ABSTRACT

Population ageing has been an important concept throughout the world in the last decades. Due to ongoing fertility and mortality levels decline, older populations are expanding not only in developed countries but in developing countries as well.

Turkey is a developing country and with rapidly decreasing fertility and mortality levels, the proportion of older people is expected to rise from 5.6 percent in 2000 to 9.0 percent in 2025. As a result of growing numbers and proportions of older people, living arrangement patterns of older people has become an important issue in Turkey like in the other countries. Hence, this thesis aims to analyze the determinants of living arrangement patterns of older people in Turkey. Living arrangement pattern of older people are handled under two headings as co-residence of older people with their children and living alone.

The data of this study have been taken from the "Turkey Demographic and Health Survey 2003" carried out by Hacettepe University Institute of Population Studies every five years nationwide.

According to the findings of this study, in Turkey, almost half of the elderly people co-reside with their children while most of the other half lives nearby their children. Moreover, only ten percent of older people living in Turkey live alone in the households they reside. Although, females are more likely to live alone and co-reside with their children compared to males, they are less likely to live with a spouse or to head a household. Moreover, sex, marital status, total number of children, educational and income are the main determinants of living arrangement patterns of older people. Urban-rural and regional differentiation also show clear association with living arrangement patterns of older people in Turkey.

ÖZET

Toplumların yaşlanması son yıllarda dünya çapında önemli bir kavram haline gelmiştir. Doğumluluk ve ölümlülük düzeylerinde devam eden düşüşler nedeniyle yaşlı nüfus sadece gelişmiş ülkelerde değil gelişmekte olan ülkelerde de büyümektedir.

Türkiye gelişmekte olan bir ülkedir ve doğumluluk ve ölümlülük düzeylerinde meydana gelen hızlı düşüşler ile birlikte 2000 yılında yüzde 5.6 olan yaşlı nüfus oranının 2025 yılında yüzde 9.0'a çıkması beklenmektedir. Yaşlı nüfusun sayıca ve oranca artması sonucu yaşlıların yaşam biçimi örüntüleri diğer ülkelerde olduğu gibi Türkiye'de de önemli bir konu haline gelmiştir. Bu nedenle bu tez, Türkiye'deki yaşlıların yaşam biçimi örüntülerini belirleyen faktörleri analiz etmeyi amaçlamaktadır. Yaşlıların yaşam biçimi örüntüleri bu çalışmada; yaşlıların çocukları ile birlikte yaşamaları ve yaşlıların yalnız yaşamaları şeklinde ele alınmaktadır.

Bu çalışmanın verisi Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü tarafından her beş yılda bir ülke çapında gerçekleştirilen ve nüfus araştırmalarının sonuncusu olan "Türkiye Nüfus ve Sağlık Araştırması 2003" den elde edilmiştir.

Yapılan çalışmanın sonuçlarına göre, Türkiye'deki yaşlıların hemen hemen yarısı çocukları ile birlikte yaşarken, diğer yarısının büyük bir kısmı da çocuklarının yakınında yaşamaktadır. Bununla birlikte Türkiye'deki yaşlıların sadece yüzde onu evde yalnız yaşamaktadır. Kadınların evde yalnız veya çocuklarıyla birlikte yaşamaları erkeklere oranla daha fazladır. Buna karşılık erkeklerin de eşleri ile birlikte yaşamaları ve hane reisi olma durumları kadınlara oranla daha fazladır. Bununla birlikte, cinsiyet, medeni durum, toplam çocuk sayısı, eğitim ve gelir yaşlıların yaşam biçimi örüntülerini belirleyen temel faktörlerdendir. Kent-kır farklılığının ve bölgesel farklılıkların da yaşlıların yaşam biçimi örüntüleri üzerinde doğrudan belirgin etkileri vardır.

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I

INTRODUCTION

All over the world, changing patterns of fertility and mortality have significantly affected age structure of populations. As a result of the ongoing global fertility decline and of mortality decline at older ages, population ageing is expected to be among the most prominent global demographic trends of the twenty-first century (Gavrilov and Heuveline, 2003). The world's total number of older people is expected almost to double from 606 million in 2000 to over 1.1 billion by the year 2025 and to reach 2 billion by around 2050. Although, population ageing is usually associated with more developed countries in which the highest percentages of older people live, less developed countries also have large numbers of older people and the numbers of them are increasing rapidly (Kinsella and Phillips, 2005).

According to United Nations (2003), 232 million older people are living in more developed countries in 2000 and medium variant projections reveal that it will be 344 million by the year 2025 and 394 million by the year 2050. However, there is a sharp increase in the number of older people in less developed countries. There are 375 million older people in those countries in 2000 and it is projected to grow to 836 million and 1.514 million by the year 2025 and 2050 respectively.

Furthermore, the global population was around 6 billion in 2000 and is projected to be (with a 50 percent increase) 9 billion in 2050 (UN, 2003). It is worth pointing out in this context that older population is growing at a considerably faster rate than that of the total world's population which will experience a 215 percent increase in the world, and 305 percent increase in the developing countries.

Although, ageing is a demographic phenomenon it has many implications such as economic impacts at an aggregate level, social changes, emergence of new cultural patterns, changes in public policies, re-adaptation of infrastructure and services, and changes in living arrangements. As population ageing increases in both

developed and developing countries, then issues surrounding formal and informal systems of social and economic support and care of older people are receiving more attention. Hence, population ageing has been a global phenomenon throughout the world in the last decades.

Developed countries where population ageing process has already advanced, have had many decades to develop and adjust social policies in order to prevent problems emerging from structural changes of population. They have developed social security, pension, and public health system to support older people and supplement their personal and family resources (Bongaarts and Zimmer, 2001). However, in developing countries where population ageing process has recently begun, the studies on the older population are not at such a level that there is a high potential for population ageing in the coming decades.

According to a study prepared by UN (1991), infrastructure of developing countries is inadequate in order to meet the needs and the demands of growing numbers of older people as government policies and programmes give low priority to the concerns of older people in these countries. Additionally, efficient and inclusive social security system has not been established which would allow the elderly population to count with their own resources without depending on their families and kins. Hence, the household has become a critical institution in order to ensure the social, financial and physical needs and well being of the older people in developing countries.

Turkey is a developing country and the size and the structure of population have been exposed to transitions since the foundation of the Republic in 1923. The first census of newly established country was conducted in 1927 and by its fluctuating growing rate; population has grown approximately five times until the last census conducted in 2000. Moreover, on the basis of industrialization and urbanization, improvements in health services and living standards, efficient usage of contraceptive methods, increase of the female educational attainment and labor force participation and postponement of marriage, caused the decline of fertility and

mortality rates in Turkey. As a result of these ongoing developments, the age structure of population is rapidly changing. Despite the fact that Turkey has a young population structure, on account of the high fertility and growth rates of the past, the proportion of the older population is going to constitute much higher share in the coming decades (UN, 1999). The size of the older people began to appear important around the 1980s and then grow continuously at a rapid rate (Ünalan, 2002). In 2000, there are nearly 6 million older people in Turkey and it is expected to be 12 million by the year 2025. As a result of growing numbers of older people, Turkey will face the increasing demands and needs of that population in the near future.

The effects of these trends on the size, structure and composition of the households of the older people has been studied for a long time in the developed countries however, like other developing countries, Turkey begin to be interested in these issues very recently. Where and with whom one lives has substantial implications for meeting the social, financial, and physical needs and well being of older people. Thus, living arrangement behavior is seen as the result of a reasoned consideration of personal resources and constraints, including, most important health, social support, and economic factors (Kobrin, 1981; Soldo et al, 1990 cited in Mutchler and Burr, 2003).

The purpose of this thesis is to analyze the determinants of living arrangement patterns of older people living in Turkey. Depending on this, the other objectives of this study are:

1. To describe the general characteristics of older people living in Turkey.
2. To examine the headship, size and living arrangement patterns of the households that older people live in Turkey.

Turkey is experiencing demographic changes at the same time with socio-economic development. Considering the changing age structure of population, policy makers should develop social policies in order to ensure the social, financial and physical needs and wellbeing of older people. In relation to this, first of all, the

characteristics of older people and their living arrangement patterns should be studied. In Turkey, like in other developing countries, there is little concern to older people and there is lack of studies regarding them. By studying living arrangement patterns of older people in Turkey, this thesis also aims to serve as a baseline for future studies and social policies.

In the first chapter of this study, the aim is to make an introduction to the issue of population ageing and to emphasize its importance for the world and for Turkey. The objectives of this study are also given in the first chapter.

In the second chapter, it is intended to present the conceptual framework of the study. For this reason, first of all, "old age" concept is investigated in order to understand more clearly the people who are being studied. Secondly, an attempt is made to give a definition of population ageing and to determine the causes of population ageing. Demographic indicators of population ageing are also attempted to explain in order to understand better what distinguish a young population from an ageing population. In the second chapter, thirdly, the focus is on the household as the household is a critical institution for ensuring the social, financial and physical needs of the older people. Lastly, living arrangement patterns of older people throughout the world are presented in the second chapter.

In the third chapter, it is aimed to grasp the importance of population ageing for Turkey. After giving some brief information about Turkey, the demographic transition process which is seen as the reason of changing age structure is intended to explain. Population dynamics, such as fertility, mortality and migration are also taken into account while explicating the demographic transition in Turkey. In order to investigate the population ageing process in Turkey, lastly, it is given emphasize to the demographic indicators of population ageing over the history of Republic.

In the methodology part, data source and limitations are explained briefly. Variables of the study are also tried to be explained with giving special emphasize on

the dependent variable; living arrangement patterns. The methods used in this study are also explained at the end of this chapter.

In the fifth chapter of the study, first, general characteristics of older people are presented by using the results of descriptive statistics. Then, in order to asses the relative importance of the selected predictors on determination of living arrangement patterns of older people, logistic regression analyses are used in this chapter.

Lastly, in the sixth chapter, results of analyses are evaluated. By looking at socio-economic status of older people as well as urban-rural differentiation and regional development of Turkey, living arrangement patterns of older people are tried to be explained. At the end, concluding comments are presented in the study.

II

CONCEPTUAL FRAMEWORK

2.1 Conceptualization of Old Age

In the developed countries, there are many studies that have engaged with the history and meanings of old age. Histories of old age in Britain have been centrally preoccupied with demography and material concerns such as the numbers of old people, their living arrangements with household structures and family relationships and with welfare arrangements, medical provision, property transaction, work and retirement. In addition to these issues, in France more attention has been paid to the representations of old age, and to how the idea of old age has been constructed in the past. In Germany, there are relatively sparse works related to old age concerning both approaches, whereas there are more extensive studies in United States (Thane, 2003).

The concept of old age had multiple meanings and uses in all known past cultures throughout the history. It has been defined in different ways, in different context, and for different social groups (Thane, 2003). Researchers, who study older people, then come to the nearly immediate realization that age is much more complex than a simple biological category (Hamilton, 2001). In order to use age as a social attribute and treat people as members of meaningful social categories it is necessary to mark or measure the age of individuals. Most of the time chronological age, functional age, or life stage can be used for classifying people into various ages. Atchley (2000) defines these age classifications in his book as follows:

Chronological Age

Chronological age, for which the birth certificate is an unambiguous source, satisfies the need to set a point at which bureaucratic rules and policies can be applied and to separate people who are eligible for something from those who are

ineligible. Chronological age is the simplest measure of age and reduces the administrative complexity.

Apart from being used to determine eligibility for programs or reserach, chronological age is also used to describe individuals. People at the same age are likely to be in similar situations and facing similar problems. Using chronological age, people can be categorized as teenagers between the age 13 and 19, and adults in their 20s are differentiated from those in their 30s. Conventionally gerontologists and demographers choose sixty or sixty five as the lower limit of old age and it is accepted that old age ranges from 60 or 65 to 105. Since the age span is too big and experiences of older people are so different, sometimes older population is divided into those under 75 (young-old), those 75 to 84 (middle-old), and those 85 and older (oldest-old). However these ages have not always had the same cultural meanings. Sixty or sixty five are the ages at which state or private pensions are most frequently paid in present societies. These ages were generally fixed early in twentieth century when both pensions and retirement were gradually become normal features of ageing in most developed societies (Thane, 2003).

However, it is widely accepted that chronological definitions and categories have serious limitations as the number of birthdays tells only a small part of an individual life. The fluidity and multiplicity of today's lifestyles defy the use of boundaries so rigid as numerical age (Morgan and Kunkel, 1998). Nevertheless, the age of 60 or 65 remains dominant as the legal definition of when a person becomes older, and it is the most used demarcation point for aged, older, and elderly.

Functional Age

Definitions of functional age rely on observable individual attributes to assign people to age categories such as physical appearance, mobility, strength, coordination, and mental capacity. Commonly used criteria for categorizing people as old include gray hair, wrinkled skin and stopped posture. Adults moving stiffly and tentatively with poor coordination, being quite forgetful, sometimes confused

and hearing hard also associated with old age. The people having all these attributes are old regardless of his or her chronological age. Because of classifying people into age categories based on functional attributes is difficult and uncertain process, they are seldom used in research, legislation, or social programs.

Life Stage

Life stages are the combination of physical and social attributes in order to categorize people such as adolescence, young adulthood, adulthood, middle age, later adulthood, and old age. Each type reflects an array of physical, psychological, and social attributes or circumstances that are commonly thought to characterize that life stage. To Morgan and Kunkel (1998) these stages also roughly correspond to chronological age ranges, but are much more fluid, dynamic, and socially negotiated than chronological definitions of age. Individuals in old age from this perspective feel that death is near and activities are greatly restricted. Social networks have become decimated by the deaths of friends and relatives and by the individual's own disabilities.

As there is an extreme heterogeneity in the older population who are differ greatly from each other in terms of appearance, memory, cognition, demands, attitudes toward self and others, physical health and social network, it is difficult to categorize people in terms of old with looking at functional age or life stages.

Although chronological definition of age has some limitations and misclassify some people, most of research and policies throughout the world are adopted in accordance with chronological age. In this thesis, the terms aged, elderly, and older people are used interchangeably for the people chronologically age 65 and over. For analytical convenience, the elderly population is divided into the age groups 65-69, 70-74, 75-79, 80 and over.

2.2 Population Ageing

Population ageing is simply defined as the "alteration in the age structure of a population in the direction of an increase in the relative importance of old persons , say those over 65, and usually reflected in an increase in the average age of the population. Such alteration generally takes the form of an increase in the numbers of the elderly, a fall in the number of children and young persons, and relative stability in the numbers in central age groups" (Wilson, 1985).

In addition to this definition, WHO (2000) reported two essential reasons of the ageing of populations: one of the main reasons is the improvements in sanitation, housing, nutrition, and medical innovations, including new vaccines and the discovery of antibiotics which contribute to the steep increase in the number of people reaching older ages while the other important reason is the development of effective contraceptive methods and the improvements in women's education which leads to decrease of the fertility rates all over the world.

Furthermore, to understand the demographic factors that cause population ageing, demographers often refer to stable populations (Preston et.al, 2001). According to this population model, age specific fertility and mortality rates remain constant over time, and this results in a population with an age distribution that stabilizes and eventually becomes time invariant as well. On the other hand, this model also suggests that any change in age structure, and population ageing in particular, can only be caused by changes in fertility and mortality rates. Fertility rates influence population ageing less intuitive than mortality rates. That is, if everything else constant, a fertility decline reduces the size of the most recent birth cohort relative to the previous birth cohorts, thus reducing the size of the youngest age groups relative to the older ones.

Conversely, if increases in human life span are correctly linked to population ageing, reductions in mortality rates do not necessarily contribute to population ageing. More specifically, mortality declines among infants, children and people

younger than the population mean age tend to lower the population mean age. It is also suggested that indeed a reduction of neonatal mortality (i.e., death in the first month of life) adds individual at age 0 and should lead to the same partial alleviation of population ageing as an increase in childbearing (Gavrilov and Heuveline, 2003 cited in Demeny and McNicoll, 2003).

In the last century, declining fertility was seen as the main engine behind population ageing. Fertility which is currently considered to be constant is seen as it will eventually make no further contribution to the population ageing process in the developed countries. Instead, continued mortality improvements is interpreted as the dominant or only factor behind population ageing in these countries (Calot and Sardon, 1999 cited in Macura et.al., 2005). On the other hand, in developing countries where fertility decline started later and has proceeded faster than in developed countries, the ageing process is occurring at a more rapid pace because of the rapidity of fertility decline.

In addition to the fertility and mortality, the rate of population ageing may also be modulated by migration. Immigration usually slows down population ageing, because immigrants tend to be young and have more children. On the other hand, emigration of working-age adults accelerates population ageing. Some demographers expect that migration will have a more prominent role in population ageing in the future, particularly in low-fertility countries with stable or declining population size. Because of higher relative proportion of migrants in smaller population the effects of migration on population ageing are usually stronger in such populations (Gavrilov and Heuveline, 2003 cited in Demeny and McNicoll, 2003).

2.2.1 Demographic Indicators of Population Ageing

After mentioned demographic factors that cause population ageing, it is noteworthy to examine the measures of population ageing what distinguish a young population from an ageing population. There are five commonly used demographic indicators of population ageing called population pyramids, proportion of older

people, dependency ratios, median age, and life expectancy in order to measure the population ageing in a country or make comparisons along countries.

1) Population Pyramids

A population pyramid is a graphic illustration of the age and sex structure of a population. It shows the relative proportion of a population that is a given age and sex. These proportions are shown as a percentage of the total population or sometimes shown as the actual number of people that age and sex category. Population pyramids capture and illustrate at a glance many past, present, and future demographic trends which are shaped by fertility, mortality, and migration (Morgan, Kunkel, 1998). Hence, they are useful for marking comparisons between age and sex categories within a single population and between populations, including populations of very different size (Atchley, 2000).

2) Proportion of Older People

The proportion of older people in a society is a very straightforward measure of population ageing and simply the number of older people divided by the total population. It is most often used in conjunction with other demographic information about a society in order to interpret the picture of ageing in that society. Proportion of older people is less complicated and gives less information than population pyramids. In order to understand the population ageing process in a country it is useful to look at the trends of proportion aged in that country (Morgan and Kunkel, 1998).

3) Dependency Ratios

Dependency ratios are the measures of the proportion of a population that falls within age categories traditionally thought to be economically dependent those under age 15 (the youth dependency) and over age 64 (the aged dependency). These ratios are useful as general comparative indicators of the relative proportions of working-

age versus non-working age people. They point to different patterns of demand on economic and social resources, such as health care, tax payments, and educational system.

The aged dependency ratio is the number of older people divided by the number of people ages 15 to 64. It is interpreted as the number of older people for every working-age person and designed to give a very rough index of the size of the older population that could be expected to pay taxes to support benefits for the older population. The aged dependency ratio misclassifies a large number of older people who are employed and large number of people 15 to 64 who are unemployed or not in the labor force.

4) Median Age

Median age reflects the general shift in age distribution which has accompanied changes in fertility levels. It is a single number that are often used in conjunction with other measures of population ageing. Median age is the age of the person in the middle when all the persons in the population are arranged in ascending order. In this respect median age divides a population into numerically equal parts of younger and older people; the point at which half the cases fall above and the other half below.

5) Life Expectancy

Life expectancy refers to the average length of time the members of a population can expect to live. It is calculated from actual mortality data from a single year and looks at what would happen to a hypothetical group of people if they moved through their lives experiencing the mortality rates observed for the country as a whole during the year in question (Morgan and Kunkel, 1998).

Life expectancy at birth is the most commonly using age category which shows the average length of life a cohort is expected to live given the mortality rates in the year of its birth. Because the mortality rates from which is computed are among the

most widely available population statistics, life expectancy has the advantage of allowing comparisons across a wide range of societies. The main disadvantage is that life expectancy at birth is very sensitive to infant mortality rates, which do not necessarily parallel the mortality rates at other ages. Additionally the most significant limitation of life table statistics as indicators of population ageing is that they do not take into account fertility rates in a population. For a population to grow older, the number of older people must increase at a faster rate than the number of children entering the population (Atchley, 2000).

2.3 Definition of Household

The household is one of the many operationalizations of the concept of a living arrangement. It is different than the marital status and family type operationalizations. These living arrangement operationalizations are familiar to Ryder's distinctions between the conjugal dimension, the consanguineal dimension, and the co-residence dimension of family demography (Ryder 1985, cited in Keilman and Prinz, 1995). In this order, these alternative operationalizations describe living arrangements ranging from a less to a more complex type of structure.

> "First, the conjugal and the marital status perspective explore the formation and dissolution of marital unions. Second, the consanguineal and the family relationship explore links between parent and children. Finally, household are the most complex type of primary units, embracing all the aspects of the less complex definitions of the above classification. A household is a co-resident group regardless of consanguineal or affinal ties" (Keilman and Prinz, 1995).

According to the definition recommended by United Nations (1989), a household is either:

> a) "A one person household, that is, a person who lives alone in a separate housing unit or who occupies, as a lodger, a separate room (rooms) of a housing unit and does not join with any of the other occupants of the housing unit.
>
> b) A multi- person household, that is, a group of two or more persons who combine to occupy the whole part of a housing unit and to provide themselves with food and possibly other essentials for living. The

group may pool their income to a greater or lesser extent. The group may be composed of related persons only or of unrelated persons or of a combination of both, including boarders and excluding lodgers (...). Boarders take meals with the household and generally are allowed to use all the available household facilities. Lodgers, however, are sub-tenants who have hired part of the housing unit for their exclusive use".

This definition includes "housekeeping unit" that is sharing resources to provide household members with food and other essentials for living, and "dwelling unit" which is stated by "housing unit" term. Although definition of dwelling unit provides information to the studies in the field of housing, definition based on housekeeping unit provides information about socio-economic aspects of the households (Keilman, 1995).

Apart from the definition recommended by UN (1989), there is an important definition of the household for the researchers who focus the households in their survey research.

"The household is a fundamental social unit. Households are more than groups of dyadic pairs. They have an emergent character that makes them more than the sum of their parts. They are a primary arena for the expression of age and sex roles, kinship, socialization, and economic cooperation where the very stuff of culture is mediated and transformed into action…" (Mc Netting et.al., 1984).

This definition indicates the importance of households for understanding social life in general, and, more specifically, demographic developments (Gierveld, 1995).

Furthermore, household definitions made in Turkey can be obtained from censuses and demographic and health surveys. Recent census conducted in 2000 defines a household as "a person or group of people with or without a family relationship who live in the same house or in the same part of a house, who share their meals, earnings and expenditures, who take part in the management of the household and who render services to household" (SIS, 2002). Additionally, in Turkey Demographic and Health Survey-2003, a household was defined as a person or group of persons living together and sharing a common source of food (HUIPS, 2004).

Throughout the next section the term household is used interchangeably with the term family. In the official definition, family is usually accepted as a *core* social institution that provides social protection to citizens whereas household is taken for the basic unit of measurement, primarily in the statistical conceptualization, family group is more often accepted as the reference point for legislation. In the most contemporary modern states, normative institutional framework of family is embodied in their national constitutions (Delican, 1998; Dumon, 1990). For statistical purposes, definition of family unit is usually associated with households and *conjugal* family concept (Burch, 1982; Hantrais and Letablier, 1996). In the literature the words household and family are typically used interchangeably and sometimes combined into the term family household (Koç, 1999).

2.3.1 Formations of the Household

In the literature there are mainly two views about the typology of the families (Hancıoğlu, 1985). According to compositional approach kinship and sex composition of the household or family are taken into account. Structural-functional approach is also considering some structural and functional properties of the households such as authority relations, heritage, intrafamilial relations, and participation of the household or family members into different levels of social life. Moreover, Timur (1972), Kunt (1978) and Hancıoğlu (1985) combined these two approaches using the kinship composition of the household according to the head of the household.

Gökçe (1994) distinguishes the types of family with regard to authority relations and household size. According to him when the authority relations taken into the consideration in terms of holding authority (by husband or wife) these family types are categorized as *maternal* or *paternal family* whereas when the household size taken into the consideration these families are categorized as *large* or *small families*.

According to Timur's (1972) classification of family which depends on kinship compositions of the household, there are mainly four types of families called nuclear family, patriarchal extended family, transient extended family and dissolved family. These classifications are made according to the positions of household members to the household head. In her book the "Family Structure in Turkey" types of families are described as follow:

*Nuclear Family***:** It is composed of husband, wife and their unmarried child(ren).
*Patriarchal Extended Family***:** It is composed of a man and his wife with their married son(s) and wife(s) with their child (ren), and/or unmarried son(s)/daughter(s) with married son(s)/daughter(s) and with grandchild (ren) of household head.
*Transient Extended Family***:** It is composed of either the household head's or his/her wife/husband's mother or/and father with unmarried siblings. In this type of family, all of these relatives may be home altogether or one of them live with them.
*Dissolved Family***:** In this type of family, one spouse is missing due to separation, divorce or death and there is one other spouse with unmarried child(ren) or a grandparent with unmarried grandchild (ren).

Furthermore, Laslett (1972) divides households into two basic groups: "*family households*" and "*non-family households*". In his classification, family households refer to co-resident domestic groups of people which have three characteristics: a) sleeping habitually under the same roof (a location criterion), b) sharing a number of activities (a functional criterion) and c) being related to each other by blood or by marriage (a kinship criterion).

In his classification, it must be strongly stressed that family does not denote a complete co-resident domestic group and the word household particularly indicates the fact of shared location, kinship and activity and not necessarily family concept. Therefore, all solitaries and non-family co-resident groups are taken as households. In his book *Household and Family in Past Time*, Lasslett (1972) classifies and explains households as follow:

Solitaries: This category includes widowed, single, or of unknown marital status of one person households.

*No Family Households***:** It includes, co resident siblings, co resident relatives of other kind and people not evidently related.

*Simple Family Households***:** This expression is used to cover what is variously described as the nuclear family. It consists of a married couple or a married couple with offspring, or a widowed person with offspring. The concept is of the conjugal link as the structural principle, and the conjugal linkage is nearly always patent in the lists of persons which are using. For a simple family, it is necessary for at least two individuals connected by that link or arising from that link to be coresident.

*Extended Family Household***:** It consists in a conjugal family unit with the addition of one or more relatives other than offspring, the whole group living together on its own or with servants. It is thus identical with the simple family household except for the additional people. If the resident relative is of a generation earlier than that of the conjugal family unit (a married head's father or a spouse's mother) then the extension is said to be upwards. Similarly the presence of a grandchild or a nephew niece creates downward extension, and that of a brother, sister or cousin of the head or spouse implies sideways or lateral extension.

*Multiple Family Households***:** It comprises all forms of domestic group which include two or more conjugal family units connected by kinship or by marriage. Such units can be simple or extended, and can be disposed vertically and laterally. The first conjugal family unit, which contains the household head, is called 'primary unit' and other conjugal units are called 'secondary' units.

Furthermore, in his study, Laslett (1972) makes a distinction between the pre-industrial and post-industrial societies in terms of the size and the structure of the domestic groups. To him, it is generally believed that in the past, the domestic group was universally and necessarily larger and more complex than today's industrial cultures. The reason most probably was that the process of modernization always meant the simplification of social relationships based on kinship, the decline of the tribe and the clan. It meant also the simplification of the complicated rules which have governed marriage choices in many societies, the decay of familial authority

and the progressive reduction of everything towards rational, uncomplicated, small scale Western industrial model of familial life.

