

HACETTEPE UNIVERSITY
INSTITUTE OF POPULATION STUDIES

**MODELLING LABOUR FORCE PARTICIPATION BY
HOUSEHOLD TYPES**

Eda Evin AKSU

Supervisor

Prof. Dr. Ahmet Sinan TÜRKYILMAZ

Department of Demography

Master's Thesis

Ankara

December 2018

Modelling Labour Force Participation by Household Types

Eda Evin AKSU

This is to certify that we have read and examined this thesis and in our opinion it fulfils the requirements in scope and quality of a thesis for the degree of Master of Arts in Demography.

Jury Members:

Member (Supervisor):

Prof. Dr. Ahmet Sinan TÜRKYILMAZ

Hacettepe University, Institute of Population Studies

Member (Chair):

Assoc. Prof. Dr. Hatice Yaprak CİVELEK

İstanbul Arel University, Faculty of Science and Letters

Member:

Assoc. Prof. Dr. Alanur ÇAVLİN

Hacettepe University, Institute of Population Studies

This thesis has been accepted by the above-signed members of the Jury and has been confirmed by the Administrative Board of the Institute of Population Studies, Hacettepe University.

.../.../....

Prof. Dr. A. Banu ERGÖÇMEN

Director



HACETTEPE UNIVERSITY
INSTITUTE OF POPULATION STUDIES
THESIS/DISSERTATION ORIGINALITY REPORT

HACETTEPE UNIVERSITY
INSTITUTE OF POPULATION STUDIES
TO THE DEPARTMENT OF DEMOGRAPHY

Date: 04/01/2019

Thesis Title / Topic: MODELLING LABOUR FORCE PARTICIPATION BY HOUSEHOLD TYPES


According to the originality report obtained by myself/my thesis advisor by using the *Turnitin* plagiarism detection software and by applying the filtering options stated below on 03/01/2019 for the total of 180 pages including the a) Title Page, b) Introduction, c) Main Chapters, and d) Conclusion sections of my thesis entitled as above, the similarity index of my thesis is 9 %.

Filtering options applied:

1. Bibliography/Works Cited excluded
2. Quotes excluded
3. Match size up to 5 words excluded

I declare that I have carefully read Hacettepe University Institute of Population Studies Guidelines for Obtaining and Using Thesis Originality Reports; that according to the maximum similarity index values specified in the Guidelines, my thesis does not include any form of plagiarism; that in any future detection of possible infringement of the regulations I accept all legal responsibility; and that all the information I have provided is correct to the best of my knowledge.

I respectfully submit this for approval.


04/01/2019

Name Surname: Eda Evin AKSU

Student No: N11120301

Department: Demography

Program: Demography

Status: Masters Ph.D. Integrated Ph.D.

ADVISOR APPROVAL

APPROVED.



Prof. Dr. Ahmet Sinan TÜRKYILMAZ

04/01/2019

ETHICAL DECLARATION

In this thesis study, I declare that all the information and documents have been obtained in the base of the academic rules and all audio-visual and written information and results have been presented according to the rules of scientific ethics. I did not do any distortion in data set. In case of using other works, related studies have been fully cited in accordance with the scientific standards. I also declare that my thesis study is original except cited references. It was produced by myself in consultation with supervisor (Prof. Dr., Ahmet Sinan TÜRKYILMAZ) and written according to the rules of thesis writing of Hacettepe University Institute of Population Studies.

Eda Evin AKSU



DECLARATION OF PUBLISHING AND INTELLECTUAL PROPERTY RIGHTS


I declare that I give permission to Hacettepe University to archive all or some part of my master thesis, which is approved by the Institute, in printed (paper) or electronic format and to open to access with the following rules. With this permission, I hold all intellectual property rights, except using rights given to the University, and the rights of use of all or some parts of my thesis in the future studies (article, book, license, and patent).

I declare that the thesis is my original work, I did not violate rights of others and I own all rights of my thesis. I declare that I used texts with the written permit which is taken by owners and I will give copies of these to the University, if needed.

As per the “Regulation on the Online Availability, Arrangement and Open Access of Graduate Theses” of Council of Higher Education, my thesis shall be deposited to National Theses Center of the Council of Higher Education/Open Access System of H.U. libraries, except for the conditions indicated below;

- The access to my thesis has been postponed for 2 years after my graduation as per the decision of the Institute/University board.⁽¹⁾
- The access to my thesis has been postponed for month(s) after my graduation as per the decision of the Institute/University board.⁽²⁾
- There is a confidentiality order for my thesis.⁽³⁾

04/01/2019

Eda Evin AKSU


ⁱ Regulation on the Online Availability, Arrangement and Open Access of Graduate Theses

⁽¹⁾ Article 6.1. In the event of patent application or ongoing patent application, the Institute or the University Board may decide to postpone the open access of the thesis for two years, upon the proposal of the advisor and the assent of the Institute Department.

⁽²⁾ Article 6.2. For theses that include new techniques, material and methods, that are not yet published articles and are not protected by patent and that can lead to unfair profit of the third parties in the event of being disseminated online, the open access of the theses may be postponed for a period not longer than 6 months, as per the decision of the Institute or the University Board upon the proposal of the advisor and the assent of the Institute Department.

⁽³⁾ Article 7.1. The confidentiality order regarding the theses that concern national interest or security, the police, intelligence, defense and security, health and similar shall be issued by the institution certified the thesis*. The confidentiality order for theses prepared pursuant to the cooperation protocol with institutions and organizations shall be issued by the University Board, upon the proposal of the related institutions and organizations and the assent of the Institute or the Faculty. The theses with confidentiality order shall be notified to the Council of Higher Education. Article 7.2. During the confidentiality period, the theses with confidentiality order shall be kept by the Institute or the Faculty in accordance with the confidentiality order requirements, in the event of termination of the confidentiality order the thesis shall be uploaded to Thesis Automation System.

ACKNOWLEDGEMENTS

I wish to thank all those who made this thesis possible. First of all, I would like to express my deep gratitude to my supervisor, Prof. Dr. Ahmet Sinan TÜRKYILMAZ for his valuable guidance, useful critiques and constant encouragement at the every stage of this thesis.

I would also like to thank my jury members, Assoc. Prof. Dr. Hatice Yaprak CİVELEK and Assoc. Prof. Dr. Alanur ÇAVLİN for their constructive contributions, beneficial advices and precious comments.

I am particularly grateful for the assistance given by Assist. Prof. Dr. Sutay YAVUZ, Assist. Prof. Dr. Tuğba ADALI, Dr. Pelin ÇAĞATAY and Leyla SOYDAŞ.

My grateful thanks are extended to my former vice president, Enver TAŞTI; my head of department, Dr. Şebnem BEŞE CANPOLAT and to my group leader, Metin AYTAÇ for their valuable support and easing my path to complete this study. I would like to thank my dear colleagues Dilek GÜDER, Güzide Pınar GÜRBÜZSEL, Makbule BİÇER, Muharrem Gürleyen GÖK, Şerife Dilek YILMAZ, Mehmet Doğu KARAKAYA and other colleagues from TURKSTAT who motivated me, followed my process and were curious about my thesis.

I would like to express my very great appreciation to Yosun KATI, Tuna KEMALİ, Burçe ÜNVER and Yılmaz ERŞAHİN for being always available for me in order to answer my questions related to Labour Force Survey.

I wish to individually thank my dear friends Özlem ATASEVER and Aslı AŞIK YAVUZ for their moral support and being my side whenever I need.

I am grateful to my mother, Necla ŞAHİN; my father, İmdat ŞAHİN and my brother, Emrah Erkin ŞAHİN for their endless love and support during all stages of my life. I am also grateful to my other family members.

Finally, I would like to give my deepest and most special thanks to my husband Osman and my sweet son Kuzey Ata for their love, understanding, and inspiration.

SUMMARY

Households, which can be simply defined as a group of people living together in a dwelling, have differentiated over the years in means of composition and functionality. In the transition period from agricultural society to modern society, countries are experiencing demographic transition periods depends on their development level which also causes variations on families and households. All of the changes also interact with the labour force participation and economic characteristics of the household's members which effects directly or indirectly the household structure.

This study has three objectives. The first one is to examine socio-economic characteristics of persons by household types. The second one is to compare the household structures by years. And the last one is to investigate the determinants of labour force participation by household's types. Household Labour Force Survey (LFS) microdata sets were used which is conducted by Turkish Statistical Institute (TURKSTAT). Types of households were assigned by developed algorithm with using sequence numbers of mother, father and spouse rather than using relationship status to reference person. Socio-economic characteristics by each type of households were investigated by descriptive analysis. Logistic regression method was applied to examine determinants of labour force participation in total and by type of households. The analysis unit was set as persons rather than households.

According to findings, most of the people live in nuclear families composed of couples with at least one resident child. Member of extended family households are more likely in labour force compared to other types. There is no significant difference between the types of households in scope of determinants of labour force participation. As expected, males and higher educated persons have the biggest probability of labour force participation. Regardless of the household type, men are "breadwinner"; women are still "homemaker". Persons resided in East Black Sea are more likely in labour force. Unlikely, people ever migrated are less likely in labour force.

Key words: family, logistic regression, complex survey, Labour Force Survey

ÖZET

Bir hanede birlikte yaşayan kişilerin oluşturduğu topluluk olarak basitçe tanımlayabileceğimiz hanehalklarının bileşimi ve fonksiyonelliği yıllar içerisinde değişmektedir. Tarım toplumundan modern topluma geçiş sürecinde, ülkeler gelişmişlik düzeylerine göre demografik dönüşümler yaşamakta; bu dönüşümler aile ve hanehalkı yapılarını da farklılaştırmaktadır. Tüm bu değişimler, hanehalkı bileşimiyle dolaylı veya dolaysız ilişkili olan, hanehalkı üyelerinin işgücüne katılım durumu ve ekonomik özellikleri ile de etkileşim içerisinde.

Bu çalışmanın üç amacı vardır. Birincisi, hanehalkı türlerine göre kişilerin sosyo-ekonomik özelliklerini incelemektir. İkincisi, hanehalkı yapılarını yıllara göre karşılaştırmaktır. Ve sonuncusu, hanehalkı türlerine göre işgücüne katılımın belirleyicilerini araştırmaktır. Çalışmanın uygulama bölümünde Türkiye İstatistik Kurumu (TÜİK) tarafından yürütülen Hanehalkı İşgücü Anketi (HİA) mikro veri setleri kullanılmıştır. Hanehalkı türleri, referans kişiye yakınlık bilgisine göre değil, anne, baba ve eş sıra numaraları kullanılarak geliştirilen algoritma ile oluşturulmuştur. Hanehalkı türlerine göre kişilerin sosyo-ekonomik özellikleri betimleyici analiz yöntemiyle incelenmiştir. İşgücüne katılım durumunun belirleyicileri, sosyo-ekonomik değişkenler kullanılarak lojistik regresyon yöntemiyle hanehalkı türlerine göre modellenmiştir. Analizler hanehalkı değil fert düzeyinde yapılmıştır.

Elde edilen bulgulara göre, nüfusun çoğu eşler ve çocuklarından oluşan çekirdek ailelerde yaşamaktadır. Geniş aileden oluşan hanehalklarının üyeleri diğer hanehalkı türlerine göre daha yüksek olasılıkla işgücüne katılmaktadır. İşgücüne katılımın belirleyicileri analiz edildiğinde hanehalkı tipleri arasında anlamlı bir fark yoktur. Beklendiği üzere, erkekler ve yüksek eğitilmiş kişiler en fazla olasılıkla işgücüne katılanlardır. Hanehalkı tipi ne olursa olsun, erkekler “ekmek kazanan”; kadınlar ise hala “evhanımı”dır. Doğu Karadeniz’de ikamet eden kişilerin işgücüne katılma olasılığı daha yüksektir. Beklenmedik şekilde, hiç göç etmiş kişilerin işgücüne katılması daha az olasıdır.

Anahtar kelimeler: aile, lojistik regresyon, kompleks anket, Hanehalkı İşgücü Anketi

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	i
SUMMARY	iii
ÖZET	v
TABLE OF CONTENTS	vii
LIST OF TABLES	ix
LIST OF FIGURES	xv
LIST OF ABBREVIATIONS	xvii
CHAPTER 1. INTRODUCTION	1
CHAPTER 2. LITERATURE REVIEW AND THEORITICAL FRAMEWORK	9
2.1. Household and Family in Official Statistics	12
2.2. Classifications for Type of Households	17
2.3. Household and Family Studies in Turkey	25
2.4. Studies on Determinants of Labour Force Participation	28
2.5. Demographic and Labour Force Structure of Turkey	32
CHAPTER 3. DATA SOURCES AND METHODOLOGY	43
3.1. Data Source	43
3.2. Variables and Definitions	45
3.3. Algorithm for Generating Households Types	51
3.3.1. Checking/ Correcting Sequence Numbers of Parents and Couples	53
3.3.2. Matching Couples/ Parents/ Children	53
3.3.3. Generating Households Types	54
3.3.4. Illustration for Generating Households Types	54
3.4. Descriptive Analysis	56
3.5. Logistic Regression Analysis	57
3.6. Shortcomings	60
CHAPTER 4. RESULTS	63
4.1. Results of Descriptive Analysis	63
4.1.1. One-Person Households	64
4.1.2. Nuclear Family Households- Couples without Resident Children	68

4.1.3. Nuclear Family Households- Couples with at Least One Resident Child	72
4.1.4. Nuclear Family Households- Lone Parents with at Least One Resident Child	77
4.1.5. Extended Family Households	81
4.1.6. Multi-Person Households without Nuclear Families	86
4.1.7. Determinants of Labour Force Participation	90
4.1.8. Comparison of Descriptive Analysis Results by Household Types	98
4.2. Results of Logistic Regression	101
CHAPTER 5. CONCLUSION	127
REFERENCES	137
APPENDIX	143
APPENDIX-A ADDITIONAL DEFINITIONS	143
APPENDIX-B SAS SYNTAX FOR GENERATING HOUSEHOLD TYPES	145
APPENDIX-C VARIABLES USED IN ANALYSIS, UNWEIGHTED	151
APPENDIX-D ORIGINALITY REPORT	153

LIST OF TABLES

Table 2.1. Literature on determinants of labour force participation	29
Table 2.2. Mean household size, 1968-2013	36
Table 2.3. Change of type of households in Turkey, 1968-2013	37
Table 2.4. Change of detailed type of households in Turkey, 1978-2013	38
Table 3.1 Number of observation in LFS, 2004, 2013, 2016	45
Table 3.2. Scope of the NUTS-1 regions	47
Table 3.3. Data format of example household	55
Table 3.4. Data format of example household-2	56
Table 3.5. Variables included in models for logistic regression	60
Table 4.1. Population by type of households, 2004-2016	64
Table 4.2. Population lives alone by age and sex, 2004-2016	64
Table 4.3. Population lives alone by NUTS-1 regions and sex, 2004-2016	65
Table 4.4. Population lives alone by marital status and sex, 2004-2016	65
Table 4.5. Population lives alone by education level and sex, 2004-2016	66
Table 4.6. Population lives alone by labour force status and sex, 2004-2016	66
Table 4.7. Population lives alone and economically active by sector and sex, 2004-2016	67
Table 4.8. Population lives alone and not in labour force by reason and sex, 2016	67
Table 4.9. Population live in households of couples without resident children by age and sex, 2004-2016	68
Table 4.10. Population live in households of couples without resident children by NUTS-1 regions and sex, 2004-2016	69
Table 4.11. Population live in households of couples without resident children by education level and sex, 2004-2016	69
Table 4.12. Couples live in households without resident children by education level, 2016	70
Table 4.13. Population live in households of couples without resident children by labour force status and sex, 2004-2016	70
Table 4.14. Couples live in households without resident children by labour force status, 2016	70
Table 4.15. Population economically active and live in households of couples without resident children by sector and sex, 2004-2016	71

Table 4.16. Couples live in households without resident children by sector, 2016	71
Table 4.17. Population not in labour force and live in households of couples without resident children by reason and sex, 2016	72
Table 4.18. Population live in households of couples with resident children by age and sex, 2004-2016	73
Table 4.19. Population live in households of couples with resident children by NUTS-1 regions and sex, 2004-2016	73
Table 4.20. Population live in households of couples with resident children by marital status and sex distribution of, 2004-2016	74
Table 4.21. Population live in households of couples with resident children by education level and sex, 2004-2016	74
Table 4.22. Couples live in households with resident children by education level, 2016	75
Table 4.23. Population live in households of couples with resident children by labour force status and sex, 2004-2016	75
Table 4.24. Couples live in households with resident children labour force status, 2016	75
Table 4.25. Population Economically active and live in households of couples with resident children by sector and sex, 2004-2016	76
Table 4.26. Branch of activity of couples live in households of couples with resident children, 2016	76
Table 4.27. Population not in labour force and live in households of couples with resident children by reason and sex, 2016	77
Table 4.28. Population live in households of lone parents with resident children by age and sex, 2004-2016	78
Table 4.29. Population live in households of lone parents with resident children by NUTS-1 regions and sex, 2004-2016	78
Table 4.30. Population live in households of lone parents with resident children by marital status and sex, 2004-2016	79
Table 4.31. Population live in households of lone parents with resident children by education level and sex, 2004-2016	79
Table 4.32. Population live in households of lone parents with resident children by labour force status and sex, 2004-2016	80

Table 4.33. Population economically active and live in households of lone parents with resident children by sector and sex, 2004-2016	80
Table 4.34. Population not in labour force and live in households of lone parents with resident children by reason and sex, 2016	81
Table 4.35. Population live in households of extended families by age and sex, 2004-2016	82
Table 4.36. Population live in households of extended families by NUTS-1 regions and sex, 2004-2016	82
Table 4.37. Population live in households of extended families by marital status and sex, 2004-2016	83
Table 4.38. Population live in households of extended families by education level and sex, 2004-2016	83
Table 4.39. Couples live in households of extended families by education level, 2016	84
Table 4.40. Population live in households of extended families by labour force status and sex, 2004-2016	84
Table 4.41. Couples live in households of extended families by labour force status, 2016	84
Table 4.42. Population economically active and live in households of extended families by sector and sex, 2004-2016	85
Table 4.43. Couples live in households of extended families by sector, 2016	85
Table 4.44. Population not in labour force and live in households of extended families by reason and sex, 2016	86
Table 4.45. Population live in households without nuclear family by age and sex, 2004-2016	87
Table 4.46. Population live in households without nuclear family by NUTS-1 regions and sex distribution of, 2004-2016	87
Table 4.47. Population live in households without nuclear family by marital status and sex, 2004-2016	88
Table 4.48. Population live in households without nuclear family by education level and sex, 2004-2016	88
Table 4.49. Population live in households without nuclear family by labour force status and sex, 2004-2016	89

Table 4.50. Population economically active and live in households without nuclear family by sector and sex, 2004-2016	89
Table 4.51. Population not in labour force and live in households without nuclear family by reason and sex, 2016	90
Table 4.52. Labour force participation rate by type of households and sex, 2016	91
Table 4.53. Labour force participation rate by type of households and age, 2016	92
Table 4.54. Labour force participation rate by type of households and level of education, 2016	92
Table 4.55. Labour force participation rate by type of households and marital status, 2016	93
Table 4.56. Labour force participation rate by type of households and regions, 2016	93
Table 4.57. Labour force participation rate by type of households and place of birth, 2016	94
Table 4.58. Labour force participation rate by type of households and migration status, 2016	94
Table 4.59. Labour force participation rate by type of households and abroad residency status, 2016	95
Table 4.60. Labour force participation rate by type of households and labour force status of spouse, 2016	95
Table 4.61. Labour force participation rate by type of households and level of education of spouse, 2016	96
Table 4.62. Labour force participation rate by type of households and existence of child household member, 2016	96
Table 4.63. Labour force participation rate by type of households and size of household, 2016	97
Table 4.64. Proportion of persons outside the labour force by type of households and reasons, 2016	97
Table 4.65. Socio-economic characteristics of persons by type of households	99
Table 4.66. Socio-economic characteristics with the highest LFP by type of households	100
Table 4.67. List of variables used in logistic models by labour force status	101
Table 4.68. VIF values of the variables for Model 1-7	104

Table 4.69. Results for logistic regression analysis for total population (Model 1)	105
Table 4.70. Results for logistic regression analysis for one-person households (Model 2)	109
Table 4.71. Results for logistic regression analysis for couples without resident children (Model 3)	111
Table 4.72. Results for logistic regression analysis for couples with at least one resident child (Model 4)	114
Table 4.73. Results for logistic regression analysis lone parents with at least one resident child (Model 5)	117
Table 4.74. Results for logistic regression analysis for extended family households (Model 6)	120
Table 4.75. Results for logistic regression analysis for multi-person households without nuclear families (Model 7)	123
Table 4.76. Comparison of results of the logistic regression analysis by type of households	126

LIST OF FIGURES

Figure 2.1. Population and population growth rate of Turkey, 1927-2017	33
Figure 2.2. Population by sex and age groups, 1935-2017	33
Figure 2.3. Population of province/district centres and towns/villages, 1927-2012	34
Figure 2.4. Life expectancy at birth by sex, 1937-2017	35
Figure 2.5. Total fertility rate, 1923-2013	36
Figure 2.6. Literate population by sex, 1935-2016	39
Figure 2.7. Completed level of education of 15+ population by sex, 1935-2016	40
Figure 2.8. Labour force participation rates by sex, 1988-2017	41
Figure 2.9. Sectoral distribution of population in employment, 1955-2000	41
Figure 2.10. Sectoral distribution of male population in employment, 1988-2017	42
Figure 2.11. Sectoral distribution of female population in employment, 1988-2017	42
Figure 3.1. Summary of labour force statuses	49
Figure 3.2. Classification for type of households used in the study	51
Figure 3.3. An example household	54
Figure 3.4. An example household illustrates family types	56

LIST OF ABBREVIATIONS

ABPRS	Address Based Population Registration System
AES	Adult Education Survey
DHS	Turkey Demographic and Health Survey
EHIS	European Health Interview Survey
EUROSTAT	Statistical Office of European Union
EU-SILC	Statistics on Income and Living Conditions
HBS	Household Budget Survey
HETUS	Harmonised European Time Use Survey
HİA	Hanehalkı İşgücü Anketi
HUIPS	Hacettepe University Institute of Population Studies
ICT HH	Survey on Information and Communication Technology usage in households
LFS	Labour Force Survey
LFP	Labour Force Participation
NESDB	National Education Statistics Database
SILC	Survey of Income and Living Conditions
SR	Statistical regions
TURKSTAT	Turkish Statistical Institute
TÜİK	Türkiye İstatistik Kurumu
UN	United Nations
UNECE	United Nations Economic Commission for Europe

CHAPTER 1. INTRODUCTION

Family is the cornerstone of the community. From the beginning of human history, it has important functions. People born, grow up, socialize and prepare for life in the families. Functions and structure of the families have differentiated by the time and by the cultural texture of the nations.

In the transition period from agricultural to modern society, value of the children has changed from being a part of labour force and became unique and valuable individuals. Fertility levels went below the replacement-level in developed countries. In parallel with these, women started to stay more in education and to participate labour force outside of their homes which causes postponement in marriages and fertility. Gaining economic independence, individualism and changing life styles contributed to divorce rates. All these affected the family and household structures by size and composition.

Besides the compositional and structural changes in time, families are also in focus of planners and policy makers in their decision making process as an economic and social unit. As being a unit, families are effecting the welfare status of nations in scope of its structure; migration characteristics; education level of parents and children; size of household; poverty and dependency; family allotments; consumer expenditures for items which are generally purchased in the units of one per household; and so on (Shryock and Siegel, 1980). Thus wide range of disciplines started to be interested in families such as history, economics, anthropology, sociology, psychology, and demography.

Seltzer et al. (2005) were explained the perspectives of each discipline in household and families:

“Biologists emphasize the value of family for the survival of human genes and the role of evolution in hardwiring human beings in ways that make family life attractive. Psychologists focus on how individuals develop family ties and the individual and family processes that affect the durability and consequences of these ties,

including cognitive functioning, personality, marital interaction, parenting, family systems, and other interpersonal relationships. Some psychologists also adopt a clinical orientation in which they use knowledge of these processes to enhance the well-being of individuals and families. Economists emphasize individual choice and the benefits that accrue to individuals from family life that are impossible or more costly without it. Sociologists recognize that this choice is constrained by institutions and norms, inequality in the distribution of resources, power relationships, and the structure and composition of social networks. Finally, anthropologists focus on the shared meanings that individuals assign to their choices about being in different types of families, on the role that family plays in the culture and organization of society as a whole, and on the competing interests that foster some family forms over others.”

According to Burch (1979) household and family demography was concerned with:

- a. *“The size and composition of households, families, and related groups;*
- b. *Their variation among nations and among subgroups within nations (differential size and structure);*
- c. *Variation overtime, both secular changes and variation over the life cycle;*
- d. *The determinants of change and variation, both demographic (age structure and the basic demographic processes of fertility, mortality, marriage and divorce, and migration) and socioeconomic determinants (such as income and wealth, occupation, industry, rural or urban residence, and culture);*
- e. *Socioeconomic consequences of household variation and change (for example, patterns of child care, age and sex roles, intergenerational relations, isolation, and dependency among the elderly); and*

f. Demographic measures and models of household and family structure and change”.

Information on families and households are gathered from surveys, censuses and administrative data. With the advancing technologic tools, more complex procedures can be achieved to analyse the data and to produce detailed statistics. In the field of official statistics, standardization of definitions and concepts became critical to be able to make comparisons by time and nations. International bodies mainly United Nations (UN), United Nations Economic Commission for Europe (UNECE) and the statistical office of the European Union (Eurostat) take the responsibility to obtain international comparability of census data by coordinating the academicians and statisticians. National statistical offices are responsible to provide requested outputs for international bodies, while they are free to choose methods and sources to produce statistics.

In Turkey, various studies were available which provides information on families and households. Nationwide studies on families were mainly conducted with using Turkey Demographic and Health Survey (DHS) and Family Structure Survey. While former one is under the responsibility of Hacettepe University, the latter one is under the responsibility of Ministry of Family, Labour and Social Services.

Hacettepe University has launched the series of surveys to collect information on demographic structure of Turkey in 1968 and continues to survey in five years intervals. The names of the surveys are as follows:

- Turkish Demographic and Health Survey (1993-2013)
- Turkish Population and Health Survey (1988)
- Turkish Fertility, Contraceptive Prevalence and Family Health Status Survey (1983)
- Turkish Fertility Survey (1978)
- Survey on Population Structure and Population Problems in Turkey (1973)
- Survey on Family Structure and Population Problems in Turkey (1968)

State Planning Organization was conducted the first “Family Structure Survey” in 1992. Then General Directorate Family and Community Services continued the Survey for the years 2006, 2011 and 2016. While the data was collected for the years 2006 and 2016 by TURKSTAT, data collected by a private organization in 2011.

TURKSTAT is also conducting household surveys to collect information on socio-economic characteristics of population and producing demographic statistics based on administrative registers. Status and availability of information on household types differ by studies and by years.

In 1985 Population Census, type of household information was generated for the first time based on relationship to the head of household information and tables were added to the publication of the census. But, due to definition of de-facto population used at the census, there were bias in types for the households which some members were away from their resident address during the census day.

Only Household Budget Survey collects information on type of families (family with a child/ two children/ three or more children; family without a child; patriarchal or extensive household; one adult household; persons live together) since 2002. But, types are defined by the interviewer during the data collection phase at the field operation rather than producing the information through a standard algorithm.

Another annual household survey which has been launched in 2006, Survey on Income and Living Conditions (SILC), has household types which formed households by having young or old dependant members other than kinship.

Address Based Population Registration System (ABPRS) was used for producing and disseminating the type of households using the de-jure definition in 2016 with referencing to the year 2015. Types of household statistics were then produced from 2014 data of ABPRS in 2016 and continue to be announced annually following the announcement of ABPRS results.

In 2017, Labour Force Survey (LFS) started to give the labour force statistics cross-tabulated with type of households for the data of years 2014, 2015 and 2016.

Population censuses are the one of the basic data sources for demographic data. United Nations contributes a lot in means of methodology and definitions used in censuses by their works in scope of World Census Programmes for member countries. From 1950 round censuses, UN prepared decennial documents includes the topics (concepts, variables and definitions) which are recommended to be covered in each census round. These documents are mostly shaped the indicators related to persons and households not only for censuses but also for other household surveys.

Beside the UN, UNECE also started to prepare manuals for census application of UNECE member countries. This one is more specific for Commission member countries.

Lastly, with beginning of 2010 round censuses Eurostat has started to prepare regulations on census taking of EU member countries. According to these regulations, starting with 2011, every member country should conduct a census in 10 year intervals. There are several regulations in force for framework of censuses, topics and breakdowns of census variables, quality and metadata.

As the development status of member countries of UN, UNECE and Eurostat differs, there are differences in classifications of household variables while the main concepts are similar in their documents and regulations. Beside the differences between the international organizations, the definitions and breakdowns of the household variables has been changed by the years within the organizations. Those differences and changes also tells about the progress of family demography. Besides the organizations, the British Census of 1931 and the U.S. Census of 1930 were the first sources for producing the first national tabulations on household composition (Glick, 1941; Nixon, 1952; Ruggles, 2012). Thus, literature on household and families were evaluated mainly in scope of official statistics context in this study.

In literature, definitions of household and family vary upon the purpose and the scope of the study. In general while household is defined as a relationship based on co-residency and share of some essentials of life; family is defined as a group of people related by blood, marriage and adoption. Households are mainly classified upon whether they have a family or not. If so, the type of the family shapes the type of the household. So, in this study these terms were used interchangeably.

In Turkey, quantitative studies related to families mainly focus on the size and composition of households and their variation overtime. In this study, the demographic and socioeconomic determinants of household structures is deeply analysed. Economic characteristics of the household members' are focused on as different from the literature. Effect of household types on labour force participation is investigated by modelling.

In the application part of the study, LFS microdata sets for different years were used for generating type of households, to make detailed descriptive analysis and to determine the factors affect labour force participation. There were three main reasons behind choosing this survey. The first one was the variables needed for generating type of households which were single ages, sex and sequence numbers of mother, father and spouse were available in the microdata provided by TURKSTAT. The second one was that this survey was the main source for labour force characteristics to examine detailed analysis on the issue. The last one was that because of its large sample size, it allowed more detailed cross tables.

For generating household types, an algorithm was produced in SAS programming language. Descriptive analysis and logistic regression analysis was also made in SAS. Cross-tables were generated in MS Excel.

Objectives of this study are:

- to examine demographic and socio-economic characteristics of persons by household types,
- to compare the household structures by years,

- to investigate the determinants of labour force participation by household's types,
- to produce a standard algorithm for household surveys which allows to assign type of households with using variables on age, sex and sequence numbers (persons, mothers, fathers, spouses) in line with current international definitions and concepts.

Contributions of the study may be summed as:

- Rather than only focusing on proportional changes of household types by years, type of households were deeply analysed to examine their socio-economic structures.
- Method for generation of household type was employed survey data backwardly which allowed to have detailed cross tables both within the year and between the years for the first time from the sequence numbers.
- New variables related to migration were added to logistic regression analysis to predict labour force participation unlikely the variables used in the literature.
- Labour force participation was evaluated by type of households in detail.

Organisation of the thesis is as follows: In Chapter 2, literature review and theoretical framework will be summed up. In Chapter 3, the survey data used in the study will be introduced and the methodology will be discussed in scope of algorithm for generating households, descriptive analysis and logistic regression analysis. In Chapter 4, the results of the analysis will be presented. All of the descriptive analysis results will be explained by type of households and will be summed up for comparisons at the end of this chapter. In Chapter 5, the findings will be concluded.

CHAPTER 2. LITERATURE REVIEW AND THEORITICAL FRAMEWORK

Families and households differentiated in time by several factors. Demographic transition, industrialization, changes in socio-economic characteristics and individual preferences affected household composition and function of family. These factors are correlated to each other as while some of them were consequences of another ones, some of them were the parallel processes.

The developed countries are the pioneers of the transitions as they are experiencing the changes and developments in economic, social, and as well as demographic areas firstly. While there are differences between the countries according to their socio-cultural structures, they all passed the similar paths. The demographic transition theory generalise this European experience as taking into account the changes of crude death and birth rates in combination with population growth rate.

Grouping of countries depends on their fertility and mortality structures starts with Thompson (1929) and continues with the study which was explained the reasons behind the changes deeply by Landry (1934). Notestein had finalized the theory in 1940s (Kirk, 1996). The demographic transition has three stages originally even if there are 4 or 5 stages defined in literature.

The combination of high birth and death rates with low population growth rate was experienced at the first stage of demographic transition for pre-industry periods of developing countries. In this stage, agriculture was the main source of livelihood. Land was in use of the families. Family members had different responsibilities on this family work depend on their demographic characteristics. Household labour divided according to age and sex structures of the members. Birth rates were high. While children were seen as work force in adulthood period of parents, children became the persons who care for them in older ages. In the absence of developed social security systems, children had the role of social security. Because of wars and epidemics, lack of medical care, death rates were high and life expectancy at birth was low.

At the second stage of demographic transition, death rates decreased and life expectancy at birth increased depends on the developments on socio-economic structure and health system. As a result, population grew rapidly. At the last stage of the transition, birth and death rates have very low levels while population growth rate slows and starts to decline.

These last two stages have many different aspects than the first stage. With the increasing life expectancy at birth and low mortality rates, generations exposure to each other longer. Function of the family has changed from the production unit in the agricultural society to consumption unit in the modern society. People started to work in paid jobs comes with social security. Individualism became widespread and children started to leave their parental homes earlier mostly for education. Duration of education has been prolonged. Women started to take part in every stage of social life. Marriage and fertility has postponed to latter ages. Divorce rates have been increased. Fertility declined under replacement level for many developed countries.

While to explain the decrease in mortality rate is easier, determinants of the decreasing fertility is more complex. Landry (1934) defined the fertility decline as “egotistical”. He focused on the cost of children, restrictions and problems they bring to their parents’ life, issues related to pregnancy and child rearing. His determinations are followed by “individualism” and “self-fulfilment” (Kirk, 1996).

