HACETTEPE UNIVERSITY
INSTITUTE OF POPULATION STUDIES

THE INCREASE IN THE PREVALENCE OF ONE-PERSON HOUSEHOLDS IN TURKEY: BY CIRCUMSTANCES OR BY CHOICES?

Uğur ERENSAYIN

Department of Demography

Master's Thesis

Ankara

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APPROVAL PAGE

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Uğur Erensayın

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ABSTRACT

The world has witnessed various social, economic, and cultural changes until today. New norms and lifestyles have been replaced with traditional ones over time. The transition from the periods when the family institution was essential to the times when people tend to live more individually has been visible since the last century, especially in the second demographic transition period. With the demographic effects of the changes, fertility began to decline, and the tendency to cohabitation and separation gained momentum. In Turkey, while the share of extended and multi-child nuclear families has diminished, one-parent and single-person households have increased from the middle of the 20th century.

The main focuses of the study are to reveal the characteristics of one-person households and to find out the differences between people living alone due to choices and circumstances. In this respect, modernization and developmental idealism approaches were employed to rationalize the change in family structure and prevalence of one-person households. Besides, descriptive and multivariate analyzes were applied to attain the determinant factors.

After a set of analyzes, essential findings were obtained regarding the distribution of one-person households in Turkey. While the tendency to live alone has a crucial representation among women, especially among elderly widowed women, the proportion of men living alone has also increased over time. Furthermore, young, never-married, and divorced persons in one-person households have become more common over the last two decades.

Finally, the literature about one-person households and the outputs of analyses figure out that solo living becomes more common in Turkey through social, economic, cultural, and demographic transition stages. Following the theoretical approaches, the tendency of the younger, well-educated, never-married people to live alone becomes visible. Thus, it can be argued that the rationale behind living alone is parallel to Turkey's modernization path and examined detailly in this study.

ÖZET

Dünya günümüze kadar çeşitli sosyal, ekonomik ve kültürel değişimlere tanık olmuştur. Zamanla yeni normlar ve yaşam tarzları geleneksel olanlarla yer değiştirmiştir. Aile kurumunun vazgeçilmez olduğu dönemlerden insanların daha bireysel yaşamaya yöneldiği dönemlere geçiş geçen yüzyıldan itibaren, özellikle ikinci demografik geçiş döneminde kendini göstermiştir. Değişimlerin demografik etkileri ile doğurganlık azalmaya başlamış, evlilik dışı birlikte yaşama ve partnerlerin ayrı yaşama eğilimi hız kazanmıştır. Türkiye'de geniş ve çok çocuklu çekirdek ailelerin payı azalırken, tek ebeveynli ve tek kişilik haneler 20. yüzyılın ortalarından itibaren artmıştır.

Bu çalışmanın ana odağı, tek kişilik hanelerin özelliklerini ve kendi tercihleri ile yalnız yaşayan kişiler ile koşullar nedeniyle yalnız yaşayan insanlar arasındaki farklılıkları ortaya çıkarmaktır. Bu bağlamda, aile yapısındaki değişimi ve tek kişilik hanehalklarının yaygınlığını rasyonelleştirmek için modernizasyon ve gelişimsel idealizm yaklaşımları kullanılmıştır. Ayrıca belirleyici faktörlere ulaşmak için betimsel analizler ve çok değişkenli analizler uygulanmıştır.

Bir dizi analizden sonra, Türkiye'de tek kişilik hanelerin dağılımına ilişkin temel bulgular elde edilmiştir. Kadınlar arasında, özellikle yaşlı ve dul kadınlar arasında yalnız yaşama eğilimi önemli bir temsile sahipken, yalnız yaşayan erkeklerin oranı da zamanla arttığı görülmektedir. Ayrıca, tek kişilik haneleri oluşturan genç, hiç evlenmemiş ve boşanmış kişiler son yirmi yılda daha yaygın hale gelmiştir.

Son olarak, tek kişilik haneler ile ilgili literatür ve yapılan analizlerin sonuçları, Türkiye'de sosyal, ekonomik, kültürel değişim ve demografik geçiş aşamalarında tek yaşamanın daha yaygın hale geldiğini ortaya koymaktadır. Teorik yaklaşımlarla örtüşür bir şekilde; daha genç, iyi eğitimli, hiç evlenmemiş insanların yalnız yaşama eğilimi daha görünür hale geldiği görülmektedir. Dolayısıyla yalnız yaşamanın gerekçesinin Türkiye'nin modernleşme sürecine paralel olduğu ve bu çalışmada ayrıntılı olarak incelendiği belirtilebilir.

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ABBREVIATIONS

TDHS: Turkey Demographic and Health Survey

ABPRS: Address Based Population Registration System

TURKSTAT: Turkish Statistical Institute

DHS: Demographic and Health Survey

TAYA: Turkey Family Structure Survey

OECD: Organization for Economic Co-operation and Development

AÇSHB: Ministry of Family, Labor and Social Services

HUIPS: Hacettepe University Institute of Population Studies

UN: United Nations

NUTS: Nomenclature of Territorial Units for Statistics

ASAGEM: General Directorate of Family and Social Research

CHAPTER 1

INTRODUCTION

Turkey has undergone severe social, economic, and demographic changes starting from the late 1900s. Together with the establishment of the republic, economic and social life has begun to transform. Decreasing mortality rates and rising life expectancy at birth have contributed to the transformation of the population. This transformation has triggered urbanization and industrialization. Different policies in order to create women-inclusive social life were the policy program of the state. Education opportunities, women's involvement in the market, social rights for women caused a postponement of marriage in time.

Furthermore, migration from rural to urban was a way to transform the family structure. Thus, different family types and formations have come into existence. As urbanization has proceeded, the extended family type has dissolved. The traditional family structure has faced transformation as divorce rates, cohabitation, single parenthood, and one-person households have increased (OECD, 2011). While extended families in Turkey have decreased, nuclear families and dissolved families, especially households with one person, replaced its place. Besides, according to Koç (2019), after the 1990s, the rapid increase in the dissolved family structure stabilizes and even regresses the nuclear family structure's nuclearization process. In more detail, when viewed from the sub-family of nuclear families, the representation of nuclear families with no children gains importance versus nuclear families with at least one child. Also, there is a decrease in nuclear families with multi-children.

The direction in changes of family structure in Turkey follows three distinctive paths: (1) Dissolution of extended families as lowest as 10 percent; (2) stabilization of nuclear families at 69-70 percent; (3) escalation of dissolved families up to 20 percent. During this

time, one-person households, which had only 3 percent representation in 1978, rose to 8.5 percent by 2018.

Especially the prevalence of one-person households in Turkey has become critical in terms of household structure transformation. This change is in corresponding with the worldwide transformation of the family structure. Even if one-person households may be related to societies' norms and cultural domain, modernization and globalization could not be overlooked. As claimed by historical records, the increase in one-person households has begun in early industrialized nations longer than a century ago, gaining speed around 1950. For example, solo livings in Nordic countries were very low in the past; however, they represent a significant portion of all things of one-person households nowadays (Ortiz-Espina, 2019). In Turkey, industrialization and modernization have penetrated later than in industrialized countries, but the household transition has occurred more rapidly since the migration from the rural areas to urban centers, the liberation of women, and the changing kinship relations and living practices. In that context, analyzing the relationship between one-person households and modernization might not be an easy effort by the relationship's nature. Even so, the rising trend of one-person households can be analyzed with the recent statistics. According to Turkey Demographic and Health Survey (TDHS)-2018 main report, the household size of 5.3 in 1983 had decreased to 3.5 in 2018. The share of one-person households has risen from 3.0 in 1978 to 8.5 in 2018.

One-person households should be examined in detail since there can be various underlying factors. In that phase, it is needed to question whether it is a circumstance or a choice. The data taken from TAYA-2016 shows that one-person households have the majority of 65+ people compare to other age groups. These people's situation may be obligatory or by choice, but the other point is that the number of people under 65 years old who live alone is rising. Therefore, the rise can be a sign for one-person households by choice. On the other side, there can be mentioned an urban-rural distinction. While one-person households are more common in rural areas, the percentage of people living alone in Turkey's eastern regions is lower than in the western regions. Also, one-person households'

age composition differs, so urban parts have a lower average age in one-person households while rural areas have relatively a higher. Furthermore, TAYA-2016 data shows that 71% of all one-person households consisted of a woman has lost their spouses (AÇSHB, 2018). Therefore, the feminization of one-person households in old ages should be considered in the discussion of circumstances and choices.

The starting point of this study is the study conducted by Çağatay and Koç (2008) which pays attention to rapidly increasing trends of single-person households and their characteristics in Turkey by using the 1993-2008 TDHS data sets. This study was mainly descriptive in nature and did not contain any multivariate analysis. Another study focusing on one-person households was prepared by Başlevent (2021) pointed out that while there has been a rapid increase in the share of single-person households since 2006, their well-being has worsened in comparison to multiple-adult households with no dependent children. In order to better understand the reasons for this trend, the study conducted an empirical analysis using microdata from Income and Living Conditions Surveys that were conducted during the period of 2006-2018. Since there exists a very limited number of studies on one-person households in Turkey, this thesis aims to fill the gaps in the literature on the issue of one-person households and their determinants by using the data from Turkey Demographic and Health Survey, Address Based Population Registration System, Population Censuses and Turkey Family Structure Survey results.

Within this context, the thesis has four interrelated objectives: (1) to understand the prevalence of one-person households not only in Turkey but concerning urban and rural breakdown, (2) to put forward the reasons behind the rise, (3) to reveal whether the increase is by circumstances or by choices, (4) to make policy recommendations for strategic planning on family and its rise in Turkey. In order to achieve these objectives, the study will utilize demographic surveys conducted from 1993 through 2018 and family surveys.

CHAPTER 2

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1. Literature Review

Households are not concrete entities close to any changes and formations but can be exposed to transformation in time. The routes of this transition are related to modernization. In the perspective of modernization, social, economic development, migration, urbanization increasing women's involvement in the market, and rising education levels all can be the reason behind the transformation in household structure. The relating impact may have changed the conventional family types into a progressively present form as modernization has spread various layers of the societies for the recent decade (Yavuz, 2004).

The theory of modernization, which is at the center of the discussion, describes the transformation of underdeveloped or traditional societies into modern societies in general. In the Turkish context, together with the modernization discussions, Timur's (1978) conceptualization is one of the first detailed analyzes on the subject. Households in Turkey were divided into four main components in the paper based on the 1968 Turkey Family Structure and Population Problems Research data. These components are nuclear family, extended families with traditional and transient, and dissolved families or non-relatives.

In this study, the effort to link the current family structure in Turkey and modernization cannot be denied. Timur prepared a modernity index with 16 questions under three main topics for defining family structure in Turkey. According to this classification, the process of decision making, the existence of gender roles and the degree of domination of husbands and wives, and collective or self-ordained participation and representation of husband-wife relationships have a significant effect on a given family's index value. Accordingly, the traditional family structure is common in patriarchal extended families whereas it is found least in nuclear families. From this perspective, the fall in the rate of traditional extended family in Turkey and the rise in modern-nuclear and one-person

households can be related to the modernization process. The change in the value system and new form of households might be seen as a consequence of Turkish society's transition.

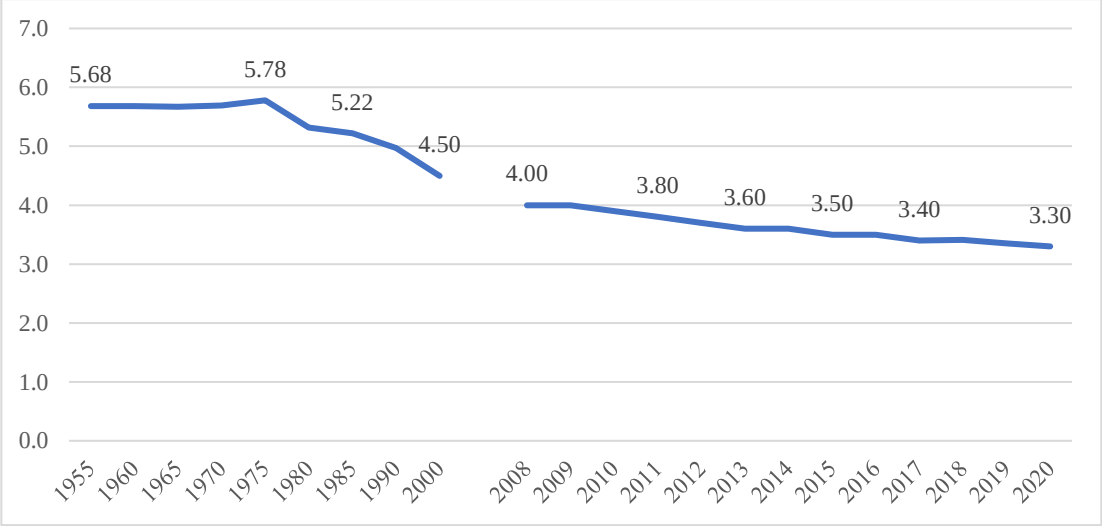
The extended family is suitable for rural life, and it dissolves due to economic reasons. It is also addressed within the framework of urbanization: people who immigrated from rural to urban areas usually move to households close to their relatives or hometown, as they come with chain immigration, and often go to household sharing even for a temporary period (Adams and Trost, 2005). The only reason behind that issue is not learning how to act within the group or creating solidarity, but also generating impactful social control mechanisms and protect traditional value systems, especially for women and young members of the family. Although nuclear families are in a significant proportion in Turkey, the values identified with the extended family have preserved their importance. Still, relationships with relatives have lost their significance with increasing urbanization and industrialization (Duben, 1985). According to Children's Value Survey's data that field studies had done in 1974 and 1975, the proportion of patriarchal extended family families was 12.9 percent. That of temporarily extended families was 8.5 percent, and that of nuclear families was 78.6 percent. However, Kağıtçıbaşı (1982) argues that the western industrialized countries' isolated family types are different from the nuclear family in Turkey.

Moreover, especially in the rural part of Turkey, the nuclear families' relationships are like the extension of traditional family relations, including close ties with families, relatives, and neighbors. In the same study, the ideal number of children was questioned. Although Turkey is high in fertility rates by the obtained data, the norms and values related to household size resemble the countries where fertility is moderate. Baştuğ (2003) argues that the studies over the last five decades have primarily been associated with crucial political, socio-economic, and demographic transformations following the fall of the Ottoman Empire to the establishment of the new state. It is also emphasized that the fundamental shift in family structure can be considered the transition from a traditional extended family to a nuclear family.

Moreover, Baştuğ (2003) underlines that nuclear families are common in urban and rural despite nuclear families' myths being seen mostly in urban places and despite geographical ties with Middle Eastern countries; Turkey can be seen as the Mediterranean in terms of social and cultural properties. Accordingly, Turkey shows similarities with Spain, Greece, and Italy rather than Arab countries or Central Asian countries in terms of kinship relations. One of the most critical features of this is close family relations, so people have the responsibility to the family members and relatives. In that context, Turkey faced some severe family structure changes. The consequences behind this chance can be explained by rising marriage age, declining fertility, increasing divorce rates across time, and more independent young adults. So, all those changes might be attached to the modernization program and developmental idealism that creates a way to understand the change in the family structure and hybridization of family relations in Turkey (Kavas and Thornton, 2013).

The decline in household size can be related to a decrease in fertility rates, postponement of marriage, the change in the value of children, and ideational differentiation of kinship relations. Therefore, the common extended family structure in Turkey, especially in rural parts, has turned into households with fewer people. Census data and electronic registration data show the average household size in Turkey between 1955-2020, as shown in Figure 2.1.

Figure 2.1. Average Size of Households in Turkey, (1955-2000) Census; (2008-2020) ABPRS

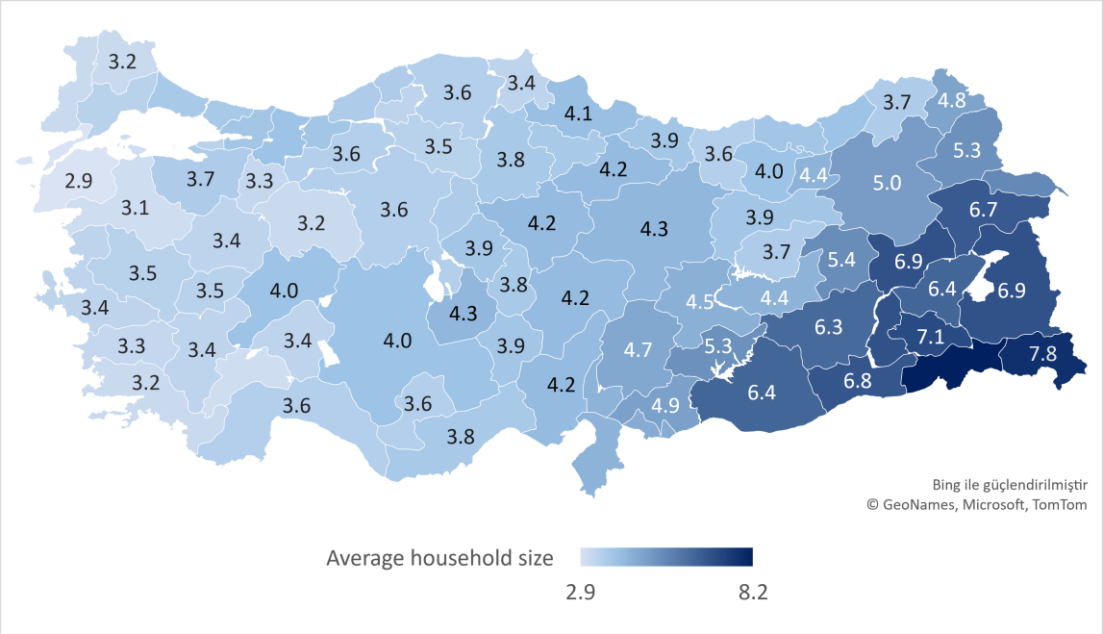


Sources: SIS, 2003; TURKSTAT, 2021

Figure 2.1 demonstrates the change in household size over the years, and according to this image, there has been a gradually decreasing trend in household size since 1955. Even though the household size was slightly increased between 1970 and 1975, there is a constant decrease in the average size until 2020. Furthermore, the average household size, which was seen to be 5.68 in 1955, decreased to 3.30 in 2020; see Table A.1. for detailed information.

While Figure 2.1. shows Turkey's average household size in general, Figure 2.2. and Figure 2.3. indicate the values for all provinces. According to the first figure based on ABPRS-2008, households in Southeast Anatolia, Central East Anatolia, and Northeast Anatolia regions consist of more household members than other regions. For example, Şırnak and Hakkari, with respectively 8.2 and 7.8 persons per household, have the largest households whereas Çanakkale with 2.9 and Balıkesir with 3.1 have the smallest size of households.

Figure 2.2. The Average Household Size by NUTS-3 Regions, ABPRS-2008

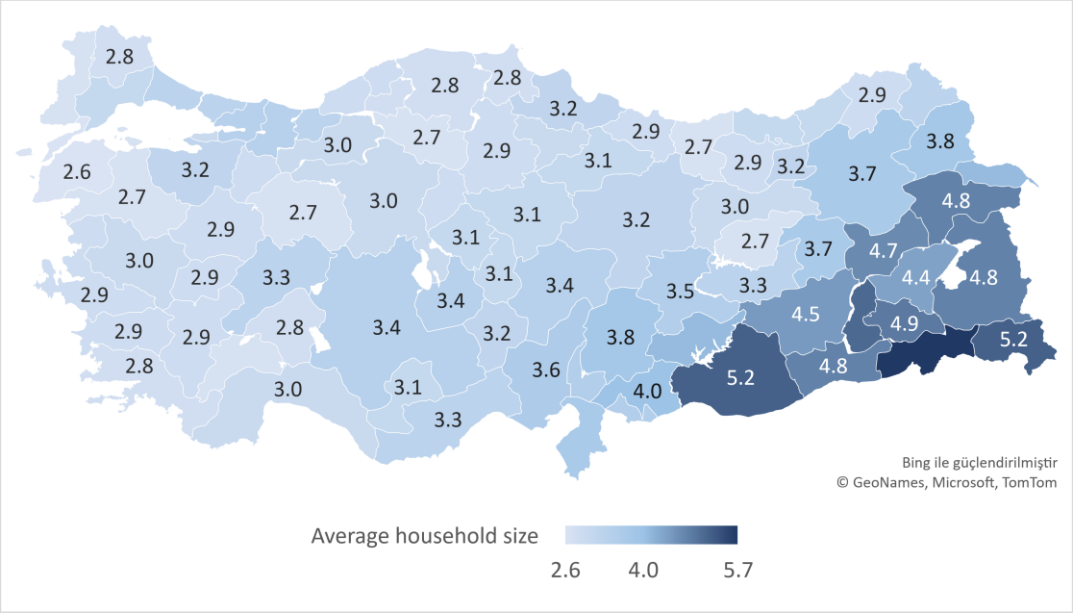


Source: TURKSTAT, 2021

As shown in Figure 2.3., the average size of the households in Turkey had fallen in 2020. However, the provinces in Southeast Anatolia and the eastern part of Central East Anatolia still had the highest ratios. For instance, Şırnak had 5.7 people per household despite a 30 percent decrease between 2008-2020. Moreover, the average household size in Hakkari, Bingöl, Muş, and Ardahan provinces had decreased 30 percent and over between 2008 and 2020, as can be seen in Table A.2. and Table A.3..

The change in household structure can be seen by the statistics and surveys. The literature relates household transition with the different phenomenon. The reason behind this transformation can vary, but the truth is that there is a tendency to nuclearization in family structure, and extended family in Turkey has been getting smaller in proportion. Especially, patriarchal extended family has lost its importance due to social and economic changes in Turkey (HUIPS, 2015).

Figure 2.3. The Average Household Size by NUTS-3 Regions, ABPRS-2020



Source: TURKSTAT, 2021

Whereas the outputs of TDHS surveys show a slight increase in households with nuclear families, the share of nuclear families decreases according to Address Based Population Registration's results, as shown in Table 2.1. Most of all, the rising trend of one-person households and single-parent households should be pointed out based on both registration data and survey data.

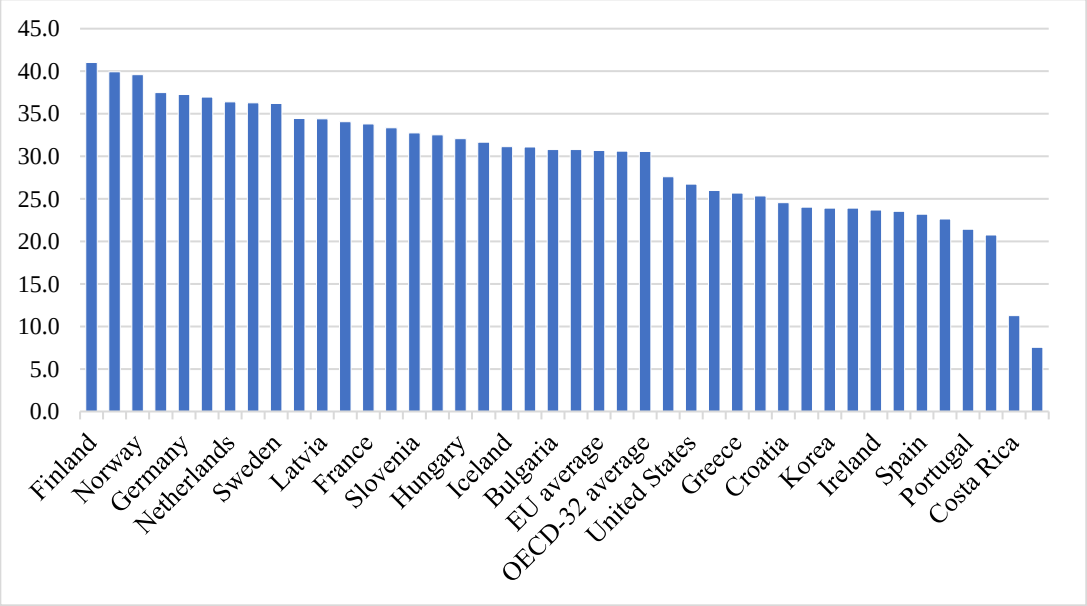
Table 2.1. Percentage Distribution of Households by ABPRS (2014,2017,2020)

	Years		
Household types	2014	2017	2020
One-person household	13.9	15.4	17.9
Nuclear family	67.4	66.1	65.2
Extended family	16.7	16.0	14.0
No family household	2.1	2.5	2.8
Total number of households	21091075	22676186	24604086

Source: TURKSTAT, 2021

It is noteworthy that dissolved families' share in Turkey has increased from 8 percent to 17 percent between 1968-2013. In this process, the increase in one-person households is significant. Koç and Çağatay's study (2008) shows that the proportion of one-person households has tripled between 1950-2003. Not only in the metropolitan area but also in sub-districts and villages, the number of one-person households has been increased since 1993. According to HUIPS (2015), it is seen that approximately two-third of single-person households are composed of particularly female heads. The increase in the percentage of one-person households may consider being related to population aging and young people's migration.