Apart from Laslett's distinction between the size and the structure of the households in pre-industrial and post-industrial societies, in his book *World Revolution and Family Patterns*, Goode (1970) seeks to describe and interpret the main changes in family patterns that have occurred over the past half century in many countries from modernization perspective. He argues that wherever the economic system expands through industrialization, family patterns change. Extended kinship ties weaken, lineage patterns dissolve, and a trend toward some form of the conjugal system generally begins to appear. This approach also assumes that living with adult children and grandchildren would be more common in traditional agricultural societies and would become less common as development, industrialization and division of labor occur. He believes that the crucial points of pressure from industrialization on the traditional family structure are the following:

1. Industrialization calls for physical movement from one locality to another and this leads to a decrease in the frequency and intimacy of contact among members of a kin network. Although at the stage of full industrialization this is partly counteracted by greater ease of contact at a distance by means of telephone, letter, etc.

2. Industrialization creates class-differential mobility. As a result of mobility, one or more person may move rapidly upward among siblings or kindred while the others do not. This creates discrepancies in styles of life, taste, income, etc., and makes contact somewhat less easy.

3. Urban and industrial system agencies, facilities, procedures, and organizations have undermined large corporate kin groupings since they handle the problems which were solved within the kin network before industrialization.

4. Industrialization creates a value structure that recognizes achievement more than birth. Consequently, a kin has less to offer an individual in exchange for his submission. The person has to make his own way.

5. Because of specialization, by which thousands of new jobs are created, it is less likely that an individual can obtain a job for his kin. He may not be in a suitable sector of the occupational sphere, or at a level where his influence is useful.

Hence, it is generally believed that as societies modernize and urbanize, the size and complexity of households reduce by transforming from the extended to the nuclear type. Declines in fertility, also characteristic of a modernizing society, lead to smaller family sizes, creating another means through which households become smaller and less complex. As societies modernize, the knowledge that older adults possess and the resources that they have accumulated throughout life become less important for success of the younger generation. This decreases the older generation's ability to demand support from younger members of their family (Zimmer and Dayton 2003). Additionally Ogawa and Retherford (1993) state that during the transformation from an agricultural to an industrial society the burden of care for the elderly shifts from families to the state or other formal organizations. This also implies a decline in social, financial and physical support for the older people by their families and children with the addition of greater prevalence of separate living arrangements as a country develops.

Therefore, using urbanization and regional development at the aggregate level and socio-economic development (using indicators such as income, education, working status, health insurance coverage, wealth index, house ownership status) at the individual level, in this study, living arrangement patterns of older people in Turkey will be examined in the light of this modernization theory.

2.4 Living Arrangement Patterns of Elderly

In the literature, there are enormous studies concerning the living arrangements of older people in developed countries because population ageing has already been advanced in these countries. On the other hand, in the developing countries there are some studies which are primarily focus on the living arrangement

patterns of older people living in Asian (Asis et al. 1995; Casterline et al. 1991; DaVanzo and Chan 1994; Treas and Chen 2000; Sokolovsky 2000; Aytaç 1995; Aykan and Wolf 2000; Martin 1989) and Latin American (Palloni 2000; De Vos 1998) countries. Additionally there is limited study (Bongaarts and Zimmer 2001; UN, 2005) concerning the association between living arrangements and different macro-level factors such as urbanization, income and education.

Based on these studies it can be suggested that there are numerous living arrangements available to older people such as living alone, living with spouse only, living with a child only, living with spouse and child, living with another relative or unrelated people and living in an institution. However, household composition is closely linked to global socio-cultural, economic and demographic trends; living arrangements of older people are also closely connected with the prevailing perception of ageing and position of seniors in society (UN, 2002). Hence, living arrangement patterns of older people vary greatly among countries and regions with having different cultural characteristics and socio-economic development level.

Among the developed countries the percentage living with children declined at a moderate pace during the remainder of the nineteenth century, but began to decline rapidly after 1920, and especially between 1940 and 1980. Older people in developed countries also became less likely to live with relatives other than children, or with non-relatives. As time passed living alone or as a couple or living in an institution became the dominant living arrangement in developed countries (UN, 2005a). Cross-sectional trends since the early 1950's indicate that patterns of living arrangements among the elderly of the United States have changed considerably with the slight decreases in the incidence of living with relative and sizable increases in the incidence of living as heads of their own households for the most part being alone and institutionalized (Soldo and Lauriat, 1976). Moreover, similar trends (increase in the percent of living alone) are documented for the living arrangements of European older people (Karagiannaki, 2005).

Conversely, older people rarely live alone and usually reside with a spouse and/or adult child in developing countries. Asis et al (1995) stated that co-residence of older person with one of their adult children is widespread in developing countries due to the negative correlation between levels of kin co- residence and socio-economic development. Hence, co-residence of the elderly with their children is considered to be a central feature of the familial support system in much of the developing world (United Nations, 2000). According to Chan and Davanzo's (1996) analysis for developing countries, co-residence is influenced by the costs, opportunities and preferences for co-residence versus separate living arrangements. Ethnic and cultural factors are also more strongly affect co-residence than the variables of health, wealth and marital status of the older people. Furthermore most Asian elderly, whether they co-reside or not, live close to a child and have frequent contact (Casterline et al. 1991).

One of the growing concerns in developing countries is whether the modernization and urbanization process will change the traditional family structure. Although the data are generally insufficient for documenting the changes in living arrangements of older people in developing countries, there is a trend that the proportion of older people living alone increased in the majority of the countries over time in all regions of the world. Figure 2.4.1 displays a regional country average proportion of people age 60 years over living alone at dates in the 1970s-1980s and 1990s-2000s which strengths the idea of a worldwide increase in the prevalence of solitary living.

Figure 2.4.1 Proportion of Older People Living Alone at Two Time Points, By Sex
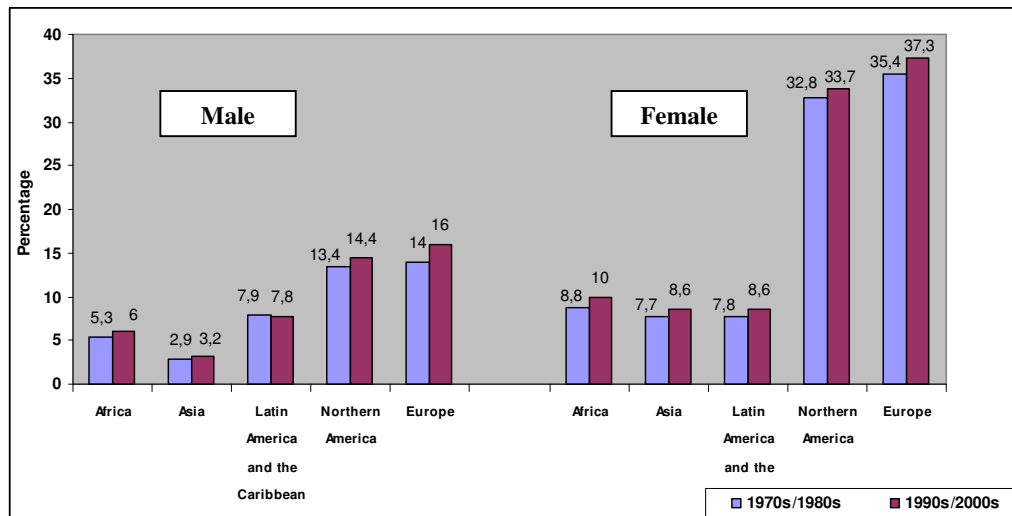
Source: UN, 2005a

Although, rapid reductions in co-residence between older people and their children are occurring in Japan and South Korea supporting the modernization perspective (Knodel and Debavalya, 1997 cited in Zimmer and Dayton, 2003), rapid socio-economic development in much of Asia, for example Taiwan, China, Thailand and Singapore has not led to major changes in co-residence patterns (Asis et al. 1995).

Gender of co-residing adult children also differs from country to country. According to Mason (1992) there are two dominant patterns in Asia. South and East Asia tend to be organized around patrilineal system. In this system males dominate ownership of resources and women take the identification of the husband's family when they marry. In these types of societies such as China and most of India, older people tend to live with a married son and most likely receive care from a daughter-in-law when they need. The other Asian system, found in countries such as Thailand and Cambodia, is bilateral. In these cases, women and men are considered to be equal members of their natal families, and there is little if any preference with respect to the gender of the co-resident child (Bongaarts and Zimmer, 2001).

Information about household headship has generally been used as an indicator of the levels of dependency for the older population. There are basically three different types of household head definitions carried out in population censuses and surveys (UN, 1988 cited in Yavuz, 2002). *Self -definition* is classifying the head of the household as the person who nominates himself or herself as the head, or who is designated by other household members. *Identification of the person in authority,* the person who controls the maintenance of the household and exercises the authority to run the household and *identification of the economic supporter*, the chief earner or the main supporter of the household's economy. In Demographic and Health Surveys, the head of household is defined as the person in the household who is acknowledged by the other members. With this procedure socio-cultural considerations may affect who is viewed as the head of the household (DeVos, 2004). In most of the countries males are accepted as the head of the households. Additionally, on average, about 80 per cent of the older people, including ninety per cent of it older men, in developing countries are either the head of the household or the spouse of the head.

Furthermore, older women's living arrangements typically differ from older men. Older men are more likely than older women to live with their spouse or with their children while older women are usually more likely than older men to live alone. The main reason why women live alone is that women are less likely to be currently married as they are widowed. Since husbands are universally more likely to be older than wives, there is a large gap between the marital status of older men and older women. This ensures that most men are married into their older years, while women are more often widowed. In addition to this, men are more likely to remarry after the death of a spouse or after divorce in most countries. Additionally, gender difference tends to diminish at very old ages, presumably as a result of health or economic factors that require institutional caretaking, communal living, or sharing of housing costs (Kinsella and Velkoff, 2001).

In the Western Pacific Survey, it was found that there are between 75 and 85 percent of the older people residing in extended family settings in the nations of Fiji,

the Republic of Korea, Malaysia and the Philippines. Most importantly variables such as gender, age, and marital status of older people had little impact on the likelihood of co-residence within each country as strong cultural prescription at work in this region (Sokolovsky, 2000). Moreover, a survey concerning four Asian countries also show persisting pattern (Figure 2.4.2). While the levels may appear similar as the extensive proportions of older people are living with offspring, this encompasses a plethora of specific family and household types which are not only different among nations but also among ethnic groups within nations (Kinsella and Velkoff, 2001). Apart from demographic factors such diversities point out the importance of cultural and ideological factors in the determination of living arrangements of older people (Albert and Cattell, 1994).

Figure 2.4.2 Percent of People Aged 60 and Above Living with Their Children in Four Selected Asian Countries, By Sex
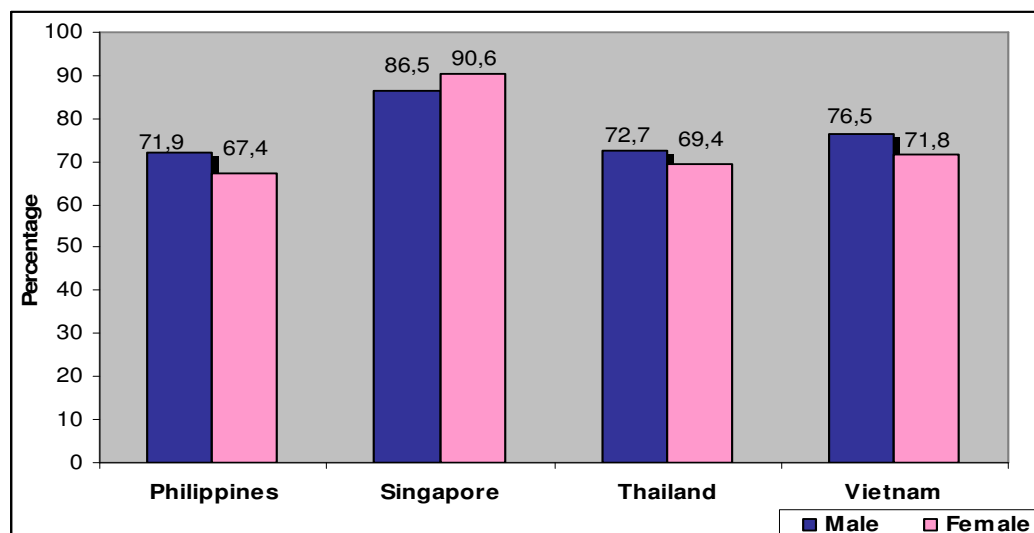
Source: UN, 2001

Besides gender and marital status, the other demographic trends have an impact on household structure and living arrangements of older people. Wolf (1994) argues that declines in the fertility rates have been negatively associated with living alone as decrease of the fertility rate causes a decrease in the availability of family members with whom older people may live (Palloni, 2000). According to previous research on East and Southeast Asian countries the number of children is positively

related to the elderly's likelihood of co-residence in Philippines, Singapore, Taiwan, Thailand (Casterline et al. 1991) and Malaysia and Fiji (Martin, 1989).

Female labor force participation also reduces the availability of members with whom older people could co-reside since employment outside home makes difficult for daughters to take care of their old parents (McGarry and Schoeni, 2000; Grundy, 2000). On the other hand, increase in the female labor force participation may also increase the probability of co-residence of older people with their children as being a potential source of childcare as a grandparent. Migration is the other demographic forces that affect the co-residence of older people as migration from rural to urban areas generally prefers from children while older people may not wish to move in a city (Karagiannaki, 2005).

In addition to these demographic factors; educational level, income and health status of older people are generally accepted as the determinants of living arrangement patterns. Da Vanzo and Chan (1994) stated that older men who have higher education are less likely to co-reside with children, although there is less educational variation among older women in Malaysia. According to Bongaarts and Zimmer's (2001) study concerning the living arrangements of older people in developing countries, schooling differentials are minimal for household size, percent living alone, and percent living with adult children. However, they reported that older people with schooling are significantly more likely to head their household and to live with a spouse than are those with no schooling.

It should also be noted that a number of analyses lead to the conclusion that rising of the income among older people cause higher proportion of older people living alone (Burch and Matthews, 1987). Although, the empirical evidence for an income effect on co-residence among older people exists, it is not altogether convincing (Palloni, 2000). Michaels and his colleagues (1980) points out that in order to purchase privacy and to support independent living, older people need higher income. Pampel (1992) also shows that effects of variables proxying for income are in the expected direction, but they are of insignificant magnitude, and the

increasing trend in proportions living alone remains largely unexplained by well-defined conditions.

Living alone may also be related to improvements in the health status of older people, given that elderly people with fewer health problems are better able to live on their own (Wolf and Soldo, 1988) or elderly who are disabled or ill more likely to co reside with their children. However, in a few studies, the findings are inconsistent with those expected and no relation at all is found (Martin, 1989).

Apart from individual-level correlates of living arrangements of older people Bongaarts and Zimmer (2001) analyze the country-level correlates of living arrangements of older people. According to them, if levels of development are operationalized to the standard socio-economic indexes, such as gross national product (GNP) per capita or the percent with schooling, then they would expect countries scoring higher on these indexes to exhibit weaker extended kinship ties in their living arrangements. In their study, not all of the socio-economic variables tested were correlated with living arrangement patterns. Although GNP per capita, per cent rural, and life expectancy are considered important indicators of development, they exhibited very little association with any living arrangement indicator.

For the Turkish case there are limited studies concerning the living arrangement patterns of older people and some of them mainly focus on the co-residence of children with their parents by considering the general characteristics of children not co-residence of elderly with their children by considering the elderly's characteristics. Aytaç (1995) aims to examine intergenerational living arrangement in Turkey by using Turkish Family Structure Survey 1988. Since there was limited information on the elderly characteristics, his research primarily focuses on the effects of the respondent's characteristics. He mainly interested in the relationship of regional development, individual modernity versus traditionalism, and religiosity with living arrangement. According to results of the study, the likelihood of co-residence is lower in the more economically developed regions in accordance with

modernization theory. Moreover, the probability of living nearby elderly does not show a similar pattern with the level of economic development. When the effect of individual modernity is examined according to the level of educational attainment, it is seemed that there is a negative relationship between education and co-residing with elderly. While more educated are less likely to co-reside with elderly they are also more likely to live nearby. The results also show a strong effect of being religious and co-residing with elderly. In sum, his research reveals that there is significant variation in co-residence and in the reasons for co-residing with elderly by regional development, urbanization, individual modernity and religiosity.

Aykan and Wolf (2000) also investigates the patterns and correlates of currently married adult children's co-residence with their parents in Turkey using data from the 1993 Turkey Demographic and Health Survey. They are particularly interested in traditional patterns of co-residence and the effect of variables measuring traditionality at the individual and contextual levels on co-residence with any parent and with the husband's parents. According to their study's result, co-residence with the husband's parents are very high. In addition, they find substantial effects of traditionality measures on co-residence, especially with the husband's parents. According to them, continued economic development and the social changes that accompany it, can be expected to reduce the prevalence of parent-child co-residence in Turkey.

The other study considering the living arrangements of the elderly people living in Turkey was presented by Hancıoğlu and Ergöçmen (2001) using data from the 1998 Turkey Demographic and Health Survey. According to the main results of the study some 10 percent of the elderly live in single person household while a fifth one in all elderly household mostly with a spouse. The remaining elderly live with younger generations, the majority of whom are either heads of the households or spouse of the household heads. Additionally, more than half of the elderly have some kind of income, and there appears to be a positive correlation between the absence of income and living with younger generations. The study also reveals that despite the high proportion of elderly living in either in single or all-elderly household the

family network is still strong, indicated by the presence for most of such elderly, of at least one child living nearby. This also shows there has not been a residential separation of the elderly from younger generations, yet.

In fact, care of the elderly within informal system which includes family, other relatives, friends, neighbors, etc. is a characteristic of all countries (Kosberg, 1992) and tradition, religion and normative values are the main reasons behind this. Moreover, the forces of social and cultural change such as increased education, female labor force participation, the process of urbanization and industrialization challenge the traditional institutions; the most important one is family (UN, 1984). These challenges have some negative implications for the traditional role of family in caring for its elderly members as well as some implications for public policy. In the other words, the process of urbanization and modernization with the changing role of women has negative impact on informal care system for the elderly (Eser, 1994). Therefore, there will be a need for special policies for the elderly who are not in a family setting due to the changing pattern of family, caused by the process of modernization and urbanization (UN, 1984). For this reason there is a inverse relationship between the stage of development of a country and prevalence of family care to the elderly (Kosberg, 1992).

The process of modernization and urbanization has caused some modifications in the social structure, which in turn has led to a high proportion of nuclear families against that of extended families in Turkey (Ünalan, 1988; Ünalan 1993). In rural areas, where the role and authority of the elderly are still maintained due to the traditional social structure, one would expect more co-residence, and this would be one of the ways that the elderly parents are taken care of by their children's families. However, even though the proportion of nuclear families is higher in urban areas than in rural areas, the trend in both urban and rural settlements is towards more and more nuclear families (Gümrah, 1993). In this respect, the question of whether or not families still constitute the main source of social, financial, and physical support of the older people becomes an important issue.

III

POPULATION AGEING IN TURKEY

3.1 Turkey: The Setting

The Republic of Turkey has 779,452 square kilometers total area of which 23,764 in Europe and 755,688 are located in Asia. The European part of Turkey is called Thrace, while the Asian part is called Anatolia or Asia Minor. The capital is Ankara and the other major cities are İstanbul, İzmir, Bursa, Adana, Gaziantep and Konya.

The European segment of Turkey, Thrace, forms the southeastern extremity of Europe, bounded on the west by Bulgaria and Greece, on the north by the Black Sea, on the southwest by the Agean Sea, and on the southeast by the Sea of Marmara. Anatolia which comprises the bulk of Turkish territory, is a peninsula surrounded on the north by the Black Sea; on the south by the Mediterranean Sea, Syria, and Iraq; on the west by the Agean Sea; on the northwest by the Sea of Marmara; on the east by Iran, Azerbaijan, and Armenia; and on the northeast by Georgia (Library of Congress, 2005).

The shape of the country resembles a rectangle, stretching in the east-west direction for approximately 1,565 kilometers and in the north-south direction for nearly 650 kilometers. The landscape of Anatolia is dominated by mountains, stretching parallel to the coastline along the Black Sea on the North and along the Mediterranean on the South until they meet in the Eastern part of the country. The average altitude is 1,130 meters. There are, however, a good many plains, plateaus, highlands, and basins. Turkey being situated in the temperate zone has various climatic types in different parts of the country.

3.2 Regional Disparities

Turkey shows variations with respect to socio-economic and cultural characteristics in different parts of the country. The country; culturally, socio-economically and as well as geographically can be divided into five regions.

The western region is the most densely settled the most urbanized, industrialized and socio-economically the most advanced region of the country. This region includes two of the three largest cities; İstanbul and İzmir. The provinces bordering on the Sea of Marmara and The Aegean Coast are socio-economically the most developed places according to the study prepared by the State Planning Organization (2003). In this region, industry and trade are the most densely participated sectors in terms of labor force which leading to the fact that most of the GNP comes from this region. Moreover, education, health and other welfare indicators are the highest compared to other regions in Turkey.

The central region is located in an arid grazing area includes Ankara, the capital and the second largest metropolitan area of Turkey. Following the western region, this is the most populous and socio-economically the second most developed region of the country (SPO, 2003). Similar to western region, urbanization rate is very high however; working in industry is low in central region. Approximately one fourth of the total population lives in Central Anatolia. It is a major wheat producing area and dry, temperate climate also allows fruit free cultivation as well as sheep and cattle raising (Hancıoğlu, 1994; Ünalan, 1993).

The southern region includes highly fertile plains and fast growing industrial centers such as Adana, a new metropolitan area and Antalya one of the most important touristic center of Turkey. With increased investment by private sector, the region has experienced an industrial burst of growth. Following western and central regions, southern region is the other important one in terms of socio-economic development in Turkey.

The northern region which is isolated from the rest of the country by the mountains has limited cultivable area. It specializes mainly in small scale labor intensive crops such as hazel nut and tea. Zonguldak with its extensive coal reserves is a center for mining and the steel industry (Ünalan, 1993). According to the study of State Planning Organization (2003), this region is socio-economically the second least developed region in Turkey. Rate of urbanization in northern region is under the average value of the country. Education, health and other welfare indicators are also under the average value of Turkey.

Although some of the provinces have been among the most rapidly growing ones, eastern region is the least developed region of Turkey. This region generally suited for animal husbandry rather than settled farming due to its climatic condition. Much of the arid and semi-arid areas in the southeast have been expose to a process of transformation by a large irrigation and energy development known as Southeast Anatolia Project. Besides the obvious beneficial impact on Turkey's agricultural and energy output, this project will have a positive long term benefit for the area (Ünalan, 1993).

3.3 Urban-Rural Classifications

The variations in terms of cultural, social and economic variables among different regions are also valid for the urban-rural categorization in Turkey. Rural and urban settlements are the units that have different attributions and they do not have similar localities. These settlements have different lifestyles that have distinctive characteristics according to economic and social activities and relationship with the nature.

In relation to this, urban settlements are the area where the activities about merchandizing, industry, laboring and management are ascendant whereas rural areas are qualified according to density of rural functions. These functions are showed up in using of land, in style of production style, in professional structure, in the

characteristics of rural area and in the magnetic field of the producer and the service society.

According to State Planning Organization (2003), the size of the settlements with a population of over 20,000 qualified as urban and the population below 20,000 qualified as rural areas. In the demographic surveys of the 1970s, a population size of 2,000 was used to differentiate between urban and rural settlements. In the 1980s, the cut-off point was increased to 10,000 and in some surveys in the 1990s to 20,000. The urban frame for the 2003 Turkey Demographic and Health Survey, from which the data for the analyses in this thesis are taken, consists of a list of provincial centers, district centers, and other settlements with population larger than 10,000 regardless of administrative status. The rural frame consists of all district centers, sub-districts and villages not included in the urban frame (HUIPS, 2004).

As it is mentioned before, Turkey depicts wide regional differences in terms of various social, economic and demographic characteristics. Furthermore, cultural and historical differences seem to be still significant in isolated rural areas due mainly to the fact that the process of modernization has had the greatest impact in the west and the big cities but only a much lesser influence in the east and the smaller cities, towns and villages (Ünalan, 1993).

3.4 Demographic Transition in Turkey

Turkey has been an independent country since October 29, 1923 after the fall of the Ottoman Empire. An analysis of demographic changes experienced by Turkey, and expected to take place in the future is labeled as demographic transition[1]. Turkey

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[1] The demographic transition is a pattern of interrelated social, economic, and demographic changes that result in rapid population growth. The prototypical transition pattern occured through Western Europe in the 19th and early 20th centuries. During the transition the economies of these countries went through enormous shifts, changing from an agricultural base to an industrial mode of production. At the same time, these countries experienced mortality decline as a by product of economic development. They gained control over infectious diseases, improved the availability of clean water and saw the emergence of more advanced medical technology. As a result the shift from high and somewhat variable mortality to lower mortality began and fertility remained high longer than did mortality, but then began to decline. In this transition phase, the lag between mortality decline and

has experienced substantial changes in its demographic structure since the foundation of Republic, however, fertility decline had an early start in Turkey in İstanbul and the larger cities, and the fertility transition was well under way before founding of Republic. According to the Ottoman Censuses of 1885 and 1907, total fertility rates[2] were 3.5 and 3.8 respectively for İstanbul. These levels were reached only in the late 1980s for Turkey as a whole, and are far below the normal range of TFRs of pre-industrial European populations (Behar, 1995 cited in Obermeyer, 1995). Nevertheless, demographic transition of Turkey was examined in three stages by the State Institute of Statistics (1995) and the first stage is accepted as starts in 1923 the date of foundation of Republic.

The first stage of transition can be dated from 1923 to 1955. Although complete statistical data related to mortality rates do not exist for this period, after 1923, secure environment and the recovery of normal life led to a steady decline of death rates except for a brief reversal during the Second World War. Fertility increased significantly from around 5.5 children to 7.0 children and life expectancy is 55 years throughout this period. During the early years of the Republic, in order to supply labor force shortage and rebuild family and social life, state considered that high fertility is necessary. In this period, the number of marriages and the number of births were encouraged and abortion was banned under the Penal Code. Moreover, legal age limit for marriage was fixed at 15 for females and 17 for males (Ünalan, 1993). By means of falling of death rates and rising birth rates, the population growth rate increased rapidly from 13 to 24 million with its peak point of 2.8 growth rate between the year 1923 and 1955 (SIS, 1995).

The second stage of transition can be dated from 1955 to 1985. During the 1950s, fertility began to decline and it did not reverse. However, this decline is not as fast as the prior decline of death rates. During the post war period, health conditions

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fertility decline set the stage for rapid population growth. Finally, with sustained low mortality and fertility, population ageing occurs.

[2] Total fertility rate can be interpreted as the number of children a woman would have by the end of her childbearing years if she were to pass through those years bearing children at the currently observed age-specific rates.

improved, number of marital unions and the number of couples in the reproductive ages increased. Furthermore, the overall mortality rates decreased and the number of surviving children increased. Then, the population continued to grow rapidly and doubled again from 24 million to 51 million. In this period, life expectancy is increased to 62 years. The other important development of this stage was rapid urbanization process of the country. As a result of growing momentum of economic change, jobs increased in urban location more than rural location. In this period, urbanization rate rose from 22.5 per cent to 51.1 percent. Since the increase in the numbers of jobs located in urban, young adults began to move rural to urban which led to decline in fertility rates and change in family formation (SIS, 1995).

The third stage of transition began during the 1980s and does not end with any specific event. From the 1980s the decline of population growth was definite and irreversible which decreased from its highest level of 2.8 is seen in the first stage to 2.2 by the year 1990. The third stage of demographic transition is considered to be complete when two things happen. One is that fertility should fall to a level where births approximately replace the parent generation, but not more than that. The second is that population growth should stop (SIS, 1995).

