring for the elderly within the country and abroad and to collaborate with other countries in the region including ASEAN countries.
- To build a system of compassionate and special opportunities for elder people in collaboration with NGOs, entrepreneurs and well-wishers.
- To found a trust fund donated by internal and external donors.
- To provide elder people with necessary assistance for their health, enjoyment and aptitude.
- To organize for emergence of new Homes for the Aged and to conduct for sustainability of the present Homes for the Aged.
- To implement the model of ROK-ASEAN Home Care Service nationwide.
- To organize to develop community-based Home Care Services.
- To develop monastery-based home care and Church-based home care programme.

4.7 Social Welfare Services Implemented by Department of Social Welfare

The Department of Social Welfare is implementing eight main kinds of social welfare services including care of the Aged. It is main activator of social services and is carrying out social services with the following aims:

1. To contribute towards the social objective "Uplift of health, fitness and education standards of the entire nation";
2. To contribute towards the development of human resources;
3. To assist those who are facing social problems;
4. To take preventive measure to control occurrence of social problems;

5. To turn out voluntary social workers;
6. To give assistance to the State in some way by implementing social development tasks and giving social assistance.

In providing care to elder people, the Department of Social Welfare (DSW) sets out the aims and objectives² : (1) To help and give care to the elderly people who need care for different reasons, (2) To take responsibility of the elderly by the country as its economic situation develops. The Development of Social Welfare (DSW) holds the points as its mission in carrying out the programme of providing care to elder people in Myanmar such as (1) To give care to the elderly by the NGOs with suitable amount of supply and guidance of the government, (2) To open more homes-for-the-aged and help more elderly people where necessary, (3) To provide health care, enjoyment and to do activities according to their hobbies in giving care to the elderly, (4) To have skillful workers in giving care to the elderly and to train them and guide them systematically, (5) To use home-care system as a basic system as it suits with Myanmar customs, (6) To found OPSHG, (7) To review Myanmar's elderly care programs and make necessary changes as there is economic development and social reforms.

4.8 Organizations which are Providing Care to Elder People in Myanmar

Under the supervision of the Department of Social Welfare, the following organizations are working together in giving care to elder people in Myanmar. (1) Help Age Korea, (2) Help Age International (Myanmar), (3) National YMCA, (4) National YWCA, (5) Global Vision, (6) Caritas Thailand, (7) World Vision (Myanmar), (8) Myanmar Red Cross Association, (9) Myanmar Maternal and Child Welfare Association, (10) Myanmar Women's Affair Federation and (11) Myanmar Baptists Church Union.

² Department of Social Welfare

4.9 Current Programs for Elder People

The Government of the Republic of the Union of Myanmar, the Ministry of Social Welfare, Relief and Resettlement and Ministry of Health are implementing elderly care programs in collaboration with UN agencies, International Communities, INGOs and Local NGOs. Some current programs for elder people are in the followings: (1) Home for the Aged, (2) ROK-ASEAN Home Care Program, (3) Elder people Self Help Group, (4) Rural Development on Ageing, (5) Health Care Project for Elder Persons, (6) Day Care Centre (Pilot Study) and (7) Paid Home (Pilot Study).

CHAPTER 5

EMPIRICAL RESULTS AND FINDINGS

The present chapter provides an overview and description of the research design and methodology employed in this study and results of the survey. The research design is presented, followed by a description of the participants and sampling methods used. A brief explanation of the measures and analysis utilized in this study is then described. Finally, results and findings are also described.

5.1 Research Design

A quantitative design was employed in this study whereby participants were asked to complete self-report survey-type questionnaires; the responses from the questionnaires were coded into numerical data. More specifically, the exploratory descriptive design was employed in the present study.

According to Rosnow and Rosenthal (1996), a descriptive design is a necessary initial step in research as it enables one to establish the foundations for future research in a given field. The study is descriptive in nature as the aim of the study is to accurately describe the characteristics of a particular group (De Vos, 2000), in this case, elderly persons in Monywa Township. Descriptive research can be more specifically defined as the description of thoughts, attitudes, behaviours and feelings of a particular group of participants (Cozby, 1993; Leary, 1991). Thus, a descriptive design aims to accurately portray a specific picture or a profile of a specific individual, group, situation or event as well as to describe relevant processes or mechanisms that affect the phenomena being studied (De Vos, 1998).

When choosing a research method, it is important to consider its advantages and disadvantages. There are several advantages in conducting survey research in that this type of research saves time and money, the results obtained are accurate, the confidentiality regarding the participants' responses is well kept, and there is no interviewer bias (Rosnow & Rosenthal, 1996). The measurements in this type of research are easy to administer, use, score and code. The measurements also enhance reliability and validity as it allows all participants the same option (Rosnow & Reosenthal, 1996).

The measurements usually present a number of items or questions that may have forced-response choices (rating scales), or open-ended questions (interviews). In this study, measurements with forced-choice questions were employed. Lastly, exploratory-descriptive research is advantageous as it increases the understanding of a particular field of interest and allows for the development of theory (Babbie, 1992).

Despite the existing advantages, it is important to note some of the disadvantages, of the survey method. The participants are not always honest, and their different responses may not reflect their subjective reality (Barker et al., 1994). Another disadvantage is that survey method is rigid as it is limited in response variations (Cozby, 1993).

In summary, given the nature and the aims of this study, this research decides that the disadvantages are outweighed by the appropriateness of this method of design for the research at hand. In the following section, an explanation of the participants and sampling methods utilized is provided.

5.2 Sample Design

The sample design employed in this survey is two-stage cluster sampling with stratification. This design is probably the most commonly used sample design. Under this sample design, Monywa Township was divided into two strata, rural and urban. There are 26 wards (32334 households) in the urban area and 57 village tracts (30628 households) in the rural area. In the first stage, 5 wards in stratum I and 15 village tracts in stratum II were chosen randomly and at the second stage, a random selection of 560 households in stratum I and 960 households in stratum II proportionate to population size were undertaken. Of these, 551 households were interviewed in stratum I (98% response of the households level) and 950 households in stratum II (99% response of the households level) were conducted yielding a total of 2014 eligible elderly persons (aged 60 and above years) and 1979 completed elderly person interviews (98% response). So, there are 859 elderly persons in urban area and 1120 elderly persons in rural area. In Monywa Township, the number of elderly persons age 60 and above was 77182 persons in 2011 years. In this study, 2.56% of the total elderly persons in Monywa Township were successfully interviewed. (See appendix A detailed of the selection of sample size)

Table 5.1
Required Sample Size for Each Stratum

Stratum	b (Wards /Villages)	n (Households)
I (Urban)	5	560
II (Rural)	15	960

95% confidence limits for means/percentage ($\pm 0.1s/\pm 5.0\%$)

5.3 Measures

Living Arrangements

Data regarding living arrangement were specified by unique categories of relationship to older people. Several categories that reflect living arrangements of elder people were constructed. For the objectives of this study, living arrangement, (1) living alone (2) living with spouse (3) living with adult children (4) living with spouse and adult children and (5) living with other people. Table 5.2 clearly explains the independent variables, availability of kin (This study use the number of living children), age, socio-economic and health status, gender, education and place of residence.

Demographic Variables

The demographic variables of gender, marital status and age are indicated by female-headed household, couple household and age. The variable for female-headed household is coded as “0” or “1” with “1” representing female-headed household and “0” representing male-headed household. Moreover, three categories that reflect age of elder people were constructed. The age category of (60-69), (70-79) and 80 and over were used in this study.

Table 5.2
Definitions of the Dependent and Independent Variables Included in the Statistical
Models for Living Arrangements

Variable	Definition
▪ Living arrangements	1 = living alone 2 = living with spouse 3 = living with adult children 4 = living with spouse and adult children and 5 = living with other people
▪ Demographic variables	
Age Groups	1= (60-69) 2 = (70-79) 3 = 80 and over
Gender of respondent	1= elderly female 0= elderly male
▪ Female headed household	1= if elderly person is female and head of household 0= if elderly person is not female and head of household
▪ Potential opportunity	
Number of living children	0 = Number of living children has no adult living children or grand children
Has adult living children or grand children	1= Number of living children has adult living children or grand children
▪ Needs	
Current Health Status	
Able to perform their activities of daily living	1 = very good 2 = good 3 = average 4 = poor

Table (5.2) Continued

Variable	Definition
■ Resources Socio-economic status (state of economic dependence and possession of land or house) Education Cultural factors Rural residence	1 = low 2 = high 3 = moderate 1 = illiterate 2 = literate 3 = under graduate & graduate 4 = post graduate 1 = if elderly person resides in the rural area 0 = if elderly person resides in the urban area

Source: Own identification

Potential Opportunities for Co-residence

Family size was drawn from the question that asked about the number of living children the respondent had and their characteristics. Answers to this question varied from “0” to 14”. Another variable was living with children in the same household. This was derived from the question that asked the respondent to identify other household members. A choice of potential persons was given and multiple answers could be expected. A dummy variable was created for the variable “living children”, “0” for those older people who did not have living children and “1” for those with living children.

Needs

This category had two variables derived from several questions in the survey. Respondents answered questions regarding their health status. Health status variable was derived from their activities of daily living. Elder people who were not able to perform their activities of daily living were coded “4” (poor) and those able to perform one or more of these activities were coded “1” (very good), “2” (good) and “3” (average).

Resources

This category was derived from the question that asked respondents to indicate if they owned a home and land. This is one of the variables that might facilitate independent living and also reflects socio-economic status of the elderly. Socio-economic variable was created according to their position of land or house. For the education variable, respondents were asked to indicate the number of classes they had attended school, based on seven educational levels, illiterate, literate but no formal education, school (class 1-5), school (class 6-9), under graduate, graduate and post graduate. The education variable was also be used in the analysis as a proxy to measure traditional attitudes.

Cultural Factors

The place of residence is a factor that is considered to be crucial in assessing social support of elder people. Thus, the geographic location is an important factor in this study. The urban place was coded as “0” and rural place as “1”.

All these variables were originally categorical or were transformed into categorical variables. Then, each category was transformed into a dummy variable to be included in the multivariate analysis.

5.4 The Analysis

Using the survey data, the frequency distribution, means and standard deviation (s.d) of the different types of living arrangements and the socio-economic, socio-demographic and health characteristics were examined for the total sample and for men and women. Multivariate logistic regression then was conducted to examine the association between the various measures of socio-economic and demographic with outcome variable while controlling for the confounders described above. Prevalence odds ratios (OR) were obtained, and the significance of each was assessed using the Wald test.

All statistical analyses were performed using SPSS version 16, and a 5 percent level ($p < 0.05$) applied for statistical significance.

5.5 Results and Findings

In this section, firstly, descriptive statistics were used to analyze the living arrangements and sources of familial support of the elderly in Monywa Township, categorized by sex, age, marital status, religion, education, occupation, source of income, health characteristics, expenditure on healthcare, economics dependence, socioeconomic status, perception about your life, daily activity, happy your life and living arrangements of the elderly persons. Demographic characteristics of the elderly persons in Monywa Township are reflected in Table (5.3).