Figure 2.4. Percentage Distribution of One-Person Households in OECD Countries, 2011



Source: OECD, 2016

According to OECD (2016) report on household structure, one-person households have evolved over the years. They have recently reached a significant proportion in many countries parallel to the family transformation processes. As seen in Figure 2.4., prepared

using OECD data, the prevalence of living alone is high in Northern Europe, while a decrease is observed in the southern parts. In other geographies such as Korea, the United States of America, Canada, and Mexico, it is seen that these rates have dropped below 30 percent. Despite this, Japan stands out as one of the countries with the highest single-person households despite the lower trend in its region. The average rate of living alone in Europe and across OECD countries is set at 30 percent, which means that approximately one in 3 households consists of one person among OECD countries. Among these countries, there are one-person household data for Turkey. Still, it can be stated that Turkey shows a similar distribution with Southern Europe, according to the state registries.

The share of one-person households, notedly among the oldest age groups, has increased recently. For instance, the share of people aged 80 and over who live alone in Canada between 1981 and 2001 increased from 22 percent to 34 percent. Similar to the situation in Turkey, the majority of these people are older women. This differentiation can be derived from the higher rate of widowhood resulting from the combination of the longer life span of women and the tendency of men to marry younger women (Van den Hoonaard, 2001).

Furthermore, the average age of the heads of one-person households is decreasing according to past surveys, and it intends that younger generations tend to live alone (Ünalan, 2005). Besides, modernization brings individualism, calculating the cost of the child. This process operates to decrease the importance of traditional family values and lives by spreading the individual lifestyles brought by the popular culture that has become widespread and the new social values based on rights and freedom (BASAGM, 2010).

The trend of living alone in working-age people has become common in societies, it is also seen that some demographic changes like decreasing fertility rates, postponement of marriage, and living apart together concept among younger generations, as a consequence of the second phase of demographic transition (Lesthaeghe, 2010; Lesthaeghe and Van De Kaa, 1986).

Başlevent's study (2021), which includes descriptive and econometric analysis on single-person households in Turkey, has also pointed that when the prevalence of single-person households is examined by gender and age group, the share of single-person households with male heads has increased from 31 percent to 43 percent. The proportion of single-person households with people under 65 has risen from 47 percent to 58 percent is seen. Thus, there exists that the desire to live alone is increasingly common among younger generations.

On the other hand, the transformation in family formation can be related to different factors. According to an OECD report about family transition points that demographic trends cover decreasing rates of fertility and rising life expectancy in countries (OECD, 2010). The aging populations have brought about a decline in fertility rates and a drop in future labor force growth. Therefore, the crucial decrease in the working population and more retirees and less workforce occurred as problems (OECD, 2011).

The total fertility rate decline has differed across the countries in the world. First of all, in northern European countries, the decrease has begun early and then it reached 1.85 children for each woman mainly after the 1970s. By comparison, the downturn of southern European countries was slower; their transformation has started in the mid-1970s; however, it reached a lower level with 1.3 in 1994. After that, the fertility rates of these countries have risen gradually after the decreasing trend. United Kingdom, Greece, Denmark, Norway, New Zealand, Australia, and Spain has faced a rise in fertility rates after 2002 (OECD, 2010). Therefore, it can be said that Nordic countries have achieved some increase in fertility rates; on the other hand, the rate decreased to 1.2 in The Czech Republic and southern Europe.

Nevertheless, given a progressively lower fertility rate, the total size of the household in Korea and the Slovak Republic are still significantly higher than the OECD norm. That is credited to the relatively enormous extent of multigenerational families in these two low-fertility nations (OECD, 2010).

The rate of solo living in some countries is in line with the fertility rates and other determinants. Thus, Nordic countries such as Sweden, Finland, and Norway have lower fertility rates and a more significant share of one-person households than other countries.

All diminishing marriage rates and expanding divorce rates likewise prompted the ascent in single-parent families just as "reconstructed communities". In OECD countries, while marriage rates were 8.1 in 1970, the rates have decreased to 5.0 in 2009 (OECD, 2010).

The marriage rates are varying significantly by the countries. For instance, Turkey, Japan, and the US have maintained their marriage rates, while Luxembourg, Chile, and Italy have decreasing trend in marriage rates. In that period, the divorce rates have doubled with the 2.4 divorces per thousand people in OECD countries. Also, there is a controversy between marriage and divorce rates in some countries. Belgium, the Czech Republic, The USA have high divorce rates, while Mexico, Italy, and Argentina have lower divorce rates. Therefore, several couples get married, and some of them tend more to be divorced. This situation causes an increment of one-person households and solo-parent households.

2.2. Theoretical Framework

In rationalizing the issue of rising in one-person households and family transition, it is needed to be associated with a theoretical base. Therefore, our research questions will be built within the developmental idealism introduced by Thornton (2001). Developmental idealism may be stated as a cultural model associated with Western thinking's beliefs and values (Geertz, 1973; Fricke, 1997; Thornton, 2001). The ideology behind Western thought is based on different social, economic, and demographic changes in the history of Western countries and all over the world.

While the theory and its implications have now expanded worldwide, Northwest Europe is one of the leading advocates in the 1700s, with Scotland, England, and France, vital centers. The developmental paradigm implies that all cultures go through the same standard, fundamental, and essential phases of progress. Social researchers and policymakers can also be included in penetrating western thinking and the way of life to other countries. Universality is the main feature of developmental idealism today. Both human beings and cultures are seen as possessing the same capacity to transform, and even though they follow common developmental phases but have various development stages (Thornton, 2005).

Developmental idealism stems from a paradigm of modernization which implies the western set of values. Furthermore, it also refers to how to build a modern world. In that sense, developmental idealism has two packages to construct the model. One of them is a set of beliefs; another one is values of developmental idealism. These beliefs consider individuals' comprehension of creating a meaningful connection between development and current family structure; on the other hand, values are related to measuring modern family behaviors and outcomes. All these frameworks are working to create a frame to analyze modernity issues in the family base. The importance of the matter is related to future families; that is, the consideration behind this model is to find out international relations and their implications in individuals and families. Through the mechanisms of developmental idealism, the ideas related to it have reached worldwide (Thornton, 2005).

Intergovernmental organizations and NGOs have overcome the challenges to spread the developmental idealism values into the geographies. Moreover, policy makers and other local actors have contributed to the social transformation of these ideals. (Montgomery and Casterline, 1996; Casterline and Sinding, 2000; Kohler et al., 2001).

The developmental model has been influential for academics and political elites for years. So, we may address the developmental model not because we consider it an effective paradigm for reasoning the actions of people and societal progress, however, due to the fact that it provides the basis for covering the influence of developmental idealism. However, the modernization concept has been criticized by academic elites for being unsustainable in their

assumptions. (Mandelbaum, 1971; Nisbet, 1976; Wallerstein, 1991; Chakrabarty, 2000). Nevertheless, despite some negative discussions, the modernization concepts are generally embraced globally among states and intergovernmental organizations, NGOs, and multinational institutions. (Krücken and Drori, 2009; Latham, 2000; Meyer et al., 1997). With the developmental model and the usage of global cross-sectional evidence to suggest developmental trajectories, it has been convenient for researchers to believe that the developmental cycle has changed family dynamics from conventional trends found outside of northwest Europe to advanced or new trends in northwest Europe.

We stress the modernization paradigm as it offers the foundation for the influence of developmental idealism. The idea behind developmental idealism is not to argue some cultural beliefs and values are good or bad but assume that disseminating such concepts will promote change in family structure in the world. The developmental idealism also shows the opposition and conflict about the modernization processes of the countries. Furthermore, it gives a way to understand the hybridization of the family with the dilemmas western and non-western, and the past and future (Kavas and Thornton, 2013). So, we claim that developmental idealism is a part of the Turkish reform process and played a crucial role in the transition of households and the prevalence of living alone.

The second related concept about changes in the family formation and prevalence of one-person households is Modernization Theory, which arose as a highly accepted paradigm in social sciences after the mid-1900s and transformed traditional norms to western norms and values. (Abercrombie et al., 2006). Until the mid-20th century, when the theory began to be developed, economic development was accepted as the measure of social development. After these years, social and cultural dimensions have also been included within the scope of development. Together with globalization after World War II, reaching the traditional developing societies, which are agricultural-based societies, has gained importance to develop and create economic and social relations with these countries.

Eisenstadt (1966) states that modernization is an economic, political, and social transformation process that emerged in North America and Western Europe. It spread to

other European countries, including South American, African, and Asian countries, in the 1800s and 1900s. Although there are many versions of the theory, it is possible to list some common basic principles as follows:

1) Societies have faced a range of evolutionary stages,

2) These stages are dependent on the recombination of cultural and structural contents related to the continuity of society as well as social differentiation at different levels and patterns,

3) Today's emerging societies are in the pre-modern era of evolution, and over time they will achieve the social, political, and economic characteristics of Western European and North American communities that have reached the highest stage of social evolution,

4) Modernization will end when complex Western technology is adopted, and barriers from structural and cultural features that hinder development are eliminated. In the modernization context, industrialization and urbanization-centered models focus on economic development.

While the theory emphasized the phenomenon of modernization, it has developed an approach based on traditional and modern dualism. This dichotomous identification of societies can be seen in Western thinkers' ideas at that time. Tönnies's concept of community and society, Durkheim's mechanical and organic solidarities, Weber's concept of traditional-charismatic legitimation, and legal-rational legitimation, all these dual concepts picture the modernization and its comparison with the traditional (Eisenstadt, 1974). This is because modernization was seen as the estrangement from the traditional, religious-based, unquestioned way of living and acting.

Thus, the models enlightening modernization based on the ideas and beliefs formed in the West include the cultural elements of Western Europe such as the world view, the education system, the understanding of human rights, and put these ideas at the center of modernization (Krücken and Drori, 2009).

When the modernization process is mentioned, it is possible to consider the stages. The first one can be explained by the change in the relationship between human beings and space—the rural-urban migration or the distribution of the city place in itself. Especially after the 1960s, developing countries had faced internal and external migration flows to the centers. These movements have changed the notion of the city in the sense of their settlers and their cultural, social, economic accumulations. The dynamism on which the changing structure of the city is based in the modernization process emerges precisely with the breakdown of the balance between the city and the countryside. Social production in modern society is undoubtedly more remarkable than the relationships in the rural. The changing feature here is that the city's institutions become able to determine all social dimensions, including social production. Furthermore, it causes differentiation and specialization of public relations.

Another significant change can be seen in the institutions. Social institutions like family have changed through time. Especially in traditional developing societies in the mid-20th century have faced changes in family structure. The reasons behind these transformations could be women's involvement in the market, the rise in wealth of the citizens, the declining influence of religious institutions. In addition to these changes, the demographic and social changes like postponement of marriage age and rising divorce rates have caused changes in family relations and the structure. The domination of extended families had left its place to nuclear families over time. Moreover, dissolved families have got importance together with the transformation of the societies.

The ultimate social actors of modernization are individuals. Depending on the idea of human beings' rationality, the future of the societies can be decided by personal ideals and free wills, so individual concepts like private space and the rights of human beings gain importance through modernization. Best and Kellner's argumentation on modernization can present a broad vision about the individualization and modernization process. According to Best and Kellner (1991), modernization is a term describing the processes of secularization, industrialization, bureaucratization, individualization, cultural differentiation, urbanization,

and rationalization, which constitute the modernization process of societies. In that argument, individualization is a natural output of the modernization process, which changes the roots of the relationship between society and the individual. Thus, the way of living and kin relations are affected to a considerable extent, so living alone and related concepts have become common in societies.

All these social transformation concepts are related to the demographic transition in the first sense. Some demographic transition theorists argue that modernization, globalization, urbanization, and industrialization caused the same demographic transformation experiences. However, Nordic countries, Europe and North America have faced demographic transformation early. Other regions in the world have experienced this transformation depending on how much they are affected by the modernization and globalization processes. In that sense, the demographic transition can be related to all these economic, social, cultural, and technological changes.

Demographic transition can be understood as a transformation of high birth and death rates to low rates. Although it was thought that high fertility developed in response to high mortality in the years when the Demographic Transformation Theory was first formed, in the following years, experts revealed that changes in demographic behavior depend on modernization and economic development (Bongaarts and Casterline, 2013). It has been observed that countries with low birth and death rates have more remarkable economic growth and less developed countries have high birth and death rates (Bongaarts and Watkins, 1996). While societies undergo some economic, social, cultural, and demographic changes as a consequence of modernization, mortality and fertility rates decrease in tandem. Therefore, the cost of children and old-age population groups social security costs caused a decrease in the desired family size and demand for birth control programs.

Especially through second demographic transition; reduction in the share of married, increasing age of first marriage, rising divorce rates, fall in remarriage rates, postponement of fertility, increase in individual autonomy and self-actualization, and alienation from community-oriented networks have become common in modern and modernizing societies

(Lesthaeghe, 2014). In parallel to this, a European Commission Report argues that the decline in the size of households in recent years because of the aging population, increasing divorce rates, and fall in fertility results in increasing need more for housing expenditures instead of family spending (Letablier et al., 2009). Therefore, these newly adopted norms of modern industrial societies make us consider the characteristics of small households, their requirements, and priorities.

CHAPTER 3

METHODOLOGY

3.1. Data Sources

The primary data will be from the 2018 Turkey Demographic and Health Survey (TDHS-2018). Additionally, to get the trends of the one-person households in Turkey, the data from TDHS-1993, TDHS-1998, TDHS-2003, TDHS-2008, and TDHS-2013 will also be utilized in the thesis. Furthermore, for comparative analysis, data from TAYA-2006, TAYA-2011, and TAYA-2016, together with censuses and Address Based Population Registration System (ABPRS), will also be used secondary data sources in our analyses.

3.1.1. Turkey Demography and Health Survey

Turkey Demographic and Health Surveys are carried out five years periods from 1968. TDHS data are composed of different questionnaires, which include household and women questionnaires. The data about household size and household types are mainly obtained from household questionnaires. The questionnaires, focused on the Model Questionnaires of the DHS Program, have been adjusted to represent Turkey's population and health issues. In fact, during the preparation of questionnaires, the comparability of each TDHS with prior longitudinal surveys was maintained. The basic information such as sex, age, marital status, and educational background can be obtained from the Household Questionnaire.

In the data collection phase, eligibility criteria for household and individual surveys are considered being at home before the interview if any people present in a household but actually not living there, accepted as "visitor" and counted for the de facto survey.

Data collection based on the sample design and calculations is made for Turkey as total, for rural parts and urban places, and the five demographic regions (West, East, Central, South, and North). In addition to this, NUTS-1 regions and NUTS-2 regions can be analyzed. TDHS enables information about fertility, family planning, child survival, and other related concepts.

Since 1993, all TDHS surveys have used a weighted, multiphase, stratified cluster sampling technique.

Table 3.1. Qualifications of Turkey Demography and Health Survey in 1993

Organizing Institutions	**Sample size and Questionnaire types**	**Estimation domains**	**Other specifications**
Contributing Institutions • Institute of Population Studies, Hacettepe University • Ministry of Health, General Directorate of Mother and Child Health and Family Planning, ***Financial and Technical Support*** Macro International Inc. through the United States Agency for International Development under the DHS program.	**Household Questionnaire** • 10,634 households selected, • 8,900 households decided eligible, • 8,619 households successfully interviewed. **Individual Questionnaire** The ever-married women's questionnaire • 6,862 eligible women decided, • 6519 women successfully interviewed.	• Turkey as a whole • Urban and rural, • Five conventional regions (East, West, Central, North, South)	• A total of 500 clusters were selected (302 urban segments, 198 rural segments), and interviews were successfully completed in 478 clusters. • Fieldwork was completed between August 1993 and October 1993.

Source: MOH et al., 1994

Table 3.2. Qualifications of Turkey Demography and Health Survey in 1998

Organizing Institutions	Sample size and Questionnaire types	Estimation domains	Other specifications
Contributing Institutions • Institute of Population Studies, Hacettepe University • Ministry of Health, General Directorate of Mother and Child Health and Family Planning, • Macro International Inc. ***Financial and Technical Support*** • Macro International • United States Agency for International Development (USAID), • The United Nations Population Fund (UNFPA).	**Household Questionnaire** • 9,970 households selected • 8,596 households decided eligible • 8,059 households successfully interviewed **Individual Questionnaire** -The ever-married women's questionnaire -The never-married women's questionnaire • 9,468 women identified as eligible, • 8,576 women were interviewed successfully. -The husbands' questionnaire (husbands of eligible women) • 4,983 households selected, • 3,043 identified as eligible, • 1,971 husbands successfully interviewed.	• Turkey as a whole • Urban and rural, • Five conventional regions (East, West, Central, North, South).	• A total 480 clusters were selected (280 urban segments, 200 rural segments), and interviews were successfully completed in 476 clusters. • Fieldwork started in August-1998 and was completed in November-1998

Source: HUIPS, 1999

Table 3.3. Qualifications of Turkey Demography and Health Survey in 2003

Organizing Institutions	Sample size and Questionnaire types	Estimation domains	Other specifications
Contributing Institutions • Institute of Population Studies, Hacettepe University • Ministry of Health; General Directorate of Mother and Child Health and Family Planning ***Financial and Technical Support*** • T.R. Prime Ministry State Planning Organization (DPT), • European Union within the "Reproductive Health Programme of Turkey".	**Household Questionnaire** • 13,049 households selected • 11,659 households decided eligible • 10,836 households successfully interviewed **Individual Questionnaire** The ever-married women's questionnaire • 8,447 eligible women decided, • 8,075 women successfully interviewed.	• Turkey as a whole • Urban and rural, • Five conventional regions (East, West, Central, North, South), • The NUTS-1 regions of Turkey	• A total of 700 clusters were selected (474 urban segments, 226 rural segments), and interviews were successfully completed in 688 clusters. • The data collection stage of the survey started in December 2003 and finished in May 2004. • The first TDHS funded by the state budget.

Source: HUIPS,2004

Table 3.4. Qualifications of Turkey Demography and Health Survey in 2008

Organizing Institutions	Sample size and Questionnaire types	Estimation domains	Other specifications
Contributing Institutions • Institute of Population Studies, Hacettepe University • Ministry of Health, General Directorate of Mother-Child Health and Family Planning • Undersecretariat of State Planning Organization ***Financial Support*** • The Scientific and Technological Research Council of Turkey (TUBITAK)	**Household Questionnaire** • 13,251 households selected • 11,911 households decided eligible • 10,525 households successfully interviewed **Individual Questionnaire** The ever-married women's questionnaire • 8,003 eligible women decided, • 7,405 women successfully interviewed.	• Turkey as a whole • Urban and rural, • Five conventional regions (East, West, Central, North, South), • The 12 NUTS-1 regions, • The seven largest metropolitan cities (each with populations above one million: İstanbul, Ankara, İzmir, Bursa, Adana, Konya, Gaziantep).	• A total 634 clusters selected (400 urban segments, 234 rural segments), and interviews were completed in 633 clusters. • The data collection process took place between October 2008 and December 2008. • The first TDHS funded entirely by the state budget.

Source: HUIPS,2009

Table 3.5. Qualifications of Turkey Demography and Health Survey in 2013

Organizing Institutions	Sample size and Questionnaire types	Estimation domains	Other specifications
Contributing Institutions • Institute of Population Studies, Hacettepe University • Ministry of Development • The Public Health Institution of the Ministry of Health. ***Financial Support*** • The Scientific and Technological Research Council of Turkey (TUBITAK) within the scope of KAMAG.	**Household Questionnaire** • 14,490 households selected, • 12,640 households decided eligible, • 11,794 households successfully interviewed. **Individual Questionnaire** The ever-married women's questionnaire • 10,840 eligible women decided, • 9,746 women successfully interviewed.	• Turkey as a whole • Urban and rural, • Five conventional regions (East, West, Central, North, South), • The 12 NUTS-1 regions, • The seven largest metropolitan cities (each with populations above one million: İstanbul, Ankara, İzmir, Bursa, Adana, Konya, Gaziantep).	• A total of 642 clusters were selected (420 urban segments, 222 rural segments), and interviews were successfully completed in 641 clusters. • The fieldwork had begun in September 2013 and was completed in January 2014.

Source: HUIPS,2015

Table 3.6. Qualifications of Turkey Demography and Health Survey in 2018

Organizing Institutions	Sample size and Questionnaire types	Estimation domains	Other specifications
Contributing Institutions • Institute of Population Studies, Hacettepe University ***Beneficiary Institution*** • T.R. Presidency of Turkey Directorate of Strategy and Budget. ***Financial Support*** • The Scientific and Technological Research Council of Turkey (TUBITAK). ***Technical Support*** • IFC International within the DHS Program.	**Household Questionnaire** • 15,775 households selected, • 13,962 households decided eligible, • 11,056 households successfully interviewed. **Individual Questionnaire** The ever-married women's questionnaire • 9.056 eligible women decided, • 7,346 women successfully interviewed. ***Syrian Migrant Sample*** **Household Questionnaire** • 1,960 households selected, • 1,932 households decided eligible, • 1,826 households successfully interviewed. **Individual Questionnaire** The ever-married women's questionnaire • 2,391 eligible women decided, • 2,216 women successfully interviewed.	• Turkey as a whole • Urban and rural (not a conventional differentiation of urban and rural because of the Metropolitan Municipality Law No. 5216), • Five conventional regions (East, West, Central, North, South), • The 12 NUTS-1 regions.	• A total of 754 clusters were selected, and interviews were completed in 750 clusters. • Urban-rural classification is used as a survey variable. • The data collection phase took place between October 2018 and February 2019. • Interviews were done mainly with a tablet as computer-assisted personal interviews (CAPI). The second way was the pen-and-paper personal interviews (PAPI). • The first TDHS survey which has a Syrian Migrant Sample.

Source: HUIPS,2019

3.1.2. Address Based Population Registration System (ABPRS)

The infrastructure works of Address Based Population Registration System (ADNKS) started with the law of Population Services, which was brought into force in 2006. The population of Turkey, which was acquired by ABPRS, was released to the public in 2007. Thanks to the ABPRS, de jure population information system was employed for the first time in Turkey. This was a turning point for Turkey's population information system because the registration data could be updated every second of time instead of counting in long periods of time. Furthermore, according to the legislation, the population acquired by ABPRS, under the control of the Ministry of Interior, could be announced by the Turkey Statistical Institute (TURKSTAT).

The ABPRS's population data cover the people with identification numbers. All registered people in Turkey can reach public services thanks to the "e-state" system. On the other hand, the state can store the data about the citizens by an electronic database. This means the households' and individuals' characteristics can be analyzed through the system without making any census. However, the coverage of the ABPRS depends on registration rates in Turkey. Hence, only registered data can be proceeded and examined; this causes some limitations for analyzing unregistered people in Turkey.

ABPRS data covers the Republic of Turkey citizens and foreign nationals. People staying in institutional areas (barracks, prisons, nursing homes, university dormitories, etc.) are not included in the residential areas where their residence addresses are located but in the institutional places' population.

While determining the household population, those staying in the communal living areas (institutional place, workers' barracks, guest house, hotel, etc.) were excluded.

Address Based Population Registration System includes information about different kinds of data like sex, marital status, age, educational status, and regional distribution of the heads of one-person households. Data about sex and age of the heads also include foreign

people in Turkey, while education and marital status data exclude those people. ABPRS data are requested from the TURKSTAT, and after a set of tabulations from the sending material, the data analyzed detailly.

3.1.3. Turkey Family Structure Survey (TAYA)

The purpose of the Turkey Family Structure Survey, which was conducted first in 2006, is to find out the values and characteristics of the families in Turkey and analyze the people's lifestyles and attitudes towards family.

With this research, it is aimed to collect information about households in terms of marriage patterns, family relations, children's value, and other social issues by revealing the current situation of families in Turkey. Furthermore, analyzing them in terms of various variables and obtaining data that will allow them to determine their changes over time are other targets of the survey.

The study populations of the TAYA-2006, TAYA-2011, and TAYA-2016 were households located in Turkey. The sample was determined according to the multi-stage, stratified and random sampling method. The research sample was created to reveal the differences between the settlements (urban/rural), regions, and some metropoles.

3.2. Definitions and Classifications

3.2.1. Definitions

Considering a series of concepts that the thesis will be used, it will be helpful to clarify their definitions. The first concept is the household, the differentiation of definitions can be seen in data sources. The household in TDHS is defined as a social unit that consists of a person or people who live together in the same home with relatives or non-relatives, collectively using house items, and accept a woman or man as the head of the household. Also, according to TDHS, three criteria should be carried out: single budget, single kitchen (common table), and shared residence or living under a single roof. A household member, on the other hand, is an individual who fits this definition. In short, everyone who is written on the household list is either someone who usually lives in that home or stayed there the night before the meeting.

In TAYA, a household is an entity consisting of one or above persons that live in the same dwelling, with relatives or non-relatives, meeting their basic needs together and participating in household service and management. A member of a household is a person who constitutes the household and has no age limit.

In TURKSTAT, a household is defined as a community composed of one or more persons living together in a common house or different units; their blood ties are not crucial for being a household. Additionally, fulfilling basic requirements, being in the management of a house is essential for defining a household. A household member is defined as a person who lives in a household; permanent or temporary living is not important for this definition. Besides, people who live in institutional places, such as a person in prison, students in dorms, are not counted as household members.

The definition is household and household member can differ according to the sources, but the definitions of one-person household are almost the same. In this study, a one-person household is defined as a household that a person who lives alone regardless of

his/her marital status. This person is recorded to the household list as he/she has formed a household alone by interviewing him/her during the household interview. In TAYA, a one-person household is a household formed by those who live alone. In TURKSTAT, the definition is the same as TAYA; it is a household consisting of the individual living alone. In addition to the descriptions, the concept of family will be used interchangeably with household.