Since foundation of Republic, the country has experienced substantial changes in its demographic structure. The spatial distribution of population, the density of habitation, and population size all changed fundamentally. This demographic transformation is not occurring in isolation. It is also embedded in social and economic context that are also changing.

One of the most striking achievements since founding of Republic has been the increase in both literacy and education. In 1935, only 10 percent of females and 29 percent of males were literate in Turkey. Eventhough male-female gap still exists in terms of literacy and education, the figure from the last census in 2000 indicates that, the literacy rate of the population 6 years of age and over is 87 percent. 54 percent of literate population is male and 46 percent of literate population is female. Educational attainment in the country has also increased dramatically (SIS, 2003).

The gross primary education enrolment ratio is 96 percent; 100 percent for males and 93 percent for females (SIS, 2004). There is also a moderate level advances in increasing the proportions of males and females with higher than primary-level schooling. In Turkey, compulsory schooling year was increased from five years to eight years in 1998. Despite these achievements, there are considerable regional and also urban-rural differences in literacy and educational attainment. When the distribution of literacy rate of the population 6 years of age and over is examined by regions, it is seen that this rate is at the low level in the most provinces placed in eastern region. The literacy rate has taken its lowest values with 6 percent in Şırnak, with 68 percent in Şanlıurfa, Ağrı and Van, with 69 percent in Siirt and Muş, with 70 percent in Diyarbakır. On the other hand, it is seen that the provinces where the literacy rate is at the highest level over 90 percent are mostly placed in western and central regions such as Istanbul, Ankara, İzmir, Bursa, Tekirdağ and Eskişehir (SIS, 2002).

Table 3.4.1 Literacy Rate by Sex, Population 6 Years and Over, 1935-2000

Census Years	Literate	Male	Female
1935	19.25	29.35	9.81
1940	24.55	36.20	12.92
1950	32.51	45.52	19.45
1960	39.51	53.63	24.84
1970	56.21	70.31	41.80
1980	67.48	79.88	54.67
1990	80.49	88.81	71.98
2000	87.32	93.86	80.64

Sources: SIS, 2002

Beside the improvements in educational attainment, Turkey also showed important expansions in its economy. After the foundation of Republic, various economic development strategies were adopted. In the early years of Republic, the Turkish economy was almost based on the agriculture. Throughout the 1920s, liberal policies were implemented and government promoted the development of industry through private enterprise. Following this, the origins of modern industry was seen in the era of 1930s in Turkey.

Today, Turkey's dynamic economy is a complex mix of modern industry and commerce along with a traditional agriculture sector which still accounts for more than 35 percent of employment. Even though, it has a strong and rapidly growing private sector, the state still plays a major role in basic industry, banking, transport, and communication. The largest industrial sector in Turkey is textiles and clothing, which accounts for one-third of industrial employment. However, other sectors, notably the automotive and electronics industries are rising in importance within Turkey's export mix.

Real gross national product growth has exceeded 6 percent in many years, but this strong expansion has been interrupted by sharp declines in output in 1994, 1999, and 2001. The economy is turning around with the implementation of economic reforms. As a result of these economic reforms gross domestic product growth reached 9 percent in 2004 and inflation fell to 7.7 percent in 2005 which corresponds to a 30 year low. However, there are significant regional variations in terms of the improvements in the GNP in Turkey. Despite the strong economic gains between the years 2002 and 2005, which were largely due to renewed investor interest in emerging markets, IMF backing, and tighter fiscal policy, the economy is still burdened by a high current account deficit and high debt (The World Factbook: Turkey).

3.5 Population and Population Dynamics of Turkey

Turkey with a high population growth rate is a rapidly growing country. The population of Turkey has grown approximately five times between the first census of Republic in 1927 and the last one in 2000. According to the results of the counts, the population of the country was 13,648,270 at the beginning and increased to 67,803,927 in 2000. High fertility was the main reason behind the rapid increase of population in Turkey (SIS, 2002).

Figure 3.5.1 Population Size, Turkey, 1935-2000
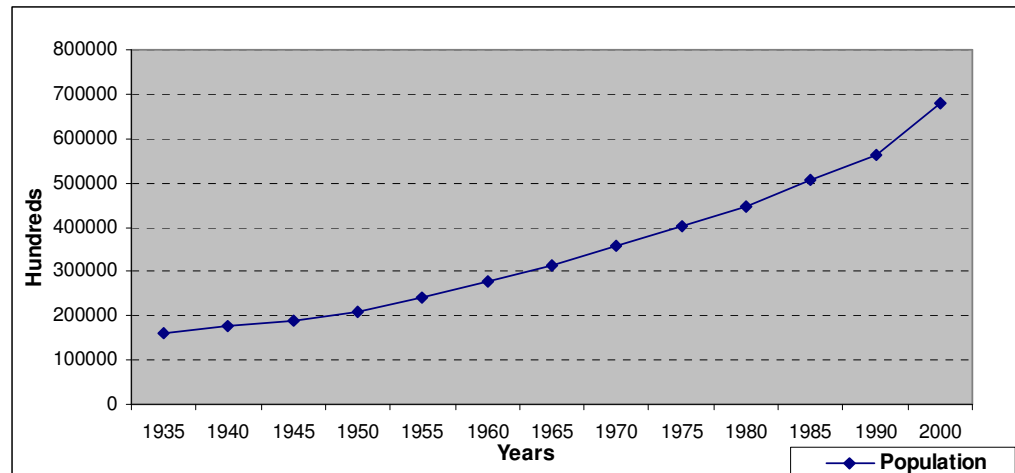
Moreover, the population growth rates of Turkey have fluctuated since the first census. According to intercensal estimates, population growth has been around 20-25 per thousand since the 1970s and the latest estimate of the population growth rate is 18.3 per thousand for the 1990-2000 period.

Figure 3.5.2 Population Growth Rates, Turkey, 1935-2000
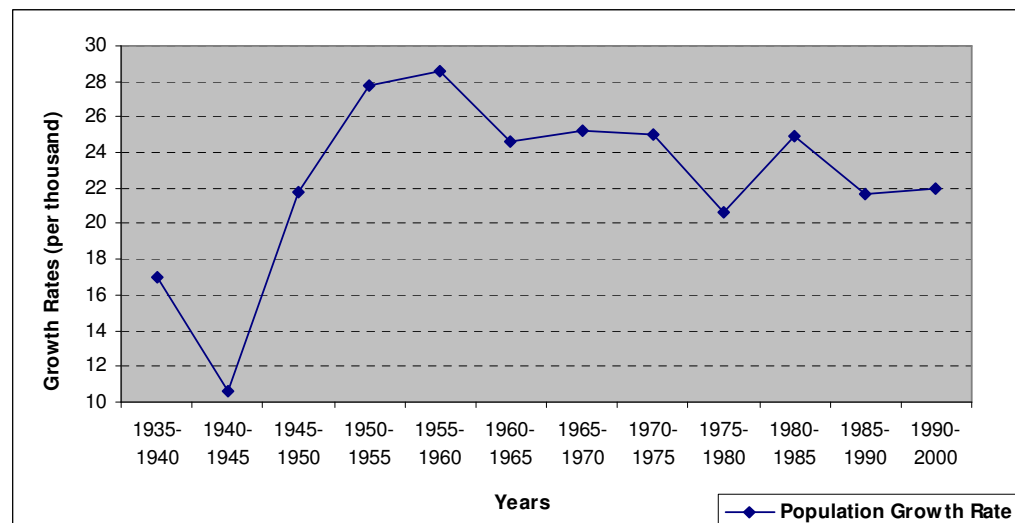
Owing to the decline in fertility and mortality rates as well as to changes in migration trends, population growth rates decreased in the last decades and this led to

the changes in the age structure of population in Turkey. With decreasing fertility and mortality levels, the proportion and absolute numbers of older population is expected to rise more rapidly than any other age group in Turkey. Hence, the overall trend in the age structure of Turkish population is towards increasing proportion of older people and decreasing proportion of younger people.

According to Shorter and Macura (1982), the crude birth rate of the country was around 46 per thousand at the late of 1930s and it increased to 48 per thousand at the beginning of 1950s due to the pronatalist policies of the government. Moreover, until the early 1960s, demographers relied on indirect estimates from census data to describe the levels and trends in Turkish fertility. The advent of national demographic surveys in the early 1960s was a noteworthy development (Hancıoğlu, 1997). The earliest of the surveys which produced a single-year total fertility rate of 4.33 children per woman was 1978 Turkey Fertility Survey (TFS), while the 1988 Turkey Population and Health Survey (TPHS) estimate was 3.02, the 1993, 1998 and 2003 Turkey Demographic and Health Surveys (TDHS) estimates were 2.65, 2.61 and 2.23 respectively (HIPS, 2003). As Table 3.4.1 shows, fertility levels have declined almost continuously in Turkey over the past 25 years, from a level of 4.3 births per woman at the time of the TFS-1978 to 2.2 births per woman at the time of the TDHS-2003 (HIPS, 2003).

Table 3.5.1 Fertility Trends, Turkey, 1978-2003[*]

	TFS-1978	TPHS-1988	TDHS-1993	TDHS-1998	TDHS-2003
Age					
15-19	93	45	56	60	46
20-24	259	193	179	163	136
25-29	218	183	151	150	134
30-34	154	102	94	93	78
35-39	101	55	38	42	38
40-44	38	19	12	13	12
45-49	2	7	0	1	2
TFR 15-49	4.33	3.02	2.65	2.61	2.23

Note: 1978, 1988 and 1993 rates refer to the year before the survey; 1998 and 2003 rates refer   to the 3-year period before the survey.

[*]Turkey Ferility Survey (TFS–1978); Turkey Population and Health Survey (TPHS–1988); Turkey Demographic and Health Survey (TDHS–1993, 1998, 2003)
Source: HIPS, 2003

The decline in fertility was especially rapid during the period between the 1970s and the 1980s. At the time of the TDHS-1993, TFR reached the level of below 3 births per woman, and it stabilized around 2.6 births on average in the 1990s. According to TDHS-2003, after the stabilization era, fertility declined 15 percent in the period of 1998 and 2003 and it reached somewhat over the replacement level[3].

Figure 3.5.3 Trend in Total Fertility Rate, Turkey, 1978-2003[*]

[*]Turkey Ferility Survey (TFS–1978); Turkey Population and Health Survey (TPHS–1988); Turkey Demographic and Health Survey (TDHS–1993, 1998, 2003)
Source: HIPS, 2003

However, it should be noted that there are significant regional and urban-rural differences in terms of fertility level in Turkey. The fertility rate has the highest level in the east and the lowest in the west. In the same way, the level of fertility is higher in rural areas than urban areas in Turkey.

Education is one of the most important factors influencing the level of fertility. As the level of women's education increases, the level of fertility reduces significantly (Ünalan, 1993). The other important factor influencing the fertility is the rapid increase in contraceptive use and improvements in contraceptive methods. Other than education and improvements in the use of contraceptive methods

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[3] Replacement level fertility: The number of children needed to keep a population at a stable size; generally considered to be a total fertility rate of about 2.1 children per women

urbanization and modernization brought different perceptions and values. Compulsory education, increasing female labor force participation, improvements in the status of women and increasing financial cost of rearing children caused couples to want fewer children than before.

Besides fertility decline, there have been continuous improvements in mortality conditions since 1940s affecting the population structure in Turkey. After the Second World War, there was also a decline in the mortality rates due to the improvements in medical technology and the expansion of public health services. According to estimates of Shorter and Macura (1982), the crude death rate decreased gradually from 34 per thousand in 1940s to approximately 8 per thousand until the 1990s. Additionally, the latest figures of SIS (2004) show that it declined to 6.2 per thousand in 2000 and it remained in the same value until 2004. Reaching this level means that the total death rate is approaching to its biological minimum and henceforth the reductions in this rate will be minimal. However, Turkey is known to have high infant and child mortality rates, incompatible with its level of development. When adult mortality is considered, the levels are close to developed country standarts whereas infant and child mortality rutes are similar to developing countries (Ergöçmen, 1991). After the Second World War, infant mortality rates which were quite high in the 1930s and 1940s also declined sharply.

Figure 3.5.4 Trend in Infant Mortality Rate, Turkey, 1978-2003*
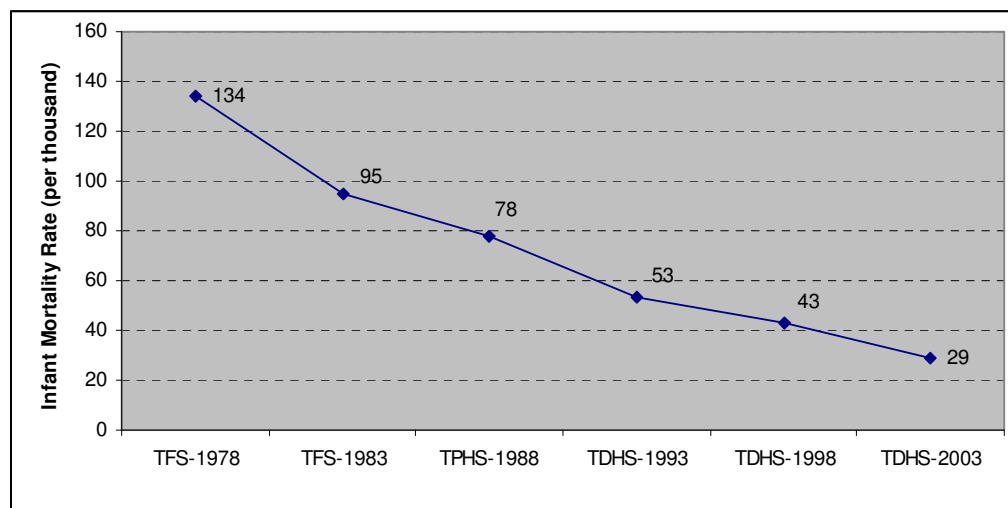
*Turkey Ferility Survey (TFS–1978); Turkey Population and Health Survey (TPHS–1988); Turkey Demographic and Health Survey (TDHS–1993, 1998, 2003)
Source: Cerit and Akadlı (1988); Ergöçmen (1991); HUIPS and General Directorate of MCH/FP (2004)

As a nation's infant and childhood mortality reach low levels, longevity gains at older ages become more prominent contributor to increased life expectancy (Kinsella and Phillips, 2005).

Apart from fertility and mortality, migration is the other important phenomenon influencing the population structure in Turkey. In response to high fertility rates and rapid population growth in the 1950s and 1960s, Turkish government encouraged both temporary and permanent emigration of its population (Ünalan, 2002). During the 1960s and 1970s, large number of people migrated to Europe to seek employment. As a result of decreasing work opportunities in Europe, this process slowed down after the mid-1970s and changed it direction towards Arab countries. However, recent decades developments have begun to lead to changes in the position of Turkey as regards international migration movements. Turkey is about to become a country that receives international migration (TÜSİAD, 1999).

Internal migration has also been another important event shaping the population structure of Turkey. Starting from 1950s, the largest migration flows were realized by individuals and families with moving from rural to urban areas since

economic development and trade were centered in urban areas and cities offered better job opportunities, amenities and public services. Due to heavy migration from the countryside to the towns, Turkey became increasingly urbanized. By urbanization, the urbanization indicator starts to climb rapidly in the 1950s and it continues to climb up to the present (Figure 3.5.5). The population which shifted from rural to urban areas also stimulated social and economic changes in Turkey. Urban residents usually have higher educational levels, lower fertility, higher income, better health and longer lives than rural residents. Thus, urbanization appears to accelerate the demographic transition to lower mortality and fertility (Population Reference Bureau, 2004).

Figure 3.5.5 Proportion of Urban and Rural Population in Total, Turkey, 1935-2000
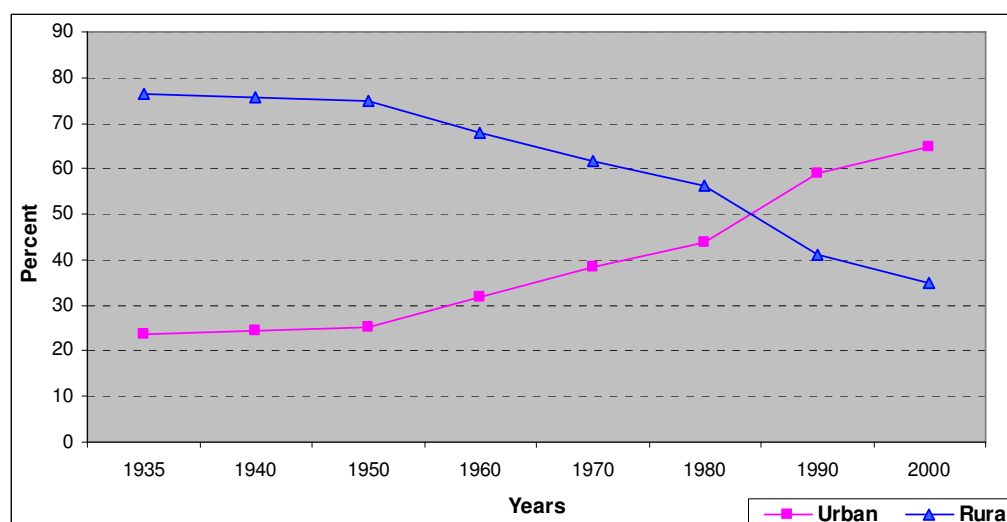
Source: SIS, 2002

3.5.1 Demographic Indicators of Population Ageing in Turkey

Turkey has a young population as a result of high fertility and growth rates in the past. According to 2000 Census, those who are under the age of 15 constitute 29.9 percent of total population and older people who are above 65+ have a small proportion of only 5.7 per cent in the total.

However, fertility in Turkey has drastically declined over the last three decades. Turkey has now left behind the period of rapid population growth and the annual population growth rate will definitely continue to decline further (TÜSİAD, 1999). As a result of fertility decline, the share of children and youths in population will decrease and the share of older population in total population will increase; as shall be mentioned before, the main determinant of population ageing process is the decline in fertility. Though, the most striking aspect of the process of structural ageing of the population of the Republic of Turkey is that the number and share of those over the age of 65 will increase at an extraordinary pace during the next two or three decades (TÜSİAD, 1999).

In order to understand the changing age structure of population, it is useful to look at the demographic indicators such as population pyramids, proportion of older people, dependency ratios, median age and life expectancy of Turkey. The progress of Turkey's population during the Republic period can be best viewed by means of population pyramids. The age pyramids constructed for the times 1935, 1970, 1990 and 2000 indicate the transition of the country from a high fertility to a low fertility.

Figure 3.5.1.1 Population Pyramid for Turkey, 1935
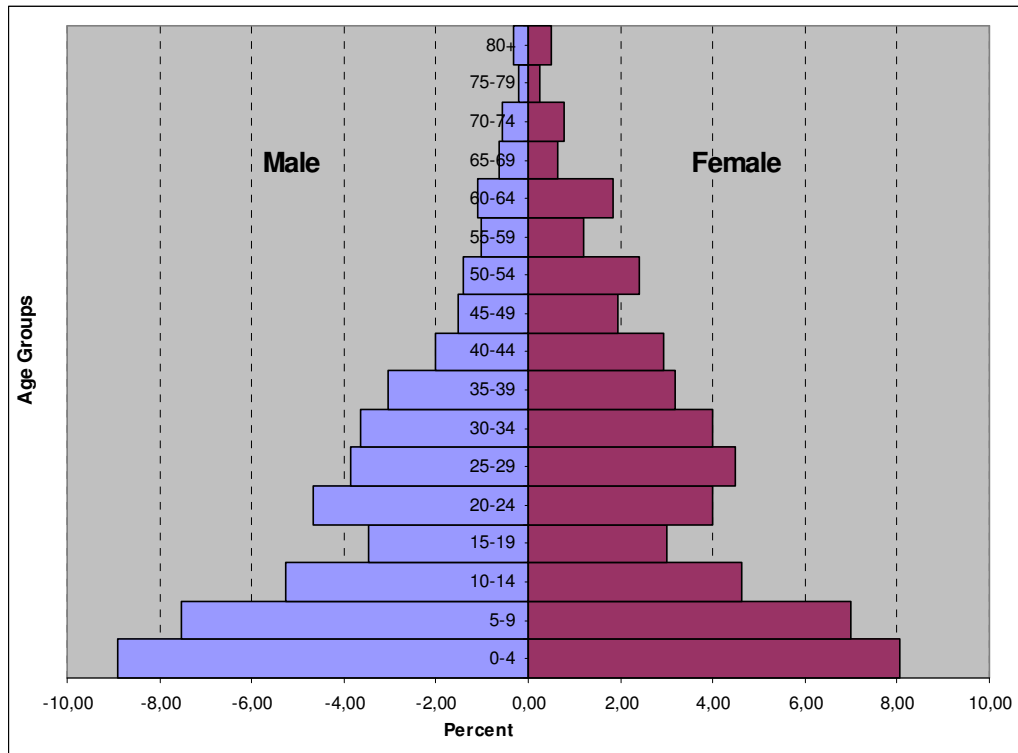
Figure 3.5.1.2 Population Pyramid for Turkey, 1970
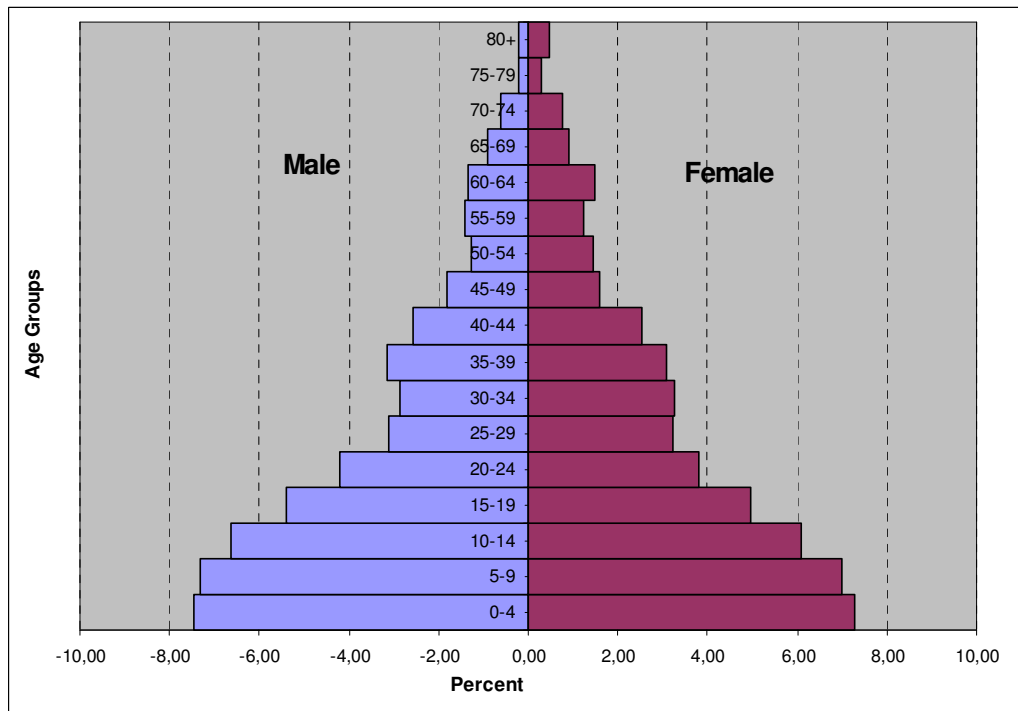
Figure 3.5.1.3 Population Pyramid for Turkey, 1990
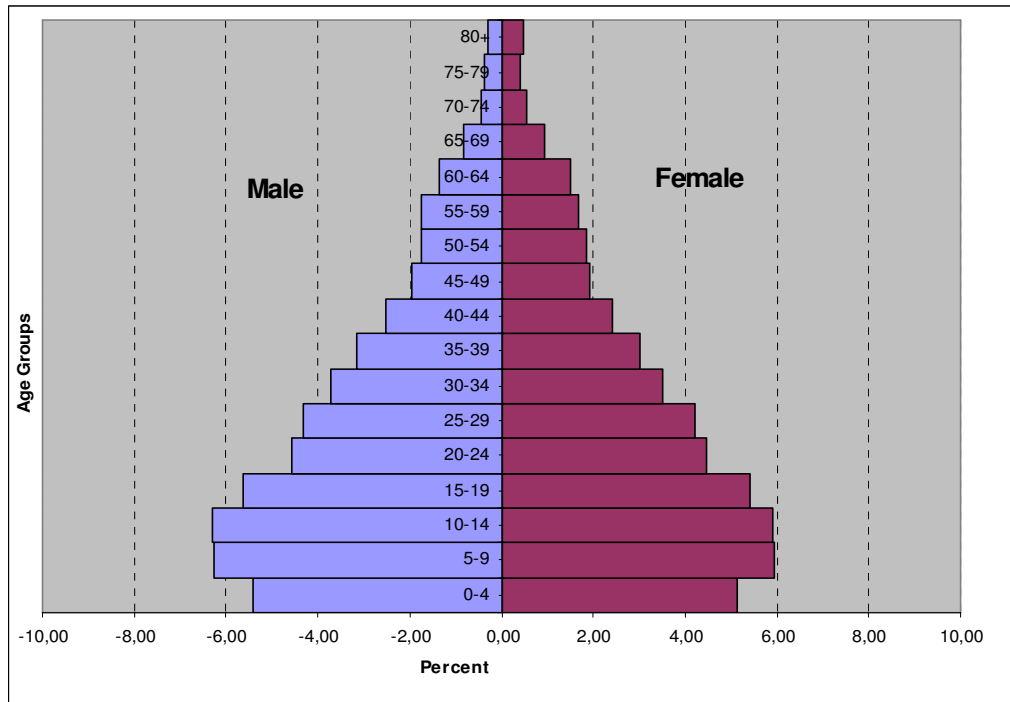
Figure 3.5.1.4 Population Pyramid for Turkey, 2000
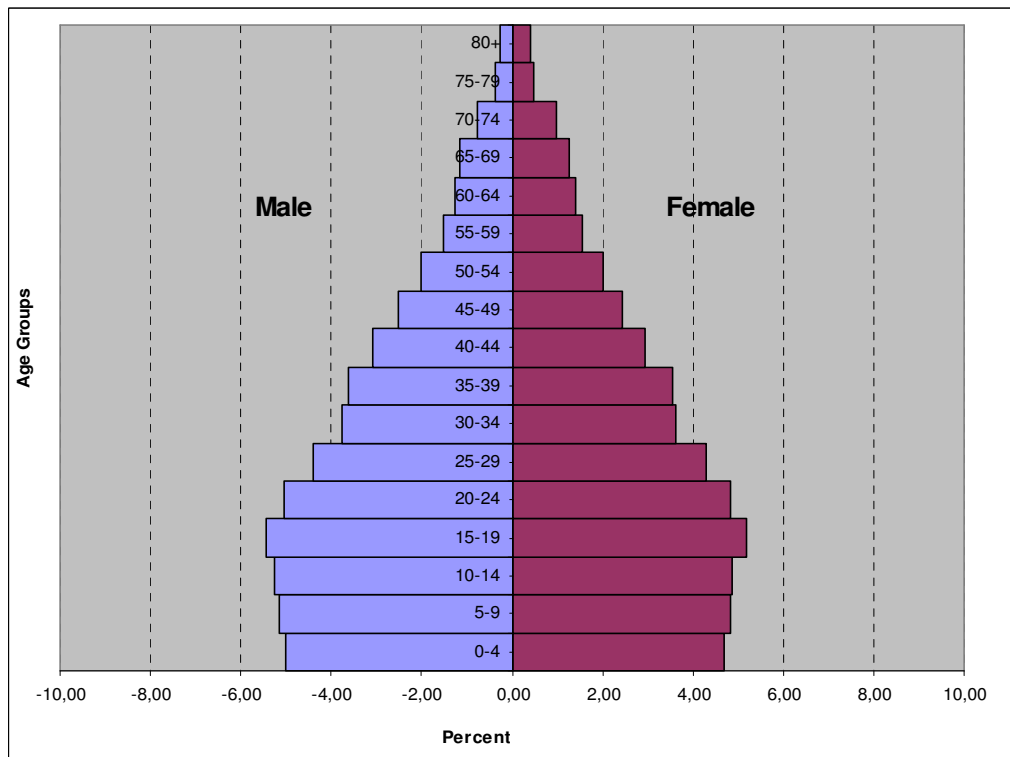
The pyramid for 1935 indicates the population shortages that were created by excess mortality and depression of the birth rate during the war years before the Republic. The shortage of males and females in the age group 15-19 refers to individuals born in 1915-1920. Moreover, the recovery period is shown by larger cohorts aged 10-14, 5-9 and 0-4 due to the high fertility rates resulting of pronatalist policies. The other important point in the pyramid is that the heavy death rates among young adults, particularly males during the battle years. This lack of male is shown in the cohorts aged 40 to 65 in 1935.