Table 5.3
Demographic Characteristics of Elderly Persons in Monywa Township

Items	Number	Percent
Gender		
Male	764	38.60
Female	1215	61.40
Total	1979	100
Age Group		
60-69	905	45.73
70-79	735	37.14
80 and over	339	17.13
Total	1979	100
Mean 71.13 Median 70 Mode 65 SD 7.915 Min 60 Max 102		
Place of Residence		
Rural	1120	56.60
Urban	859	43.40
Total	1979	100

Table 5.3 Continued

Items	Number	Percent
Marital Status		
Never Married	136	6.87
Currently Married	1	0.05
Widowed	866	43.76
Divorced	23	1.16
Separated	18	0.91
Live Together	935	47.25
Total	1979	100
Religion		
Buddhists	1977	99.99
Christians	2	0.10
Total	1979	100

Source: Survey Data, 2012

This study found that there were more female than male in Monywa Township and their average age were 71 years old. Almost half of them aged 60-69 years old, while those age 80 years above make up only 17.13% and most of them lived in the rural. Married elderly lived together with adult children consisted of 47.25% while only 0.05% were currently married and most of them worshiped the Buddhism.

Table 5.4 shows the socio-economic characteristics of elderly persons in Monywa Township. In this study, the attributes of the respondents include education, occupation, sources of income, health condition, expenditure of healthcare (monthly), economic dependence, perception about your life, daily activity and happy your life.

Table 5.4
Socio-economic characteristics of elderly persons in Monywa Township

Items	Number	Percent
Education		
Illiterate	313	15.92
Literate but non formal education	969	48.96
School (class 1-5)	452	22.84
School (class 6-9)	144	7.28
Under Graduate	46	2.32
Graduate	53	2.68
Post Graduate	2	0.10
Others	0	0.00
Total	1979	100
Occupation		
Farmer	355	17.94
Wage Laborer	72	3.64
Skilled Worker	26	1.31
Shop Keeper	27	1.37
Self Employed	279	14.10
Government Sector Employee	8	0.40
Private Sector Employee	20	1.01
Homemaker	110	5.56
Retired	21	1.06
Unemployed	1060	53.56
Others	1	0.05
Total	1979	100

Table 5.4 Continued

Items	Number	Percent
Sources of Income		
Children	1733	87.57
Spouse	104	5.25
Relatives	130	6.57
Friends	12	0.61
Others	0	0.00
Total	1979	100
Health Condition		
Very Good	188	9.50
Good	988	49.92
Average	599	30.27
Poor	203	10.26
Very Poor	1	0.05
Total	1979	100
Expenditure on Healthcare (monthly) (Kyats)		
No health expenditure	529	26.73
Under 5000	507	25.62
5000 – 14999	533	26.92
15000 – 24999	198	10.01
25000 – 34999	125	6.32
35000 and above	87	4.40
Total	1979	100
Mean 11409.41 Median 5000 Mode 5000 SD 13001.99 Min 500 Max 90000		

Table 5.4 Continued

Items	Number	Percent
Economic Dependence		
Not Dependence	328	16.57
Partially Dependence	612	30.93
Fully Dependence	1039	52.50
Others	0	0.00
Total	1979	100
Perception about your life		
Satisfied	1787	90.30
Not Satisfied	111	5.62
Feel somewhat dissatisfied with my life	60	3.02
Often feel lonely	21	1.06
Total	1979	100
Daily Activity		
In Active	122	6.16
Moderate	1202	60.74
Active	655	33.10
Total	1979	100
Happy your life		
Very Happy	580	29.31
Fairly Happy	1325	66.95
Not Very Happy	49	2.48
Not Very at all	25	1,26
Total	1979	100

Source : Survey data, 2012

The results in Table 5.4 show that almost one half had no formal schooling while only 0.10% was post graduate. More than half of them were un employee. So,

most of them take the supporting from their children.

Due to personal health factors almost half of them perceived their health status as good. Moreover, the average monthly expenditure on healthcare was 11409 kyats. In condition of the state economics dependence, it was found that they had fully dependence. Then the perception of their life had the satisfaction but most of them were fairly happy. In general physical health, the highest proportion was moderate in their daily activity.

Similarly, number and percentage of the elderly in Monywa Township sample survey, 2012 categorized by living arrangement are shown in Table 5.5.

Table 5.5

Number and percentage of the elderly in Monywa Township

Living Arrangements	Number	Percent
Alone	72	3.64
Only with spouse	129	6.52
With adult children	921	46.54
With spouse and children	785	39.66
With others	72	3.64
Total	1979	100.00

Source: Survey Data, 2012

According to Table 5.5, more than half of the 1979 elderly lived with adult children without spouse. 39.66 per cent of them lived with their spouse and children and 6.52 per cent lived with their spouse without children. 3.64 per cent lived alone and others.

5.5.1 Demographic Determinants of Living Arrangements of the Elderly in Monywa Township

The major demographic factors considered here that determine the living arrangements of the elderly in Monywa Township are age, sex and marital status.

Table 5.6
Distribution of Living Arrangement of Elderly by Demographic Variables in
Monywa Township

Demographic Variables	Living Arrangements of Elderly (%)				
	Alone	Only with spouse	With adult children with family	With spouse adult children	With others
Age**					
60 – 69	1.41	3.94	15.51	22.74	2.12
70 – 79	1.31	2.12	18.70	13.95	1.06
80 and over	0.91	0.45	12.33	2.98	0.45
Sex**					
Male	0.81	3.69	11.42	21.63	1.06
Female	2.83	2.83	35.12	18.04	2.58
Marital status**					
Never married	1.77	0.00	1.97	0.00	3.13
Currently married	0.00	0.05	0.00	0.00	0.00
-Widowed					
-Divorced	1.72	0.00	41.54	0.10	0.40
-Separated	0.00	0.00	1.16	0.00	0.00
-Live together	0.10	0.00	0.81	0.00	0.00
	0.05	6.52	1.01	39.46	0.20
No. of children**					
0	3.54	6.52	1.82	0.76	0.80
1	0.05	0.00	21.53	13.54	1.11
2	0.00	0.00	11.62	11.42	0.96
3 ⁺	0.00	0.00	11.62	13.95	0.76

**, *Statistically significant at 1%, 5% level respectively.

Source: Survey Data, 2012

Age and Living Arrangements

Studies have shown that age of the elderly was one of the important determinants of living arrangements. For the present analysis, the age of elderly has been categorized as younger old, older old and oldest old, in the age groups of 60 – 69, 70 – 79 and 80 and above, respectively. The corresponding percentage of younger old, older old and oldest old in the sample was 45.73, 37.14 and 17.13 percent respectively.

Table (5.6) presents the association between the age of the elderly and their living arrangements in Monywa Township. It is quite evident from this table that as they got older, the proportion of elderly living alone decreased. The proportion of elderly living alone was highest in the age group 60 – 69 years (1.41 percent). This proportion reduced to 1.31 percent when the elderly moved to the age group 70-79 years and it reduced further to 0.91 percent when the elderly reached 80 years and above indicating lesser changes of the elderly living alone when they grow older. This may be due to their declining capacity for self-care as they grow older. Furthermore, irrespective of the age, living without but with children was the most common living arrangement observed in Monywa Township. It was also interesting to observe that a positive relationship existed between the age of the elderly and living without spouse but with children. As their age increased, the proportion of the elderly living without spouse but with children also increased. This could be because of the fact that as they got older there was a higher chance of widowhood. Similarly, the proportion of elderly living only with spouse and with others also decreased with age. Higher the age of the elderly lesser was their chance of living alone. Pearson's chi-square test statistic also confirmed that the age and living arrangement relationship was statistically significant.

This relationship may however be quite complex because there was a negative relationship between age and living alone, living only with spouse, living with spouse and children and living with others, these may not be solely due to age alone, but due to reasons of an economic nature as well. As the elderly grow older they may depend economically on others and therefore they co reside with others when compared to the younger old who are economically active. Therefore, further analysis was required to deduce the exact relationship between age and living arrangements considering other economic variables.

Gender and Living Arrangements

The gender of the elderly was another important demographic indicator that determined their living arrangements. Table (5.6) presents the relationship between the gender of the elderly and their living arrangements. The table shows that in Monywa Township the proportion of elderly women who lived alone (2.83 percent) was higher than that of elderly men who lived alone (0.81 percent). This is same with the pattern observed elsewhere in the world where more elderly women live alone than elderly men. In contract, more males than females lived with spouse only. This matches with the study of Napaporn Chayowan and John Knodel (1996) titled “Survey Report of the Elderly in Thailand”, National Statistical Office (2001) on the topic “Thai Elderly”, Casterline, JB et al. (1991) titled “Difference in The Living Arrangement of the Elderly in Four Asia Countries: The interplay of Constraints and Preference”, and Jitapunkul, et al. (1997) on “Ageing in Thailand” which found that there were more female than male elderly who lived alone. On the other hand, male elderly preferred living with their spouse. This is because of the difference in life expectancy and the difference in social status which offer men more opportunities to remarry than female.

Among those who were in co-residence, majority of the females (35.12 percent) lived without spouse but with children, majority of the males (21.63 percent) lived with spouse and children. Studies conducted elsewhere have also shown that more males rather than females lived with their spouses (Bian, et al. 1998; Chan, 1997, Bongarrrts and Zimmer, 2001; Knodel and Ofstedal, 2003; Panda, 1997; Shah, et al. 2002; Zimmer, 2005). As mentioned earlier, this may be due to higher incidence of widowhood among elderly females than among elderly males (Chan, 1997; Sobieszczyk, Knodel and Chayovan, 2003; Lee and Palloni, 1992; NSS, 1998; 2006, United Nations, 2005; Shan et al. 2002). Here again, it may be difficult to establish the relationship between gender and living arrangements unless the marital status was controlled. The next attempt therefore is to look at the differentials in living arrangements according to marital status.

Marital Status and Living Arrangements

The marital status of the elderly was divided into six categories: never married, currently married, widowed, divorced, separated and live together. In this sample, majority of the elderly were live together (47.25 percent) or widowed (43.76 percent) while a small proportion was currently married (0.05 percent). The proportion of never married (6.87 percent) was negligible in this sample.

Table (5.6) also presents the association between marital status and living arrangements of elderly persons in Monywa Township. Since the number of persons who were currently married and separated was very small, comparisons were made only for those who were widowed versus live together. It can be seen from the table that a relatively higher proportion of live together lived alone (0.05 percent) compared to the elderly who were widowed (1.72 percent). However, majority of the widowed (41.54 percent) lived with their children. It could be true in the Myanmar traditional context that the widowed elderly are generally looked after by their children. The X^2 test also confirmed the existence of a significant difference in living arrangements of elderly according to their marital status.

Number of Children and Living Arrangement

Another important demographic factor that determines the living arrangements of the elderly is the presence of children. It is generally believed that, in traditional societies including Myanmar, children are considered as security during old age. In this sample, the percentage of elderly, with no children, one child, two children, and the three or more children was 13.44, 36.23, 24.00 and 26.33 percent respectively.