There are two primary data sources used in this paper: surveys such as TDHS and administrative records such as ABPRS. In detail, TDHS employs the housekeeping concept; ABPRS, on the other hand, uses the household dwelling concept.

According to United Nations (U.N.) (2017), The housekeeping concept defines a household as relying on settings created by people to provide them with essential supplies for life. The criteria for being a one-person household is corresponding to the essential needs without requiring living with any person to cover the expenses. On the other hand, multi-person households are consisting of shared places and shared household expenditures. Therefore, individuals in a group could combine their sources and could have a joint budget. In addition, persons in the group could have a relation or not relate to each other in a household. Moreover, it does not require that household units and household members be equal in that concept.

Another concept employed by the administrative data sets such as ABPRS, which defines households as a divided and independent settlement intended to be occupied by a single household but in reality, it can be consisting of one or more households. The concept named "household dwelling" states that anyone who lives in a shared dwelling unit should be counted in the same household. According to this concept, there is one household per residential part. Therefore, the numbers of households and dwelling parts are regarded as equivalent. However, this concept can hide information about living arrangements regarding housing needs assessment.

3.2.2. Classifications

Classification of the household or family structure will be informative for understanding the frame of the study and differentiate the concept about household. In TAYA and TDHS, a family is explaining in three subgroups. Nuclear family, which consist of spouses and unmarried children or not having children. Extended family is the second one which includes a nuclear family and additionally one or more members in the households such as husband's mother. The final one is dissolved family, a family type in which the nuclear family unit is reduced to one person, one parent, or in which the family consists of people who are not related by blood. Singe person household is a type of dissolved family in TAYA and TDHS conceptualization and defined as a household type made up of a single female or male who lives alone (Koç, 2019). As can be understood from these definitions, a household may include one or more family units or without a family unit. For this reason, in the literature, the terms "family household" for households that include the family unit and "non-family households" for the households that do not contain the family unit are used (Laslett, 1972; Koç, 1997; Yavuz, 2002; Koç et al., 2010; Yavuz and Yüceşahin, 2012; Koç, 2019).

3.3. Construction of Variables

In this part of the thesis, the construction of variables is discussed. In the descriptive part of the study, the outputs of TDHS and ABPRS were used to analyze one-person households by basic characteristics and by the formation types. Censuses and TAYA results were also employed to picture the historical background of the issue. While making basic analyses about people living alone, age, gender, education level, marital status, regional distribution, and wealth status were examined by using both survey and registration data. A certain weighting was used in the analysis of the TDHS data, and the contents of the variables

were generally not changed. The TDHS results were compared and supported by ABPRS results.

TDHS-2018 household data were employed in the multivariate analysis. The data sample was weighted to find out accurate and comprehensive representation. Some new variables are created based on the TDHS-2018 household data's original variables to find reasonable and comprehensible outputs.

In both different parts of the multivariate analysis, the same models were used, and the characteristics of the target population were revealed depending on particular concepts. Thus, three models were employed in the analyses, mentioned in Table 3.7. The variables included in the models were changing through the unit of analysis.

Table 3.7. The Models Used in the Multivariate Analysis

Model	Explanation
Basic Model	This model includes only the sex variable coded as HV104$01.
Individual-level Model	It includes variables about household heads' backgrounds.
Diverse Model	This model consists of Basic and Individual-based Models and other household-level variables to make a more comprehensive analysis.

In that study, there will be two multivariate analyses. The first part includes variables related to risks for one-person households compared with other households. In contrast, the second part consists of the variables associated with risks for one-person households due to choices, compared with circumstances. Therefore, the construction of the variables was analyzed differently considering these two research objects.

3.3.1. The First Part: The Construction of Variables Based on the Risk for One-Person Households, Compared to Other Types of Households

In this part of the study, the determinants of one-person households compared to the other households were examined. First, the dependent variable was created based on variable

HV012, defining the number of de jure members in a household in the TDHS-2018 household dataset. Then, the variable was divided into two groups, "one-person households" and "other types of households", into variable HHTYPE as shown in Table 3.8. This classification exhibited the definitive characteristics of one-person households compared to other types of households.

Table 3.8. The List of Dependent Variables Used in Logistic Regression Analysis on the Risk for One-Person Households, Compared to Other Households

Variable Name	Variable label	Explanation	Categories	Code
HHTYPE	Type of household	The types of households by depending on variable HV012, grouped into two categories	Other-types of households	0
			One-person households	1

As shown in Table 3.9., the sex of the household head was the only variable in the basic model. According to the descriptive analysis about one-person households, the gender difference was an essential element for one-person household formation. In our study, the majority of females can be underlined. The rising percentage distribution of one-person households occurs with the increasing percentage distribution of male heads in one-person households. Thus, the distribution gap between male-headed households and female-headed households decreased between 1993-2018, according to the TDHS surveys. However, the multivariate analysis in the study did not cover time series analysis; only TDHS-2018 data was examined.

In logistic regression analysis, the male category is coded as "0". In contrast, the female category is "1", and the reference category was decided as the male category due to the majority of female heads in one-person households.

Secondly, it is analyzed that household heads' sex, age, years of education, marital status, working in a paid job (work status) variable in the individual-level model. In that

model, the male category in the HV104[1] variable, the circumstances category in the MARSTAT variable, and the "no" category in SH027$01 variable were decided as reference categories. Age and education completed in single years variables are continuous variables, so they have no reference category.

The MARSTAT2 variable was created based on the HV115$01 variable. The creation of this variable is related to the situation of dependency. The MARSTAT2 variable shows household heads' marriage status in a grouped way. The reason behind the prevalence of one-person households can be understood by looking at combined categories. The dependent persons category includes widowed, married[2] categories like having more dependent and compulsory livings.

In contrast, the Independent person category has never-married, divorced, and not living together categories, which are more likely independent and choice-based. Therefore, we can decide household heads' current situations. In rationalizing the situation, it can be argued that married people will live less likely in one-person households. In contrast, people who lost their spouse have more tendency to live alone, not depending on their choices but compulsorily. Therefore, we can classify these as compulsory situations in the dependent people category, others into the independent people category. In this way, the heads of the households can be analyzed considering the marital status of the heads in one-person households and other types of households.

So, it can be revealed which categories are more significant for the risks for one-person households compared to different kinds of households. In that analysis, the categories of MARSTAT2 variable coded "0" for the dependent people and "1" for the independent people. Together with this, the effect of these marital status groups in all types of households can be analyzed and revealed the risks and significance levels in a comprehensible way.

[1] The original name of the variable is HV104$01, the “$01” part means the first member (the head) in any given households.
[2] People who are currently married but living alone without her/his spouse.

SH027$01 variable in the individual-level model gives information about the current working status of the household heads. Working in a paid job variable (SH027$01) has "No" option coded "0" and "Yes" option with "1".

The third model is the diverse model, consisting of many variables, including the basic and the individual-level models. The classifications of variables and their categories in basic and individual models were informed below. In addition to these models, the third model has different variables to perform the risks of one-person households compared to other types of households.

PAYMENT variable defines the status of receiving any pension or payment of the household heads. The variable has three different categories; "receiving no payment" coded as "0", "retirement or widowhood payment" coded as "1", and third category "other types of payment" coded as "2". This variable will be applied to establish a relationship between the heads' status of receiving any payment and the type of household.

HV024 and HV025 variables give information about regional distribution. HV024 defines regions where household heads live based on five conventional regions; meanwhile, HV025 indicates the types of place of residence where the household heads live. The categories of HV024 variable are West coded as 1, South coded as 2, Central coded as 3, North coded as 4, East coded as 5. On the other hand, the categories of HV025 variable are Urban coded as 1, and Rural coded as 2.

In the model, the latest variable is the HV270 variable, which demonstrates the wealth status of the household heads in five groups as Poorest, Poorer, Middle, Richer, Richest. The reference category in that variable is the Richest group. All variables included in the models can be seen in Table 3.9.

Table 3.9. The List of Independent Variables Used in Logistic Regression Analysis on the Risk for One-Person Households, Compared to Other Households

Model(s) included	Variable Name	Variable label	Explanation	Categories	Code
Basic Individual-level Diverse	HV104$01	Sex of household member	Sex of the heads of households	Male* Female	0 1
Individual-level Diverse	HV105$01	Age of the household head	Age of the household heads, minimum 15+ years old people (continuous variable)		
Individual-level Diverse	HV108$01	Education completed in single years	The single years of schooling household heads attended (years)		
Individual-level Diverse	MARSTAT2	Marital status of the household heads in a grouped way	Marital status of the household heads. This variable is created depending on HV115$01 variable by combining "never married", "divorced" and "not living together" into Independent people; "married" and "widowed" into Dependent people.	Dependent people* Independent people	0 1
Individual-level Diverse	SH027$01	Working in a paid job	The current working status of the household heads	No Yes*	0 1
Diverse	PAYMENT	Receiving any payment	The status of receiving any pension or payment of the household heads	Receiving no payment* Retirement or Widowhood payment Other types of payment	1 2 3
Diverse	HV025	Type of place of residence	Types of place of residence (Urban/Rural division)	Urban Rural*	1 2
Diverse	HV024	Region	Regions where household heads live (5 divided region)	West South Central North East*	1 2 3 4 5
Diverse	HV270	Wealth index detailed	Wealth status of the household heads	Poorest Poorer Middle Richer Richest*	1 2 3 4 5

* Reference category

3.3.2. The Second Part: The Construction of Variables Based on the Risk for the Formation of One-Person Households Due to Choices, Compared to Circumstances

In the second part of the multivariate analysis, it was employed the MARSTAT variable to reveal some essential characteristics of one-person households. For the purpose of achieving this, the MARSTAT variable was created based on the HV115$01 variable, which figures out the marital status of the household heads. The categories of this variable have been grouped into two categories: Circumstances denoted by "0" and Choices represented by "1". The reason behind creating a new dependent variable is to find out the definitive characteristics of one-person households. Thus, it can be ascertained that one-person households are formed by circumstances or depending on persons' own choices.

The heads' marriage status in one-person households gives us some informative background for the analysis. That is to say, living alone is affected by different phenomena like sex, age, education, marriage status, wealth. However, depending on the descriptive analysis, the person's marital status in one-person households is a critical explanatory factor.

The decision about living alone depends on two main situations. The first situation expresses that people live alone by compulsory conditions, so the decision to form one-person households is made by circumstances coded as "0". In that situation, sex, age, and wealth can be effective, but people's marital status could be more influential. According to descriptive analysis, the reason for the underrepresentation of married heads in one-person households is about marital status to a considerable extent, just as happened in that widowed heads' significant representations in one-person households. In that analysis, the married people, the widows were assigned to the circumstances category. The never-married, divorced heads and people who are not living together were attached to the choices category since the reason behind this is people's own decisions. Even if people are forced to divorce or separate their livings, they are not back to their family homes or decide to live alone as never-married. Hence, all three situations depend on the decisions of the persons and can be logically related to singlehood. In that situation, depending on the thesis' main idea, choice-

based one-person households are expected to be observed and thus the formation of one-person households by choices denoted by "1" (Table 3.10).

When it came to the evaluation of data according to formation types, marital status of the household heads was used. Parallel to the literature, it is an undeniable fact that family structure has an important effect on the household change in Turkey. In the descriptive analysis, where the change in the household structure is examined and the reasons for this change are revealed, the marital status of the people contributes to the interpretation of their tendency to live alone. It can be state that the emergence of one-person households can be understood within marriage institution in Turkey, which still have strong emphasis on family and marriage concepts. Therefore, being currently married and living alone could be related to circumstances like in the case of being widowed and living alone since traditional family structure in Turkey would not deny the family norms and values especially on the married couples, which constitutes family institution.

Table 3.10. The List of Dependent Variable(s) Used in Logistic Regression Analysis on the Risk for One-Person Households Due to Choices, Compared to Circumstances

Variable Name	Variable label	Explanation	Categories	Code
MARSTAT	Marital status of the household heads	Marital status of the household heads. This variable is created depending on HV115$01 variable by combining "never married", "divorced", and "not living together" into Choices; "married" and "widowed" into Circumstances. The category "living together" is defined.	Circumstances	0
			Choices	1

The independent variables for the risks for one-person households by the formation types were clarified in the second part of the analysis. The analysis was based on the MARSTAT variable, which was the dependent variable. The three comprehensive models used in analyzing the risks for one-person households compared to other types of households. In both two phases of the analysis, some similar variables were employed, so

these variables will not be explained as mentioned earlier. The basic model, consisting of the HV104$01 variable, has two categories, male and female, as the reference category. The second model includes individual-level variables like AGE15, HV108$01 variables in addition to HV104$01 variable. AGE15 variable in the model comprised fifteen-year age groups based on HV105$01 variable, defining the household members' age in single years. The reason for using fifteen years age group method was to describe the characteristics of people in specific age groups. Five years and ten years age groups could be more biased due to the inconsistency of the distribution of age groups in one-person households so that the wide-ranged groups would be more accurate. HV108$01 variable is defining education completed in single years as a continuous variable.

The diverse model consists of different variables related to individual-level and household-level factors. In addition to HV104$01, AGE15, and HV108$01 variables, the model also includes PAYMENT, HV024, HV025, SH027$01, and WEALTH variables as shown in Table 3.11.

While the payment variable defines the situation of receiving any payment in three categories, the HV024, HV025 figures out the regional distribution of household heads, respectively five and two groups. The reference category for HV024 is "Rural" whereas "East" for HV025. SH027$01 variable is another variable in the model to explain the working status of the household heads. The last variable in the model is the WEALTH variable with "Poor" as the reference category, which states household heads' wealth status in three groups. The WEALTH variable is a reduced version of the HV270 variable.

Table 3.11. The List of Independent Variables Used in Logistic Regression Analysis on the Risk for the Formation of One-Person Households Due to Choices, Compared to Circumstances

Models (included)	Variable Name	Variable label	Explanation	Categories	Code
Basic Individual-level Diverse	HV104$01	Sex of household member	Sex of the heads of households	Male	0
				Female*	1
Individual-level Diverse	AGE15	Age group of the household head	Age groups of the household heads by fifteen years age group	15-29	1
				30-44	2
				45-59	3
				60+*	4
Individual-level Diverse	HV108$01	Education completed in single years	The single years of schooling household heads attended (years)		
Diverse	SH027$01	Working in a paid job	The current working status of the household heads	No*	0
				Yes	1
Diverse	PAYMENT	Receiving any payment	The status of receiving any pension or payment of the household heads	Receiving no payment	1
				Retirement or Widowhood payment*	2
				Other types of payment	3
Diverse	HV025	Type of place of residence	Urban and rural status of the place of residence	Urban	1
				Rural*	2
Diverse	HV024	Region	Regions where household heads live (5 divided region)	West	1
				South	2
				Central	3
				North	4
				East*	5
Diverse	WEALTH	Wealth index combined	Wealth status of the household head, grouped into three groups	Poor*	1
				Middle	2
				Rich	3

* Reference category

3.4. Statistical Technique: Logistic Regression Analysis

In this thesis paper, multivariate statistical analyses were applied to reveal the determinants of one-person households in addition to descriptive analyses. In the second part of the statistical analysis, the formation of one-person households was examined. The features of choice-based one-person households were tried to be found out.

The logistic regression method was employed to reveal the determining factors of one-person households within the multivariate statistical analysis framework. The usage of logistic regression to investigate the cause-and-effect relationship between dependent and independent variables is a powerful tool, especially for two or more level categorical data (Agresti, 2007). Binary logistic regression analysis was used to determine the reasons for the formation of a one-person household. Depending on the types of data, different logistic regression methods can be applied to the variables. In the analysis, the variables might be continuous or discrete.

Previous to logistic regression, the characteristics of the heads of one-person households were examined depending on different data sources. The first and primary data source was Turkey Demographic and Health Survey. TDHS-1993, TDHS-1998, TDHS-2003, TDHS-2008, TDHS-2013, TDHS-2018 were used to determine the changes in the formation of one-person households. Secondly, registration data acquired by ABPRS and the TAYA data were also applied for descriptive analysis. While different data sources were used in the descriptive part of the analysis, only TDHS-2018 data was employed in the logistic regression phase to determine the determining factors of one-person households.

In the models, the binary and discrete dependent variables were utilized. The risk is denoted by "1" and the other by "0". There are two logistic regression parts in the study, and the construction of dependent variables in these models is figured below.

For the first logistic regression phase, the dependent variable is as follows:

$$f_1 = \begin{cases} 1, & if\ the\ household\ defined\ as\ one-person\ household \\ 0, & if\ otherwise \end{cases}$$

For the second logistic regression phase, the dependent variable is as follows:

$$f_1 = \begin{cases} 1, & if\ the\ formation\ of\ one-person\ household\ based\ on\ choices \\ 0, & if\ the\ formation\ of\ one-person\ household\ based\ on\ circumstances \end{cases}$$

Including household characteristics in multivariate analyzes aiming to explain the determinants of one-person households; region, types of place of residence, determining the characteristics of household heads; gender, age, education status, marital status, wealth status, working status, receiving any pension or payment were examined.

In a linear regression model, the followings will be used:

y: dependent variable,

x: independent variable,

β_0: the intercept or the constant,

β_i: partial regression coefficients, the slope,

ε: error term,

P: the likelihood of an event happening,

$1 - P$: the likelihood of an event not happening.

Linear regression model will be like:

$$y = \beta_0 + \beta_1 x + \varepsilon \qquad (3.1.)$$

The linear multiple regression model will be like this:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 \cdots \beta_i x_i + \varepsilon \quad (3.2.)$$

If the error term equals zero, the regression model will be like:

$$E(y_i) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 \cdots \beta_i x_i \quad 0 \leq y_i \leq 1 \quad (3.3.)$$

$$if\ y_i = 1, \qquad P(y_i = 1) = \pi_i \quad (3.4.)$$

$$if\ y_i = 0, \qquad P(y_i = 0) = 1 - \pi_i \quad (3.5.)$$

Depending on assumptions in 3.4. and 3.5., 3.6. will be like below:

$$E(y_i) = 1(\pi_i) + 0(1 - \pi_i) = \pi_i \quad (3.6.)$$

Finally

$$E(y) = \pi(x) = P(y = 1/x) = \frac{e^{(\beta_0 + \beta_1 x)}}{1 + e^{(\beta_0 + \beta_1 x)}} = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x)}} \quad (3.7.)$$

In linear regression analysis, the conditional mean is expected to be a linear version of x so $E(y_i)$ can take any possible value because the interval of x varies between $-\infty$ and $+\infty$. In the logistic regression analysis, the conditional mean must be greater than 0, less than or equal to 1.

In logistic regression analysis, since the left side of $E(y) = \beta_0 + \beta_1 x$ equation takes limited probability values between 0-1, and these values are associated with explanatory variables that can take infinite values; this equation cannot always be achieved. In order to prevent such a situation, the optimal way is to define the probability value expressed as the result value between $-\infty$ and $+\infty$ with various transformations (Hosmer and Lemeshow, 2000).

The transformation of $\pi(x)$, defined as logit transformation, has an essential role in the logistic regression model. It can be achieved by taking the logarithm of the odds ratio (Hosmer and Lemeshow, 2000).

$$logit\ \pi(x) = g(x) = ln(\frac{\pi(x)}{1-\pi(x)}) = lne^{(\beta_0+\beta_1 x)} = \beta_0 + \beta_1 x \qquad (3.8.)$$

According to the formula above, $\pi(x)$ takes values between 0-1 and has an s-shaped or reverse s-shaped curve.

The Odds Ratio, also known as relative probability, is the ratio of the odds values of two particular cases. The odds ratio, written as Exp(β) in the logistic regression equation, symbolizes the effect of $x\beta$ variable on y variable (Gujarati, 2004).

In cases where the odds ratio value is 1, it means that the event or situation in question has an equal probability of occurrence for both groups. If this value is greater than 1, the probability of occurrence of the event or situation is more possible for the first group. Relative risk cannot be less than zero. As the odds ratio of the first group approaches zero, the odds ratio approaches zero; on the other hand, as the odds ratio of the second group close to zero, the relative odds ratio diverges to plus infinity.

The odd values of the models and variables were taken into consideration to define the characteristics of one-person households in both two logistic regression analyses in the study. In addition to this, Nagelkerke's R square is based on log-likelihood, and it is a type of scoring rule, logarithmic one. Thus it has been employed to measure the general performance of all models (Steyerberg et al., 2010).

3.5. Aims and Objectives

The main concern of the thesis is to present more detailed information about one-person households in Turkey, which has not been shown in detail in previous research on households. It mainly aims to reveal the essential characteristics and historical progress of one-person households, analyzed based on different data sources, and to associate these households with various variables. Unfortunately, one-person households in Turkey were only mentioned in annual reports or studies about other household types. For this reason, it is crucial to carry out a detailed research and to enlighten the issues that lead this progressively increasing population to live alone.

In the light of all these issues, one-person households can be examined through various data sources such as TDHS, ABPRS, TAYA, and Census. Many variables such as sex, age, marital status, education, region, and welfare status will be utilized to reveal the characteristics of one-person households. Especially, the reason behind the formation of one-person households will be examined depending on descriptive and multivariate analysis. Therefore, one-person households due to circumstances or due to choices will be demonstrated.

The main concern of this study is to show the reasons behind the formation of one-person households in Turkey. Through many data sources and different variables, it will be investigated whether the formation of one-person households occurs due to circumstances or by choices. Moreover, the characteristics and historical changes of these two groups will be discussed in detail.

3.6. Research Questions

The main research questions in this thesis as follows:

- What are the distribution and status of one-person households in Turkey?
- Are one-person households in Turkey formed due to circumstances or due to people's own choices?

Alongside the main research questions, the thesis also aims to reply to the secondary question:

- What are the main features of one-person households formed due to choices and circumstances?

The data taken from Turkey Demographic and Health Survey and Address Based Population System will be utilized to answer these questions. In addition, as secondary data sources, Turkey Family Structure Survey (TAYA) and Censuses will be used in the analyses. Besides descriptive analyses, one-person households will be examined using dependent and independent variables in the statistical analysis part. Most importantly, the statistically explained relationships will also contribute to the literature and descriptive analysis of the formation of one-person households.

3.7. Contributions and Limitations

3.7.1. Contribution to the Literature

First of all, this study will be one of the few studies conducted on one-person households in Turkey. Therefore, it will be an essential study in terms of covering both survey data and administrative data. In other words, it will include the data from surveys,

which are based on more detailed and individual-based information, and the data from the registration, rely on the declarations of the persons and state records.

Secondly, the changing family structure in Turkey will be examined, and the contribution of this transformation to the formation of one-person households will be revealed through this study.

Thirdly, annually shared household data will be examined in detail through several variables. In this way, the set of determinant factors, including multiple variables from the age of individuals who set up a one-person household to their regional distribution, will be analyzed and shared with the public. Thus, the current situation will be exposed, and a benchmark will be created for future studies on one-person households.

3.7.2. Limitations of the Study

Although this research has been conducted comprehensively, it can be mentioned some limitations in several aspects.

First of all, TDHS, which this study uses as a data source, uses questionnaires where a selection is made based on a few options. In the same way, registration data is entered according to certain patterns over a system upon the declarations of the persons. Thus, there might be talked about some problems caused by the own characteristics of the survey data and registration data in the sense of reaching people or acquiring coherent information. Therefore, supporting this important and detailed study with other qualified studies can be significant in terms of understanding the subject from different perspectives.

Secondly, the differentiation of the outputs of different data sources is one of the limitations of this study. Thus, the representations of the persons in the analyses are changing according to data sources, so choosing one of the data sources as a basis becomes prominent for the future of the study.

Thirdly, TDHSs are conducted every five years, and the registration data only cover the years 2014-2019. This situation negatively affects the utilization of both data sources sufficiently. Since the survey data is obtained every five years, it is a deficiency that caused missing data about some years in between. On the other hand, the registration data's coverage between 2014-2019 precludes the retrospective analysis.

Finally, since the data about one-person households shared by TURKSTAT are not matched with households due to privacy reasons, allowing analysis only on the grouped data about household members. Therefore, administration data was utilized in the descriptive analysis part, but it could not be applied in the multivariate analysis section.

CHAPTER 4

DESCRIPTIVE ANALYSIS

4.1. Changes in the Trends of One-Person Households from Different Sources

Descriptive methods are crucial for understanding the characteristics of the data and the population under examination. According to the descriptive analysis method, the data should be analyzed in different ways, which would help make some generalizations about the population at the focus and reveal its properties. The data taken from Turkey Demographic and Health Survey is analyzed in detail. Depending on this, the characteristics of one-person households have been brought into view. The data is analyzed by dividing it into some essential categories such as marriage status, sex, education, age, wealth, region, and provinces.