The pyramid for 1970 which is located at the mid point of the second stage of transition shows high fertility shape of population that has experienced a considerable decline in death rates. It also indicates in the age group 0-4 that there was a decline in the birth rates. Furthermore, it is noteworthy to mention the age locations of two particular shortages of population. The cohort born in 1915-1920 that the years of First World War is aged 50-54 in this pyramid which also shown in the first pyramid as aged 15-19. The second shortage is related to Second World War where there was a high infant and early childhood mortality and a small, but temporary decline in fertility. This cohort born during 1940-1945 is aged 25-29 in the 1970 pyramid.

All of these under-sized cohorts aged are out of the pyramid by 1990. The shortages of them are not so noticeable as they completed their lives or reached to relatively high ages. In the pyramid for 1990, there is an important change takes place at the lowest ages of the pyramid. As there is a decline in fertility and child mortality rates, the renewal of population at the youngest ages becomes almost stable (SIS, 1995). However, there is a large portion of the population is concentrated in younger age groups which implies an increase first of all in the number of people in reproductive ages and then in the number of people in dependent ages in the following decades.

The pyramid for 2000 indicates that there is a decline in the proportion of population under 15 in the total population while comparing to other pyramids

mentioned above. In fact this pyramid reflects the effects of high fertility in the past and evidence of recent fertility and mortality declines which cause a decline in the proportion of younger people and an increase in the proportion of older people in Turkey.The shares of the major age groups within the total population are shown in Table 3.5.1.1.

Table 3.5.1.1 Percentage Distribution of Population by Major Age Groups, Turkey 1935-2000,

| Years | Major Age Groups | | | |
	0-14	15-64	65+	Total
1935	41.23	54.43	3.89	100
1940	42.10	54.26	3.53	100
1950	38.28	58.30	3.30	100
1960	41.17	55.12	3.53	100
1970	41.79	53.79	4.40	100
1980	38.97	55.93	4.72	100
1990	34.96	60.68	4.28	100
2000	29.82	64.45	5.69	100
2025	22.08	68.89	9.02	100

Source: SIS, 2003 and SIS, 2006

Even though Turkey has a relatively high proportion of younger people in its population, it is diminishing steadily and the share of older population is increasing rapidly. Moreover, the total dependency ratios over time displays steady decline during the last decades. According to the latest data, total dependency ratio has declined to 55.10 which means that there are 55 dependent person to each 100 persons who are at working ages. It is worth pointing out that the large share of the children among dependent persons appears to be declining over time while the share of older people among dependent persons increases.

Table 3.5.1.2 Age Dependency Ratios, Turkey, 1935-2000,

Years	Total Age Dependency Ratio (%)	Elderly Dependency Ratio (65+) (%)	Youth Dependency Ratio (0-14) (%)
1935	82.89	7.14	75.75
1940	84.12	6.51	77.60
1950	71.32	5.66	65.66
1960	81.09	6.40	74.69
1970	85.85	8.17	77.68
1980	78.12	8.45	69.67
1990	64.68	7.06	57.62
2000	55.10	8.83	46.27
2025	45.14	13.09	32.04

Source: SIS, 2003 and SIS, 2006

Another demographic indicator of population ageing is median age. According to 2000 Census, the median age of total population is 24.83 means half of the people in Turkey are under the age of 24.83 and the other half is above the age of 24.83.

Figure 3.5.1.5 Median Ages of Population, Turkey, 1935-2000,
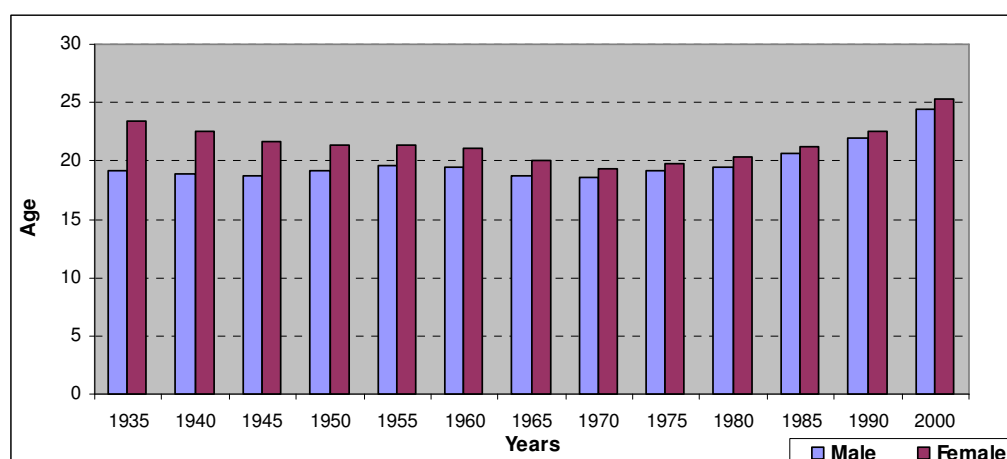
Source: SIS, 2002

The median age of the population in Turkey which was generally 20 between the years 1940 and 1960 showed a continuous increase after 1970. The difference between the median ages of the female and male populations decreased especially after year 1965 and median age has increased to 24.4 for male population and 25.3

for female population in year 2000. Because the average life expectancy of the females is much higher than that of males, median age of the female population is much higher than that of the male population. According to medium variant projections, median age of Turkey is projected to reach 32.5 by the year 2025 and to 39.5 by the year 2050 (UN, 2004).

The final important measure of population ageing which is discussed for Turkey is life expectancy. As a result of a rapid demographic change in Turkey, very high death and birth rates have continuously diminished. Reduction in infant and child mortality has played a major role in raising the average expectation of life at birth. Improvements in hygiene and medical technology and the expansion of public health services reduced death rates. Consequently, life expectancy increased to 68.8 years for men and 73.6 years for women. Thus, people began to live more lives and reached to older ages than before which cause to an increase in the size of population at older ages.

Figure 3.5.1.6 Trends in Life Expectancy at Birth by Sex, Turkey, 1950-2050
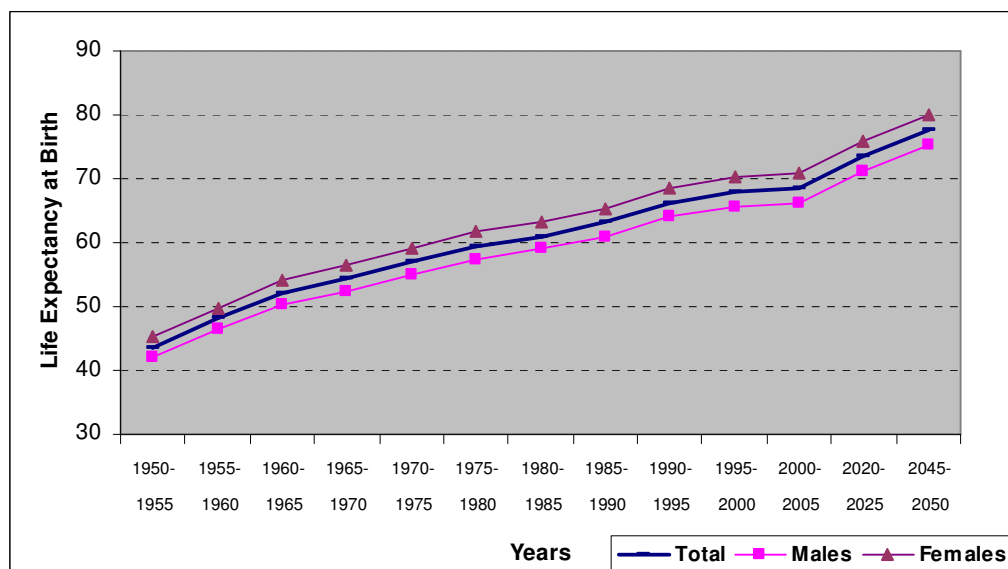
Source: UN, 2005b

IV

DATA AND METHODOLOGY

4.1 Source of Data

The data for the analyses in this thesis are obtained from the latest nationwide demographic survey, the Turkey Demographic and Health Survey 2003 (TDHS-2003), conducted by Hacettepe University Institute of Population Studies in collaboration with the General Directorate of Mother and Child Health/Family Planning, Ministry of Health. The survey was co-financed by funds provided through the national budget as a project in the annual investment program of the State Planning Organization and by the European Union within the frame of "Turkey Reproductive Health Program", implemented by the General Directorate of Mother and Child Health/Family Planning, Ministry of Health (HIPS, 2003).

The primary purpose of the TDHS-2003 is to provide data on socio-economic characteristics of households and women, fertility, infant and child mortality, marriage patterns, family planning, maternal and child health, nutritional status of women and children, and reproductive health. Collecting these types of information is essential in order to contribute data to assist policy makers and administrators to evaluate existing programs and to design new strategies for improving demographic, social and health policies in Turkey.

Two main types of questionnaires were used in the TDHS-2003: the Household Questionnaire and the Individual Questionnaire for ever-married women of reproductive ages. The content of the questionnaires were based on the International MEASURE/DHS+ survey project model questionnaires and that had been employed in previous Turkish population and health surveys.

The Household Questionnaire was used to enumerate all members and visitors[4] of the selected households and to collect information relating to the socio-economic level of the households. Basic information such as the age, sex, educational attainment, marital status, working status and relationship to the head of household of each person listed as a household member or visitor in the first part of the household questionnaire. The objective of the first part of the Household Questionnaire was to obtain the information needed to identify women who were eligible for the individual interview as well as to provide basic demographic data for Turkish households. The second part of the household was devoted to collecting data on welfare of the elderly, if any, in the households. There are questions related to the income, health insurance, and physical capabilities for all persons age 60 and over living in the household. In the third part, questions were included on the dwelling unit and on the ownership of a variety of consumer goods. This part also includes İstanbul Metropolitan Household Module. In the final part, questions about the salt used in the meals were asked in the half of the sampled clusters, and salt iodization tests were applied in the interviewed households in these clusters (Tezcan, 2003).

The Individual Questionnaire for ever-married women contains questions on a large range of issues such as background characteristics, reproduction history, marriage, knowledge and use of contraceptive methods, abortion and causes, maternal health care and breastfeeding, immunization, fertility preferences, husband's background characteristics, women's work and status, knowledge of sexually transmitted diseases and AIDS, maternal and child anthropometry.

The TDHS-2003 sample is designed to allow for analyses at the national level, by urban/rural residence, and for each of five regions (West, South, Central, North and East) in the country. It also allows analyses for some of the survey topics for the 12 geographical regions which were adopted within the context of Turkey's move to join the European Union (HIPS, 2003). A weighted, multi-stage, stratified cluster sampling approach was employed in the selection of the sample. Totally 13,049 households were selected for the TDHS, of which 10,836 were accessible for

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[4] Visitors are the persons who were not usual household members but who were present in that household on the night before the interview.

interview. The main reasons that eligible households were not interviewed were that some of the listed dwelling units were found to be vacant at the time of the interview or the household was away for an extended period. A total of 11,659 households were located and visited, of which 10,836 households were successfully interviewed. Overall, the household response rate was calculated as 93 percent. In the interviewed households, 8,477 eligible women were identified, of whom 96 percent were interviewed (Türkyılmaz, Hancıoğlu, and Koç, 2003).

4.2 Limitations

In Demographic and Health Surveys, household members are listed according to the codes for relationship to the household head. For the elderly people there are two situations in the household schedule. In some of the households, the elderly people are listed as the head of the household and in the others they are listed according to the codes for relationship to the household head. Thus, in order to examine the living arrangements of older people, it is also necessary to look at the relationships of household members to the older people, rather than the household head. Classifications depending on the relationship to the household head are straightforward for the large majority of older people when they are the head, the spouse of the head, the parent or the parent-in law of the head. For the remaining cases, to identify the exact relationship between the older people and all other people in the household is not always possible with the information collected in TDHS 2003. Hence, in this study, composition of the households that older people live in cannot be examined with regard to living arrangement patterns of older people.

Moreover, as TDHS 2003 excludes the persons living in institutions such as old age homes, penal institutions and hospitals, this study only considers the older people live in households.

4.3 Method of Analysis

The main objectives of this thesis are to determine the general characteristics of older people with giving special emphasis on headship, size and living arrangement patterns of the households in which they reside and to analyze the determinants of living arrangement patterns which vary according to urban-rural and regional differentiation and socio-economic status of older. For this reason this thesis contains both descriptive and multivariate statistical analyses. The statistical method that is appropriate for the design of multivariate statistical analyses is logistic regression as it is one of the most extensively used methods of determining the relationships among variables. At this point, it is noteworthy to give brief information about what descriptive statistics and regression analyses are.

According to Neuman (1997), *descriptive statistics* describe numerical data by manipulating and summarizing the numbers that represent the data from a research project. They can be categorized by the number of variables included such as univariate, bivariate or multivariate according to one, two, three or more variables. The frequency distribution is the easiest way to describe the numerical data of one variable.

Moreover, researchers use measures of the center of the frequency distribution; mode, median and the mean in order to summarize the information about one variable into a single number. Measures of central tendency are a one number summary of a distribution; however, they give only its center. Mean, called the arithmetic average is the most widely used measure of central tendency also will be used in this study. Another characteristic of a distribution is its spread, dispersion or variability around the center. Variation is measured in three basic ways: range, percentile, and standard deviation. Range is the simplest measure consists of the largest and smallest scores. In this study, percentiles and standard deviation will be used in order to explain distribution. Percentiles tell the score at a specific place within the distribution and standard deviation is the most difficult to compute

measure of dispersion. Standard deviation is based on the mean and gives an average distance between all scores and the mean (Neuman, 1997).

Bivariate statistics consist of two variables together and describe the statistical relationship between variables. In this study, bivariate percentaged tables will be also used. The table is based on cross-tabulation; that is, the cases are organized in the table on the basis of two variables at the same time. Bivariate tables usually contain percentages (Neuman, 1997). There are three ways to percentage table: by row, by column, and for the total. The first two are more often use and help to show relationships. It is rare to percentage a table on the basis of the total since it says little about a bivariate relationship (Neuman, 1997).

In addition to these, a measure of association is a single number that express the strength, and often the direction of a relationship. It condenses information about a bivariate relationship into a single number. The chi-squared is one of the measure of association will be used in this study in order to test the hypotheses. It has an upper limit of infinity and a lower limit of zero, meaning no association (Neuman, 1997).

Besides descriptive statistics, *logistic regression* will be used in this thesis as the method of multivariate analysis, as the dependent variable living arrangement patterns are dichotomous. Logistic regression can be used to predict a dependent variable on the basis of independents and to determine the percent of variance in the dependent variable explained by the independents; to rank the relative importance of independents; to assess interaction effects; and to understand the impact of covariate control variables (http:/www2.chass.ncsu.edu/garson/pa765/logit.htm). In other words, it is useful for the situations in which it is desirable to be able to predict the presence or absence of a characteristic or outcome based on values of a set of predictor variables (SPSS/PC, 2002).

Logistic regression is suited for the models that the dependent variable is dichotomous and the independent variables can be interval level or categorical. If the

dependent variable is categorical, it needs to be dummy or indicator coded. Logistic regression coefficients can be used to estimate odds ratios for each of the independent variables in the model (SPSS/PC, 2002). Moreover, by logistic transformation, what one is doing is actually to create a log-linear model. For this situation the dependent variable is expressed in terms of log odds, the natural logarithm of the odds, or logit (Menard, 1995).

A logit is simply the log of the odds of being in one versus another category of the dependent variable, conditional on one or more predictors. The logistic model describes the expected value of Y in terms of the following formula:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots\ldots \beta_n X_n$$

$Li = \log e \, [P \, (Y=1)/ \, 1 - P(Y=1)]$

where P(Y=1) is the probability of occurrence of dichotomous event.

The betas in the logistic regression equation represent the change in the log odds of dependent variable due to unit changes in the values of predictors (Menard, 1995; Demaris, 1992).

4.4 Variables

4.4.1 Dependent Variable

The dependent variable in this thesis is the living arrangement patterns of older people. As it is mentioned in chapter two, where and with whom one lives has substantial implications for meeting the social, financial, and physical needs and well being of older people. Due to this, living arrangement behavior is seen as the result of a reasoned consideration of personal resources and constraints. Moreover, as mentioned previous parts of the thesis, the process of development and modernization together with urbanization has caused some modifications in the social structure as well as living arrangement patterns of older people.

In this study, living arrangement patterns of older people will be examined in two ways. Firstly, co-residence of older people with their children will be investigated. Before analyzing this, with descriptive statistics proximity to the nearest child with classification of 'living in the same house', 'living nearby' and 'living far away' will be presented. Since the elderly people living far away from their children is stated as with very small percentages, living far away category will be joined with the living nearby category and in this sense the analyses will be made whether the elderly people co-reside with their children or they do not. With respect to this, so it is also known that elderly people who do not co-reside with their children mostly live nearby one of their children.

In terms of studying living arrangement patterns of older people, apart from co-residence with children, secondly whether older people live alone or live with some other people in the household they reside will be investigated. As it is presented in chapter two, in developed countries most of the elderly live alone whereas their counterparts in developing countries mostly live with their children or live nearby them.

4.4.2 Independent Variables

In relation with the objectives of this thesis, it is generally believed that as societies modernize and urbanize size and complexity of households reduce by transforming themselves from the extended to the nuclear type. Additionally, during the transformation process from an agricultural to an industrial society burden of care for the elderly shifts from families to the state or other formal organizations. This also implies a decline in social, financial and physical support for the older people by their families and children with the addition of greater prevalence of separate living arrangement as a country develops.

As it is mentioned previous parts of the study, living arrangement patterns of older people differ according to urbanization and regional development at the

aggregate level and socio-economic development at the individual level. In order to investigate this for the elderly people living in Turkey, the selected independent variables used in this thesis is as follows:

1. Age of elderly people
2. Sex of elderly people
3. Marital status of elderly people
4. Total number of children elderly people has
5. Educational attainment of elderly people
6. Whether elderly has any income
7. Whether elderly is currently working
8. Whether elderly is covered by health insurance
9. Household wealth index
10. House ownership status
11. Person taking the main responsibility for the health, needs and welfare of elderly
12. Region
13. Type of place of residence
14. Place of residence

By means of these variables it is aimed to find out the impact and relative importance of independent variables on the living arrangement patterns of older people.

All variables used in this study are from the Household Questionnaire of TDHS 2003. Information regarding the age, sex, marital status, educational attainment, region, type of place of residence and place of residence will be obtained from the first part of the Household Questionnaire (Appendix A). Moreover information related to total number of children, to have any income, to be currently working, to be covered by health insurance and person taking the main responsibility of older people are obtained from the second part of the Household Questionnaire named Welfare of the Elderly (Appendix B). Lastly, house ownership status is derived from the third part of the questionnaire, Housing Characteristics (Appendix

C). Moreover, wealth index of households used in this study is calculated by Hacettepe University Institute of Population Studies from the data of TDHS 2003.

Additionally, it may be useful to remind that in this study, the terms older people and elderly are used interchangeably for the people chronologically age 65 and above. For analytical convenience, the older people is also divided into the age groups of 65-69, 70-74, 75-79, 80 and above.

4.5 Hypotheses

1. Older people who live in urban areas will be less likely to co-reside with their children than those living in rural areas.
2. Older people who live in more developed regions (west, central) will be less likely to co-reside with their children than those living in less (east, north, and south) developed regions.
3. Older people who have higher educational attainment will be less likely to co-reside with their children than those having less educational attainment.
4. Older people who are still working will be less likely to co-reside with their children than those who are not working.
5. Older people who have any income will be less likely to co-reside with their children than those who have not any income.
6. Older people who are in the richest category of household wealth index will be less likely to co-reside with their children than those who are in the poorest.
7. Older people who are covered by health insurance will be less likely to co-reside with their children than those who are not covered by health insurance.
8. Older people who live in urban areas will be more likely to live alone than those living in rural areas.
9. Older people who live in the most developed regions (west, central) will be more likely to live alone than those living in the least (east, north, and south) developed regions.

10. Older people who have higher educational attainment will be more likely to live alone than those who have less educational attainment.

11. Older people who are still working will be more likely to live alone than those who are not working.

12. Older people who have income will be more likely to live alone than those who have not income.

13. Older people who are in the richest category of household wealth index will be more likely to live alone than those are in the poorest.

14. Older people who are covered by health insurance will be more likely to live alone than those who are not covered by health insurance.

V

FINDINGS AND ANALYSES

5.1 Result of Descriptive Analyses

In this part of the thesis general characteristics of elderly and their living arrangement patterns will be presented by summarizing the information from TDHS 2003.

5.1.1 General Characteristics of Older People in Turkey

Before examining the general characteristics of the elderly, it is useful to look at the elderly population studied in this thesis.

Table 5.1.1.1 Percent Distribution of Older People by Age and Sex, TDHS 2003

	Male	**Female**	**Total**	**Count**
65–69	44.2	55.8	100	1123
70–74	46.7	53.3	100	930
75–79	48.4	51.6	100	603
80+	44.5	55.5	100	431
All Elderly	45.8	54.3	100	3087

There are 3087 elderly in the TDHS 2003 and they have been the subject of this thesis. The sex ratio[*] for elderly population is 84 percent and the percentages of female elderly are more than male elderly in all age groups according the TDHS 2003 data.

Residential Characteristics of Older People

According to TDHS 2003, 54.5 percent of the elderly population lives in urban areas while 45.5 percent of them live in rural areas (Table 5.1.1.2). On the

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[*] A sex ratio is a common measure used to portray a population's gender composition. It is conventionally defined as the number of men per 100 women in a given population or age category. Sex ratios greater than 100 indicate more men than women, and sex ratios under 100 indicate the reverse.

basis of the age group, the proportion of elderly population living in urban areas is slightly lower in 75-79 years old while the proportion of them is higher in rural areas.

Table 5.1.1.2 Percent Distribution of Older People (de jure) by Age and Type of Place of Residence, TDHS 2003

	Urban	Rural	Total	Count
65–69	55.7	44.3	100	1043
70–74	55.8	44.2	100	869
75–79	50.4	49.6	100	559
80+	53.9	46.1	100	395
All Elderly	54.5	45.5	100	2866
Total Population	67.1	32.9	100	43977

When the place of residence of elderly population is considered, it is seen from the Table 5.1.1.3 that nearly half of the elderly people reside in countryside and the other half of them reside in capital/large city, small city and town with the percentages of 22.2, 20.9 and 11.4 respectively.

Table 5.1.1.3 Percent Distribution of Older People (de jure) by Age and Place of Residence, TDHS 2003

	Large city	Small city	Town	Countryside	Total	Count
65–69	21.4	22.6	11.7	44.3	100	1043
70–74	22.6	22.4	10.8	44.2	100	869
75–79	21.8	18.8	9.8	49.6	100	559
80+	24.3	15.7	13.9	46.1	100	395
All Elderly	22.2	20.9	11.4	45.5	100	2866
Total Population	27.8	29.3	10.0	32.9	100	43977

Furthermore, the distribution of elderly population into five regions shows slight variations. The proportion of elderly is higher in the West and Central regions whereas it is slightly lower in the East, South and North regions (Table 5.1.1.4).

Table 5.1.1.4 Percent Distribution of Older People (de jure) by Age and Region, TDHS 2003

	West	South	Central	North	East	Total	Count
65-69	37.9	12.5	25.2	10.4	14.1	100	1043
70-74	37.4	11.3	27.3	11.9	12.2	100	869
75-79	38.6	12.2	24.2	14.5	10.6	100	559
80+	44.1	12.2	20.0	9.9	13.9	100	395
All Elderly	38.7	12.0	24.9	11.5	12.8	100	2866
Total Population	37.3	13.2	23.0	7.7	18.8	100	43977

Level of Education of Older People

The level of education for the elderly population is very low compared to overall population. According to TDHS 2003, half of the elderly population has no formal education and there is substantial difference between male and female elderly. As Table 5.1.1.5 points out 40.8 percent of the male elderly have no education compared to 69.7 percent of the female elderly and the proportion of the elderly with no education increases sharply with increasing age for both males and females. Furthermore, the percentage of completed primary, secondary and also higher education of males are higher than females whereas the proportion of them decreases noticeably as the age of male and female elderly increases.

Table 5.1.1.5 Percent Distribution of Older People by Age, Sex and Level of Education, **TDHS 2003**

	No education	Incomp. primary	Comp. primary	Incomp. secondary	Comp. secondary	Higher	Total	Count
Males								
65-69	31.0	9.1	43.5	5.6	5.2	3.8	100	496
70-74	40.8	14.8	32.3	5.1	3.0	2.6	100	431
75-79	47.8	12.7	27.8	4.8	3.1	3.1	100	291
80+	55.2	17.7	18.2	1.6	1.6	3.1	100	192
Total	40.8	12.8	33.4	4.8	3.6	3.2	100	1410
Females								
65-69	65.5	13.1	15.7	3.0	1.3	1.0	100	626
70-74	70.2	14.2	10.1	2.0	1.8	1.0	100	494
75-79	69.8	15.8	10.3	1.3	1.6	0.6	100	311
80+	79.3	9.3	7.6	1.7	0.8	0.4	100	237
Total	69.7	13.4	11.9	2.2	1.4	0.8	100	1688
Total								
65-69	50.3	11.3	28.0	4.3	3.0	2.2	100	1120
70-74	56.4	14.6	20.4	3.6	2.4	1.7	100	927
75-79	59.1	14.3	18.8	3.0	2.3	1.8	100	602
80+	68.7	13.1	12.4	1.6	1.2	1.4	100	428
Total	56.4	13.1	21.7	3.4	2.4	1.9	100	3077

Marital Status of Older People

Marital status, one of the most significant demographic variables, directly influences how people organize their living arrangement patterns on many levels. The percentage of currently married is widely seen among the elderly male compared to elderly female. Although, the proportion of being currently married is sharply decreasing among the female elderly as their age becomes older, this is not the case for the male elderly.