Lesthaeghe (2000) allocated the determinants of fertility in three perspectives. According to the first one (neoclassic microeconomic reasoning), more educated females caused more female labour force participation, costs of marriage and having a child increased, and gender roles became more symmetrical (Becker, 1981). The second one was based on Easterlin’s (1976) relative deprivation theory. He stated the growing need for extra household income to be provided by women's participation in the workforce, which is necessary to meet the increasing consumption demands. And the last approach was ideational theory which included the cultural norms rather than economic approaches. Decrease of authority, rise of secularism, increase of respect for alternative opinions were the main aspects of this approach.

While the socio-economic characteristics of people can be examined, persons' preferences or values are hard to evaluate. Despite there are many sources - surveys, censuses- for the first group, sources are inadequate for the latter one. This is one of the reason that demographic and economic characteristics are mainly focused on the reasoning of fertility decline in the literature.

An example study was done by Lesthaeghe (1977) to evaluate differentiation of determinants of the fertility by investigating twin localities which had very similar socio-economic characteristics and were close to each other. The two communes, Walloon (French) and Flemish (Dutch) language communities in Belgium, were examined for his study. Despite the existence of too many similarities, the levels of fertility were completely different. He concludes with secularization, culture, language and region were also important factors for fertility.

All of these changes related to demographic transition and modernisation processes affected the structure of households. Sizes of households are decreasing, and there are shifts between types of households. While one-person households and nuclear family households have a rise in proportion, expended family households are falling.

Beside the proportional change of household types by type, they have also their own life cycle within themselves. In other words, families do not have stable structures. When two persons decides to cohabit or to marry, first stage of the family starts. With having a baby, the family comes to the second stage. After grown up the child(ren), they leave their parental home for reasons such as education or marriage. At the third stage of the family, household is again composed of the two persons as same in the first stage but with older ages of members. And the fourth stage starts with the dead of one of the spouses and at the last stage the other one's. Of course, there can be many other scenarios includes divorce, or return of the child with a grandchild, or living with one of the child. All of them the versions of the families in the different times. Cross-sectional studies can only catch one of the stage of the family in its reference time.

The variation of families and transition of their compositions are deeply analysed in the literature. To be able to make sufficient comparisons in time and between nations, definition and classification of households became crucial. While these issues were firstly studied by academicians, with the census takings of countries, statisticians started to be involved in defining these concepts for data collection processes. As different from the literature, official statistics approach is the focus point of this study.

2.1. Household and Family in Official Statistics

Frédéric Le Play (1855; 1871; 1872) was conducted the first study on family structures with observing selected families and as a result he grouped families in three different types: the joint family, the stem family, and the nuclear family. Joint families and stem families are both multigenerational. In joint families, “parents always retain near them all their married sons, and the children issuing from such marriages,” whereas in stem families, “the father transmits his fireside and place of labour to that one of his children which he thinks most capable,” and sends the other children out into the world. In nuclear families, “the young adults leave their parental firesides as soon as they gain any confidence in themselves” (Le Play, 1872). This first classification of families was formed according to position and economic dependency between fathers and sons regardless of cohabitation.

Household and families entered into statistical era with census takings of countries. Despite population censuses has very old tradition in history, regular and well documented censuses were started with efforts of international organizations. The International Statistical Congress (established in 1853) and the International Statistical Institute (established in 1885) invited counties to conduct regular censuses and their attempts yielded result in the second half of the twentieth century after world wars (Anderson, 2015). Definitions, classifications and statistics on households and families started to appear in 1930s.

United Kingdom is one of the countries with long tradition on population censuses which started in 1801 and had good documentation on methods and concepts used in censuses. The term “private family” was used for censuses between

1911 and 1931 than changed to “private household” in 1951. The term was defined as “single persons living alone and groups of individuals voluntarily living together under a single manage in the sense of sharing the same living room or eating at the same table”. The private household also included resident domestic servants, persons temporarily present (visitors) and lodgers who boarded with the family; it did not include persons temporarily absent. Lodgers however having separate accommodation were treated as separate households, if they were enumerated on separate schedules. The rest of the population other than “private households” consisted of those living in hotels, boarding houses and schools, barracks, hospitals, prisons, ships, etc. (Nixon, 1952).

For the British Censuses between 1911 and 1951, households were classified depend on its size as **small** households composed of 1 to 3 persons, **medium** households composed of 4 to 6 persons and **large** households composed of 7 persons and over. Household composition, namely, the number of earners and dependents per household by sex, age were used for tabulations of 1931 and 1951 censuses.

Unites States of America (USA) has another country with long tradition in population censuses since the first census in 1790. Works on classifying families into types on the basis of characteristics of the family head were started with 1930 census and extended with 1940 census. Families were classified into three significant classes or types, according to the marital status and sex of the head of the family. (The head of the family was usually the chief earner, although in some cases his headship was more sociological than economic.) The three types were (1) "normal" families, that was, families with the head and his wife residing together, with or without other persons; (2) other families with a man as head of the family, including broken families with a widowed, divorced, or separated man as head, together with families having a single man as head; and (3) all families with a woman as head of the family (Glick, 1941).

British and US Censuses were the first accessible examples of usage of terms household and families. After these countries, international organizations started to take part in census activities and definitions became clearer.

The League of Nations Committee of Statistical Experts in 1939 considered the definition of households in connection with statistics of housing. The Committee adopted the recommendation, which took attention on the two types of households: “the family household” and “the non-family (or collective household)”.

Since the end of World War II, United Nations has recommended countries to enumerate their population and launched the World Population Census Programmes beginning with 1950 round censuses for member countries. The report called “Population Census Methods” covered the most important issues for investigation in the censuses in or about 1950 prepared by Population Commission. The report would also contribute in means of comparability and quality of census data (UN, 1949).

In 1958, “Principles and Recommendations for National Population Censuses” were prepared to increase the international comparability of census data by covering the census variables with standard definitions, classifications and tabulations. Subsequently, UN continue to prepare principles and recommendations documents decennially as a handbook for each census round. These documents are mostly shaped the indicators related to persons and households not only for censuses but also for other household surveys.

Beside the UN, UNECE also prepared Recommendations for census application of UNECE member countries for 2010 and 2020 censuses. This one is more specific for Commission member countries.

With beginning of 2010 round censuses Eurostat has started to prepare regulations on census taking of EU member countries. According to these regulations, starting with 2011, every member country should conduct a census in 10 year arrivals. There are several regulations in force for framework of censuses, topics and breakdowns of census variables, quality and metadata.

To see the changes of definitions on households and families by the time, the definitions in 1958 UN principles and 2020 UNECE recommendations were given in this study. The reason for using UNECE for the current definitions is that despite the

concepts are all the same, the flow of the UNECE definitions are more appropriate to be summarized and this one also corresponds to studies of Eurostat.

In the Principles prepared in 1958, the households were divided into two broad classes: (1) private households and (2) institutional households.

“A private household should preferably be defined as: (a) one-person household: a person who lives alone in a separate housing unit or who as a lodger, occupies a separate room or rooms in a part of a housing unit but does not join with any of the other occupants of the housing unit to form part of a multi-person household as defined in (b); or (b) multi-person household: a group of two or more persons who combine to occupy the whole or part of a housing unit and to provide themselves with food or other essentials for living. The group may pool their incomes and have a common budget to a greater or lesser extent. The group may be composed of related persons only or of unrelated persons or of a combination of both, including boarders but excluding lodgers.”

By the time, this household definition does not change but it is started to be named as “housekeeping concept”. And another definition is added as an alternative, namely “household-dwelling concept”. According to “UNECE Conference of European Statisticians Recommendations for the 2020 Censuses of Population and Housing”, “household-dwelling concept considers all persons living in the same housing unit to be members of the same household, such that, there is one household per occupied housing unit and the number of occupied housing units and the number of households occupying them are equal.” This new concept is needed to define households for countries using administrative registers without collection data from field while housekeeping concept requires a field study to determine households.

Definition for institutional households have not changed by the time. In 1958 recommendations, it was defined as: “Institutional households comprise groups of persons living in schools and colleges, penal establishments, hospitals, military

installations, hotels, boarding houses, etc. Households in which the number of boarders and lodgers exceeds five should be considered as boarding or lodging houses and enumerated as institutional households”. The second expression is not used in the newest definition of institutional population and concept has been generalized as: “An institutional household comprises persons whose need for shelter and subsistence are being provided by an institution. An institution is understood to be a legal body for the purpose of long-term inhabitation and provision of services to a group of persons. Institutions usually have common facilities shared by the occupants (baths, lounges, eating facilities, dormitories and so forth).”

Institutional places were classified as follows (UNECE, 2015):

- i. *“Residences for students*
- ii. *Hospitals, convalescent homes, establishments for the disabled, psychiatric institutions, old people’s homes and nursing homes*
- iii. *Assisted living facilities and welfare institutions including those for the homeless*
- iv. *Military barracks*
- v. *Correctional and penal institutions*
- vi. *Religious institutions*
- vii. *Worker dormitories”*

When definition of family investigated in international census recommendations, UN (1958) set the differences between household and family:

“Theoretically, a household can consist of more than one family but a family cannot be composed of two or more households. A family always constitutes a household or part of a larger household. In practice, the two concepts are frequently identical. While the household is identified by the census enumerator, the family is determined at the data processing stage by combining the information for the individual members of the households.”

At the documents, “family” term corresponds to “nuclear family” and classifications are prepared using this in the centre. According to 2020 UNECE recommendations:

“a ‘family nucleus’ is defined in the narrow sense as two or more persons who live in the same household and who are related as marital, registered, or consensual union (that is, cohabiting) partners of either opposite or same sex, or as parent and child”.

As the type of families are used to define households, classifications are given in the following section in detail.

2.2. Classifications for Type of Households

The measurement of household and family structure centres on the notion of departures from what is presumed to be the simplest, or rudimentary form, the nuclear group of an adult couple and their children. More complex structures are seen as the additions of other kin (parents of the couple, grandchildren, uncles, etc., i.e., any non-nuclear kin) or the addition of unrelated persons such as servants (Laslett, 1972), boarders, lodgers, or roomers (Castillo et al., 1968; Modell and Hareven, 1973; Burch, 1979).

The way on determination of household and family complexity has been changed by the years in parallel with the availability of more purpose-built variables obtained through the surveys or censuses and the technology enables to process complex algorithms to derive detailed information. The first measure uses information on relationships among persons in the household, based on explicit census or survey item on relationship to household head. The second one, in the absence of a direct question on relationship, uses other, more routine information either as a basis of inferring, or as a proxy for relationship data (Burch 1979). After these measures, sequence numbers are started to be used to determine relationships between the members of households. For each individual, sequence numbers of parents and spouses are attained if any of them members of the same household.

Apart from the measures and variables used for determination of household and family complexity, classification of the types to reflect the complexity has also changed. Most of the typologies used today based on the classic distinction made by Frederic Le Play, in the mid nineteenth century, among nuclear or conjugal, stem and consanguine or extended families (Burch, 1982). The current and more extended version of this classification was introduced by Peter Laslett (1972; 1981): (Yavuz, 2002)

- 1) *“Solitaries*
 - a) *Widowed*
 - b) *Single, or of unknown marital status*
- 2) *No family*
 - a) *Co-resident siblings*
 - b) *Co-resident relatives or other kind*
 - c) *Persons not evidently related*
- 3) *Simple family households*
 - a) *Married couples alone*
 - b) *Married couples with child(ren)*
 - c) *Widowers with child(ren)*
 - d) *Widows with child(ren)*
- 4) *Extended family households*
 - a) *Extended upwards*
 - b) *Extended downwards*
 - c) *Combinations of 4a-4b*
- 5) *Multiple family households*
 - a) *Secondary unit(s) UP*
 - b) *Secondary unit(s) DOWN*
 - c) *Units all on one level*
 - d) *Fereches*
 - e) *Other multiple families*
- 6) *Indeterminate”*

Classifications on type of households differ according to international bodies. According to the oldest one, 1958 Principles and Recommendations for Population Censuses, prepared by United Nations, the type of households classified as following:

- ***Type I:*** household consisting of a married couple without children;
- ***Type II:*** household consisting of either or both parents and unmarried children;
- ***Type III:*** household consisting of either or both parents and married children without grandchildren as well as unmarried children where applicable;
- ***Type IV:*** household consisting of either or both parents and married children with grandchildren as well as unmarried children where applicable;
- ***Type V:*** households which do not fall within types' I-IV, for instance, a household composed of the household head, his spouse and children, and a domestic with a child."

This classification in the latest recommendations of UN for 2020 round population censuses became:

- 1) *One-person household;*
- 2) *Nuclear household, defined as a household consisting entirely of a single family nucleus. It may be classified into:*
 - a) *Married couple family:*
 - i) *With child(ren);*
 - ii) *Without child(ren);*
 - b) *Partner in consensual union (cohabiting partner):*
 - i) *With child(ren);*
 - ii) *Without child(ren);*
 - c) *Father with child(ren);*
 - d) *Mother with child(ren);*

- 3) *Extended household, defined as a household consisting of any one of the following:*
- a) *A single family nucleus and other persons related to the nucleus, for example, a father with child(ren) and other relative(s) or a married couple with other relative(s) only;*
 - b) *Two or more family nuclei related to each other without any other persons, for example, two or more married couples with (or without) child(ren) only;*
 - c) *Two or more family nuclei related to each other plus other persons related to at least one of the nuclei, for example, two or more married couples with other relative(s) only;*
 - d) *Two or more persons related to each other, none of whom constitutes a family nucleus;*
- 4) *Composite household, defined as a household consisting of any of the following:*
- a) *A single family nucleus plus other persons, some of whom are related to the nucleus and some of whom are not, for example, mother with child(ren) and other relatives and non-relatives;*
 - b) *A single family nucleus plus other persons, none of whom is related to the nucleus, for example, father with child(ren) and non-relatives;*
 - c) *Two or more family nuclei related to each other plus other persons, some of whom are related to at least one of the nuclei and some of whom are not related to any of the nuclei, for example, two or more couples with other relatives and non-relatives only;*
 - d) *Two or more family nuclei related to each other plus other persons, none of whom is related to any of the nuclei, for example, two or more married couples one or more of which has child(ren) and non-relatives;*
 - e) *Two or more family nuclei not related to each other, with or without any other persons;*

- f) *Two or more persons related to each other but none of whom constitute a family nucleus, plus other unrelated persons;*
- g) *Non-related persons only;*
- 5) *Other;*
- 6) *Unknown or not stated.”*

Type of households determined in the last recommendations for the 2020 round censuses prepared by UNECE:

- 1) *“Non-family households*
 - a) *One-person households*
 - b) *Multi-person households*
- 2) *One-family households*
 - a) *Husband-wife couples without resident children*
 - i) *Without other persons*
 - ii) *With other persons*
 - b) *Husband-wife couples with at least one resident child under 25*
 - i) *Without other persons*
 - ii) *With other persons*
 - c) *Husband-wife couples, youngest resident son/daughter 25 or older*
 - i) *Without other persons*
 - ii) *With other persons*
 - d) *Cohabiting couples without resident children*
 - i) *Without other persons*
 - ii) *With other persons*
 - e) *Cohabiting couples with at least one resident child under 25*
 - i) *Without other persons*
 - ii) *With other persons*
 - f) *Cohabiting couples, youngest resident son/daughter 25 or older*
 - i) *Without other persons*
 - ii) *With other persons*
 - g) *Lone fathers with at least one resident child under 25*

- i) *Without other persons*
 - ii) *With other persons*
 - h) *Lone fathers, youngest resident son/daughter 25 or older*
 - i) *Without other persons*
 - ii) *With other persons*
 - i) *Lone mothers with at least one resident child under 25*
 - i) *Without other persons*
 - ii) *With other persons*
 - j) *Lone mothers, youngest resident son/daughter 25 or older*
 - i) *Without other persons*
 - ii) *With other persons*
- 3) *Two or more-family households”*

Rather than UN and UNECE, Statistical Office of European Union (EUROSTAT) prepares regulations for census implementation of member countries. In related regulation on topics and breakdowns of the census topics in scope of 2021 censuses, type of households are classified as:

- 1) *“Non-family households*
 - a) *One-person households*
 - b) *Multi-person households*
- 2) *One-family households*
 - a) *Couple households*
 - i) *Couples without resident children*
 - ii) *Couples with at least one resident child under 25*
 - iii) *Couples, youngest resident son/daughter 25 or older*
 - b) *Lone father households*
 - i) *Lone father households with at least one resident child under 25*
 - ii) *Lone father households, youngest resident son/daughter 25 or older*
 - c) *Lone mother households*

- i) *Lone mother households with at least one resident child under 25*
 - ii) *Lone mother households, youngest resident son/daughter 25 or older*
- 3) *Two or more-family households”*

Beside the census activities, Eurostat has launched activities under “Modernisation of Social Statistics” in 2016. The project on social variables standardisation aims at developing standard descriptions for the variables which are present in at least two of the seven European social micro-data collections concerning households/persons.(Statistics on Income and Living Conditions (EU-SILC), Labour Force Survey (EU-LFS), Household Budget Survey (HBS), Adult Education Survey (AES), European Health Interview Survey (EHIS), Harmonised European Time Use Survey (HETUS), and Survey on Information and Communication Technology usage in house-holds (ICT HH)) Although census is not a subject of these studies, variables related to household and families are mostly similar in scope of definitions and breakdowns. According to this project type of household is standardised for the household surveys:

- 1) *“One-person household*
- 2) *Lone parent with at least one child aged less than 25*
- 3) *Lone parent with all children aged 25 or more*
- 4) *Couple without any child(ren)*
- 5) *Couple with at least one child aged less than 25*
- 6) *Couple with all children aged 25 or more*
- 7) *Other type of household*
- 8) *Not stated”*

The categories used for the variable 'household type' describing different types of household compositions refer only to one-generation (one-person household; couple without any children) or two-generation (lone parent with children; couple with children) households. Multigenerational households (like those consisting of more than two generations) should be classified as 'other type of household'.

Households with a different composition than one-person household, lone parent with at least one child or couple with/without children are to be classified as 'other type of household'. For example, households with three members where (a) two are a couple and the third is a nephew or (b) two are lone parent and his/her child and the third is the aunt of the lone parent are classified as 'other type of household'. 'Skip-generation households' are also included here. In the context of the variable 'household type', two persons are considered as a 'couple' if they have legal (husband/wife/civil partner) or de facto (partner/cohabitee) relationship status and both have the usual residence in the same household (EUROSTAT, 2017) .

TURKSTAT (2015) uses the classification for household types as follows:

- 1) *“One-person households*
- 2) *Nuclear family households*
 - a) *Couples without resident children*
 - b) *Couples with at least one resident child*
 - c) *Lone parents with at least one resident child*
 - i) *Lone fathers with at least one resident child*
 - ii) *Lone mothers with at least one resident child*
- 3) *Extended family households*
- 4) *Multi-person households without nuclear families”*

Hacettepe University Institute of Population Studies (HUIPS) is using the following classification in its studies:

- 1) *“Nuclear*
 - a) *Nuclear without children*
 - i) *Nuclear without children (< 45)*
 - ii) *Nuclear without children (>=45)*
 - b) *Nuclear with children*
 - i) *Nuclear with children- 1 child*
 - ii) *Nuclear with children- 2 children*
 - iii) *Nuclear with children- 3 children*

- 2) *Extended*
 - a) *Patriarchal*
 - b) *Transient*
- 3) *Dissolved*
 - a) *Single person*
 - i) *Single- Male*
 - ii) *Single- Female*
 - b) *Single parent*
 - i) *Single parent- Male*
 - ii) *Single parent- Female*
 - c) *Other dissolved*
 - d) *Without kinship”*

While UN covers the countries all around world, UNECE covers mostly the developed countries. The differences between the classifications are reflecting this to the type of households. While UN classification has detailed breakdowns for extended families, UNECE classification focuses on nuclear families. Eurostat also focuses on the nuclear families. Another point is that same households can be classified under different categories by different classifications of organizations. While UNECE categorise a household compose of a nuclear family with other persons under the one-family households, UN categorize under extended or composite households.

2.3. Household and Family Studies in Turkey

In Turkey, studies related to families start with the interest of disciplines such as history, ethnography, and then continue with the inclusion of law (Aktaş, 2015). Archive of these studies begun to be collected and disseminated by former Family Research Institute (now under the Ministry of Family, Labour and Social Services) under documentations called “Family Articles” and “Family encyclopaedia” in 1990s.

After introducing of quantitative surveys which allows to define and classify families upon their structures, family literature changed dramatically. The first of these studies was the “Family Structure in Turkey” composed by Timur (1972).

Timur used the results of “1968 Survey on Family Structure and Population Problems in Turkey” conducted by Hacettepe University Institute of Population Studies. She defined types for families and produce them from the data. Types of families used were:

- i. *“Nuclear Family: Couples with their unmarried children*
- ii. *Patriarchally Extended Family: Head of household, married children and their spouses, grandchildren*
- iii. *Transient Extended Family: Nuclear family with parent/s or sibling/s of spouses’*
- iv. *Dissolved Family: Lone parents with children, people who are relatives but not related as mother/ father/ spouse, unrelated persons”*

Timur found out that proportion of nuclear families was 60%, patriarchal extended was 19%, transient extended was 13%, and dissolved family or non-family households were 8 % of total households. She analysed in detail the determinants of the family structures in scope of the regions, economic activity status, sector of the activity, urban/ rural areas, type of marriages, relations within the family. Extended families were apparent in the case of having enough assets among families in agricultural activities.

The majority of Turkish households (including rural) are nuclear in structure (Timur, 1972). The extended family household remains a cultural ideal in many regions (Baştuğ, 2002), and many households pass through a “transitional extended family” phase following the marriage of a son (Timur, 1972). However, overall, Turkish family can be characterized as “functionally extended” with much social support and interaction among close relatives, who also live close to each other (Kandiyoti, 1974; Kağıcıbaşı, 1982). Thus, families function as if they were extended though they actually have nuclear structures. Close family members feel responsible for each other and also for distant kin. Ties between parents and children, between siblings, and the children of siblings are extremely close. Children of both sexes remain with their parents until they get married; close ties with parents involving

frequent interaction continue after marriage as well (Hortaçsu, 1995; Baştuğ, 2002). Hence, individuals grow up in a “culture of relatedness” (Kağıtçıbaşı, 1985 and 1996) where they frequently interact with a wide network of relatives, including grandparents, aunts, uncles, and cousins (Baştuğ, 2002). This pattern persists in spite of increased urbanization and industrialization (Duben, 1982). Even in middle class urban settings, it is likely that family households will include at least one grandparent or another elderly relative. A study of such three-generation households showed that elderly relatives preferred to reside with their adult children even when not out of financial need or need for physical care (Kağıtçıbaşı, 2005).

Koç (1997) argues that the rate of extended family decreased to 19.4% in 1993, while it was 31% in 1978. A similar tendency was noted by Ünalın (2000).

Yavuz (2002), examined variations of household composition and complexity by regions and types of place of residence in Turkey. He used data of Turkey Demographic and Health Survey 1998 to derive family types. Two basic approaches were employed. While the first one was Timur’s (1972) approach as considering relationship structure among household members, the second approach was using number and type of marital units in the household as a modified version of Laslett’s family typology. According to the findings, the trend in variation of different family types during last three decade showed that nuclear family has always been the dominant family type. However, transition from the complex and large families was seen as a proceeding process in Turkey. While all “extended” family types have decreased; proportion of the “husband & wife” and “one person” households increased substantially. The simple and small households observed more common in South and West regions where the most socio-economically developed part of Turkey. On the other hand, the complex and large size family households found more common in North and East regions, where least advanced part of Turkey (Yavuz, 2002).

Another study regarding the patterns and composition of household were investigated by Aykan and Wolf (2000). They used data from the 1993 Turkey demographic Health Survey. Their analysis focused on traditional pattern of co-

residence and parent-child co-residence. According to this study's results, co-residence with the husband's parents is very high in Turkey. They also stated that continued economic development and social changes can reduce the prevalence of parent-child co-residence in Turkey (Canpolat, 2008).

In the study of HUIPS (2015), changes of Turkish family structures were evaluated for the last 45 years. Data of ten demographic surveys were used between 1968 and 2013. According to results, while there was an increase in nuclear families, extended families were decreasing. Most of the rise in nuclear families came from the childless nuclear families. In parallel with the increase in divorce rates, single person or single parent dissolved families were increasing (HUIPS, 2015).

2.4. Studies on Determinants of Labour Force Participation

Regarding the studies which brings together labour force participation and household are mainly focused on the women's employment status and determinants of female labour force participation. Studies vary upon the data used, and the focus point of the time and space.

Nationwide studies were tried to be summarized in **Table 2.1**. As seen in table, studies starts with the beginning of 2000s. While some of them used microdata sets of household surveys or censuses, some studies collected macro-level indicators from different sources to make analysis. When the variables used in the models examined, age, level of education, marital status, size of household, region of residence and number of children were the most popular variables. There are only two studies included the type of household variable to the analysis.

Table 2.1. Literature on determinants of labour force participation

Author	Data	Year of data	Method	Independent variables
Akın (2002)	LFS	1999	Nested Logistic Regression	Age; Level of education; Number of children; Size of household; Husband's employment status; Region of residence
Tansel (2002)	Census	1980, 1985, 1990	Panel data analysis	Gross domestic product by provinces; Level of education; Female unemployment rate; Male unemployment rate; Rate of urbanization; Sectoral distribution of employment; Region of residence
Tunalı and Başlevent (2002)	LFS	1988	Maximum Likelihood Estimation	Age; Level of education; Region of residence; Sector employed; Age group of children
Özer and Biçerli (2003)	LFS	1988-2001	Panel data regression	Proportion of housewives in employed women; Proportion of unpaid family workers in employed women; Proportion of retired in population aged 12 and above
Kızılırmak (2005)	HBS	2003	Multinomial Logistic Regression	Experience; Level of education; Age groups of children; Husband's employment status; Region of residence; Estimated earnings gathered from 3 three market
İnce and Demir (2006)	varios	1980-2004	Least Squares Method	Female unemployment rate; Economic growth rate; Fertility rate; Level of education
Şengül and Kırıl (2006)	LFS	2003	Probit Regression	Age; Level of education; Number of children; Sex of the first child
Gürler and Üçdoğruk (2007)	HBS	2002	Probit Regression	Age; Level of education; Marital status; Occupation; Sector employed; Size of household
Doğrul (2008)	HBS	2003	Logistic Regression	Age; Level of education; Marital status; Size of household; Region of residence; Husband's level of education; Number of children; Age groups of children; Number of employed persons; Dependency ratio; Annual available revenue of household; Ownership status; Dept and installment status of household; Number of children enrolled to kindergarden; Number of students in paid education; Monthly expenditure of household

Table 2.1. Literature on determinants of labour force participation (continued)

Author	Data	Year of data	Method	Independent variables
Doğrul and Yıldırım (2008)	HBS	2003	Logistic Regression	Age; Level of education; Marital status; Size of household; Region of residence; Husband's level of education; Number of children; Age groups of children; Number of employed persons; Dependency ratio; Annual available revenue of household; Ownership status; Dept and installment status of household; Number of children enrolled to kindergarden; Number of students in paid education
Göksel (2010)	HBS, LFS	1994, 2003, 2006	Least Squares Method	Age; Level of education; Number of children; Size of household; Husband's income; Wife's income; Region of residence
Dayioğlu and Kırdar (2010)	LFS	2006	Logistic Regression	Age; Level of education; Marital status; Number of children; Region of residence
Yamak, Abdioğlu, and Mert (2012)	HBS, LFS	2008	Logistic Regression	Age; Level of education; Marital status; Annual available revenue of household; Size of household; Ownership status; Type of household
Kızılgöl (2012)	HBS	2002-2008	Logistic Regression	Age; Level of education; Marital status; Size of household; Urban/ rural; Number of children; Number of employed persons; Dependency ratio; Ownership status; Monthly expenditure of household; Annual available revenue of household; Age groups of the children; Type of household
Bozkaya (2013)	LFS	1988-2012	Time series analysis+ Vector Auto Regression	Marital status; Level of education; Proportion of female unpaid family workers in total women
Er (2013)	varios	2010	Multinomial Logistic Regression	Female labour force participation rate; Male labour force participation rate; Proportion of female unpaid family workers (agriculture) in total; Proportion of male unpaid family workers (agriculture) in total; Proportion of female employed in agricultural sector in total; Total fertility rate; Proportion of girls at kindergarden or primary school; Population growth rate; Female schooling rate in secondary education

Table 2.1. Literature on determinants of labour force participation (continued)

Author	Data	Year of data	Method	Independent variables
Çetin and Sevüktekin (2014)	varios	1988-2012	Multinomial Logistic Regression	Marital status; Level of education; Existency of children in 0-5 age group; Urban/ rural; Legal arrangements on female labour force participation; economic crisis periods
Uysal, Keskin and Sertkaya (2016)	varios	1988-2013	Time series analysis+ Vector Auto Regression	Female labour force participation rate; Higher education schooling rate; Gross domestic product; Total fertility rate
Korkmaz (2016)	LFS	2014	Logistic Regression	Age; Income; Level of education; Size of household; Full/ part time
Varol (2017)	World Values Survey	2007	Logistic Regression	Marital status, Highest Educational Level Attended, Age, Employment Status, Number of Children, Income Level, Chief Wage Earner in the Household

Yamak, Abdioğlu and Mert (2012), applied logistic regression analysis to the data from 2008 Household Budget Survey to determine the main factors underlying the decision on labour force participation. They analysed the data in rural/ urban and female/male details. They found that annual disposable income, education, age, size of household and marital status were the main factors. Annual disposable income had negative effect on labour force participation. Higher level of education and wider households added to the possibility. Type of household variable had breakdowns as nuclear families with 1/ 2/ 3 or more children, without children, extended families, one-adult families, non-family households. While type of household variable was not statistically significant in urban areas, it had negative affect in rural areas.

Kızılgöl (2012) investigated the female labour force participation in her study. She pooled the data sets of Household Budget Surveys for the years between 2002 and 2008 and applied logit model analysis for single and married women living in Turkey, in urban and rural areas. Analysis showed that the most important variable were level of education, household income, dependency ratio, ownership of the property and women's age regarding the married and single women's participation to the labour force. While the number of children had the negative affect on

participation in urban areas, it opposites in rural areas. The classification used for type of households was nuclear families with 1/ 2/ 3 or more children, without children, extended families, one-adult families, non-family households.

The types of households except non-families were statistically significant in 1% significance level. For labour force participation of the married women, while living in one adult families, in two-child, three or more child families, in extended families increased the probability compared to members of nuclear families with one-child. Living in families composed of couples without children reduced the probability of labour force participation of the married women. This findings were same in rural and urban areas except non-family households. While living in non-family households decreased the labour force participation of the married women in urban areas, it had positive affect in rural areas.

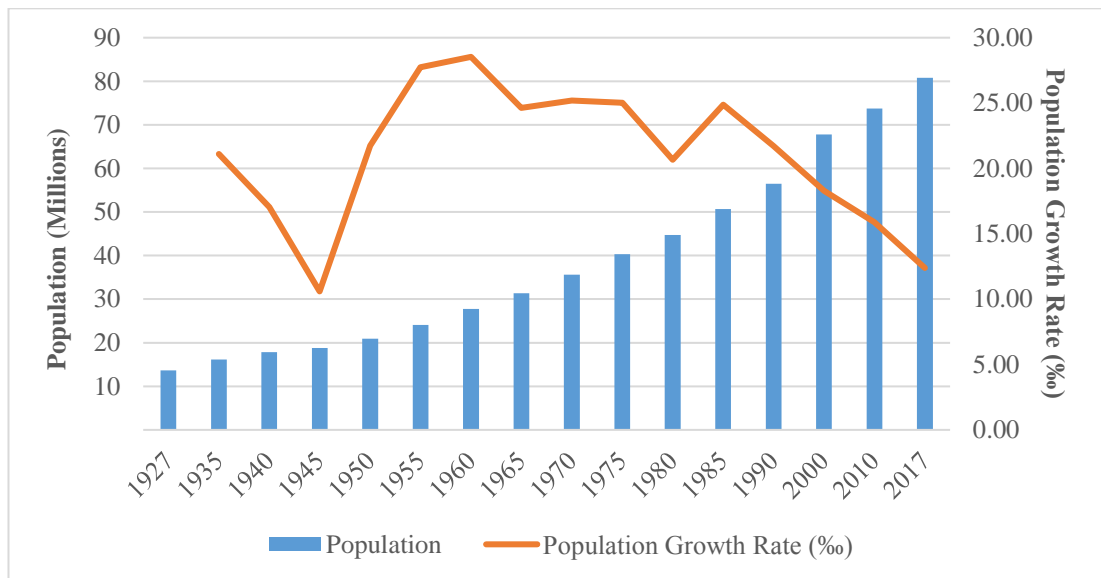
2.5. Demographic and Labour Force Structure of Turkey

Size and structure of the population, distribution by the settlements, sectorial distribution, fertility levels, fertility norms, life expectancy at birth, family formation and marriage characteristics, status of women in society, structure of the social security system and, perhaps more importantly the mind-set of the society changed significantly and all of these factors effected household structure in Turkey (HUIPS, 2015).

In this section, time series of the variables used in this study were presented to show underlying factors behind the change of households and employment status. Demographic and socio-economic characteristics of persons were added for the years available after the proclamation of the Republic of Turkey. Different data sources were compiled to reflect the changes in various aspects of the population.