Table (5.6) presents the association between number of children and living arrangements of elderly in Monywa Township. Majority of the elderly with no children either lived alone (3.54 percent) or with others (0.80 percent). It was possible that some of them had no children. As expected, the number of children was negatively associated with living alone. Only 0.05 percent of the elderly lived alone when they had one child whereas 3.54 percent of the elderly lived alone when they had not have any children. Studies conducted elsewhere also generally supported the view that the number of children positively related to the probability of living with them (Bian, et al. 1998; Burch

and Mathews, 1987; Martin, 1989; Rajan and Kumar, 2003; Zimmer and Kwong, 2003). More the number of children better are the chances of the elderly to co reside with them. It is possible that when there are more children, at least one of them will take care of the elderly. The X^2 test also confirmed a significant difference in living arrangement for the elderly based on the number of children.

5.5.2 Socio-economic Determinants of Living Arrangements of the Elderly in Monywa Township

The socio-economic has the strongest impact on the living arrangements of the elderly in any part of the world. The major socioeconomic variables considered for the analysis were place of residence, education, occupation, and income of the elderly. Since the income of the elderly is not directly available from the survey data, other variables like land (house) ownership, state of economic independence, socioeconomic status and source of income were taken as proxy variables that determine the economic status of the elderly. Table 5.7 shows the socio-economic determinants of living arrangements of the elderly in Monywa Township.

Table 5.7
Distribution of Socio-economic Determinants of Living Arrangements of Elderly in
Monywa Township

Socio-economic Variables	Living Arrangements of Elderly (%)				
	Living alone	Living with only & spouse	Living with adult children	Living with spouse and children	Living with others
Place of Residence*					
-Urban	1.67	2.73	20.72	16.57	1.72
-Rural	1.97	3.79	25.82	23.09	1.92
Level of Education**					
-Illiterate	1.01	0.35	10.01	4.09	0.35
Literate but no format education	1.26	3.28	22.74	20.36	1.31
-School (class 1-5)	1.11	1.67	9.80	9.15	1.11
-School (class 6-9)	0.10	0.66	2.68	3.59	0.25
-Under graduate	0.00	0.15	0.61	1.31	0.25
-Graduate	0.15	0.40	0.71	1.06	0.35
-Post graduate	0.00	0.00	0.00	0.10	0.00
State of Economic Dependence***					
-not dependent	1.67	3.44	3.99	6.32	1.16
-partially dependent	0.45	0.96	13.24	15.56	0.71
-fully dependent	1.52	2.12	29.31	17.79	1.77

Table (5.7) Continued

Socio-economic Variables	Living Arrangements of Elderly (%)				
	Living alone	Living with only & spouse	Living with adult children	Living with spouse and children	Living with others
Occupation**					
Farmer	0.40	0.86	6.93	9.04	0.71
Wage laborer	0.20	0.46	1.47	1.36	0.15
Skilled worker	0.05	0.15	0.35	0.76	0.00
Shop keeper	0.00	0.05	0.56	0.70	0.05
Self employed	0.96	1.47	5.36	5.50	0.81
-Government sector employee	0.00	0.05	0.05	0.30	0.00
-Private sector employee	0.05	0.10	0.20	0.56	0.10
-Retire	0.31	0.76	1.26	2.98	0.25
-Unemployed	1.57	2.53	29.90	18.09	1.52
-Others	0.10	0.10	0.46	0.35	0.05
Source of Income**					
Children	2.43	1.97	44.41	38.66	0.10
Spouse	0.20	4.14	0.40	0.51	0.00
Relatives	0.91	0.20	1.62	0.35	3.49
Others	0.10	0.20	0.10	0.16	0.05
Possession of Lands(House)*					
-Own	3.54	6.27	45.83	39.57	3.64
-Rent	0.10	0.25	0.70	0.10	0.00

**, *Statistically significant at 1%, 5% level respectively.

Source: Survey Data, 2012

Place of Residence and Living Arrangements

Table (5.7) presents the living arrangements of the elderly according to their place of residence. In the sample, 43 percent of the elderly were from urban areas and 57 percent from rural areas. The data showed that although co residence was the most common living arrangement in both areas, a slightly higher proportion (1.97 percent) of the elderly from rural areas lived alone compared to their urban counterparts (1.67 percent). This study finds that there are less elderly living in urban areas who are like to stay alone than those in the rural areas. The result of this study is similar to the study of “Elderly in Chiangmai” by Krueksak Bunyanupong et al. and the study of Andrews et al. (1986) entitled “Ageing in the Western Pacific a Four countries, Study in Manila”, which found that there were less elderly living in the city who lived alone or with their spouse, than those living in the suburb. This appears to be the result of urbanization especially in the capital, where business, activities and other attractions draw members away from their families in the countryside seek opportunities and a more comfortable life. Furthermore, similar findings were recorded in studies conducted in developing countries. As expected, among the elderly who were in co residence the most common arrangement irrespective of their residence was living with children. Further, a small proportion of the elderly lived with other relatives or non-relatives. Here, the Pearson’s chi-square test statistic was not significant suggesting that there was no marked difference in the living arrangements of elderly in Monywa Township on the basis of their place of residence.

Education and living Arrangements

The education level of the elderly also plays an important role in determining their living arrangements. It was found that with increase in their educational level, the pattern of co residence systematically diminished (Andrade and De Wos, 2002; Bongaarts and Zimmer, 2001; Pal, 2004; Martin, 1989; Shah, et al 2002). Generally, elder persons with less education were more likely to live in traditional extended family households than those with better education. However, contradictory findings were observed across various countries studies show that the average proportion living with children was higher among those with some education in Africa, Latin America and the Caribbean, and among those in Asia with no education.

In Table (5.7), it can be seen that the highest proportion living alone (1.26 per cent) was among the elderly with the (Literate but no formal education) level of education compared to elderly who were illiterate (1.01 percent) or had education up to post graduate level (0.00 per cent). Hence it is evident that a certain level of minimum education was necessary for people to decide about living alone. Further, the highest proportion living with children (22.74 percent) was among the elderly with the (Literate but no formal education) level of education. Therefore, the highest education they received primary levels. The Pearson's chi-square test statistic was significant here too, meaning that there was a significant difference in the living arrangements of the elderly based on the level of education.

Occupation and Living Arrangements

The occupation level of the elderly also plays an important role in determining their living arrangements. Table (5.7) shows the living arrangements of the elderly according to their occupation. In the sample, 53.61 percent of the elderly were un employee and 0.40 percent of the elderly were government sector employee. The data showed that, the highest proportion (29.90 percent) of the elderly from their un employee status lived with children compared to their government sector employee counterparts (0.05 percent). The chi-square test statistic was found to be significant with the association of occupation and living arrangements of elderly persons in Monywa Township. From this analysis, it is evident that there was difference in the living arrangements of elderly in Monywa Township based on occupation.

Income and Living Arrangements

The income of the elderly is one of the important determinants of their economic status. Studies in developed countries have concluded that majority of the elderly are with lower income for various reasons. However, results from developing countries give a mixed picture. As already pointed out, the direct income of the elderly was not collected through the survey. Instead, source of income, ownership of land (House), state of economic dependence and socio-economic status can be used as the best proxy to determine the economic status of the elderly persons.

Table (5.7) provides the pattern of living arrangements of elderly based on source of income. The data showed that, the highest proportion (44.41 percent) from their children lived with children compared to their others (non-relation counterparts (0.10 percent). Pearson's chi-square test statistic was significant; it means that, the living arrangements of the elderly changed according to their source of income.

Possession of land (House) and Living Arrangements

Possession of land is another important variable that determines the economic status of the elderly. Table (5.7) shows that the ownership of land (House) influenced the living arrangement. It was found that the association between possession of land (House) and living arrangements was significant. It means that there was significant difference in the living arrangements based on possession of land (House).

It is clear that economic variables, such as source of income and ownership of land (House), did not perfectly influence the living arrangements of the elderly in Monywa Township because these variables were shaping the living arrangement choice. Yet another reason could be that these variables did not really measure the economic status of the elderly individual. It measured only the economic status of the household. It is probable that the economic status of the individual may be more important in shaping their living arrangements rather than that of the household. It is probable that the economic status of the individual may be more important in shaping their living arrangements rather than that of the household. In order to assess the economic status of the elderly, the variable state of economic dependence was considered next.

State of Economic Dependent and Living Arrangements

The state of economic dependence of the elderly is categorized as those who are not dependent, partially dependent, and fully dependent on others. The main aim of linking the state of economic dependence with living arrangements was to find out how economic dependence decided the living arrangements of the elderly in Monywa Township. Table (5.7) presents the data on living arrangements based on the state of economic dependence. The data show that only about 17 percent of the elderly were economically independent in Monywa Township. Majority of the elderly either depended

fully (53 percent) or partially (31 percent) on others. The table clearly shows that the decision to live alone often depended on economic independence. Nearly 2 percent of the economically independent elderly lived alone, this proportion was much less for elderly who were partially 0.45 percent, or fully dependent (1.52 percent) on others. Further, the highest proportion of elderly living with children was 29.31 percent and they were fully dependent on their children. This finding confirmed the fact that the income of the elderly was more important than the income of the household in determining the living arrangement. Pearson's chi-square test statistic was significant, which implies that there was a clear difference in the living arrangements with reference to the state of economic independence.

5.5.3 Health and Psychosocial Status Determinants of Living Arrangements of the Elderly in Monywa Township

Health and Psychosocial Status are important variables on the living arrangements of the elderly in the world. The major variables considered for the analysis were daily activity, psychosocial status and happy status.

Similarly, Table 5.8 shows the distribution of living arrangements of elderly by health and psychosocial status in Monywa Township.

Table 5.8
Distribution of Living Arrangement of Elderly by Health and Psychosocial Status in
Monywa Township

Health and Psychosocial Status	Living Arrangements of Elderly (%)				
	Living alone	Living with only & spouse	Living with adult children	Living with spouse and children	Living with others
Daily activity**					
In active	0.30	0.10	3.54	1.92	0.30
moderate	2.48	4.35	29.46	22.33	2.12
Active	0.86	2.07	13.54	15.41	1.22
Psychosocial status**					
-Satisfied	2.73	6.12	41.79	36.48	3.18
-Not satisfied	0.51	0.10	2.83	1.87	0.30
-Feel somewhat dissatisfied with my life	0.10	0.20	1.31	1.26	0.16
-Often feel lonely	0.30	0.10	0.61	0.05	0.00
Happy status**					
-Very happy	0.91	2.53	13.64	11.52	0.71
-Fairly happy	2.22	3.74	30.62	27.54	2.83
-Not very happy	0.20	0.10	1.77	0.36	0.05
-Not very at all	0.30	0.15	0.51	0.25	0.05

**, *Statistically significant at 1%, 5% level respectively.

Source: Survey Data, 2012

Psychosocial status and living Arrangements

Psychosocial status of the elderly is categorized as those who are satisfied, not satisfied, feel somewhat dissatisfied with their life and often feel lonely. The main aim of linking the psychosocial status with living arrangement was to find out how general psychosocial status decided living arrangements of the elderly in Monywa Township. Table (5.8) presents the data on living arrangements based on the psychosocial status. The data show that only about 91 percent of the elderly were satisfied. In the proportion, the highest proportion of elderly living with children was 41.79 percent. Similarly, in happy status, only about 67 percent of the elderly were fairly happy and they lived with children. Further, in their daily activity, only about 61 percent of the elderly were moderate activity and 29.46 percent of the moderate activity elderly lived with children. It can also be seen from the table that, only about 7 percent of the elderly were inactive and 3.54 percent of the elderly inactive lived with their children. The chi-square test statistics was found to be significant with the association of health, psychosocial status and living arrangements of the elderly persons in Monywa Township. From this analysis, it is evident that there was different in the living arrangement of the elderly in Monywa Township based on health and psychosocial status.