Table 5.1.1.6 Percent Distribution of Older People by Age, Sex and Marital Status, TDHS 2003

	Never married	Married	Widowed	Divorced	Separated	Total	Count
Males							
65-69	0.2	91.1	7.7	1.0	-	100	496
70-74	0.9	84.6	13.4	0.7	0.5	100	434
75-79	-	81.8	17.5	0.7	-	100	292
80+	-	65.4	34.0	-	0.5	100	191
Total	0.4	83.7	15.0	0.7	0.2	100	1413
Females							
65-69	0.8	56.2	42.0	0.8	0.2	100	626
70-74	1.2	41.0	56.0	1.2	0.6	100	495
75-79	0.6	34.8	62.9	1.3	0.3	100	310
80+	0.4	13.8	84.1	1.3	0.4	100	239
Total	0.8	41.7	56.0	1.1	0.4	100	1670
Total							
65-69	0.5	71.7	26.8	0.9	0.1	100	1122
70-74	1.0	61.5	36.1	1.0	0.4	100	928
75-79	0.3	57.5	40.8	1.2	0.2	100	603
80+	0.2	37.0	61.6	0.7	0.5	100	430
Total	0.6	61.0	37.2	0.9	0.3	100	3083

Moreover, being widowed was mostly stated by elderly female compared to elderly male. Since husbands are universally more likely to be older than wives, there is a gap between the marital status of older men and older women. This ensures that most men are married in to their older years, while women are more often widowed. In addition to this, men are more likely to remarry after the death of a spouse or after divorce in most countries (Kinsella and Velkoff, 2001).

Who Takes Main Responsibility for the Needs, Health and Welfare of Older People

The person who is taking responsibility of the elderly's needs, health and welfare differed as a result of differences in the mortality of males and females. While nearly three-fourth of the males is taking care of themselves, this is not the case for the elderly female. Among the people who take responsibility, children/step children are the most frequently mentioned people especially among the female elderly. It is also clear that other people except from spouse and children/step children are not playing a significant role for taking responsibility of the elderly (Table 5.1.1.7).

Table 5.1.1.7 Percent Distribution of Older People by Age, Sex and the Person Who Takes Responsibility for His/Her Needs, Health and Welfare, TDHS 2003

	Him/ Her- self	Spouse	Child- ren/ Step child- ren	Child- ren-in law	Close rela- tive	Distant rela- tive	Neigh- bours	Other	Total	Count
Males										
65-69	83.2	3.0	12.8	0.8	0.2	-	-	-	100	494
70-74	78.4	4.4	15.2	1.4	0.5	0.2	-	-	100	435
75-79	64.4	7.5	25.7	0.7	0.6	-	0.3	0.7	100	292
80+	45.3	4.2	43.2	5.7	0.5	-	1.0	-	100	192
Total	72.7	4.5	20.3	1.6	0.5	0.1	0.2	0.1	100	1413
Females										
65-69	39.0	27.5	31.5	1.3	0.6	0.2	0.2	-	100	626
70-74	37.7	16.9	40.3	2.0	2	0.2	0.6	2	100	491
75-79	32.8	15.8	46.0	2.9	0.9	0.3	1.3	-	100	311
80+	16.8	2.5	70.6	5.0	4.2	-	0.4	0.4	100	238
Total	34.3	18.6	42.4	2.3	1.5	0.2	0.5	0.1	100	1666
Total										
65-69	58.5	16.7	23.3	1.0	0.3	0.1	0.1	-	100	1119
70-74	56.7	11.0	28.5	1.7	1.3	0.2	0.3	0.1	100	927
75-79	48.3	11.8	36.3	1.7	0.6	0.2	0.8	0.3	100	601
80+	29.5	3.3	58.4	5.3	2.3	-	0.9	0.2	100	430
Total	51.9	12.2	32.3	1.9	1.0	0.1	0.4	0.1	100	3077

Economic Conditions of Older People

According to TDHS 2003, in spite of the fact that 89 percent of male elderly have some kind of income, the proportion of female elderly that have an income is only 53 percent.

Table 5.1.1.8 Percent Distribution of Older People by Age, Sex and Having Any Income, TDHS 2003

	Has any Income			
	No	Yes	Total	Count
Males				
65-69	9.7	90.3	100	494
70-74	10.4	89.6	100	434
75-79	9.9	90.1	100	293
80+	16.7	83.3	100	192
Total	10.9	89.1	100	1413
Females				
65-69	54.3	45.7	100	626
70-74	44.4	55.6	100	493
75-79	41.0	59.0	100	310
80+	44.5	55.5	100	238
Total	47.5	52.5	100	1667
Total				
65-69	34.6	65.4	100	1120
70-74	28.6	71.4	100	928
75-79	25.9	74.1	100	603
80+	32.1	67.9	100	430
Total	30.7	69.3	100	3081

When the source of income of those elderly people is analyzed, it is noticed from the Table 5.1.1.9 that the elderly people who are currently working are in small size (9.3 %) especially among female elderly (2.1 %) than male elderly (17.8 %). Furthermore more than half of the elderly men stated that the source of their income is their own pension. On the other hand, indirect pension and old age pension have the highest percentages as the sources of income of female elderly than male elderly.

Table 5.1.1.9 Percent Distribution of Older People by Age, Sex and Source of Income, TDHS 2003

	Source of Income						
	Pension (self)	Pension (indirect)	Old age pension	Rent/ interest	From relative	Currently working	Other
Males							
65-69	68.1	1.0	4.9	11.1	1	27.1	0.6
70-74	61.1	1.2	12.4	12.4	1.4	16.8	1.6
75-79	56.5	2.4	17.7	12.3	2	10.2	0.7
80+	41.1	1.0	26.2	17.8	3.2	7.3	-
Total	59.9	1.3	12.7	12.7	1.6	17.8	0.9
Females							
65-69	7.8	24.8	9.4	4.0	1.7	3.4	0.8
70-74	8.5	27.4	17.6	4.9	2.0	1.0	0.4
75-79	7.1	28.1	19.0	3.2	4.8	1.9	0.6
80+	7.1	23.8	20.1	6.3	2.9	1.3	0.8
Total	7.8	26.0	15.2	4.4	2.8	2.1	0.7
Total							
65-69	34.4	14.3	7.4	7.1	1.5	13.8	0.7
70-74	33.1	15.1	15.2	8.3	1.7	8.4	1.1
75-79	31.0	15.8	18.4	7.6	4	6.0	0.7
80+	22.1	13.7	22.8	11.6	3.2	4.0	0.5
Total	31.7	14.7	14.1	8.2	2.3	9.3	0.8

Note: This table includes all responses of the older people if they have more than one source of income.

Apart from analyzing whether elderly people have income or not and what the source of their income is, it is also useful to look at the wealth index of the households of elderly live in. Table 5.1.1.10 suggests that in total, the percentages of wealth index categories are decreasing from the poorest to the richest. In other words, according to the wealth index of households that elderly people living in, being in the poorest category is the most common than the other index categories. Although, there is not a remarkable difference between the male and female elderly at the total, elderly male 80 years old and upper have the higher percentages of being in the poorest and poorer and the lower percentages of being in the richer and richest categories than their female counterparts.

Table 5.1.1.10 Percent Distribution of Older People by Age, Sex and Household Wealth Index, TDHS 2003

	Wealth Index						
	Poorest	**Poorer**	**Middle**	**Richer**	**Richest**	**Total**	**Count**
Males							
65-69	21.9	27.2	20.7	14.1	16.1	100	497
70-74	31.3	26.0	21.4	11.3	10.1	100	435
75-79	39.4	25.3	13.7	13.0	8.6	100	292
80+	41.7	19.8	12.5	12.0	14.1	100	192
Total	31.1	25.4	18.4	12.7	12.4	100	1416
Females							
65-69	28.9	27.8	17.1	15.0	11.2	100	626
70-74	33.1	26.6	13.1	14.5	12.7	100	496
75-79	34.1	20.3	14.1	17.4	14.1	100	311
80+	31.5	19.7	15.5	16.4	16.8	100	238
Total	31.5	24.9	15.1	15.5	13.0	100	1671
Total							
65-69	25.8	27.5	18.7	14.5	13.4	100	1122
70-74	32.3	26.3	17.0	12.9	11.5	100	930
75-79	36.7	22.8	14.0	15.3	11.3	100	602
80+	36.0	19.8	14.2	14.4	15.6	100	430
Total	31.3	25.2	16.6	14.2	12.7	100	3084
Total Population	19.8	19.9	19.9	20.1	20.2	100	45572

Health Insurance Coverage of Older People

The TDHS 2003 also inquired about the existence of health insurance for the elderly population. According to this, 22.3 percent of the elderly population has not covered by any health insurance. Moreover, SSK and Bağ-Kur are the most stated health insurances type among that population. The percentage of elderly male who has SSK and Bağ-Kur are also slightly more than elderly female.

Table 5.1.1.11 Percent Distribution of Older People by Age, Sex and Covered by Health Insurance, TDHS 2003

	No	SSK[*]	Emekli Sandığı[**]	Bağ-Kur[***]	Private	Green Card	Other	Total	Count
Males									
65-69	16.0	37.4	12.3	26.3	0.4	5.9	1.4	100	494
70-74	19.6	32.9	12.7	24.2	-	8.5	1.6	100	434
75-79	22.9	32.4	12.3	21.8	-	8.2	2.4	100	293
80+	24.2	31.1	12.1	15.3	-	13.2	0.5	100	190
Total	19.6	34.2	12.4	23.2	0.1	8.2	1.6	100	1411
Females									
65-69	20.0	35.4	13.9	21.1	0.5	6.9	1.3	100	625
70-74	24.7	27.1	15.8	22.3	0.2	6.7	2.4	100	494
75-79	24.5	30.0	11.6	22.6	-	10.0	0.6	100	310
80+	36.3	21.9	15.6	16.5	-	5.9	0.8	100	237
Total	24.5	30.0	14.3	21.1	0.2	7.3	1.4	100	1666
Total									
65-69	18.2	36.4	13.3	23.5	0.7	6.4	1.5	100	1119
70-74	22.5	29.9	14.4	23.3	0.2	7.8	1.9	100	926
75-79	23.7	31.2	12.1	22.3	-	9.1	1.6	100	600
80+	32.1	26.9	14.1	15.9	-	9.9	0.8	100	428
Total	22.4	31.9	13.6	22.3	0.2	7.8	1.7	100	3073

*SSK (Social Insurance Organization)

**Emekli Sandığı (The Government Employees Retirement Fund)

***Bağ-Kur (The Social Agency of Merchands, Artisans and Self Employed)

5.1.2 Headship, Size and Living Arrangements of the Households of Older People

After summarizing general characteristics of older people, in this part of the thesis, the aim is to present headship, size and living arrangements of the households that elderly people live in Turkey according to the data of Turkish Demographic and Health Survey 2003.

Relationship to the Head of the Household

According to TDHS 2003, as Table 5.1.2.2 reveals that most of the elderly men (87.7) are stated as the head of the household compared to 28.4 percent of elderly female. It is noteworthy to point out again that, as females get older there is also an increase in the percentage of becoming head of the household. Moreover, the proportion of the elderly females whose position is the spouse of the household head decreases sharply by age while the proportion of elderly female who is the parent of the household head increases. Similarly, the proportion of the elderly males whose position is the head of the household decreases sharply by age while the proportion of elderly male who is the parent of the household head increases.

Table 5.1.2.1 Percent Distribution of Older People by Age, Sex and Relationship to the Household Head, TDHS 2003

	Head	Spouse	Son/ daughter	Parent	Parent- In-law	Other relative	Not related	Total	Count
Males									
65-69	92.3	1.0	0.2	4.2	1.2	0.6	0.4	100	496
70-74	90.3	0.7	-	6.7	1.2	0.9	0.2	100	434
75-79	85.4	2.0	0.3	7.8	2.4	1.4	0.7	100	294
80+	73.6	2.6	-	18.1	4.1	1.6	-	100	193
Total	87.7	1.3	0.1	7.6	1.8	1.0	0.4	100	1417
Females									
65-69	26.5	50.2	0.2	18.2	2.7	1.3	0.5	100	627
70-74	29.1	34.4	-	25.9	7.5	2.8	-	100	494
75-79	30.0	30.0	-	28.7	8.1	3.2	-	100	310
80+	30.1	10.0	-	38.9	14.6	5.9	0.4	100	239
Total	28.4	36.1	0.1	21.9	6.8	2.7	0.2	100	1671
Total									
65-69	55.6	28.6	0.2	12.1	2.0	0.8	0.4	100	1123
70-74	57.8	18.6	-	17.0	4.4	1.9	0.3	100	929
75-79	57.0	16.4	0.2	18.5	5.3	2.4	0.3	100	604
80+	50.0	6.5	-	29.8	9.8	3.7	0.2	100	430
Total	55.7	20.1	0.1	17.3	4.5	1.9	0.3	100	3087

Furthermore, while the positions of the elderly people in the households they reside in examined in terms of being head, spouse of the head and other people, it is clear that most of the elderly men (58.5percent) are the head of multi cohort households (which include at least one elderly and one not elderly people). Being also head in the all elderly household (which includes at least two elderly people) is

the second (24.6percent) most common positions among the male elderly. On the other hand, with 34.8 percent, female elderly are in other positions (especially parent, see Table 5.1.2.2) in the multi cohort households. Being a spouse of the all elderly household_head is the second (20.6 percent) common position among female elderly as their male counterparts are mostly the head of those households. Living in single elderly household is also more common among female than male elderly.

Table 5.1.2.2 Percent Distribution of Older People by Sex and the Positions They Have in the Households They Live, TDHS 2003

	Male	**Female**	**Total**	**Count**
Single-elderly household	5.0	14.2	10.0	308
All-elderly household_head	24.6	0.5	11.5	355
All-elderly household_head's spouse	0.4	20.6	11.4	351
All elderly household-other	0.1	0.7	0.4	12
Multi cohort household_head	58.5	13.8	34.2	1056
Multi cohort household_head's spouse	0.8	15.4	8.8	270
Multi cohort household_other	10.7	34.8	23.7	732
Total	100	100	100	3084

Mean Size of Households of Older People

Before examining the mean size of households of elderly, it is useful to look at the mean size of households in Turkey, in general. As seen in Table 5.1.2.4 there is large gap between the regions and place of residence in terms of the mean size of the households. According to regional estimates, the lowest sizes of the households are in the West and Central regions. On the other hand, the biggest sizes of the households are in the East, South and North regions. Furthermore, in the urban settlements there are smaller households compared to rural settlements. As it is mentioned in the second chapter, as societies modernize and urbanize, the size and complexity of households reduce by transforming from the extended to the nuclear type. Declines in fertility, also characteristic of a modernizing society, lead to smaller family sizes, creating another means through which households become smaller and less complex.

Table 5.1.2.3 Mean Size of Households in Turkey, by Region and Type of Place of Residence, TDHS 2003

	Mean	Count	Std. Deviation
West	4.57	17157	2.302
South	5.35	6030	2.442
Central	4.91	9953	2.051
North	5.32	3507	2.501
East	7.66	8925	4.026
Total	5.41	45572	2.945
Urban	5.02	30768	2.606
Rural	6.21	14803	3.410
Total	5.41	45572	2.945

Moreover, when we look at the mean size of the households that older people reside in, there are also differences across regions and place of residence. According to regional estimates, the western part of the country has the lowest and the eastern part of the country has the biggest size of households in which older people reside.

Table 5.1.2.4 Mean Size of Households of Older People by Region and Type of Place of Residence, TDHS 2003

	Mean	Count	Std. Deviation
West	3.25	1225	1.980
South	4.09	383	2.532
Central	3.74	746	2.304
North	4.26	346	2.697
East	5.83	385	3.820
Total	3.91	3086	2.631
Urban	3.69	1744	2.344
Rural	4.20	1342	2.937
Total	3.91	3084	2.691

Furthermore, while the older people living in rural areas have relatively larger household size, those who are living in urban areas have relatively smaller household size. It is important to say that the mean size of households of older people live in Turkey is smaller than the mean size of households being in Turkey in general.

Living Arrangements of Older People

As stated before, living arrangement patterns of older people will be examined in terms of whether older people co-reside with their children or they do not and whether they live alone or they do not.

According to TDHS 2003, nearly most of the elderly population have at least one children (step/own), and nearly half of those co-reside with one of their children. As Table 5.1.2.6 indicates that co-residence with children is the most common among male elderly between the ages of 65-69 whereas it is the most common among female elderly age 80 and upper. Moreover, from the results, it is also seen that the female elderly percentage of living in the same house with their children increases as their ages become older.

Table 5.1.2.5 Percent Distribution of Older People by Age, Sex, Having any Children and the Place the Nearest Children Live, TDHS 2003

	Having Children			Place the Nearest Children Live			
Males	No	Yes	Total	Same House	Live Nearby	Live Far Away	Total
65-69	1.6	98.4	100	53.9	39.8	6.4	100
70-74	4.1	95.9	100	42.1	54.1	3.8	100
75-79	1.7	98.3	100	38.5	56.9	4.5	100
80+	2.1	97.9	100	51.1	41.5	7.4	100
Total	2.5	97.5	100	46.7	47.9	5.4	100
Females							
65-69	2.9	97.1	100	43.5	51.1	5.4	100
70-74	2.0	98.0	100	43.9	50.1	6.0	100
75-79	1.9	98.1	100	49.2	45.9	4.9	100
80+	3.7	96.3	100	59.0	35.8	5.2	100
Total	2.6	97.4	100	46.9	47.7	5.5	100
Total							
65-69	2.2	97.8	100	48.1	46.0	5.8	100
70-74	3.0	96.0	100	43.0	51.9	5.1	100
75-79	1.8	98.2	100	44.0	51.4	4.6	100
80+	2.8	97.2	100	55.5	38.3	6.2	100
Total	2.5	97.5	100	46.8	47.8	5.4	100

Additionally, nearly the other half of the elderly population lives nearby their children and there is a clear downward tendency in living nearby as female elderly

get older. Although, the percentages of living in the same house with children and live nearby children are very high in Turkey, this is not true for the percentage of live far away. For both of two sexes and in total, living far away from children constitutes smaller place. Because of this, in the remaining part of the study, co-residence of elderly with their children in the same house will be analyzed in two categories; co-reside with children in the same house or not co-reside with children. In the category of not co-residing with children, it is also known that it mostly includes elderly people who live nearby their children.

Apart from summarizing the percentage of co-residence of older people with their children, the other living arrangement pattern will be analyzed in this thesis is whether elderly people live alone or live with other people in the households they reside.

Table 5.1.2.6 Percent Distribution of Older People by Age, Sex and Whether They Live Alone or Not, TDHS 2003

	Living Alone			
	No	**Yes**	**Total**	**Count**
Males				
65-69	97.6	2.4	100	496
70-74	93.6	6.4	100	435
75-79	94.9	5.1	100	292
80+	91.7	8.3	100	192
Total	95.0	5.0	100	1415
Females				
65-69	89.3	10.7	100	626
70-74	84.1	15.9	100	496
75-79	82.6	17.4	100	311
80+	83.7	16.3	100	239
Total	85.7	14.3	100	1672
Total				
65-69	93.0	7.0	100	1122
70-74	88.6	11.4	100	930
75-79	88.6	11.4	100	603
80+	87.4	12.6	100	430
Total	90.0	10.0	100	3085

As Table 5.1.2.7 indicates that in total only 10.0 percent of elderly people living alone and female elderly have relatively higher percentage (14.3) of living alone than their male counterparts (5.0). The table also suggests that there is an

increase for the elderly men living alone at the age 80+ while there seen a decrease for female elderly living alone at that age.

After presenting the general characteristics of the headship, size and living arrangements of the households that older people live in Turkey, the purpose of the study is now to present to what extent older people co-reside with their children and live alone or live with other people in the households they reside differ according to urban-rural and regional differentiation as well as socio-economic status of older people.

Table 5.1.2.7 Percent Distribution of Older People Who Co-reside with Their Children in the Same House by Type of Place of Residence, TDHS 2003

Type of Place of Residence	Co-residence with Children in the Same House			
	Yes	**No**	**Total**	**Count**
Urban	43.4	56.6	100	1695
Rural	51.3	48.7	100	1313
Total	46.8	53.2	100	3008

As Table 5.1.2.8 indicates that older people in rural areas more tend to co-reside with their children than their urban counterparts. The results of chi- square test also show that the p-value (18.517) is significant (p<0.001). That is there is a significant relationship between type of place of residence and co-residence of older people with their children

When the regions are compared, elderly people living in the eastern part of the country mostly (72.0 percent) stated that as they living in the same house with their children. Furthermore, as Table 5.1.2.10 indicates that co-residence with children is relatively low in the western part of the country compared to other regions.

Table 5.1.2.8 Percent Distribution of Older People Who Co-reside with Their Children in the Same House by Region, TDHS 2003

Region	Co-residence with Children in the Same House			
	Yes	No	Total	Count
West	38.7	61.3	100	1188
South	48.1	51.9	100	376
Central	45.1	54.9	100	731
North	49.3	50.7	100	337
East	72.0	28.0	100	378
Total	46.8	53.2	100	3010

The association between region and co-residence with children is significant as p-value (129.127) is less than 0.001. According to this result, it is possible to infer that region has a significant effect on co-residence of older people with their children.

Apart from type of place of residence and region, the other important factor that related to co-residence of older people is their educational attainment level. As Table 5.1.2.12 indicates that elderly people who co-reside with their children are mostly among having no education. Furthermore, there is not a clear difference between levels of educational attainment of at least primary and secondary or higher.

Table 5.1.2.9 Percent Distribution of Older People Who Co-reside with Their Children in the Same House by Educational Attainment, TDHS 2003

Educational Attainment	Co-residence with Children in the Same House			
	Yes	No	Total	Count
No education	53.9	46.1	100	1704
At least primary	36.8	63.2	100	1047
Secondary+	38.5	61.5	100	221
Total	46.7	53.3	100	2972

In addition to the descriptive analyses, it will be useful to apply chi-square tests to be able to make inferences about the relationship between co-residence and educational attainment. According to the results, there is significant association between co-residence of older people with their children and their educational attainment as p-value (83.283) is equal to 0.00.

Another remarkable point that should be examined for understanding the co-residence of older people is whether they have income or not. Table 5.1.2.14 suggests that co-residence with children in the same house is decreasing while the proportion of elderly as stated themselves having income is increasing.

Table 5.1.2.10 Percent Distribution of Older People Who Co-reside with Their Children in the Same House by Having Income, TDHS 2003

Having Income	Co-residence with Children in the Same House			
	Yes	No	Total	Count
No	50.3	49.7	100	930
Yes	45.3	54.7	100	2073
Total	46.3	53.1	100	3003

Moreover, it is also inferred from the chi-square test that having income is effective on co-residence with children as p-value (6.387) is less than 0.05. That is to say, there is a significant statistical relationship between having income and co-residence with children.

According to the results of Table 5.1.2.16, almost 66 percent of households that elderly people do not co-reside with children have been in the poorest wealth index category whereas only nearly 34 percent of households that elderly people co-reside with children in the poorest category. Furthermore, households classified as richer and richest are more likely to seen where older people co-reside with children. In other words, older people reside in households which are classified as richest are more likely to live with their children than those are not co-reside with children

Table 5.1.2.11 Percent Distribution of Older People Who Co-reside with Their Children in the Same House by Household Wealth Index, TDHS 2003

Household Wealth Index	Co-residence with Children in the Same House			
	Yes	No	Total	Count
Poorest	33.9	66.1	100	943
Poorer	42.3	57.7	100	747
Middle	55.3	44.7	100	508
Richer	57.9	42.1	100	428
Richest	63.3	36.7	100	384
Total	46.8	53.2	100	3010

Note: This table includes all cases if there are more than one older people in the household. Because of this a household may be counted as twice times.

Furthermore, according to chi-square test, there is also a significant relationship between household wealth index and co-residence with children as p-value (146.806) is less than 0.001.

The last examining point is health insurance coverage of elderly people and their co-residence pattern. Table 5.1.2.18 reveals that elderly people mostly stated themselves as having no health insurance coverage are more likely to co-reside with their children.

Table 5.1.2.12 Percent Distribution of Older People Who Co-reside with Their Children in the Same House by Having Health Insurance Coverage, TDHS 2003

Having Health Coverage	Co-residence with Children in the Same House			
	Yes	No	Total	Count
No	56.9	43.1	100	675
Yes	44.1	55.9	100	2298
Total	47.0	53.0	100	2973

Moreover, as p-value (34.355) is less than 0.001, there is an association between health insurance coverage and co-residence of older people with their children.

After analyzing the effects of some variables on co-residence of elderly with their children, it is also useful to explore the effects of some variables on elderly who lives alone.

Table 5.1.2.13 Percent Distribution of Older People Who Live Alone by Type of Place of Residence, TDHS 2003

Type of Place of Residence	Older People Living Alone			
	Yes	No	Total	Count
Urban	10.3	89.7	100	1743
Rural	9.6	90.4	100	1342
Total	10.0	90.0	100	3085

Although, there is not a big difference between urban and rural settlements in terms of living alone, elderly people in the urban areas slightly more likely to live alone than their rural counterparts.

Beyond the percent distribution of elderly people living alone according to their type of place of residence, the result of significance test show that, p-value is equal to 0.546 that is; the results are not significant at the 0.05 level. According to this result, it is possible to infer that type of place of residence has no effect on living alone.

In the case of regional distribution of elderly population living alone, elderly people in the western part of the country are more likely to live alone than in the other regions. While the proportion of elderly living alone in the North and Central are close to each other, elderly people in the eastern part of the country are more likely to live with other people rather than living alone.

Table 5.1.2.14 Percent Distribution of Older People Who Live Alone by Region, TDHS 2003

Region	Older People Living Alone			
	Yes	No	Total	Count
West	12.3	87.7	100	1225
South	7.8	92.2	100	383
Central	9.4	90.6	100	746
North	10.1	89.9	100	347
East	6.0	94.0	100	385
Total	10.0	90.0	100	3086

As it is the same with co-resident pattern, there is a significant relationship between living alone and region as p-value is equal to 0.002 which means region has an effect on living alone of elderly people.

Table 5.1.2.15 Percent Distribution of Older People Who Live Alone by Educational Attainment, TDHS 2003

Educational Attainment	Older People Living Alone			
	Yes	No	Total	Count
No education	8.9	91.1	100	1736
At least primary	10.6	89.4	100	1071
Secondary+	16.7	83.3	100	239
Total	10.1	89.9	100	3046

Apart from type of place of residence and region, the other important factor that thought to be effective on living alone is educational attainment. As Table

5.1.2.24 indicates that the proportion of living alone increases with an increase in the level of education. That means, the older people stated themselves as secondary and higher level educated will be more likely to live alone than less educated elderly.

Furthermore, it will be useful to explore the relationship between living alone and educational attainment. According the result of chi-square test, there is a significant association between educational attainments and living alone of older people that mean educational attainment has an effect on living alone of older people as p-value is equal to 0.001.

Another remarkable point that should be examined for understanding the living alone of older people is whether they have income or not. Table 5.1.2.26 suggests that the proportion of older people stated themselves as living alone increases when the proportion of elderly people having income increases.

Table 5.1.2.16 Percent Distribution of Older People Who Live Alone by Having Income, TDHS 2003

Having Income	Older People Living Alone			
	Yes	No	Total	Count
No	4.0	96.0	100	947
Yes	12.7	87.3	100	2134
Total	10.0	90.0	100	3081

When the significance of this table is analyzed, it is seen that there is significant association between having income and living alone. In other words, having income has an effect on living alone as p-value (54.849) is less than 0.001.

Furthermore, when we look at the household wealth index, it is seen that older people who live alone are more likely to reside in the households classified as poorest and poorer whereas being in the richest category is very low among those people.

Table 5.1.2.17 Percent Distribution of Older People Who Live Alone by Household Wealth Index, TDHS 2003

Household Wealth Index	Older People Living Alone			
	Yes	**No**	**Total**	**Count**
Poorest	17.5	82.5	100	966
Poorer	10.2	89.8	100	777
Middle	4.5	95.5	100	513
Richer	6.9	93.1	100	437
Richest	2.0	98.0	100	394
Total	10.0	90.0	100	3087

When the association of household wealth index and older people living alone is examined, result of chi-square test reveals that there is a significant relationship as p-value is equal to 0.00.