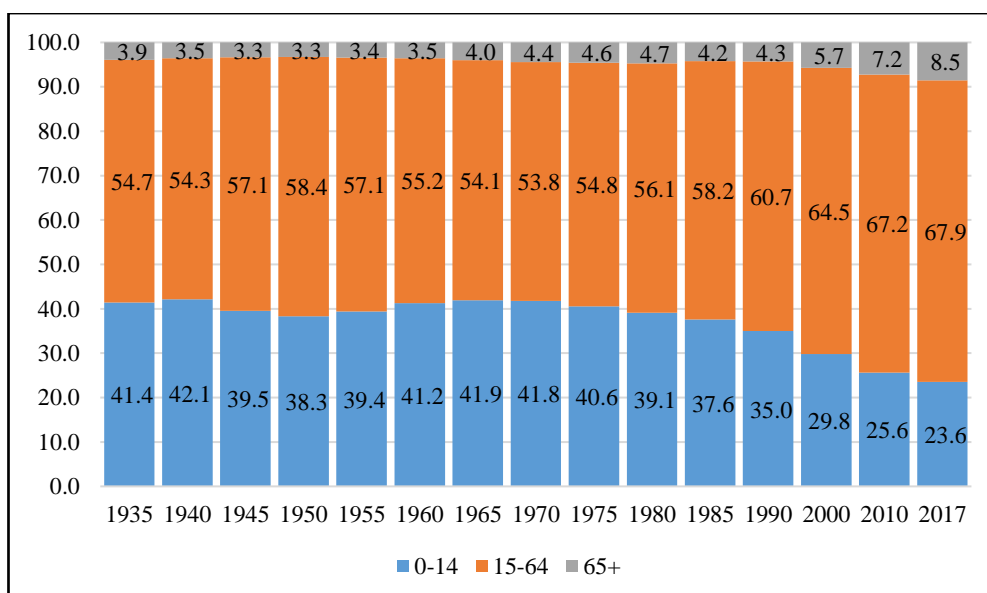
According to the first Population Census of Turkey in 1927, size of the population was 13 648 270. While 48.1% of the total population was males, 51.9% of total was females. By the 2017, according to the results of Address Based Population Registration System total population became 80 810 525. Proportion of male population was 50.2%, and proportion of females was 49.8%.

Figure 2.1. Population and population growth rate of Turkey, 1927-2017



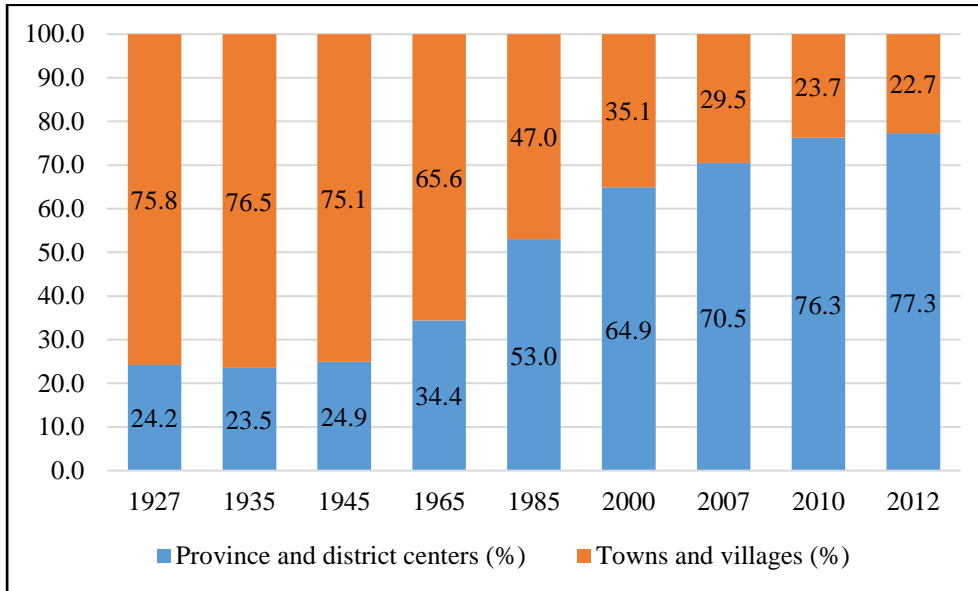
Change in age structure of the population shows that population is getting older. While proportion of child population was 41.4% in 1935, this proportion declined to 23.6% in 2017. Contrary, while proportion of old population was 3.9% in 1935, it increased to 8.5% in 2017.

Figure 2.2. Population by sex and age groups, 1935-2017



While population live in provinces and district centres was 24.2% of population in 1927, this proportion increased to 77.3% in 2012.

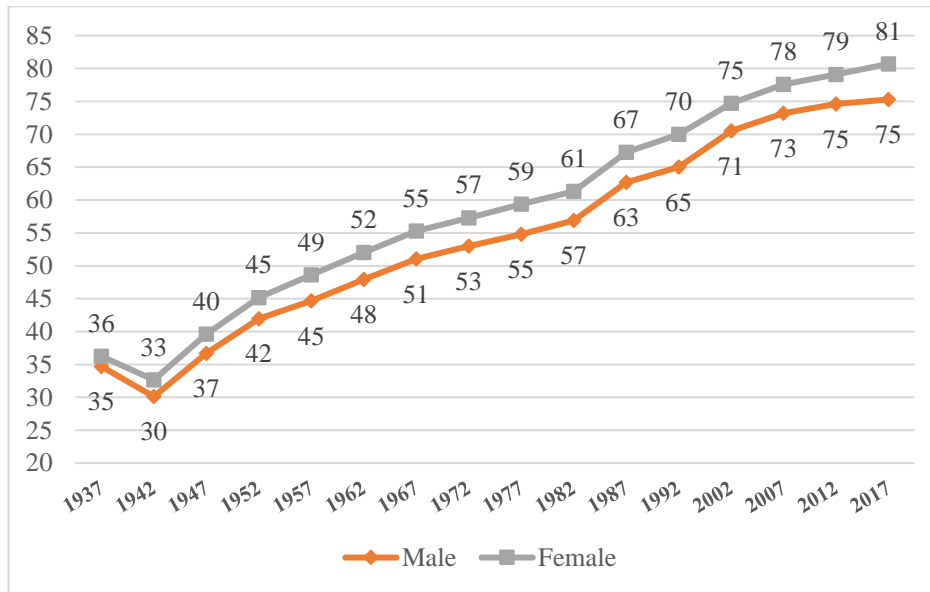
Figure 2.3. Population of province/district centres and towns/villages, 1927-2012¹



Life expectancy at birth which is a summary indicator of overall mortality, tends to increase continuously in Turkey. It is observed that the life expectancy at birth in 1940s was 30 years for the male population and 33 years for the female population (**Figure 2.4**). Today, it is observed that the expectation for life is 75 for men and 81 for women. Life expectancy of the female population, as in any other society in Turkey is higher than the male population.

¹ Due to the administrative division changes regulated by Law No. 6360, data for 2013 and later does not comparable with former ones.

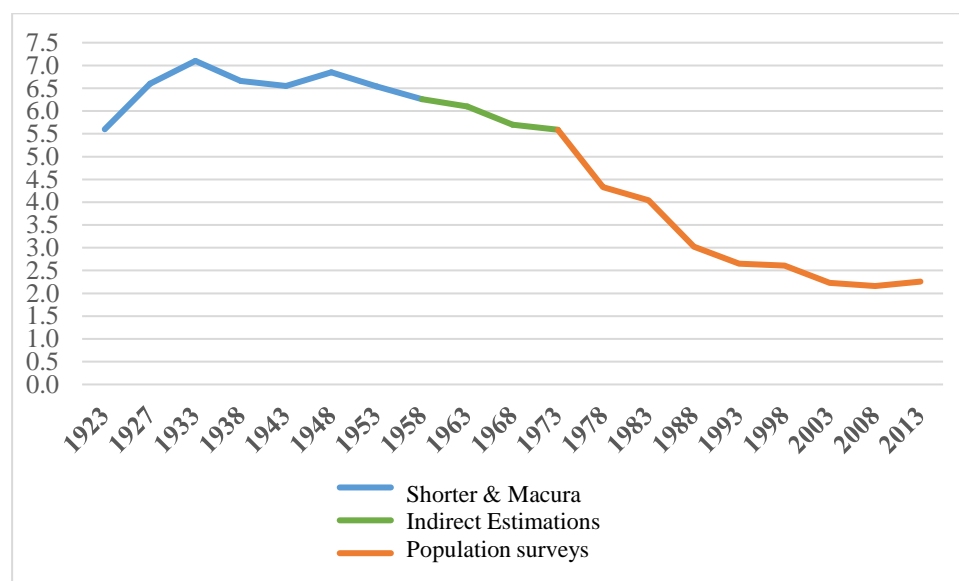
Figure 2.4. Life expectancy at birth by sex, 1937-2017



Source: TURKSTAT (1995) for 1937-1987; HUIPS (2010) for 1992; TURKSTAT (2018) for 2000-2017

Following the declaration of the republic, the incentives that were implemented in the process of rebuilding demographics increased the total fertility rate by the mid-1930s to 7 births per woman. The total fertility rate, which maintained this level until the 1950s, then entered a period of rapid decline from the middle of the 1950s, with the beginning of the internal migration movements from rural settlements to urban settlements. Total fertility rate declined to 6 in the beginning of 1960's; to 5 by the end of the 1970s; it had fallen to 3 by the late 1980s. The fertility level, which fell to 5 births per woman by 2000, has fallen to 2.26 which is slightly above the replacement level according to DHS-2013 results (HUIPS, 2010).

Figure 2.5. Total fertility rate, 1923-2013



Source: TURKSTAT (1995) for 1923-1973; HUIPS (2010) for 1978-2013

Mean household size of Turkey decreased from 5.5 in 1968 to 3.6 in 2013 according to DHS results.

Table 2.2. Mean household size, 1968-2013

Years	Mean household size
1968 ¹	5.5
1978 ²	5.2
1983 ³	5.3
1988 ³	4.8
1993 ⁴	4.5
1998 ⁵	4.3
2003 ⁶	4.1
2008 ⁶	3.9
2013 ⁶	3.6

Source: ¹ Timur (1972); ² Hancioğlu (1985); ³ HUIPS (1989); ⁴ HUIPS (1994); ⁵ Yavuz (2002); ⁶ HUIPS (2015).

HUIPS (2015), examined the type of households produced from demographic data sets between the years 1968 and 2013. While nuclear and dissolved families were increasing, extended families were decreasing (**Table 2.3**). Percent of dissolved families rose from 12% to 17% in 45 years. The proportion of nuclear families was at the level of 58-60% in 1960s and 1970s which became 70% in 2013.

While nuclear families increased 18% and dissolved families increased 110%, extended families decreased 61%.

Table 2.3. Change of type of households in Turkey, 1968-2013

Years	Nuclear	Extended	Dissolved	Total
1968¹	59.6	32.1	8.3	100.0
1973²	59.0	32.4	8.6	100.0
1978³	58.0	33.9	8.1	100.0
1983⁴	61.6	27.9	10.5	100.0
1988⁵	63.4	25.5	11.1	100.0
1993⁶	67.6	23.5	8.9	100.0
1998⁷	68.2	19.5	12.3	100.0
2003⁸	69.3	16.0	14.7	100.0
2008⁹	69.8	15.9	14.3	100.0
2013¹⁰	70.2	12.4	17.4	100.0

Sources: ¹ Timur (1978); ² Kunt (1978); ³ Hancioğlu (1985a and 1985b); ⁴ Ünalın (2005); ⁵⁻⁶ Koç (1997 and 1999); ⁷ Yavuz (2002); ⁸ Canpolat (2008); ⁹⁻¹⁰ HUIPS (2015)

In the rise of the nuclear families, the increase of the nuclear families without children had an important contribution (**Table 2.4.**). The growth of husband-wife families was the consequences of Turkey's demographic transition which shows itself as increased life expectancy and fertility postponement. Another effect of this transition can be seen in the internal distribution of the nuclear families with children. This families showed a significant reduction during the period 2008-2013. The reduction was more evident in nuclear families with 3 or more children.

When looked at a wider time interval, i.e., the period 1978-2013; while nuclear families with 1 and 2 children were increasing, there was a decrease in nuclear families with 3 or more children.

Table 2.4. Change of detailed type of households in Turkey, 1978-2013

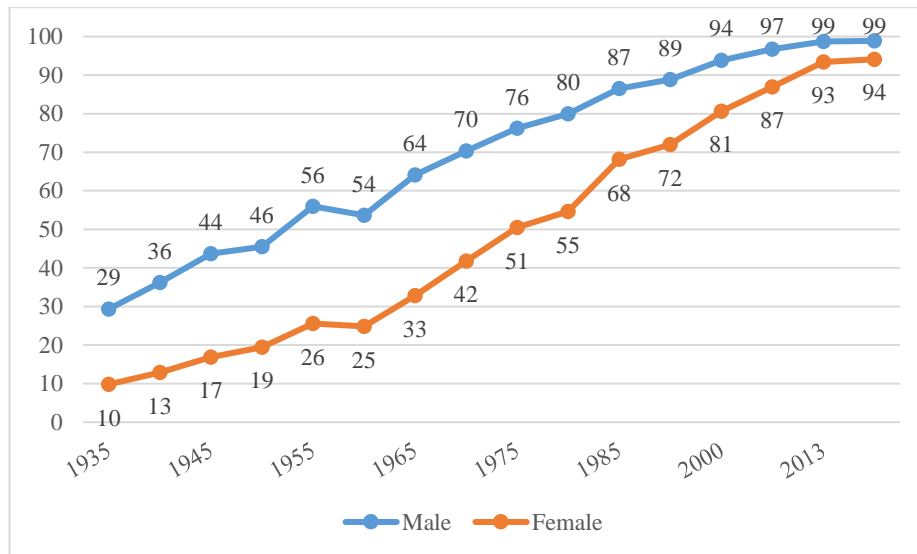
Type of household	1978	1988	1998	2008	2013
Nuclear	58.0	63.4	68.4	69.9	70.2
Nuclear without children	8.3	9.9	13.5	14.3	17.9
Nuclear without children (< 45)	6.1	5.7	5.3	4.0	4.2
Nuclear without children (>=45)	2.2	4.2	8.2	10.4	13.7
Nuclear with children	49.3	57.4	54.9	55.5	52.1
Nuclear with children- 1 child	9.5	12.1	13.3	17.7	17.2
Nuclear with children- 2 children	12.7	19.1	18.7	21.2	20.5
Nuclear with children- 3 children	27.1	26.3	22.9	16.6	14.5
Extended	33.9	25.5	19.5	15.9	12.4
Patriarchal	19.3	14.3	10.4	7.4	6.1
Transient	14.6	11.2	9.1	8.5	6.3
Dissolved	8.1	11.1	12.2	14.3	17.4
Single person	3.0	4.3	5.2	6.3	8.5
Single- Male	1.0	1.7	1.9	2.0	3.5
Single- Female	2.0	2.6	3.3	4.4	5.0
Single parent	4.8	5.4	5.0	5.2	5.7
Single parent- Male	0.5	0.7	0.6	0.6	0.6
Single parent- Female	4.3	4.7	4.4	4.6	5.0
Other dissolved	0.3	1.0	1.1	1.6	2.0
Without kinship	0.1	0.5	0.9	1.1	1.2
Total	100.0	100.0	100.0	100.0	100.0

In the period of 1978-2008, it was seen that there was a decrease by more than half in the extended families. While 19% of households lived in patriarchal family structure in 1978, it was seen that this ratio declined to 6% in 2013. Another development in this period was that the transient extended family was more resistant than the patriarchal extended family and became more widespread over the patriarchal extended family by time.

In the same period (1978-2013) the proportion of dissolved families increased from 8% to 17%. In this process, the increase in single-person households was particularly important. The proportion of single-person families had increased almost three times. About two-thirds of single-person households were older women. The rise in single-person households was thought to be related to the aging of the population and young workforce of leaving the elderly by migrating. The proportion of single-parent households in Turkey was around 6%. Approximately 90% of single-parent households had a composition of single mother and children. It was observed that the households composed of other dissolved families and non-related

people also increased proportionally among the total dissolved family. In the period of 1978-2013, the dissolved families of people with no relationship or kinship, were composed of young people migrated to work or to continue higher education in urban areas where education and employment opportunities were better (HUIPS, 2015).

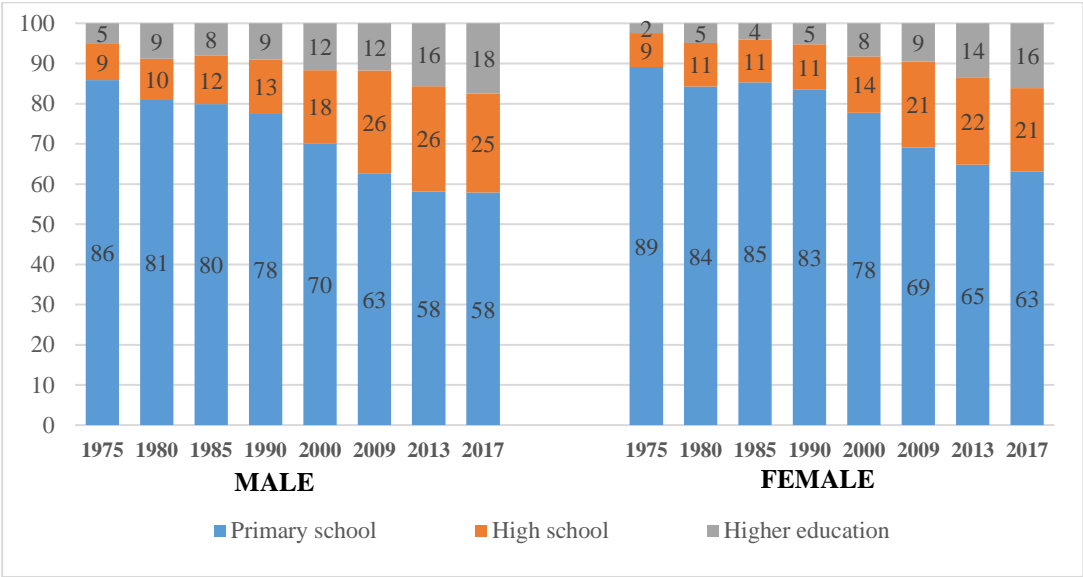
Figure 2.6. Literate population by sex, 1935-2016



Source: Population censuses 1935-2000; National Education Statistics Database (NESDB) for 2008-2016

When the percentage of men and women who completed primary school was examined in population with any school completed, it was observed that the percentage of those who completed primary education was decreased for both sexes, while the percentage of those who completed high school and higher education increased in the period of 1975-2017. Despite these developments, the general education level of men was still higher than women. Based on the year 2017, it was seen that 63% of the women graduated from primary school, 21% from high school and 16% from higher education. For men, these values were 58%, 25% and 18%, respectively.

Figure 2.7. Completed level of education of 15+ population by sex, 1935-2016

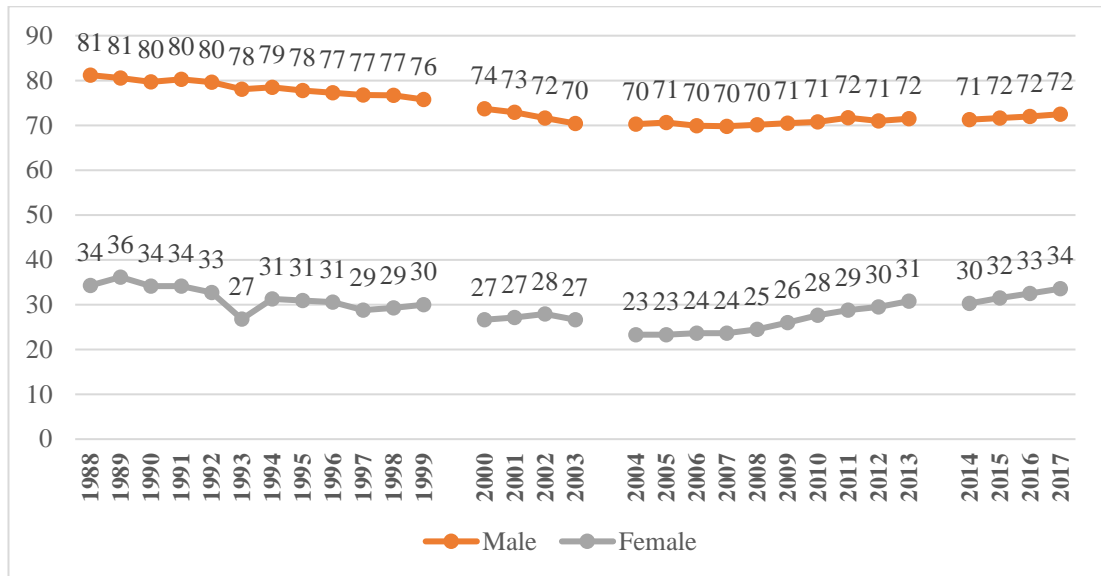


Source: Population censuses 1975-2000; National Education Statistics Database (NESDB) for 2009-2017

Labour Force Survey is one of the main sources for indicators of labour force since 1988 conducted by TURKSTAT. But, there are breaks in the time series because of changing methodology. Therefore, graphs were composed to reflect this situation and gaps were located on the breaks. Only, source data of **Figure 2.8.** was the population censuses, the following other figures were constructed from the results of LFS. For 1989-1999, mean value of two periods were used to calculate annual values. For the sectoral distribution, sectors were aggregated according to three main sectors.

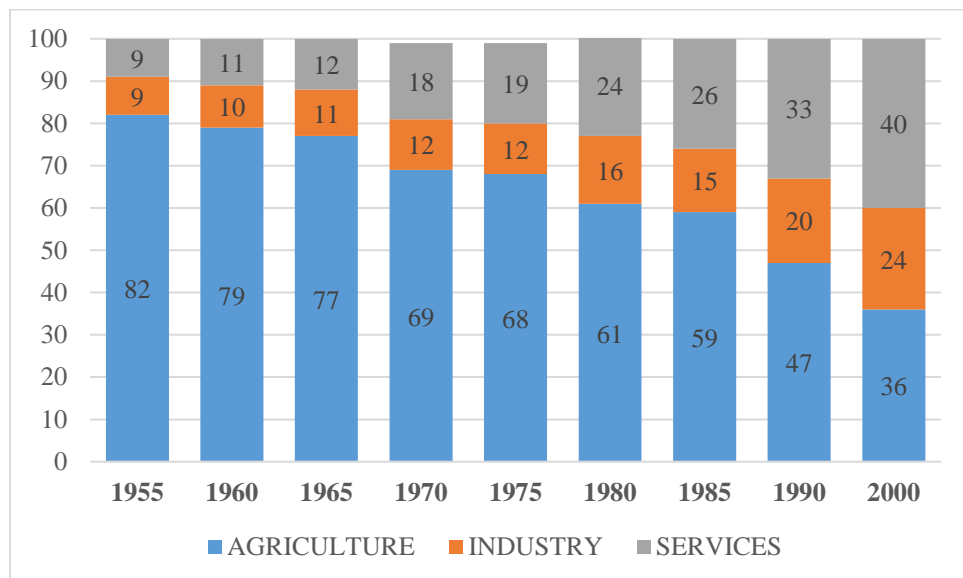
While labour force participation rate of males decreased from 81% in 1988 to 72% in 2017, for females after a fall and rise it stayed same at 34% for the years between 1988 and 2017. It was observed that the participation rates of women in the workforce were quite low compared to men.

Figure 2.8. Labour force participation rates by sex, 1988-2017



When the distribution of the employment by economic sectors examined, Turkey's agricultural economic structure has changed and service sector became dominant.

Figure 2.9. Sectoral distribution of population in employment, 1955-2000



Sectoral distribution of population in employment also differs by sex. It was seen that while male population had almost equal distribution by sectors, female population mainly worked in agricultural sector in 1988. As service sector became common for both sexes, agricultural sector still had more interest of women.

Figure 2.10. Sectoral distribution of male population in employment, 1988-2017

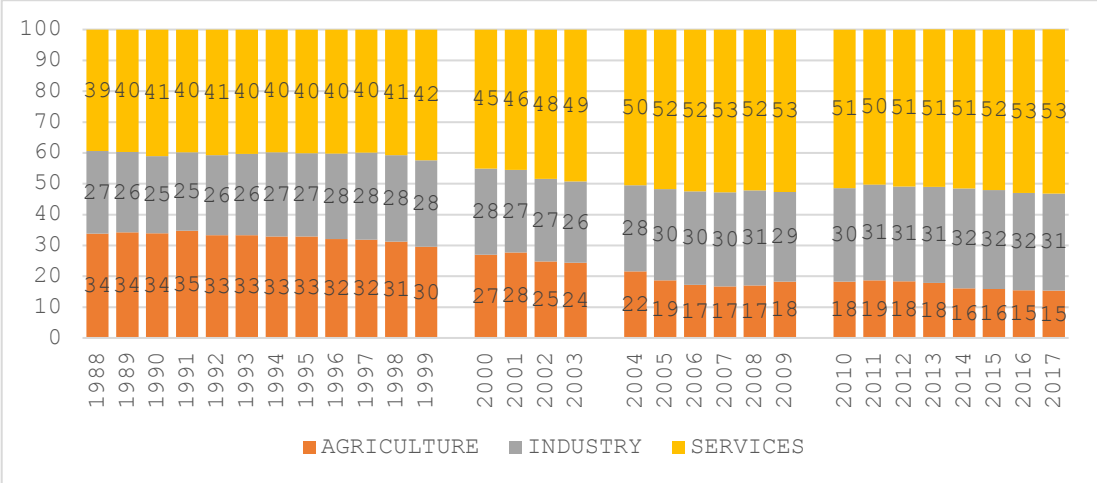
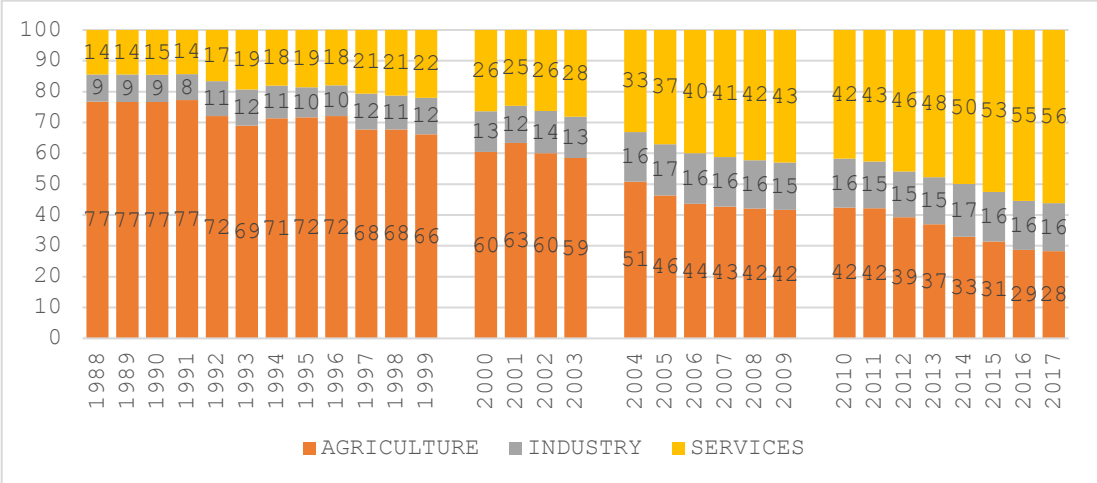


Figure 2.11. Sectoral distribution of female population in employment, 1988-2017



CHAPTER 3. DATA SOURCES AND METHODOLOGY

In this study, Labour Force Survey is used as the source to investigate the socio-economic structure of households by type, to observe the changes on household types by the years and to define determinants of labour force participation of each household type. Labour Force Survey is a household survey conducted by TURKSTAT.

Code for assigning household types was developed in SAS programme and applied to the three years' datasets. Due to changes of variables through the years, standardization of classifications was made to provide comparability by years. Some new variables were derived or calculated to be able to make detailed analysis.

3.1. Data Source

Labour Force Surveys (LFS) have been regularly carried out since 1988. The aim of the survey is to produce labour force indicators to define the status of labour market in Turkey.

The scope of the survey is all of the private households (non-institutional). The two-stage stratified cluster sampling method is used to select sample households. 8 sub-samples are constituted for each quarter.

While the source of address frame was 2000 General Population Census between 2004 and 2009, National Address Database (NAD) started to be used as for sample addresses since 2009. From the sampling frame, blocks are generated to include of 100 occupied addresses. In the first stage of sampling, these blocks are chosen as primary sampling units. At the second stage sample addresses are chosen from the blocks as final sampling units. Samples of each period are allocated to the weeks equally. The estimation level of the study is country total for quarterly results, and NUTS-2 levels for yearly results. Annual results have been provided data on NUTS-2 level since 2004.

Before 2014, the first week of each month starting with Monday and ending with the Sunday is taken as reference and field application applied in monthly

periods. With the “continuous survey” application, all weeks of the year (52 weeks) are taken as reference period since 2014. Sample addresses are visited four times in 18 months. First two visits are realised in the two following quarters and second two visits are realised in these quarters of the following year. Field application is completed within fifteen days following the end of the reference week.

The survey is applied with face-to-face interviewing method during the field study. Data is collected through the computers during the interview which is called as Computer Assisted Personal Interviewing (CAPI) method. In the questionnaire, after taking the information such as age, sex, educational attainment, marital status, place of birth, migration status, and relationship to household head; labour force status of household members are investigated with very detailed questions about labour force status, characteristics of work and reason for unemployment status. While questions related to demographic characteristics are asked to all of the household members, questions related to economic characteristics are asked for members aged 15 years and over.

The collected sample data is weighted to have the indicators to represent the universe by using the most recent population projections calculated by TURKSTAT. While population projections produced according to results of 2000 General Population Census was used until 2009, new projections have been started to be used which are prepared according to results of Address Based Population Registration System in 2009 and in 2014. To calculate the final weights, while selection criteria is taken into account to obtain design weights; controls of external distribution and correction for non-response is applied. Controls of external distribution are based on the variables of age group, sex, NUTS-2 level, urban-rural status and size of household.

According to national needs and international requirements several revisions were made LFS application such as the methodology, scope, definitions, and classifications in 2000, 2004, 2005, 2009 and 2014. The biggest one was the last one done in 2014 which caused a break in time series and eliminate the comparability

with previous year's datasets. The new arrangements can be summarized as below (TURKSTAT, 2016):

- i. Implementation of the survey in every week of the year,
- ii. Change of the sampling design,
- iii. Taking the new administrative division into account,
- iv. The use of new population projection estimates,
- v. Changing the duration of job search used for unemployment criteria

In this study, 3 LFS microdata sets are used which are yearly cross-sectional data of 2004, 2013 and 2016. Number of interviewed households are 121 622 in 2004, 146 055 in 2013 and 149 076 in 2016. For each year almost 500 thousand people are recorded to the questionnaire while 330-380 thousand of them were questioned for their economic activity status (15 years old and older persons). Because of the last revision realised in 2014, LFS 2016 dataset is not comparable with 2004-2013 LFS datasets.

Table 3.1 Number of observation in LFS, 2004, 2013, 2016

LFS	2004	2013	2016
Number of interviewed households	121 622	146 055	149 076
Number of interviewed persons	472 865	502 426	500 242
Male	232 621	245 173	245 577
Female	240 244	257 253	254 665
Number of interviewed persons aged 15 and above	338 148	379 742	380 709
Male	163 327	182 920	184 749
Female	174 821	196 822	195 960

3.2. Variables and Definitions

Three kind of variables are used in scope of this study. While the first group includes the variables which comes directly from the LFS microdata, the second group comprises the ones derived during the household generating procedure and the third group are the variables calculated to be able to compare household structures and different years' data.

The first group variables which comes directly from the LFS microdata are as follows:

Sequence Number of persons: Unique numbers assigned to each household member.

Sequence Numbers of Mother: Sequence number of mother of the person if the mother is the member of the household. If mother of the person does not live in the same household, “99” is recorded.

Sequence Numbers of Father: Sequence number of father of the person if the father is the member of the household. If father of the person does not live in the same household, “99” is recorded.

Sequence Numbers of Spouse: Sequence number of spouse of the married person if the spouse is the member of the household. If spouse of the person does not live in the same household, “99” is recorded.

Sex: Gender of the person, coded as 1 for males, 2 for females.

Age: Completed age of persons.

Size of household: Number of household members. While it is continuous variable in the micro data, it is transferred to a categorical variable with 5 levels.

Place of birth: Information is presented in two category: Turkey or abroad.

Migration status: Person is “migrated” if he/she resided in another location other than the place of survey in Turkey or abroad. And “never migrated” persons are the ones who resided in the location of enumeration during the lifetime.

Abroad residency status: People are “resided abroad” if he/she has ever resided in abroad at least once in a life time. For the persons never migrated, abroad residency status is coded as “never resided abroad”.

Level of education: Persons last completed level of education. Education levels after high school are aggregated in “higher education” category.

Marital status: Persons’ declared marital status.

Region: NUTS-1 level of the location of enumeration.

Table 3.2. Scope of the NUTS-1 regions

Name of the region	Provinces of the region
Istanbul	İstanbul
West Marmara	Balıkesir, Çanakkale, Tekirdağ, Edirne, Kırklareli
Aegean	İzmir, Aydın, Denizli, Muğla, Manisa, Afyon, Kütahya, Uşak
East Marmara	Bursa, Eskişehir, Bilecik, Kocaeli, Sakarya, Düzce, Bolu, Yalova
West Anatolia	Ankara, Konya, Karaman
Mediterranean	Antalya, Isparta, Burdur, Adana, Mersin, Hatay, Kahramanmaraş, Osmaniye
Center Anatolia	Kayseri, Sivas, Yozgat, Kırıkkale, Aksaray, Niğde, Nevşehir, Kırşehir
West Black Sea	Kastamonu, Çankırı, Sinop, Zonguldak, Karabük, Bartın, Samsun, Tokat, Çorum, Amasya
East Black Sea	Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane
Northeast Anatolia	Ağrı, Kars, Iğdır, Ardahan, Erzurum, Erzincan, Bayburt
Centraleast Anatolia	Van, Muş, Bitlis, Hakkari, Malatya, Elazığ, Bingöl, Tunceli
Southeast Anatolia	Mardin, Batman, Şırnak, Siirt, Şanlıurfa, Diyarbakır, Gaziantep, Adıyaman, Kilis

Working age population: Population aged 15 years and above

Employed population: Two group of persons are covered who are at working age group. The first group covers the persons who worked at least one hour in the reference week as an employee, casual employee, employer, self-employed or unpaid family worker. The second group includes persons who have a job during the reference week but was absent at work for various reasons.