5.5.4 Analysis of Multinomial Logistic Regression

The analysis and discussions of the previous sections clearly indicate that there are differentials in living arrangement based on socio-economic and demographic factors. But the relative contribution of these variables cannot be studied using the bivariate tables presented earlier, although they have provided fruitful insight into the nature of the relationship. Since the living arrangement is governed by a host of socio-economic and demographic variables, it is necessary to control the effect of other variables in order to find out the net effect of each of the individual variables. Clearly there is a need for multivariable to find out the net effect of each variable. In order to quantify the net effect of the background variables on living arrangements the multinomial logistic regression analysis was carried out. Since in the present analysis the dependent variables were (1) Living alone (2) living with only spouse (3) living with adult children or grandchildren without spouse (4) living with spouse and adult children or grandchildren and (5) living with others, the multinomial logistic regression model was the appropriate technique to

assess the influence of explanatory variables on the dependent variable. The independent variables in the model were split into five categories: demographic, cultural, potential opportunities, needs, and resources. Under demographic variables age and female headed household were included as explanatory variables. Cultural variable includes place of residence either rural or urban. Potential opportunity was considered as a proxy to the number of living children. Similarly, needs variable was health status and resources were education and state of economic independence was the explanatory variables.

The results of multinomial logistic regression analysis were divided into four Models based on the dependent variables and different independent variables. In this study, identification between dependent variables and different independent variables are named as Model 1 to Model 4 which is shown in Table 5.9.

Table 5.9
Identification of Independent and Dependent Variables for Multinomial Logistic Regression Analysis

No.	Dependent Variables	Independent Variables	Model
1	Living Arrangements	Demographic Attributes	Model 1
2	Living Arrangements	Kin Availability	Model 2
3	Living Arrangements	Needs or Health Status	Model 3
4	Living Arrangements	Social and Economic Status	Model 4

According to Table 5.9, four different models represented the results of multinomial logistic regression analysis, based on different independent and dependent variables. Model 1 represents the results of multinomial logistic regression analysis between independent variables such as demographic attributes (age, female headed household) and dependent variable such as living arrangements (living alone, living with only spouse, living with adult children or grandchildren without spouse, living with spouse and adult children or grandchildren and living with others). Also Model 2 stands for the results of multinomial logistic regression analysis between living arrangements as dependent variable and kin availability as independent variable. Multinomial logistic regression results of dependent variable (Living Arrangements) and independent variable

(Needs or Health Status) is named as Model 3. Finally, Model 4 is identified as living arrangements as dependent variable and social and economic status as independent variable. Detailed analysis results of individual model are shown in the next section.

5.5.4.1 Results of Multinomial Logistic Regression Analysis for Model (1)

Model 1 includes independent variables representing the demographic attributes such as age, female head of household and cultural and living alone, living with only spouse, living with adult children or grandchildren without spouse, living with spouse and adult children or grandchildren and living with others as a dependent variable. The results of multinomial logistic regression for model 1 are shown in Table 5.10.

Table 5.10
Results of Multinomial Logistic Regression Analysis between Living Arrangements and Demographic Variables in Model (1)

and Demographic Variables in Model (1)					
LA		B	Wald	Sign	Exp(B)
Living alone / spouse	Intercept	2.397**	8.856	0.003	0.000
	Female headed household	0.459	1.092	0.296	1.582
	Place of residence	-1.416 *	6.046	0.014	0.243
	Age (60- 69)	-0.224	0.105	0.746	0.800
	(70-79)	-0.093	0.015	0.903	0.911
Living with children / relatives	Intercept	5.773**	58.972	0.000	0.000
	Female head of household	0.554	1.917	0.166	1.740
	Place of residence	-2.027 **	13.837	0.000	0.132
	Age (60- 69)	-0.871	1.910	0.167	0.418
	(70-79)	-0.115	0.027	0.869	0.891
Cox & Snell R ²		0.026			
Nagelkerke R ²		0.057			
McFadden R ²		0.043			
Classification		92.7%			
N		1979			
**, *Statistically significant at 1%, 5% level respectively.					

Source: Survey data, 2012

As shown in Table 5.10, concerning degree of correctness, the overall percentage classification of 92.7% means that Model 1 correctly predicted the impact of demographic variables on living arrangements. The values of three R squares in this model indicate the proportion of variation being explained by the model. Only about 6% is being explained by the demographic variables.

The first half of Table 5.10 has the outcome of “Living alone/spouse” compared to “Living with other family (non-relatives)” – females compared to males were likely to be “Living with other family (non-relatives)”, Odds Ratio (OR) = 1.582, $p = 0.296$. This indicates that female elder people who are heads of households are more likely to co-reside with other family members than male elder people who are heads of households. Similarly, female elder people living with children/relatives are more likely to co-reside with other family members – OR = 1.74, $p = 0.166$. The second one is place of residence, with an odd ratio of 0.243) indicates that elder people in rural area were more likely to be “Living alone/spouse”. Similarly, elder people in rural area were also more likely to be “Living with children/relatives”- OR = 0.132, $p = 0.000$. In addition, another predictor is age. The age effect is not significantly different types of living arrangements. Therefore, the age effect has no impact on living arrangement.

Therefore, this model clearly demonstrates that the cultural factors defined by place of residence have not impact on elder people’s choice of living arrangements. And also the result of Model 1 supports the first and second hypothesis. The first and second hypothesis is:

H1: Owing to the out-migration of young people from rural area, location of elder people in an urban area will increase the likelihood of co-residence with children.

H2: Female elder people who are heads of household are more likely to co-reside with other family members than male elder people who are heads of household.

According to the survey results, it can be seen that the cultural factor hypothesis do not confirm in this study. However, place of residence in Model 1 are significant. The results of female headed households in Model 1 for different living arrangements confirm the second hypothesis. However, the findings in Model 1 are no significance.

5.5.4.2 Results of Multinomial Logistic Regression Analysis for Model (2)

Model 2 represents the analysis between dependent variable (Living Arrangements) and independent variable (Potential Opportunities such as number of living children) which is shown in Table 5.11.

Table 5.11
Results of Multinomial Logistic Regression Analysis between Living Arrangements and Potential Opportunities in Model (2)

LA		B	Wald	Sign	Exp(B)
Living alone / spouse	Intercept	3.385**	16.589	0.000	0.000
	Female headed household	-0.168	0.139	0.709	0.845
	Place of residence	-1.18 *	4.15	0.042	0.307
	Age (60- 69)	-0.201	0.083	0.773	0.818
	(70-79)	0.012	0.000	0.988	1.012
	Number of living children	-4.486 **	19.571	0.000	0.011
Living with children / relatives	Intercept	5.632**	53.253	0.000	0.000
	Female headed household	0.605	2.213	0.137	1.831
	Place of residence	-2.026 **	13.792	0.000	0.132
	Age (60- 69)	-0.880	1.942	0.163	0.415
	(70-79)	-0.125	0.032	0.858	0.883
	Number of living children	0.107	0.494	0.482	1.113
Cox & Snell R ²		0.120			
Nagelkerke R ²		0.267			
McFadden R ²		0.214			
Classification		92.7%			
N		1979			
**, *Statistically significant at 1%, 5% level respectively.					

Source: Survey data, 2012

In Table 5.11, overall percentage classification 92.7% shows the degree of corrective prediction between living arrangements and potential opportunities in Model 2. The values of three R squares in this model are 0.120, 0.267 and 0.214 which give the

range of variability of the dependent variable. It means that only between 12% and 27% of the variability in this Model 2's dependent variable (Living Arrangements) can be explained by potential opportunities. In Model 2, number of living children and place of residence (living with children/relatives) are significance at 1% level and place of residence (living with alone/spouse) is significance at 5% level. For elder people living with alone/spouse, the odd ratio of 0.011 for number of living children describes that the number of living children increases the likelihood (at $p < 0.01$ level) of elder people living with alone/spouse. Similarly, the odd ratio of 1.113 for number of living children reveals that the number of living children increases the likelihood (at $p > 0.05$ level) of elder people living with other family (non-relatives). The next predictor is female headed household with an odd ratio of 0.845 and 1.831 indicating that female elder people are more likely to co-reside with other family members. In addition the outcome of "Living with alone/spouse" compared to other family (non-relatives) – urban compared to rural were less likely to be "Living with alone/spouse", Odds Ratio (OR) = 0.307, $p = 0.042$. Similarly, rural areas were also more likely to be "Living with children/relatives"- OR = 0.132, $p = 0.000$. As also the result of Model 1 the age effect is not significantly different types of living arrangements.

H3: Elder people's household with adult living children are more likely to co-reside with children.

The results support the hypothesis that kin availability will decrease the likelihood of elder people living alone/ spouse. Therefore, it is found that the hypothesis 3 confirmed in this study.

5.5.4.3 Results of Multinomial Logistic Regression Analysis for Model (3)

The degree of relationship between living arrangements and needs (Able to perform their activities of daily living) is represented by Model 3. The results on multinomial logistic regression analysis of Model 3 are shown in Table 12. As shown in the table, 95.9% corrective prediction for impact of needs on living arrangements can be achieved in this Model 3. The range of three R square shows the validity range for living arrangements and it can be explained by needs in terms of validity degree between 27% and 60%. According to the results in Model 3, the number of living children is significant at 1% level and needs is significant at 5% level.

Table 5.12
Results of Multinomial Logistic Regression Analysis between Living Arrangements
and Needs in Model (3)

and Needs in Model (3)					
LA		B	Wald	Sign	Exp(B)
Living alone / spouse	Intercept	3.866**	15.030	0.000	0.000
	Female headed household	0.502	1.017	0.313	1.652
	Place of residence	-1.251*	4.073	0.044	0.286
	Age (60- 69)	-0.304	0.158	0.691	0.738
	(70-79)	0.226	0.072	0.788	1.254
	Number of living children	-6.275**	36,613	0.000	0.002
	Needs (Able to perform their activities of daily living) Inactive	-2.883**	14.044	0.000	0.056
	Moderate	1.042*	3.887	0.049	2.836
Living with children / relatives	Intercept	4.571**	27,686	0.000	0.000
	Female headed household	0.407	0.995	0.318	1.502
	Place of residence	-1.858**	11.439	0.001	0.156
	Age (60- 69)	-0.805	1.610	0.204	0.447
	(70-79)	-0.031	0.002	0.965	0.969
	Number of living children	0.429*	3.974	0.046	1.536
	Needs (Able to perform their activities of daily living) Inactive	1.699**	7.466	0.006	5.471
	Moderate	0.203	0.232	0.630	1.226
Cox & Snell R ²		0.265			
Nagelkerke R ²		0.591			
McFadden R ²		0.518			
Classification		95,9%			
N		1979			
**, *Statistically significant at 1%, 5% level respectively.					