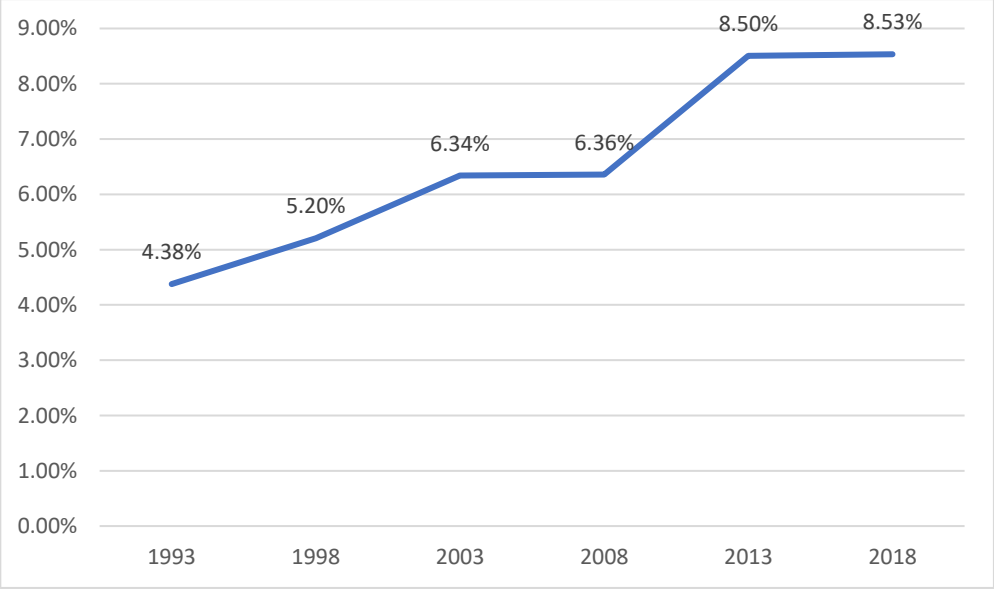
The first emphasis of the thesis is the reasons behind the prevalence of one-person households in Turkey. Deciding that one-person households are a choice or circumstance can be related to some phenomenon. Hence, we decided that household heads' age, marriage status, sex, and wealth status according to TDHS can be informative for characterizing one-person households.

We mainly used the data from TDHS-2018 in the descriptive analysis. In addition to TDHS-2018 data, to get the trends of the one-person households in Turkey, TDHS-1993, TDHS-1998, TDHS-2003, TDHS-2008, and TDHS-2013 data have been considered. Moreover, ABPRS, census data, and TAYA-(2006,2011,2016) are also used as secondary data sources in order to make a trend analysis comparatively.

The frequency of living alone in Turkey can be acquired by TDHS surveys. As an initial source, the survey data shows us crucial changes from 1993 to 2018. As shown in Figure 4.1., 4.4 percent of the households are one-person households in TDHS-1993. With a constant rising in the percentage in TDHS-2003, the value has increased to 6.3 percent,

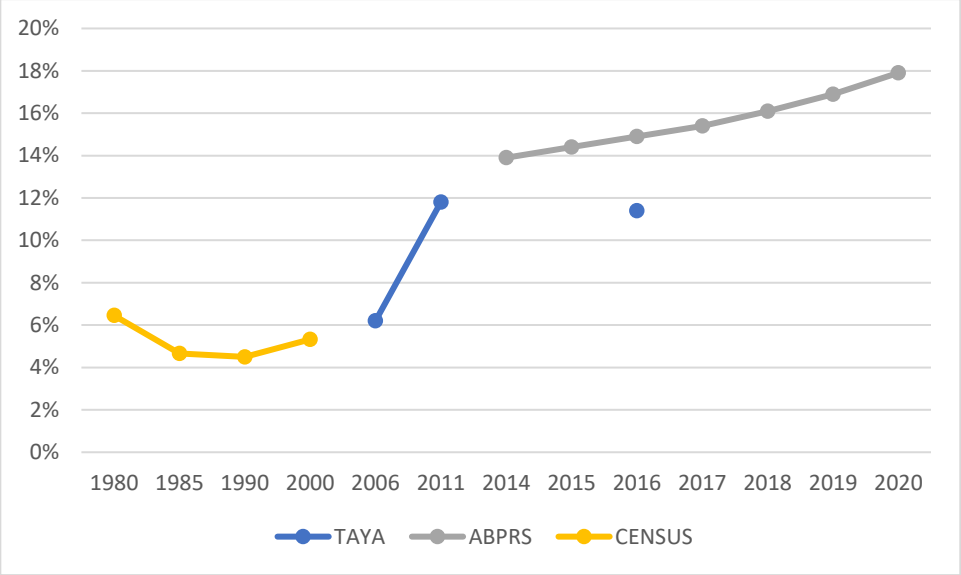
and finally, it has reached 8.5 percent in TDHS-2018. On the other hand, the percentage share of one-person households differs markedly according to the sources. In our secondary sources, census data, and ABPRS data, the one-person households share significantly high compared to TDHS. Figure 4.2. indicates that the percentage of one-person households in ABPRS has increased from 13.9 to 17.9 percent between 2014-2020. When the percentages of one-person households from ABPRS are compared to the TDHS data, one-person households' share is nearly two times higher in the ABPRS than the TDHS-2018 data. Furthermore, according to TAYA-2016 data, the percentage of one-person households is 2-3 percentage points higher than TDHS-2013 and TDHS-2018 data. The row percentages about one-person households in TDHS and other data sources can be seen in Table B.1. and Table B.2.

Figure 4.1. Changes in the Percentage of One-Person Households, TDHS-1993- TDHS-2018



Source: TDHS (1993-2018)

Figure 4.2. Changes in the Percentage of One-Person Households in Different Sources, 1980-2000 CENSUS, 2006-2016 TAYA, 2014-2020 ABPRS

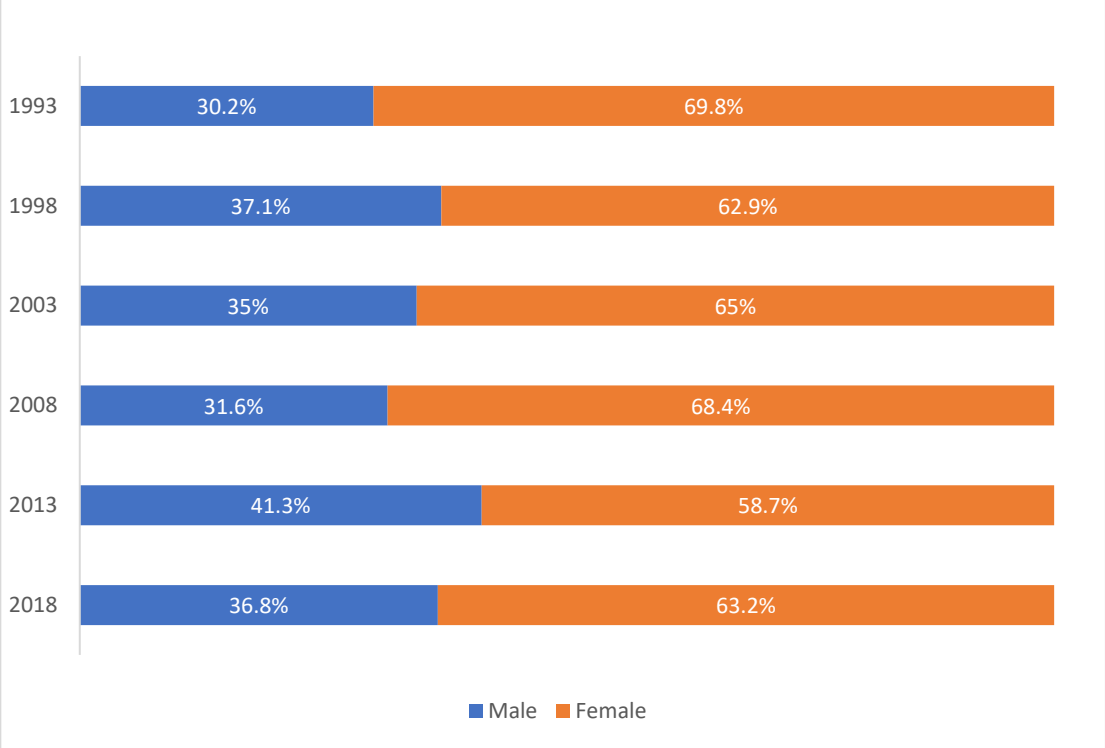


Source: TURKSTAT, 2020; TAYA, 2006; 2011; 2016.

4.2. Descriptive Analysis from Demographic Surveys

The high female headship representation in one-person households is undeniable. As presented in Figure 4.3., around 70 percent of the one-person households are headed by females; the remaining is males with 30 percent. Although males' share in one-person households has increased over time from 30 percent in 1993 to 37 percent in 2018, women heads' dominancy continues as their share was still over 60 percent in 2018; for the percentages see Table B.3.

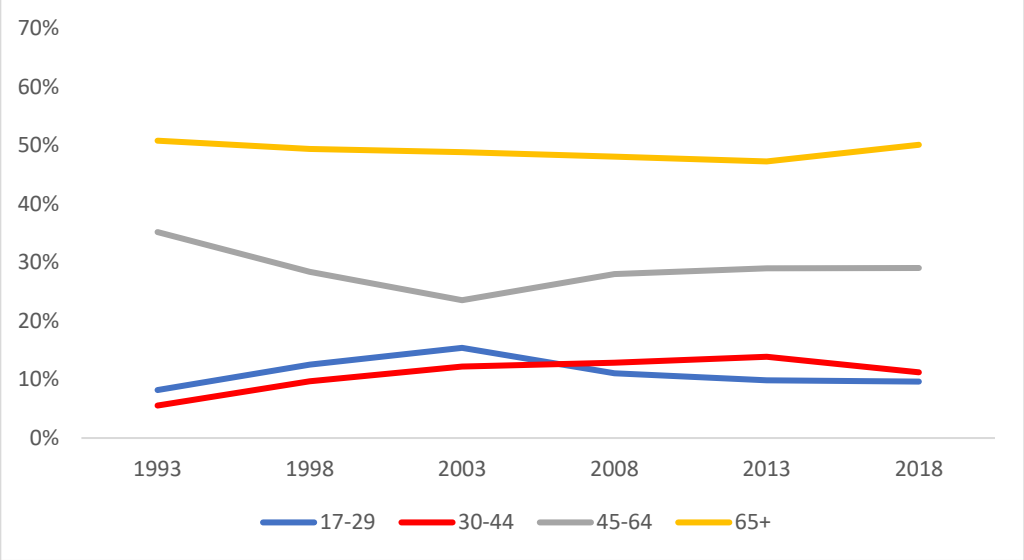
Figure 4.3. Percentage Distribution of One-Person Households by Sex, 1993-2018



Source: TDHS (1993-2018)

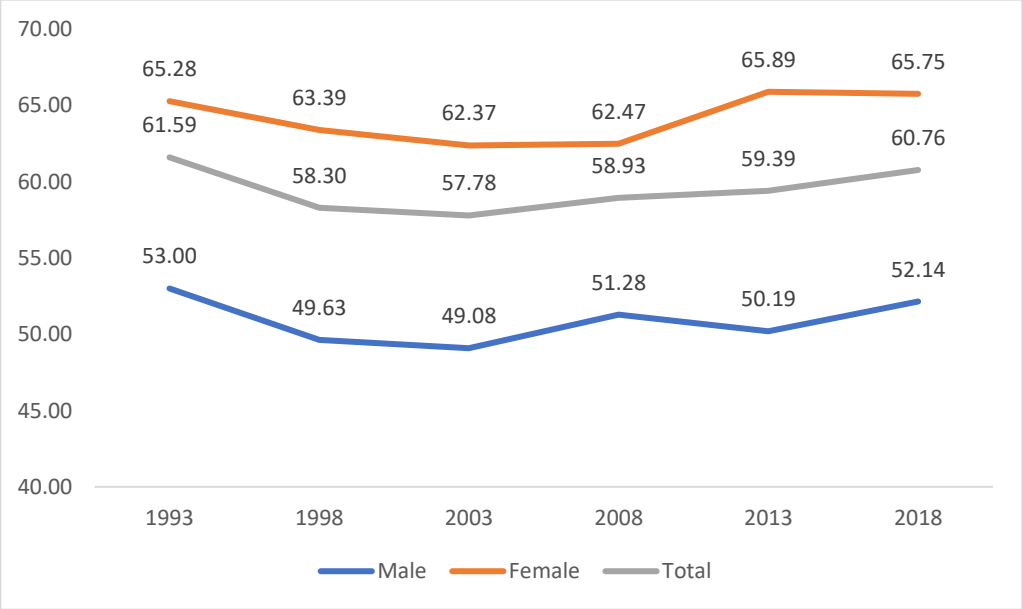
Figure 4.4. indicates the percentage share of household heads by age groups in one-person households. The share of elderly household heads is consistently over 50 percent in all survey years under examination here. The percentage of elderly heads is found to be stable at around 50 percent in all survey years. The share of household head aged 45-64 decreased until the year of 2003, then increased slightly from 2003 to 2008, and then remained stable at around 30 percent. The share of household heads at age 30-44 increased to 11 percent until the year 2013 and then decreased to 9-10 percent in 2018. The percentage of household heads younger than 30 years of age increased up to 15 percent in 2003 and then started to decline to as low as 9 percent in 2018 (see Table B.4. for a detailed version).

Figure 4.4. Percentage Distribution of One-Person Households by Age Groups, 1993-2018



Source: TDHS (1993-2018)

Figure 4.5. Mean Ages of Heads in One-Person Households, 1993-2018

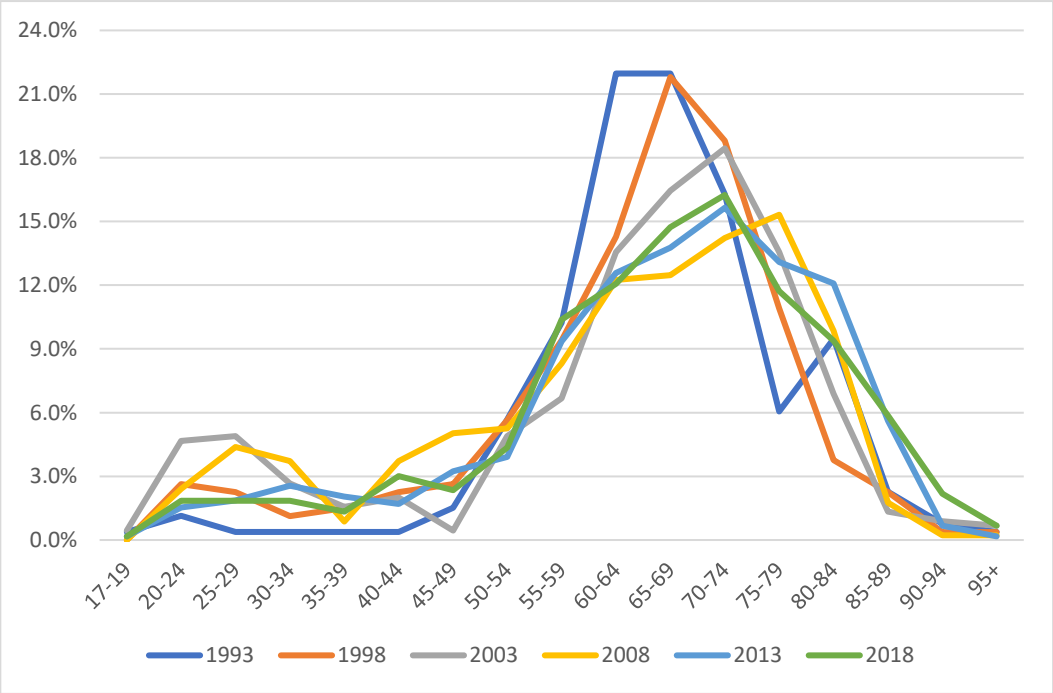


Source: TDHS (1993-2018)

In line with this age pattern, the mean age at household heads in one-person households declines slightly from 61.6 years in 1993 to 60.8 years in 2018. In this period, female heads' mean age in one-person households has increased from 65 to 66 years. On the other hand, male heads' mean age decreased from 53 to 52 years, as shown in Figure 4.5. The mean values for all groups can be seen in Table B.5.

Figure 4.6., once more, confirms the elderly dominant age structure of the female heads in one-person households in all surveys. However, the age patterns observed in the figure do not provide any signals for aging or rejuvenation of female heads over time in one-person households, see Table B.6.

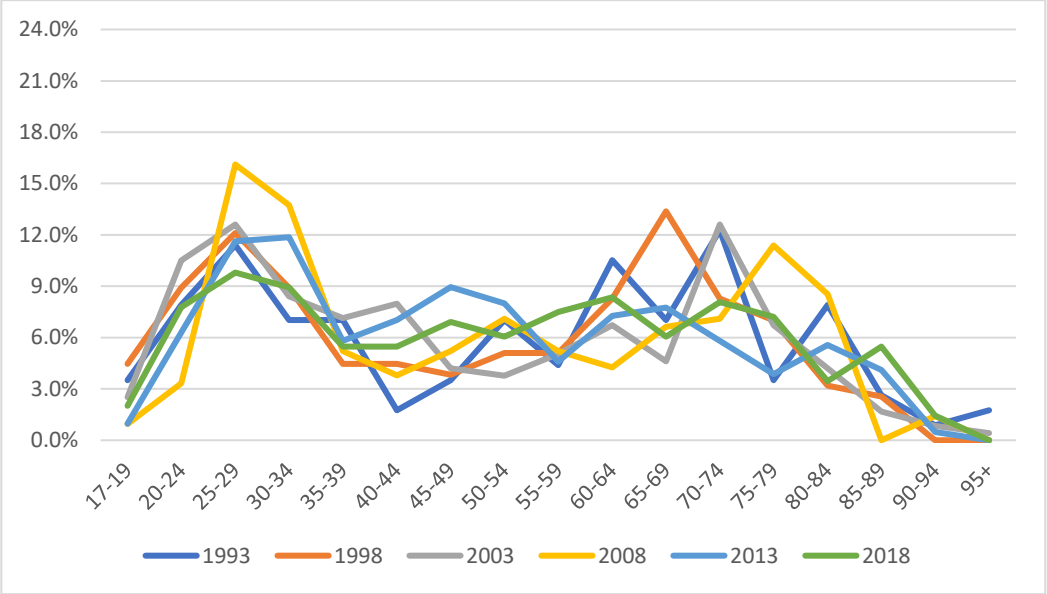
Figure 4.6. Percentage Distribution of Female-Headed One-Person Households by Age Groups, 1993-2018



Source: TDHS (1993-2018)

According to Figure 4.7., the percentage distribution of households headed by males by age groups in one-person households has some critical points. The accumulation in the 25-29 age group in all years could be seen. Moreover, there is a fluctuation between the age groups, but the ages between 60 and 79 have a more significant share. In contrast to one-person households with female heads, male-headed households have a more complicated percentage distribution by age groups (see Table B.7.).

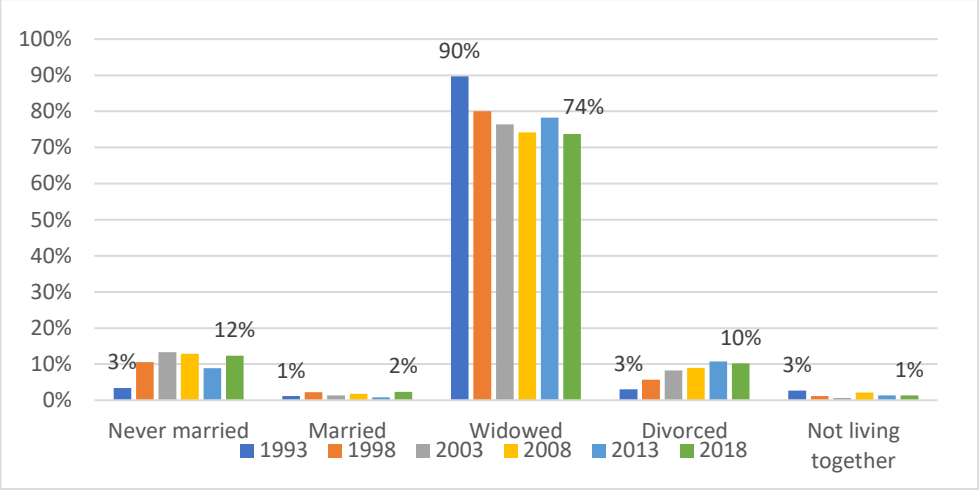
Figure 4.7. Percentage Distribution of Male-Headed One-Person Households by Age Groups, 1993-2018



Source: TDHS (1993-2018)

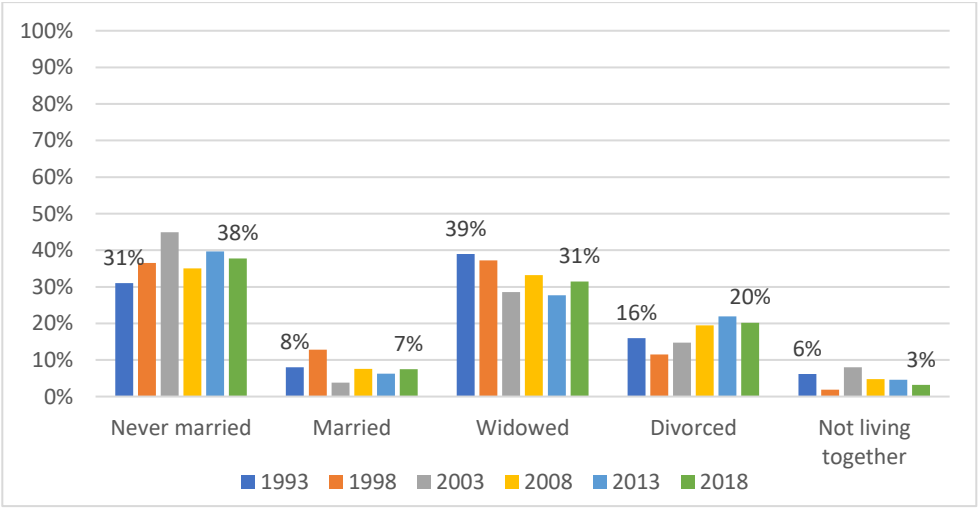
Figure 4.8. shows that most female heads in one-person households (over 74 percent) are widowhood in all surveys. The results of the TDHS-2018 indicate that 12 percent of them are never married and 10 of them are divorced, and the remaining 1 percent of them are living separated. When the trend from 1993 to 2018 is considered, there is a decline in female heads' widowhood prevalence while the share of never-married and divorced female heads is rising in one-person households. All values are represented in Table B.8.

Figure 4.8. Percentage Distribution of Female-Headed One-Person Households by Marital Status, 1993-2018



Source: TDHS (1993-2018)

Figure 4.9. Percentage Distribution of Male-Headed One-Person Households by Marital Status, 1993-2018



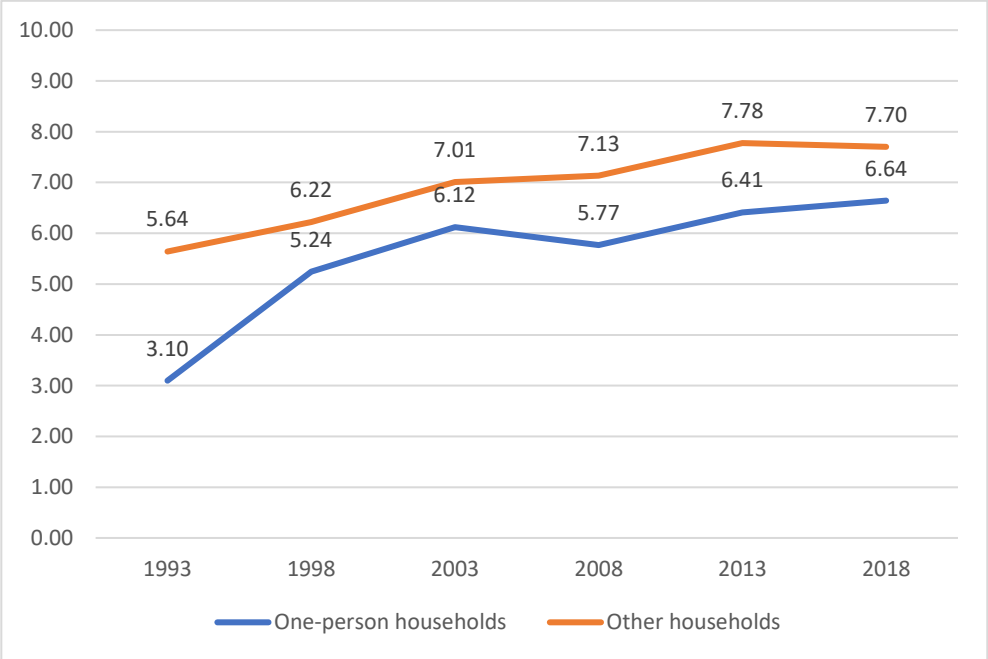
Source: TDHS (1993-2018)

The data from TDHS-2018 (Figure 4.9.) shows that 38 percent of male heads are never married, and 31 percent of them are widowhood in one-person households. One in 5

households headed by males are divorced, and approximately one in ten male household heads is currently married. Only 3 percent of them are not living together with their spouses. For detailed percentages, see Table B.9.

The prevalence of households headed by never married males and households headed by divorced males tend to increase from 1993 to 2018. The share of households headed by widowed male heads tends to decline from 39 percent in 1993 to 31 percent in 2018. All these figures provide us some important clues to classify them as headed by circumstances or choices.