Unemployed population: Persons who are at working age group; did not work at the reference week (neither worked for profit, payment in kind or family gain at

any job even for one hour, who have no job attachment); used at least one channel to look for a job for a given period; and able to begin work within the two weeks.

Labour Force: The total of all employed and unemployed persons.

Labour force participation rate: $(\text{Employed} + \text{Unemployed}) / \text{Working age population} * 100$

Persons not in labour force: Persons aged 15 years and above who are neither unemployed nor employed.

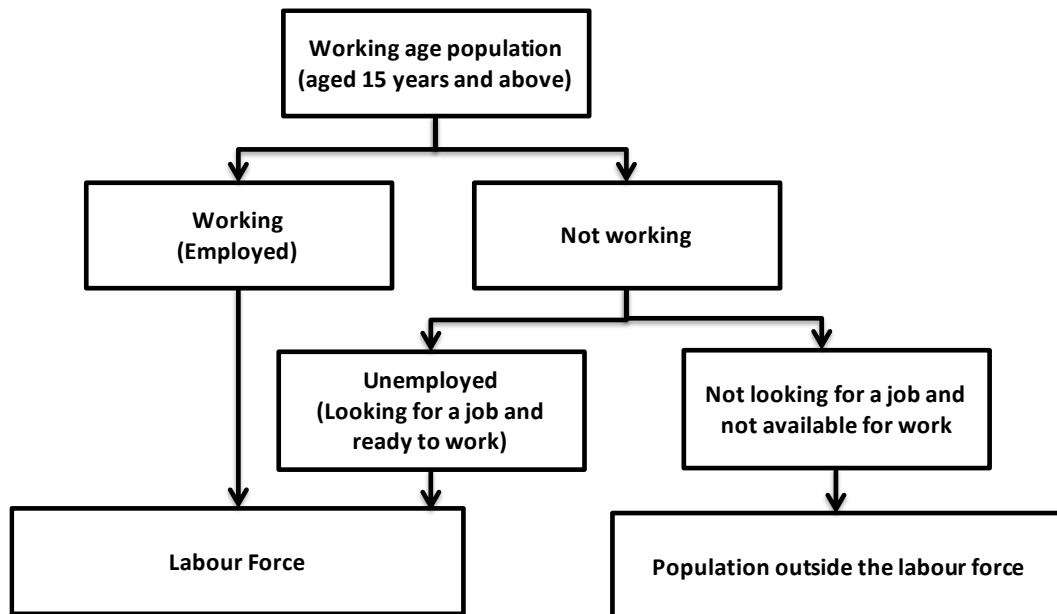
Reason for not being in labour force: Reasons for persons not seeking a job and not available for work. Categories are as follows:

- Not seeking a job but available to start, Discouraged
- Not seeking a job but available to start, Other
- Housewife
- Education/ Training
- Retired
- Disabled, old, ill etc.
- Personal or family reasons
- Other

Branch of economic activity: The sector of employed persons as agriculture, industry and services.

According to the definitions of persons employed, unemployed and not in labour force are schematised in **Figure 3.1**.

Figure 3.1. Summary of labour force statuses



The second group variables are those derived during the household generating procedure:

Child: Persons, regardless of age, who have at least one parent and no spouse in the household. In other words, a person whose mother and/ or father sequence number value is other than 99 in the field for and spouse sequence number is 99.

Lone Parent: Person have a child in the household. In other words, a person whose sequence number is someone's mother/ father sequence number.

Couple: Persons who have a spouse in the household. Couples can be also parents of a child. In other words, a person whose spouse sequence number is other than 99.

Family sequence numbers: The unique numbers for each nuclear family in the household which allows to group nuclear family members.

Labour force status of spouse: Status of spouse as employed, unemployed or outside the labour force. People who are not married or have no spouse in the household are coded in "no spouse" category.

Education level of spouse: Level of education of spouse. People who are not married or have no spouse in the household are coded in “no spouse” category.

Branch of economic activity of spouse: Married persons’ spouse’s economic sector as agriculture, industry and services. People with a spouse who are not working are coded in “not employed” category.

Type of household: Composition of households according to relationship status of members to each other.

1. One-person households
2. Couples without resident children
3. Couples with at least one resident child
4. Lone parents with at least one resident child
5. Extended family households
6. Multi-person households without nuclear families

One-person households: Households consist of a person who lives alone (Household type in 1.category).

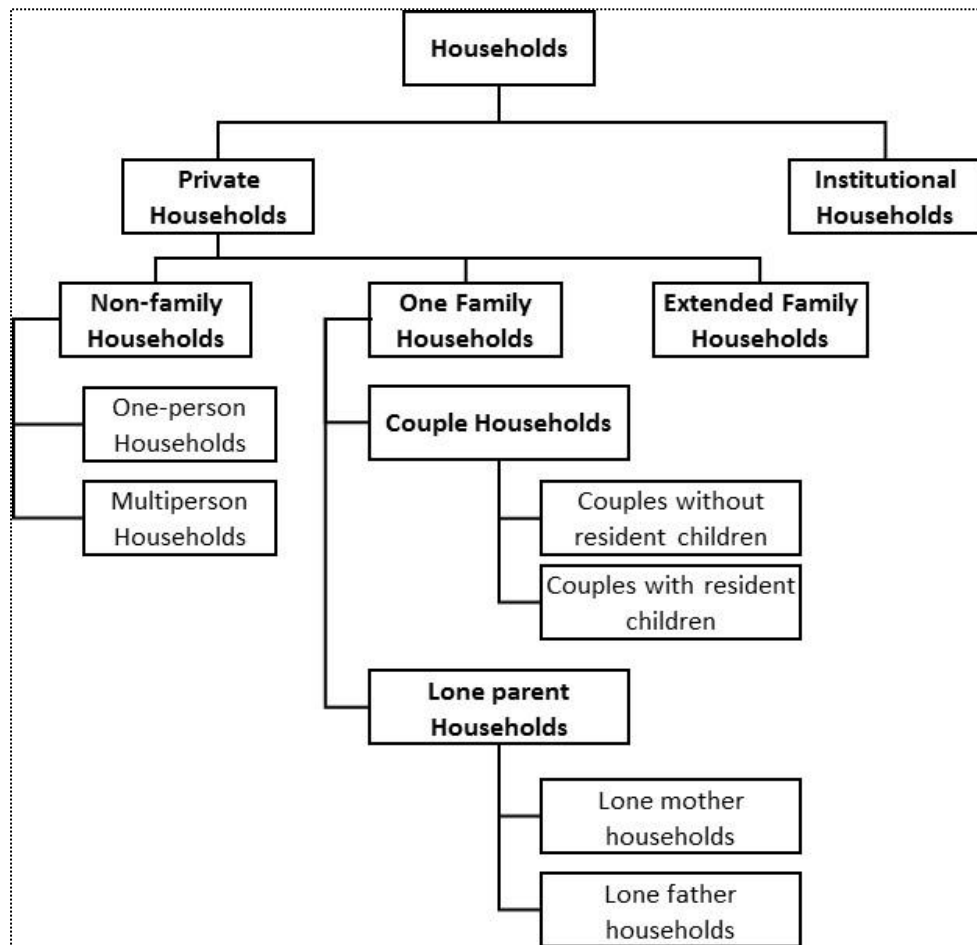
Nuclear family households: Households which includes only one nuclear family without any non-family member. (Household types in 2, 3 and 4. category)

Extended family households: Households which includes at least one nuclear family with at least one non-family member or more than one nuclear family with or without non-family members.

Multi-person households without nuclear families: Households of which members are not related to each other as couples or parent or child.

Typology of households is schematized in **Figure 3.2**.

Figure 3.2. Classification for type of households used in the study



The third group variables are calculated to be able to compare household structures and different years' data.

Child: Calculated from the data according to existence of at least one household member who is aged between 0 and 5 years. Categories are formed as “Household has no child member” and “Household has a child member”. This child variable does not require any parent in the household.

Age group: Generated from single ages for 10 year intervals and last age group is set as 65 and above.

3.3. Algorithm for Generating Households Types

There are different methods to define type of households by composition. Methods mainly differ based on the variables used for the generating households.

The oldest and the most popular approach is based on the information collected on relationship to the reference person. According to this method a reference person is selected to allow to define the household composition.

UNECE (2015) has set the criteria for selection of reference person as:

- “a) Either the husband or the wife of a married couple living in the household (preferably from the middle generation in a multi-generational household);*
- b) Either partner of a consensual union couple living in the household where there is no married couple present;*
- c) The parent, where one parent lives with his or her sons or daughters of any age; or*
- d) Where none of the above conditions apply, any adult member of the household may be selected.”*

Following the determination of reference person, other household member's relation to this reference person is coded in predefined categories such as spouse, son/ daughter, father/ mother, sibling, other relatives, non-relatives etc. After collecting information on relationships in the household, composition of each household is generated as “reference person+ spouse+ son/ daughter”, “reference person+ spouse+ father/ mother”, “reference person+ sibling”, etc. with use of relationship information. Then, each household composition is allocated to a class on type of household. While this method works well for a survey data with small sample size, it becomes harder with large numbers of households. Besides, wrong selection of reference person may cause to allocate household to a different type of household. Defining relationships in multi generation/ extended family households is also a complex work.

One of alternatives of this approach is constituting a household member matrix as defining each member's relation to every other member rather than only reference person. But this method is also complicated for both data collection and

data processing processes. While in a 3 persons household 3x3 matrix is coded, in an 8 person's household this will become 8x8.

The last approach to define type of household is using sequence numbers of mother, father and partner which is also used in this thesis. For household surveys or censuses, individual sequence number which is the unique number assigned to every household member during data collection phase. If a person's partner or parents are the member of the household, sequence numbers of these people are recorded. Household types are constituted by using these numbers which allows to distinguish couples, parents and children with age and sex information. In the following section, this approach is explained in detail. The algorithm comprises of 3 main parts: checking sequence numbers of parents and couples; matching couples/ parents/ children; assigning types of families.

3.3.1. Checking/ Correcting Sequence Numbers of Parents and Couples

Due to their being of the backbone of the study, sequence numbers of mother's, father's and spouse's of the members should be assigned accurately. Despite there are checks in the software used for the data collection of LFS, minor mistakes and some inconsistencies were detected in sequence numbers of parents and couples. So, firstly a correction algorithm is developed to provide basic must haves to define nuclear families coherently: each member should have only one spouse; a person should be younger than his/ her parents; if there is a child with a father and mother sequence number, his/ her mother and father assigned to each other as spouse if they has a null spouse sequence number.

3.3.2. Matching Couples/ Parents/ Children

First step of determining family members is matching spouses with each other by giving them a unique family sequence number and labelling them as "spouse". Then in the second step, their children –who are not a parent of any child in the household- are linked to them by their family sequence number and they are labelled as "child". At the last step, lone parents are linked with their children by giving the same family sequence numbers. While parents are labelled as "lone

father” or “lone mother”, their children are labelled as “child”. Every member who are not related to any other member of the household to compose a nuclear family are labelled as “unrelated”.

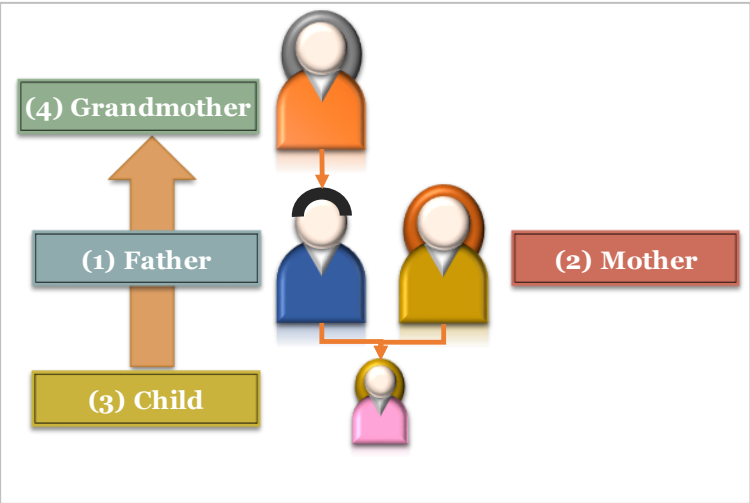
3.3.3. Generating Households Types

Firstly, person who live alone in the household are labelled as “one-person”. Households with the size of two or more persons are taken into account to define their family types. Households with only one family sequence number without any “unrelated” persons are determined as nuclear families. According to their composition their types are distinguished as “Couples without resident children”, “Couples with at least one resident child”, “Lone father/ mother with at least one resident child”. Households with more than one family sequence number with or without “unrelated” persons are determined as extended families. Households with only one family sequence number with all of the members labelled as “unrelated” persons are defined as multi-person households without nuclear families.

3.3.4. Illustration for Generating Households Types

An example household may comprise of one child with her father, mother and grandmother as shown in **Figure 3.3**.

Figure 3.3. An example household



The data format of this household is shown in **Table 3.3**. As the size of the household is 4, sequence number (SN_PRSN) of persons are between 1 and 4. In the first line, information of the father is recorded. Sequence number of mother (SN_MTHR) of the father is “4” which means the mother of this father lives in this household with a sequence number of “4” while sequence number of father (SN_FTHR) of the father is “99” which means the father of this father does not live in this household. Sequence number of spouse (SN_SPS) of the father is “2” which means the spouse of this father lives in this household with a sequence number of “2”. As opposite of the father, second person is the mother whom the sequence number of spouse (SN_SPS) is “1”, as expected. Father or mother of the mother are not the members of this household as their sequence numbers are “99”. The third person is the child whom mother’s sequence number is 2 and father sequence number is one. The fourth person is the grandmother. Father, mother or spouse of the grandmother are not the members of this household as their sequence numbers are “99”.

Table 3.3. Data format of example household

ADDRESS_ID	SN_PRSN	SN_MTHR	SN_FTHR	SN_SPS
X	1	4	99	2
X	2	99	99	1
X	3	2	1	99
X	4	99	99	99

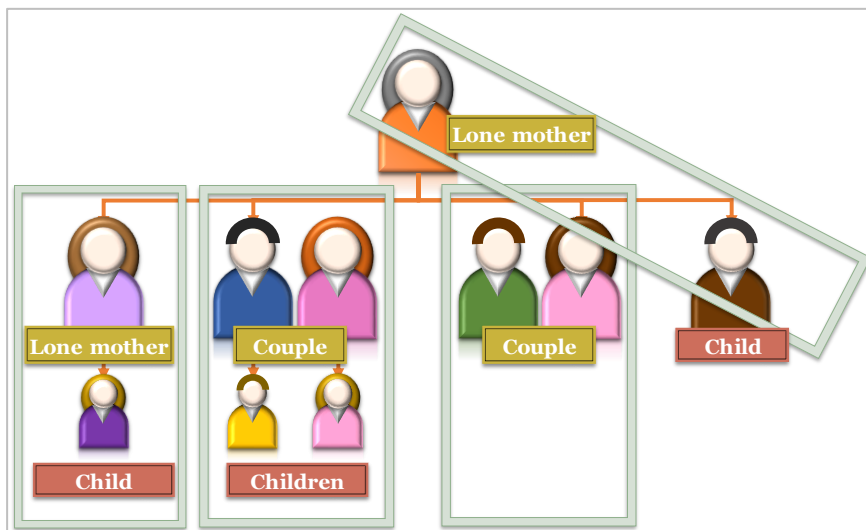
According to the algorithm mentioned above, the first step is grouping couples, giving them the family numbers and setting their status as “spouse”. At the second step, children are selected, grouped with their parents with the same family number and labelled their status as “child”. At the last step, remaining persons who are not spouse, father or mother of another member are selected, their family number is coded as “0” and their status is labelled as “unrelated”. The data format of the example household then became as **Table 3.4**. As this household has two family numbers (0 and 1) with an “unrelated” person, the type of the household is determined as extended family.

Table 3.4. Data format of example household-2

ADDRESS_ID	SN_PRSN	SN_MTHR	SN_FTHR	SN_SPS	STATUS	FAM_NUM
X	1	4	99	2	Spouse	1
X	2	99	99	1	Spouse	1
X	3	2	1	99	Child	1
X	4	99	99	99	Unrelated	0

Another example household may comprise of one grandmother, 3 children of her, 2 of them has their spouses and children as shown in **Figure 3.4**. In this household there is 3 nuclear families. The grandmother is unrelated person because she is not a part of any nuclear family. After determination of 4 nuclear families and without any unrelated person; type of this household is defined as extended family which has every kind of nuclear families.

Figure 3.4. An example household illustrates family types



3.4. Descriptive Analysis

One of the purpose of this study to make detailed comparisons to identify characteristics of type of households by member composition. Despite the households have been mainly studied in household level to evaluate the increase or

decrease of the types by years in literature, the data is analysed in person level to evaluate the socio-economic status of each type of household.

Descriptive analyses have been realised under two subjects. Firstly, the generated type of households are focused type by type to define the structure of each type and to show the changes by the time. To do this, variables are chosen to reflect characteristics of each type according to its structure and detailed cross-tables are constituted as each cell shows percentage of persons with characteristics determined in column and row of the table in total population. Three years' data set is used for these analysis.

Secondly, labour force participation is evaluated for each type of households by demographic and socio-economic characteristics. Population aged 15 and above is taken into account as being eligible to work. Similar variables in the first part of descriptive analyses are used. Each cell of the tables represents the labour force participation rate of persons with characteristics determined in column and row of the table. Only data of 2016 is used for these analysis.

According to type of household, different variable combinations are used for cross-tabulations. Composition of the household is reflected to analysis. For example, if the type of household includes couples, available information on spouse is also included in cross-tabulations. If there is only couples in the household, marital status variable excluded as all of the persons are "married".

Three data set of LFS for the years 2004, 2013 and 2019 are imported to SAS programme. Type and categories of variables are standardised for each year's data to be able to provide comparability. Additional variables other than the ones already exists in microdata are generated if required. Cross-tables presented in Chapter 4 are generated in SAS programme and prepared in MS Excel.

3.5. Logistic Regression Analysis

In case of binary dependent variable, the most popular method is logistic regression for modelling to explain the relationship between the dependent variable

and explanatory variables. The depended variable, Y is usually coded as 1 and 0. The relationship between several explanatory variable, X_1, X_2, \dots, X_i to the Y is tried to be described with a mathematical model. The model can be formulated as:

$$\text{Logit}(p) = \log\left(\frac{p(y=1)}{1-p(y=1)}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_i X_i \quad [3.1]$$

The expected value of Y is:

$$E(Y) = \frac{1}{1 + \exp[-(\beta_0 + \sum_{j=1}^k \beta_j X_j)]} \quad [3.2]$$

For (0,1) random variables such as Y, it follows from basic statistical principles about expected values that $E(Y)$ is equivalent to the probability $\text{pr}(Y=1)$; so the formula for the logistic model can be written in a form that describes the probability of occurrence of one of the two possible outcomes of Y, as follows:

$$\text{pr}(Y = 1) = \frac{1}{1 + \exp[-(\beta_0 + \sum_{j=1}^k \beta_j X_j)]} \quad [3.3]$$

The regression coefficients β_j in the logistic model given by [3.3] provide information between predictors to the dependent variable. Quantification of these relationships are evaluated with the odds ratio which is a parameter for measure of effect. Odd is defined as the ratio of the probability of occurrence of an event divided by the probability of non-occurrence of the same event. The odds for an event D is:

$$\text{odds}(D) = \frac{\text{pr}(D)}{\text{pr}(\text{not } D)} = \frac{\text{pr}(D)}{1 - \text{pr}(D)} \quad [3.4]$$

And odds ratio (OR) is defined as a ratio of two odds: (Kleinbaum et al., 1998)

$$\text{OR}_{A \text{ vs. } B} = \frac{\text{odds}(D_A)}{\text{odds}(D_B)} = \frac{\text{pr}(D_A)}{1 - \text{pr}(D_A)} / \frac{\text{pr}(D_B)}{1 - \text{pr}(D_B)} \quad [3.5]$$

In this study, dependent variable is labour force participation. Labour force comprises all persons employed or unemployed. A binary variable for determining

labour force participation is coded as 1 for persons in the labour force; as 0 for the persons not in the labour force.

Multicollinearity is tested to detect the highly related variables based on variance inflation factor (VIF) values before the logistic regression analysis. Collinearity provides information on the degree of correlation between the explanatory variables. The limit for the VIF values are taken as 10. According to this, couple of variables with the VIF value greater than 10 means are collinearity exists and one of them should be excluded from the model.

After multicollinearity tests, the models are composed. While labour force participation was taken as dependent variable, type of household variables was taken as sub-population variables. For each household type, six different dichotomous variables were generated coded as 0/1 to make logistic regression analysis for each household type as domains.

To analyse the effect of type of households on the labour force participation, seven different logistic regression models were employed:

- Total population (**Model 1**)
- One-person households (**Model 2**)
- Couples without resident children (**Model 3**)
- Couples with at least one resident child (**Model 4**)
- Lone parents with at least one resident child (**Model 5**)
- Extended family households (**Model 6**)
- Multi-person households without nuclear families (**Model 7**)

According to each model, different variables are chosen according to type of households. For example, if there is no spouse at the household in case of one-person households and multi-person households without nuclear families, variables such as education status of spouse or labour force status of spouse are not included in the models.

Table 3.5. Variables included in models for logistic regression

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
REGION (NUTS-1 regions)	X	X	X	X	X	X	X
AGE_GR (Completed age of persons in 10 years intervals)	X	X	X	X	X	X	X
SEX	X	X	X	X	X	X	X
PL_BIRTH (Place of birth of persons)	X	X	X	X	X	X	X
MIG (Migration status of persons)	X	X	X	X	X	X	X
RES_ABROAD (Abroad residency status of persons)	X	X	X	X	X	X	X
EDU_ST (Level of education)	X	X	X	X	X	X	X
MAR_STA (Marital status of persons)	X	X		X	X	X	X
LFS_SPS (Labour force status of spouse's)	X		X	X		X	
EDU_SPS (Education status of spouse's)	X		X	X		X	
CHILD (Child member aged between 0-5)	X			X	X	X	X
HH_SIZE (Size of households)	X			X	X	X	X
HH_TYPE (Type of household)	X						

The Nagelkerke R^2 values are calculated to define how much of labour force participation is explained by selected variables in the models. The significance of the model and variables in the model are evaluated. The significance level lower than 0.05 means that the model/ variable is significant.

3.6. Shortcomings

- Due to changes between the years, breakdowns of some variables were aggregated (education).
- LFS 2016 dataset is not comparable with 2004 and 2013 LFS datasets because of changed methodology.

- Because of weighting schema of 2004 and 2013, tables cannot be constructed in household level.
- The weak side of the method is if there is no mother, father or spouse in the household; it is impossible to find out relationships between the members.
- If there is a person who is not a member of any nuclear family in extended family, it is not possible to find out who is this person if he/ she is not parent of any adult.
- Households consist of persons with more than one spouse were classified as extended families.

CHAPTER 4. RESULTS

In this Chapter, results are presented under two main sections, namely results of descriptive analysis and logistic regression analysis.

Within the scope of descriptive analysis, type of households are investigated in two perspectives: changes within household types by years and differentiation of labour force participation between household types. Each type of household is examined according to the members' socio-economic characteristics to understand structural changes in time. That for; 2004, 2013 and 2016 LFS microdata set is used to make comparisons. Each type is evaluated separately depends on its own composition. Type of households are also evaluated in scope of the members' labour force participation. 2016 LFS microdata is used for this evaluation. Selected characteristics are crossed by type of households to determine their contribution.

In the second section, results of logistic regression are presented to evaluate the determinants of labour force participation by type of households and by total population. As the first model is for total population, other 6 different models are constituted for each type of households. The composition of the type is taken into account while choosing variables for models.

4.1. Results of Descriptive Analysis

In this part, findings gathered from generation of household types were reported in detailed cross tabulations to evaluate the socio-economic characteristics and changes in time by type of households.

According to results obtained from LFS microdata, 67.7% of the total population live in nuclear family households in 2016. This percentage was 70.6% in 2004 which means the population lives in nuclear families decreasing. Most of this decrease is due to falling of the population live in nuclear families consists of couples and their resident children. Opposite to this decline, number of persons live alone and population live in multi-person households without nuclear families is increasing from 1.9% and 0.9% in 2004 to 4.2% and 1.2% in 2016, respectively.

Table 4.1. Population by type of households, 2004-2016

Type of households	2004	2013	2016
Total	100.0	100.0	100.0
1.One-person households	1.9	2.6	4.2
2.Nuclear family households	70.6	74.6	67.7
3.Couples without resident children	7.9	9.5	9.4
4.Couples with at least one resident child	62.8	59.9	58.3
5.Lone parents with at least one resident child	4.6	5.2	4.5
6.Lone fathers with at least one resident child	0.4	0.5	0.5
7.Lone mothers with at least one resident child	4.2	4.7	3.9
8.Extended family households	22.0	21.4	22.4
9.Multi-person households without nuclear families	0.9	1.4	1.2

4.1.1. One-Person Households

Population live in one-person households are female with 59.3% and male with 40.7%. When age and sex structure of this group is analysed, the biggest percentage of 33.5% belongs to female persons aged 65 years and above.

If the age is aggregated in 55 years and above for females, this percentage becomes 44.5% which means almost half of the persons who lives alone are women aged 55 years and above. But it is seen that in 12 years period, proportion of males live alone increased from 28% in 2004 to 40.7% in 2016.

Table 4.2. Population lives alone by age and sex, 2004-2016

Age Groups	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	28.0	35.1	40.7	72.0	64.9	59.3
15-19	0.8	0.4	0.3	0.5	0.3	0.2	0.3	0.1	0.1
20-24	3.9	3.3	3.2	2.5	2.3	2.1	1.4	1.0	1.1
25-29	5.4	6.7	6.8	4.0	4.6	4.4	1.4	2.0	2.4
30-34	3.2	6.0	6.2	1.9	4.0	4.2	1.3	2.0	1.9
35-39	2.9	4.7	6.3	1.8	3.1	4.3	1.2	1.6	2.0
40-44	3.0	4.0	4.8	1.4	2.2	3.1	1.6	1.8	1.8
45-49	4.0	4.8	4.9	1.4	2.4	2.6	2.6	2.4	2.3
50-54	5.2	6.6	5.6	1.5	2.4	2.4	3.7	4.2	3.2
55-59	7.0	7.7	7.1	1.6	2.1	2.7	5.4	5.7	4.4
60-64	10.5	9.2	9.3	2.0	2.2	2.8	8.4	7.0	6.5
65+	54.1	46.6	45.4	9.4	9.7	11.9	44.7	36.9	33.5

When regional distribution of one-person households is examined, Aegean has the biggest proportion with 20%. Istanbul with 18.5% and Mediterranean with 11.6% is following regions. Northeast Anatolia has the smallest proportion with 1.3%. While the names of the top three regions remained same in years, the ordering has changed between Istanbul and Aegean.

Table 4.3. Population lives alone by NUTS-1 regions and sex, 2004-2016

NUTS-1 Regions	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	28.0	35.1	40.7	72.0	64.9	59.3
Istanbul	19.5	18.6	18.5	6.1	7.7	8.7	13.4	10.9	9.8
West Marmara	7.1	8.0	7.9	1.9	2.7	3.1	5.2	5.3	4.9
Aegean	18.4	20.4	20.0	4.2	6.6	7.9	14.1	13.8	12.1
East Marmara	9.1	10.9	11.3	3.0	4.2	4.4	6.1	6.7	6.9
West Anatolia	11.4	10.1	9.5	3.5	3.6	3.9	7.9	6.5	5.6
Mediterranean	12.6	11.7	11.6	3.1	3.8	4.4	9.5	7.9	7.2
Central Anatolia	5.1	4.2	4.7	1.3	1.1	1.7	3.8	3.0	3.1
West Black Sea	6.4	5.7	5.7	1.6	2.1	2.4	4.8	3.6	3.4
East Black Sea	3.3	4.1	3.9	1.2	1.4	1.7	2.1	2.6	2.2
Northeast Anatolia	0.9	0.9	1.3	0.3	0.4	0.6	0.6	0.5	0.7
Centraleast Anatolia	1.8	2.0	2.06	0.6	0.5	0.9	1.2	1.4	1.1
Southeast Anatolia	4.4	3.5	3.5	1.2	0.9	1.1	3.1	2.6	2.4

The most of the persons live alone was widowed with 52%. Singles with 25.1% and divorced persons with 16.9% followed the widowed persons. While the most of males are single with 16.3%, females are commonly widowed with 41%.

Table 4.4. Population lives alone by marital status and sex, 2004-2016

Marital status	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	28.0	35.1	40.7	72.0	64.9	59.3
Single	17.3	22.9	25.1	11.2	14.5	16.3	6.1	8.4	8.8
Married	6.1	5.5	6.0	3.0	3.2	3.7	3.2	2.3	2.3
Divorced	6.6	14.3	16.9	3.2	7.6	9.7	3.5	6.7	7.1
Widowed	70.0	57.3	52.0	10.7	9.7	11.0	59.2	47.6	41.0

Persons hold the primary school diploma has the biggest proportion with 32%. This proportion is 5.4% for males, 26.6% for females. Graduates of higher

education increased from 10% to 20.5% between 2004 and 2016. For females, the highest proportion is the ones without any school degree with 26.6%.

Table 4.5. Population lives alone by education level and sex, 2004-2016

Education level	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	28.0	35.1	40.7	72.0	64.9	59.3
No school completed	44.8	37.8	32.0	6.2	5.0	5.4	38.6	32.8	26.6
Primary school	34.8	33.1	35.2	10.9	13.9	16.1	23.9	19.3	19.1
High school	10.4	11.1	12.3	5.8	6.4	7.5	4.6	4.8	4.8
Higher education	10.0	18.0	20.5	5.1	9.9	11.7	4.9	8.1	8.8

64.2% of persons live alone is not in labour force while 32.4% of them are employed and 3.5% of them are unemployed. This result was expected as the biggest proportion of people live alone constitutes of old women. But when the percentages are evaluated by years, it is seen that there is an increase in the proportion of employed persons stem from the rise of employment of both sexes.

Table 4.6. Population lives alone by labour force status and sex, 2004-2016

Labour Force Status	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	28.0	35.1	40.7	72.0	64.9	59.3
Employed	21.4	30.1	32.4	13.0	19.4	21.8	8.3	10.6	10.6
Unemployed	1.8	2.7	3.5	1.4	1.5	2.3	0.5	1.2	1.2
Not in labour force	76.8	67.2	64.2	13.6	14.1	16.7	63.2	53.0	47.5

When sectoral distribution of employed population is examined, services has the biggest proportion with 70.3%. While 19.4% of them works in industry, %10.2 of them works in agricultural sector in 2016. In 2014, while services sector had the biggest share, the ordering of the 2. and 3. ranks were different as the percentage of the population worked in agricultural sector was higher than the ones worked in industrial sector. While the gap between the industrial and agricultural sector was low for males, it was noticeable for females in 2004, 4% in industry and 13.3% in agriculture.

Table 4.7. Population lives alone and economically active by sector and sex, 2004-2016

Branch of economic activity	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	61.0	64.6	67.2	39.0	35.4	32.8
Agriculture	24.3	13.6	10.2	11.1	6.5	6.3	13.3	7.0	3.9
Industry	14.8	17.2	19.4	10.7	13.0	15.5	4.0	4.2	4.0
Services	60.9	69.2	70.3	39.2	45.1	45.4	21.7	24.1	24.9

When the persons outside the labour force was investigated by the reason, there are differences by sex. While 33.9% of females declare themselves as “disabled, old, ill, etc.”, 27.1% of them declared themselves as “housewife”. As the reason of being “retired” has the biggest proportion for males with 13.6%, this proportion is 9.5% for females. Category of “Disabled, old, ill, etc.” takes the second order with 8.3% for males.

Table 4.8. Population lives alone and not in labour force by reason and sex, 2016

Reason for not being in labour force	Total		Male		Female	
	(000)	(%)	(000)	(%)	(000)	(%)
Total	2 079	100.0	541	26.0	1 539	74.0
Not seeking a job but available to start, Discouraged	21	1.0	14	0.7	7	0.4
Not seeking a job but available to start, Other	66	3.2	29	1.4	37	1.8
Housewife	563	27.1	-	-	563	27.1
Education/ Training	37	1.8	23	1.1	14	0.7
Retired	480	23.1	284	13.6	197	9.5
Disabled, old, ill etc.	877	42.2	172	8.3	705	33.9
Personal or family reasons	24	1.2	12	0.6	12	0.6
Other	11	0.5	6	0.3	4	0.2

4.1.2. Nuclear Family Households- Couples without Resident Children

Age structure of population live in households composed of couples without resident children are differs according to life-cycle of family. While the percentage of couples is increasing with low percentages until 25-29 age group with the marriage, it starts decreasing until 50-54 age group, and then rising afterwards. This process shows the transition of families with the processes of having baby, becoming a family composed of spouses with child/ children, and then with the leave of children their family home (reasons as marriage, education, etc.), again becoming a family composes of only spouses.

Table 4.9. Population live in households of couples without resident children by age and sex, 2004-2016

Age Groups	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	49.2	50.0	50.0	50.8	50.0	50.0
15-19	0.8	0.4	0.4	0.0	0.0	0.0	0.8	0.4	0.4
20-24	4.9	3.0	3.3	1.4	0.8	0.7	3.5	2.2	2.5
25-29	8.2	7.5	9.0	4.7	3.7	4.2	3.5	3.8	4.8
30-34	4.5	5.7	7.4	2.8	3.4	4.4	1.7	2.3	3.0
35-39	2.9	2.9	3.6	1.6	1.6	2.0	1.4	1.3	1.6
40-44	3.6	3.2	3.6	1.4	1.3	1.5	2.2	1.9	2.1
45-49	7.2	6.4	5.6	2.7	2.5	2.2	4.5	4.0	3.4
50-54	10.7	11.8	10.7	4.6	4.9	4.4	6.1	7.0	6.3
55-59	12.6	15.8	13.6	5.6	7.5	6.3	7.0	8.3	7.4
60-64	13.3	15.2	15.1	6.5	7.9	7.9	6.9	7.3	7.2
65+	31.2	28.0	27.7	18.0	16.4	16.4	13.2	11.6	11.3

When the proportions are evaluated by regions, it is seen that Aegean has the biggest percentage of persons live with their spouse with 19.4%. Istanbul and Mediterranean are following this region with 15.1% and 12.7%, respectively. There is not any noticeable difference by the years for this family type.