Source: Survey data, 2012

The most influential predictor of living arrangements is number of living children with an odds ratio of 1.536. This reveals that elder people are more likely to co-reside with children/relatives. The next influential predictor is place of residence with an odds ratio of 0.156 indicating that elder people in rural area will increase the likelihood of co-residence with children/relatives. The odds ratio of 5.471 for needs describes that elder people who experience poor health and any disability in activities of daily living are more likely to co-reside with living children/relatives. The odds ratio of 0.056 and 2.836 for needs also describes that elder people who experience poor health and any disability in activities of daily living are more likely to co-reside with alone/spouse. In addition, the predictors of female headed household and age effect are not significantly different types of living arrangements.

According to the results in Model 2 and 3, this study support hypothesis 4 which is:

H4: Elder people who experience poor health and any disability in activities of daily living are more likely to co-reside with adult children.

According to the results in Model 2 and 3, these studies make the conclusion that elder people are significantly more likely to co-reside with living children/relatives. Therefore, variables “Needs” has any effect on elder adults co-residing with living alone/spouse and living with children/relatives. The hypothesis 4 confirms on living arrangements of elderly person.

5.5.4.4 Results of Multinomial Logistic Regression Analysis for Model (4)

Model 4 represents degree of relationship between living arrangements and resources (socio-economic status and education) which is shown in Table 5.13.

Table 5.13
Results of Multinomial Logistic Regression Analysis between Living Arrangements
and Resources in Model (4)

LA		B	Wald	Sign	Exp(B)
Living alone / spouse	Intercept	15.382	0.000	0.994	0.000
	Female headed household	0.878	2.967	0.085	2.407
	Place of residence	1.112	3.043	0.081	3.039
	Age (60- 69) (70-79)	0.610 0.875	0.566 1.008	0.452 0.315	1.841 2.398
	Number of living children	7.307**	32.175	0.000	1490.631
	Needs (Able to perform their activities of daily living) Inactive Moderate	-2.773** 0.956	10.002 2.829	0.002 0.093	0.062 2.601
	Education level (Illiterate) (Literate) (Under graduate & undergraduate)	-3.648 -5.008 -5.715	0.000 0.000 0.000	0.999 0.998 0.998	0.026 0.007 0.003
	Socio economic status (Low) (High)	-15.844 -16.138	0.001 0.001	0.979 0.978	1.316E-007 9.804E-008
	Living with children / relatives	Intercept	29.947**	0.002	0.000
Female headed household		0.662	2.540	0.111	1.939
Place of residence		1.607**	8.183	0.004	4.989
Age (60- 69) (70-79)		-0.246 0.311	0.141 0.190	0.708 0.663	0.782 1.364
Number of living children		-0.906	2.187	0.139	0.404
Needs (Able to perform their activities of daily living) Inactive Moderate		1.936** 0.071	6.699 0.026	0.010 0.871	6.933 1.073
Education level (Illiterate) (Literate) (Under graduate & undergraduate)		-12.402** -13.606** -15.166**	123.127 825.927 0.000	0.000 0.000 0.000	4.110E-006 1.233E-006 2.590E-007
Socio economic status (Low) (High)		-11.777 -12.861	0.000 0.000	0.989 0.467	7.677E-006 2.597E-006
Cox & Snell R ²		0.276			
Nagelkerke R ²		0.615			
McFadden R ²		0.543			
Classification		95.6%			
N		1979			
**, *Statistically significant at 1%, 5% level respectively.					

Source: Survey data, 2012

Multinomial logistic regression results from this Table 13 show that the corrective prediction for any relationship between living arrangements and resources (socio-economic status and education) in this model can be achieved by 96%. In addition, the values of three R squares describe that dependent variable (living Arrangements) can be explained by independent variable (resources) in validity range between 28% and 62%. In Model 4, independent variable such as number of living children and education are significance at 1% level and place of residence and needs are significance at 5% level.

In Model 4, the strongest predictor of living arrangements is number of children with an odds ratio of 1490.63. This indicates that elder people living alone/spouse are more likely to co-reside with children. The second strongest predictor is education. Education of elder people with living children/relatives is significant at 1% level. It is found that elder people with a height level of education are most likely to co-reside with children/relatives. Conversely, education of elder people with living alone/spouse is not significant. This means that elder people with a height level of education are less likely to co-reside with other family members. The odds ratio of 4.989 for place of residence describes that elder people who live with children/relatives will increase in rural area. Then, the odds ratio of 6.993 for needs (poor health status unable to perform their activities of daily living) describes that older people who experience poor health and any activities of daily living are more likely to co-reside with children/relatives. Additionally, the age, female headed households and socio-economic are not significantly different types of living arrangements. According to the results in Model 4, this study support hypothesis 5 and 6 which is:

H5: Elder people with higher economic status are less likely to co-reside with other family members.

H6: Elder people with a high level of education are less likely to co-reside with other family members.

In this study, hypothesis 5 was not confirmed because elder people with higher economic status are less likely to co-reside with other family members. Similarly, hypothesis 6 was not confirmed the elder people with living alone/spouse but it was confirmed the elder people with living children/relatives. It indicates that the elder people with a high level of education are most likely to co-reside with living children/relatives

and the elder people who had none or very little education are most likely to co-reside with other family (compared with living alone/spouse).

In conclusion, summary comparisons of all of the odds ratios of multinomial logistic regression analysis from Model 1 to Model 4 are compared in Table 14 and Table 15.

Table 14
Odds Ratios for Elder People's Living Arrangements
(Living alone/spouse Vs living with other Family)

	Model 1	Model 2	Model 3	Model 4
Demographic Variables				
Age (60-69) (Young-Old)	0.800	0.818	0.738	1.841
Age (70-79) (Mid-Old)	0.911	1.012	1.254	2.398
Female headed households	1.582	0.845	1.652	2.407
Cultural				
Rural Residence	0.243*	0.307*	0.286*	3.039
Potential Opportunities				
Number of living children		0.011**	0.002**	1490.631**
Needs				
Able to perform their activities of daily living (Inactive)			0.056**	0.062**
(Moderate)			2.836**	2.601
Resources				
Education				
Illiterate				0.026
Literate but no formal education				0.007
Under graduate & Graduate				0.003
Socio economic status				
Low				1.316E-007
high				9.804E-008
Cox & Snell R ²	0.026	0.120	0.265	0.276
Nagelkerke R ²	0.057	0.269	0.591	0.615
McFadden R ²	0.043	0.214	0.518	0.543

Source: Based on Table 11, 12 and 13

Reference categories of the independent variables are age group 80 and over, male heads of households, urban residence, has no living children, able to perform their activities of daily living (Active), socio economic (Low) and education (Post graduate).

The first model in Table 14 tests the hypothesis that female elder people who are heads of households are more likely to co-reside with other family members than male elder people who are headed households. The odd ratios in Model 1 show a significant effect on co-residence for elder female headed households. This result confirms the hypothesis 2. More research indicate that female elder people display closer relationships with kin than do male elder people (Schrage Dijkstra, 1994), and therefore, they are more likely to co-reside with kin. Nonetheless, in a predominantly traditional society such as Myanmar, male elder people continue to maintain their positions as heads of households in later life, whereas female headship increases with age largely due to widowhood, which also contributes to the declines of average household size. However, the findings in Model 1 are not significant.

Further, results indicate that there is significant difference regardless of the place of residence. In this study, the majority of older people lived in the rural areas (56.60%) compared to the urban residence (43.40%). Therefore, this result in Model 1 contradicts the cultural factor hypothesis. However, the findings in Model 1 are significant.

To assess the influence of the potential opportunities variables, this study included one variable in Model 2: “Number of living children”. The results show that the number of living children increases the likelihood (at $p < 0.01$ level) of elder people living with kin. This finding supports hypothesis 3 that kin availability will decrease the likelihood of elder people living alone/spouse. Martin (1989) points out that the negative association between kin availability and the probability of living alone/spouse is not restricted to countries where co-residence is the norm. He notes that even in developed countries where co-residence is not the preferred arrangement, there is a significant relationship between kin availability and co-residence.

Further, needs (able to perform their activities of daily living) are added in Model 3. Results indicate that the elder people who have inactive of daily living are significantly more likely to co-reside with alone/spouse. This indicates that many elder people who live alone have kin living nearby with whom help is exchanged. However, the extent of the presence of nearby kin is likely to differ by place of residence, but this issue was not examined in this study.

Additionally, resources variables were considered in Model 4. This describes that socio-economic status and education as measures of elder people's available resources show no effect. This finding is not surprising, because most of the elder people in the sample lived their own house. It is arguable, therefore that these elder people may choose to live alone/spouse. As noted earlier, also, it can be argued that they choose to live alone/spouse because their kin live nearby. Nonetheless, it would not be an overstatement to opine that as a result of cultural traditions, elder people often choose to live with other family members whether or not they own a home. Another interesting finding is that education did not have an effect on co-residence. Elder people in the sample had none or very little education and thus they would be more likely to co-reside. Therefore, hypothesis 5 and 6 were not confirmed. More research has found that elder people with high levels of education are significantly more likely to live alone/spouse than those without education (Bongaarts and Zimmer, 2002).

The preceding analysis has supported the hypothesis regarding kin availability, which is found to be an important predictor of living arrangements of elder people. Therefore, it can be concluded that kin availability defines the potential opportunities for co-residence for elder people. Moreover, the cultural (place of residence) and needs (able to perform their activities of daily living) partially have impact on elder people's choice of living arrangements.

Furthermore, summary comparisons of all of the odds ratios of multinomial logistic regression analysis for elder people's living arrangements (Living children/relatives Vs Living with other Family) from Model 1 to Model 4 are compared in Table 15.

Table 15
Odds Ratios for Elder People's Living Arrangements
(Living children/relatives Vs living with other Family)

	Model 1	Model 2	Model 3	Model 4
Demographic Variables				
Age (60-69) (Young-Old)	0.418	0.415	0.447	0.782
Age (70-79) (Mid-Old)	0.891	0.883	0.969	1.364
Female headed households	1.74	1.831	1.502	1.939
Cultural				
Rural Residence	0.132**	0.132**	0.156**	4.989**
Potential Opportunities				
Number of living children		1.113	1.536**	0.404
Needs				
Able to perform their activities of daily living (Inactive)			5.471**	6.933**
(Moderate)			1.226	1.073
Resources				
Education				
Illiterate				
Literate but no formal education				4.110E-006**
School (Class 1-11)				1.233E-006**
Under graduate & Graduate				2.590E-007
Socio economic status				
Low				7.677E-006
High				2.597E-006
Cox & Snell R ²	0.026	0.120	0.265	0.276
Nagelkerke R ²	0.057	0.269	0.591	0.615
McFadden R ²	0.043	0.214	0.518	0.543

Source: Based on Table 10, 11 and 12

According to the results of first Model in Table 15, it is found that the predictors of age and female headed households do not effect on their living arrangements. The next predictor is cultural factor which is significant at 5% level. That is, the elder people in rural area are more likely to co-reside with children/relatives. Therefore, the hypothesis of cultural factor confirms the elder people who live with children/relatives. In Model 2, the predictor of living arrangements is potential opportunities (number of living children). This indicates that elder people's households with children are more likely to co-reside with other family. Therefore, the hypothesis of kin availability confirms in this study. The third Model in Table (15) tests the hypothesis that the elder people who experience poor

health and any disability in activities of daily living are more likely to co-reside with children. According to the results of Model 3, it indicates that this hypothesis confirms in this study. Further, resources (socio-economic and education) variables contained in Model 4 indicates that socio-economic variable has not effect on living arrangements of elder people. However, education variable has effect on the elder people who live with children/relatives. Therefore, it is found that the hypothesis 5 and 6 confirm in this study.