Finally, having health insurance coverage is other wondered point that whether it affects living alone or not. According to Table 5.1.2.30, elderly people having the more proportion in health insurance coverage more likely to state themselves as being alone in the households they reside.

Table 5.1.2.18 Percent Distribution of Older People Who Live Alone by Having Health Insurance Coverage, TDHS 2003

Health Insurance Coverage	Older People Living Alone			
	Yes	**No**	**Total**	**Count**
No	9.0	91.0	100	686
Yes	10.2	89.8	100	2361
Total	9.9	90.1	100	3047

However, the chi-square test reveals that there is not a significant relationship between having health insurance coverage and living alone as p-value is equal to 0.384. That is possible to infer that being have health insurance coverage has no effect on living alone of older people.

5.2 Results of Logistic Regression Analysis

In this part of the thesis, results of the logistic regression analyses are presented. As it is mentioned in chapter four, the dependent variable of this study is the living arrangement patterns of older people living in Turkey. Living arrangement

patterns of older people were examined in terms of whether older people in Turkey co-reside with their children in the same house or they do not and whether they live alone or they do not. It may also be useful to give detailed information about the dependent variable and predictor variables of the study put into the logistic regression analysis. Hence, all variables selected for the regression model are presented in detail in Table 5.2.1.

In the logistic regression analysis, in order to represent the different possible values of the categorical variables and indicate the presence or absence of a categorical attribute, indicator coding is used. It is only one of several ways of treating design variables in logistic regression analysis. Simple coding is another alternative which was also used in this study. With simple contrasts, logistic regression coefficients for the design variables are identical to the coefficients produced with indicator coding; only the intercept changes (Menard, 1995).

Before putting variables into the regression model, it is useful to make collinearity tests as collinearity is a problem that arises when independent variables are correlated with one another. Low levels of collinearity are not generally problematic, but a tolerance of less than 0.10 indicates a serious collinearity problem and certainly results in coefficients that are not statistically significant (Menard, 1995). In this study, the collinearity test was also made between independent variables. As seen in Tables 5.2.2 and 5.2.3, when the tolerances are examined, it is seen that there is no serious collinearity problem among the independent variables of the regression analysis. However, for the test for co-residence, rural is the excluded variable in the collinearity analysis as it is the same with countryside variable. Hence, variable of place of residence with its all categories are excluded from the regression analysis as the result of urban-rural differentiation is more important for our analysis. Similar with co-residence, for the test for living alone, countryside is the excluded variable in the collinearity analysis as it is the same with rural variable. Variable of place of residence with its all categories are again excluded from the regression analsis of living alone.

Table 5.2.1 Variables of Logistic Regression Analysis

Variable Name	Variable Encoding
Dependent Variable	
Living arrangement patterns of older people	Co-reside with children=0, Do not co-reside with children=1
	Living with others=0 , Living alone=1,
Independent Variables	
Age	65-69=1, 70-74=2, 75-79=3, 80+=4[*]
Sex	Male=1, Female=2[*]
Marital status	Never married=0, Currently married=1, Formerly/ever married=2[*]
Total number of children	5+=0, 3-4=1, 1-2=2, 0=3[*]
Educational attainment	No education=0, At least primary=1, Secondary+=2[*]
Have income	No=0, Yes=1[*]
Currently working	No=0, Yes=1[*]
Covered by health insurance	No=0, Yes=1[*]
Wealth index	Poorest=1, Poorer=2, Middle=3, Richer=4, Richest=5[*]
House ownership	Other=1, Rented=2, No rent paid=3, Owned by household member=4[*]
Who takes main responsibility	Other=1, Grandchildren=2, Children-in-law=3, Child/step child=4, Spouse=5, Him/her-self=6[*]
Region	East=1, North=2, Central=3, South=4, West=5[*]
Type of place of residence	Rural=1, Urban=2[*]
Place of residence	Countryside=1, Town=2, Small city=3 Capital, large city=4[*]

[*]In the logistic regression analysis, the last category of the all independent variables was selected as the reference category.

Table 5.2.2 Testing for Collinearity for the First Multiple Logistic Regression Model (Older People Co-residing with Children)

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.552	.054		10.146	.000		
East	-.232	.029	-.154	-7.902	.000	.683	1.464
North	-.026	.030	-.016	-.858	.391	.728	1.374
Central	-.047	.022	-.040	-2.111	.035	.711	1.406
South	-.029	.028	-.019	-1.013	.311	.750	1.334
No educat.	-.142	.037	-.141	-3.892	.000	.196	5.108
At least primary	.001	.035	.001	.021	.983	.228	4.382
Never married	-.529	.265	-.032	-1.997	.046	.985	1.015
Currently married	.086	.023	.084	3.802	.000	.533	1.875
65-69	-.050	.028	-.048	-1.805	.071	.358	2.791
70-74	.001	.028	.001	.026	.979	.403	2.479
75-79	.005	.029	.004	.176	.860	.480	2.085
Male	-.131	.023	-.131	-5.799	.000	.506	1.977
3-4 child	.053	.019	.051	2.834	.005	.804	1.243
1-2 child	.090	.025	.068	3.681	.000	.749	1.336
No income	-.055	.022	-.051	-2.551	.011	.639	1.566
Not working	.040	.026	.027	1.559	.119	.856	1.168
No health coverage	-.078	.021	-.065	-3.699	.000	.831	1.204
Small city	-.038	.027	-.031	-1.403	.161	.527	1.897
Town	-.017	.032	-.011	-.529	.597	.642	1.557
Countryside	-.129	.026	-.129	-4.934	.000	.380	2.631
Poorest	.419	.030	.390	13.774	.000	.322	3.102
Poorer	.274	.030	.237	9.275	.000	.395	2.532
Middle	.118	.031	.089	3.809	.000	.475	2.106
Richer	.103	.031	.072	3.276	.001	.532	1.878
Other	-.113	.166	-.011	-.682	.496	.979	1.021
Rented	-.077	.031	-.043	-2.503	.012	.884	1.131
No rent paid	.156	.031	.083	4.966	.000	.933	1.071
Other resp.	.214	.087	.040	2.453	.014	.960	1.042
Grandchild	.189	.185	.017	1.023	.306	.982	1.018
Children in law	-.183	.061	-.050	-3.019	.003	.925	1.081
Child/step child	-.239	.021	-.225	-11.384	.000	.662	1.511
Spouse	.039	.029	.026	1.325	.185	.685	1.459

Table 5.2.3 Testing for Collinearity for the Second Multiple Logistic Regression Model (Older People Living Alone)

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.447	.043		10.430	.000		
East	-.020	.017	-.022	-1.222	.222	.686	1.458
North	.013	.017	.014	.794	.427	.729	1.371
Central	-.013	.013	-.019	-1.042	.298	.714	1.401
South	-.012	.016	-.013	-.725	.468	.751	1.331
Rural	-.042	.015	-.068	-2.797	.005	.381	2.624
No educat.	-.115	.021	-.190	-5.585	.000	.198	5.040
At least primary	-.066	.020	-.104	-3.324	.001	.232	4.303
Never married	.095	.067	.024	1.429	.153	.807	1.239
Currently married	-.292	.013	-.473	-22.872	.000	.533	1.874
65-69	.003	.016	.005	.215	.830	.358	2.790
70-74	.014	.016	.021	.902	.367	.403	2.482
75-79	.003	.016	.004	.165	.869	.481	2.079
Male	-.032	.013	-.052	-2.485	.013	.513	1.950
5+ child	-.148	.034	-.245	-4.321	.000	.071	14.069
3-4 child	-.124	.034	-.196	-3.645	.000	.079	12.599
1-2 child	-.093	.035	-.115	-2.667	.008	.122	8.202
No income	-.030	.012	-.046	-2.441	.015	.638	1.566
Not working	.004	.014	.005	.291	.771	.858	1.166
No health ins. coverage	-.026	.012	-.036	-2.154	.031	.829	1.206
Small city	-.013	.015	-.017	-.828	.408	.529	1.889
Town	-.069	.018	-.073	-3.858	.000	.640	1.562
Poorest	.259	.017	.400	15.021	.000	.323	3.099
Poorer	.162	.017	.233	9.679	.000	.393	2.544
Middle	.092	.018	.114	5.227	.000	.477	2.097
Richer	.072	.018	.083	4.019	.000	.534	1.873
Other	-.100	.095	-.016	-1.046	.296	.980	1.021
Rented	-.110	.018	-.101	-6.275	.000	.887	1.128
No rent paid	.063	.018	.055	3.500	.000	.932	1.073
Other resp.	-.044	.041	-.017	-1.075	.282	.874	1.144
Grandchild	-.354	.093	-.058	-3.814	.000	.972	1.029
Children in law	-.208	.035	-.094	-5.979	.000	.927	1.079
Child/step child	-.097	.012	-.150	-8.053	.000	.660	1.515
Spouse	-.042	.017	-.046	-2.504	.012	.688	1.454

This study proposes that whether urban-rural and regional differentiation and socio-economic status of older people affect the living arrangement patterns of older people in Turkey. In order to assess living arrangement patterns of older people, two multiple logistic regression models were constructed. The first multiple logistic regression model examines the relative effects of the selected predictors on co-residence of elderly with their children in the same house. Similarly, the second multiple logistic regression model assesses the relative importance of the selected variables on living alone of elderly people.

Before discussing the results of the multiple logistic regression analyses, it will be useful to present summary statistics that regression analysis includes. Firstly, it will be presented the summary statistics of the first multiple logistic regression model. According to this result, the total number of the selected cases in this regression model is 2991. Number of the cases included in the analysis is 2830 while the number of missing cases is 161. That is, only about 5.4 percent of all cases are not included in the model.

Moreover, according to the results of the tests of model coefficients, for the 2830 cases the model fits well. Model χ^2 =840.286, and it is statistically significant (p= 0.000). Additionally, according to the Nagelkerke R square value, this model can only estimate about 33 percent of the variation in the co-residence of older people with their children.

Table 5.2.4 Classification Table[a] of the First Multiple Logistic Regression Model (Older People Co-residing with Children)

Observed			Predicted		
			Co-residence with Children		Percentage Correct
			Yes	No	
Step 1	Co-residence	Yes	921	453	67.0
	With Children	No	370	1187	76.2
	Overall Percentage				71.9

[a] The cut value is. 0.500

Furthermore, as reflected in Table 5.2.6., the independent variables of the first logistic regression model allow classifying the cases (into the categories of the dependent variable) with a high degree of accuracy. In other words, 71.9 percent correct indicates that the accuracy of prediction is high.

Secondly, total number of cases in the second multiple logistic regression model is 2991. The number of the cases included in the analysis is 2906, while the number of missing cases is 85. That is, only 2.8 percent of the all cases cannot be examined in the model.

Furthermore, according to the results of the tests of model coefficients, for the 2906 cases, the model fits well. Model χ^2 = 1082.659 and it is statistically significant (p= 0.000).

Apart from tests of model coefficients, the Nagelkerke R square value indicates that this model can explain 63 percent of the variation in living alone of older people.

Additionally, as reflected in Table 5.2.9, the independent variables of the second logistic regression model allow classifying the cases (into the categories of the dependent variable) with a very high degree of accuracy. In other words, almost 94 percent correct indicates that the accuracy of prediction is very high.

Table 5.2.5 Classification Table[a] of the Second Multiple Logistic Regression Model (Older People Living Alone)

Observed			Predicted		
			Being Alone in the Household		Percentage Correct
			Yes	No	
Step 1	Being Alone	Yes	2630	73	97.3
	In the Household	No	125	177	58.5
	Overall Percentage				93.4

[a] The cut value is. 0.500

After giving brief information about these summary statistics of the multiple logistic regression models, it is essential to present the results of these models in order to asses the relative importance of the selected predictors on determination of living arrangement patterns of older people.

Table 5.2.6 Results of the First Multiple Logistic Regression Model (Older People Co-residing with Children), TDHS 2003

Independent Variables	B	Sig.	Exp(B)
Age of elderly		**0.021**[**]	
65-69	-0.267	0.077	0.766
70-74	0.008	0.956	1.008
75-79	0.058	0.716	1.060
80+[*]	1.000	1.000	1.000
Sex of elderly			
Male	0.691	0.000[**]	1.995
Female[*]	1.000	1.000	1.000
Marital status of elderly		**0.001**[**]	
Never married	-5.280	0.516	0.005
Currently married	0.483	0.000[**]	1.620
Formerly/ever married[*]	1.000	1.000	1.000
Total number of children		**0.001**[**]	
1-2	0.471	0.000[**]	1.602
3-4	0.267	0.008[**]	1.306
5-22[*]	1.000	1.000	1.000
Educational attainment		**0.000**[**]	
No education	-0.731	0.000[**]	0.481
At least primary	0.027	0.884	1.027
Secondary+[*]	1.0000	1.000	1.000
Have income			
No	0.316	0.008[**]	1.372
Yes[*]	1.000	1.000	1.000
Currently working			
No	-0.257	0.096	0.773
Yes[*]	1.000	1.000	1.000
Covered by health insurance			
No	0.389	0.001[**]	1.476
Yes[*]	1.000	1.000	1.000
Wealth index of household		**0.000**[**]	
Poorest	2.165	0.000[**]	8.714
Poorer	1.394	0.000[**]	4.032
Middle	0.589	0.000[**]	1.802
Richer	0.520	0.002[**]	1.682
Richest[*]	1.000	1.000	1.000
House ownership status		**0.000**[**]	
Other	-0.488	0.597	0.614
Rented	-0.406	0.014[**]	0.667
No rent paid	0.921	0.000[**]	2.513
Owned by household member[*]	1.000	1.000	1.000
Who takes main responsibility		**0.000**[**]	
Other	1.894	0.020[**]	6.648
Grandchildren	1.189	0.324	3.283

Children-in-law	-0.848	0.007[**]	0.428
Child/step child	-1.190	0.000[**]	0.304
Spouse	0.218	0.178	1.244
Him/her-self[*]	1.000	1.000	1.000
Region[***]		**0.000**[**]	
East	-1.304	0.000[**]	0.271
North	-0.194	0.202	0.824
Central	-0.297	0.008[**]	0.743
South	-0.209	0.146	0.811
West[*]	1.000	1.000	1.000
Type of Place of Residence[***]			
Rural	0.588	0.000[**]	1.800
Urban[*]	1.000	1.000	1.000
Constant	-3.770	0.170	0.023

[*] Reference category
[**] p<0.05
[***] The region and type of place of residence information are current (at the time of the survey) status of older people

Firstly, the results of the first logistic model will be discussed. As seen in Table 5.2.10, the data suggest that controlling for the other variables, the most important predictors of determination of co-residence of older people with their children are age, sex, marital status, total number of children, educational attainment, having income, covered by health insurance, household wealth index, house ownership status, who takes main responsibility, region and type of place of residence. The effect of these variables on co-residence of older people with their children is significant at 0.05 level. The equation for the logit of co-residence of older people with their children is;

Y= -3.770 + 0.691(sex) + 0.483(marital status_currently married) + 0.471(total number of children_1-2) + 0.267(total number of children_3-4) - 0.731(educational attainment_no education)+ 0.316(having income) + 0.389(covered by health insurance) + 2.165(household wealth index_ poorest) + 1.394(household wealth index_ poorer) + 0.589(household wealth index_ middle) + 0.520(household wealth index_richer) – 0.406(house ownership status_ rented) + 0.921(house ownership status_ no rent paid) + 1.894(who takes main responsibility_ other) – 0.848(who takes main responsibility_ children-in-law) -1.190(who takes main responsibility_ child/step child) – 1.304(region_ east) – 0.297(region_ central) + 0.588(type of place of residence_ rural).

As it is mentioned before, the beta values represent the change in the log odds of our dependent variable due to unit increases in the values of independent variables (Demaris, 1992). In other words, a regression coefficient estimates the change in log odds of being in the category of interest (in our first case do not co-reside with children being equal to one) for a one unit change in a dependent variable, controlling for all other predictors in the model.

Since betas indicate the change in log odds of do not co-reside with children due to a unit change in a dependent variable (controlling for all other variables in the model), exponential of a regression coefficient would indicate the multiplicative change in the odds of do not co-reside with children. Exponential beta value is a single summary statistic for the partial effect of a given independent variable on the odds of occurrence (or non-occurrence) of a dichotomous dependent variable (Demaris, 1992).

According to first regression results, age of elderly is significant (p=0.021) while the categories of age are not significant on do not co-reside with children. Sex of elderly is also significant on do not co-reside with children. The odds of do not co-reside with children for male elderly is 1.995 times as high as that for female elderly which means elderly female are more likely to co-reside with their children. Marital status of elderly with currently married category is also significant on do not co-reside with children, controlling for all other variables in the model. There is evidence to suggest that currently married elderly 1.62 times higher do not co-reside with their children compared to reference category. That is, controlling for the other variables, elderly people who are formerly/ever married more likely to co-reside with their children.

Besides age, sex and marital status of elderly people, controlling for all other predictors, total number of children is also significant (p=0.001) on do not co-reside with children. Obviously, older people having 1-2 or 3-4 children, respectively 1.602 or 1.306 times as likely do not co-reside with their children. That is, older people having more than 4 children are more likely to co-reside with their children.

In terms of educational attainment, the Table 5.2.10 suggests that there is a significant disparity between elderly people who are secondary or higher educated and those are no educated. That is, educational attainment with no education category is significant on do not co-reside with children, but the relationship is reverse[1]. As a matter of fact, the numbers indicate that elderly people who are no educated nearly 50 percent lower do not co-reside with children than their counterparts in the reference category. In other words, older people have secondary or higher levels of education are more likely to not co-reside with children than those are not educated.

Another significant predictor of do not co-reside with children is having income. Controlling for all other predictors, income is also significant (p=0.008) on our dependent variable. There is evidence to suggest that odds of do not co-reside with children for elderly people having no income 1.372 times as high than elderly people having income. This is not an expected relation as it was hypothesized before that older people having income are less likely to co-reside with their children.

In terms of health insurance coverage, as Table 5.2.10 reveals that health insurance is significant on do not co-reside with children. Older people who are not covered by health insurance 1.476 times higher do not co-reside with children. In other words, older people having health insurance coverage are less likely to not co-reside with children. Besides having income, this predictor is also other one that is not in the same way with our expectations as it was hypothesized that older people having health insurance coverage are less likely to co-reside with their children.

Additionally, according to the regression results, another significant predictor of not co-reside with children is the household wealth index with its all categories. The evidences show that controlling for the other variables, compared with the richest category, elderly people in the poorest category are 8.7 times as likely to not co-reside with children. Moreover elderly people in the poorer, middle and richer

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[1] The sign of betas in logistic regression indicates the direction of relationship, a negative sign meaning an inverse relationship, and a positive sign indicating a positive relationship between dependent variable and a particular predictor.

categories are respectively 4.0, 1.8, and 1.6 times as likely to not co-reside with children compared to richest category. In other words, older people in the richest category are gradually more likely to co-reside with children than in the richer, middle, poorer and poorest category elderly. It can be said from the results that household wealth index of older people more depends on whether they co-reside with children or they do not.

Furthermore, Table 5.2.10 shows that, house ownership status is significant (p=0.000) on do not co-reside with children. The evidences reveal that controlling for the other predictors, compared with the reference category, elderly people who reside in rented household almost 35 percent lower not co-reside with children whereas older people who reside in no rent paid households 2.5 times more likely to not co-reside with children compared to reference category. It can be said from the results that older people who co-reside with children are more likely to live rented household than older people not co-reside with their children.

Controlling for all other variables, for who takes main responsibility for the needs and welfare of the elderly, it is seen that categories of this predictor have significant relationship on do not co-reside with children. As Table 5.2.10 represents, if child or step child is responsible for the needs, health and welfare of the elderly, do not co-reside with children is nearly 70 percent lower compared to reference category. Similarly, if children-in-law is responsible for the needs, health and welfare of the elderly than do not co-reside with children again nearly 58 percent lower compared to reference category. However, elderly people whose responsibility is taken by other people, except from grandchildren, children-in-law, child/step child and spouse, 6.648 times more likely to not co-reside with children than their counterparts in reference group.

Moreover, regional variation is also significant (p=0.000) on do not co-reside with children. As seen in Table 5.2.10, elderly people who live in the central part of the country nearly 26 percent lower do not co-reside with their children than their counterparts in the reference group. Furthermore, elderly people living in the eastern

part of the country almost 73 percent less likely to not co-reside with children than elderly people living in western part of the country. In this study, not co-reside with children is expected to have its highest probability in the West region and than followed by the Central, South, North and East regions. However, in the first regression analysis of this study, this hypothesis was not confirmed except from East region. In our analysis, the order of probability of not co-reside with children is the West, North, South, Central and East regions which is not completely in line with classical thinking in terms of the Turkish developmental structure.

When urban-rural differentiation is considered, controlling for the other variables, there exists a large disparity in terms of the probability of not co-residing with children. Elderly people living in rural areas are 1.8 times more likely to reside with their children than those living in urban areas. That is to say, elderly people in urban areas more likely to live with their children.

Table 5.2.7 Results of the Second Multiple Logistic Regression Model (Older People Living Alone), TDHS 2003

Independent Variables	B	Sig.	Exp(B)
Age of elderly		**0.783**	
65-69	-0.196	0.479	0.822
70-74	0.012	0.964	1.012
75-79	0.027	0.921	1.028
80+*	1.000	1.000	1.000
Sex of elderly			
Male	0.236	0.314	1.267
Female*	1.000	1.000	1.000
Marital status of elderly		**0.000****	
Never married	0.178	0.845	1.173
Currently married	-5.942	0.000**	0.003
Formerly/ever married*	1.000	1.000	1.000
Total number of children		**0.001****	
0	1.492	0.007**	4.447
1-2	0.814	0.001**	2.257
3-4	0.367	0.084	1.443
5+*	1.000	1.000	1.000
Educational attainment		**0.000****	
No education	-1.915	0.000**	0.147
At least primary	-0.014	0.005**	0.363
Secondary+*	1.000	1.000	1.000
Have income			
No	0.813	0.002**	2.255
Yes*	1.000	1.000	1.000
Currently working			
No	-0.143	0.737	0.867
Yes*	1.000	1.000	1.000
Covered by health insurance			
No	0.371	0.012**	1.450
Yes*	1.000	1.000	1.000
Wealth index of household		**0.000****	
Poorest	4.729	0.000**	113.227
Poorer	2.977	0.000**	19.632
Middle	1.721	0.001**	5.588
Richer	1.532	0.001**	4.626
Richest*	1.000	1.000	1.000
House ownership status		**0.000****	
Other	-6.822	0.833	0.001
Rented	-1.843	0.000**	0.158
No rent paid	0.673	0.009**	1.961
Owned by household member*	1.000	1.000	1.000
Who takes main responsibility		**0.000****	
Other	-0.901	0.058	0.406

Grandchildren	-10.002	0.750	0.000
Children-in-law	-8.466	0.439	0.000
Child/step child	-1.140	0.000**	0.320
Spouse	-1.423	0.241	0.241
Him/her-self*	1.000	1.000	1.000
Region***		**0.001****	
East	-1.113	0.001**	0.329
North	-0.144	0.634	0.866
Central	-0.774	0.001**	0.461
South	-0.540	0.075**	0.583
West*	1.000	1.000	1.000
Type of Place of Residence**			
Rural	0.600	0.005**	1.823
Urban*	1.000	1.000	1.000
Constant	-10.398	0.290	0.000

* Reference category
** p<0.05
*** The region and type of place of residence information are current (at the time of the survey) status of older people

Furthermore, Table 5.2.11 presents the results of the second regression model. As seen from the table, the data suggest that controlling for the other variables, the most important predictors of determination of living alone of older people are marital status, total number of children, educational attainment, having income, wealth index of households, house ownership status, who takes main responsibility, region and type of place of residence. The effect of these variables on living alone is significant at 0.05 level. The equation for the logit of living alone of older people is:

Y= -10.398 – 5.953(marital status_currently married) + 1.492(total number of children_0) + 0.814(total number of children_1-2) – 1.915(educational attainment_no education) – 0.014(educational attainment_at least primary) + 0.813(having income) + 0.371(covered by health insurance) + 4.729(wealth index of household_poorest) + 2.977(wealth index of household_poorer) + 1.721(wealth index of household_middle) + 1.532(wealth index of household_richer) – 1.843(house ownership status_rented) + 0.673(house ownership status_no rent paid) –1.140(who takes main responsibility_child/step child) – 1.113(region_east) – 0.774(region_central) + 0.600(type of place of residence).

According to second regression results, marital status of elderly is significant (p=0.000) on do not co-reside with children. As Table 5.2.11 represents currently married elderly 99.7 percent lower living alone compared to reference category.

Total number of children is the second predictor in the table that is significant (p=0.001) on living alone of older people. As seen in Table 5.2.11, older people who has no children are almost 4.5 times more likely to live alone and older people who has 1 or 2 child about 2.3 times more likely to live alone than their counterparts in the reference category.

Educational attainment is the other predictor in the table that is significant on living alone of older people, and the relation is reverse. As Table 5.2.11 suggests that controlling for the other variables, there exist a large disparity between the categories. In this sense, older people who are not educated almost 86 percent and those having at least primary level education nearly 64 percent lower living alone than reference category. As a matter of fact, the numbers indicate that elderly people having secondary or higher level of education are more likely to live alone than those having lower level or no education. In this study it is generally expected that older people who are more educated more likely to live alone than those less educated. Obviously, this expectation is met by the regression results of this study.

Furthermore, having income is significant on living alone of older people. When the odds ratios are examined, controlling for all other predictors it is seen that older people having no income almost 2.3 times more likely to live alone than those having income. Similar with our first regression analysis, our expectations are not met as we expected that older people having income are more likely to live alone and less likely to co-reside with children. Covering by health insurance is also significant on living alone of older people but the relation is not the same direction with our expectations again. As seen from the table 5.2.11, older people who have not covered by health insurance are 1.45 times more likely to live alone than those covered by health insurance.

Additionally, according to the regression results, another significant predictor of living alone of older people is the household wealth index as p value is equal to 0.000. The evidences show that controlling for the other variables, there exist a large disparity between the categories of household wealth index. It is noteworthy to indicate that older people who are in the poorest household wealth index are 113.227 times more likely to live alone than reference category. The other remarkable point that needs to be considered is with increase of the level of household wealth index, the likelihood of being alone in those household decreases. That is, elderly people in the poorer, middle and richer categories are respectively 19.632, 5.588, and 4.626 times more likely to live alone compared to richest category. With the results of both first and second regression results we can conclude that older people who are in the poorest and poorer wealth index category are more likely to not co-reside with their children and live alone. In other words, older people, living with others (spouse, children, children-in-law grandchildren, etc.) are more likely being in higher wealth index category.

Controlling for all other variables, household ownership status is significant with rented and no rent paid categories on living alone of older people. The evidences reveal that compared with the reference category, older people who reside in rented household almost 85 percent lower living alone and older people who reside in no rent paid household 1.961 times more likely to live alone than reference category. As it is the same with first regression results, older people who are not alone and co-reside with children are more likely to reside in rented household than their counterparts in the reference categories.

Moreover, the other significant predictor on living alone of older people, controlling for all other variables, is who takes main responsibility of older people with 0.000 p-value. When the odds ratios are examined, it is seen that elderly people whose responsibility is taken by child/step child 68 percent lower living alone than the reference category and the other categories have no relationship between living alone of older people.