Table 4.10. Population live in households of couples without resident children by NUTS-1 regions and sex, 2004-2016

NUTS-1 Regions	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	49.2	50.0	50.0	50.8	50.0	50.0
Istanbul	17.7	14.2	15.1	8.8	7.1	7.6	8.9	7.0	7.6
West Marmara	8.1	7.7	7.8	3.9	3.8	3.9	4.1	3.8	3.9
Aegean	18.9	19.2	19.4	9.3	9.6	9.7	9.7	9.6	9.7
East Marmara	9.1	11.2	10.9	4.5	5.6	5.5	4.6	5.6	5.5
West Anatolia	9.6	10.4	9.7	4.7	5.2	4.9	4.9	5.2	4.9
Mediterranean	12.0	13.0	12.7	5.9	6.5	6.3	6.1	6.5	6.3
Central Anatolia	5.8	5.1	5.1	2.8	2.5	2.5	3.0	2.5	2.5
West Black Sea	8.1	8.0	7.4	4.0	4.0	3.7	4.1	4.0	3.7
East Black Sea	3.7	4.4	4.0	1.8	2.2	2.0	1.9	2.2	2.0
Northeast Anatolia	1.4	1.2	1.7	0.7	0.6	0.8	0.7	0.6	0.8
Centraleast Anatolia	2.0	2.0	2.5	1.0	1.0	1.2	1.0	1.0	1.2
Southeast Anatolia	3.7	3.8	3.7	1.9	1.9	1.8	1.9	1.9	1.8

Persons hold the primary school diploma has the biggest proportion with 50.8%. This proportion is 27.7% for males, 23.1% for females. Graduates of higher education increased from 8.5% to 18% between 2004 and 2016.

Table 4.11. Population live in households of couples without resident children by education level and sex, 2004-2016

Education level	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	49.2	50.0	50.0	50.8	50.0	50.0
No school completed	27.0	22.7	17.8	8.2	6.2	4.6	18.8	16.5	13.3
Primary school	52.8	51.3	50.8	28.8	28.6	27.7	24.0	22.7	23.1
High school	11.7	11.9	13.4	6.7	6.9	7.6	4.9	4.9	5.8
Higher education	8.5	14.1	18.0	5.4	8.3	10.2	3.1	5.8	7.8

When level of educations of spouses crossed, couples holds the same education level is 57.7% of the total couples in 2016. For the remaining, it is seen that males are getting married with females who had lower level of education than themselves.

Table 4.12. Couples live in households without resident children by education level, 2016

Education level	Total	Wife			
		No school completed	Primary school	High school	Higher education
	(%)	(%)	(%)	(%)	(%)
Total	100.0	26.5	46.3	11.6	15.6
No school completed	9.1	7.5	1.5	0.1	0.0
Primary school	55.3	17.5	33.7	3.0	1.0
High school	15.2	1.1	7.0	4.4	2.8
Higher education	20.4	0.4	4.0	4.2	11.8

While 40.6% of couples are employed, 56.5% of them are outside the labour force. When the most of the males employed, the most of women are outside the labour force. This tendency has not been changed dramatically by years.

Table 4.13. Population live in households of couples without resident children by labour force status and sex, 2004-2016

Labour Force Status	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	49.2	50.0	50.0	50.8	50.0	50.0
Employed	33.0	37.9	40.6	23.6	25.3	27.0	9.4	12.6	13.6
Unemployed	1.6	2.2	2.8	1.1	1.1	1.3	0.5	1.1	1.5
Not in labour force	65.4	59.9	56.5	24.5	23.5	21.6	40.9	36.3	34.9

When labour force statuses of spouses crossed, couples with the same status is 65.3% of the total couples in 2016. For the remaining, it is seen that while males are employed, females are outside the labour force.

Table 4.14. Couples live in households without resident children by labour force status, 2016

Labour Force Status	Total	Wife		
		Employed	Unemployed	Not in labour force
	(%)	(%)	(%)	(%)
Total	100.0	27.2	2.9	69.8
Employed	54.0	24.3	2.5	27.3
Unemployed	2.7	0.8	0.3	1.5
Not in labour force	43.3	2.1	0.1	41.0

When sectoral distribution of employed population is examined, services has the biggest proportion with 51.6%. While 18.8% of them works in industry, 29.6% of them works in agricultural sector in 2016. Despite the shares of the sectors were different (10 point decrease in agriculture sector following 10 point increase in services) between 2004 and 2016, the ranks of sectors were the same. While the gap between the industrial and agricultural sector was low for males, it was noticeable for females in 2004, 2.9% in industry and 17.2% in agriculture.

Table 4.15. Population economically active and live in households of couples without resident children by sector and sex, 2004-2016

Branch of economic activity	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	71.6	66.7	66.5	28.4	33.3	33.5
Agriculture	39.9	37.1	29.6	22.7	21.6	17.5	17.2	15.6	12.1
Industry	18.4	17.9	18.8	15.6	14.0	14.8	2.9	3.9	4.0
Services	41.6	45.0	51.6	33.3	31.1	34.2	8.4	13.9	17.4

When sectors of spouses crossed, couples of both outside the labour force is 43% of the total couples in 2016. For the remaining, 20% of total couples are working in the same sector. In this group, agricultural sector has the biggest proportion with 9.9%.

Table 4.16. Couples live in households without resident children by sector, 2016

Branch of activity	Total (%)	Not employed (%)	Wife		
			Agriculture (%)	Industry (%)	Services (%)
Total	100.0	72.8	9.9	3.2	14.1
Not employed	46.0	43.0	0.4	0.6	2.0
Agriculture	14.2	5.4	8.6	0.1	0.2
Industry	12.0	8.2	0.3	1.5	2.1
Services	27.8	16.2	0.6	1.1	9.9

When the persons outside the labour force was investigated by the reason for not working or not searching for job, there are differences by sex. While 40.7% of females declare themselves as “housewife”, 9.2% of them declared themselves as “disabled, old, ill, etc.” As the reason of being “retired” has the biggest proportion

for males with 30.3%, this proportion is 6.8% for females. Category of “Disabled, old, ill, etc.” takes the second order with 5.1% for males.

Table 4.17. Population not in labour force and live in households of couples without resident children by reason and sex, 2016

Reason for not being in labour force	Total		Male		Female	
	(000)	(%)	(000)	(%)	(000)	(%)
Total	4 094	100.0	1 566	38.3	2 528	61.7
Not seeking a job but available to start, Discouraged	47	1.1	22	0.5	25	0.6
Not seeking a job but available to start, Other	175	4.3	72	1.8	103	2.5
Working seasonally	17	0.4	3	0.1	14	0.3
Housewife	1 666	40.7	-	-	1 666	40.7
Education/ Training	15	0.4	3	0.1	12	0.3
Retired	1 521	37.2	1 242	30.3	279	6.8
Disabled, old, ill etc.	582	14.2	207	5.1	375	9.2
Personal or family reasons	57	1.4	9	0.2	48	1.2
Other	13	0.3	8	0.2	5	0.1

4.1.3. Nuclear Family Households- Couples with at Least One Resident

Child

Population live in households composed of couples with at least one resident child are female with 48.1% and male with 51.9%. When age structure of this group is analysed, the biggest percentage of 10.3% belongs to 5-9 age group.

Table 4.18. Population live in households of couples with resident children by age and sex, 2004-2016

Age Groups	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	51.7	51.8	51.9	48.3	48.2	48.1
0-4	10.7	10.1	9.4	5.4	5.1	4.9	5.2	4.9	4.6
5-9	11.5	10.4	10.3	6.0	5.3	5.3	5.6	5.1	5.0
10-14	11.4	10.5	10.0	5.8	5.4	5.1	5.6	5.1	4.9
15-19	10.6	9.7	9.8	5.6	5.1	5.1	5.0	4.7	4.6
20-24	7.8	6.7	6.9	3.6	3.3	3.4	4.2	3.5	3.4
25-29	8.2	7.7	7.2	3.8	3.6	3.4	4.4	4.1	3.8
30-34	9.2	9.7	8.8	4.5	4.6	4.1	4.7	5.0	4.7
35-39	8.7	9.4	9.8	4.5	4.8	4.8	4.2	4.6	4.9
40-44	7.8	8.5	8.7	4.2	4.5	4.5	3.6	4.0	4.2
45-49	6.0	6.7	6.7	3.4	3.7	3.7	2.6	3.0	3.0
50-54	3.8	4.8	5.7	2.2	2.9	3.2	1.6	2.0	2.4
55-59	2.1	2.9	3.3	1.3	1.8	2.0	0.9	1.1	1.3
60-64	1.1	1.5	2.0	0.7	0.9	1.2	0.4	0.6	0.7
65+	1.1	1.4	1.6	0.8	0.9	1.1	0.3	0.5	0.5

Istanbul has the highest proportion with 20.5%. Mediterranean with 13.9% and Aegean with 12.6% is following this region. Northeast Anatolia has the lowest proportion with 2.5%.

Table 4.19. Population live in households of couples with resident children by NUTS-1 regions and sex, 2004-2016

NUTS-1 Regions	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	51.7	51.8	51.9	48.3	48.2	48.1
Istanbul	20.4	19.3	20.5	10.5	10.0	10.6	9.9	9.3	9.9
West Marmara	3.6	4.1	4.0	1.9	2.2	2.1	1.7	2.0	1.9
Aegean	12.7	12.5	12.6	6.6	6.6	6.5	6.1	6.0	6.0
East Marmara	8.6	9.5	9.4	4.5	5.0	4.9	4.1	4.6	4.5
West Anatolia	9.2	10.1	10.1	4.8	5.2	5.3	4.5	4.9	4.8
Mediterranean	13.5	14.0	13.9	7.1	7.2	7.3	6.5	6.8	6.6
Central Anatolia	4.8	4.7	4.4	2.4	2.5	2.3	2.3	2.2	2.1
West Black Sea	5.3	4.5	4.3	2.7	2.3	2.2	2.6	2.2	2.1
East Black Sea	2.8	2.6	2.9	1.4	1.3	1.5	1.3	1.3	1.4
Northeast Anatolia	2.8	2.5	2.5	1.4	1.3	1.3	1.3	1.2	1.2
Centraleast Anatolia	4.8	4.7	4.3	2.5	2.5	2.2	2.3	2.3	2.1
Southeast Anatolia	11.5	11.3	11.1	6.0	5.7	5.7	5.5	5.6	5.4

The most of the persons live in households of couples with resident children was married with 69.7%. Singles with 29.8% and divorced persons with 0.4% followed the married persons. There is no significant change on the distribution by years.

Table 4.20. Population live in households of couples with resident children by marital status and sex distribution of, 2004-2016

Marital status	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	51.9	52.1	52.1	48.1	47.9	47.9
Single	30.0	29.5	29.8	16.7	16.4	17.0	13.4	13.1	12.9
Married	69.8	70.0	69.7	35.2	35.5	34.9	34.6	34.6	34.8
Divorced	0.2	0.4	0.4	0.1	0.2	0.2	0.1	0.2	0.2
Widowed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Persons hold the primary school diploma has the biggest proportion with 54.1%. This proportion is 28.9% for males, 25.2% for females. Graduates of higher education increased from 7.5% to 16.3% between 2004 and 2016.

Table 4.21. Population live in households of couples with resident children by education level and sex, 2004-2016

Education level	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	51.9	52.1	52.1	48.1	47.9	47.9
No school completed	11.8	10.5	8.9	3.4	2.7	2.1	8.4	7.7	6.8
Primary school	60.4	55.8	54.1	31.6	29.7	28.9	28.8	26.1	25.2
High school	20.3	20.3	20.7	12.2	11.8	11.9	8.1	8.5	8.8
Higher education	7.5	13.5	16.3	4.8	7.9	9.2	2.7	5.6	7.1

When level of educations of spouses crossed, couples holds the same education level is 57.9% of the total couples in 2016. For the remaining, it is seen that males are getting married with females who had lower level of education than themselves.

Table 4.22. Couples live in households with resident children by education level, 2016

Education level	Total (%)	Wife			
		No school completed (%)	Primary school (%)	High school (%)	Higher education (%)
Total	100.0	17.0	54.6	15.7	12.7
No school completed	4.3	3.3	0.9	0.1	0.0
Primary school	56.7	12.1	38.9	4.9	0.9
High school	20.8	1.2	11.0	6.3	2.4
Higher education	18.2	0.3	3.9	4.5	9.5

While 50.7% of persons are employed, 43% of them are outside the labour force. When the most of the males employed, the most of women are outside the labour force. This tendency has not been changed dramatically by years.

Table 4.23. Population live in households of couples with resident children by labour force status and sex, 2004-2016

Labour Force Status	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	51.9	52.1	52.1	48.1	47.9	47.9
Employed	44.2	50.0	50.7	34.5	36.6	36.5	9.6	13.4	14.2
Unemployed	5.7	5.5	6.4	4.2	3.4	3.8	1.4	2.1	2.6
Not in labour force	50.2	44.5	43.0	13.2	12.1	11.8	37.0	32.5	31.1

When labour force statuses of spouses crossed, couples with the same status is 39.3% of the total couples in 2016. For the remaining, it is seen that while males are employed, females are outside the labour force.

Table 4.24. Couples live in households with resident children labour force status, 2016

Labour Force Status	Total (%)	Wife		
		Employed (%)	Unemployed (%)	Not in labour force (%)
Total	100.0	29.4	3.8	66.8
Employed	79.5	26.2	3.2	50.2
Unemployed	5.6	1.1	0.4	4.0
Not in labour force	14.9	2.0	0.2	12.7

When sectoral distribution of employed population is examined, services has the biggest proportion with 56.9%. While 13.9% of them works in industry, %29.2 of them works in agricultural sector in 2016. Despite the shares of the sectors were different between 2004 and 2016, the ranks of sectors were the same. While the gap between the industrial and agricultural sector was low for females, it was noticeable for males, 24.1% in industry and 7.7% in agriculture.

Table 4.25. Population Economically active and live in households of couples with resident children by sector and sex, 2004-2016

Branch of economic activity	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	78.3	73.2	72.0	21.7	26.8	28.0
Agriculture	21.2	17.5	13.9	12.3	9.5	7.7	9.0	8.0	6.2
Industry	27.8	28.9	29.2	23.5	24.3	24.1	4.2	4.6	5.0
Services	51.0	53.6	56.9	42.4	39.5	40.1	8.6	14.1	16.8

When sectors of spouses crossed, couples of both outside the labour force is 17.3% of the total couples in 2016. For the remaining, 19% of total couples are working in the same sector. In this group, agricultural sector has the biggest proportion with 5.2%.

Table 4.26. Branch of activity of couples live in households of couples with resident children, 2016

Branch of activity	Total (%)	Not employed (%)	Wife		
			Agriculture (%)	Industry (%)	Services (%)
Total	100.0	70.6	7.3	5.1	16.9
Not employed	20.5	17.3	0.3	0.7	2.1
Agriculture	8.5	2.9	5.2	0.1	0.4
Industry	26.5	19.9	0.8	2.6	3.2
Services	44.5	30.5	1.0	1.8	11.2

When the persons outside the labour force was investigated by the reason for not working or not searching for job, there are differences by sex. While 41.2% of females declare themselves as “housewife”, 12.4% of them declared themselves as

involved in “education/ training”. The reason of involving in “education/ training” has the biggest proportion for males with 11.7%. Category of “retired” takes the second order with 7.6% for males while this proportion is 1.9% for females.

Table 4.27. Population not in labour force and live in households of couples with resident children by reason and sex, 2016

Reason for not being in labour force	Total		Male		Female	
	(000)	(%)	(000)	(%)	(000)	(%)
Total	13 569	100.0	3 738	27.6	9 830	72.4
Not seeking a job but available to start, Discouraged	353	2.6	212	1.6	142	1.0
Not seeking a job but available to start, Other	1 048	7.7	314	2.3	733	5.4
Working seasonally	43	0.3	12	0.1	31	0.2
Housewife	5 588	41.2	-	-	5 588	41.2
Education/ Training	3 262	24.0	1 584	11.7	1 679	12.4
Retired	1 291	9.5	1 035	7.6	255	1.9
Disabled, old, ill etc.	752	5.5	395	2.9	357	2.6
Personal or family reasons	1 126	8.3	115	0.9	1 010	7.4
Other	107	0.8	71	0.5	35	0.3

4.1.4. Nuclear Family Households- Lone Parents with at Least One Resident Child

Population live in households composed of lone parents with at least one resident child are female with 60.2% and male with 39.8%. When age structure of this group is analysed, the biggest percentage of 10.2% belongs to 3 age groups equally, 15-19, 20-24 and 65 years and older.

Table 4.28. Population live in households of lone parents with resident children by age and sex, 2004-2016

Age Groups	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	38.8	39.7	39.8	61.2	60.3	60.2
0-4	4.2	2.9	1.9	2.2	1.5	1.0	2.0	1.4	1.0
5-9	7.8	5.6	4.1	4.1	2.8	2.1	3.7	2.8	2.0
10-14	11.0	8.8	6.7	5.3	4.4	3.2	5.7	4.4	3.5
15-19	13.5	11.7	10.2	7.0	6.1	5.3	6.5	5.6	4.9
20-24	11.6	10.4	10.2	5.9	5.7	5.6	5.7	4.7	4.6
25-29	9.6	9.8	9.5	5.2	5.9	5.8	4.4	3.9	3.7
30-34	7.1	8.0	7.8	2.7	4.0	4.5	4.3	4.1	3.4
35-39	6.0	7.2	8.2	1.6	2.4	3.4	4.4	4.7	4.8
40-44	6.1	7.3	7.7	1.2	1.8	2.3	4.9	5.6	5.4
45-49	5.3	6.6	6.6	0.7	1.4	1.6	4.6	5.2	5.0
50-54	4.6	5.7	6.9	0.7	1.1	1.5	3.9	4.6	5.4
55-59	3.6	4.5	5.0	0.5	0.7	0.9	3.0	3.8	4.2
60-64	2.7	3.3	4.9	0.3	0.5	0.8	2.3	2.8	4.2
65+	6.8	8.0	10.2	1.2	1.4	1.8	5.7	6.6	8.3

Istanbul has the highest proportion with 23%. Mediterranean with 14.5% and Aegean with 13.6% is following this region.

Table 4.29. Population live in households of lone parents with resident children by NUTS-1 regions and sex, 2004-2016

NUTS-1 Regions	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	38.8	39.7	39.8	61.2	60.3	60.2
Istanbul	19.2	19.5	23.0	7.4	7.6	9.1	11.7	11.9	13.9
West Marmara	3.5	4.2	3.7	1.4	1.8	1.5	2.2	2.4	2.2
Aegean	12.4	13.4	13.6	4.9	5.4	5.5	7.5	8.0	8.1
East Marmara	7.2	9.1	8.5	2.9	3.6	3.4	4.3	5.5	5.1
West Anatolia	9.8	9.0	10.1	3.6	3.3	3.9	6.2	5.7	6.2
Mediterranean	16.0	15.8	14.5	6.0	6.3	5.6	10.0	9.5	8.8
Central Anatolia	5.3	4.7	4.5	2.1	1.9	1.9	3.2	2.8	2.6
West Black Sea	5.7	4.9	5.1	2.1	2.1	2.0	3.7	2.8	3.0
East Black Sea	3.8	3.1	3.3	1.5	1.2	1.4	2.3	1.9	1.9
Northeast Anatolia	3.2	2.0	2.3	1.3	0.8	0.9	1.9	1.2	1.4
Centraleast Anatolia	4.7	4.1	3.8	1.8	1.5	1.4	2.9	2.5	2.3
Southeast Anatolia	9.2	10.4	7.7	3.7	4.1	3.1	5.5	6.2	4.6

The most of the persons live in households of lone parents with resident children was single with 51.5%. Widowed with 26.5% and divorced persons with 14.2% followed the single persons. Between the 2004 and 2016, proportion of divorced persons increased from 7.7% to 15.4%.

Table 4.30. Population live in households of lone parents with resident children by marital status and sex, 2004-2016

Marital status	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	35.3	37.5	38.4	64.7	62.5	61.6
Single	54.4	54.3	51.5	30.0	30.7	30.1	24.4	23.5	21.4
Married	11.4	9.2	9.0	1.0	0.9	1.5	10.4	8.2	7.5
Divorced	7.7	14.2	15.4	1.5	3.2	3.9	6.2	11.0	11.5
Widowed	26.5	22.4	24.1	2.8	2.7	3.0	23.7	19.7	21.1

Persons hold the primary school diploma has the biggest proportion with 46%. This proportion is 19.2% for males, 26.8% for females. Graduates of higher education increased from 8.5% to 16.2% between 2004 and 2016.

Table 4.31. Population live in households of lone parents with resident children by education level and sex, 2004-2016

Education level	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	35.3	37.5	38.4	64.7	62.5	61.6
No school completed	20.7	19.5	17.8	3.2	3.4	2.9	17.4	16.1	14.9
Primary school	50.4	46.5	46.0	19.0	19.0	19.2	31.5	27.5	26.8
High school	20.4	20.4	20.0	9.6	9.6	9.6	10.8	10.8	10.4
Higher education	8.5	13.6	16.2	3.5	5.5	6.7	5.0	8.1	9.5

While 39.2% of persons are employed, 51.6% of them are outside the labour force. When the most of the males employed, the most of women are outside the labour force. This tendency has not been changed dramatically by years.

Table 4.32. Population live in households of lone parents with resident children by labour force status and sex, 2004-2016

Labour Force Status	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	35.3	37.5	38.4	64.7	62.5	61.6
Employed	32.4	39.5	39.2	17.4	20.6	21.2	15.0	18.9	17.9
Unemployed	8.6	8.0	9.2	5.1	4.3	5.0	3.5	3.7	4.2
Not in labour force	59.0	52.4	51.6	12.8	12.6	12.2	46.2	39.9	39.4

When sectoral distribution of employed population is examined, services has the biggest proportion with 63.6%. While 24.7% of persons works in industry, %11.7 of them works in agricultural sector in 2016. Despite the services sector kept the first place with an increasing share between 2004 and 2016, agriculture and industry changed the ranks.

Table 4.33. Population economically active and live in households of lone parents with resident children by sector and sex, 2004-2016

Branch of economic activity	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	53.7	54.3	66.5	46.3	47.8	45.7
Agriculture	22.7	16.1	11.7	9.1	5.5	17.5	13.6	9.2	6.2
Industry	24.9	25.6	24.7	15.6	16.4	14.8	9.3	8.5	8.3
Services	52.4	58.3	63.6	29.0	32.3	34.2	23.4	30.1	31.3

When the persons outside the labour force was investigated by the reason for not working or not searching for job, there are differences by sex. While 36.4% of females declare themselves as “housewife”, 15.1% of them declared themselves as “disabled, old, ill, etc.”. As the reason of being involved in “education/ training” has the biggest proportion for males with 8.2%, this proportion is 9.5% for females. Category of “Disabled, old, ill, etc.” takes the second order with 6% for males.

Table 4.34. Population not in labour force and live in households of lone parents with resident children by reason and sex, 2016

Reason for not being in labour force	Total		Male		Female	
	(000)	(%)	(000)	(%)	(000)	(%)
Total	1 560	100.0	369	23.6	1 191	76.4
Not seeking a job but available to start, Discouraged	49	3.1	21	1.3	28	1.8
Not seeking a job but available to start, Other	94	6.0	30	1.9	64	4.1
Working seasonally	4	0.3	2	0.1	3	0.2
Housewife	567	36.4	-	-	567	36.4
Education/ Training	276	17.7	128	8.2	148	9.5
Retired	168	10.8	69	4.5	99	6.3
Disabled, old, ill etc.	328	21.0	93	6.0	235	15.1
Personal or family reasons	62	4.0	19	1.2	43	2.8
Other	12	1	6.98	0.4	5	0.3

4.1.5. Extended Family Households

This type of households has at least one nuclear family accompanying relatives or non-relatives or other nuclear families. While 47.9% of the total persons live in this kind of households are males, 52.1% of them are females in 2016. Sex distribution was almost same in 2004 and 2013. The biggest share of the persons are in 65 and older age group with 10.7%. 0-4 age group has the second rank with 9.9%.

Table 4.35. Population live in households of extended families by age and sex, 2004-2016

Age Groups	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	47.7	47.8	47.9	52.3	52.2	52.1
0-4	11.7	10.6	9.9	5.9	5.4	5.0	5.8	5.1	5.0
5-9	8.6	8.6	8.6	4.4	4.4	4.5	4.2	4.2	4.1
10-14	7.5	8.0	7.9	3.9	4.1	4.0	3.6	3.9	3.9
15-19	8.5	8.0	8.4	4.1	3.9	4.0	4.4	4.1	4.4
20-24	10.6	8.5	8.5	4.5	3.6	3.9	6.1	4.8	4.6
25-29	10.0	9.6	8.4	5.4	5.0	4.2	4.6	4.6	4.2
30-34	7.0	8.2	7.2	3.8	4.4	3.8	3.1	3.9	3.4
35-39	5.0	5.7	6.4	2.6	2.9	3.3	2.4	2.8	3.1
40-44	4.5	5.3	5.3	2.1	2.6	2.6	2.4	2.7	2.7
45-49	4.6	5.0	4.7	2.1	2.4	2.2	2.5	2.6	2.4
50-54	4.6	4.9	5.2	2.1	2.2	2.4	2.5	2.6	2.8
55-59	4.0	4.5	4.5	1.8	2.0	2.1	2.2	2.4	2.4
60-64	3.4	3.7	4.4	1.4	1.6	1.9	2.0	2.1	2.5
65+	9.9	9.5	10.7	3.6	3.3	4.0	6.3	6.2	6.7

Southeast Anatolia has the highest proportion with 15.2%. Istanbul with 14.9% and Mediterranean with 10% is following this region. While the shares increased in Southeast Anatolia, Istanbul, Mediterranean and Centraleast Anatolia between 2004 and 2016; share of other regions slightly decreased or remained same.

Table 4.36. Population live in households of extended families by NUTS-1 regions and sex, 2004-2016

NUTS-1 Regions	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	47.7	47.8	47.9	52.3	52.2	52.1
Istanbul	11.5	13.5	14.9	5.6	6.5	7.1	5.9	7.0	7.9
West Marmara	4.3	3.1	2.6	2.0	1.4	1.3	2.3	1.6	1.4
Aegean	12.9	10.0	8.7	6.1	4.8	4.1	6.8	5.2	4.5
East Marmara	9.1	9.4	9.0	4.3	4.5	4.3	4.8	4.9	4.7
West Anatolia	9.2	7.3	8.5	4.3	3.4	4.1	4.9	3.9	4.4
Mediterranean	8.7	9.5	10.0	4.1	4.5	4.8	4.6	5.0	5.2
Central Anatolia	7.8	6.4	6.2	3.7	3.1	3.0	4.1	3.3	3.3
West Black Sea	10.4	9.0	8.5	4.9	4.3	4.0	5.4	4.7	4.4
East Black Sea	6.1	5.2	3.6	2.9	2.4	1.7	3.2	2.7	1.9
Northeast Anatolia	5.7	4.6	4.5	2.8	2.3	2.2	2.9	2.3	2.3
Centraleast Anatolia	6.8	8.1	8.2	3.3	3.9	4.1	3.5	4.2	4.1
Southeast Anatolia	7.7	14.0	15.2	3.7	6.6	7.3	4.0	7.4	7.9

The most of the persons live in households of extended families was married with 63.4%. Singles with 23.5% and widowed persons with 10.2% followed the married persons.

Table 4.37. Population live in households of extended families by marital status and sex, 2004-2016

Marital status	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	46.3	46.6	46.8	53.7	53.4	53.2
Single	21.2	22.8	23.5	11.7	12.7	13.3	9.5	10.1	10.2
Married	67.0	64.0	63.4	32.7	31.6	30.9	34.3	32.4	32.5
Divorced	1.4	3.1	2.9	0.3	0.8	0.8	1.1	2.4	2.1
Widowed	10.4	10.0	10.2	1.6	1.4	1.7	8.9	8.6	8.5

Persons hold the primary school diploma has the biggest proportion with 54.3%. This proportion is 29.3% for males, 25% for females. Graduates of higher education increased from 2.5% to 6.1% between 2004 and 2016.

Table 4.38. Population live in households of extended families by education level and sex, 2004-2016

Education level	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	46.3	46.6	46.8	53.7	53.4	53.2
No school completed	26.2	27.5	26.5	6.3	6.5	6.2	19.9	21.0	20.3
Primary school	59.1	54.3	54.3	30.5	29.1	29.3	28.5	25.2	25.0
High school	12.2	13.4	13.2	7.8	8.3	8.0	4.3	5.1	5.2
Higher education	2.5	4.7	6.1	1.6	2.7	3.3	0.9	2.1	2.8

When level of educations of spouses crossed, couples holds the same education level is 54.7% of the total couples in 2016. For the remaining, it is seen that males are getting married with females who had lower level of education than themselves.

Table 4.39. Couples live in households of extended families by education level, 2016

Education level	Total (%)	Wife			
		No school completed (%)	Primary school (%)	High school (%)	Higher education (%)
Total	100.0	36.3	52.3	8.0	3.4
No school completed	12.4	10.3	1.9	0.1	0.0
Primary school	66.3	23.2	39.3	3.4	0.4
High school	15.5	2.2	9.2	3.1	1.0
Higher education	5.9	0.6	2.0	1.3	2.0

While 43.8% of persons are employed, 51% of them are outside the labour force. When the most of the males employed, the most of women are outside the labour force. This tendency has not been changed dramatically by years.

Table 4.40. Population live in households of extended families by labour force status and sex, 2004-2016

Labour Force Status	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	46.3	46.6	46.8	53.7	53.4	53.2
Employed	42.6	44.4	43.8	29.6	30.0	29.6	13.0	14.5	14.2
Unemployed	4.6	4.6	5.2	3.6	3.3	3.5	0.9	1.4	1.7
Not in labour force	52.8	50.9	51.0	13.1	13.3	13.7	39.7	37.6	37.4

When labour force statuses of spouses crossed, couples with the same status is 47.9% of the total couples in 2016. For the remaining, it is seen that while males are employed, females are outside the labour force.

Table 4.41. Couples live in households of extended families by labour force status, 2016

Labour Force Status	Total (%)	Wife		
		Employed (%)	Unemployed (%)	Not in labour force (%)
Total	100.0	30.4	2.0	67.6
Employed	70.4	27.0	1.5	41.8
Unemployed	6.6	1.0	0.3	5.2
Not in labour force	23.0	2.4	0.1	20.6

When sectoral distribution of employed population is examined, it is seen that shares of the sectors are similar for this household type. While services has the biggest proportion with 39%, 26.2% of persons works in industry and %34.8 of them works in agricultural sector in 2016. Despite the shares of the agricultural sector had the first place with 48.5% in 2004, it decreased to %34.8 in 2016. While the gap between the industrial and agricultural sector was low for males, it was noticeable for females, 4.2% in agriculture and 16.4% in industry.

Table 4.42. Population economically active and live in households of extended families by sector and sex, 2004-2016

Branch of economic activity	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	69.4	67.4	67.6	30.6	32.6	32.4
Agriculture	48.5	39.0	34.8	25.6	19.7	18.3	22.9	19.3	16.4
Industry	20.5	25.0	26.2	17.1	21.0	22.0	3.3	4.0	4.2
Services	31.0	36.0	39.0	26.7	26.7	27.2	4.3	9.3	11.8

When sectors of spouses crossed, couples of both outside the labour force is 26.2% of the total couples in 2016. For the remaining, 19.3% of total couples are working in the same sector. In this group, agricultural sector has the biggest proportion with 13.2%.

Table 4.43. Couples live in households of extended families by sector, 2016

Branch of activity	Total (%)	Not employed (%)	Wife		
			Agriculture (%)	Industry (%)	Services (%)
Total	100.0	69.6	18.4	3.2	8.8
Not employed	29.6	26.2	0.9	0.6	1.9
Agriculture	20.4	6.3	13.2	0.1	0.8
Industry	21.9	16.5	2.1	1.6	1.6
Services	28.1	20.5	2.2	0.9	4.5

When the persons outside the labour force was investigated by the reason for not working or not searching for job, there are differences by sex. While 40.9% of females declare themselves as “housewife”, 14.9% of them declared themselves as

“disabled, old, ill, etc.”. As the reason of being “retired” has the biggest proportion for males with 8.5%, this proportion is 1.7% for females. Category of “Disabled, old, ill, etc.” takes the second order with 7.3% for males.

Table 4.44. Population not in labour force and live in households of extended families by reason and sex, 2016

Reason for not being in labour force	Total		Male		Female	
	(000)	(%)	(000)	(%)	(000)	(%)
Total	6 499	100.0	1 741	26.8	4 759	73.2
Not seeking a job but available to start, Discouraged	183	2.8	135	2.1	48	0.7
Not seeking a job but available to start, Other	346	5.3	118	1.8	228	3.5
Working seasonally	23	0.3	7	0.1	15	0.2
Housewife	2 660	40.9	-	-	2 660	40.9
Education/ Training	768	11.8	368	5.7	399	6.1
Retired	667	10.3	553	8.5	113	1.7
Disabled, old, ill etc.	1 439	22.1	471	7.3	967	14.9
Personal or family reasons	356	5.5	44	0.7	313	4.8
Other	59	0.9	44	0.7	15	0.2

4.1.6. Multi-Person Households without Nuclear Families

Students or workers live with friends, siblings or cousins live together, grandparents live with grandchildren are the examples of multi-person households without nuclear families. While 50.9% of the total persons live in this kind of households are males, 42.7% of them are females in 2016. Sex distribution was almost equal in 2004 which male population started to increase afterwards. The biggest share of the persons are in 20-24 age group with 31.8%. 25-29 age group has the second rank with 19.7%.