CHAPTER 6

CONCLUSION AND SUGGESTIONS

The objective of the study on the “Living Arrangements and Sources of Familial Support for the Elderly in Myanmar” the study was carried out as A Case Study in Monywa Township the aim of the study was to investigate the pattern of living arrangements of elderly people and the care they were receiving based on their problems and needs, and the extent of support received.

In this study, a quantitative research method was used. Parts of the information on living arrangements were taken from the 2012 sample survey conducted in Monywa Township in Upper Myanmar. A two-stage cluster sampling was used with stratification. The survey covered all 1979 elderly persons. The protocol of the survey was to collect formation on the demographic and socio-economic characteristics of elder people. Trained and supervised interviewers were used a structured questionnaire for collecting the data from respondents during interviews at the respondents’ homes. The response rates of all the interviewees aged 60 years and over in Monywa Township were interviewed with nearly 100 % response rate.

Multivariate statistical tools were used to establish the determinants of living arrangements for the elderly in Monywa Township. In the first part of data analysis, the paper used descriptive statistics to analyze the information gathered viz sex, age, place of residence, marital status, religion, education, occupation, source of income, health characteristics, expenditure on healthcare (monthly), economic dependence, perception about life, daily activity, happiness in life and living arrangements. In the second part of data analysis, the paper used bivariate cross tabulation with chi-square test statistic to find out the relevant significant differences in living arrangements for the elderly as given in their background characteristics. To establish a strong association in an attempt to use the multinomial logistic regression analysis by controlling some of the important variables such as age, sex, place of residence, number of living children, health status (able to perform daily living activities) and socio-economic status.

6.1 Conclusion

The elderly of Monywa Township sample survey, 2012 consisted of 1979 elderly persons, 46.54% of whom lived with adult children without spouse, 39.66% lived with spouse and children, 6.52% lived with spouse without children and 3.64% lived alone or with others. Out of a total of 1979 elderly persons, there were more females than males and their average age was 71 years. Most of them were married; only 6.87% remained unmarried. More than half of them had primary education and were unemployed. Their source of income was either their children or grand children and their average monthly income was about 11,400 kyats. Most of the elderly were satisfied and were fairly happy with their life. Furthermore, the survey showed that more than half of them were fully dependent on their children for their wellbeing. Then, their health characteristics were fair. There are fewer elderly persons living in urban areas compared to the rural areas.

In bivariate analysis (Age and Living Arrangements), it was found that the relationship of these two variables was statistically significant. This relationship may be quite complex because there was a negative relationship between age and living alone, living only with spouse, living with spouse and children and living with others. That is, the elderly grow older; they tend to depend economically on others. Most of the elderly found in the survey, lived with adult children, and there were more females than males living alone, living with adult children or living with others. In contrast, more males than females lived with only spouse. When the elderly were older, they tended to live alone more than with spouse or with adult children. Moreover, the elderly who were married were living alone representing only a small fraction number. The more the number of children, the better the chances of the elderly to co-reside with them.

It was found that there was less elderly living in urban areas who were likely to stay alone than those in the rural areas. Most of the elderly received only primary school education and they lived with their children. Economic independence and occupation were also important variables in determining the living arrangements. There was less likelihood of the elderly living alone when there were fully or partially dependent on others indicating the significance of individual income over household income in determining the living arrangement. Most of the unemployed elderly lived with children. Therefore, their source of income was children. Regarding health condition, the elderly

who were moderately active in daily activities were found to live with children. Similarly, the elderly lived with children were satisfied and fairly happy with their life.

Moreover, it was found that the elderly problems did not vary from one another, but the solutions were different. The elderly who lived alone without adult children to support and care for them had to solve their problems by themselves and had to cope with loneliness. In contrast, the elderly who lived with spouse had the support of their spouse and their descendants, while the elderly who lived with children received support from their children. Some elderly persons who lived or alone had to support and to take care for themselves in order to solve their problems by themselves. However, they were able to survive with the care of their neighbors and communities.

The conceptual framework that guided the study incorporated elements of rational choice perspective in a model that explained several demographic, socio-economic and cultural factors that influence living arrangements. Two hypotheses were supported. Kin availability increased elder people's likelihood of co-residence with other family members. However, an interesting finding in this study was a new dimension to the challenges faced by elder female-headed households. In later life, female elder people are more likely to be living with children, thus, it was less likely that they would receive help or support from other sources. Older women were more likely to need support than elder men partly due to longevity and a history of poor nutrition and health care.

It was indicated that the importance of demographic attributes of the children in decisions about living arrangements. The probability of living alone or spouse is less for those with living children. Thus, given the social changes happening in Monywa Township, the proportion of elder people living with alone or spouse may decrease, but those elder people living with children or relatives will dramatically increase. Therefore, it is clear that in places where co-residence is a cultural ideal, the increase in older adults living alone is slow because elder people will in fact live with children/relatives. Furthermore, in societies where mutual dependence is highly valued, it can be expected that even when demographic availability of children declines, the pattern of living arrangements of elder people will not resemble that of the industrialized countries.

Nonetheless, a number of studies indicate that the majority of elder in developing countries live with their children, but very little is known about the reasons behind the

decisions of elder people and their children to live together. Cultural norms such as filial piety offer part of the explanation, but closely interwoven with these cultural preferences are the economic realities. Data in this study have highlighted a number of important characteristics of elder people's living arrangements in Monywa Township in Myanmar that point to cultural influences rather than rational choice model. Most of the elder people co-reside with other family members, especially their children or grandchildren. Moreover, studies on developing countries (Chilungu, 1989; Cattell, 1990; Khasiani, 1987), suggest that elder people's living arrangements are determined by cultural norms that define family types. They note that living arrangements of elder people are never a consequence of negotiation in which the elder person evaluates his or her needs and resources to choose the most beneficial arrangement.

Also, this study highlighted a distinct feature of elder people in Monywa Township that contradicts earlier findings on the effect of economic status on living arrangements. Bongaarts and Zimmer (2002) noted that elder people with sufficient economic resources tend to live alone or spouse. However, in this sample data tend to suggest that economic resources have no influence on living arrangements of elder people. In addition, rural and urban residences have no effect on the elder people's living arrangements. As migration of young people from rural areas to urban areas may not have altered the living arrangements of elder people in the rural areas, this study shows that this has no effect on the living arrangements of both rural and urban elder people. Furthermore, findings indicate that elder people are less likely to live with other families, but are more likely to live with their children or relatives. These factors have to be understood within the context of Myanmar cultural norms concerning living arrangements.

It was revealed that the rational choice model, as it is currently developed, was not able to account for and capture the culturally specific factors affecting the living arrangements of Monywa Township elder people. Therefore, further researches reexamine the rational choice model and work out a more comprehensive framework that is capable of incorporating cultural factors that influence the lives of elder people.

Further, most of the elderly were facing health, emotional, financial and housing problems. Generally, this study shows that the elder's problems did not vary from one

another. Some of the elderly who live alone had to solve the problems by themselves. As for the elderly living with spouses, they were taken care of by husbands, wives, children or sometimes neighbors. In the case of the elderly who were living with children or grandchildren, the children's parents would help to care for them when they have problems.

6.2 Suggestions

6.2.1 Policy and Suggestions

The followings are some of the policy indicating and suggestions taken into consideration for the wellbeing of the elderly:

1. The family as the natural fundamental unit of society has to be strengthened as a support system for the provision of care and protection for elder persons. It was observed that the emotional, social, physical and economic support provided by the family was indispensable and cannot be replaced by any other institution. For this reason attention should be given to promote co-residence through housing policies and financial incentives for those households where the elderly are family members.
2. The traditional institution for the care of elder persons, the family is undergoing a transformation in response to demographic changes. The support systems for elder persons need to be re examined with a view to improving their scope and effectiveness.
3. Special attention should be given to vulnerable elder persons such as the poor, the widows, the childless, the disabled and the sick whose families are unable to support them and those who are destitute and have no family.
4. State and private sector should help the elderly in providing health care services to support them mentally, physically and financially and assist them to earn their living happily during the last part of their lives.
5. Health Care of the Elderly Project was initiated since 1992-93 starting with six townships and expanded yearly; currently it covers 56 townships and will expand to another 10 townships during 2005. The project townships were provided with special instruments for eye, ear, nose and throat care for the elderly as well as for dental care. Free

distribution of reading glasses and free insertion of intra-ocular lens to the elderly patients were point of the project activity in (15) Townships during 2001-2002. But this project did not cover Monywa Township. Therefore, clinics for elderly should be opened in Monywa Township once a week.

6. As the elderly day is usually held all over the country on the 1st of October and on that auspicious day, the elderly in Monywa Township should be provided with special medical care, health talks, food as well as gifts by health personnel assisted by NGOs and donors.

7. Ensuring a proper living condition is a national concern. Policies and programme should ensure that older persons have a reasonable and adequate living environment. For this reason incentives should be given to facilitate home up gradation and initiate appropriate housing schemes for older persons who live alone either by choice or by circumstances.

8. To bring active older persons into the economic and social mainstream.

9. Strengthen the service infrastructure to meet the social, emotional, health, financial and development needs of the elderly population.

6.2.2 Suggestions for Further Study

1. This study focused on only the elder's lives in Monywa Township in Myanmar. Based on the findings of the study, there should be studies concentrating on those who live in other Townships in Myanmar such as Mandalay and Yangon Districts so that the two studies can be compared in order to improve the elder's daily lives.

2. This study shows that most of the elderly received support from their children, relatives, and communities. Thus, in further studies there should be an emphasis on the process of support and care of their children, relatives, and communities so that the provision of appropriate welfare services can be planned better for families and households that are taking care of their elderly persons.