In terms of regional variation, there exist large disparities. Region has a significant effect (p=0.001) on living alone and the relationship is reverse. As Table 5.2.11 discloses that older people who live in the East and Central regions respectively 67 percent and 54 percent lower living alone than older people living in the West region. As similar with first regression analysis, in terms of Turkish developmental structure we were not expecting the regional order like this. However, in general meaning, regardless of other regions, our hypothesis is hold true for the most developed and the least developed regions.

When urban-rural differentiation is taken into account, controlling for the other variables, there exists large disparity. Older people living in rural areas are 1.823 times more likely to live alone than their counterparts who live in the urban areas. In other words, older people in the urban areas are more likely to live with other people than older people living in the rural areas.

VI

DISCUSSION AND CONCLUSION

The significant achievements on global declines in infant and maternal mortality, reductions in fertility, improvements in sanitation, housing, nutrition and medical innovations as well as development of effective contraceptive methods and improvements in education especially in women's education have resulted in the numerical growth of elderly populations around the world. As a result of gains in life expectancy and declines in fertility, the older population in most countries is growing faster than the population as a whole.

Turkey is a developing country and the size and the structure of population have been exposed to transitions since the foundation of the Republic in 1923. On the basis of industrialization and urbanization, improvements in health services and living standards, efficient usage of contraceptive methods, increase of the female educational attainment and labor force participation and postponement of marriage, caused the decline of fertility and mortality rates in Turkey, too. As a result of these ongoing developments, the age structure of population is rapidly changing and on account of the high fertility and growth rates of the past, the proportion of the older population is going to constitute much higher share in the coming decades (UN, 1999).

Moreover, demographic changes in the countries are not occurring in isolation. That means demographic changes are embedded in social and economic context that are also changing. The interplay of demographic events with other processes or systems such as urbanization, industrialization and modernization affect the living arrangement patterns of older people which has been a surge of interest around the world during the last decades. Turkey has also been experiencing socio-economic development since foundation of Republic in 1923. Depending on these demographic and socio-economic changes, living arrangement patterns of older people have also changed.

The purpose of this thesis is to analyze the determinants of living arrangement patterns of older people in Turkey. As where and with whom one lives has substantial implications for meeting the social, financial, and physical needs and well being of older people, living arrangement behavior is seen as the result of a reasoned consideration of personal resources and constraints, including, most important health, social support, and economic factors (Kobrin, 1981; Soldo, Wolf, and Agree, 1990 cited in Mutchler and Burr, 2003) as well as a product of conscious choice influenced by the dominant cultural characteristics and social attributes (Ergöçmen and Hancıoğlu, 1990).

Living arrangement patterns in the frame of this thesis is examined in two ways. Firstly, co-residence of older people with their children which is considered a central feature of the familial support system in much of the developing world is examined. As stated in chapter two, among the developed countries the percentage living with children declined by modernization and industrialization of these countries. Conversely, older people in developing countries generally reside with their children as there is a negative correlation between co-residence with children and socio-economic development (Asis et. all, 1995). Although, rapid reductions in co-residence between older people and their children are occurring in Japan and South Korea supporting the modernization perspective, rapid socio-economic development in much of Asia, for example Taiwan, China, Thailand and Singapore has not led to major changes (Knodel and Debavalya, 1997 cited in Zimmer, 2003).

Living arrangement patterns in the frame of this thesis is secondly examined through looking at the older people living alone. Older people living alone constitute a group that is of natural social and policy concern. Those living alone are more likely to need outside assistance in the case of illness or disability and are a greater risk of social isolation (Casey and Yamada, 2002). Living alone is the dominant living arrangement pattern among developed countries whereas older people rarely live alone in developing countries.

In Turkish case, when the individual level correlates of socio-economic development are examined, it is assumed that educational attainment, to have income, to be in a currently working status, to be covered by health insurance status, wealth index of households and house ownership status are the main individual level socio- economic determinants on living arrangement patterns of older people. The general expectation based on related literature is that social and economic development is associated with a greater tendency for older people to live alone or apart from their children. Furthermore, almost half of the older people co-reside with their children and only 10 percent of older people live alone in Turkey.

In terms of educational attainment, as expected, there is a negative relationship between education and co-residence of older people with their children, in accordance with literature. In Turkey, 56.4 percent of elderly people have no education and those elderly with no education are substantially more likely to co-reside with their children compared to more educated elderly. That is to say, more educated elderly are more likely to not co-reside with their children. One reason of this may be older people who have no education or lower level education may own fewer resources and therefore they are more dependent on their children. In relation with this, the second regression results indicate that elderly people having secondary or higher level of education are more likely to live alone than those having lower level or no education. As it is the same with other studied developing countries, education has a significant impact on the tendency to live alone from the perspective of modernization.

When the effect of income on co-residence of older people with their children is taken into consideration it is stated in the literature that despite the empirical evidence on co-residence of older people, they are not altogether convincing (Palloni, 2000). Even though, about 70 percent of older people living in Turkey have income, there is not an expected relation between having income and co-residence of older people with their children. According to regression results, elderly people who have income are more likely to co-reside with their children than those who have not income. This may be due to the level of income which is far below the required

amount necessary to maintain their lives on their own. Hence, many older people receive financial help from their children in Turkey. However, some elderly people who have income and their children reciprocally prefer to live together in order to reduce the costs of living and housing. As Palloni (2000) states that in most societies support does not flow in only direction. In countries with well established pension and social security programmes, many older people give support (including financial help, shelter, child care) to their children. In order to evaluate exactly who support whom, a detailed survey should be applied in the countries and in Turkey. Furthermore, when the relationship between income and living alone is examined similar with our first regression analysis, our expectation again was not met as older people having no income are more likely to live alone than those having income. In this case the decision of not co-reside with children cannot be a reflection of an economic demand for privacy or autonomy as in the case in developed countries by the light of modernization.

Health insurance coverage is the other selected significant indicator in order to determine the living arrangement patterns of older people and almost 78 percent of older people living in Turkey have health insurance coverage. When we look at the effect of health insurance coverage status on co-residence of older people with their children, the relationship does not give expected results. As it is the same with having income, older people covered by health insurance are more likely to co-reside with their children. When the older people living alone are taken into account, older people who have not covered by health insurance are more likely to live alone than those covered by health insurance. In this time it is possible to say that older people whether they live alone or not co-reside with their children are less likely to have income and to be covered by health insurance constitute the vulnerable group in the society.

As regards the relationship between the household wealth index and co-residence of older people with their children, the regression results are incredible. There is a striking contrast in household wealth index ratios between the older people who co-reside with their children and those do not co-reside with children. In our

analysis, older people not co-residing with their children have significantly lower levels of material well-being than those co-residing with children. After controlling other variables, household wealth index scale had positive relationship with not co-residing with children. That means older people who co-reside with their children show high probability of being in the richest category of household wealth index. Additionally, it is noteworthy to indicate that older people who are in the poorest category of household wealth index are more likely to live alone. Furthermore, it is seen from the second regression results that an increase in the category of household wealth index also corresponds to a decrease of living alone. With the result of both first and second regression we can conclude that older people who are in the poorest and poorer wealth index category are more likely to not co-reside with their children and live alone. It can also be said from the results that household wealth index of older people more depends on whether they co-reside with children or they do not. This is in conformity with developing countries as in most developing countries co-residence with children is associated with relatively high levels of material well-being (UN, 2005a). This also indicates a serious problem that older people live alone in Turkey face to coping with poverty.

Lastly, it will be useful to look at the relationship between co-residence of older people and household ownership status. Older people residing in rented households are more likely to co-reside with their children while older people residing in no rent paid household more likely to not co-reside with their children. As it is mentioned before in order to reduce the costs of living and housing, older people and their children may prefer to live together. From the view of older people living alone, according to second regression results it is seen that they are also more likely to reside in no rent paid households. For both of two situations, older people who do not co-reside with their children and live alone are more likely to reside in no rent paid household. That means they are not the owner of those households and in the future they may have to face leaving from there.

Apart from determinants of living arrangement patterns related to socio-economic status of older people, regional variation also have significant effect on co-

residence of older people with their children in this study. The likelihood of co-residence of older people with their children was expected to be the highest in the less developed and the lowest in the more developed regions. Although our expectation was roughly met by regression results, it was not obviously in the same direction with our hypothesis. That means older people living in the East region (the least developed region in Turkey) are more likely to co-reside with their children whereas older people living in the West region (the most developed region in Turkey) are less likely to co-reside with their children. However, the order of probability of not co-residing with children (North, South, Central) in the other regions does not follow the ordering of region by their development level as we expected (Central, South, North) in terms of Turkish developmental structure. Furthermore, in terms of living alone of older people, large disparities among regions also exist. Older people who live in the East region are less likely to live alone whereas older people who live in the West region are more likely to live alone than their counterparts in the other regions. As similar with co-residence pattern, in terms of Turkish developmental structure, we were not expecting the regional order (West, North, South, Central, East) of living alone like this. However, the more likelihood of living alone of older people among North region can be explained through again developmental perspective. As rate of urbanization in northern region is under the average value of the country (SPO, 2003), there may be a high level of internal migration from this region to other regions especially by the younger generations.

We turn now to differentiation between urban and rural elderly in terms of co-residence with their children. De Vos (1990) showed extended living arrangement to be more common in rural areas of Latin America than in urban areas. Conversely, Martin (1989) reports no effect of urban residence on co-residence of elderly with their children in Korea, Malaysia, Philippines and Fiji. Turkey shows similar pattern with Martin (1989) as older people living in rural areas in Turkey are more likely to not co-reside with their children than their urban counterparts. That means our expectation was not met by regression results. There are several factors that could lead to an urban-rural difference in the levels of co-residence among older population (Martin and Kinsella, 1994). When urban-rural differentiation is taken into account

for the older people living alone, it is seen from the second regression results that older people in rural areas are more likely to live alone than their counterparts living in urban areas. It has been suggested by Da Vanzo and Chan (1994) that co-residence might be more likely in urban areas, presumably due to relatively high housing cost. As discussed previous parts of the study, for Turkey, internal migration is one of the biggest reasons of these results. Since the economic development and trade are centered in urban areas, and cities generally offers better job opportunities, amenities and public services, young generations in the rural areas prefer to move from rural to urban areas whereas older people generally do not prefer to move. This is also a result of industrialization and urbanization processes that make urban settlements more desirable for the younger generations living in rural settlements.

Apart from examining the socio-economic correlates, the effect of some demographic characteristics of older people on their living arrangement patterns are also analyzed. When the age of older people is taken into account, it is noticed that age has a significant effect on do not co-reside with children but this is not true for its categories as well. When the sex of older people is being considered, it is noticed that female elderly are more likely to co-reside with their children than their male counterparts. As it is mentioned in the second chapter of the study, most of elderly male are married into their old years while elderly female are more often widowed. Hence, the likelihood of co-reside with children increases among the female elderly after their spouse death. There is evidence supporting this result that currently married elderly people are less likely to co-reside with their children than formerly/ever married elderly. Moreover, in literature on co-residence also shows that number of surviving children does matter for the probability of elderly co-reside. In particular, it is suggested that having large number of surviving children increases the likelihood of co-residence with children (Palloni, 2000). This is also true for Turkey that older people having more children are more likely to co-reside with one of their children. When total number of children is taken into account in terms of living alone of older people, it is seen from the Table 5.2.11 that older people who has no child are more likely to live alone than older people having child. That is to

say, some demographic characteristics of older people also affect their living arrangement patterns as well as socio-economic characteristics.

During this study, it is tried to analyze the determinants of living arrangement patterns of older people within the context of socio-economic status of older people in particular and regional and urban-rural differentiation in general. It is possible to infer that living arrangement patters of older people in Turkey are affected by some individual level socio-economic determinants which are also accompany the process of modernization but not totally as in the same direction with developed countries. Modernization theory suggests the idea that wherever the economic system expands through industrialization, family patterns change, extended kinship ties weaken, lineage patterns dissolve, and a trend toward some form of the conjugal system generally begins to appear. When we compare the West and the East regions, the theory is also in conformity with Turkey. However, this is not valid for the country as a whole as almost half of the elderly people still co-reside with their children in Turkey. This may be due to some cultural characteristics and social attributes as well as socio-economic development.

The theory also suggests that as we mentioned before, during the transformation from an agricultural to an industrial society the burden of care for the elderly shifts from families to the state or other formal organizations. This also implies a decline in social, financial and physical support for the older people by their families and children with the addition of greater prevalence of separate living arrangements as a country develops. This is also not valid for the Turkey case as there is only 10 percent of elderly people living alone and they are among the vulnerable group of the society. One of the main reasons of this situation is, in Turkey there is not yet a clear, well-organized and comprehensive policy for the older people.

Apart from the factors that modernization has brought to the lives of older people, family still remains as an important caregiver mechanism in Turkey. However, there is also a need for formal system to respond the needs and

circumstances of the older population especially those are living alone as suggested by modernization theory. Moreover, governmental policies need to include a combination of measures that promote self-reliance among older people, provide services (health and care giving services) for those who are in need, strengthen social protection schemes and encourage continued involvement of family members in the care and well-being of older people. Furthermore, research on population ageing should be supported by the government. Due mainly to the limitations imposed by the data, we were not able to concentrate on the characteristics of children of older people exactly. We also were not able to examine the financial and social exchanges that take place between older people and other family members. Moreover, it is also essential to understand how older adults themselves contribute to the household both economically and otherwise. In terms of living arrangement patterns it is again due mainly to the limitations imposed by the data that we were not able to know the exact relationship between the older people and the other family members. As a result, in order to understand the situation of older people and their interaction with other family members as a whole, it is needed to make comprehensive qualitative and quantitative research on older population in Turkey.

REFERENCES

Albert, S. M. and Cattell, M. (1994), **Old Age in Global Perspective**. New York: G.K. Hall

Allan, G. and Graham C. (2001), **Families, Households and Society**. Palgrave, New York

Asis, M. M. B., Domingo, L., Knodel, J. and Mehta K. (1995), "Living arrangements in four Asian countries: A comparative perspective", **Journal of Cross-Cultural Gerontology**, 10:145-162

Atchley, R. C., (2000), **Social Forces and Aging: An Introduction to Social Gerontology**. Wadsworth Thomson Learning, USA

Aykan, H. (1997), **Analyses of the Determinants of Coresidence of Currently Married Women at Reproductive Ages and Their Husbands with Parents**. Unpublished Master Thesis, Hacettepe Univerisity Institute of Population Studies, Ankara

Aykan, H., and Wolf, D.A. (2000), "Traditionality, Modernity and Household Composition: Parent -Child Coresidence in Contemporary Turkey", **Research on Aging**, Vol.22, No.4, 395-421

Aytaç, A. I. (1995), "Intergenerational Living Arrangements in Turkey", Paper Presented at the Annual Meeting of the Population Association of America, San Francisco, California, April 1995

Behar, C. (1995), "The Fertility Transition in Turkey: Reforms, Policies and Family Structure" in Obermeyer, C.M. (ed.), (1995), **Family, Gender, and Population in the Middle East: Policies in Context**. American University in Cairo Press, Cairo, Egypt

Blaikie, A. (1999), **Ageing&Popular Culture**. Cambridge University

Blieszner, R. and Bedford, V. H. (ed.), (1995), **Handbook of Aging and the Family**. Greenwood Press, USA

Bongaarts, J. and Zimmer, Z. (2001), "Living Arrangements of Older Adults in the Developing World: An Analysis of DHS Household Surveys", **Policy Research Division Working Paper** No.148, New York, Population Council

Burch, T.K. (1982), "Household and Family Demography" in Ross, J.A. (ed.), **International Encyclopedia of Population**. New York, Free Press

Burch, T. K. and Matthews B.J. (1987), "Household Formation in Developed Societies", **Population and Development Review** 13(3): 495-511

Calot, G. and Sardon, J.P. (1999), "Les facteurs du vieillissement démographique", Population 54(3): 509-552 in Macura M., MacDonald A.L. and Haug W. (ed.), (2005), **The New Demographic Regime: Population Challenges and Policy Responses**. United Nations, New York and Geneva

Casey, B. and Yamada, A. (2002), Getting Older, Getting Poorer? A Study of the Earnings, Pensions, Assets and Living Arrangements of Older People in Nine Countries. **Labour Market and Social Policy Occasional Papers**, No.60. DEELSA/ELSA/WD (2002) 4. Paris: OECD

Casterline, J.B. et al. (1991), "Differences in the Living Arrangements of the Elderly in Four Asian Counntries: The Interplay of Constraints and Preferences", **Comparative Study of the Elderly in Asia Research Reports**, No. 91-10. Ann Arbor: Population Studies Center, University of Michigan

Cerit, S. and Akadlı, B. (1988) "An Overview of Infant Mortality in Turkey", in E. Tunçbilek, (ed.), **Infant Mortality in Turkey: Basic Factors**, Hacettepe University Institute of Population Studies, Ankara

De Vanzo, J. And A. Chan (1994), "Living arrangements of Older Malaysians: Who Coresides with Their Adult Children", **Demography**, 31:95-113

De Vos, S. (1990), "Extended Family Living Among Older People in Six Latin American Countries", **Journal of Gerontology: Social Sciences**, 45:87-94

De Vos, S. (2004), "Revisiting the Classification of Household Composition among Elderly People", **Journal of Cross-Cultural Gerontology**, 19:135-152

Delican, M. (1998), "Aile, Ekonomi ve Sosyal Politika" in **Ekonomik Hesaplamalarda Bir Birim Olarak Aile, Başbakanlık Aile Araştırma Kurumu**, Bilim Serisi 112, Ankara

Demaris, A. (1992), **Logit modeling: Practical Application,** Sage University Paper Series on Quantitative Applications in the Social Sciences, 07-086, Sage Publications, Inc., Newbury Park, California

Demeny, P. and McNicoll, G. (2003) **The Encyclopedia of Population.** New York, Macmillan Reference USA

Doling, J., Catherine J.F. and Maltby T. (ed.), (2005), **Ageing Matters European Policy Lessons from the East**. University of Birmingham, UK, Ashgate Publishing Limited, England

Dumon, W. (1990), "Family Policy in the EEC Countries: A General Overview" in **Family Policy in EEC Countries**, Luxemburg: Office for Official Publications of the European Communities

Ergöçmen, B. and Hancıoğlu, A. (1990), **Some Social and Economic Characteristics of the Elderly Population in Turkey,** IV. Annual Meeting of the European Society of Population Economists, June 6-9, European Society of Population Economists and Marmara University, İstanbul

Ergöçmen, B. (1991), **Social and Demographic Determinants of Infant Mortality in Turkey.** Unpublished Ph.D. Dissertation, Hacettepe University Unstitute of Population Studies, Ankara

Eser, S. (1994), **Policies and Organization for the Elderly** (in Turkish), Unpublished Article, State planning Organization, Ankara,

Gavrilov L.A. and Heuveline P. (2003), "Aging of Population" in Demeny P. and McNicoll G. (ed.) (2003)

Gierveld, J. J. (1995), "The Collection of Survey Data on Household Structures" in E. van Imhoff et.al. (1995)

Gonnot, J. P., Keilman, N. and Prinz, C. (1995), **Social Security, Household, and Family Dynamics in Ageing Societies**. Kluwer Academic Publishers, London

Goode, W. J. (1970), **World Revolution and Family Patterns**. The Free Press, New York

Gökçe, B. (1994), "Türkiye'de Gecekendu Gerçeği ve Gecekondu Ailesi" in Altuntek S., Aydın S. And Demiröven İ.H. (ed.), **Humana, Bozkurt Güvenç'e Armağan**,T.C. Kültür Bakanlığı Yayınları 1675, Başvuru Eserleri Dizisi 24, Ankara, pp. 269 – 284

Grundy, E. (2000), "Co-residence of Mid-life Children with Their Elderly Parents in England and Wales: Changes between 1981 and 1991", **Population Studies**, 54:193-206

Gümrah, A. M. (1993), **Problems of the Elderly population Aged 60 and Over in Elazığ Province Center** (in Turkish), Unpublished Masters Thesis, Fırat University, Elazığ

Hamilton, H. E. (2001), "Discourse and Aging" in Schiffrin D., Tannen D., and Hamilton H. E. (ed.) (2001), **The Handbook of Discourse Analysis**. Blackwell

Hancıoğlu, A. (1985), **1978'de Türkiye'de Aile Biçimleri ve Aile Büyüklüğü**. Unpublished Master's Thesis, Hacettepe University Institute of Population Studies, Ankara

Hancıoğlu, A. (1994), "Chapter 1: Introduction", in **Turkish Demographic and Health Survey 1993**. Hacettepe University Institute of Population Studies, Ankara

Hancıoğlu, A. (1997), "Fertility Trends in Turkey: 1978-1993" in **Fertility Trends, Women's Status, and Reproductive Expectations in Turkey: Results of Further Analysis of the 1993 Turkish Demographic and Health Survey**, Hacettepe University, Institute of Population Studies and Macro International Inc., Calverton, Maryland

Hantrais, L. and Letablier, M. (1996), **Families and Family Policies in Europe**. New York: Longman Publishing

HUIPS (2004), **Turkey Demographic and Health Survey 2003,** Hacettepe University Institute of Population Studies, Ankara, Turkey

HUIPS and General Directorate of Mother and Child Health/Family Planning, Ministry of Health (2004) **Turkey Demographic and Health Survey 2003**, Hacettepe University Institute of Population Studies, Ankara, Turkey

Johnson, M. L., et.al. (2005), The **Cambridge Handbook of Age and Ageing**. Cambridge University Press, Cambridge

Karagiannaki, E. (2005), **Changes in the Living Arrangements of Elderly People in Greece: 1974-1999**, Centre for Analysis of Social Exclusion, London School of Economics, CASE/104, London

Keilman, N. (1995), "Household Concepts and Household Definitions in Western Europe: Different Levels but Similar Trends in Household Developments" in Evert van Imhoff, Anton Kuijsten, Pieter Hooimeijer and Leo van Wissen (eds.), **Household Demography and Household Modeling**, Plenum Press, New York

Keilman N. and Prinz C. (1995), "Modelling the Dynamics of Living Arrangements" in Gonnot, J. P., Keilman, N., Prinz, C. (1995), **Social Security, Household, and Family Dynamics in Ageing Societies**. Kluwer Academic Publishers, London

Kinsella, K. and Velkoff, A.V. (2001), **An Aging World: 2001**, International Population Reports, United States Department of Commerce, Bureau of theCensus, Washington

Kinsella, K. and Phillips D.R., (2005), "Global Aging: The Challenge of Success", **Population Bulletin**, Vol.60, No:1, p.5-42

Knodel, J. and Debavalya, N. (1997), "Living Arrangements and Support Among the Elderly in South-East Asia: An introduction," **Asia-Pacific population Journal** 12(4): 5-16

Kobrin, F. (1981), "Family Extension and the Elderly: Economic, Demographic, and Family Cycle Factors", **Journal of Gerontology**, 36:370-77 cited in Mutchler, J.E., Burr, J.A. 2003

Koç, İ. (1999), "Changing Family Patterns and Living Arrangements in Turkey (1978-1993)", Paper Submitted at European Population Conference 1999, 30 August-3 September, The Hague, The Netherlands

Kosberg, J.I. (1992), **An International Perspective on Family Care of the Elderly,** in Kosberg, J.I.(Ed.) Family Care of the Elderly: Social and Cultural Changes, Sage Publications, Newbury Park

Kunt, G. (1978), "Aile Yapısı ve Doğurganlık" in **Türkiye'de Nüfus Yapısı ve Nüfus Sorunları 1973 Araştırması**, Ankara, Hacettepe University, D - 25, pp. 133 - 146

Laslett, P. (1972), **Household and Family in Past Time**. Cambridge University Press, London

Library of Congress Country Studies: Turkey, http://lcweb2.loc.gov/cgi-bin/query/r?frd/cstdy:@field(DOCID+tr0059) Information Receiving Date: 23.08.2005

Macura M., MacDonald A.L., and Haug W. (eds.), (2005), **The New Demographic Regime: Population Challenges and Policy Responses**. United Nations, New York and Geneva

Martin, L.G. (1989), "Living Arrangements of the Elderly in Fiji, Korea, Malaysia, and the Phillipines", **Demography**, 26:627-643

Martin, L.G. and Kinsella, K. (1994), "Research on the Demography of Aging in Developing Countries" in **Demography of Aging,** Martin, L.G. and Preston S.H. (ed.) Washington, D.C.: National Academy Press. Pp.256-403

Martin, L.G. and Preston, H.S.(eds.), (1994), **Demography of Ageing**. Washington D.C: National Academy Press

Mason, K. O. (1992), " Family Change and Support of the Elderly in Asia: What Do We Know?", **Asia-Pacific Population Journal**, 7(3): 13-32

McGarry, K. and Schoeni, R.F. (2000), "Social Security, Economic Growth, and the Rise in Elderly Widows' Independence in the Twentieth Century", **Demography**, Vol.37, No.2: 221-236

McNetting, R., Wilk, R.R. and Arnould E.J. (1984), **Households: Comparative and Historical Studies of the Domestic Group**. University of California Press

Menard, S. (1995) "Applied Logistic Regression Analysis", **Sage University Paper Series on Quantitative Applicaitons in the Social Sciencies**, 07-106, Thousand, CA: Sage

Michaels, R. T., Fuchs,V. R. and Scott, S. R. (1980), "Changes in the Propensity to Live Alone: 1950-1976", **Demography**, 17:39-53

Morgan, L. And Kunkel, S. (1998), **Aging: The Social Context**. Pine Forge Press

Mutchler, J.E. and Burr, J.A. (2003), "Living Arrangements among Older Persons: A Multilevel Analysis of Housing Market Effects", **Research on Aging**, Vol. 25 No: 6, p.531-558

Neuman, W. L. (1997), **Social Research Methods: Quantitative and Qualitative Approach**, Allyn and Bacon, Boston

Obermeyer, C.M. (1995), **Family, Gender and Population in the Middle East: Policies in Context**. American University in Cairo Press, Egypt

Ogawa, N. And Retherford, R.D. (1993), "The Resumption of Fertility Decline in Japan: 1973-1992", **Population and Development Review**, 19:703-741

Palloni, A. (2000), **Living arrangements of Older Persons**, Centre for Demography and Ecology Working Paper No. 2000-02, University of Wisconsin-Madison

Pampel, F.C. (1992), "Trends in Living Alone Among the Elderly in Europe" in **Migration and Population Redistribution**, A. Rogers, et.al. (eds.), London:Belhaven Press, cited in Palloni, (2000)

Population Reference Bureau (2004), "Transitions in World Population", **Population Bulletin**, Vol.59. No.1, 1-13

Preston, S.H., Heuveline, P. and Guillot, M., (2001), **Demography: Measuring and Modeling Population Processes**. Blackwell

Ryder, N.B. (1985), "Recent Developments in the Formal Demography of the Family" in International Population Conference, Florence, 1985 Vol.3. pp. 207-220 in Keilman N. and Prinz C. (1995), "Modelling the Dynamics of Living Arrangements" cited in Gonnot, J. P. et al (1995)

Schiffrin D., Tannen D. And Hamilton H. E. (ed.) (2001), **The Handbook of Discourse Analysis**. Blackwell

Shorter, F. and Macura, M. (1982), Trends **in Fertility and Mortality in Turkey, 1935- 1975**. Washington, D.C: National Academy Press

Sokolovsky, Jay (2000), **Technical Meeting on Population Ageing and Living Arrangements of Older Persons: Critical Issues and Policy Responses**, Department of Economic and Social Affairs Population Division, UN/POP/AGE/2000/4, United Nations, New York

Soldo B. and Louriat P. (1976), "Living Arrangements among the Elderly in the United States: A Loglinear Approach", **Journal of Comparative Family Studies**, Vol.7 No. 2 pp. 351-366