Table 4.45. Population live in households without nuclear family by age and sex, 2004-2016

Age Groups	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	49.1	55.2	57.3	50.9	44.8	42.7
0-4	2.1	1.0	0.2	1.0	0.4	0.1	1.2	0.6	0.1
5-9	2.9	1.6	0.5	1.2	0.8	0.3	1.7	0.8	0.2
10-14	4.1	2.9	1.1	1.8	1.4	0.5	2.3	1.5	0.6
15-19	14.1	11.8	7.7	8.1	7.0	4.8	6.0	4.7	2.9
20-24	32.7	29.4	31.8	19.7	18.8	20.8	13.1	10.5	10.9
25-29	14.1	18.2	19.7	9.0	13.4	12.8	5.1	4.8	6.8
30-34	6.4	7.6	9.9	3.1	4.7	6.2	3.2	2.9	3.7
35-39	3.8	4.5	5.0	1.4	2.2	3.1	2.4	2.3	1.8
40-44	2.5	3.4	4.2	0.7	1.2	2.0	1.8	2.2	2.2
45-49	2.1	3.2	3.3	0.4	1.3	1.7	1.7	1.9	1.6
50-54	2.1	3.7	3.3	0.6	1.2	1.4	1.5	2.5	1.9
55-59	2.1	3.3	3.1	0.3	0.9	1.4	1.8	2.4	1.8
60-64	2.1	2.6	2.6	0.4	0.5	0.9	1.7	2.1	1.6
65+	8.9	6.8	7.7	1.4	1.3	1.2	7.4	5.5	6.5

The members of this household type is mainly living in Istanbul with 31.8%. Aegean with 15.2 and West Anatolia with 9.5% are following Istanbul. While the shares increased in Istanbul and Aegean between 2004 and 2016; share of other regions slightly decreased or remained same.

Table 4.46. Population live in households without nuclear family by NUTS-1 regions and sex distribution of, 2004-2016

NUTS-1 Regions	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	49.1	55.2	57.3	50.9	44.8	42.7
Istanbul	22.1	25.5	31.8	9.7	15.6	17.9	12.4	9.9	13.9
West Marmara	6.0	5.7	5.3	3.1	3.4	3.7	2.9	2.3	1.7
Aegean	12.0	11.9	15.2	6.4	6.2	9.4	5.6	5.8	5.7
East Marmara	10.3	11.7	7.3	6.0	6.9	4.2	4.3	4.8	3.1
West Anatolia	12.1	10.7	9.5	6.2	5.3	5.3	5.8	5.3	4.3
Mediterranean	13.9	9.6	7.8	7.3	5.0	4.0	6.6	4.6	3.8
Central Anatolia	4.3	4.0	3.7	1.9	2.3	2.4	2.4	1.7	1.3
West Black Sea	5.4	6.2	4.9	2.1	3.1	3.0	3.4	3.0	1.9
East Black Sea	2.9	3.3	2.9	1.0	1.4	1.4	1.9	1.9	1.5
Northeast Anatolia	2.9	2.8	2.6	1.4	1.6	1.6	1.5	1.2	1.0
Centraleast Anatolia	3.3	3.5	2.7	1.5	1.6	1.3	1.8	1.9	1.4
Southeast Anatolia	4.7	5.2	6.3	2.5	2.8	3.1	2.2	2.4	3.1

The most of the persons live in households without nuclear family was single with 82.2%. Widowed persons with 8.1% and married persons with 5.1% followed the single persons.

Table 4.47. Population live in households without nuclear family by marital status and sex, 2004-2016

Marital status	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	49.7	55.7	57.4	50.3	44.3	42.6
Single	78.9	79.2	82.2	45.3	50.0	51.2	33.6	29.2	31.0
Married	7.7	7.7	5.1	2.1	3.2	3.3	5.6	4.5	1.7
Divorced	2.6	4.3	4.7	1.0	1.5	2.2	1.6	2.7	2.5
Widowed	10.7	8.8	8.1	1.3	0.8	0.8	9.5	7.9	7.3

Persons hold the high school diploma has the biggest proportion with 38%. This proportion is 25.2% for males, 12.8% for females. Graduates of higher education increased from 14.4% to 28.7% between 2004 and 2016.

Table 4.48. Population live in households without nuclear family by education level and sex, 2004-2016

Education level	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	49.7	55.7	57.4	50.3	44.3	42.6
No school completed	10.0	9.9	9.4	1.6	2.3	2.4	8.4	7.6	7.0
Primary school	27.4	26.0	23.9	11.6	14.3	13.9	15.8	11.7	10.0
High school	48.3	40.2	38.0	28.4	24.2	25.2	19.8	16.0	12.8
Higher education	14.4	23.9	28.7	8.0	14.9	15.9	6.3	9.0	12.8

While 49.4% of persons are employed, 42.4% of them are outside the labour force. When the most of the males employed, the most of women are outside the labour force. This tendency has not been changed dramatically by years.

Table 4.49. Population live in households without nuclear family by labour force status and sex, 2004-2016

Labour Force Status	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	49.7	55.7	57.4	50.3	44.3	42.6
Employed	34.6	44.7	49.4	21.4	31.0	32.8	13.2	13.7	16.6
Unemployed	5.2	5.8	8.2	3.3	3.7	5.0	1.9	2.1	3.2
Not in labour force	60.2	49.5	42.4	24.9	21.1	19.7	35.3	28.5	22.7

When sectoral distribution of employed population is examined, services has the biggest proportion with 72.6%. While 21.8% of persons works in industry, %5.6 of them works in agricultural sector in 2016. Despite the shares of the sectors were different between 2004 and 2016, the ranks of sectors were the same. While the gap between the industrial and agricultural sector was low for females, it was noticeable for males, 2.9% in agriculture and 17.2% in industry.

Table 4.50. Population economically active and live in households without nuclear family by sector and sex, 2004-2016

Branch of economic activity	Total			Male			Female		
	2004	2013	2016	2004	2013	2016	2004	2013	2016
Total	100.0	100.0	100.0	61.9	69.3	66.3	38.1	30.7	33.7
Agriculture	11.2	7.2	5.6	5.5	3.1	2.9	5.7	4.2	2.7
Industry	22.4	21.1	21.8	16.0	16.9	17.2	6.4	4.2	4.6
Services	66.4	71.7	72.6	40.3	49.3	46.3	26.1	22.3	26.3

When the persons outside the labour force was investigated by the reason for not working or not searching for job, “Education/ Training” category has the biggest share for both of the sexes. While 17.8% of females answered as “Education/ Training”, 29.7% of males choose this category. For females the top second reason is being “housewife” with 13.9% and the third one is being “Disabled, old, ill, etc.” with 11.7%.

Table 4.51. Population not in labour force and live in households without nuclear family by reason and sex, 2016

Reason for not being in labour force	Total		Male		Female	
	(000)	(%)	(000)	(%)	(000)	(%)
Total	385	100.0	179	46.4	206	53.6
Not seeking a job but available to start, Discouraged	6	1.5	3	0.9	2	0.6
Not seeking a job but available to start, Other	33	8.5	21	5.4	12	3.0
Housewife	53	13.9	-	-	53	13.9
Education/ Training	183	47.5	114	29.7	68	17.8
Retired	33	8.6	18	4.6	15	3.9
Disabled, old, ill etc.	58	15.1	13	3.4	45	11.7
Personal or family reasons	12	3.2	4	1.1	8	2.2
Other	7	1.7	5	1.3	2	0.4

4.1.7. Determinants of Labour Force Participation

In this part, selected variables are examined to analyse their contribution on labour force participation by type of households. Since our focus point is labour force participation, in LFS population aged 15 and older has been questioned according to their activity status. Following tables and comments are prepared for this population.

To simplify the headings of columns in the tables, type of households are named as follows:

- **One-person:** One-person households
- **Couples:** Couples without resident children
- **Couples + child:** Couples with at least one resident child
- **Lone parent + child:** Lone parents with at least one resident child
- **Extended family:** Extended family households
- **Multi-person non-family:** Multi-person households without nuclear families

Labour force participation rate is 52% for total population. Multi-person households without nuclear families has the highest participation rate with 57.6%.

Couples with at least one resident child has the second rank with 57%. One-person households has the lowest labour force participation rate which is 35.8%.

While labour force participation rate of males is 72%, this rate is 32.5% for females. Type of household with the highest male labour force participation rate is couples with at least one resident child with 77.3%, while the lowest one is 59% in one-person households. Type of household with the highest female labour force participation rate is lone parents with at least one resident child with 36%, while the lowest one is 19.9% in one-person households.

While male labour participation rate triples female labour participation rate for one-person households, multi-person households without nuclear families has the lowest gap between males and females. Participation rate for males almost doubles the rate of females for other types,

Table 4.52. Labour force participation rate by type of households and sex, 2016

Sex	Total	One-person	Couples	Couples +child	Lone parent +child	Extended family	Multi-person non-family
Total	52.0	35.8	43.5	57.0	48.4	49.0	57.6
Male	72.0	59.0	56.7	77.3	68.2	70.8	65.7
Female	32.5	19.9	30.2	35.0	36.0	29.8	46.6

The age group with the highest labour force participation rate is 35- 44 age group with 70%. 25-34 age group comes in second rank with 69.5%. 25-34 age group in one-person households has the highest labour force participation rate with 93.7% while persons aged 65 and older in the same households has the lowest value with 4.3%.

Table 4.53. Labour force participation rate by type of households and age, 2016

Age groups	Total	One-person	Couples	Couples +child	Lone parent +child	Extended family	Multi-person non-family
15-24	42.4	65.6	48.6	40.7	47.4	43.8	46.1
25-34	69.5	93.7	83.6	65.4	77.7	67.1	85.2
35-44	70.0	85.3	72.2	69.5	65.6	69.8	77.1
45-54	58.0	58.3	51.2	61.0	44.5	56.5	57.5
55-64	35.6	22.7	34.4	41.3	19.2	37.0	33.4
65 and above	11.8	4.3	16.3	19.6	7.0	11.0	5.2

As expected, when the level of education is getting higher, labour force participation rate is also getting higher. People completed higher education than high school has the first rank in participation to the labour force with 79.7%. People with higher education who live in multi-person households without nuclear families has the highest participation rate with 86.2%. People without any school degree who live in one-person households has the lowest participation rate with 5.8%.

Table 4.54. Labour force participation rate by type of households and level of education, 2016

Level of education	Total	One-person	Couples	Couples +child	Lone parent +child	Extended family	Multi-person non-family
No school completed	23.2	5.8	20.1	31.9	18.2	23.3	29.1
Primary school	50.1	30.2	39.0	52.2	45.2	54.7	59.9
High school	59.7	54.0	52.3	61.0	58.3	64.2	41.5
Higher education	79.7	81.5	72.5	81.6	78.3	76.3	86.2

In total population, divorced persons has the highest labour force participation rate with 60%. Married people who live in multi-person households without nuclear families has the highest participation rate with 79.6%. Widowed people who live in one-person households has the lowest participation rate with 6.8%.

Table 4.55. Labour force participation rate by type of households and marital status, 2016

Marital Status	Total	One-person	Couples	Couples +child	Lone parent +child	Extended family	Multi-person non-family
Single	54.5	76.7	-	51.9	60.6	51.8	61.0
Married	54.9	55.6	43.5	59.1	42.4	54.0	79.6
Divorced	60.0	57.6	-	75.7	60.0	58.1	57.8
Widowed	9.5	6.8	-	42.4	17.1	8.6	9.0

The region with the highest labour force participation rate is Istanbul with 56.3%. East Black Sea with 54.4% and Aegean with 54% are the regions following Istanbul. Southeast Anatolia is the region with the lowest labour participation rate of 43.7%. People who live in multi-person households without nuclear families in Istanbul has the highest participation rate with 72.3%. People who live in one-person households in Central Anatolia has the lowest participation rate with 21.2%.

Table 4.56. Labour force participation rate by type of households and regions, 2016

Region	Total	One-person	Couples	Couples +child	Lone parent +child	Extended family	Multi-person non-family
Istanbul	56.3	51.5	51.5	58.8	55.2	50.1	72.3
West Marmara	53.2	30.6	41.7	63.1	48.1	53.0	54.8
Aegean	54.0	32.3	43.6	62.0	51.7	51.8	51.5
East Marmara	51.8	34.8	41.9	57.9	49.2	48.7	44.9
West Anatolia	52.3	41.5	42.8	56.9	51.3	47.7	57.4
Mediterranean	50.9	31.1	40.2	56.8	43.0	46.7	52.4
Central Anatolia	50.8	21.2	36.8	57.0	45.4	52.7	52.2
West Black Sea	52.9	28.8	40.7	58.6	42.4	58.0	31.5
East Black Sea	54.4	32.1	51.9	58.2	49.3	55.7	44.6
Northeast Anatolia	50.4	27.2	43.0	52.6	47.7	51.8	33.3
Centraleast Anatolia	45.6	31.0	40.4	48.4	36.5	44.8	51.1
Southeast Anatolia	43.7	30.3	39.1	47.0	36.0	39.9	62.8

While labour force participation rate of people born in Turkey is 52.2%, this rate of persons born abroad is 43.6%. People born abroad and live in multi-person

households without nuclear families has the highest participation rate with 68.8%. People born abroad and live in couples without resident children has the lowest participation rate with 31.8%.

Table 4.57. Labour force participation rate by type of households and place of birth, 2016

Place of birth	Total	One-person	Couples	Couples +child	Lone parent +child	Extended family	Multi-person non-family
Turkey	52.2	35.8	43.8	57.2	48.5	49.3	56.7
Abroad	43.6	36.2	31.8	49.4	44.5	38.8	68.8

While labour force participation rate of people never migrated is 51.1%, this rate of migrated persons is 53.2%. People migrated and live in multi-person households without nuclear families has the highest participation rate with 60.5%. People never migrated and live one-person households has the lowest participation rate with 22.8%.

Table 4.58. Labour force participation rate by type of households and migration status, 2016

Migration status	Total	One-person	Couples	Couples +child	Lone parent +child	Extended family	Multi-person non-family
Not migrated	51.1	22.8	43.8	55.5	48.8	51.0	49.8
Migrated	53.2	48.8	43.1	59.1	47.9	45.2	60.5

While labour force participation rate of people never resided abroad is 52.2%, this rate of persons resided abroad is 47.2%. People resided abroad and live in multi-person households without nuclear families has the highest participation rate with 69.1%. People resided abroad and live in couples without resident children has the lowest participation rate with 31.6%.

Table 4.59. Labour force participation rate by type of households and abroad residency status, 2016

Abroad residency status	Total	One-person	Couples	Couples +child	Lone parent +child	Extended family	Multi-person non-family
Never resided abroad	52.2	35.5	44.4	57.0	48.7	49.3	56.4
Resided abroad	47.2	39.5	31.6	57.3	42.7	42.2	69.1

When labour force participation rates by labour force status of spouses are examined, only type of households which consists of couples are taken into account. Males with unemployed wife have the highest labour force participation rate with 92.7% while females with employed husband have the highest rate with 39.5%.

Table 4.60. Labour force participation rate by type of households and labour force status of spouse, 2016

Sex	Labour force status of spouse	Total	Couples	Couples +child	Extended family
Male	No wife	61.9	-	61.9	59.3
	Employed	92.7	92.2	93.1	92.2
	Unemployed	95.0	96.2	94.6	95.2
	Not in labour force	70.6	41.2	81.1	69.6
Female	No husband	32.5	-	39.7	26.3
	Employed	39.5	49.6	36.9	40.5
	Unemployed	27.8	42.8	28.2	20.9
	Not in labour force	10.4	5.2	15.0	11.2

When labour force participation rates by level of education of spouses are examined, only type of households which consists of couples are taken into account. Males with wife completed higher education have the highest labour force participation rate with 91.2% while females with husband completed higher education have the highest rate with 45.3%.

Table 4.61. Labour force participation rate by type of households and level of education of spouse, 2016

Sex	Level of education of spouse	Total	Couples	Couples +child	Extended family
Male	No wife	61.9	-	61.9	59.3
	No school completed	61.3	36.4	73.2	62.6
	Primary school	79.7	54.9	85.3	83.9
	High school	87.4	71.6	90.5	91.3
	Higher education	91.2	85.6	93.5	89.8
Female	No husband	32.5	-	39.7	26.3
	No school completed	20.6	15.7	24.3	20.3
	Primary school	30.3	24.7	30.4	34.4
	High school	32.4	33.7	31.9	33.4
	Higher education	45.3	48.9	45.3	33.3

While labour force participation rate of people live with a child household member (0-5 age group) is 56.1%, this rate of persons live in childless households is 50.6%. People live in couples with at least one resident child younger than 6 years old has the highest participation rate with 60.3%. People live in multi-person households without nuclear families but a child member younger than 6 years of age has the lowest participation rate with 31.5%.

Table 4.62. Labour force participation rate by type of households and existence of child household member, 2016

Existence of child	Total	One-person	Couples	Couples +child	Lone parent +child	Extended family	Multi-person non-family
Household has no child member	50.6	35.8	43.5	55.7	48.6	47.8	57.7
Household has a child member	56.1	-	-	60.3	41.1	50.3	31.5

3 persons households has the highest labour force participation rate with 57.8% and 4 persons household is following with 57.4%. As household size is correlated with the type of household, there is not much difference among the sizes. Only, one-person households makes the difference with the lowest rate.

Table 4.63. Labour force participation rate by type of households and size of household, 2016

Size of household	Total	One-person	Couples	Couples +child	Lone parent +child	Extended family	Multi-person non-family
1	35.8	35.8	-	-	-	-	-
2	44.6	-	43.5	-	45.2	-	59.4
3	57.8	-	-	59.7	52.8	41.3	59.8
4	57.4	-	-	58.9	51.3	48.8	43.6
5 and more	51.0	-	-	52.5	45.1	49.6	56.3

When the persons outside the labour force was investigated by the reason for not working or not searching for job, “housewife” category has the biggest share for the total population with 39.4. Main reason for not working is being “Disabled, old, ill etc.” for one-person households; “Housewife” for couples without resident children, couples with at least one resident child, lone parents with at least one resident child and extended family households; “Education/ Training” for multi-person households without nuclear families.

Table 4.64. Proportion of persons outside the labour force by type of households and reasons, 2016

Reason of not being in labour force	Total	One-person	Couples	Couples +child	Lone parent +child	Extended family	Multi-person non-family
Housewife	39.4	27.1	40.7	41.2	36.4	40.9	13.9
Education/ Training	16.1	1.8	0.4	24.0	17.7	11.8	47.5
Retired	14.8	23.1	37.2	9.5	10.8	10.3	8.6
Disabled, old, ill etc.	14.3	42.2	14.2	5.5	21.0	22.1	15.1
Not seeking a job but available to start, Other	6.3	3.2	4.3	7.7	6.0	5.3	8.5
Personal or family reasons	5.8	1.2	1.4	8.3	4.0	5.5	3.2
Not seeking a job but available to start, Discouraged	2.3	1.0	1.1	2.6	3.1	2.8	1.5
Other	0.7	0.4	0.3	0.8	0.7	0.9	1.7
Working seasonally	0.3	0.1	0.4	0.3	0.3	0.3	0.1

4.1.8. Comparison of Descriptive Analysis Results by Household Types

When the proportional distribution of socio-economic characteristics were examined for total population, the main difference were in one-person households and multi-person non-family households. While females and 65 years of age and older persons had the biggest proportions for one-person households; males and 20-29 age groups had the biggest proportion for multi-person non-family households (**Table 4.65**). Labour force status and reason for being outside the labour force also differed between males and females for these two type of households. While males were retirees and females were outside the labour force because of being disabled, old, ill, etc. in one-person households; males were employed and females were outside the labour force because of being educated. For all of the other type of households males were employed and females were outside the labour force because of being housewife.

Another point was the regional differences of the distribution of household types. One-person and couple households were significant in Aegean; couples with children, lone parent with children and multi-person non-family households were significant in Istanbul and extended family households were significant in Southeast Anatolia Region.

When working age population was examined in scope of labour force participation, males had the biggest LFP rates regardless of household types. There was no household type that female LFP rate even came closer to male LFP rate (**Table 4.66**). Age group with the highest LFP rate differed between 25-34 and 35-44 age groups by type of households. While females with employed husband had the highest LFP rate, males with unemployed wife had the highest LFP rate. People completed higher education participated the labour force compared to others regardless of household type. While males with wife completed higher education had the highest LFP rate for all household types included couples, females with husband completed higher education had the highest LFP rate for all household types included couples except extended family households. In extended families, females with husband completed primary school had the highest LFP rate.

Table 4.65. Socio-economic characteristics of persons by type of households

Variables	Total	One-person	Couples	Couples + child	Lone parents + child	Extended family	Multi-person non-family
Age group	~	65+	65+	~	~	~	20-29
Sex	~	Females	-	~	~	~	Males
Marital status	Married	Widowed	-	~	Single	Married	Single
Education status	Primary	Primary	Primary	Primary	Primary	Primary	High school
Labour force status	Employed (M)	Retired (M)	Employed (M)	Employed (M)	Employed (M)	Employed (M)	Employed (M)
	Housewife (F)	Disabled, old, ill, etc (F)	Housewife (F)	Housewife (F)	Housewife (F)	Housewife (F)	Student (F)
Branch	Services	Services	Services	Services	Services	Services	Services
Region	Istanbul	Aegean	Aegean	Istanbul	Istanbul	Southeast Anatolia	Istanbul
Spouses' crossed labour force status	Both Employed	-	Both Outside	Both Employed	-	Both Employed	-
Spouses' crossed education status	Both Primary	-	Both Primary	Both Primary	-	Both Primary	-

Table 4.66. Socio-economic characteristics with the highest LFP by type of households

Variables	Total	One-person	Couples	Couples + child	Lone parents + child	Extended family	Multi-person non-family
Total LFP rate*	52.0	35.8	43.5	57.0	48.4	49.0	57.6
Male LFP rate	72.0	59.0	56.7	77.3	68.2	70.8	65.7
Female LFP rate	32.5	19.9	30.2	35.0	36.0	29.8	46.6
Age group	35-44	25-34	25-34	35-44	25-34	35-44	25-34
Marital status	Divorced	Single	-	Divorced	Single	Divorced	Married
Education status	Higher education	Higher education	Higher education	Higher education	Higher education	Higher education	Higher education
Region	Istanbul	Istanbul	East Black Sea	West Marmara	Istanbul	West Black Sea	Istanbul
Place of birth	Turkey	Abroad	Turkey	Turkey	Turkey	Turkey	Abroad
Migration status	Migrated	Migrated	Not migrated	Migrated	Not migrated	Not migrated	Migrated
Abroad residency status	Never resided abroad	Resided abroad	Never resided abroad	Resided abroad	Never resided abroad	Never resided abroad	Resided abroad
Spouses' crossed labour force status	Unemployed wife	-	Unemployed wife	Unemployed wife	-	Unemployed wife	-
	Employed husband	-	Employed husband	Employed husband	-	Employed husband	-
Spouses' crossed education status	Wife-Higher	-	Wife-Higher	Wife-Higher	-	Wife-High	-
	Husband-Higher	-	Husband-Higher	Husband-Higher	-	Husband-Primary	-
Existence of child member aged between 0-5	+	-	-	+	0	+	0
Size of household	3	-	-	3	3	5+	3

* $LFP_i = (Employed_i + Unemployed_i) / Working\ age\ population_i * 100$

4.2. Results of Logistic Regression

The aim of the analysis was to evaluate the determinants of labour force participation by type of households and by total population. In LFS 2016, two-stage, stratified cluster sampling method was used. This complex survey structure was reflected to the both descriptive and regression analysis. Complex sample logistic regression was applied instead of regular logistic regression.

Total of 500 242 persons were interviewed in LFS 2016 dataset. Because labour force status was asked for persons aged 15 years and above, logistic regression analysis was made for this population which corresponds to 380 709 persons. 189 320 of those persons were in labour force. Independent variables were chosen from LFS micro-data by taking into account the literature on factors affecting labour participation. Variables and their breakdowns were shown in **Table 4.67**.

Table 4.67. List of variables used in logistic models by labour force status

Variable name	Breakdown of the variable	Labour		Not in the		
		Total (000)	force (000)	labour force (000)	Total (%)	Labour force (%)
	Total	58 720	30 535	28 185	100.0	52.0
REGION						
<i>(NUTS-1 regions)</i>						
	Istanbul	11 416	6 427	4 988	19.4	56.3
	West Marmara	2 660	1 415	1 244	4.5	53.2
	Aegean	7 906	4 272	3 634	13.5	54.0
	East Marmara	5 755	2 978	2 776	9.8	51.8
	West Anatolia	5 736	2 998	2 738	9.8	52.3
	Mediterranean	7 364	3 745	3 619	12.5	50.9
	Central Anatolia	2 863	1 453	1 410	4.9	50.8
	West Black Sea	3 414	1 807	1 608	5.8	52.9
	East Black Sea	2 001	1 089	911	3.4	54.4
	Northeast Anatolia	1 533	772	761	2.6	50.4
	Centraleast Anatolia	2 623	1 197	1 426	4.5	45.6
	Southeast Anatolia	5 450	2 381	3 069	9.3	43.7

Table 4.67. List of variables used in logistic models by labour force status
(continued)

Variable name	Breakdown of the variable	Total (000)	Labour force (000)	Not in the labour force (000)	Total (%)	Labour force (%)
HH_SIZE						
<i>(Size of households)</i>	1	3 240	1 161	2 079	5.5	35.8
	2	9 184	4 100	5 084	15.6	44.6
	3	11 462	6 628	4 834	19.5	57.8
	4	13 715	7 869	5 846	23.4	57.4
	5 and more	21 118	10 776	10 342	36.0	51.0
AGE_GR						
<i>(Completed age of persons in 10 years intervals)</i>	15-24	11 845	5 025	6 820	20.2	42.4
	25-34	12 392	8 617	3 775	21.1	69.5
	35-44	11 833	8 287	3 546	20.2	70.0
	45-54	9 295	5 390	3 905	15.8	58.0
	55-64	6 882	2 453	4 429	11.7	35.6
	65 and above	6 472	763	5 709	11.0	11.8
SEX						
<i>(Sex of persons)</i>	Male	29 031	20 899	8 133	49.4	72.0
	Female	29 689	9 637	20 052	50.6	32.5
PL_BIRTH						
<i>(Place of birth of persons)</i>	Turkey	57 135	29 844	27 291	97.3	52.2
	Abroad	1 585	691	895	2.7	43.6
MIG						
<i>(Migration status of persons)</i>	Not migrated	33 792	17 266	16 527	57.5	51.1
	Migrated	24 928	13 269	11 658	42.5	53.2
RES_ABROAD						
<i>(Abroad residency status of persons)</i>	Never resided abroad	55 910	29 209	26 701	95.2	52.2
	Resided abroad	2 810	1 326	1 484	4.8	47.2
EDU_ST						
<i>(Level of education)</i>	No school completed	9 131	2 123	7 009	15.6	23.2
	Primary school	30 422	15 243	15 178	51.8	50.1
	High school	10 518	6 277	4 241	17.9	59.7
	Higher education	8 649	6 892	1 757	14.7	79.7

Table 4.67. List of variables used in logistic models by labour force status
(continued)

Variable name	Breakdown of the variable	Total (000)	Labour force (000)	Not in the labour force (000)	Total (%)	Labour force (%)
MAR_STA						
<i>(Marital status of persons)</i>	Single	15 525	8 463	7 062	26.4	54.5
	Married	37 841	20 778	17 063	64.4	54.9
	Divorced	1 556	933	623	2.7	60.0
	Widowed	3 798	361	3 437	6.5	9.5
LFS_SPS						
<i>(Labour force status of spouse's)</i>	No spouse	21 901	10 242	11 659	37.3	46.8
	Employed	18 730	10 257	8 472	31.9	54.8
	Unemployed	1 564	837	727	2.7	53.5
	Not in labour force	16 526	9 199	7 327	28.1	55.7
EDU_SPS						
<i>(education status of spouse's)</i>	No spouse	21 901	10 242	11 659	37.3	46.8
	No school completed	5 495	2 847	2 648	9.4	51.8
	Primary school	20 428	10 965	9 462	34.8	53.7
	High school	5 860	3 242	2 618	10.0	55.3
	Higher education	5 037	3 239	1 798	8.6	64.3
CHILD						
<i>(Child member aged between 0-5)</i>	Household has no child member	43 497	21 991	21 506	74.1	50.6
	Household has a child member	15 223	8 544	6 679	25.9	56.1
HH_TYPE						
<i>(Type of household)</i>	One-person households	3 240	1 161	2 079	5.5	35.8
	Couples without resident children	7 240	3 146	4 094	12.3	43.5
	Couples with at least one resident child	31 577	18 009	13 569	53.8	57.0
	Lone parents with at least one resident child	3 021	1 461	1 560	5.1	48.4
	Extended family households	12 735	6 236	6 499	21.7	49.0
	Multi-person households without nuclear families	907	522	385	1.5	57.6

Before the logistic regression, multicollinearity of variables was evaluated in case of correlation. Variance inflation (VIF) values were checked for multicollinearity and as seen in **Table 4.68.**, all of the VIF values were less than 10. So, all of the variables were appropriate to be used in logistic models.

Table 4.68. VIF values of the variables for Model 1-7

Variable	MODEL 1	MODEL 2	MODEL 3	MODEL 4	MODEL 5	MODEL 6	MODEL 7
NUTS1	1.1536	1.0695	1.0620	1.1316	1.1093	1.2755	1.0969
AGE_GR	2.5215	2.8371	1.6908	2.8139	2.8165	2.0789	2.3170
SEX	1.2488	1.1888	1.2579	1.2816	1.2064	1.2972	1.1248
PL_BIRTH	2.1114	1.6957	1.6375	2.0624	1.8708	3.4121	4.4346
MIG	1.2099	1.3605	1.2224	1.2166	1.1841	1.3117	1.2728
RES_ABROAD	2.1848	1.8135	1.7478	2.1195	1.9488	3.4834	4.3779
EDU_ST	1.4225	2.0498	2.1656	1.3531	1.2625	1.3272	1.4463
MAR_STA	2.0039	2.8244		4.9368	2.9187	1.8594	2.1164
LFS_SPS	2.1637		1.4149	2.5775		2.0847	
EDU_SPS	1.9191		2.1610	3.5410		1.7705	
CHILD	1.3769			1.5705	1.0590	1.2018	1.0161
HH_SIZE	2.0675			1.2052	1.2033	1.2012	1.2225
HH_TYPE	1.6570						

Logistic regression **Model 1** was performed in order to determine significant variables on labour force participation for **total population** with 95% confidence limit. Categorical variables used in the Model 1 were determined as region, age-group, sex, place of birth, migration status, abroad residency status, level of education, marital status, labour force status of spouse, education level of spouse, existence of a child household member, size of household and type of household.

Model 1 was significant (p value <.0001) within the confidence level of 95%. The Nagelkerke R² value showed that Model 1 explains % 43.2 of the total variation. All of the variables included in Model 1 were significant with p values less than 0.05.

Table 4.69. Results for logistic regression analysis for total population (Model 1)

Model variables	ODDS Ratio	Parameter Estimate	Significance Value
<i>R² (Nagelkerke)= 0.4319</i>			
Constant		-0.5791	<.0001*
REGION (Ref=Southeast Anatolia)			<.0001*
Istanbul	1.675	0.516	<.0001*
West Marmara	1.787	0.5806	<.0001*
Aegean	1.778	0.5755	<.0001*
East Marmara	1.511	0.413	<.0001*
West Anatolia	1.342	0.2941	<.0001*
Mediterranean	1.436	0.3616	<.0001*
Central Anatolia	1.475	0.3888	<.0001*
West Black Sea	1.866	0.6236	<.0001*
East Black Sea	1.905	0.6445	<.0001*
Northeast Anatolia	1.518	0.4174	<.0001*
Centraleast Anatolia	1.079	0.0763	0.1504
AGE_GR (Ref=15-24)			<.0001*
25-34	3.141	1.1447	<.0001*
35-44	3.565	1.2712	<.0001*
45-54	1.933	0.6593	<.0001*
55-64	0.61	-0.4942	<.0001*
65 and above	0.143	-1.9445	<.0001*
SEX (Ref= Male)			<.0001*
Female	0.124	-2.0871	<.0001*
PL_BIRTH (Ref=Turkey)			<.0001*
Abroad	0.78	-0.2483	<.0001*
MIG (Ref=Not migrated)			<.0001*
Migrated	0.805	-0.2172	<.0001*
RES_ABROAD (Ref=Never resided abroad)			0.0244*
Resided abroad	0.909	-0.0952	0.0244*
EDU_ST (Ref=No school completed)			<.0001*
Primary school	1.266	0.2362	<.0001*
High school	1.799	0.5872	<.0001*
Higher education	6.433	1.8615	<.0001*

Table 4.69. Results for logistic regression analysis for total population (Model 1)
(continued)

Model variables	ODDS Ratio	Parameter Estimate	Significance Value
MAR_STA (Ref=Married)			<.0001*
Single	0.869	-0.1402	0.0032*
Divorced	1.438	0.3634	<.0001*
Widowed	0.673	-0.3953	<.0001*
LFS_SPS (Ref=Not in labour force)			<.0001*
No spouse	1.771	0.5715	<.0001*
Employed	1.529	0.4243	<.0001*
Unemployed	1.162	0.1505	<.0001*
EDU_SPS (Ref=Higher education)			<.0001*
No spouse		0	.
No school completed	2.271	0.82	<.0001*
Primary school	1.752	0.5608	<.0001*
High school	1.216	0.1958	<.0001*
CHILD (Ref=Household has no child member)			<.0001*
Household has a child member	0.825	-0.1918	<.0001*
HH_SIZE (Ref=1)			<.0001*
2	1.396	0.3337	<.0001*
3	1.328	0.2837	<.0001*
4	1.18	0.1655	0.0002*
5 and more	1.246	0.22	<.0001*
HH_TYPE (Ref=Extended family households)			<.0001*
One-person households			.
Couples without resident children	0.722	-0.3262	<.0001*
Couples with at least one resident child	0.748	-0.2897	<.0001*
Lone parents with at least one resident child	0.848	-0.1647	0.0005*
Multi-person households without nuclear families	0.727	-0.3195	0.0022*

Persons resided in Southeast Anatolia were less likely in labour force compared to persons resided in other **NUTS-1 regions**. When odds ratios were examined, East Black Sea had the biggest ratio which possibility of participating labour force of people resided in this region was 1.9 times higher than people reside

in Southeast Anatolia. West Black Sea with the odds ratio of 1.87, West Marmara with 1.79 and Aegean with 1.78 were following the East Black Sea region. With the smallest odds ratio, possibility of participating labour force of people resided in West Anatolia was 1.34 times higher than people reside in Southeast Anatolia. Category of Centraleast Anatolia was not significant when compared to Southeast Anatolia.