Figure 4.10. Changes in the Mean Years of Schooling by Household Types, 1993-2018

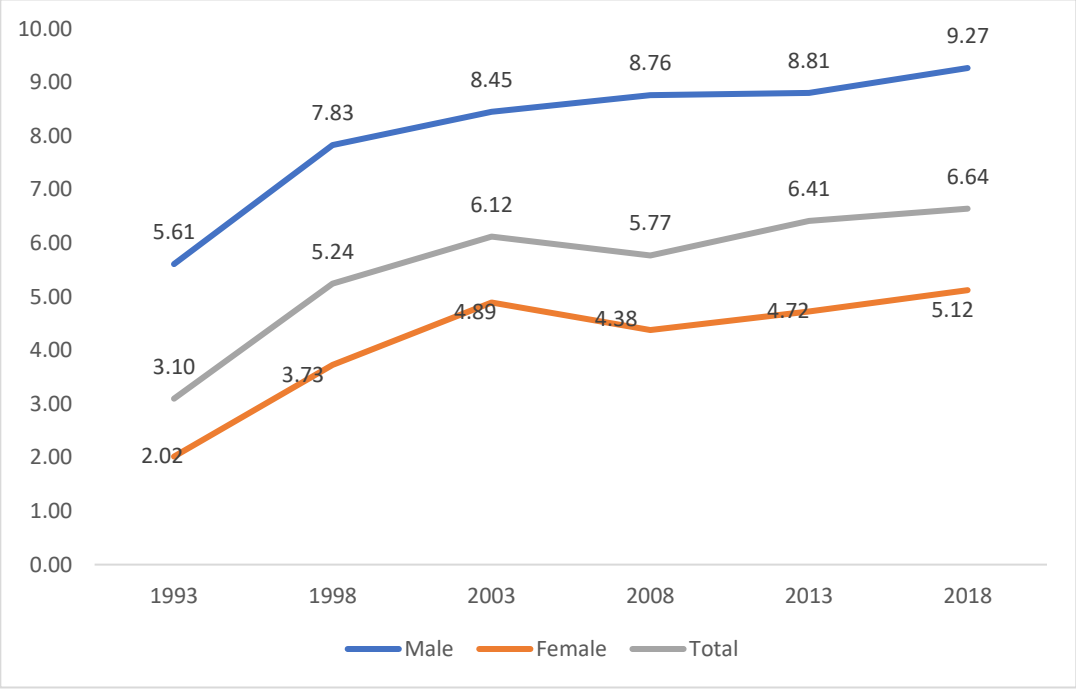


Source: TDHS (1993-2018)

Depending on previous TDHS surveys, variations in mean years in education by household types can be seen in Figure 4.10. According to the survey, while the mean years of education for one-person households were 3.1 years in 1993, this value was 5.64 years for other household types.

Furthermore, as there is a continuous increase in the mean years of schooling for other types of households over the years, an increase from 3.10 to 6.12 could be observed in one-person households between 1993-2003. However, this value decreased to 5.77 in 2008 and then increased again. Thus, although the gap in mean years of education by household types has reduced over the years, the gap is markedly high concerning the sex of household heads in one-person households, as shown in Table B.10.

Figure 4.11. Changes in the Mean Years of Schooling by Sex of the Heads in One-Person Households, 1993-2018

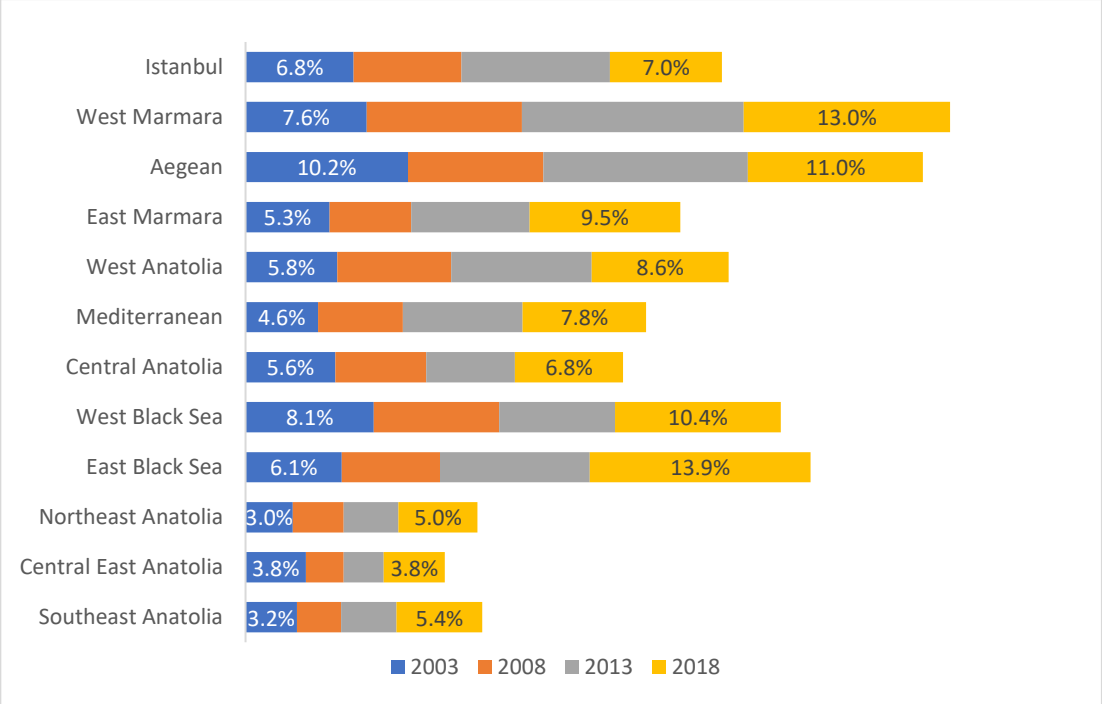


Source: TDHS (1993-2018)

Figure 4.11. indicates the differentiation of the mean years of schooling based on the sex of the head in one-person households, so there is a rise in the mean years of education for both sexes. Still, female heads in one-person households have lower rates of schooling crucially compared to male heads. For example, in TDHS-1993, while the mean year of

schooling for male heads was 5.61 years, it was 2.02 for female heads. In TDHS-2003, the mean years of schooling were 8.45 years in the male group, 4.89 years in the female group. According to TDHS-2018, it reaches 9.27 years for male heads, whereas it was 5.12 years for female heads (see Table B.11.).

Figure 4.12. Percentage Distribution of One-Person Households by NUTS-1 Regions, 2003-2018

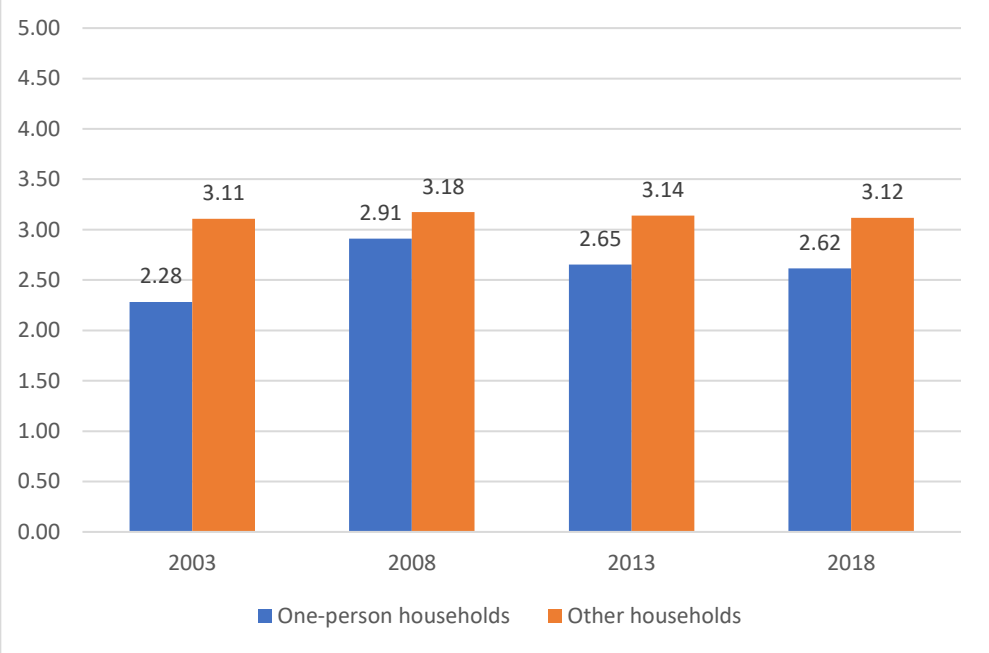


Source: TDHS (1993-2018)

Figure 4.12. shows the percentage distribution of one-person households according to NUTS-1 regions in Turkey between 2003 and 2018. The data in the figure below acquired the share of one-person households by comparing them with other types of households in a specific region. According to the region-based distribution of the one-person households, West Marmara and Aegean regions have a more significant share in total. For example, in TDHS-2003, the Aegean and West Marmara regions have the most important share of other

regions, whereas TDHS-2018 indicates that the East Black Sea and West Marmara regions have a more considerable share, as shown in Table B.12.

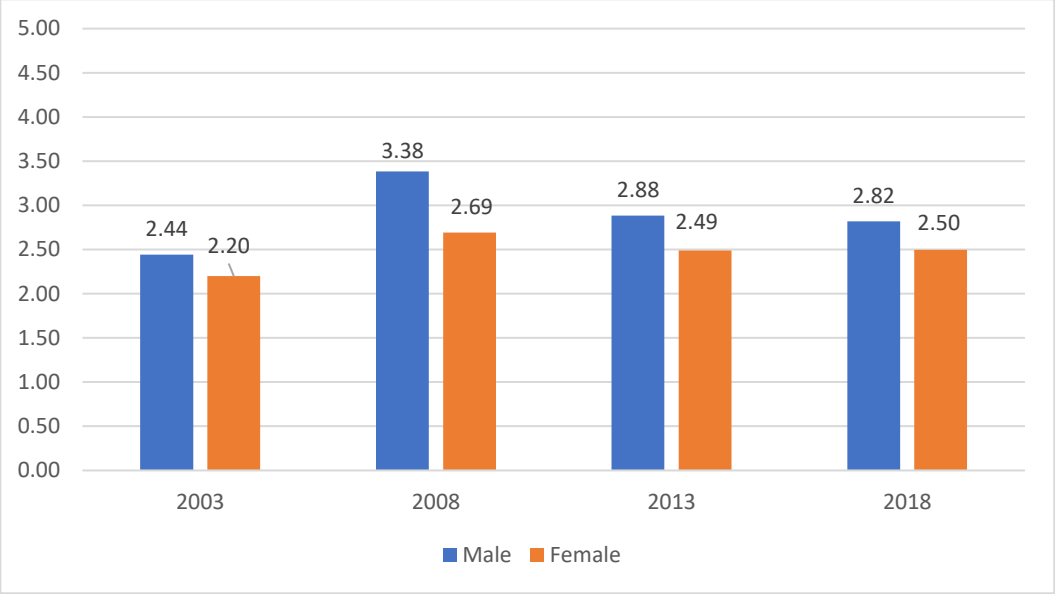
Figure 4.13. Changes in the Mean Wealth Index Scores by Household Types, 2003-2018



Source: TDHS (1993-2018)

Changes in the mean wealth index by household type between 2003-2018 has shown in Figure 4.13. It is prepared by depending on the wealth index in TDHS surveys. The index is composed of 1-5 gradation. In the index, "1" means being "poorest", "2" means being "poorer", "3" means being in the "middle", "4" means "richer", and "5" indicates being "richest". The figure demonstrates that the heads of the one-person households have lower wealth outcomes than other types of households. There are nearly close results for the non-one-person households while there is fluctuation for the heads in one-person households. After 2003, the rise in wealth status of one-person households might be seen; it was peaking in 2008, it has started to decline after 2008 as represented in Table B.13.

Figure 4.14. Changes in the Mean Wealth Index Scores by Sex of the Heads in One-Person Households, 2003-2018

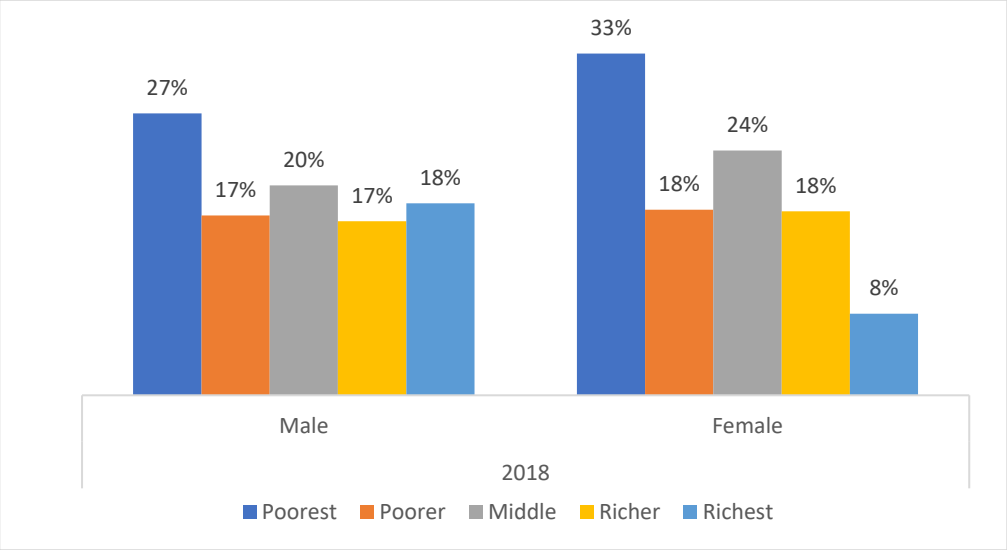


Source: TDHS (1993-2018)

Figure 4.14. demonstrates the changes in the mean of wealth index by sex of household heads in one-person households between 2003-2018. In this figure, male heads in one-person households have better wealth status than female heads between 2003-2018. In TDHS-2008, the male heads have the highest degree with 3.38; on the other hand, female heads have only 2.69.

Even if there is an upward trend in the mean value of wealth index of one-person households in general after 2003, the decrease can be observed after 2008 for both male and female heads (see Table B.14.).

Figure 4.15. Percentage Distribution of Wealth Quantiles by Sex of the Heads in One-Person Households, 2018



Source: TDHS-2018

Figure 4.15. shows the detailed distribution of wealth quantiles by sex of heads in one-person households in 2018. According to the figure, the male heads have a higher percentage share in the "poorest" group, and the rest of the groups are close to each other; on the other hand, the female heads in one-person households have a higher "poorest" share than male heads, and their "richest" group have the lowest percentage distribution, according to Table B.15.

4.3. Descriptive Analysis from Registration System

In this part of the study, the secondary data source is analyzed according to some characteristics. The variables such as age, sex, education status, marital status were taken into consideration.

Table 4.1. Percentage Distribution of One-Person Households by Age Groups (2014,2019)

	Male		Female		Percentage change between 2014-2019	
Age group	2014	2019	2014	2019	Male	Female
15-24	10.2	9.1	5.1	5.0	-10.7	-1.9
25-34	26.3	24.5	10.4	11.6	-7.0	11.2
35-44	18.6	20.1	7.2	8.3	7.8	14.4
45-54	14.3	15.7	9.5	10.0	9.4	5.4
55-64	11.5	13.0	16.8	17.1	13.2	1.8
65+	19.0	17.6	51.0	48.0	-7.3	-5.7
Total population	1291040	1898629	1625401	2163947		

*Sex ratio was 0.79 in 2014, while 0.87 in 2019.

Source: TURKSTAT, 2020

Table 4.1. figures the percentage share of one-person households by age groups. There are six age groups in the table, and these groups classified depending on years and the sex of the heads. In 2014, male-headed one-person households in the 25-34 age group had the most extensive percentage distribution with 26.3 percent, while this was only 10.4 percent for females. The highest percentage share for women was 65 and over in 2014, with 51 percent. The 65+ age group was the second-highest percentage for the male group.

In 2019, while the 25-34 age group had the most significant distribution rate for males, the 65+ age group was the highest distribution for females. Thus, although there was prevalence in one-person households within five years, this situation differed in age groups' distribution. While there were decreases in 15-24, 25-34, and 65+ years age groups, the increase in 35-44, 45-54, and 55-64 age groups can be argued for males. On the other hand, a percentage decrease was observed for females in the 15-19 and 23-33 age groups. Thus, the percentage distribution of different age groups had increased within five years. In addition to the percentage distribution of age groups, the sex ratio was 0.79 in 2014 while it was 0.87 in 2019.

Table 4.2. Percentage Distribution of One-Person Households by Education Status (2014,2019)

					Percentage change	
	Male		Female		between 2014-2019	
Education status	2014	2019	2014	2019	Male	Female
Illiterate	2.8	1.7	19.0	14.6	-38.6	-22.9
Literate but not graduated	5.5	3.4	16.1	13.2	-39.5	-18.0
Primary	33.7	27.3	33.3	33.6	-19.0	0.9
Secondary	31.7	38.3	15.6	19.1	20.8	22.6
Higher	26.2	29.3	16.1	19.5	11.7	21.3
Total population*	1217717	1735464	1554765	2020829		

*People who have no information about educational background and foreigners are excluded from the analysis.

Source: TURKSTAT, 2020

According to the outcomes of the ABPRS, the education status of the heads in one-person households had shown in Table 4.2. While those who have received primary education constitute the largest group with 33 percent among males, those with secondary education constitute the second largest group with 31.7 percent. The group with the lowest distribution is illiterates, with 2.8 percent in 2014. For females, those who have primary education had the most extensive percentage distribution with 33.3 percent, and other education groups had close distributions to each other in 2014. However, the crucial point for education status is that the proportion of women who have not received education was 19 percent.

In 2019, those who receive secondary education among males had the most extensive percentage distribution, while those with higher education ranked second, and lower education groups decreased significantly. There was a decrease in the percentage distribution of illiterate females and literate but had no graduation. Females who received primary education still had the biggest percentage share in 2019 with 33.6 percent. Furthermore, the increase in the share of secondary and higher educations was not deniable.

Table 4.3. The Regional Distribution of One-Person Households by Sex, ABPRS 2019

Provinces	Male	Female
Istanbul	19.8	17.9
West Marmara	5.9	6.4
Aegean	15.8	17.3
East Marmara	10.1	9.8
West Anatolia	9.5	10.3
Mediterranean	11.8	12.0
Central Anatolia	4.5	5.1
West Black Sea	6.8	7.1
East Black Sea	5.0	4.5
Northeast Anatolia	2.2	1.9
Central East Anatolia	3.4	2.8
Southeast Anatolia	5.2	4.8
Total population	1898629	2163947

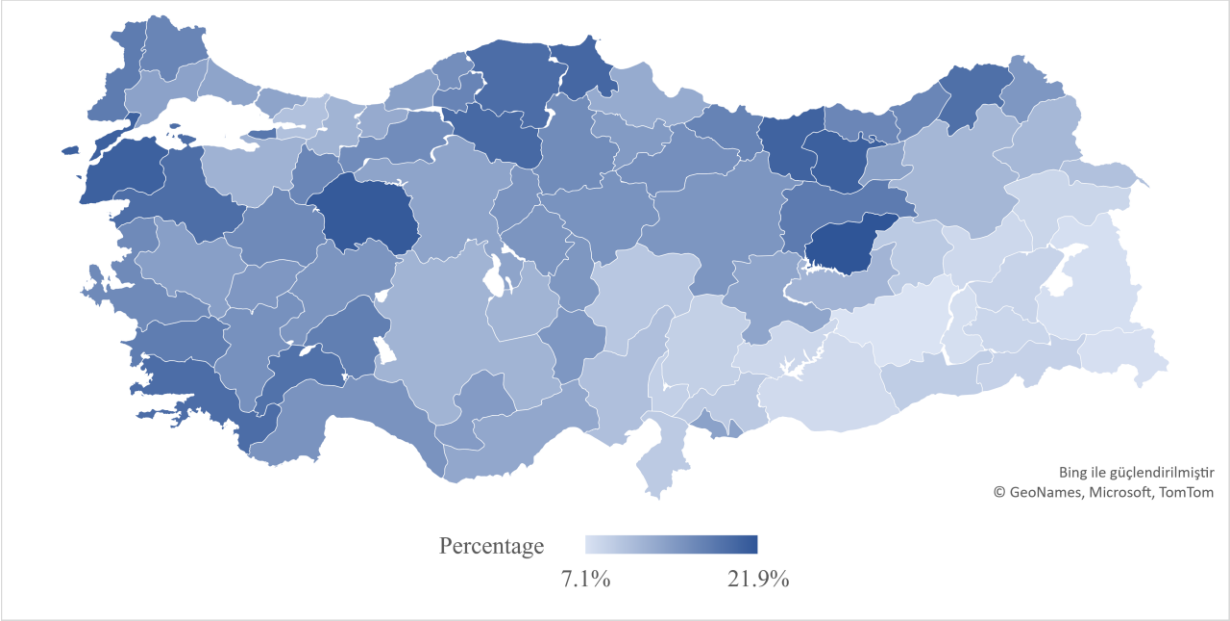
Source: TURKSTAT, 2020

In the descriptive analysis, the characteristics of one-person households are tried to find out. After a set of variables, the regional distribution of one-person households was examined. Table 4.3. shows the regional distribution depending on NUTS1 regions in ABPRS-2019. According to the table, Istanbul, Aegean, Mediterranean, and East Marmara had the highest percentages for males with ten percent or above.

On the other hand, the regions having ten percent or above for females were Istanbul, Aegean, Mediterranean, and West Anatolia. Despite these regions, Northeast Anatolia, Central East Anatolia, Central Anatolia, and Southeast Anatolia had the lower percentages in the distribution for males and females. The reason behind this differentiation could be the populations of the regions. Istanbul, Aegean, East Marmara, and Mediterranean regions have many people because of urbanization and internal migration. In contrast, the East and South parts of Turkey have limited numbers of people settled. Therefore, the situation may differ in comparing the numbers of one-person households with other households in the same

region instead of contrasting the regions depending on the number of one-person households there.

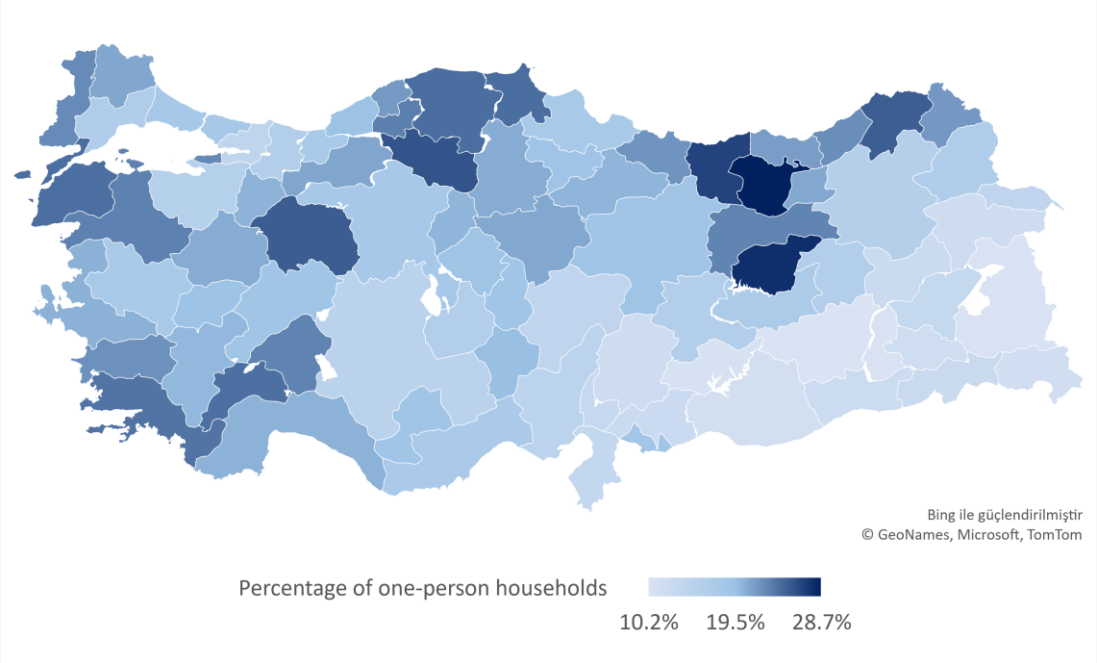
Figure 4.16. Prevalence of One-Person Households by NUTS-3 Regions, ABPRS-2014



Source: TURKSTAT, 2020

The data taken from ABPRS was mapped in Figure 4.16. and Figure 4.17., which shows the prevalence of one-person households by NUTS-3 regions. According to provinces, the percentage distribution of one-person households' changes over time is shown in these maps. The mapping of the percentages of one-person households across Turkey was created according to a ratio of one-person households to total households in each province. Thus, the distribution of the percentages shows the comparison of each province with their total household size. For example, according to Figure 4.16., Tunceli, Eskişehir, Gümüşhane, Çanakkale, Giresun provinces had a more significant share of one-person households compared to the other provinces in NUT3 regions. The percentage values for all provinces were demonstrated in Table B.16. and Table B.17.