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APPENDICES

Appendix A
Sample Size Determination of Two-stage Cluster Sampling with
Stratification

Sample Size Determination

The effective sample size for two-stage cluster samples

$$n_c = n^* \times \text{deff}$$

n_c = actual sample size

n^* = effective sample size

deff = design effect

The value of the design effect (Kish, 1965:257) for a two-stage cluster sample design depends, for a given cluster size, on the value of the coefficient of intraclass correlation.

$$\text{deff} = \frac{\text{var}(\bar{X}_c)}{\text{var}(\bar{X}_{\text{srs}})} = 1 + (b - 1) \text{roh}$$

where

b = the size of the selected clusters [$b=5$ (urban), $b=15$ (rural)]

roh = the coefficient of intraclass correlation

The coefficient of intraclass correlation, often referred to as roh, provides a measure of the degree of homogeneity within clusters.

$$\text{Therefore, } n_c = n^* \times [1 + (b - 1) \text{roh}]$$

Effective Sample Size (n^*)

Consider a simple random sample of n^* households selected from this population in order to calculate values of p . Statistical theory may be employed to show that, for large populations, the variance of the sample estimate of p as an estimate of the population value may be calculated by using the following formula (Kish, 1965:46).

$$\text{var}(p) = \frac{p(100 - p)}{n^* - 1}$$

The maximum value of $p(100 - p)$ occurs for $p = 50$. The following inequality would need to be valid.

$$(2.5)^2 \geq \frac{50(100 - 1)}{n^* - 1}$$

That is, the size of the simple random sample, n^* , would have to be greater than, or equal to, about 400 households in order to obtain 95 percent confidence limits of $p \pm 5\%$.

$$(2.5)^2 \geq \frac{50(100-1)}{400-1}$$

Therefore, $n^* = 400$

The sample size for Rural

$$\begin{aligned} n_c &= n^* \times [1 + (b-1)roh] \\ &= 400 \times [1 + (15-1)0.1] \\ &= 960 \end{aligned}$$

The sample size for Urban

$$\begin{aligned} n_c &= n^* \times [1 + (b-1)roh] \\ &= 400 \times [1 + (5-1)0.1] \\ &= 560 \end{aligned}$$

Sample Design Tables for Two-stage Cluster Samples

Then,

$$n_c = n^* \times [1 + (b-1)roh]$$

The value of n_c is equal to the product of the number of primary sampling units, a , and the number of secondary sampling units selected from each primary sampling unit, b .

$$n_c = a \times b$$

Substituting for n_c in this formula, and then transposing provides the following expression for a in terms of b and roh .

$$a = \frac{400}{b} [1 + (b-1)roh]$$

For Urban, $b = 5$, $roh = 0.1$

$$\begin{aligned} a &= \frac{400}{5} [1 + (5-1)0.1] \\ &= 112 \end{aligned}$$

Similarly,

For Rural, $b = 15$, $roh = 0.1$

$$\begin{aligned} a &= \frac{400}{15} [1 + (15-1)0.1] \\ &= 64 \end{aligned}$$

Appendix

Sample design tables (for roh values of 0.1 to 0.9)

Cluster size		95% confidence limits for means/percentages							
		$\pm 0.05s/\pm 2.5\%$		$\pm 0.1s/\pm 5.0\%$		$\pm 0.15s/\pm 7.5\%$		$\pm 0.2s/\pm 10.0\%$	
b		a	n	a	n	a	n	a	n
roh = 0.1									
1 (SRS)		1600	1600	400	400	178	178	100	100
2		880	1760	220	440	98	196	55	110
5		448	2240	112	560	50	250	28	140
10		304	3040	76	760	34	340	19	190
15		256	3840	64	960	29	435	16	240
20		232	4640	58	1160	26	520	15	300
30		208	6240	52	1560	24	720	13	390
40		196	7840	49	1960	22	880	13	520
50		189	9450	48	2400	21	1050	12	600
roh = 0.2									
1 (SRS)		1600	1600	400	400	178	178	100	100
2		960	1920	240	480	107	214	60	120
5		576	2880	144	720	65	325	36	180
10		448	4480	112	1120	50	500	28	280
15		406	6090	102	1530	46	690	26	390
20		384	7680	96	1920	43	860	24	480
30		363	10890	91	2730	41	1230	23	690
40		352	14080	88	3520	40	1600	22	880
50		346	17300	87	4350	39	1950	22	1100
roh = 0.3									
1 (SRS)		1600	1600	400	400	178	178	100	100
2		1040	2080	260	520	116	232	65	130
5		704	3520	176	880	79	395	44	220
10		592	5920	148	1480	66	660	37	370
15		555	8325	139	2085	62	930	35	252
20		536	10720	134	2680	60	1200	34	680
30		518	15540	130	3900	58	1740	33	990
40		508	20320	127	5080	57	2280	32	1280
50		503	25150	126	6300	56	2800	32	1600

roh = 0.4

1 (SRS)	1600	1600	400	400	178	178	100	100
2	1120	2240	280	560	125	250	70	140
5	832	4160	208	1040	93	465	52	260
10	736	7360	184	1840	82	820	46	460
15	704	10560	176	2640	79	1185	44	660
20	688	13760	172	3440	77	1540	43	860
30	672	20160	168	5040	75	2250	42	1260
40	664	26560	166	6640	74	2960	42	1680
50	660	33000	165	8250	74	3700	42	2100

roh = 0.5

1 (SRS)	1600	1600	400	400	178	178	100	100
2	1200	2400	300	600	134	268	75	150
5	960	4800	240	1200	107	535	60	300
10	880	8800	220	2200	98	980	55	550
15	854	12810	214	3210	95	1425	54	810
20	840	16800	210	4200	94	1880	53	1060
30	827	24810	207	6210	92	2760	52	1560
40	820	32800	205	8200	92	3680	52	2080
50	816	40800	204	10200	91	4550	51	2550

roh = 0.6

1 (SRS)	1600	1600	400	400	178	178	100	100
2	1280	2560	320	640	143	286	80	160
5	1088	5440	272	1360	122	610	68	340
10	1024	10240	256	2560	114	1140	64	640
15	1003	15045	251	3765	112	1680	63	945
20	992	19840	248	4960	111	2220	62	1240
30	982	29460	246	7380	110	3300	62	1860
40	976	39040	244	9760	109	4360	61	2440
50	973	48650	244	12200	109	5450	61	3050

roh = 0.7

1 (SRS)	1600	1600	400	400	178	178	100	100
2	1360	2720	340	680	152	304	85	170
5	1216	6080	304	1520	136	680	76	380
10	1168	11680	292	2920	130	1300	73	730
15	1152	17280	288	4320	129	1935	72	1080
20	1144	22880	286	5720	128	2560	72	1440
30	1136	34080	284	8520	127	3810	71	2130
40	1132	45280	283	11320	126	5040	71	2840
50	1130	56500	283	14150	126	6300	71	3550

roh = 0.8

1 (SRS)	1600	1600	400	400	178	178	100	100
2	1440	2880	360	720	161	322	90	180
5	1344	6720	336	1680	150	750	84	420
10	1312	13120	328	3280	146	1460	82	820
15	1302	19530	326	4890	145	2175	82	1230
20	1296	25920	324	6480	145	2900	81	1620
30	1291	38730	323	9690	144	4320	81	2430
40	1288	51520	322	12880	144	5760	81	3240
50	1287	64350	322	16100	144	7200	81	4050

roh = 0.9

1 (SRS)	1600	1600	400	400	178	178	100	100
2	1520	3040	380	760	170	340	95	190
5	1472	7360	368	1840	164	820	92	460
10	1456	14560	364	3640	162	1620	91	910
15	1451	21765	363	5445	162	2430	91	1365
20	1448	28960	362	7240	162	3240	91	1820
30	1446	43380	362	10860	161	4830	91	2730
40	1444	57760	361	14440	161	6440	91	3640
50	1444	72200	361	18050	161	8050	91	4550

Appendix B

The Relationship of Demographic Variables and Living Arrangements of Elderly Persons in Monywa Township

1. The Relationship of Living Arrangements and Age

Chi-Square Tests

	Value	df	Sig.(2-sided)
Pearson Chi-Square	3.808E2	190	0.000
Likelihood Ratio	392.984	190	0.000
Linear- by-Linear Association	46.296	1	0.000
No. of Valid Cases	1979		

2. The Relationship of Living Arrangements and Sex

Chi-Square Tests

	Value	df	Sig.(2-sided)
Pearson Chi-Square	1.901E2	5	0.000
Likelihood Ratio	192.812	5	0.000
Linear- by-Linear Association	26.600	1	0.000
No. of Valid Cases	1979		

3. The Relationship of Living Arrangements and Marital

Chi-Square Tests

	Value	df	Sig.(2-sided)
Pearson Chi-Square	1.901E2	5	0.000
Likelihood Ratio	192.812	5	0.000
Linear- by-Linear Association	26.600	1	0.000
No. of Valid Cases	1979		

4. The Relationship of Living Arrangements and No. of Living Children

Chi-Square Tests

	Value	df	Sig.(2-sided)
Pearson Chi-Square	1.479E3	40	0.000
Likelihood Ratio	1.062E3	40	0.000
Linear- by-Linear Association	186.122	1	0.000
No. of Valid Cases	1979		

Appendix C

The Relationship of Socio-economic Variables and Living Arrangements of Elderly Persons in Monywa Township

1. The Relationship of Living Arrangements and Place of Residence

Chi-Square Tests

	Value	df	Sig.(2-sided)
Pearson Chi-Square	10.348	5	0.066
Likelihood Ratio	10.408	5	0.064
Linear- by-Linear Association	0.830	1	0.362
No. of Valid Cases	1979		

2. The Relationship of Living Arrangements and Education

Chi-Square Tests

	Value	df	Sig.(2-sided)
Pearson Chi-Square	1.313E2	30	0.000
Likelihood Ratio	122.001	30	0.000
Linear- by-Linear Association	16.231	1	0.000
No. of Valid Cases	1979		

3. The Relationship of Living Arrangements and Economic Dependence

Chi-Square Tests

	Value	df	Sig.(2-sided)
Pearson Chi-Square	2.666E2	10	0.000
Likelihood Ratio	227.567	10	0.000
Linear- by-Linear Association	1.178	1	0.278
No. of Valid Cases	1979		

4. The Relationship of Living Arrangements and Occupation

Chi-Square Tests

	Value	df	Sig.(2-sided)
Pearson Chi-Square	1.393E2	45	0.000
Likelihood Ratio	138.240	45	0.000
Linear- by-Linear Association	9.038	1	0.003
No. of Valid Cases	1979		

5. The Relationship of Living Arrangements and Sources of Income

Chi-Square Tests

	Value	df	Sig.(2-sided)
Pearson Chi-Square	2.102E3	15	0.000
Likelihood Ratio	902.806	15	0.000
Linear- by-Linear Association	17.690	1	0.000
No. of Valid Cases	1979		

6. The Relationship of Living Arrangements and Asset

Chi-Square Tests

	Value	df	Sig.(2-sided)
Pearson Chi-Square	21.826	10	0.016
Likelihood Ratio	20.443	10	0.025
Linear- by-Linear Association	10.431	1	0.001
No. of Valid Cases	1979		

Appendix D

The Relationship of Health, Psychosocial Status and Living Arrangements of Elderly Persons in Monywa Township

1. The Relationship of Living Arrangements and Daily Activities

Chi-Square Tests

	Value	df	Sig.(2-sided)
Pearson Chi-Square	30.348	10	0.001
Likelihood Ratio	32.122	10	0.000
Linear- by-Linear Association	8.080	1	0.004
No. of Valid Cases	1979		

2. Relationship of Living Arrangements and Happy

Chi-Square Tests

	Value	df	Sig.(2-sided)
Pearson Chi-Square	63.219	15	0.000
Likelihood Ratio	49.690	15	0.000
Linear- by-Linear Association	0.875	1	0.350
No. of Valid Cases	1979		

3. The Relationship of Living Arrangements and Psychosocial Status

Chi-Square Tests

	Value	df	Sig.(2-sided)
Pearson Chi-Square	69.766	15	0.000
Likelihood Ratio	50.807	15	0.000
Linear- by-Linear Association	8.656	1	0.003
No. of Valid Cases	1979		