When 15-24 **age group** was taken as reference category, persons in 35-44 age group were the most likely in labour force with odds ratio of 3.57. 25-34 age group was following this group with odds ratio of 3.14. With the smallest odds ratio, possibility of participating in labour force of people aged 65 and older was 0.14 times lower than people in 15-24 age group. As expected, female persons were less likely in labour force when compared to males with odds ratio of 0.124.

Persons **born abroad** had 0.78 times less possibility of participating labour force compared to persons born in Turkey. Migrated persons were less likely in labour force compared to persons never migrated. People **resided abroad** were less likely in labour force compared to people never resided abroad.

When **education levels** of persons were compared, it was seen that higher level contributes more to being in labour force compared to persons without any school completion. The possibility of people with higher education to participate in labour force was 6.43 times higher than people with no school degree.

Possibility of participating in labour force of **divorced people** was 1.43 times more than married persons. Widowed persons had the smallest odds ratio of 0.67.

When people with spouse outside the labour force was taken as reference category, people live without a spouse in the household were more likely in labour force with the highest odds ratio of 1.77. People with spouse unemployed had the lowest odds ratio with 1.16.

When category of people with spouse who had higher education was taken as reference, people with a spouse who did not completed any school had the biggest odds ratio with 2.27. When level of education of spouses was getting higher, they

were less likely in labour force. Category of people who live without a spouse was not significant when compared to people with spouse who had higher education.

Existence of child household member younger than 6 years old was declining the possibility of participating labour force with odds ratio of 0.83. Possibility of participation in labour force of people live in 2 persons households were 1.4 times more than the possibility of people live alone. People live in 4 persons households had the lowest odds ratio with 1.18 which means people live alone had the lowest possibility on participation in labour force.

After members of extended families, members of households composed of lone parents with at least one resident child had the highest possibility of being in labour force. People lives in nuclear families composed of couples without resident children had the lowest odds ratio. Category of one person households was not significant when compared to extended families.

Logistic regression **Model 2** was performed in order to determine significant variables on labour force participation for **one-person households** with 95% confidence limit. Depends on the structure of these households, categorical variables used in the model were determined as region, age-group, sex, place of birth, migration status, abroad residency status, level of education, and marital status. Variables of labour force status of spouse, education level of spouse, existence of a child household member, size of household and type of household were removed as these ones were not appropriate for one-person households.

Model was significant (p value <.0001) within the confidence level of 95%. The Nagelkerke R² value showed that Model 2 explains % 69.9 of the total variation. According to results, place of birth, migration status, abroad residency status variables were not significant when looked at the p values more than 0.05.

Table 4.70. Results for logistic regression analysis for one-person households (Model 2)

Model variables	ODDS Ratio	Parameter Estimate	Significance Value
<i>R² (Nagelkerke)= 0.6988</i>			
Constant		0.449	0.1066
REGION (Ref=Southeast Anatolia)			0.0028*
Istanbul	1.652	0.5019	0.0151*
West Marmara	1.552	0.4393	0.0266*
Aegean	1.397	0.3341	0.0815
East Marmara	1.309	0.2695	0.2022
West Anatolia	1.248	0.2216	0.2893
Mediterranean	1.26	0.2313	0.2541
Central Anatolia	1.041	0.04	0.8644
West Black Sea	1.529	0.4249	0.0507
East Black Sea	2.974	1.09	<.0001*
Northeast Anatolia	1.401	0.3371	0.336
Centraleast Anatolia	1.559	0.4442	0.1548
AGE_GR (Ref=15-24)			<.0001*
25-34	5.447	1.695	<.0001*
35-44	2.413	0.8808	<.0001*
45-54	0.848	-0.1647	0.38
55-64	0.216	-1.5337	<.0001*
65 and above	0.048	-3.0286	<.0001*
SEX (Ref= Male)			<.0001*
Female	0.275	-1.2923	<.0001*
PL_BIRTH (Ref=Turkey)			0.7702
Abroad	1.076	0.0734	0.7702
MIG (Ref=Not migrated)			0.899
Migrated	0.989	-0.0108	0.899
RES_ABROAD (Ref=Never resided abroad)			0.4081
Resided abroad	0.872	-0.1369	0.4081
EDU_ST (Ref=No school completed)			<.0001*
Primary school	1.434	0.3604	0.0009*
High school	1.363	0.31	0.0352*
Higher education	4.954	1.6001	<.0001*
MAR_STA (Ref=Married)			<.0001*
Single	0.742	-0.298	0.0333*
Divorced	1.099	0.0945	0.4662
Widowed	0.598	-0.5146	0.0002*

For one-person households, persons resided in Southeast Anatolia were less likely in labour force compared to persons resided in other **NUTS-1 regions**. Istanbul, West Marmara, and East Black Sea regions were significant when compared to Southeast Anatolia. When odds ratios were examined, East Black Sea had the biggest ratio which possibility of participating labour force of people resided in this region was 2.98 times higher than people reside in Southeast Anatolia. Istanbul with the odds ratio of 1.65 and West Marmara with the odds ratio of 1.55 were following the East Black Sea region.

When 15-24 **age group** was taken as reference category, persons in 25-34 age group were the most likely in labour force with odds ratio of 5.45. 35-44 age group was following this group with odds ratio of 2.41. With the smallest odds ratio, possibility of participating in labour force of people aged 65 and older was 0.05 times lower than people in 15-24 age group. As expected, female persons were less likely in labour force when compared to males with odds ratio of 0.27.

When **education levels** of persons were compared, possibility of people with higher education to participate in labour force was 4.95 times higher than people with no school degree. People completed high school had the smallest odds ratio of 1.36.

Possibility of participating in labour force of **divorced people** was 1.1 times higher than married persons. Widowed persons had the smallest odds ratio of 0.6.

Logistic regression **Model 3** was performed in order to determine significant variables on labour force participation for **couples without resident children** with 95% confidence limit. Depends on the structure of these households, categorical variables used in the model were determined as region, age-group, sex, place of birth, migration status, abroad residency status, level of education, labour force status of spouse, and education level of spouse. Variables of marital status, existence of a child household member, size of household and type of household were removed as these ones were not appropriate for **couples without resident children**.

Model was significant (p value <.0001) within the confidence level of 95%. The Nagelkerke R² value showed that Model 3 explains % 52.4 of the total variation. According to results, abroad residency status was not significant when looked at the p value more than 0.05.

Table 4.71. Results for logistic regression analysis for couples without resident children (Model 3)

Model variables	ODDS Ratio	Parameter Estimate	Significance Value
<i>R² (Nagelkerke)= 0.5238</i>			
Constant		0.1217	0.3335
REGION (Ref=Southeast Anatolia)			
Istanbul	1.444	0.3677	<.0001*
West Marmara	1.551	0.4387	<.0001*
Aegean	1.613	0.4781	<.0001*
East Marmara	1.439	0.364	<.0001*
West Anatolia	1.28	0.2466	0.0003*
Mediterranean	1.348	0.2984	<.0001*
Central Anatolia	1.414	0.3463	<.0001*
West Black Sea	1.759	0.565	<.0001*
East Black Sea	2.919	1.0713	<.0001*
Northeast Anatolia	1.631	0.4891	<.0001*
Centraleast Anatolia	1.364	0.3105	0.0048*
AGE_GR (Ref=15-24)			
25-34	3.124	1.139	<.0001*
35-44	2.06	0.7228	<.0001*
45-54	1.136	0.1279	0.0849
55-64	0.482	-0.7307	<.0001*
65 and above	0.145	-1.9279	<.0001*
SEX (Ref= Male)			
Female	0.059	-2.8231	<.0001*
PL_BIRTH (Ref=Turkey)			
Abroad	0.688	-0.3745	0.0031*
MIG (Ref=Not migrated)			
Migrated	0.674	-0.3948	<.0001*
RES_ABROAD (Ref=Never resided abroad)			
Resided abroad	0.934	-0.068	0.3618
EDU_ST (Ref=No school completed)			
Primary school	0.853	-0.1593	0.0007*
High school	0.912	-0.0926	0.1826
Higher education	2.194	0.7856	<.0001*

Table 4.71. Results for logistic regression analysis for couples without resident children (Model 3) (continued)

Model variables	ODDS Ratio	Parameter Estimate	Significance Value
LFS_SPS (Ref=Not in labour force)			<.0001*
Employed	8.432	2.132	<.0001*
Unemployed	6.422	1.8597	<.0001*
EDU_SPS (Ref=Higher education)			<.0001*
No school completed	1.192	0.1753	0.0424*
Primary school	1.283	0.2493	0.0005*
High school	1.001	0.000897	0.9904

For the households composed of couples only, persons resided in Southeast Anatolia were less likely in labour force compared to persons resided in other NUTS-1 regions. When odds ratios were examined, East Black Sea had the biggest ratio which possibility of participating labour force of people resided in this region was 2.92 times higher than people reside in Southeast Anatolia. West Black Sea with the odds ratio of 1.76, Northeast Anatolia with 1.63 and Aegean with 1.61 were following the East Black Sea region. With the smallest odds ratio, possibility of participating labour force of people resided in West Anatolia was 1.28 times higher than people reside in Southeast Anatolia.

When 15-24 **age group** was taken as reference category, persons in 25-34 age group were the most likely in labour force with odds ratio of 3.12. 35-44 age group was following this group with odds ratio of 2.06. With the smallest odds ratio, possibility of participating in labour force of people aged 65 and older was 0.15 times lower than people in 15-24 age group. As expected, female persons were less likely in labour force when compared to males with odds ratio of 0.059.

Persons **born abroad** had 0.69 times less possibility of participating labour force compared to persons born in Turkey. Migrated persons were less likely in labour force compared to persons never migrated.

When **education levels** of persons were compared, it was seen that higher level contributes more to being in labour force compared to persons without any

school completion. The possibility of people with higher education to participate in labour force was 2.19 times higher than people with no school degree.

When category of people with spouse outside the labour force was taken as reference category, people with an employed spouse were more likely in labour force with the highest odds ratio of 8.43. People with spouse unemployed had the lowest odds ratio with 6.42 which contributes as much as the employed spouses.

When category of people with spouse who had higher education was taken as reference, people with a spouse completed primary school had the biggest odds ratio with 1.3. Category of people completed high school was not significant when compared to people with spouse who had higher education.

Logistic regression **Model 4** was performed in order to determine significant variables on labour force participation for **couples with at least one resident child** with 95% confidence limit. Depends on the structure of these households, categorical variables used in the model were determined as region, age-group, sex, place of birth, migration status, abroad residency status, level of education, marital status, labour force status of spouse, education level of spouse, existence of a child household member, and size of household. Type of household was removed from the model.

Model was significant (p value <.0001) within the confidence level of 95%. The Nagelkerke R² value showed that Model 4 explains % 40 of the total variation. According to results, abroad residency status was not significant when looked at the p value more than 0.05.

Table 4.72. Results for logistic regression analysis for couples with at least one resident child (Model 4)

Model variables	ODDS Ratio	Parameter Estimate	Significance Value
<i>R</i> ² (Nagelkerke)= 0.3998			
Constant		-0.598	<.0001*
REGION (Ref=Southeast Anatolia)			<.0001*
Istanbul	1.595	0.4667	<.0001*
West Marmara	1.855	0.618	<.0001*
Aegean	1.837	0.6082	<.0001*
East Marmara	1.485	0.3957	<.0001*
West Anatolia	1.301	0.2629	<.0001*
Mediterranean	1.469	0.3847	<.0001*
Central Anatolia	1.409	0.3427	<.0001*
West Black Sea	1.572	0.4527	<.0001*
East Black Sea	1.442	0.3662	<.0001*
Northeast Anatolia	1.338	0.2912	0.0003*
Centraleast Anatolia	1.042	0.0411	0.4827
AGE_GR (Ref=15-24)			<.0001*
25-34	3.885	1.3571	<.0001*
35-44	5.226	1.6537	<.0001*
45-54	2.792	1.0268	<.0001*
55-64	0.755	-0.2806	<.0001*
65 and above	0.186	-1.6797	<.0001*
SEX (Ref= Male)			<.0001*
Female	0.113	-2.1825	<.0001*
PL_BIRTH (Ref=Turkey)			<.0001*
Abroad	0.686	-0.3763	<.0001*
MIG (Ref=Not migrated)			<.0001*
Migrated	0.856	-0.1554	<.0001*
RES_ABROAD (Ref=Never resided abroad)			0.5087
Resided abroad	0.961	-0.0393	0.5087
EDU_ST (Ref=No school completed)			<.0001*
Primary school	1.236	0.2116	<.0001*
High school	1.931	0.6583	<.0001*
Higher education	7.306	1.9886	<.0001*
MAR_STA (Ref=Married)			<.0001*
Single	1.259	0.2303	0.0122*
Divorced	2.261	0.8159	<.0001*
Widowed	1.271	0.2396	0.5257

Table 4.72. Results for logistic regression analysis for couples with at least one resident child (Model 4) (continued)

Model variables	ODDS Ratio	Parameter Estimate	Significance Value
LFS_SPS (Ref=Not in labour force)			0.0491*
No spouse	1.232	0.2087	0.0428*
Employed	1.008	0.00833	0.7814
Unemployed	0.934	-0.068	0.1035
EDU_SPS (Ref=Higher education)			<.0001*
No spouse		0	.
No school completed	2.336	0.8486	<.0001*
Primary school	1.715	0.5396	<.0001*
High school	1.239	0.214	<.0001*
CHILD (Ref=Household has no child member)			<.0001*
Household has a child member	0.833	-0.1822	<.0001*
HH_SIZE (Ref=3)			<.0001*
1	0.702	-0.3537	0.0307*
2	0.986	-0.0139	0.6551
4	0.896	-0.1094	<.0001*
5 and more	0.938	-0.0641	0.0069*

Persons resided in Southeast Anatolia were less likely in labour force compared to persons resided in other NUTS-1 regions. When odds ratios were examined, West Marmara had the biggest ratio which possibility of participating labour force of people resided in this region was 1.86 times higher than people reside in Southeast Anatolia. Aegean with the odds ratio of 1.84, Istanbul with 1.6 and West Black Sea with 1.57 were following the West Marmara region. With the smallest odds ratio, possibility of participating labour force of people resided in Centraleast Anatolia was 1.04 times higher than people reside in Southeast Anatolia.

When 15-24 age group was taken as reference category, persons in 35-44 age group were the most likely in labour force with odds ratio of 5.23. 25-34 age group was following this group with odds ratio of 3.89. With the smallest odds ratio, possibility of participating in labour force of people aged 65 and older was 0.19 times lower than people in 15-24 age group. As expected, female persons were less likely in labour force when compared to males with odds ratio of 0.113.

Persons born abroad had 0.69 times less possibility of participating labour force compared to persons born in Turkey. Migrated persons were less likely in labour force compared to persons never migrated.

When education levels of persons were compared, it was seen that higher level contributes more to being in labour force compared to persons without any school completion. The possibility of people with higher education to participate in labour force was 7.31 times higher than people with no school degree.

Possibility of participating in labour force of divorced people was 2.26 times more than married persons. Single persons had the smallest odds ratio of 1.26.

When people with spouse outside the labour force was taken as reference category, people live without a spouse in the household were more likely in labour force with the highest odds ratio of 1.23. People with spouse unemployed had the lowest odds ratio with 0.93.

When category of people with spouse who had higher education was taken as reference, people with a spouse who did not completed any school had the biggest odds ratio with 2.34. When level of education of spouses was getting higher, they were less likely in labour force.

Existence of child household member younger than 6 years old was declining the possibility of participating labour force with odds ratio of 0.83. Possibility of participation in labour force of people live in 3 persons households were slightly higher than others.

Logistic regression **Model 5** was performed in order to determine significant variables on labour force participation for **lone parents with at least one resident child** with 95% confidence limit. Depends on the structure of these households, categorical variables used in the model were determined as region, age-group, sex, place of birth, migration status, abroad residency status, level of education, marital status, existence of a child household member, and size of household. Labour force

status of spouse, education level of spouse, and type of household were removed from the model.

Model was significant (p value <.0001) within the confidence level of 95%. The Nagelkerke R² value showed that Model 5 explains % 40 of the total variation. According to results, place of birth, migration status and size of household were not significant when looked at the p value more than 0.05.

Table 4.73. Results for logistic regression analysis lone parents with at least one resident child (Model 5)

Model variables	ODDS Ratio	Parameter Estimate	Significance Value
<i>R² (Nagelkerke)= 0.4034</i>			
Constant		-0.4427	0.0085*
REGION (Ref=Southeast Anatolia)			<.0001*
Istanbul	2.305	0.8351	<.0001*
West Marmara	1.933	0.6591	<.0001*
Aegean	2.119	0.7511	<.0001*
East Marmara	1.746	0.5573	<.0001*
West Anatolia	1.756	0.5633	<.0001*
Mediterranean	1.34	0.293	0.013*
Central Anatolia	1.474	0.3877	0.019*
West Black Sea	1.394	0.3322	0.0177*
East Black Sea	2.22	0.7975	<.0001*
Northeast Anatolia	1.905	0.6446	0.0015*
Centraleast Anatolia	1.007	0.00692	0.9653
AGE_GR (Ref=15-24)			<.0001*
25-34	3.119	1.1375	<.0001*
35-44	2.068	0.7264	<.0001*
45-54	0.898	-0.1081	0.238
55-64	0.306	-1.1844	<.0001*
65 and above	0.128	-2.0592	<.0001*
SEX (Ref= Male)			<.0001*
Female	0.301	-1.2002	<.0001*
PL_BIRTH (Ref=Turkey)			0.3079
Abroad	1.28	0.2465	0.3079
MIG (Ref=Not migrated)			0.9329
Migrated	0.996	-0.00433	0.9329
RES_ABROAD (Ref=Never resided abroad)			0.001*
Resided abroad	0.533	-0.6291	0.001*

Table 4.73. Results for logistic regression analysis lone parents with at least one resident child (Model 5) (continued)

Model variables	ODDS Ratio	Parameter Estimate	Significance Value
EDU_ST (Ref=No school completed)			<.0001*
Primary school	1.613	0.478	<.0001*
High school	2.215	0.7952	<.0001*
Higher education	5.867	1.7694	<.0001*
MAR_STA (Ref=Married)			<.0001*
Single	0.739	-0.3018	0.0007*
Divorced	1.706	0.5343	<.0001*
Widowed	0.866	-0.1437	0.1156
CHILD (Ref=Household has no child member)			<.0001*
Household has a child member	0.483	-0.7283	<.0001*
HH_SIZE (Ref=2)			0.9613
1	0.966	-0.035	0.5296
3	1.012	0.0115	0.8329
4	1.02	0.0195	0.8072
5 and more	1.001	0.00149	0.9898

Persons resided in Southeast Anatolia were less likely in labour force compared to persons resided in other **NUTS-1 regions**. When odds ratios were examined, Istanbul had the biggest ratio which possibility of participating labour force of people resided in this region was 2.3 times higher than people reside in Southeast Anatolia. East Black Sea with the odds ratio of 2.22, Aegean with 2.12 and West Marmara with 1.93 and were following the Istanbul. With the smallest odds ratio, possibility of participating labour force of people resided in Mediterranean was 1.34 times higher than people reside in Southeast Anatolia. Category of Centraleast Anatolia was not significant when compared to Southeast Anatolia.

When 15-24 **age group** was taken as reference category, persons in 25-34 age group were the most likely in labour force with odds ratio of 3.12. 35-44 age group was following this group with odds ratio of 2.07. With the smallest odds ratio, possibility of participating in labour force of people aged 65 and older was 0.13 times lower than people in 15-24 age group. As expected, female persons were less likely in labour force when compared to males with odds ratio of 0.301.

People **resided abroad** were less likely in labour force compared to people never resided abroad.

When **education levels** of persons were compared, it was seen that higher level contributes more to being in labour force compared to persons without any school completion. The possibility of people with higher education to participate in labour force was 5.87 times higher than people with no school degree.

Possibility of participating in labour force of **divorced people** was 1.74 times more than married persons. Widowed persons had the smallest odds ratio of 0.87. Existence of child household member younger than 6 years old was declining the possibility of participating labour force with odds ratio of 0.48.

Logistic regression **Model 6** was performed in order to determine significant variables on labour force participation for **extended family households** with 95% confidence limit. Depends on the structure of these households, categorical variables used in the model were determined as region, age-group, sex, place of birth, migration status, abroad residency status, level of education, marital status, labour force status of spouse, education level of spouse, existence of a child household member, and size of household. Type of household was removed from the model.

Model was significant (p value <.0001) within the confidence level of 95%. The Nagelkerke R² value showed that Model 6 explains % 43 of the total variation. All of the variables included in the model were significant with p values less than 0.05.

Table 4.74. Results for logistic regression analysis for extended family households
(Model 6)

Model variables	ODDS Ratio	Parameter Estimate	Significance Value
<i>R² (Nagelkerke)= 0.4304</i>			
Constant		-0.609	<.0001*
REGION (Ref=Southeast Anatolia)			
Istanbul	1.692	0.5262	<.0001*
West Marmara	1.82	0.5987	<.0001*
Aegean	1.801	0.5885	<.0001*
East Marmara	1.545	0.435	<.0001*
West Anatolia	1.365	0.3109	<.0001*
Mediterranean	1.439	0.364	<.0001*
Central Anatolia	1.511	0.4125	<.0001*
West Black Sea	1.95	0.6676	<.0001*
East Black Sea	1.948	0.6669	<.0001*
Northeast Anatolia	1.549	0.4378	<.0001*
Centraleast Anatolia	1.104	0.0986	0.0638
AGE_GR (Ref=15-24)			
25-34	3.176	1.1555	<.0001*
35-44	3.556	1.2685	<.0001*
45-54	1.971	0.6783	<.0001*
55-64	0.633	-0.4571	<.0001*
65 and above	0.149	-1.9047	<.0001*
SEX (Ref= Male)			
Female	0.125	-2.0811	<.0001*
PL_BIRTH (Ref=Turkey)			
Abroad	0.797	-0.2268	0.0001*
MIG (Ref=Not migrated)			
Migrated	0.801	-0.2224	<.0001*
RES_ABROAD (Ref=Never resided abroad)			
Resided abroad	0.907	-0.0981	0.0205*
EDU_ST (Ref=No school completed)			
Primary school	1.252	0.2249	<.0001*
High school	1.774	0.5735	<.0001*
Higher education	6.354	1.8491	<.0001*
MAR_STA (Ref=Married)			
Single	0.809	-0.2125	<.0001*
Divorced	1.478	0.3908	<.0001*
Widowed	0.686	-0.3771	<.0001*
LFS_SPS (Ref=Not in labour force)			
No spouse	1.973	0.6797	<.0001*
Employed	1.532	0.4264	<.0001*
Unemployed	1.166	0.1539	<.0001*

Table 4.74. Results for logistic regression analysis for extended family households (Model 6) (continued)

Model variables	ODDS Ratio	Parameter Estimate	Significance Value
EDU_SPS (Ref=Higher education)			<.0001*
No school completed	2.332	0.8466	<.0001*
Primary school	1.78	0.5766	<.0001*
High school	1.23	0.207	<.0001*
CHILD (Ref=Household has no child member)			<.0001*
Household has a child member	0.857	-0.1546	<.0001*
HH_SIZE (Ref=3)			<.0001*
1	0.91	-0.0945	0.0247*
2	1.004	0.00359	0.8568
4	0.898	-0.1077	<.0001*
5 and more	1.036	0.0353	0.0639

Persons resided in Southeast Anatolia were less likely in labour force compared to persons resided in other **NUTS-1 regions**. When odds ratios were examined, West Black Sea had the biggest ratio which possibility of participating labour force of people resided in this region was 1.95 times higher than people reside in Southeast Anatolia. East Black Sea with the odds ratio of 1.948, West Marmara with 1.82 and Aegean with 1.8 were following the West Black Sea region. With the smallest odds ratio, possibility of participating labour force of people resided in Centraleast Anatolia was 1.1 times higher than people reside in Southeast Anatolia.

When 15-24 **age group** was taken as reference category, persons in 35-44 age group were the most likely in labour force with odds ratio of 3.56. 25-34 age group was following this group with odds ratio of 3.18. With the smallest odds ratio, possibility of participating in labour force of people aged 65 and older was 0.14 times lower than people in 15-24 age group. As expected, female persons were less likely in labour force when compared to males with odds ratio of 0.125.

Persons **born abroad** had 0.8 times less possibility of participating labour force compared to persons born in Turkey. Migrated persons were less likely in labour force compared to persons never migrated. People **resided abroad** were less likely in labour force compared to people never resided abroad.

When **education levels** of persons were compared, it was seen that higher level contributes more to being in labour force compared to persons without any school completion. The possibility of people with higher education to participate in labour force was 6.35 times higher than people with no school degree.

Possibility of participating in labour force of **divorced people** was 1.48 times more than married persons. Widowed persons had the smallest odds ratio of 0.69.

When people with spouse outside the labour force was taken as reference category, people live without a spouse in the household were more likely in labour force with the highest odds ratio of 1.97. People with spouse unemployed had the lowest odds ratio with 1.53.

When category of people with spouse who had higher education was taken as reference, people with a spouse who did not completed any school had the biggest odds ratio with 2.33. When level of education of spouses was getting higher, they were less likely in labour force.

Existence of child household member younger than 6 years old was declining the possibility of participating labour force with odds ratio of 0.86. Possibility of participation in labour force of people live in 2 with 5 and more persons households were almost same possibility with people live in 3 persons households. People live alone and live in 4 persons households had the less possibility than 3 persons households on participation in labour force.

Logistic regression **Model 7** was performed in order to determine significant variables on labour force participation for **multi-person households without nuclear families** with 95% confidence limit. Depends on the structure of these households, categorical variables used in the model were determined as region, age-group, sex, place of birth, migration status, abroad residency status, level of education, marital status, existence of a child household member, and size of household. Labour force status of spouse, education level of spouse, and type of household were removed from the model.

Model was significant (p value <.0001) within the confidence level of 95%. The Nagelkerke R² value showed that Model 7 explains % 45.6 of the total variation. According to results, place of birth, migration status, abroad residency status and size of household were not significant when looked at the p value more than 0.05

Table 4.75. Results for logistic regression analysis for multi-person households without nuclear families (Model 7)

Model variables	ODDS Ratio	Parameter Estimate	Significance Value
<i>R² (Nagelkerke)= 0.4559</i>			
Constant		1.4334	0.0017*
REGION (Ref=Southeast Anatolia)			<.0001*
Istanbul	1.962	0.6739	0.0076*
West Marmara	1.221	0.2	0.4661
Aegean	1.173	0.16	0.5703
East Marmara	0.854	-0.1582	0.6162
West Anatolia	0.813	-0.2064	0.4405
Mediterranean	1.267	0.2364	0.4095
Central Anatolia	1.112	0.1061	0.7442
West Black Sea	0.607	-0.4985	0.0749
East Black Sea	0.926	-0.0767	0.8364
Northeast Anatolia	0.384	-0.9566	0.012*
Centraleast Anatolia	1.014	0.0137	0.9668
AGE_GR (Ref=15-24)			<.0001*
25-34	3.831	1.3432	<.0001*
35-44	2.379	0.8666	<.0001*
45-54	1.022	0.0222	0.9025
55-64	0.365	-1.0068	0.0002*
65 and above	0.077	-2.5585	<.0001*
SEX (Ref= Male)			<.0001*
Female	0.473	-0.7476	<.0001*
PL_BIRTH (Ref=Turkey)			0.6828
Abroad	1.227	0.2043	0.6828
MIG (Ref=Not migrated)			0.8714
Migrated	0.979	-0.021	0.8714
RES_ABROAD (Ref=Never resided abroad)			0.3199
Resided abroad	1.387	0.327	0.3199
EDU_ST (Ref=No school completed)			<.0001*
Primary school	1.419	0.3497	0.1494
High school	0.569	-0.5645	0.0305*
Higher education	3.918	1.3657	<.0001*

Table 4.75. Results for logistic regression analysis for multi-person households without nuclear families (Model 7) (continued)

Model variables	ODDS Ratio	Parameter Estimate	Significance Value
MAR_STA (Ref=Married)			<.0001*
Single	0.263	-1.3369	<.0001*
Divorced	0.346	-1.062	0.0007*
Widowed	0.16	-1.8335	<.0001*
CHILD (Ref=Household has no child member)			0.0169*
Household has a child member	0.102	-2.2798	0.0169*
HH_SIZE (Ref=5 and more)			0.3308
1	1.001	0.00148	0.996
2	0.963	-0.0381	0.8948
3	0.887	-0.1195	0.6926
4	0.62	-0.478	0.1418

Persons resided in Southeast Anatolia were less likely in labour force compared to persons resided in other **NUTS-1 regions**. Istanbul and Northeast Anatolia regions were significant when compared to Southeast Anatolia. When odds ratios were examined, Istanbul had the biggest ratio which possibility of participating labour force of people resided in this region was 1.96 times higher than people reside in Southeast Anatolia. Odds ratio of Southeast Anatolia was 0.38.

When 15-24 **age group** was taken as reference category, persons in 25-34 age group were the most likely in labour force with odds ratio of 3.83. 35-44 age group was following this group with odds ratio of 2.38. With the smallest odds ratio, possibility of participating in labour force of people aged 65 and older was 0.08 times lower than people in 15-24 age group. 45-54 age group was not significant. As expected, female persons were less likely in labour force when compared to males with odds ratio of 0.47.

Persons **born abroad** had 1.23 times more possibility of participating labour force compared to persons born in Turkey. **Migrated** persons were less likely in labour force compared to persons never migrated. People **resided abroad** were more likely in labour force compared to people never resided abroad.

When **education levels** of persons were compared, possibility of people with higher education to participate in labour force was 3.92 times higher than people with no school degree. **Married** people were more likely in labour force. Existence of child household member younger than 6 years old was declining the possibility of participating labour force with odds ratio of 0.10.

When all of the logistic regression model results were compared based on the category with the highest odds ratio, males were more likely participates to the labour force compared to females regardless of household types as expected (**Table 4.76**). While 35-44 age group had the highest odds ratio for the total population, couples with children and extended family households, 25-34 age group was most likely in labour force for other type of households. People completed higher education participated the labour force with the highest possibility regardless of household type. For total population, one-person, couples, and extended family households, people reside in East Black Sea Region were most likely participated the labour force. While members of households comprise of couples with children were most likely participated the labour force in West Marmara Region, members of households comprise of lone parents with children and multi-person non-families were most likely participated the labour force in Istanbul.

When migration characteristics were examined, people never migrated were most likely participated the labour force compared to the migrated ones. Existence of child household member aged between 0 and 5 decreased the possibility of participation in labour force.

Table 4.76. Comparison of results of the logistic regression analysis by type of households

	Total	One-person	Couples	Couples + child	Lone parents + child
Sex	males	males	males	males	males
Age group	35-44	25-34	25-34	35-44	25-34
Marital status	divorced	married	-	divorced	divorced
Education status	higher	higher	higher	higher	higher
Region	East Black Sea	East Black Sea	East Black Sea	West Marmara	Istanbul
Place of birth	Turkey	X	Turkey	Turkey	X
Migration status	never migrated	X	never migrated	never migrated	X
Abroad residency status	never resided	X	X	X	never resided
Spouses' labour force status	employed	-	employed	employed	-
Spouses' education status	no school	-	primary school	no school	-
Existence of child member aged between 0-5	without child	-	-	without child	without child
Size of household	2	-	-	5+	X
Type of household	extended family	-	-	-	-

X : not significant

- : not included in model

CHAPTER 5. CONCLUSION

Households, which can be simply defined as a group of people living together in a dwelling, have differentiated over the years in means of composition and functionality in interaction with the socio-economic patterns of the regions and countries. In the transition period from agricultural society to modern society, value of the children has changed from being a part of labour force and became unique and valuable individuals. In parallel with this, women started to participate labour force outside of their homes. Extended families which consist of two or more generations left their place to nuclear families. Changes in household structures have also been influenced by cultural differences and development levels of countries. All of these changes also interact with the labour force participation and economic characteristics of the household's members which effects directly or indirectly the composition of the household. Besides understanding the human life and history, families are also in focus of planners and policy makers in their decision making process as an economic and social unit.

The determinants of the household composition vary in Turkey in parallel with developed countries. Life expectancy of females is longer than males'. This contributes households composed of widowed old females. With increasing divorce rates, lone parent and child households are increasing. This also effects the extended families in case the divorced person return to his/ her parental home with his/ her child. Changing life styles and individualism also effects the one-person households and multi-person non-family households. University students, after leaving their parents for their education; they continue to live separately after starting their working life. They spent their time in one-person households and multi-person non-family households until marriage. But, high young unemployment rate effects this group of persons. The postponed fertility have affected the duration of staying as a couple household before becoming couples with child(ren) household.

In Turkey, labour force participation rate of males is more than double of the female labour force participation rate. Despite the gap between the sexes was more 30 years before, it remains high compared to developed countries. When sectoral

distribution of employed persons was examined, services sector had taken the place of agricultural sector in years for both sexes. But, female share of agricultural sector is higher than the male share.

Regarding the studies which brings together labour force participation and households are mainly focused on the women's employment status and reasons behind the decision of working or not working. The aim of the study was to examine status in employment by the household types and to evaluate the similarities or differences of labour force characteristics of persons by their household's structure.

Household Labour Force Survey (LFS) microdata sets for the years 2004, 2013 and 2016 were used as the data source which is conducted by TURKSTAT.