Figure 4.17. Prevalence of One-Person Households by NUTS-3 Regions, ABPRS-2020

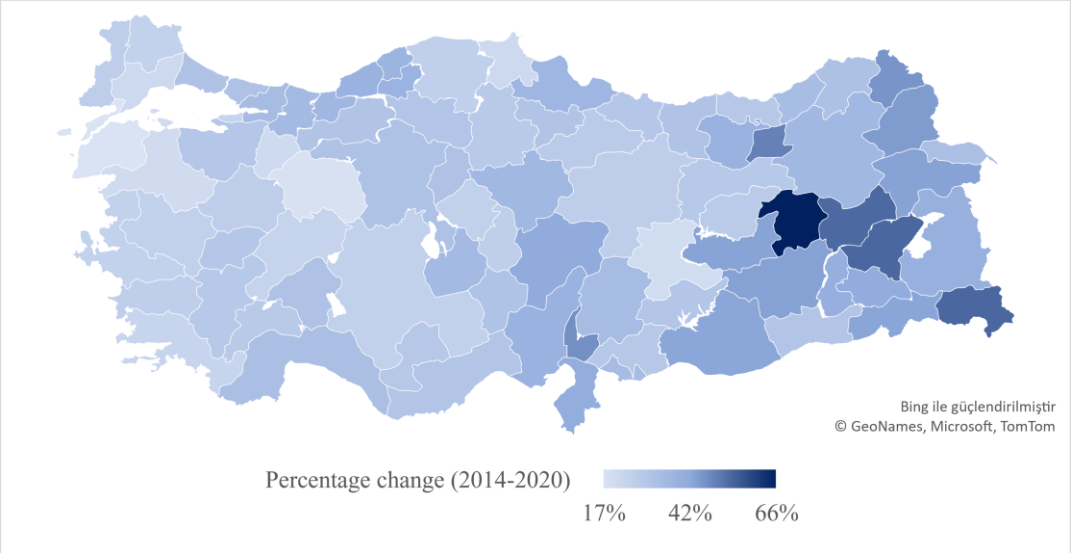


Source: TURKSTAT, 2021

As shown in Figure 4.17., Gümüşhane, Tunceli, Giresun, Çankırı, Eskişehir provinces also had the largest share in ABPRS-2020. Furthermore, Artvin, Kastamonu, Sinop, Çanakkale, and Burdur provinces were included in the group with the highest distribution. On the other hand, the lowest stakes in ABPRS-2014 could be seen in Diyarbakır with 7.1 percentage, Hakkari with 7.5 percentage, Van with 7.5 percentage, Batman with 7.5 percentage. Similar to ABPRS-2014, Diyarbakır, Van, and Batman provinces had the lowest percentage distributions in ABPRS-2020, respectively. In addition to these provinces, Adıyaman, Şanlıurfa, Hakkari, Siirt, Ağrı provinces also had the smallest percentage rates of one-person households.

East Black Sea, West Black Sea, and Aegean regions had more significant percentages, whereas Southeast and Central East Anatolia have a lower distribution of one-person households in ABPRS-2014 and ABPRS-2020.

Figure 4.18. Changes in the Prevalence of One-Person Households by NUTS-3 Region between 2014-2020



Source: TURKSTAT, 2020

According to Figure 4.18., the percentage share of one-person households changed positively for all NUTS-3 regions between 2014-2020. The most significant increase between 2014 and 2020 happened in Bingöl province with 66 percent, and Muş, Bitlis, and Hakkari provinces had increased by over 50 percent in six years. The critical increases can be seen in the Central East Anatolia, South East Anatolia, and North East Anatolia regions, depending on Figure 4.18.

Table 4.4. Percentage Distribution of One-Person Households by Marital Status, ABPRS-(2014,2019)

	Male		Female		Percentage change	
	2014	2019	2014	2019	Male	Female
Never Married	39.74	37.64	18.0	18.6	-5.30	3.60
Married	25.73	29.51	9.6	11.8	14.71	23.06
Divorced	20.58	20.95	12.9	14.1	1.81	9.50
Widowed	13.96	11.90	59.5	55.4	-14.71	-6.87
Total Population*	1270054	1776973	1612029	2059601		

*Foreigners are excluded in the analysis.

Source: TURKSTAT, 2020

Table 4.4. shows the marital status of the one-person households' heads in 2014 and 2019. The percentage distribution for males figures out that the never-married heads had the most outstanding percentage share in marital status groups with nearly 40 percent in 2014. The second biggest share was married males with 25.73 percent. Widowhood in male-headed one-person households was seen as less likely to happen. For females, contrary to males, widowed heads had the most significant percentage distribution with 59.5 percent. The difference between widowhood and other marital status groups was very high in females. The reason behind this considerable differentiation could be social, cultural, and demographic, and biological factors such as higher life expectancy for females than males.

The never-married females had second place in the distribution. Thus, one-person households with married female heads seem to have a small proportion. In 2019, the decrease can be seen in the percentages of never-married and widowed males, while married and divorced males had increasing shares compared to 2014.

In female-headed households, the percentages of never-married, married, and divorced persons increased in five years, whereas widowhood was getting smaller in the percentage distribution. The featuring point for females was that the increase in the percentages of married ones. There was a 23 percent increase in the distribution of females in this group. Although the distributions according to marital status differ by sex of the household heads, there was a quantitative increase in each marital status group within 2014-2019, both for males and females.

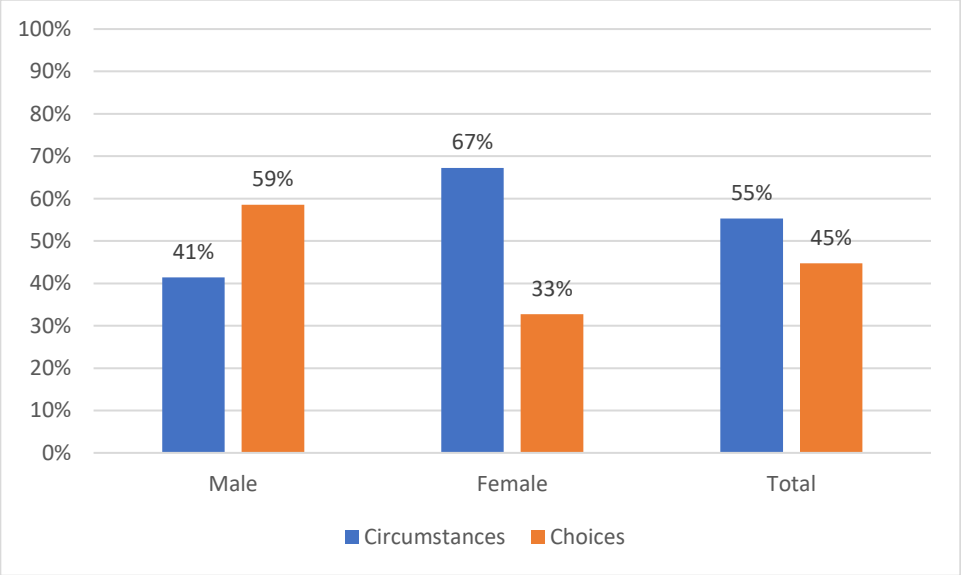
4.4. Formation of One-Person Households Due to Choices or Circumstances

In this part of the descriptive analysis, a variable indicating the formation of one-person households as a consequence of choice or circumstance was created by using the household heads’ marriage status. The variable was coded as "0" for currently married but living alone, and widowhood heads, indicating one-person households by circumstances; "1"

for never married and divorced/not living together heads, referring to one-person households by choices.

The rationale behind the construction of such a variable solely depends on the link between marital status of the heads and the formation of one-person households. Therefore, identifying these situations serves an essential purpose in terms of revealing why people live alone. For instance, the death or migration of spouses and preferences such as divorcing or being never-married are some determining factors. Thus, the sex, age, education, and wealth status of the heads of one-person households have been analyzed considering the marital status of the household heads.

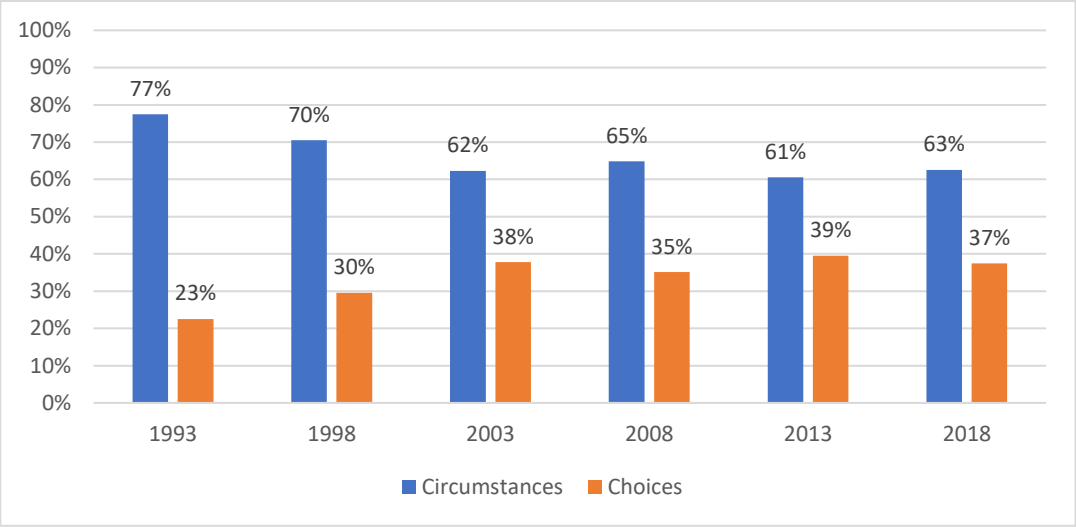
Figure 4.19. Percentage Distribution of One-Person Households by the Formation Types, 2019



Source: TURKSTAT, 2020

The formation of one-person households for males was seen more likely to depend on "choices" with 58.59 percent majority while living alone by circumstances had the majority for females with 67.25 percent (see Figure 4.19.). Furthermore, the general option for all one-person households was the predominance of the formation of one-person households by circumstances with a 55.3 percent share in ABPRS-2019, as shown in Table B.19.

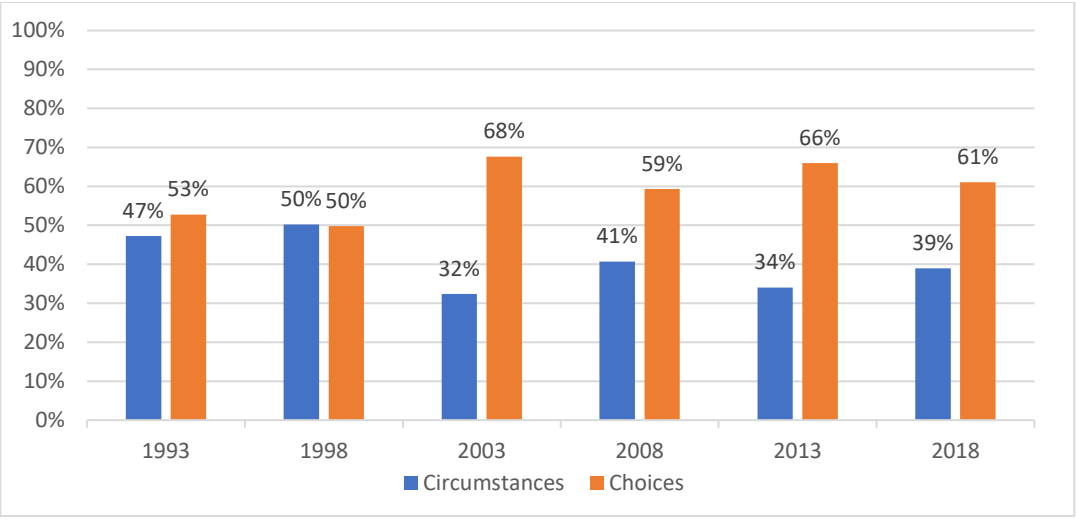
Figure 4.20. Changes in the Percentage Distribution of One-Person Households by the Formation Types, 1993-2018



Source: TDHS (1993-2018)

Figure 4.20. shows that one-person households by choice as a whole had risen by 61 percent from 23 percent in 1993 to 37 percent in 2018. Accordingly, the percentage of one-person households by circumstances had decreased by 18 percent over the same period (see Table B.20.).

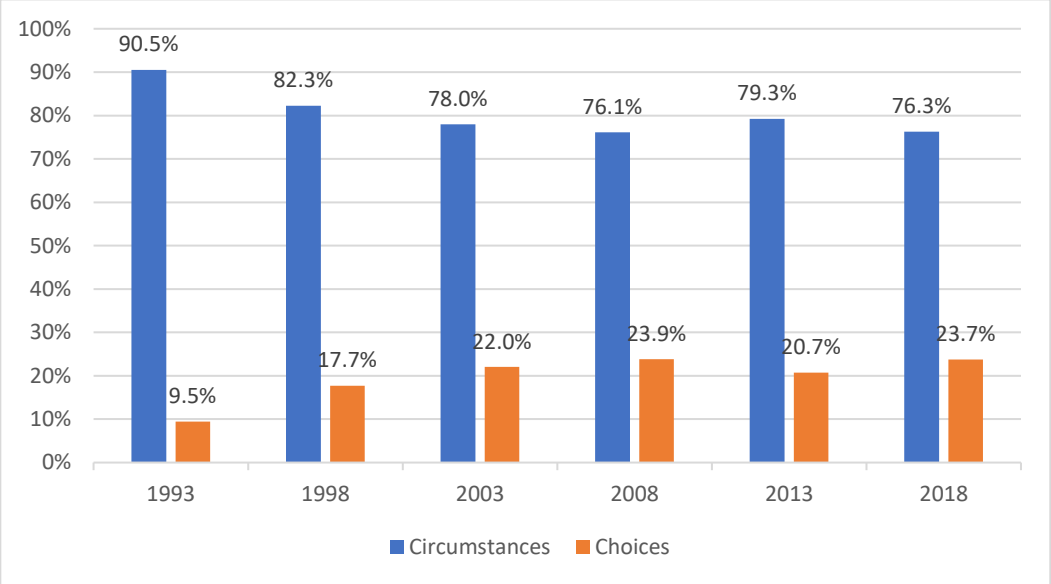
Figure 4.21. Changes in the Percentage Distribution of One-Person Households Headed by Males, 1993-2018



Source: TDHS (1993-2018)

Figure 4.21. indicates that the change in the formation of the one-person households with male heads. According to the figure, one-person households with male heads by choice had a more significant percentage share than one-person households by circumstances. It rose from 53 percent to 61 percent over the years, whereas one-person households by circumstances decreased from 47 percent to 39 percent, as represented in Table B.21.

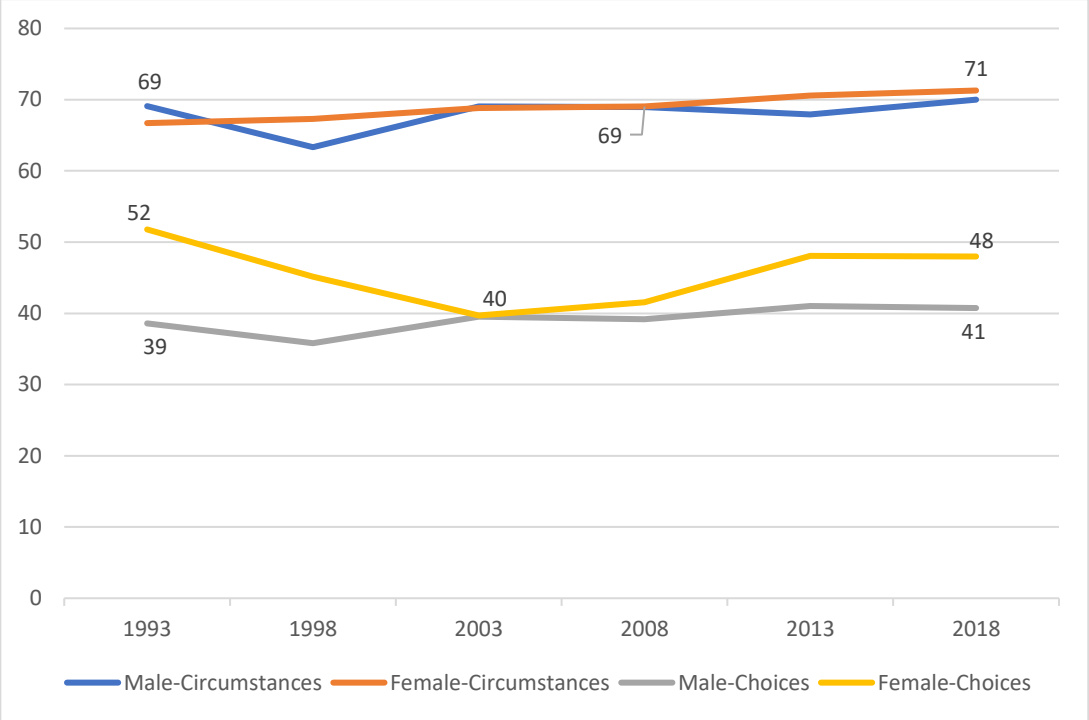
Figure 4.22. Changes in the Percentage Distribution of One-Person Households Headed by Females, 1993-2018



Source: TDHS (1993-2018)

According to Figure 4.22., the percentage of female heads living alone by circumstances has decreased across time while the percentage of females living alone by choices increases. For example, the difference between living alone by circumstances and choices in female heads decreased from 80 percent in 1993 to 53 percent in 2018, see Table B.22.

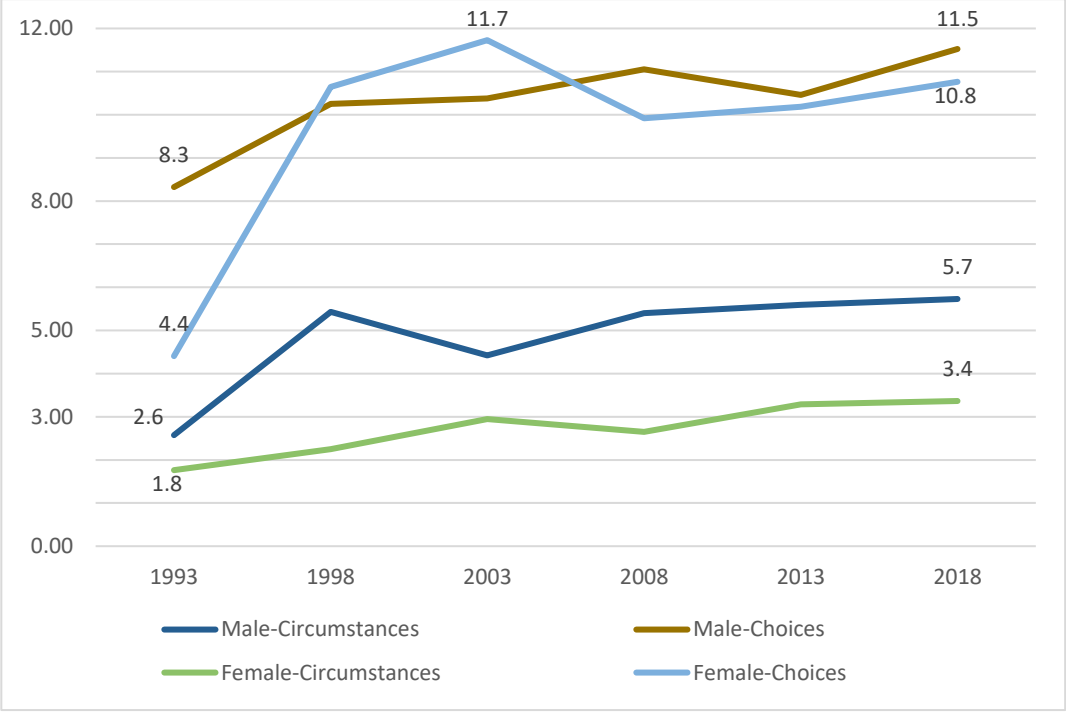
Figure 4.23. The Mean Ages of the Heads in One-Person Households by the Formation Types, 1993-2018



Source: TDHS (1993-2018)

Figures 4.23. indicates the mean age of male and female heads in one-person households by choices or circumstances. Based on this figure, people living alone by circumstances have older generations than those living alone by choice. For example, according to Figure 4.23., the mean age of male heads living alone by circumstances was 70 years on average, whereas the mean age of those living alone by choices was between 39-41 years. Also, the mean age of female heads living alone by circumstances had increased from 67 years to 71 years between 1993-2018, while the mean age of female-headed one-person households by choice was 52 years in 1993, it was found 48 years in 2018. All values by years can be seen in Table B.23. and Table B.24.

Figure 4.24. The Mean Years of Schooling of the Heads in One-Person Households by the Formation Types, 1993-2018



Source: TDHS (1993-2018)

Figure 4.24. shows the mean years of schooling of the heads of one-person households considering circumstances or choices. First of all, when we compare the heads of the households live alone by circumstances, females have the lower mean years of schooling than males for all years between 1993-2018. In choice-based one-person households, except for 1998 and 2003, female heads also have lower mean years of schooling compared to males. However, the mean years of schooling showed an increase for both sexes in general from 1993 to 2018. For detailed information, see Table B.25. and Table B.26.

CHAPTER 5

MULTIVARIATE ANALYSIS

5.1. Risks for One-Person Households, Compared to Other Households

Logistic regression for the determinants of one-person households contains three models; basic model, individual-level model, and diverse model, which includes individual-level and household-level variables as figured in Table 5.1.

The first model, named the basic model, includes household heads' sex with the male reference category. The significance level of female heads is relatively lower than the cut value ($p<0.05$). The risk of the prevalence of one-person households is 13.140 times higher than males. The constant is statistically significant, and the Nagelkerke R square value is 0.385, so it explains 38.5 percent of the variance for the dependent variable.

In the second model, individual-level determinants such as heads' sex and age, education status, marriage status, and working status are involved. The sex of the household head variable includes two categories: male as the reference category and female category. The risk of prevalence of one-person households for females is 5.989 times more than males, and it is significant. The decrease in the risk for females in this model can be seen compared to the basic model. The age of the household variable is another predictor variable that being significant in the model. According to the results of the odds ratio, for every one-unit increase in age, the possibility for the prevalence of one-person households increases by approximately 1.058 times. One of the continuous independent variables is education completed by the head in single years, which is statistically significant with the value 0.018 ($p<0.05$). Depending on logistic regression analysis, one unit increase in the variable causes 1.023 more success to consist of one-person households. The third variable in the model is the marital status of the household head in a grouped way. This variable, which has two categories, was created by grouping the marital status of the heads. While the dependent

people category includes married and widowhood, the independent people category includes never-married and divorced. The independent people category is significant and 14.246 times more risker than dependent people category.

Table 5.1. Logistic Regression Models for Assessing the Risks of One-person Households

Variable Name	**Model 1 (Basic model)** Exp(B)	**Model 2 (Individual-level model)** Exp(B)	**Model 3 (Diverse model)** Exp(B)
Sex of household head			
Male	1.000	1.000	1.000
Female	13.14*	5.989*	7.607*
Age of the household head	-	1.058*	1.053*
Education completed in single years	-	1.023**	1.097*
Marital status classification of the household head (grouped)			
Dependent people	-	1.000	1.000
Independent people	-	14.246*	15.228*
Working in a paid job			
No	-	1.696*	1.362*
Yes	-	1.000	1.000
Receiving any payments			
No payment	-	-	1.000
Retirement or Widowhood payment	-	-	1.863*
Other types of payment	-	-	0.926
Type of place of residence			
Urban	-	-	1.196
Rural	-	-	1.000
Region			
West	-	-	1.394**
South	-	-	1.031
Central	-	-	1.783*
North	-	-	1.797*
East	-	-	1.000
Wealth Status			
Poorest	-	-	9.645*
Poorer	-	-	4.444*
Middle	-	-	3.605*
Richer	-	-	2.55*
Richest	-	-	1.000
Constant	0.039*	0.001*	0.000*
Nagelkerke R square	0.238	0.385	0.421

* Significance level is smaller than 0.01 ($p<0.01$)
** Significance level is smaller than 0.05($p<0.05$)

As a last variable in the second model, working in a paid job has no/yes categories. When the “no” option is the reference category, it is seen that people in the “yes” option have 1.696 times more risk. Overall, the model’s R square value is 0.385, and the constant is 0.000, as shown in Table 5.1.

In the third model, the variables are related to individual-level and household-level data (see Table 5.1.). Through that model, the female in sex variable, which is statistically significant, has a 7.607 times greater risk than the male category as the reference category. Age of household head and education completed in single years as continuous variables were found significant and had respectively 1.053 and 1.097 times more risk per one-unit increase. In the marital status of the household heads (grouped) variable, the independent people category is significant and has 15.228 times higher risk than the dependent people category. Receiving any payment variable has three categories. Receiving retirement or widowhood payments is statistically significant and has a 1.863 times higher risk than receiving no payments. Although receiving other types of payment category have the lowest risk with 0.926 times than the reference category, it is not significant.

In types of place of residence variable, urban has 1.196 times higher risk than rural, but it is not significant. The region variable has significant categories except for the South category. It is noticeable that the North category has 1.797 times higher risk comparing to the reference category, while the Central category has 1.783 times more risk, and the West category has 1.394 times greater risk. In the wealth status variable, the poorest category has 9.645 times higher than the richest category, while the risk for poorer, middle, and richer categories is 4.444, 3.605, and 2.550 times higher than the reference category. Overall, the model has a 0.421 R square value, and the constant is significant, as shown in Table 5.1. Confidence interval results for each model can be seen in Table C.1., Table C.2. and Table C.3.

5.2. Risks for One-Person Households Due to Choices or Circumstances

In the second part of the statistical analysis, the risks for one-person households by the formation types are analyzed. There are three models in that phase of the analysis: basic model, individual-level model, and diverse model, as shown in Table 5.2.