Appendix E
SPSS Output of Multinomial Logistic Regression

1. Model (1) Living Arrangements and Demographic Variables

Case Processing Summary

		N	Marginal Percentage
Living Arrangements Group	Alone & Spouse	115	5.8%
	No. of children & relatives	1835	92.7%
	Other Family	29	1.5%
Female Headed Household	Male	1052	53.2%
	Female	927	46.8%
Rural Residence	Urban	859	43.4%
	Rural	1120	56.6%
Age	Young-old	905	45.7%
	Mid- old	735	37.1%
	Old- old	339	17.1%
Valid		1979	
Missing		0	
Total		1979	

Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 log likelihood	Chi-Square	df	Sig.
Intercept only	147.396			
Final	96.257	51.139	8	0.000

Goodness of Fit

	Chi-Square	df	Sig.
Pearson	26.927	14	0.020
Deviance	28.420	14	0.013

Likelihood Ratio Tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	96.257	0.000	0	
Female Headed Household	98.436	2.179	2	0.336
Rural	125.364	29.107	2	0.000
Age	110.509	14.252	4	0.007

Classification				
Observed	Predicted			
	Alone & Spouse	Children & Relatives	Other Family	Percent Correct
Alone & Spouse	0	115	0	0.0%
Children & Relatives	0	1835	0	100.00%
Other Family	0	29	0	0.0%
Overall Percentage	0.0%	100.00%	0.0%	92.7%

2. Model (2) Living Arrangements and Demographic Variables and Potential Opportunities

Case Processing Summary			
		N	Marginal Percentage
Living Arrangements Group	Alone & Spouse	115	5.8%
	No. of children & relatives	1835	92.7%
	Other Family	29	1.5%
Female Headed Household	Male	1052	53.2%
	Female	927	46.8%
Rural Residence	Urban	859	43.4%
	Rural	1120	56.6%
Age	Young-old	905	45.7%
	Mid- old	735	37.1%
	Old- old	339	17.1%
Valid		1979	
Missing		0	
Total		1979	

Model Fitting Information				
Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 log likelihood	Chi-Square	df	Sig.
Intercept only	406.330			
Final	153.947	252.383	10	0.000

Goodness of Fit

	Chi-Square	df	Sig.
Pearson	105.370	162	1.000
Deviance	71.892	162	1.000

Likelihood Ratio Tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	153.947	0.000	0	
No. of living children	355.191	201.244	2	0.000
Female Headed Household	169.120	15.173	2	0.001
Rural	189.436	35.489	2	0.000
Age	165.948	12.001	4	0.017

Classification

Observed	Predicted			
	Alone & Spouse	Children & Relatives	Other Family	Percent Correct
Alone & Spouse	0	115	0	0.0%
Children & Relatives	0	1835	0	100.00%
Other Family	0	29	0	0.0%
Overall Percentage	0.0%	100.00%	0.0%	92.7%

3. Model (3) Living Arrangements and Demographic Variables, Potential Opportunities and Needs
Case Processing Summary

		N	Marginal Percentage
Living Arrangements Group	Alone & Spouse	115	5.8%
	No. of children & relatives	1835	92.7%
	Other Family	29	1.5%
Female Headed Household	Male	1052	53.2%
	Female	927	46.8%
Rural Residence	Urban	859	43.4%
	Rural	1120	56.6%
Age	Young-old	905	45.7%
	Mid- old	735	37.1%
	Old- old	339	17.1%
Activity	Inactive	803	40.6%
	Moderate	762	38.5%
	Active	414	20.9%
Valid		1979	
Missing		0	
Total		1979	

Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 log likelihood	Chi-Square	df	Sig.
Intercept only	862.743			
Final	253.184	609.559	14	0.000

Goodness of Fit

	Chi-Square	df	Sig.
Pearson	1076.343	372	0.000
Deviance	163.912	372	1.000

Likelihood Ratio Tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	253.184	0.000	0	
No. of living children	728.178	474.993	2	0.000
Female Headed Household	254.345	1.161	2	0.001
Rural	272.631	19.446	2	0.000
Age	258.465	5.281	4	0.260
Activity	610.360	357.175	4	0.000

Classification

Observed	Predicted			
	Alone & Spouse	Children & Relatives	Other Family	Percent Correct
Alone & Spouse	100	15	0	37.0%
Children & Relatives	38	1797	0	97.9%
Other Family	3	21	0	0.0%
Overall Percentage	7.4%	92.6%	0.0%	95.9%

4. Model (4) Living Arrangements and Demographic Variables, Potential Opportunities, Needs and Sources

Case Processing Summary

		N	Marginal Percentage
Living Arrangements Group	Alone & Spouse	115	5.8%
	No. of children & relatives	1835	92.7%
	Other Family	29	1.5%
Female Headed Household	Male	1052	53.2%
	Female	927	46.8%
Rural Residence	Urban	859	43.4%
	Rural	1120	56.6%
Age	Young-old	905	45.7%
	Mid- old	735	37.1%
	Old- old	339	17.1%
Activity	Inactive	803	40.6%
	Moderate	762	38.5%
	Active	414	20.9%
Education	Illiterate	313	15.8%
	Literate but no formal education	1565	79.1%
	School (class 1-11)	99	5.0%
	Under Graduate & Graduate	2	0.1%
No. of living children	No living children	901	45.5%
	With children	1078	54.5%
Socio-economic Status	High	152	7.7%
	Moderate	1745	88.2%
	Low	82	4.1%
Valid		1979	100%
Missing		0	
Total		1979	

Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 log likelihood	Chi-Square	df	Sig.
Intercept only	944.777			
Final	306.143	638.635	24	0.000

Goodness of Fit

	Chi-Square	df	Sig.
Pearson	1244.230	484	0.000
Deviance	228.568	484	1.000

Likelihood Ratio Tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	306.143	0.000	0	
No. of living children	783.812	477.669	2	0.000
Female Headed Household	309.404	3.261	2	0.196
Rural	318.646	12.503	2	0.002
Age	310.671	4.528	4	0.339
Activity	649.982	343.840	4	0.000
Education	319.410	13.267	6	0.039
Socio-economic status	324.971	18.823	4	0.001

Classification

Observed	Predicted			
	Alone & Spouse	Children & Relatives	Other Family	Percent Correct
Alone & Spouse	92	23	0	80.0%
Children & Relatives	36	1799	0	98.0%
Other Family	7	22	0	0.0%
Overall Percentage	6.8%	93.2%	0.0%	95.6%

Appendix F (Questionnaires)

Yangon Institute of Economics

Ph.D Programme

This survey is conducted with the intention of collecting data for preparing a Ph.D Thesis.

Socio-Economic and Demographic Survey

Questionnaire for Elderly

1. To be completed by interviewer before interview

Questionnaire Number -----

Province/city -----

Distinct -----

Sample city / village -----

Sector (Urban = 1, Rural = 2)

Sample reference number of household -----

Name of household head -----

Contact phone number -----

Address (house No..., Street....) of other identification -----

Date of the interview Day ---- Month -----Year -----

Time interview start time: --- Hour ----- Minute

End time: --- Hour ----- Minute

Interviewer's name (phone number) -----

2. Elderly Characteristics (Starting with of elderly age = 60 year)

1. Name

2. Elderly member code

3. Gender 1. Male 2. Female

4. Religion

5. Education

1. Illiterate 2. Literate but no formal education 3. School (class 1-5)

4. School (Class 6-9) 5. Under Graduate 6. Graduate 7. Post Graduate

8. Others (Specific)

6. Occupation

- | | | |
|----------------|----------------------------|----------------------|
| 1. Farmer | 2. Wage Labourer | 3. Skilled Worker |
| 4. Shop keeper | 5. Self employed | 6. Government Sector |
| Employee | 7. Private Sector Employee | 8. Homemaker |
| 9. Retire | 10. Unemployed | 11. Others |

7. Source of Income

Receiving Financial Support

1. Childer 2. Spouse 3. Relatives 4. Friends 5. Others (Specify)

8. Current Health Status:

Rating: 1. Very Good 2. Good 3. Average 4. Poor 5. Very poor

9. Expenditure on Healthcare

What was the total amount your spent on medical care? (Day/Month/Year)

10. Living Arrangements

1. Alone 2. Only with spouse 3. With adult children/Grand childer/Childern-in-law/ Grand children-in-law 4. With spouse and adult children/Grand children/Childern-in-law/ Grand children-in-law 5. With other people 6. In a nursing home 7. Other (Specify)

3. Housing Characteristics

Type of House

(Observe and Tick one)

- ☐ 1. Hut
☐ 2. Semi Pucca
☐ 3. Pucca
☐ 4. Apartment
☐ 5. Independent house/Burgalow

4. Asset

Possession of Land (House)

1. ☐ Own

2. ☐ Rent

Rent per month					
----------------	--	--	--	--	--

5. State of economic dependence

Instruction: Tick only one

1. not dependent
2. Partially dependent
3. Fully dependent
4. others

☐☐

6. Socio-economic Status

High

Moderate

Low

7. Give your perception about your life at this old age.

Instruction: Tick only one

1. ☐ Satisfied
2. ☐ Not Satisfied
3. ☐ Feel somewhat dissatisfied with my life
4. ☐ Often feel lonely

8. Social Virtues

I am family oriented

Yes

☐

No

☐

I am tough

Yes

☐

No

☐

I rely on myself

Yes

☐☐

9. General Physical health:

I walk slowly

Yes

☐

No

☐

I am healthy

Yes

☐

No

☐

I am full of life

Yes

☐

No

☐

10. Daily activity

In active ☐

Moderate ☐

Active ☐

11. Are you happy when you consider each aspect of your life?

Instruction: Tick only one

1. ☐ Very happy
2. ☐ Fairly happy
3. ☐ Not very happy
4. ☐ Not happy at all

12. Is there any organization, NGO, INGO, in your township or village that takes care of poor elderly people?

Instruction: Tick only one

1. ☐ Yes If Yes: -----Organization

2. ☐ No

13. All household members starting with respondent

1. Name

2. Sex

1. Male

2. Female

3. Age (in completed years)

4. Relationship to the Head of Household

1. Head

9. Son-in-law

2. Spouse

10. Daughter-in law

3. Son

11. Brother-in-law

4. Daughter

12. Sister-in law

5. Child

13. Parent-in law

6. Parent

14. Other relatives

7. Grand children

15. Servant

8. Niece/Nephew

16. Other non-relative

5. Marital Status

1. Never Married

4. Divorced

2. Currently

5. Separated

3. Widowed

6. Live together

14. Information of Migration

Please provide information on migration for all members of the household (Don't ask children aged < 5 yrs)

1. Has (Name) always, since birth, lived in the village/city? (Yes, No)
2. Where was ... (Name) ... lived exactly 5 years ago?
 1. Same city/ village
 2. Another city/village in the same commune
 3. City/village in another commune but same district
 4. City/village in another district but same province
 5. City/village in another province
 6. Abroad
 7. Other (specify)
3. How many times has (Name) .. moved? No. of times
4. Why did (Name) ... move to this city/village?
 1. Transfer of work place
 2. In search of employment
 3. Education
 4. Marriage
 5. Family moved
 6. Return after displacement
 7. Visiting only
 8. Other (Specify)
5. Has ... (Name) ... ever lived abroad for work? 1. Yes 2. No