Soldo, B.J., Wolf D.A., and Agree E.M. (1990), "Family, Households, and Care Arrangements of Frail Older Women: A Structural Analysis", **Journal of Gerontology: Social Sciences**, 45:238-49 cited in Mutchler and Burr, (2003)

SPSS / PC TM for the IBM PC / XT (2002) SPSS Inc., Chicago, Illinois

(SIS) State Institute of Statistics (1995), **The Population of Turkey, 1923-1994, Demographic Structure and Development, With Projections to the Mid-21st Century**, State Institute of Statistics, Publication No.1716, Ankara

(SIS) State Institute of Statistics (2002), **2000 Census of Population: Social and Economic Characteristics of Population**. State Institute of Statistics Prime Ministry Republic of Turkey

(SIS) State Institute of Statistics (2002), http://www.tuik.gov.tr/ PreIstatistikTablo.do?istab_id=198 Information Receiving Date: 15. 11. 2005

(SIS) State Institute of Statistics (2004), **Turkey's Statistical Yearbook 2004** State Institute of Statistics Prime Ministry Republic of Turkey http://www.die.gov.tr/goster.asp?aile=1 Information Receiving Date: 15. 11. 2005

(SPO) State Planning Organization (2003), **İllerin ve Bölgelerin Sosyo-Ekonomik Gelişmişlik Sıralaması Araştırması-2003**. Yayın No DPT: 2671, T.C. Başbakanlık Devlet Planlama Teşkilatı, Ankara

Tezcan, S. (2004), "Introduction" in HUIPS and General Directorate of Mother and Child Health/Family Planning, Ministry of Health, (eds.), **Turkey Demographic and Health Survey 2003,** Ankara

Thane, P. (2003), "Social Histories of Old Age and Aging", **Journal of Social History,** Fall 2003 pp.93-111

The World Factbook: Turkey http://www.cia.gov/cia/publications/factbook Information Receiving Date: 10.04.2006

Timur, S. (1972), **Türkiye'de Aile Yapısı**. Ankara Hacettepe University Publications, D-15

Türk Sanayicileri ve İşadamları Derneği (TÜSİAD), (1999), **Turkey's Window of Opportunity: Demographic Transition Process and Its Consequences**. TÜSİAD Publication No-T/99-3-254, Lebib Yalkın Yayımları ve Basım İşleri A.Ş

TURKSTAT (2006), Information related to latest population projections is gathered from TURKSTAT

Türkyılmaz, S., Hancıoğlu, A. and Koç, İ. (2004), "Survey Design" in and General Directorate of Mother and Child Health/Family Planning, Ministry of Health, (eds.), **Turkey Demographic and Health Survey 2003,** Ankara

Tütköz, E. (eds.), (1985), **Family in Turkish Society**. Turkish Social Science Association, Maya Publishing, Ankara

United Nations (1984), **Problems of the Aging Family in Modern Society: Sociological Aspect**, United Nations Interregional Demographic Training and Research Program in Population and Development Planning, Moscow

United Nations (1989), **Demographic Yearbook:** 39th Issue, United Nations, New York

United Nations (1991), **World Population Monitoring 1991 with a Special Special Emphasis on Age Structure**. United Nations, New York

United Nations (1999), **World Population Prospects, the 1998 Revision**, Department of Economic and Social Affairs, Population Division, ST/ESA/SER.A/177, United Nations, New York

United Nations (2001), **Population Bulletin of the United Nations: Living Arrangements of Older Persons**, Special Issue 42/43, United Nations Publications, Sales No. E.01.XIII.16

United Nations (2003), **World Population Prospects, the 2002 Revision**, Department of Economic and Social Affairs, Population Division, ST/ESA/P/WP.180, United Nations, New York

United Nations (2005a), **Living Arrangements of Older Persons Around the World**, Department of Economic and Social Affairs, Population Division, ST/ESA/SER:A/240, United Nations, New York

United Nations (2005b), **World Population Prospects, the 2004 Revision**, Department of Economic and Social Affairs, Population Division, http://www.esa.un.org/unpp /p2k0data.asp Information Receiving Date: 28. 01. 2006

U.S. Bureau of the Census (1991), **Global Ageing: Comparative Indicators and Future Trends**. U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census Washington, D.C.

Ünalan, T. (1986), **Some Social and Economic Characteristics of the Family Types in Turkey with Special Reference to the Blacksea and the Mediterranean Regions**. Unpublished Master's Thesis, Hacettepe University Institute of Population Studies, Ankara

Ünalan, T. (1988), **"**Family Size Preferences in Turkey", **The Turkish Journal of Population Studies,** Vol. 10, pp.21-38

Ünalan, T. (1993), **Fertility Preferences and Reproductive Behavior in Turkey**. Unpublished Doctoral Dissertation, Hacettepe University Institute of Population Studies, Ankara

Ünalan, T, (2000), "The Status of Old Age Population in Turkey", **The Turkish Journal of Population Studies**, 22: 3-22

Ünalan, T. (2002), "Changing Family Structure in Turkey, 1968-1998", **Nüfusbilim Yazıları,** No:6, Hacettepe University Institute of Population Studies, Ankara

Wilson, C. (1985), **The Dictionary of Demography**. Basil Blackwell Inc., New York, New York

Wolf, D. (1994), "The Elderly and Their Kin: Patterns of Availability and Access", in Martin L.G. and Preston H.S. (eds.) **Demography of Ageing**. Washington D.C.: National Academy Press

Wolf, D. and B. Soldo (1988), "Household Composition Choices of Older Unmarried Women", **Demography**, 25:387-403

Woodruff D. S. and Birren J.E. (eds.), (1975), **Aging Scientific Perspectives and Social Issues**. Ethel Percy Andrus Gerontology Center, University of Southern California, D. Van Nostrand Company, New York

World Health Organization (2000), "Social Development and Ageing: Crisis or Opportunity?", Special Panel at Geneva 26 June 2000

Yavuz, S. (2002), **Household Composition and Complexity in Turkey: Findings from the Turkish Demographic and Health Survey 1998**. Unpublished Master Thesis, Hacettepe University Institute of Population Studies, Ankara

Zimmer, Z. and Sovan, K.K. (2001), "Living Arrangements and Socio-demographic Conditions of Older Adults in Cambodia", **Journal of Cross-Cultural Gerontology**, 16: pp. 353-381

Zimmer, Z. and Dayton, J. (2003), **The Living Arrangements of Older Adults in Sub-Saharan Africa in a Time of HIV/AIDS.** No.169 Population Council, New York

APPENDICES

APPENDIX A

HOUR ☐☐	MINUTE ☐☐

SECTION 1 – HOUSEHOLD LIST

Now I would like some information about people in this household, such as age and education.

HH LINE NO	HOUSEHOLD LIST *ADD BY ASKING A-B-C-D-E*	RELATION SHIP TO HEAD OF HH	HH MEMBERSHIP		SEX	AGE
	A. Would you please tell me the names of the persons living in this household beginning with the household head? B. Is there anyone who usually lives in this house but is absent at present? C. Additionally, are there persons who do not live here but who have stayed here last night? D. Are there any other persons such as small children or infants? E. Are there any others who are not members of your family but live here, such as lodgers, friends, servants?	What is the relationship of .... to the household head? *USE CODE LIST.*	Does .... usually live here? YES ....1 NO 2	Did .... sleep here last night? YES ....1 NO 2	Is .... male or female? MALE ....1 FEMALE ..2	How old is ......? (what age has .... completed?) *OBTAIN AGE IN COMPLETED YEARS. IF OLDER THAN 95, WRITE "95".*
(01)	(02)	(03)	(04)	(05)	(06)	(07)
01		0 1	1 2	1 2	1 2	☐☐
02		☐☐	1 2	1 2	1 2	☐☐
03		☐☐	1 2	1 2	1 2	☐☐
04		☐☐	1 2	1 2	1 2	☐☐
05		☐☐	1 2	1 2	1 2	☐☐
06		☐☐	1 2	1 2	1 2	☐☐
07		☐☐	1 2	1 2	1 2	☐☐
08		☐☐	1 2	1 2	1 2	☐☐
09		☐☐	1 2	1 2	1 2	☐☐
10		☐☐	1 2	1 2	1 2	☐☐

IF ADDITIONAL QUESTIONNAIRE IS USED TICK HERE AND PROCEED WITH THE REST OF THE INTERVIEW ON THE ADDITIONAL FORM ☐

(03) CODES FOR RELATIONSHIP TO HOUSEHOLD HEAD

01 HEAD	08 SIBLING	15 GRAND PARENT	22 SECOND WIFE
02 WIFE/HUSBAND	09 SIBLING'S SPOUSE	16 GRAND PARENT –IN- LAW	23 HUSBAND'S SECOND WIFE
03 SON/DAUGHTER	10 SIBLING'S CHILD	17 SIBLING –IN- LAW	
04 SON/DAUGHTER- IN -LAW	11 FATHER'S SIBLING	18 SIBLING –IN-LAW'S SPOUSE	88 NOT RELATED
05 GRANDCHILD	12 MOTHER'S SIBLING	19 SIBLING –IN-LAW'S CHILD	96 OTHER RELATIVE
06 PARENT	13 STEP CHILD	20 FATHER –IN-LAW'S SIBLING	
07 PARENT -IN -LAW	14 COUSIN	21 MOTHER-IN-LAW'S SIBLING	98 DK

HH LINE NO	PLACE OF BIRTH	RESIDENCE			MATERNAL SURVIVAL	
	In which province was .... born? *RECORD THE PROVINCE THAT PLACE OF BIRTH IS IN AT PRESENT. USE PROVINCE TRAFFIC CODES.* *RECORD "90" FOR ABROAD.*	*CHECK (04):* *IF PERSON USUALLY LIVES IN THIS HOUSE SKIP TO QUESTION 10.* *IF NOT, ASK.* Where is.......... living now? TYPE OF PLACE OF RESIDENCE: PROVINCE CENTER.............1 DISTRICT CENTER.............2 SUB-DISTRICT/VILLAGE....3 ABROAD............................4			Is..........'s natural mother alive? ALIVE......................1 DEAD.......................2 DK...........................8	*RECORD LINE NO. IF LISTED IN THE HOUSE. RECORD "96" IF LIVING ELSEWHERE.*
(01)	(08)	(09A) PLACE OF RES.	(09B) PROVIN.	(09C) TYPE	(10)	(11)
01	☐☐	_____	☐☐	☐	1 2 8 → 12	☐☐
02	☐☐	_____	☐☐	☐	1 2 8 → 12	☐☐
03	☐☐	_____	☐☐	☐	1 2 8 → 12	☐☐
04	☐☐	_____	☐☐	☐	1 2 8 → 12	☐☐
05	☐☐	_____	☐☐	☐	1 2 8 → 12	☐☐
06	☐☐	_____	☐☐	☐	1 2 8 → 12	☐☐
07	☐☐	_____	☐☐	☐	1 2 8 → 12	☐☐
08	☐☐	_____	☐☐	☐	1 2 8 → 12	☐☐
09	☐☐	_____	☐☐	☐	1 2 8 → 12	☐☐
10	☐☐	_____	☐☐	☐	1 2 8 → 12	☐☐

HH LINE NO	LITERACY AND EDUCATION STATUS AGE 6 AND OVER				SCHOOL ATTENDANCE AGE 6-24		
	Is .... literate? YES .... 1 NO .... 2 DK 8	Has .... ever been to school? YES .... 1 NO .... 2 DK 8	What is the highest level of school .... attended? What is the highest grade ..... completed at that level? *USE CODE LIST.* SCHOOL GRADE	Did .... graduate from this school? (Did ...... receive a diploma?) YES .... 1 NO .... 2 DK 8	Is .... attending school this educational year? YES .... 1 NO .... 2 DK 8	Which level of school and grade .... attending? *USE CODE LIST.* SCHOOL GRAD
(01)	(18)	(19)	(20A) (20B)	(21)	(22)	(23A) (23B)
01	1 2 8	1 2 8 └──┴──► 26	☐ ☐	1 2 8	1 2 8 └──┴──► 24	☐ ☐
02	1 2 8	1 2 8 └──┴──► 26	☐ ☐	1 2 8	1 2 8 └──┴──► 24	☐ ☐
03	1 2 8	1 2 8 └──┴──► 26	☐ ☐	1 2 8	1 2 8 └──┴──► 24	☐ ☐
04	1 2 8	1 2 8 └──┴──► 26	☐ ☐	1 2 8	1 2 8 └──┴──► 24	☐ ☐
05	1 2 8	1 2 8 └──┴──► 26	☐ ☐	1 2 8	1 2 8 └──┴──► 24	☐ ☐
06	1 2 8	1 2 8 └──┴──► 26	☐ ☐	1 2 8	1 2 8 └──┴──► 24	☐ ☐
07	1 2 8	1 2 8 └──┴──► 26	☐ ☐	1 2 8	1 2 8 └──┴──► 24	☐ ☐
08	1 2 8	1 2 8 └──┴──► 26	☐ ☐	1 2 8	1 2 8 └──┴──► 24	☐ ☐
09	1 2 8	1 2 8 └──┴──► 26	☐ ☐	1 2 8	1 2 8 └──┴──► 24	☐ ☐
10	1 2 8	1 2 8 └──┴──► 26	☐ ☐	1 2 8	1 2 8 └──┴──► 24	☐ ☐

(20A-23A-25A) LEVEL CODES

1 PRIMARY SCHOOL
2 SECONDARY SCHOOL
3 PRIMARY EDUCATION
4 HIGH SCHOOL
5 UNIVERSITY
6 MASTER/Ph.D AND OVER

8 DK

(20B-23B-25B)) GRADE CODES

00 LESS THAN ONE
   YEAR/PREPARATORY LEVEL
66 MASTER/Ph.D

98 DK

HH LINE NO	SCHOOL ATTENDANCE AGE 6-24			WORK STATUS AGE 12 AND OVER		
	Did .... attend school last year? (2002-2003) YES.....................1 NO ....2 DK 8	Wich level of school and grade did.......... attend? USE CODE LIST. SCHOOL GRADE		Did.......... work in any job in last week whether payed or unpaid? (IF NO) As you know, some people do temporary jobs; they work on their families' workplaces or fields paid or unpaid. Did .... work in such kind of a job? YES...............................1 NO 2	You said .... didn't work in last week. If so, does ...... have a job that he/she usually works? YES ....1 NO 2	Why didn't .... work last week? USE CODE LIST.
(01)	(24)	(25A)	(25B)	(26)	(27)	(28)
01	1 2 3 8 └──┴──┴─► 26	☐	☐	1 2 └► 29A	1 2 └► 34	☐☐
02	1 2 3 8 └──┴──┴─► 26	☐	☐	1 2 └► 29A	1 2 └► 34	☐☐
03	1 2 3 8 └──┴──┴─► 26	☐	☐	1 2 └► 29A	1 2 └► 34	☐☐
04	1 2 3 8 └──┴──┴─► 26	☐	☐	1 2 └► 29A	1 2 └► 34	☐☐
05	1 2 3 8 └──┴──┴─► 26	☐	☐	1 2 └► 29A	1 2 └► 34	☐☐
06	1 2 3 8 └──┴──┴─► 26	☐	☐	1 2 └► 29A	1 2 └► 34	☐☐
07	1 2 3 8 └──┴──┴─► 26	☐	☐	1 2 └► 29A	1 2 └► 34	☐☐
08	1 2 3 8 └──┴──┴─► 26	☐	☐	1 2 └► 29A	1 2 └► 34	☐☐
09	1 2 3 8 └──┴──┴─► 26	☐	☐	1 2 └► 29A	1 2 └► 34	☐☐
10	1 2 3 8 └──┴──┴─► 26	☐	☐	1 2 └► 29A	1 2 └► 34	☐☐

(28) REASON OF NOT WORKING IN LAST WEEK	
01 HOLIDAY, ON VACATION	06 NOT WORKING SEASON
02 PREGNANCY/BIRTH LEAVE	07 WORKPLACE IS CLOSED, INACTIVE
03 SICK, UNABLE TO WORK	
04 BUSINESS TRIP/EDUCATION/ TRAINING	96 OTHER
05 UNPAID VACATION	98 DK

HH LINE NO	MARITAL STATUS AGE 12 AND OVER		
	Has .... ever married?	What is...........'s marital status?	*RECORD HH LINE NO OF SPOUSE.*
	YES.........................1 NO 2	CURRENTLY MARRIED ....1 WIDOWED ....2 DIVORCED ....3 SEPARATED ....4 DK 8	*IF SPOUSE NOT IN THE HOUSEHOLD LIST, RECORD "96".*
(01)	(37)	(38)	(39)
01	1 2 ┗━►47	1 2 3 4 8 ┗━┻━┻━┻━━►46	☐☐
02	1 2 ┗━►47	1 2 3 4 8 ┗━┻━┻━┻━━►46	☐☐
03	1 2 ┗━►47	1 2 3 4 8 ┗━┻━┻━┻━━►46	☐☐
04	1 2 ┗━►47	1 2 3 4 8 ┗━┻━┻━┻━━►46	☐☐
05	1 2 ┗━►47	1 2 3 4 8 ┗━┻━┻━┻━━►46	☐☐
06	1 2 ┗━►47	1 2 3 4 8 ┗━┻━┻━┻━━►46	☐☐
07	1 2 ┗━►47	1 2 3 4 8 ┗━┻━┻━┻━━►46	☐☐
08	1 2 ┗━►47	1 2 3 4 8 ┗━┻━┻━┻━━►46	☐☐
09	1 2 ┗━►47	1 2 3 4 8 ┗━┻━┻━┻━━►46	☐☐
10	1 2 ┗━►47	1 2 3 4 8 ┗━┻━┻━┻━━►46	☐☐

HANE SATIR NO	ELIGIBILITY FOR INDIVIDUAL INTERVIEW	ELIGIBILITY TO NEVER MARRIED WOMEN'S INFORMATION FORM	ELIGIBILITY TO THE WELFARE OF THE ELDERLY MODULE
	CIRCLE LINE NUMBER IF EVER MARRIED WOMAN AGE 15 – 49 AND SKIP TO NEXT PERSON. *IF NOT SKIP TO 48.*	*CIRCLE LINE NUMBER IF NEVER MARRIED WOMAN AGE 15 – 49 AND SKIP TO NEXT PERSON.* *IF NOT SKIP TO 48.*	*CIRCLE LINE NUMBER IF PERSON IS 60 OR OVER* *SKIP TO NEXT PERSON*
(01)	(46)	(47)	(48)
01	01	01	01
02	02	02	02
03	03	03	03
04	04	04	04
05	05	05	05
06	06	06	06
07	07	07	07
08	08	08	08
09	09	09	09
10	10	10	10

APPENDIX B

SECTION 2. WELFARE OF ELDERLY

60	CHECK QUESTION 48.		
	THERE IS RECORDED AT LEAST ONE PERSON ☐	NOBODY IS RECORDED ☐ → 120	

61	TOTAL NUMBER OF ELDERLY PERSONS IN THE HOUSEHOLD LIST.................. ☐	

ENTER THE NAME AND LINE NUMBER OF EACH PERSON 60 AND OVER LISTED IN THE HOUSEHOLD SCHEDULE. ASK QUESTIONS ABOUT EACH OF THE LISTED PERSONS SEPARATELY. BEGIN WITH THE FIRST ELDERLY ON THE HOUSEHOLD LIST. IF THERE ARE MORE THAN 2 ELDERLY, USE ADDITIONAL QUESTIONNAIRE..

	FROM QUESTION 02	NAME _____	NAME _____
	FROM QUESTION 01	LINE NO .... ☐☐	LINE NO .... ☐☐

62	Does .... have any living children? *(IF YES)* How many?	NO LIVING CHILD...........................00 → 64 NO. OF CHILDREN .... ☐☐	NO LIVING CHILD...........................00 → 64 NO. OF CHILDREN .... ☐☐

63	Where do..........'s own children live of his/her own?
	
	IF NECESSARY MATCH MORE THAN ONE CHOICE FOR ALL CHILDREN.
		SAME HOUSE.....................................A
		SAME BUILDING/STREET
		    OR QUARTER......................B
		SAME CITY/VILLAGE................C
		CLOSE CITY/VILLAGE................D
		DISTANT CITY/VILLAGE...............E
		OTHER COUNTRY............................F
		DK......... X
			SAME HOUSE.....................................A
			SAME BUILDING/STREET
			    OR QUARTER......................B
			SAME CITY/VILLAGE................C
			CLOSE CITY/VILLAGE................D
			DISTANT CITY/VILLAGE...............E
			OTHER COUNTRY............................F
			DK......... X

64	Does .... have any living step children? *IF YES:* How many?	NO LIVING STEP CHILD.................00 → 66 NO. OF STEP CHILDREN .... ☐☐	NO LIVING STEP CHILD ....00 → 66 NO OF STEP CHILDREN .... ☐☐

65	Where do..........'s step children live?
	
	IF NECESSARY code MORE THAN ONE.
		SAME HOUSE.....................................A
		SAME BUILDING, STREET
		    OR QUARTER......................B
		SAME CITY, VILLAGE..................C
		CLOSE CITY, VILLAGE................D
		DISTANT CITY, VILLAGE...............E
		OTHER COUNTRY............................F
		DK..X
			SAME HOUSE.....................................A
			SAME BUILDING, STREET
			    OR QUARTER......................B
			SAME CITY, VILLAGE..................C
			CLOSE CITY, VILLAGE................D
			DISTANT CITY, VILLAGE...............E
			OTHER COUNTRY............................F
			DK..X

66	Who takes the main responsibility for ....'s needs, health and welfare?	HIMSELF/HERSELF.........................01
		SPOUSE..02
		CHILDREN/STEP CHILD...................03
		CHILDREN IN LAW...........................04
		SIBLING..05
		GRANDCHILD...................................06
		SIBLING'S CHILD.............................07
		OTHER CLOSE RELATIVE..............08
		DISTANT RELATIVE.........................09
		NEIGHBOUR.....................................10
		
		OTHER _____ 96
		    (SPECIFY)
			HIMSELF/HERSELF.........................01
			SPOUSE..02
			CHILDREN/STEP CHILD...................03
			CHILDREN IN LAW...........................04
			SIBLING..05
			GRANDCHILD...................................06
			SIBLING'S CHILD.............................07
			OTHER CLOSE RELATIVE..............08
			DISTANT RELATIVE.........................09
			NEIGHBOUR.....................................10
			
			OTHER _____ 96
			    (SPECIFY)

		NAME _____	NAME _____
	FROM QUESTION 02		
	FROM QUESTION 01	LINE NO …………….. ☐☐	LINE NO …………….. ☐☐

67	Does .... have any income?	YES .... 1 NO .... 2 ➤ 69	YES .... 1 NO 2
68	What are the source(s) of this income? RECORD ALL MENTIONED RESPONSES. AT LEAST ONE RECORD IS COMPULSORY.	PENSION (SELF)………………..A PENSION (INDIRECT)…….......... B OLD AGE PENSION......................... C RENT/INTEREST……………......D FROM RELATIVE HERE.................. E FROM RELATIVE ABROAD............F CURRENTLY WORKING................. G OTHER _____U (SPECIFY)	PENSION (SELF)…………………..A PENSION (INDIRECT)…….............B OLD AGE PENSION........................C RENT/INTEREST……………........D FROM RELATIVE HERE.................. E FROM RELATIVE ABROAD........... F CURRENTLY WORKING............... G OTHER _____U (SPECIFY)
69	Is .... covered by a health insurance? Does he/she has health insurance? *(IF YES)* Which one?	NO .... 0 SSK .... 1 EMEKLİ SANDIĞI ....2 BAĞ-KUR .... 3 PRIVATE... 4 YEŞİL CARD ....5 OTHER _____7 (SPECIFY) DK 8	NO .... 0 SSK ....1 EMEKLİ SANDIĞI ....2 BAĞ-KUR .... 3 PRIVATE... 4 YEŞİL CARD ....5 OTHER _____7 (SPECIFY) DK...8
70	Is………. confined to bed?	YES ....1 ➤ 73 NO 2	YES ....1 NO 2
71	Is ………. confined to chair/armchair all day long?	YES ....1 ➤ 73 NO 2	YES ....1 NO 2
72	Is ……….'s daily life limited to house/flat or garden?	YES ....1 NO 2	YES ....1 NO 2

73	Does ………. do the things I will list now easily, with difficulty or only with the assitance of another person?	EASY	WITH DIFF.	WITH ASSISTANCE	IMPOSSIBLE		EASY	WITH DIFF	WITH ASSISTANCE	IMPOSSIBLE
	Lying on bed-rising from bed	1	2	3	4		1	2	3	4
	Dressing-undressing	1	2	3	4		1	2	3	4
	Eating	1	2	3	4		1	2	3	4
	Going to and using toilet	1	2	3	4		1	2	3	4
	Taking a bath	1	2	3	4		1	2	3	4

		IF THERE IS ANOTHER ELDERLY IN THE HOUSE RETURN TO QUESTION 62; OTHERWISE, SKIP TO NEXT SECTION	*IF THERE IS ANOTHER ELDERLY PASS THE QUESTION 62 IN FIRST COLUMN IN ADDITIONAL QUESTIONNAIRE; OTHERWISE, SKIP TO NEXT SECTION*

APPENDIX C

SECTION 3.   HOUSING CHARACTERISTICS

20	*CHECK COVER PAGE:*		
	NO USUAL RESIDENTS IN THIS HOUSE (TOTAL NUMBER OF USUAL RESIDENTS=00) ☐	AT LEAST ONE USUAL RESIDENT LIVING IN THIS HOUSE (TOTAL NUMBER OF USUAL RESIDENTS>00) ☐	▶ 123
22	*ASK ALL QUESTIONS OF THIS SECTION FOR THE HOUSE/DWELLING THAT HOUSEHOLD HEAD USUALLY LIVES IN.*		
	Now I will ask some questions about the dwelling that .... (HOUSEHOLD HEAD) usually lives in.		
23	Does this house belong to a household member, is it rented from someone else, is it a lodging, or do you just live here without having to pay anything?	OWNED BY A HOUSEHOLD MEMBER ....1 RENTED ....2 LODGING ....3 NO RENT PAID ....4 OTHER _____7 (SPECIFY)	▶ 125 ▶ 125 ▶ 124
23A	Do you have a tenancy agreement?	YES...1 NO 2	
24	To whom does this house belong?	OTHER FAMILY MEMBER, RELATIVE ....1 (NON-FAMILY MEMBER/NON-KIN) HOUSE OWNER......2 GOVERNMENT ....3 PRIVATE ORGANISATION/FIRM...4 OTHER _____7 (SPECIFY)	
25	Does anyone from this household own any other house elsewhere? (*IF YES*) How many?	NO ....00 NO. OF OWNED HOUSES ....☐☐	

29	What is the source of drinking water for members of your household?	PIPED WATER
		    PIPED WATER IN HOUSE/GARDEN 11
		    PUB. PIPED WATER OUTSIDE HOUSE/GARDEN 12
		WELL WATER
		    WELL IN HOUSE/GARDEN 21
		    PUBLIC WELL...22
		SURFACE WATER
		    PIPED SURFACE WATER IN HOUSE/GARDEN............31
		    SPRING/PUBLIC FOUNTAIN...............................32
		    RIVER/STREAM/POND/LAKE/DAM 33
		RAINWATER...41
		TANKER TRUCK 51
		BOTTLED WATER/DEMI JOHN/PET WATER 61
		WATER STATION...71
		
		OTHER _____96
		(SPECIFY)
			▶ 131
			▶ 131
			▶ 131
			▶ 131
			▶ 133