The first model is defined as the basic model, and it consists of household heads' sex as an independent variable. This variable has two categories, and female is the reference category. Male heads in the first model have a 5.039 higher risk of forming one-person households by choices than female heads. The male category is also significant with a 0.000 significance value ($p<0.05$). Further, the R square value of the basic model is 0.176, which means the model explains 17.6 percent of the prevalence of one-person households, and the constant has a 0.000 significance value, as shown in Table 5.2.

The second model consists of individual-level variables such as sex and age, and education completed in single years. The sex variable is the first variable in the second model, and female heads constitute the reference category. Male heads have a $p<0.05$ significance level, and the risk on the prevalence of one-person households in the male group is two times higher than females. The age variable has four categories, and the reference category is the 65+ years age group. First of all, all age groups are significant in the model. The 15-29 age group has 110.699 times higher risk than the reference category, while the 30-44 age group has 22.726 times higher risk, and the 45-59 age group has 5.432 times higher risk than the reference category. The second model's R square value is 0.641, which has a tremendous increase compared to the first model, and the constant is 0.046.

Table 5.2. Logistic Regression Models for the Risk of Formation of One-Person Households Due to Choices

	Model 1 (Basic model)	**Model 2 (Individual-level model)**	**Model 3 (Diverse model)**
Variable Name	Exp(B)	Exp(B)	Exp(B)
Sex of household head			
Male	5.039*	2.095*	2.290*
Female	1.000	1.000	1.000
Age of household head			
15-29	-	110.699*	57.420*
30-44	-	22.726*	13.359*
45-59	-	5.432*	5.219*
60+	-	1.000	1.000
Education completed in single years		1.186*	1.165*
Receiving any payment			
Not receiving	-	-	3.818*
Retirement or Widowhood payment	-	-	1.000
Other types of payment	-	-	3.239*
Type of place of residence			
Urban	-	-	1.710
Rural	-	-	1.000
Region			
West	-	-	2.187
South	-	-	1.623
Central	-	-	1.582
North	-	-	2.026
East	-	-	1.000
Working in a paid job			
Not working	-	-	1.000
Working	-	-	1.577
Wealth Status			
Poor	-	-	1.000
Middle	-	-	1.603
Rich	-	-	1.278
Constant	0.311*	0.046*	0.007*
Nagelkerke R square	0.176	0.641	0.666

* Significance level is smaller than 0.01 ($p<0.01$)
** Significance level is smaller than 0.05($p<0.05$)

The third model comprises individual and household level variables, including sex and age of the head, schooling status, receiving any payment, type of place of residence, region, working status, and wealth status. The male group has a significant value ($p<0.05$), and males' risk of living alone by choices is 2.290 times higher than the female group in the sex variable. In the age variable, the 15-29 years old category has 57.420 times higher risk than the reference group (65+ years old category). 30-44 years old category has 13.339 times more risk than the reference category, while the risk for 45-59 years old ones is 5.219 times more than the reference group. The variable named education completed in single years is significant for the model. One unit increase in education variable means 1.186 times increase in the formation of one-person households by choices. Receiving any payment, which is significant in the model ($p<0.01$), has three categories: not receiving, receiving retirement or widowhood payment, and other types of payment. The reference category is receiving retirement or widowhood payments, and all categories in the variable are statistically significant. Not receiving has 3.818 times more risks for the one-person households by choice than the reference category, while receiving other types of payment has 3.239 times higher risk than the reference group.

The type of place of residence variable shows urban-rural differentiation of one-person households. The urban has 1.710 times higher risk than rural, which is the reference category, but the urban is insignificant in this model ($p=0.062$). The region variable in which the five regions are located was not significant when the East is chosen as the reference category. Thus, it has 2.187 times more risk for the West, 1.623 times higher risk for the South, 1.582 times higher for the Central, and 2.026 times more for the North region.

Working in a paid job is also one of the variables in the model. The category "Working" has a risk of 1.577 times greater than "Not working", which is the reference category, but it is found statistically insignificant ($p=0.207$).

The last variable in the model is wealth status, which consists of three categories. The reference category is the Poorest-Poorer group. The Middle group has 1.603 times higher risk than the reference group, whereas the Richer-Richest group with 1.278 times

higher risk. However, all categories of wealth status are found insignificant ($p>0.05$). Therefore, the R square for the last model is 0.666, and the constant is 0.007.

In conclusion, when the logistic regression analyses for the risks of one-person households by the formation types and the risks for one-person households compared to other household types were implemented, the Nagelkerke's R-square for the final models for both two different parts of the analyses have greater explanation degrees. The values are 0.421 for the first analysis, 0.666 for the second analysis in their diverse models. Thus, this proves that the variables in the models explain the models and dependent variables well. Furthermore, the overall outputs of the models expose that in every stage of the logistic regression process, the explanatory power is getting increased in both analyses. Together with this, the significance of each model did become under the cut value ($p<0.01$ or $p<0.05$), as signified in Table 5.1. and Table 5.2. Confidence interval values for the variables in all three models can be found in Table C.4., Table C.5., and Table C.6..

CHAPTER 6

CONCLUSION AND DISCUSSION

As demonstrated in this study, the prevalence of one-person households in Turkey is rising according to demographic surveys and registration data such as Turkey Demographic and Health Survey (TDHS), Turkey Family Structure Survey(TAYA), Address Based Population Registration(ABPRS) data.

The rise in one-person households cannot be explained by referencing only the numerical outputs of the studies. It is also related to social, economic, cultural, and demographic changes in society. However, the most important concept associated with the prevalence of one-person households is family structure change. Since the data set about one-person households allows us to analyze the changes in family structure and rationalize this study's objects.

The size of the population, fertility rates, mortality rates, life expectancy at birth, marriage rates, and social and economic position of the women are effective in family structure change. Besides, the population under the age of 15 constitutes approximately 40 percent of the population in the 1950s, where Turkey shifted from the young population structure to the elderly population structure. It has decreased to the level of 26 percent in 2018. Also, it is seen that the share of people 65 years and over increased from 3 percent to 8 percent in the same period. Together with the migration from rural to urban areas, economic and social change has gained momentum (Koç, 2019). The decline in fertility rates and rise in divorce rates have come after the transformation in society.

In rationalizing the social, economic, and demographic change in Turkey, the modernization approach is needed to discuss. Because starting from North European, Scandinavian, and North American countries, the household structure and family size have been changing since the 20th century. The reason behind this transformation can be that

declining traditional family values, an adaptation of North-Western individualistic relations to developing and developed societies, changes in fertility norms, the postponement of marriage, increasing divorce rates, as referred to the second demographic transition.

In Turkey, the transformation of family structure has started in the mid1900s through globalization, urbanization, and modernization efforts. Especially after some economic and industrial developments, people began to migrate rural to urban areas, which symbolizes the globalized, technologically advanced places but actually may not be.

The newly adopted norms of modernization in developing societies such as Turkey revealed some phenomena about the relationships in the society such as cohabitation, living apart together, questioning marriage and the increase in divorce, the rise of individualism, and the need for personal space. As a result, such relations in modernizing geographies have become common. Moreover, the aging society resulting from the increase in life expectancy of older ages and better health care opportunities has also made widowhood more visible and an important place in household composition. As a result, widows and widowers gained a substantial percentage share through history, especially in one-person households.

Thus, when examining one-person households, the representations of the elderly are taken into consideration. Household heads' age is also significantly relevant to the formation types of single-person households. Since the developmental idealism and modernization approaches are used in the thesis paper, our focal point is mainly people who choose to live alone. This does not mean that it does not concern other groups in one-person households; on the contrary, older age widowed persons with greater distribution rates were also researched in detail.

Based on our main concern about one-person households, the categorization of households by the formation types is crucial in the analysis. When looking at the literature, it was highlighted that people living alone could be classified into two main groups: those who choose to live alone and those who are forced to do so (Lewis, 2005). Understanding the ways people bringing to live alone and the circumstances that lead them to transition to

this life situation is notable because these ways and causal factors such as social, cultural, and economic conditions impress the practice of living alone.

Living alone after the loss of a partner is obviously not a similar experience with setting up home alone before any partner relation. These and similar situations can be experienced at different times of life according to different ages, genders, and belongings. The differences between people who prefer to solo living or are forced to do so should not be shortened to variations. Some different characteristics might be pointed out according to our data sources since the experiences and conditions can change according to time and space.

The classification of being never-married, divorced, and not living together with the partner as a “chosen” category cannot be helpful to conceptualize the formation of one-person households. The term “choice” is a complex concept, even if it is related to individuals' free will but is highly affected by external conditions such as society, cultural norms, and financial situations. So, the evaluation of choice should be based on the norms and conditions of any given society. On the other hand, the classification of living alone due to the conditions can be related to the traditional way of livings.

In Turkey's context, the classification of the formation of one-person households was decided by the household heads' marital status. Therefore, people who are never married, divorced, and not living together decided to live alone, whereas widowed and married people are determined to live alone due to the circumstances. These household heads were examined based on different data sources such as ABPRS and TDHS. Furthermore, both descriptive and multivariate statistical analyses were applied to ascertain the peculiarities of one-person households compared to other households and reveal variations in one-person households in itself.

First of all, it should be underlined that modernization and its outputs have significant effects on Turkey’s household structure. These include falling fertility rates down to the replacement level, increasing divorce rates, and, most importantly, a fall in the size of the households from 5.68 in 1955 to 3.30 in 2020 (TURKSTAT, 2021). In parallel to these

changes, there is a decrease in the percentage distribution of extended and nuclear families. Meanwhile, the one-person households and no-family households have reached greater share up to now. There is a variation in household size across Turkey; for example, Aegean, West Marmara, West Black Sea, East Black Sea regions have smaller household sizes, whereas Southeast Anatolia and Central East Anatolia regions still the largest size of households despite the decline through time. That representation can be ascribed to the traditional family structure of the central-eastern and south-eastern parts of Turkey because these regions have higher fertility rates than other regions in Turkey.

After a set of analyses about household size in Turkey, the composition of households was examined in detail depending on both registration and survey data. According to the results of ABPRS-2020, nuclear families, extended families, and no family households have respectively 65, 14, and 3 percentages while one-person households have about 18 percent. Although there is no crucial difference in the distribution of nuclear families and extended families, there is a significant variation between administrative data and survey data in the distribution of one-person households. Therefore, the nuclear and extended families have respectively 70 and 12 percent while one-person households own only 8.5 percent in TDHS-2018.

The massive differentiation about the distribution of one-person households depends on essential qualifications of survey and registration data. Thus, administrative data is based on registration only; there are no face-to-face or other types of interaction with the registered ones. On the contrary, the survey data is acquired by applying some sampling methods to the ABPRS database and has face-to-face interaction with de jure members of any chosen settlement. This multi-stage research about the people may bring some reductions in the numbers and cause us to miss out on actual representations. On the other hand, TDHS's detailed data can show the virtual conjuncture of one-person households compared to registering as single living in a household for some reasons. Especially for older age widowers and widows, it is common to live with children while registered in a household that was previously shared with a partner. Therefore, in the reality of one-person households

in which the elderly and widows make up the majority, the effect of such situations on the representation cannot be disclaimed.

Additionally, ABPRS employs the dwelling unit concept while TDHS uses household management to determine the household. The root of the issue can be the methodological dissimilarity of these two data sources. Therefore, sampling methodologies and data collection techniques should be questioned for obtaining detailed knowledge about the differentiation.

Descriptive analyses for one-person households based on TDHS and ABPRS data demonstrated both common and distinctive features. Household heads were analyzed by sex, age, education status, region, marriage status, and wealth variables in detail.

Firstly, the rise in one-person households as a historical trend has been shown in both surveys and administrative data results. The female heads in one-person households have the majority: 63 percent in TDHS-2018, 53 percent in ABPRS; however, the representation of male heads also increases through time. The average age for female heads was 65 years, while it was 52 for the male population. The age distribution of the household heads has some distinctive features depending on the sex. For instance, while females are concentrated in the age group 65 and over with a representation of 48 percent, on the other hand, males are highly represented between the ages of 25-44, with a majority of 45.

It should be underlined that when both data sources on the marital status of persons were evaluated, there was a majority of never-married among males. At the same time, the widowhood category in females far surpassed other options. Thus, biological differences regarding the sex of individuals cause one of the couples who are currently living together, usually males, to die earlier and the representation of widowhood among females in higher levels compared to males. Also, there can be seen a rise in the distribution of divorced and never-married people who live alone.

When the education levels of household heads are compared, it can be seen that 68 percent of the males had secondary and higher education levels, while females had only 19

percent. On the other hand, the majority of females were represented in primary education with 33 percent. Also, interestingly, almost 15 percent of women in one-person households appeared to be illiterate. Nevertheless, there is an uptrend in secondary and higher education for both males and females.

In terms of regional distribution, one-person households were numerically higher in places with a larger population, such as Istanbul, Eastern Marmara, Aegean, and Mediterranean regions. However, when the distribution of one-person households was calculated by comparing to the total number of households, differences were seen based on provinces and regions.

Considering the ratio of one-person households to total households, East Black Sea with Gümüşhane and Giresun; West Marmara with Çanakkale and Balıkesir; West Black Sea with Çankırı, Kastamonu, and Sinop were the regions with the highest one-person households' distributions. Although the Central East Anatolia region was one of the underrepresented places of one-person households, Tunceli province had the second-highest percentage distribution of one-person households across Turkey. On the contrary, Southeast Anatolia region with Diyarbakır, Batman, and Adıyaman provinces and Central East Anatolia region with Muş, Van, and Ağrı provinces lagged behind all regions in terms of representation of one-person households. In the wealth status of household heads, it is clear that there is a gender-based difference. Thus, the average wealth status of women is between poorer and middle, while males are between middle and richer wealth groups.

Understanding why people live alone is one of the concerns of the thesis. Various methodological and theoretical approaches have been used to achieve this, and in the end, individuals are classified into two basic categories: the circumstances category, the choices category. The characteristics of the people in these two groups were tried to be revealed by utilizing many variables.

People living alone due to the circumstances, which was 77 percent in 1993, decreased to 63 percent in 2018, while one-person households due to choices increased from 23 percent to 37 percent at the same time (HUIPS, 2020). Although these values vary for

male and female heads, the fact that women's decision to live alone is shaped according to the circumstances is revealed in both registration data and survey data. Another important finding was that for both women and men, the average age of those who live alone due to circumstances was around 70 years, while it varied between the ages of 40 and 50 for those who live alone due to the choices. According to the educational backgrounds of the heads, people in the choices group also had higher years of schooling than those in the circumstance category.

In the multivariate analysis part, two separate logistic analyses with three models were applied. In the first analysis, which measures the risk of creating a one-person household versus other households, it was found that women's risk for setting up a one-person household is at least five times higher than men in all three models. Also, each unit increase in age and education level of the household heads causes an increment in one-person households.

In the marital status of individuals, it was seen that the risk of living alone for the widowed or married heads was at least 14 times higher than those who were not married, divorced, or living separately. As literature about solo livings and descriptive analysis also coincides with these findings, the representation of widowhood and married heads emerges as a reality in one-person households.

While household heads who do not work in a paid job pose a higher risk than working people, the situation of receiving retirement or widowhood pension poses 1.8 times more risk than not receiving any payments for one-person households.

In regional distribution analysis, North, West, and Central regions were found that significant and positively related to living alone. In the last variable in the diverse model, as moving from the Richer to the Poorest group, the risk of living as single increased up to 9 times compared to the Richest category.

The second part of the multivariate analysis, it was examined whether the formation of one-person households is due to circumstances or choices. According to the results of

logistic regression analysis, male heads had five times higher risks for one-person households due to the choices in the basic model and above two times more risks for individual-level and diverse models compared to females. In the age variable of which 60 years and over was the reference category, it was found that there was a significant increase in living alone by choices as the heads' ages got younger. Again, it showed that each unit increase in educational status increased people's living alone by their choices 1.2 times more. When we looked at the status of receiving any payments, people who did not receive any payments and receive other types of payments pose three times more risks compared to those who received retirement or widowhood pension. Although living in the urban, West, or North regions, having a mid-level income, or working in a paid job positively affected the likelihood of one-person households due to the choice, these categories and variables were observed to be statistically insignificant in three models.

In order to conclude, people who are living alone by circumstances have the majority in one-person households; however, the share of this group decreases through time. The presence of younger, well-educated, and wealthy people who set up a household by their choices gains importance. The rising trend of choice-based one-person households should be associated with the change and transformation in interpersonal relations, socio-economic and cultural norms through modernization. Similar to the southern European pattern, extended families have diminished over time while single-person and one-parent households' rates have gained momentum.

In addition to the modernization-based changes in households in Turkey, the individuality and tendency to move away from traditional lifestyles, as indicated by the developmental idealism approach, are among the important findings of this study. Likewise, it strengthens the theoretical approach of this thesis that the mean ages of the household heads and the share of the people who are relatively more dependent in one-person households have diminished. In contrast, the educational status and wealth status of these people have improved. Therefore, it can be argued that the solo living tendency in Turkey has shifted from necessity to a matter of choice, as found in the literature review and the

results of analyses. Living alone in consideration of age, gender, marital status, region parameters should be regarded by the policymakers since it affects many areas from the housing sector to social services. Başlevent (2021) states that since it is not possible to return to the traditional household structure, it is clear that the prevalence of different household types, as well as the gender and age distribution, and income status of individuals living alone should be considered when developing mass housing and urban transformation projects. In addition, social service opportunities are essential for certain groups living alone, such as older adults, disabled.

As women, the visibility of various groups in one-person households reveals the impact of Turkey's changing socio-cultural and economic structure. In addition to the dual and continuous progress of modernization, the different transformation processes that come with developmental idealism, which also ascertain the importance of individuals' lifestyles, are essential rationalization foundations of this study. The differences in these processes of change and transformation require caution when approaching the subject and show a complex chain of interactions. Therefore, the hybridization of the family, which Kavas and Thornton (2003) aimed to make sense of the changes in family structure in the context of the western and the non-western or the past and the future, makes it possible to look at this issue from a different perspective. Thus, the choice for living alone reaches significant levels in people who are unmarried or divorced or living separately, with the highest education and welfare levels. In this classification, although men are close to living alone based on choice, the tendency to live alone based on widowhood decreases in women. In addition, the age of household leaders also tends to decrease over time. This situation may be the harbinger of an ideational change that is often underlined in the theoretical framework. Besides all these discussions, the interrelated set of relations shows us the significance of following the hybridization approach on family and household structure change.

The presence of female groups in one-person households should be highlighted in the context of choice and circumstance discussions. According to this study, women’s high representation in circumstances-based one-person households is closely related to their

widowhood situation; however, deciding not to return to children's houses or not remarrying after the loss of the spouses can be associated with their increasing socio-economic status and the decision to live alone. On the other hand, while widowed and aged women come to the fore, the existence of never-married or divorced women of working ages living alone by their own choices should also be underlined. In that sense, the feminization of living alone could be more comprehensive and meaningful in these discussions.

Although there is an improvement in the socio-economic status of women, through their involvement in the market, their liberation, and progress in their educational level, it is still possible to talk about the risk of poverty for females in one-person households. Moreover, since there are limited numbers of working sectors for women, especially for older women, this can cause some difficulties for these groups to maintain their lives and create a ground for the poverty discussions for the future's one-person households. Therefore, the policies considering females and older adults in one-person households should be employed.

The experience of solo living is a complicated and complex subject; therefore, supporting these findings with qualitative studies will complement the detailed and comprehensive study obtained here and will have an important place in comparing and understanding current results on one-person households. Even the analyses have obtained information about the age, sex, educational status, marital status, and regional distribution of the people who make up these households. The subjective data about the single living experiences of these people might be a subsidiary for making more consistent inferences.

In this study, the characteristics of single-person households' members were examined in detail using both government records and research data. In future studies, interviewing these people will be complementary in terms of questioning our findings and obtaining subjective data. In addition, in cooperation with other disciplines, the psychological, sociological, and health conditions of people living alone can be revealed and employed for policymaking towards these groups.

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APPENDIX

APPENDIX A. ADDITIONAL TABLES FOR LITERATURE REVIEW

Table A.1. Average Size of Households in Turkey, (1955-2000) Census; (2008-2020) ABPRS (row percentages)

Year(Data collected)	Average size of households	Total number of households
1955	5.68	4237176
1960	5.68	4885325
1965	5.67	5536116
1970	5.69	6261949
1975	5.78	6982505
1980	5.32	8522499
1985	5.22	9730018
1990	4.97	11188636
2000	4.50	15070093
2008	4.00	17794239
2009	4.00	18427322
2010	3.90	18808172
2011	3.80	19311637
2012	3.70	20051453
2013	3.60	20476409
2014	3.60	21091075
2015	3.50	21662260
2016	3.50	22206776
2017	3.40	22676186
2018	3.41	23221218
2019	3.35	24001940
2020	3.30	24604086

Table A.2. The Average Household Size by NUTS-3 Regions, ABPRS-2008

Provinces	Average household size
Adana	4.2
Adıyaman	5.3
Afyonkarahisar	4.0
Ağrı	6.7
Aksaray	4.3
Amasya	3.8
Ankara	3.6
Antalya	3.6
Ardahan	4.8
Artvin	3.7
Aydın	3.3
Balıkesir	3.1
Bartın	3.7
Batman	6.9
Bayburt	4.4
Bilecik	3.3
Bingöl	5.4
Bitlis	6.4
Bolu	3.6
Burdur	3.1
Bursa	3.7
Çanakkale	2.9
Çankırı	3.5
Çorum	3.8
Denizli	3.4
Diyarbakır	6.3
Düzce	3.9
Edirne	3.2
Elazığ	4.4
Erzincan	3.9
Erzurum	5.0
Eskişehir	3.2
Gaziantep	4.9
Giresun	3.6
Gümüşhane	4.0
Hakkari	7.8
Hatay	4.4
Iğdır	5.5
Isparta	3.4
İstanbul	3.8
İzmir	3.4
Kahramanmaraş	4.7
Karabük	3.4
Karaman	3.6
Kars	5.3
Kastamonu	3.6
Kayseri	4.2
Kırıkkale	3.7
Kırklareli	3.2
Kırşehir	3.9
Kilis	4.6
Kocaeli	3.9
Konya	4.0
Kütahya	3.4
Malatya	4.5
Manisa	3.5
Mardin	6.8
Mersin	3.8
Muğla	3.2
Muş	6.9
Nevşehir	3.8
Niğde	3.9
Ordu	3.9
Osmaniye	4.4
Rize	4.0
Sakarya	4.0
Samsun	4.1
Siirt	7.1
Sinop	3.4
Sivas	4.3
Şanlıurfa	6.4
Şırnak	8.2
Tekirdağ	3.5
Tokat	4.2
Trabzon	3.9
Tunceli	3.7
Uşak	3.5
Van	6.9
Yalova	3.5
Yozgat	4.2
Zonguldak	3.7

Table A.3. The Average Household Size by NUTS-3 Regions, ABPRS-2020

Provinces	Average household size
Adana	3.6
Adıyaman	4.1
Afyonkarahisar	3.3
Ağrı	4.8
Aksaray	3.4
Amasya	3.0
Ankara	3.0
Antalya	3.0
Ardahan	3.3
Artvin	2.9
Aydın	2.9
Balıkesir	2.7
Bartın	2.9
Batman	5.1
Bayburt	3.2
Bilecik	2.9
Bingöl	3.7
Bitlis	4.4
Bolu	3.0
Burdur	2.7
Bursa	3.2
Çanakkale	2.6
Çankırı	2.7
Çorum	2.9
Denizli	2.9
Diyarbakır	4.5
Düzce	3.3
Edirne	2.7
Elazığ	3.3
Erzincan	3.0
Erzurum	3.7
Eskişehir	2.7
Gaziantep	4.0
Giresun	2.7
Gümüşhane	2.9
Hakkari	5.2
Hatay	3.7
Iğdır	4.1
Isparta	2.8
İstanbul	3.3
İzmir	2.9

Provinces	Average household size
Kahramanmaraş	3.8
Karabük	2.8
Karaman	3.1
Kars	3.8
Kastamonu	2.8
Kayseri	3.4
Kırıkkale	2.9
Kırklareli	2.8
Kırşehir	3.1
Kilis	3.5
Kocaeli	3.4
Konya	3.4
Kütahya	2.9
Malatya	3.5
Manisa	3.0
Mardin	4.8
Mersin	3.3
Muğla	2.8
Muş	4.7
Nevşehir	3.1
Niğde	3.2
Ordu	2.9
Osmaniye	3.5
Rize	3.1
Sakarya	3.4
Samsun	3.2
Siirt	4.9
Sinop	2.8
Sivas	3.2
Şanlıurfa	5.2
Şırnak	5.7
Tekirdağ	3.1
Tokat	3.1
Trabzon	3.1
Tunceli	2.7
Uşak	2.9
Van	4.8
Yalova	3.0
Yozgat	3.1
Zonguldak	2.9

Table A.4. Percentage Distribution of Households by Household Types in OECD Countries, 2011 (row percentages)

	Couple households			Single parent households:			Single	
Country	Total	With children	Without children	Total	Single mother households	Single father households	person households	Other household types
Australia	57.0	31.0	25.9	10.4	-	-	23.9	8.7
Austria	50.1	23.1	27.0	6.6	5.7	0.9	36.3	7.0
Belgium	53.2	24.8	28.4	7.7	6.3	1.4	34.1	5.0
Canada	56.0	26.5	29.5	10.3	..	..	27.6	6.1
Chile	..	..	..	..	..	..	..	..
Czech Republic	47.9	22.2	25.7	8.3	6.8	1.5	32.5	11.2
Denmark	50.1	22.2	27.9	6.2	5.2	1.0	37.5	6.2
Estonia	43.7	21.0	22.7	8.5	7.8	0.8	39.9	7.8
Finland	49.4	20.5	28.9	5.5	0.0	5.5	41.0	4.0
France	54.1	25.6	28.5	7.3	6.1	1.2	33.8	4.8
Germany	51.7	20.6	31.1	5.5	4.7	0.8	37.3	5.5
Greece	58.5	27.9	30.6	4.2	3.6	0.7	25.7	11.6
Hungary	50.8	24.5	26.3	8.3	7.2	1.0	32.1	8.9
Iceland	48.4	29.6	18.7	9.0	8.0	1.1	31.1	4.6
Ireland	57.2	32.7	24.5	8.8	7.8	1.0	23.7	10.3
Israel	66.6	44.9	21.7	5.7	..	..	27.8	
Italy	54.9	27.1	27.8	5.4	4.5	0.9	31.1	8.6
Japan	46.8	16.6	30.2	2.6	2.4	0.3	34.4	16.2
Korea	52.4	37.0	15.4	9.2	7.2	2.0	23.9	14.5
Latvia	39.4	19.9	19.5	11.5	10.0	1.5	34.4	14.7
Luxembourg	50.0	27.1	22.9	5.9	5.0	0.9	33.3	10.8
Mexico	58.6	50.0	8.6	10.3	..	..	7.6	23.6
Netherlands	56.4	25.7	30.6	5.5	4.6	0.9	36.4	1.7
New Zealand	57.1	28.9	28.1	11.2	..	..	23.5	8.2
Norway	48.5	25.3	23.1	7.2	5.6	1.6	39.6	4.7
Poland	52.6	28.9	23.7	7.7	6.7	1.0	24.0	15.6
Portugal	63.6	31.3	32.3	6.1	5.3	0.8	21.4	8.9
Slovak Republic	41.5	23.2	18.3	6.5	5.5	1.0	25.3	26.7
Slovenia	45.4	23.2	22.2	7.9	6.7	1.2	32.8	13.9
Spain	60.3	30.4	29.9	5.9	4.6	1.4	23.2	10.6
Sweden	52.1	24.3	27.9	6.6	5.1	1.6	36.2	5.0
Switzerland	55.6	25.0	30.6	4.4	3.8	0.6	37.0	3.0
Turkey	..	..	..	..	..	..	..	..
United Kingdom	50.8	22.4	28.4	8.5	7.5	1.0	30.6	10.1
United States	48.4	20.2	28.2	9.6	7.2	2.4	26.7	15.3
OECD-32 average	51.9	..	..	7.5	..	..	30.6	9.8
Costa Rica	52.4	38.1	14.3	10.5	9.5	1.1	11.3	25.7
Bulgaria	52.3	23.7	28.6	4.7	3.7	1.0	30.8	12.3
Croatia	56.3	29.8	26.5	4.9	4.1	0.8	24.6	14.2
Cyprus	65.4	34.6	30.7	4.8	4.3	0.5	20.8	9.1
Lithuania	49.5	26.0	23.4	9.6	8.3	1.3	31.7	9.2
Malta	62.0	33.3	28.7	6.2	5.3	0.9	22.6	9.2
Romania	54.5	27.0	27.5	5.7	4.3	1.4	26.0	13.8
EU average	52.6	25.8	26.8	6.8	5.6	1.2	30.7	9.9
Eurozone average	52.9	26.2	26.7	6.8	5.6	1.2	30.8	9.5

APPENDIX B. ADDITIONAL TABLES FOR DESCRIPTIVE ANALYSIS

Table B.1. Changes in the Percentage of One-Person Households, TDHS-1993- TDHS-2018

	Percentages	Number of de jure members
1993	4.38	377
1998	5.20	419
2003	6.34	687
2008	6.36	669
2013	8.50	1003
2018	8.53	943

Table B.2. Changes in the Percentage of One-Person Households in Different Sources, 1980-2000 CENSUS, 2006-2016 TAYA, 2014-2020 ABPRS

	TAYA	TDHS	ABPRS	CENSUS
1978		3.0		
1980				6.5
1985				4.7
1988		4.3		
1990				4.5
1993				
1998		5.2		
2000				5.3
2003		6.3		
2006	6.2			
2008		6.3		
2011	11.8			
2012				
2013		8.5		
2014			13.9	
2015			14.4	
2016	11.4		14.9	
2017			15.4	
2018		8.5	16.1	
2019			16.9	
2020			17.9	

Table B.3. Percentage Distribution of One-Person Households by Sex, 1993-2018

	Years					
Sex of the household head	**1993**	**1998**	**2003**	**2008**	**2013**	**2018**
Male	30.2	37.1	35.0	31.6	41.3	36.8
Female	69.8	62.9	65.0	68.4	58.7	63.2
Number of de jure members	377	419	687	669	1003	943

Table B.4. Percentage Distribution of One-Person Households by Age Groups, 1993-2018

	Years					
Age groups	**1993**	**1998**	**2003**	**2008**	**2013**	**2018**
17-29	8	13	15	11	10	10
30-44	6	10	12	13	14	11
45-64	35	28	24	28	29	29
65+	51	49	49	48	47	50
Number of de jure members	377	419	687	669	1003	943

Source: TDHS (1993-2018)

Table B.5. Mean Ages of Heads in One-Person Households, 1993-2018

	Years					
Sex of the household head	**1993**	**1998**	**2003**	**2008**	**2013**	**2018**
Male	53.00	49.63	49.08	51.28	50.19	52.14
Female	65.28	63.39	62.37	62.47	65.89	65.75
Total	61.59	58.30	57.78	58.93	59.39	60.76
Number of de jure members	377	419	687	669	1003	943

Table B.6. Percentage Distribution of Female-Headed One-Person Households by Age Groups, 1993-2018

	Years					
Age group	1993	1998	2003	2008	2013	2018
17-19	0.4	0.0	0.4	0.0	0.2	0.2
20-24	1.1	2.6	4.7	2.4	1.5	1.8
25-29	0.4	2.3	4.9	4.4	1.9	1.8
30-34	0.4	1.1	2.7	3.7	2.6	1.8
35-39	0.4	1.5	1.6	0.9	2.0	1.3
40-44	0.4	2.3	2.0	3.7	1.7	3.0
45-49	1.5	2.6	0.4	5.0	3.2	2.3
50-54	5.7	5.6	4.9	5.3	3.9	4.4
55-59	10.2	9.4	6.7	8.3	9.4	10.4
60-64	22.0	14.3	13.6	12.3	12.6	12.1
65-69	22.0	21.8	16.4	12.5	13.8	14.7
70-74	16.3	18.8	18.4	14.2	15.6	16.2
75-79	6.1	10.9	13.6	15.3	13.1	11.7
80-84	9.5	3.8	6.9	9.8	12.1	9.4
85-89	2.3	2.3	1.3	1.8	5.6	5.9
90-94	0.8	0.4	0.9	0.2	0.7	2.2
95+	0.4	0.4	0.7	0.2	0.2	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table B.7. Percentage Distribution of Male-Headed One-Person Households by Age Groups, 1993-2018

	Years					
Age group	1993	1998	2003	2008	2013	2018
17-19	3.5	4.5	2.5	0.9	1.0	2.0
20-24	7.9	8.9	10.5	3.3	6.3	7.8
25-29	11.4	12.1	12.6	16.1	11.6	9.8
30-34	7.0	8.9	8.4	13.7	11.9	8.9
35-39	7.0	4.5	7.1	5.2	5.8	5.5
40-44	1.8	4.5	8.0	3.8	7.0	5.5
45-49	3.5	3.8	4.2	5.2	9.0	6.9
50-54	7.0	5.1	3.8	7.1	8.0	6.1
55-59	4.4	5.1	5.0	5.2	4.6	7.5
60-64	10.5	8.3	6.7	4.3	7.3	8.4
65-69	7.0	13.4	4.6	6.6	7.7	6.1
70-74	12.3	8.3	12.6	7.1	5.8	8.1
75-79	3.5	7.0	6.7	11.4	3.9	7.2
80-84	7.9	3.2	4.2	8.5	5.6	3.5
85-89	2.6	2.5	1.7	0.0	4.1	5.5
90-94	0.9	0.0	0.8	1.4	0.5	1.4
95+	1.8	0.0	0.4	0.0	0.0	0.0
Total	100	100	100	100	100	100

Table B.8. Percentage Distribution of Female-Headed One-Person Households by Marital Status, 1993-2018

	Years					
Marital status	1993	1998	2003	2008	2013	2018
Never married	3	11	13	13	9	12
Married	1	2	1	2	1	2
Widowed	90	80	76	74	78	74
Divorced	3	6	8	9	11	10
Not living together	3	1	1	2	1	1
Total	100	100	100	100	100	100

Table B.9. Percentage Distribution of Male-Headed One-Person Households by Marital Status, 1993-2018

Marital status of the household head	Years					
	1993	1998	2003	2008	2013	2018
Never married	31	37	45	35	40	38
Married	8	13	4	8	6	7
Widowed	39	37	29	33	28	31
Divorced	16	12	15	19	22	20
Not living together	6	2	8	5	5	3
Total	100	100	100	100	100	100

Table B.10. Changes in the Mean Years of Schooling by Household Types, 1993-2018

Household type	Years					
	1993	1998	2003	2008	2013	2018
One-person households	3.10	5.24	6.12	5.77	6.41	6.64
Other households	5.64	6.22	7.01	7.13	7.78	7.70

Table B.11. Changes in the Mean Years of Schooling by Sex of the Heads in One-Person Households, 1993-2018

Sex of the household head	Years					
	1993	1998	2003	2008	2013	2018
Male	5.61	7.83	8.45	8.76	8.81	9.27
Female	2.02	3.73	4.89	4.38	4.72	5.12
Total	3.10	5.24	6.12	5.77	6.41	6.64

Table B.12. Percentage Distribution of One-Person Households by NUTS-1 Regions, 2003-2018

	The percentage of one-person households				Total number of households			
	Years				Year			
Regions	2003	2008	2013	2018	2003	2008	2013	2018
Istanbul	7	7	9	7	1954	2098	2384	2148
West Marmara	8	10	14	13	551	553	595	586
Aegean	10	9	13	11	1663	1623	1685	1636
East Marmara	5	5	7	9	966	1031	1155	1119
West Anatolia	6	7	9	9	1075	1045	1268	1151
Mediterranean	5	5	8	8	1382	1291	1462	1379
Central Anatolia	6	6	6	7	602	525	538	544
West Black Sea	8	8	7	10	707	672	685	653
East Black Sea	6	6	9	14	413	308	435	331
Northeast Anatolia	3	3	3	5	302	250	291	221
Central East Anatolia	4	2	3	4	448	377	438	417
Southeast Anatolia	3	3	3	5	774	755	859	872
Total number of households	688	671	1003	943	10837	10528	11795	11057

Table B.13. Changes in the Mean Wealth Index Scores by Household Types, 2003-2018

	Years			
Household types	2003	2008	2013	2018
One-person households	2.28	2.91	2.65	2.62
Other households	3.11	3.18	3.14	3.12

Table B.14. Changes in the Mean Wealth Index Scores by Sex of the Heads in One-Person Households, 2003-2018

	Years			
Sex of the household head	2003	2008	2013	2018
Male	2.44	3.38	2.88	2.82
Female	2.20	2.69	2.49	2.50

Table B.15. Percentage Distribution of Wealth Quantiles by Sex of the Heads in One-Person Households, 2018

	Sex of the household head		
Wealth status	Male	Female	Total number of households
Poorest	27	33	291
Poorer	17	18	167
Middle	20	24	211
Richer	17	18	164
Richest	18	8	111
Total number of households	346	598	944

Table B.16. Prevalence of One-Person Households by NUTS-3 Regions, ABPRS-2014

Provinces	Percentage of one-person households	Provinces	Percentage of one-person households
Adana	10.8	Kahramanmaraş	9.1
Adıyaman	8.3	Karabük	17.0
Afyonkarahisar	15.2	Karaman	14.6
Ağrı	8.5	Kars	11.6
Aksaray	12.0	Kastamonu	19.3
Amasya	14.6	Kayseri	10.0
Ankara	13.7	Kırıkkale	15.4
Antalya	15.4	Kırklareli	16.9
Ardahan	15.0	Kırşehir	15.2
Artvin	19.1	Kilis	13.9
Aydın	17.7	Kocaeli	10.6
Balıkesir	19.3	Konya	12.0
Bartın	15.9	Kütahya	16.4
Batman	7.5	Malatya	13.6
Bayburt	14.1	Manisa	14.2
Bilecik	16.8	Mardin	9.4
Bingöl	9.7	Mersin	13.3
Bitlis	8.8	Muğla	19.4
Bolu	16.2	Muş	8.2
Burdur	18.9	Nevşehir	15.1
Bursa	12.2	Niğde	15.0
Çanakkale	20.7	Ordu	17.1
Çankırı	19.8	Osmaniye	9.1
Çorum	16.2	Rize	16.8
Denizli	15.6	Sakarya	12.0
Diyarbakır	7.1	Samsun	13.0
Düzce	13.0	Siirt	8.5
Edirne	17.8	Sinop	20.0
Elazığ	12.0	Sivas	15.1
Erzincan	17.9	Şanlıurfa	8.0
Erzurum	11.7	Şırnak	8.9
Eskişehir	21.4	Tekirdağ	13.8
Gaziantep	9.8	Tokat	15.9
Giresun	20.4	Trabzon	16.7
Gümüşhane	20.8	Tunceli	21.9
Hakkari	7.5	Uşak	15.0
Hatay	9.7	Van	7.5
Iğdır	10.7	Yalova	18.4
Isparta	17.6	Yozgat	15.5
İstanbul	13.7	Zonguldak	14.1
İzmir	16.4		

Table B.17. Prevalence of One-Person Households by NUTS-3 Regions, ABPRS-2020

Provinces	Percentage of one-person households	Provinces	Percentage of one-person households
Adana	14.9	Kahramanmaraş	12.2
Adıyaman	10.8	Karabük	23.4
Afyonkarahisar	18.9	Karaman	18.8
Ağrı	12.2	Kars	16.7
Aksaray	16.2	Kastamonu	24.3
Amasya	19.1	Kayseri	14.2
Ankara	18.0	Kırıkkale	20.3
Antalya	20.4	Kırklareli	21.0
Ardahan	21.9	Kırşehir	19.1
Artvin	25.2	Kilis	18.6
Aydın	22.3	Kocaeli	14.3
Balıkesir	23.2	Konya	15.1
Bartın	21.9	Kütahya	20.7
Batman	10.5	Malatya	16.3
Bayburt	21.0	Manisa	17.8
Bilecik	20.3	Mardin	12.2
Bingöl	16.2	Mersin	17.3
Bitlis	13.4	Muğla	23.9
Bolu	21.1	Muş	12.6
Burdur	24.2	Nevşehir	19.0
Bursa	15.7	Niğde	19.7
Çanakkale	24.2	Ordu	22.2
Çankırı	25.8	Osmaniye	13.3
Çorum	20.8	Rize	22.5
Denizli	20.1	Sakarya	16.2
Diyarbakır	10.2	Samsun	17.7
Düzce	17.7	Siirt	11.9
Edirne	22.6	Sinop	24.3
Elazığ	17.1	Sivas	19.1
Erzincan	23.0	Şanlıurfa	11.4
Erzurum	15.9	Şırnak	12.7
Eskişehir	25.2	Tekirdağ	16.8
Gaziantep	12.6	Tokat	20.2
Giresun	26.7	Trabzon	21.6
Gümüşhane	28.7	Tunceli	27.9
Hakkari	11.5	Uşak	19.4
Hatay	13.6	Van	10.4
Iğdır	14.2	Yalova	22.8
Isparta	23.1	Yozgat	21.0
İstanbul	18.0	Zonguldak	19.5
İzmir	20.5		

Table B.18. Changes in the Prevalence of One-Person Households by NUTS-3 Region between 2014-2020

Provinces	Percentage change in one-person households (2014-2020)
Adana	38.1
Adıyaman	29.8
Afyonkarahisar	24.0
Ağrı	43.0
Aksaray	34.6
Amasya	30.5
Ankara	31.4
Antalya	32.7
Ardahan	45.5
Artvin	31.9
Aydın	25.9
Balıkesir	20.5
Bartın	37.4
Batman	39.4
Bayburt	48.8
Bilecik	21.1
Bingöl	66.1
Bitlis	53.4
Bolu	30.6
Burdur	27.9
Bursa	29.3
Çanakkale	17.2
Çankırı	30.3
Çorum	28.1
Denizli	28.5
Diyarbakır	43.2
Düzce	36.1
Edirne	26.8
Elazığ	42.8
Erzincan	28.5
Erzurum	35.8
Eskişehir	18.1
Gaziantep	28.9
Giresun	31.0
Gümüşhane	38.4
Hakkari	53.4
Hatay	40.3
Iğdır	32.6
Isparta	31.4
İstanbul	31.3
İzmir	25.1
Kahramanmaraş	34.1
Karabük	37.7
Karaman	29.1
Kars	44.2
Kastamonu	25.6
Kayseri	41.4
Kırıkkale	31.2
Kırklareli	24.6
Kırşehir	25.5
Kilis	33.8
Kocaeli	34.1
Konya	25.3
Kütahya	26.6
Malatya	20.4
Manisa	25.3
Mardin	30.2
Mersin	30.2
Muğla	23.7
Muş	53.1
Nevşehir	26.1
Niğde	31.1
Ordu	29.4
Osmaniye	46.3
Rize	33.6
Sakarya	34.7
Samsun	36.6
Siirt	40.8
Sinop	21.6
Sivas	26.3
Şanlıurfa	42.3
Şırnak	42.5
Tekirdağ	21.3
Tokat	27.7
Trabzon	29.1
Tunceli	27.5
Uşak	29.2
Van	39.1
Yalova	23.9
Yozgat	35.7
Zonguldak	38.4

Table B.19. Percentage distribution of One-Person Households by the formation of the households, ABPRS-2019

Formation type of	Male		Female		Percentage change between 2014-2019	
One-person households	2014	2019	2014	2019	Male	Female
Circumstances	39.68	41.41	69.1	67.3	4.4	-2.7
Choices	60.32	58.59	30.9	32.7	-2.9	6.1
Total Population	1270054	1776973	1612029	2059601		

Table B.20. Changes in the Percentage Distribution of One-Person Households by the Formation Types, 1993-2018

Formation type of One-person households	Years					
	1993	1998	2003	2008	2013	2018
Circumstances	77	70	62	65	61	63
Choices	23	30	38	35	39	37
Number of de jure members	377	419	687	669	1003	943

Table B.21. Changes in the Formation of One-Person Households Headed by Males, 1993-2018

Formation type of One-person households	Years					
	1993	1998	2003	2008	2013	2018
Circumstances	47	50	32	41	34	39
Choices	53	50	68	59	66	61
Number of de jure members	113	155	237	212	415	346

Table B.22. Changes in the Percentage Distribution of One-Person Households Headed by Females, 1993-2018

Formation type of One-person households	Years					
	1993	1998	2003	2008	2013	2018
Circumstances	91	82	78	76	79	76
Choices	9	18	22	24	21	24
Number of de jure members	264	265	449	457	588	597

Table B.23. The Mean Ages of Male Heads in One-Person Households by the Formation Types, 1993-2018

Formation type of One-person households	Years					
	1993	1998	2003	2008	2013	2018
Circumstances	69.1	63.3	69.1	69.0	67.9	70.0
Choices	38.6	35.8	39.5	39.2	41.0	40.8
Number of de jure members	113	155	237	212	415	346

Table B.24. The Mean Ages of Female Heads in One-Person Households by the Formation Types, 1993-2018

Formation type of One-person households	Years					
	1993	1998	2003	2008	2013	2018
Circumstances	66.7	67.3	68.8	69.0	70.6	71.3
Choices	51.8	45.1	39.7	41.5	48.1	48.0
Number of de jure members	264	265	449	457	588	597

Table B.25. The Mean Years of Schooling in Male Headed One-Person Households by the Formation Types, 1993-2018

Formation type of One-person households	Years					
	1993	1998	2003	2008	2013	2018
Circumstances	2.6	5.4	4.4	5.4	5.6	5.7
Choices	8.3	10.3	10.4	11.1	10.5	11.5
Number of de jure members	113	155	237	212	415	346

Table B.26. The Mean Years of Schooling of Female Heads in One-Person Households by the Formation Types, 1993-2018

Formation type of One-person households	Years					
	1993	1998	2003	2008	2013	2018
Circumstances	1.8	2.2	2.9	2.7	3.3	3.4
Choices	4.4	10.6	11.7	9.9	10.2	10.8
Number of de jure members	264	265	449	457	588	597

APPENDIX- ADDITIONAL TABLES FOR MULTIVARIATE ANALYSIS

Table C.1. Results of the Basic Model in the First Logistic Regression Analysis

	Sig.	Exp(B)	95% C.I.for EXP(B)	
			Lower	Upper
Sex of household head				
Male	-	-	-	-
Female	0.000	13.140	11.359	15.202
Constant	0.000	0.039		

Table C.2. Results of the Individual Level Model in the First Logistic Regression Analysis

			95% C.I.for EXP(B)	
	Sig.	Exp(B)	Lower	Upper
Sex of household head				
Male	-	-	-	-
Female	0.000	5.989	5.070	7.074
Age of the household head	0.000	1.058	1.051	1.065
Education completed in single years	0.018	1.023	1.004	1.043
Marital status of the household head (grouped)				
Dependent people	-	-	-	-
Independent people	0.000	14.246	11.361	17.865
Working in a paid job				
No	0.000	1.696	1.371	2.099
Yes	-	-	-	-
Constant	0.000	0.000		

Table C.3. Results of the Diverse Model in the First Logistic Regression Analysis

			95% C.I.for EXP(B)	
	Sig.	Exp(B)	Lower	Upper
Sex of household head				
Male	-	-	-	-
Female	0.000	5.989	5.070	7.074
Age of the household head	0.000	1.058	1.051	1.065
Education completed in single years	0.018	1.023	1.004	1.043
Marital status of the household head (grouped)				
Dependent people	-	-	-	-
Independent people	0.000	14.246	11.361	17.865
Working in a paid job				
No	0.000	1.696	1.371	2.099
Yes	-	-	-	-
Receiving any payment				
No payment				
Retirement or Widowhood payment	0.000	1.863	1.464	2.370
Other types of payment	0.648	0.926	0.664	1.290
Type of place of residence				
Urban	0.127	1.196	0.950	1.506
Rural	-	-	-	-
Region				
West	0.033	1.394	1.028	1.891
South	0.870	1.031	0.718	1.480
Central	0.000	1.783	1.291	2.463
North	0.002	1.797	1.232	2.619
East	-	-	-	-
Wealth Status				
Poorest	0.000	9.645	6.598	14.099
Poorer	0.000	4.444	3.142	6.286
Middle	0.000	3.605	2.646	4.913
Richer	0.000	2.550	1.872	3.475
Richest	-	-	-	-
Constant	0.000	0.000		

Table C.4. Results of the Basic Model in the Second Logistic Regression Analysis

	Sig.	Exp(B)	95% C.I.for EXP(B)	
			Lower	Upper
Sex of household head				
Male	0.000	5.039	3.783	6.713
Female	-	-	-	-
Constant	0.000	0.311	-	-

Table C.5. Results of the Individual Level Model in the Second Logistic Regression Analysis

			95% C.I.for EXP(B)	
	Sig.	Exp(B)	Lower	Upper
Sex of household head				
Male	0.000	2.095	1.394	3.147
Female	-	-	-	-
Age group of the household head				
15-29	0.000	110.699	15.406	795.419
30-44	0.000	22.726	10.372	49.796
45-59	0.000	5.432	3.547	8.319
60+				
Education completed in single years	0.000	1.186	1.136	1.238
Constant	0.000	0.046	-	-

Table C.6. Results of the Diverse Model in the Second Logistic Regression Analysis

			95% C.I.for EXP(B)	
	Sig.	Exp(B)	Lower	Upper
Sex of household head				
Male	0.000	2.290	1.485	3.529
Female	-	-	-	-
Age group of the household head				
15-29	0.000	57.420	7.332	449.668
30-44	0.000	13.359	5.067	35.218
45-59	0.000	5.219	3.244	8.397
60+	-	-	-	-
Education completed in single years	0.000	1.165	1.102	1.233
Receiving any payment				
Not receiving	0.000	3.818	2.069	7.048
Retirement or Widowhood payment	-	-	-	-
Other types of payment	0.000	3.239	1.681	6.242
Type of place of residence				
Urban	0.062	1.710	0.974	3.003
Rural	-	-	-	-
Region				
West	0.101	2.187	0.859	5.566
South	0.394	1.623	0.533	4.942
Central	0.365	1.582	0.587	4.264
North	0.213	2.026	0.666	6.157
East	-	-	-	-
Working in a paid job				
Not working	-	-	-	-
Working	0.207	1.577	0.777	3.200
Wealth Status				
Poor	-	-	-	-
Middle	0.140	1.603	0.856	3.002
Rich	0.459	1.278	0.667	2.449
Constant	0.000	0.007	-	-