Study was composed of three stages. At the first stage an algorithm for generation of household type was produced in SAS programming language. Sequence numbers of mother, father and spouse information was used to find out relationships between the members of household whether there is a nuclear family exists or not in the household. This method is better than other method using variable on relationship to the determined household's reference person which allows to relate spouses with each other; and to relate children with their parents. The weak side of the method is if there is no mother, father or spouse of all persons in the household; it is impossible to find out relationships between the members which affect multi-person households without nuclear families. But, it is quite enough for constituting nuclear and extended families. The most current classifications related to households were used in line with the international regulations and studies in scope of official statistics.

At the second stage of the study, the aim was to examine socio-economic characteristics of the persons and determinants of labour force participation to observe changes by type of households in time. Socio-economic indicators and variables were chosen from the microdata sets according to structure of households. For this stage, datasets of different years were evaluated for comparability issues related to definitions and concepts of variables and the methods of the surveys. Data

pooling studies were applied to the data sets to provide comparability of different years.

According to results, 67.7% of the total population live in nuclear family households in 2016. This percentage was 70.6% in 2004 which means the population lives in nuclear families decreasing. Most of this decrease is due to falling of the population live in nuclear families consists of couples and their resident children. Opposite to this decline, number of persons live alone and population live in multi-person households without nuclear families is increasing from 1.9% and 0.9% in 2004 to 4.2% and 1.2% in 2016, respectively. These results are not comparable with the results in literature. While the analysis unit of this study is persons, for the former ones households are the analysis unit.

The characteristics of **one-person households** can be summarized as: persons who are 65 years of age or older, females, widowed, persons without any school degree or with primary school degree, outside the labour force with reason being “disabled, old, ill, etc.” are living alone in mostly in Aegean, Istanbul and Mediterranean regions.

The main characteristics of members of households composed of **couples without resident children** are as follows: 65 years of age or older, widowed, graduated from primary school, employed if male, outside the labour force with the reason being “housewife” for females, employed in services sector are living as couples in mostly in Aegean, Istanbul and Mediterranean regions. Both of the spouses mainly have the primary school degree, and both of the spouses mainly outside the labour force.

For the households composed of **couples with at least one resident child**, age and sex structure distributed homogeneously. Persons who are mainly married or single, graduated from primary school, employed if male, outside the labour force with the reason being “housewife” for females, employed in services sector are members of these households live in mostly in Aegean, Istanbul and Mediterranean

regions. Both of the spouses mainly have the primary school degree, and both of the spouses mainly employed.

Age and sex structure of persons live in **lone parents with at least one resident child** also distributed homogeneously. Persons who are mainly single, graduated from primary school, employed if male, outside the labour force with the reason being “housewife” for females, employed in services sector are members of these households live in mostly in Aegean, Istanbul and Mediterranean regions.

When members of **extended family households** are examined according to their characteristics; they are mainly married or single, graduated from primary school, employed if male, outside the labour force with the reason being “housewife” for females, employed in services sector and live in Southeast Anatolia, Istanbul, and Mediterranean regions. Both of the spouses mainly have the primary school degree, and both of the spouses mainly employed. Increase of proportion of population live in extended families is remarkable for Istanbul between 2004 (5.9%) and 20016 (7.9%).

Multi-person households without nuclear families composed of persons who are mainly in 20-29 age group, males, single, graduated from high school, employed if male, outside the labour force with the reason being involved in “education/ training” for females, employed in services sector and live in Istanbul, Aegean, West Anatolia regions.

While labour force participation rate of males is 72%, this rate is 32.5% for females. Type of household with the highest male labour force participation rate is couples with at least one resident child with 77.3%, while the lowest one is 59% in one-person households. Type of household with the highest female labour force participation rate is lone parents with at least one resident child with 36%, while the lowest one is 19.9% in one-person households. The gap between males and females is always high regardless of the household type. This shows that breadwinner husband and homemaker wife couples are still dominant.

At the third stage of the study, labour force status were analysed in scope of household types and other socio-economic characteristics by binary logistic regression method. Variables used in the model were determined mainly according to studies in the literature and some new variables were added to widen the variety of information. Datasets were prepared for the analysis as needed variables were produced and classifications of some variables were updated. Correlation and multicollinearity tests were applied to the selected set of variables for the population aged 15 years and above. 7 models were examined to predict labour force status of persons. While the first one covered the total population, the others focused on the each type of household.

For logistic regression analysis; NUTS-1 region, age-group, sex, place of birth, migration status, abroad residency status, level of education, marital status, labour force status of spouse, education level of spouse, existence of a child household member, size of household and type of household are the variables taken into account while composing models. Variable of “type of household” is excluded from the models for types of household.

All of the variables are included and found significant for Model 1. According to results of the first model constituted for total population, it is seen that there is no remarkable difference between type of households and between sizes of households. Member of extended family households are more likely in labour force compared to other types. Persons who are males, in 35-44 age group, born in Turkey, never migrated, never been abroad, higher educated, divorced, no spouse in household, spouse without any school degree, without child member of household, resided in East Black Sea are more likely in labour force compared to people in opposite or other circumstances.

For one-person households, labour force status of spouse, education level of spouse, existence of a child household member and size of household are excluded from the model as there is no child or spouse in this households and all of the household composed of one persons. NUTS-1 region, age-group, sex, place of birth, migration status, abroad residency status, level of education, marital status are

included in the model; but, abroad residency status, place of birth and migration status are found as not significant. Persons who are males, in 25-34 age group, higher educated, divorced, resided in East Black Sea are more likely in labour force compared to people in opposite or other circumstances.

In the third model which is composed of couples without resident children, NUTS-1 region, age-group, sex, place of birth, migration status, abroad residency status, level of education, labour force status of spouse, and education level of spouse are the variables included in the model. Marital status, size of household, existence of a child household member are excluded as all of the members are married, all of the household composed of two persons and there is no child member in this households. Only abroad residency status is not significant. Persons who are males, in 25-34 age group, higher educated, whose spouse is employed, spouse with primary school degree, born in Turkey, never migrated, resided in East Black Sea are more likely in labour force compared to people in opposite or other circumstances.

Couples with at least one resident child are analysed with Model 4. All of the variables are included in the model and only abroad residency status is not significant. Persons who are males, in 35-44 age group, born in Turkey, never migrated, never been abroad, higher educated, whose spouse is employed, spouse without any school degree, without child member aged less than 6 years in the household, resided in West Marmara are more likely in labour force compared to people in opposite or other circumstances. It is seen that there is no remarkable difference between sizes of households.

Model 5 is constituted for lone parents with at least one resident child. NUTS-1 region, age-group, sex, place of birth, migration status, abroad residency status, level of education, marital status, existence of a child household member, size of household are the variables included in the model. Labour force status of spouse and education level of spouse are excluded as there is no spouse in this households. Place of birth, migration status and size of households are the variables which are not significant according to results. Persons who are males, in 25-34 age group, never been abroad, higher educated, divorced, without child member aged less than 6 years

in the household, resided in Istanbul are more likely in labour force compared to people in opposite or other circumstances.

All of the variables are taken into account while constituting model for extended family households and according to results all of them are significant. Persons who are males, in 35-44 age group, born in Turkey, never migrated, never been abroad, higher educated, divorced, no spouse in household, spouse without any school degree, without child member aged less than 6 years in the household, resided in West and East Black Sea are more likely in labour force compared to people in opposite or other circumstances. It is seen that there is no remarkable difference between sizes of households.

When multi-person households without nuclear families are analysed, NUTS-1 region, age-group, sex, place of birth, migration status, abroad residency status, level of education, marital status, existence of a child household member, size of household are the variables included in the model. Labour force status of spouse and education level of spouse are excluded as there is no spouse in this households. Place of birth, migration status, abroad residency status and size of households are the variables which are not significant according to results. Persons who are males, in 25-34 age group, higher educated, married, without child member aged less than 6 years in the household, resided in Istanbul are more likely in labour force compared to people in opposite or other circumstances.

As expected, males participated the labour force more than females regardless of household type. Education is another important factor that people completed higher education are most likely in labour force. Age group shifts between 25-34 and 35-44 for the people who are more likely in labour force according to the household types.

When all of the model results are evaluated, labour force participation differs by region for each type of household. East Black Sea region is remarkable in scope of labour force participation. As males participated the labour force with high rates, it can be said that female labour force participation shapes the labour force

participation of the households. Female labour force participation makes the difference in East Black Sea region.

In Turkey, while population live in provinces and district centres was 24.2% of population in 1927, this proportion increased to 77.3% in 2012. Migration is one of the factors of urbanization. But when migration is evaluated in scope of labour force participation, it is seen that people without any migration experience are more likely in labour force compared to migrated ones. Place of birth, abroad residency status and migration status are the variables used to examine the effect of migration on labour force participation. Persons who born in Turkey, never migrated, never resided abroad are more likely in labour force.

When marital statuses are evaluated, divorced persons are more likely in labour force. Existence of a child member aged less than 6 years in the household decreases the possibility of participation in the labour force.

If all of the results are summed up, there is no significant difference between the types of households in scope of labour force participation. As expected, males and higher educated persons made the biggest difference. East Black Sea, Istanbul and West Marmara are the regions increase the possibility of participating labour force of residents. Unlikely, people ever migrated are less likely in labour force.

Some recommendations can be mentioned for further studies. In this thesis, overall employment status was evaluated by type of households. Female labour force participation can be investigated by type of households with demographic or economic point of view.

Since type of households differs by regions, another study can analyse with a focus on the regions to show the structural changes.

Extended families can be investigated to determine who is/are living with the nuclear families. With the ageing pattern of Turkey, old parents will be added to their children's families because of traditional norms. Maybe with increasing divorce rates, children will return to their parents' home with or without their children.

Another probability is with high young unemployment rate, these young people will live with another households.

In this study, cross-sectional LFS data was used to examine household structure. As the composition of households are changing in time, longitudinal data can be used to monitor transition of family cycle.

REFERENCES

- Akın, F. (2002). Kadınların İşgücüne Katılımı ve İşteki Durum Tercihinin Nested Logit Model ile Analizi. *METU/ERC International Conference in Economics VI*, Ankara.
- Aktaş, G. (2015). Türkiye’de Aile Sosyolojisi Çalışmalarına Genel Bir Bakış. *Sosyoloji Konferansları*, No: 52 (2015-2) / 419-4410 / 52.
- Anderson, M. (2015). *Censuses: History and Methods*. University of Wisconsin – Milwaukee, WI, USA.
- Aykan, H., & Wolf, D.A. (2000). Traditionality, Modernity and Household Composition: Parent -Child Coresidence in Contemporary Turkey, *Research on Aging*, Vol.22, No.4, 395-421.
- Baştuğ, S. (2002). Household and Family in Contemporary Turkey: an Historical Perspective. *Autonomy and Dependence in the Family*, İstanbul: Swedish Research Institute, 99-116.
- Becker, G. S. (1981). *A Treatise on the Family*. Cambridge, Massachusetts: Harvard University Press.
- Bozkaya, G. (2013). Kadınların İşgücüne Katılımını Belirleyen Faktörler: Türkiye Üzerine Bir Analiz. *Sosyal Bilimler Dergisi*, 3 (5), 69-89.
- Burch, T. K. (1979). Household and Family Demography: A Bibliographic Essay. *Population Index*, Vol.45, No.2, pp.173-195.
- Burch, T.K. (1982). Household and Family Demography, *International Encyclopedia of Population*, (ed.) Ross J.A, Vol: 1 New York, Free Press, 299-307.
- Canpolat, Ş. (2008). *Population Ageing In Turkey: Current And Prospective Co-Residence Pattern Of Elderly Population*. Hacettepe University Institute of Population Studies, Technical Demography Program (Ph.D. Thesis)
- Castillo, G. T., Weisblat, A. M., & Villareal, F. (1968). The concepts of nuclear and extended family: an exploration of empirical referents. *International Journal of Comparative Sociology*, Leiden, 9(1): 1-40.
- Çetin, I., & Sevüktekin, M. (2014). Türkiye’de Kadın İstihdamının Geleceği. *Paradoks Ekonomi, Sosyoloji ve Politika Dergisi*. 10(2), 52-83.
- Dayıoğlu, M., & Kırdar, M. G. (2010). *Determinants of and Trends in Labor Force Participation of Women in Turkey*. State Planning Organization of the Republic of Turkey and World Bank Welfare and Social Policy Analytical Work Program Working Paper 5: 1-73.
- Doğrul, G. (2008). 2001 Krizi Sonrasında Türkiye’de Kentsel Alanlarda Kadınların İşgücüne Katılımının Belirleyicileri. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi*, 22, 245-276.
- Doğrul, G., & Yıldırım, K. (2008). Çalışmak ya da Çalışmamak: Türkiye’de Kentsel Alanlarda Yaşayan Kadınların İşgücüne Katılmama Kararlarının Olası Belirleyicileri. *Anadolu Üniversitesi Sosyal Bilimler Dergisi*, 8(1), 239-262.
- Duben, A.(1985). Turkish Families and Households in Historical Perspective. *Journal of Family History*, 10: 75-97.

Easterlin, R. (1976). The Conflict between Aspirations and Resources. *Population and Development Review*, 2(3): 417–25.

Er, Ş. (2013). Türkiye’de Kadınların İşgücüne Katılım Oranını Etkileyen Faktörlerin Bölgesel Analizi. *Öneri Dergisi*, 10 (40), 35-44.

EUROSTAT (2017). Commission Implementing Regulation (EU) of 22.3.2017 “laying down rules for the application of Regulation (EC) No 763/2008 of the European Parliament and of the Council on population and housing censuses as regards the technical specifications of the topics and of their breakdowns”.

Glick, C.P. (1941). Types of Families: An Analysis of Census Data. *American Sociological Review*, Vol. 6, No. 6 (Dec., 1941), pp. 830-838 American Sociological Association.

Göksel, İ. (2010). Conservatism and Female Labor Force Participation in Turkey. *IEA Annual Conference*, Ireland.

Gürler, Ö., & Üçdoğruk, Ş. (2007). Türkiye’de Cinsiyete Göre Gelir Farklılığının Ayırıştırma Yöntemiyle Uygulanması. *Journal of Yasar University* 2(6): 571-589.

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

Hancıoğlu, A. (1985b.). Family Types and Household Types in Turkey. *The Turkish Journal of Population Studies*, Vol: 7, (61-76).

Hortaçsu, N. (1995). Parents' education levels, parents' beliefs, and child outcomes. *The Journal of Genetic Psychology: Research and Theory on Human Development*, 156(3), 373-383.

HUIPS (1989). *1988 Turkish Population and Health Survey*. Hacettepe University Institute of Population Studies, Ankara.

HUIPS (1994). *1993 Türkiye Nüfus ve Sağlık Araştırması*. Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü, Sağlık Bakanlığı AÇSAP Genel Müdürlüğü ve Macro International Inc., Hacettepe University Institute of Population Studies, Ankara.

HUIPS (2010). *Türkiye’nin demografik dönüşümü: Doğurganlık, aile planlaması, anne-çocuk sağlığı ve beş yaş altı ölümlerdeki değişimler: 1968-2008*. Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü, Ankara.

HUIPS (2015). *2013 Türkiye Nüfus ve Sağlık Araştırması İleri Analiz Çalışması*. Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü, T.C. Kalkınma Bakanlığı ve TÜBİTAK, Ankara.

Ince, M., & Demir, M. H. (2006). The Determinants of Female Labor Force: Empirical Evidence from Turkey. *Eskişehir Osmangazi Üniversitesi İİBF Dergisi* 1(1): 71-90.

Kağıtçıbaşı, Ç. (1982). Old age security value of children and socioeconomic development: Cross-national evidence. *Journal of Cross-Cultural Psychology*, 13, 29-42.

Kağıtçıbaşı, Ç. (1985). *Intra-family interaction and a model of family change*. In T. Erder (Ed.), *Family in Turkish society* (pp. 149-165), Maya, Ankara.

- Kağıtçıbaşı, Ç. (1996). *Family and human development across cultures: A view from the other side*. Lawrence Erlbaum, Hillsdale, NJ.
- Kağıtçıbaşı, Ç. (2005). Autonomy and relatedness in cultural context: Implications for self and family. *Journal of Cross-cultural Psychology*, no. 36, 403-422.
- Kandiyoti, D. (1974). Some social-psychological dimensions of social change in a Turkish village. *The British Journal of Sociology*, 25(1):47-62.
- Kızılgöl, Ö. A. (2012). Kadınların İşgücüne Katılımının Belirleyicileri: Ekonometrik Bir Analiz. *Doğuş Üniversitesi Dergisi*. 13(1), 88-101.
- Kızılırmak, A. B. (2005). *Labor Market Participation Decisions of Married Women: Evidence from Turkey*. Globalization and Development: A Handbook of New Perspective, Oxford University Press: Oxford.
- Kirk, D. (1996). Demographic Transition Theory. *Population Studies*, 50 , 361-387.
- Kleinbaum, D.G., Kupper, L.L., Muller, K.E., & Nizam, A. (1998). *Applied regression analysis and other multivariable methods* (3rd ed.). Thomson Brooks/Cole Publishing Co., Belmont, CA, US.
- Koç, İ. (1997). Analysis of Female – headed Households in Turkey With Special Emphasis on the Welfare Status of These Households. H.U. Institute of Population Studies (Unpublished Ph.D. Thesis), Ankara.
- Koç, İ. (1999). Changing Family Patterns and Living Arrangements in Turkey (1978–1983). presented paper in “*European Populations: Unity and Diversity*” *European Population Conference*, The Hague, The Netherlands, 30 August–3 September, 1999.
- Korkmaz, Ö. (2016). Kadınların İşgücüne Katılma Eğilimleri: Türkiye Örneği. *TISK Akademi*, 11 (22), 301-329.
- Kunt, G. (1978). *Aile Yapısı ve Doğurganlık, Türkiye’de Nüfus Yapısı ve Nüfus Sorunları*, Ankara: H.U. Yayınları D – 25, pp. 133 – 146.
- Landry, A. (1934). *La Revolution Demographique*. Paris.
- Laslett, P. (1972). *Introduction in Household and Family in the Past Time*. (ed) Peter Laslett with assistance of Richard Wall, London: Cambridge at the University Press, pp. 1-86.
- Laslett, P. (1981). Typologies of the Family. Presented paper at *The Seminar on Family Types and Fertility in Less Developed Countries*, Sao Paulo, Brazil, August 6-8.
- Le Play, F. (1855). *Les ouvriers européens: Etudes sur les travaux, la vie domestique, et la condition morale des populations ouvrières de l’Europe*. Paris, France: Imprimerie imperial.
- Le Play, F. (1871). *L’organisation de la famille: selon le vrai modèle signalé par l’histoire de toutes les races et de tous les temps*. Tours, France: Mame.
- Le Play, F. (1872). *The Organization of Labor: In Accordance with Custom and the Law of the Decalogue*. Emerson, Gouverneur, MD, translator. Philadelphia: Claxton, Remsen & Haffelfinger.
- Lesthaeghe, R. (1977). *The Decline of Belgian Fertility 1800-1970*. Princeton.

- Lesthaeghe, R., & MOORS, G. (2000). Recent Trends in Fertility and Household Formation in the Industrialized World. *Review of Population and Social Policy*, No.9, 121–170.
- Modell, J., & Hareven, T. K. (1973). Urbanization and the malleable household: an examination of boarding and lodging in American families. *Journal of Marriage and the Family* (Minneapolis) 35(3):467-479.
- Nixon J.W. (1952). On the size, constitution and housing standards of households in England and Wales: 1931 and 1951. *Rev of the International Statistical Inst.*, 20:135–147.
- Notestein, F. (1945). Population: The long view. in T. Schultz (ed.), *Food for the World*, Chicago, pp. 36-57.
- Özer, M., & Biçerli, K. (2003). Türkiye’de Kadın İşgücünün Panel Veri Analizi. *Anadolu Üniversitesi Sosyal Bilimler Dergisi*, 3(1): 55-86.
- Ruggles, S. (2012). The Future of Historical Family Demography. *Annu Rev Sociol.* 2012 August ; 38: 423–441.
- Seltzer, J. A., Bachrach, C.A., Bianchi, S.M., Bledsoe, C.H., Casper, L.M., Chase-Lansdale, P.L., Diprete, T.A., Hotz, V.J., Morgan, S.P., Sanders, S.G., & Thomas, D. (2005). Explaining Family Change and Variation: Challenges for Family Demographers. *Journal of Marriage and Family*, Vol.67, No.4 , pp.908-925.
- Shryock, H. S., Siegel, S., & Jacob, S. (1980). *The Methods and Materials of Demography*. Vol 1., U.S.Bureau of the Census, U.S. Government Printing Office, Washington, D.C.
- Şengül, S., & Kırıl, G. (2006). Türkiye’de Kadının İşgücü Pazarına Katılım ve Doğurganlık Kararları. *Atatürk Üniversitesi İİBF Dergisi*, 20(1): 89-99.
- Tansel, A. (2002). Economic Development and Female Labor Force Participation in Turkey: Time Series Evidence and Cross-Province Estimates. *Economic Research Center Working Paper in Economics* 1(5):1-37.
- Thompson, W. S. (1929). Population. *American Journal of Sociology*, 34, pp.959-975.
- Timur, S. (1972). *Türkiye’de Aile Yapısı*, Hacettepe University, D-15, Ankara.
- Tunali, İ., & Başlevent, C. (2002). Married Women’s Participation Choices and Productivity Differentials: Evidence from Urban Turkey. *METU/ERC International Conference in Economics VI*, Ankara.
- TURKSTAT (1995). *The Population of Turkey, 1923-1994: Demographic Structure and Development*. Yayın No: 1716. Ankara.
- TURKSTAT (2015). *Statistics on Family, 2015*. Press Release, General explanations.
- TURKSTAT (2016). *Labour Force Statistics, 2016*. Press Release, General explanation about household labour force survey.
- TURKSTAT (2018). *Population Projections, 2018-2080*. Press Release, Demographic Indicators.

- UN (1949). *Population Census Methods*. United Nations Publications, Lake Success, New York.
- UN (1958). *Principles and Recommendations for National Population Censuses*, United Nations, New York.
- UNECE (2014). *Practices of UNECE Countries in the 2010 Round Of Censuses*, Geneva.
- UNECE (2015). *Conference of European Statisticians Recommendations for the 2020 Censuses of Population and Housing*, United Nations, New York and Geneva.
- UN (2017). *Principles and Recommendations for Population and Housing Censuses*. Revision 3, United Nations, New York.
- Uysal, D., Keskin, R., & Sertkaya Y. (2016). Türkiye’de Kadınların İşgücüne Katılımını Belirleyen Faktörler Üzerine Ekonometrik Bir Analiz. *Siirt Üniversitesi İktisadi ve İdari Bilimler Fakültesi İktisadi Yenilik Dergisi*, 3 (2), 73-92.
- Ünalın, T. (2000). The Status of the Old Age Population in Turkey. *Nüfus Bilim Dergisi*, Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü, 22[1], ss.25-35.
- Varol, F. (2017). The Determinants of Labor Force Participation of Women in Turkey: A Binary Logit Analysis. *Journal of History Culture and Art Research*, 6 (2), 92-108.
- Yamak, R., Abdiođlu, Z., & Mert, N. (2012). Türkiye’de İşgücüne Katılımı Belirleyen Faktörler: Mikro Ekonomik Analiz. *Anadolu Üniversitesi Sosyal Bilimler Dergisi*, 12 (2), 41-58.
- Yavuz S. (2002). Household Composition and Complexity in Turkey: Findings from the Turkish Demographic and Health Survey. Hacettepe University Institute of Population Studies (Unpublished M.A. Thesis), Ankara.

APPENDIX

APPENDIX-A ADDITIONAL DEFINITIONS

Place of Enumeration- Usual Residence: There are several concepts for defining geographical place of a person to provide everyone included in the coverage and to prevent double counting. Main two concepts are de-facto and de-jure population concepts. While de-facto population counts people in the addresses where people are present at the time of enumeration, de-jure population counts people in their usual residence addresses regardless of their being present at the time of enumeration. Under the de-jure concept there are three different population definitions:

i. Usual residence according to 12 months criteria

(a) The place at which the person has lived continuously for most of the last 12 months (that is, for at least six months and one day), not including temporary absences for holidays or work assignments, or intends to live for at least six months;
(b) The place at which the person has lived continuously for at least the last 12 months, not including temporary absences for holidays or work assignments, or intends to live for at least 12 months. (UN, 2017)

ii. Legal place of residence

The place where a person settles with the legal rights in the country (by citizenship, residence or visa permit, or any other legal system).

iii. Registered place of residence

The place where a person is listed in a register (such as a population register). (UNECE, 2014)

For comparability reasons, international bodies recommend member countries to use “usual residence according to 12 months criteria” definition. But, due to countries circumstances, this differs country by country for censuses. This definition is used for household surveys.

Housing: Persons may live in dwellings, other housing units (tent, barrack, caravan, boat, etc.) or collective living quarters (hotel, camp, institution, etc.). While determining the household whether is private or institutional; type of living quarter is also used as one of the determinants.

APPENDIX-B SAS SYNTAX FOR GENERATING HOUSEHOLD TYPES

```

/*EŞLERİ EŞLEŞTİRME*/
data work.HIA_HH_4;
set work.HIA_HH_3;
length AILE_DURUM $10. AILE_H 8. ;
AILE_ES=0;
AILE_DURUM='.';
if ES_SIRA NOT IN (.,0) AND ES_SIRA>FERT_SIRA then
DO; AILE_ES=FERT_SIRA; AILE_DURUM='ES'; END;
if ES_SIRA NOT IN (.,0) AND ES_SIRA<FERT_SIRA then
DO; AILE_ES=ES_SIRA ; AILE_DURUM='ES'; END;
run;

/*ÇOCUKLARIN BELİRLENMESİ*/

data work.HIA_HH_5 (DROP=CHB CHA BH AH SIRA_H YAS_H
YAS_HA YAS_HB);

/*COCUK_VAR DEĞİŞKENİ İÇİN*/
if _n_=1 then do;
declare hash
ANNE(dataset:"work.HIA_HH_4(RENAME= ( YAS=YAS_HA ))");

ANNE.definekey('ADRESNO','ANNE_SIRA');
ANNE.definedata('SIRA_H','YAS_HA');
ANNE.definedone();
call missing(ANNE_SIRA);
end;

if _n_=1 then do;
declare hash
BABA(dataset:"work.HIA_HH_4(RENAME= ( YAS=YAS_HB ))");

BABA.definekey('ADRESNO','BABA_SIRA');
BABA.definedata('SIRA_H','YAS_HB');
BABA.definedone();
call missing(BABA_SIRA);
end;

/*COCUK_MU DEĞİŞKENİ İÇİN*/
if _n_=1 then do;
declare hash
COCUK(dataset:"work.HIA_HH_4(RENAME= ( YAS=YAS_H ))");

COCUK.definekey('ADRESNO','FERT_SIRA');
COCUK.definedata('SIRA_H','YAS_H');
COCUK.definedone();
call missing(FERT_SIRA);
end;

```

```

set work.HIA_HH_4;

COCUK_MU=0;
COCUK_VAR=0;

/*-----*/
CHB=COCUK.find(KEY:ADRESNO, key:BABA_SIRA);
IF CHB=0 AND (YAS_H-YAS)>= 12 THEN DO;
COCUK_MU=1;
end;

/*-----*/
CHA=COCUK.find(KEY:ADRESNO, key:ANNE_SIRA);
IF CHA=0 AND (YAS_H-YAS)>= 12 THEN DO;
COCUK_MU=1;
END;

/*-----*/
AH=ANNE.find(KEY:ADRESNO, key:FERT_SIRA);
IF AH=0 AND (YAS-YAS_HA)>= 12 THEN DO;
COCUK_VAR=1;END;

/*-----*/
BH=BABA.find(KEY:ADRESNO, key:FERT_SIRA);
if BH=0 AND (YAS-YAS_HB)>= 12 then DO;
COCUK_VAR=1; END;

SIRA_HH=FERT_SIRA;
run; /*5 DK*/

data work.HIA_HH_6 (DROP=CHB CHA AILE_H SIRA_HH
YAS_H COCUKV_H);
if _n_=1 then do;
declare hash COCUK(dataset:"work.HIA_HH_5
(RENAME=(COCUK_VAR=COCUKV_H YAS=YAS_H))");

COCUK.definekey('ADRESNO', 'SIRA_HH');

COCUK.definedata('AILE_H', 'SIRA_HH', 'COCUKV_H', 'YAS_H');
COCUK.definedone();
call missing(SIRA_HH);
end;

set work.HIA_HH_5 ;

AILE=AILE_ES;

/*-----*/

```

```

IF BABA_SIRA^=0 THEN
CHB=COCUK.find(KEY:ADRESNO, key:BABA_SIRA);

/*EĞER EVLİ DEĞİLSE VE ÇOCUKSA, ÇOCUĞU YOKSA
BABA DA EVLİ DEĞİLSE
BABANIN FERT_SIRA AİLE DEĞİŞKENİNE ATANIYOR*/
IF CHB=0 AND COCUK_MU=1 AND COCUKV_H=1 AND
COCUK_VAR=0 AND AILE_H=0 AND AILE_ES=0 AND
FERT_SIRA^=SIRA_HH AND (YAS_H-YAS)>= 12 THEN DO;
AILE=SIRA_HH;
AILE_DURUM='COCUK';
BABA_YAS=YAS_H;
END;

/*EĞER EVLİ DEĞİLSE VE ÇOCUKSA, ÇOCUĞU YOKSA
BABA EVLİ İSE
BABANIN AİLE DEĞİŞKENİ ÇOCUĞA ATANIYOR*/
IF CHB=0 AND COCUK_VAR=0 AND COCUKV_H=1 AND
AILE_H^=0 AND AILE_ES=0 AND FERT_SIRA^=SIRA_HH AND
(YAS_H-YAS)>= 12 THEN DO;
AILE=AILE_H;
AILE_DURUM='COCUK';
BABA_YAS=YAS_H;
END;

/*-----*/

IF ANNE_SIRA^=0 THEN
CHA=COCUK.find(KEY:ADRESNO, key:ANNE_SIRA);

/*EĞER EVLİ DEĞİLSE VE ÇOCUKSA, ÇOCUĞU YOKSA
ANNE DA EVLİ DEĞİLSE
ANNENİN FERT_SIRA AİLE DEĞİŞKENİNE ATANIYOR*/
IF CHA=0 AND COCUK_MU=1 AND COCUK_VAR=0 AND
COCUKV_H=1 AND AILE_H=0 AND AILE_ES=0 AND
FERT_SIRA^=SIRA_HH AND (YAS_H-YAS)>= 12 THEN DO;
AILE=SIRA_HH;
AILE_DURUM='COCUK';
ANNE_YAS=YAS_H;
END;

/*EĞER EVLİ DEĞİLSE VE ÇOCUKSA, ÇOCUĞU YOKSA
ANNE EVLİ İSE
ANNENİN AİLE DEĞİŞKENİ ÇOCUĞA ATANIYOR*/
IF CHA=0 AND COCUK_VAR=0 AND AILE_H^=0 AND
COCUKV_H=1 AND AILE_ES=0 AND FERT_SIRA^=SIRA_HH AND
(YAS_H-YAS)>= 12 THEN DO;
AILE=AILE_H;
AILE_DURUM='COCUK';

```

```

ANNE_YAS=YAS_H;
END;
/*-----*/
IF HHB=1 THEN DO;
AILE_DURUM='TEK_KISILIK_HANE';
END;
run;

/*yalnız ebeveyn*/

data work.HIA_HH_6;
set work.HIA_HH_6;
length AILE_DURUM2 $10.
COCUK_H 8. ;
COCUK_H=COCUK_VAR;
run;

data work.HIA_HH_6_1 (DROP=COCUK_H CH);
if _n_=1 then do;
    declare hash YALNIZ_E(dataset:"work.HIA_HH_6");
YALNIZ_E.definekey('ADRESNO','AILE');
    YALNIZ_E.definedata('COCUK_H');
    YALNIZ_E.definedone();
    call missing(FERT_SIRA);
end;
set work.HIA_HH_6 ;
AILE2=AILE;
AILE_DURUM2=AILE_DURUM;
CH=YALNIZ_E.find(KEY:ADRESNO, key:FERT_SIRA);
if CH=0 AND AILE=0 AND COCUK_H=0 AND COCUK_VAR=1
THEN DO;
AILE2=FERT_SIRA;
AILE_DURUM2='YALNIZ_EBEVEYN';
END;
RUN;

/*AİLE TÜRLERİ*/

data work.HIA_HH_7;

set work.HIA_HH_6_1;
length AILE_DURUM20 $11. ;
AILE_DURUM20=AILE_DURUM2;
IF AILE_DURUM2='YALNIZ_EBE' AND CINSIYET=1 THEN
AILE_DURUM20='YALNIZ_BABA';
IF AILE_DURUM2='YALNIZ_EBE' AND CINSIYET=2 THEN
AILE_DURUM20='YALNIZ_ANNE';

```



```

ES=0;
COCUK=0;
YALNIZ_E=0;
TEK_KISI=0;
DURUMSUZ=0;

if AILE_DURUM2='ES' then DO; ES=1; END;
if AILE_DURUM2 IN('COCUK','COCUK_U') then DO;
COCUK=1; END;
if AILE_DURUM2 IN('YALNIZ_EBE') then DO;
YALNIZ_E=1; EBE_CINS=CINSIYET; END;
if AILE_DURUM2='TEK_KISILI' then DO; TEK_KISI=1;
END;
if AILE_DURUM2='.' then DO; DURUMSUZ=1; END;
RUN;

PROC SQL;
CREATE TABLE work.HIA_HH_7_1 AS
SELECT DISTINCT t1.ADRESNO,
t1.AILE2
FROM work.HIA_HH_7 t1
;
QUIT;

PROC SQL;
CREATE TABLE work.HIA_HH_7_2 AS
SELECT t1.ADRESNO,
(COUNT(t1.AILE2)) AS AILE_SAY
FROM work.HIA_HH_7_1 t1
GROUP BY t1.ADRESNO;
QUIT;

proc sort data = work.HIA_HH_7;
by ADRESNO;
run;

data work.HIA_HH_8_1;
merge work.HIA_HH_7 ( in = a )
work.HIA_HH_7_2 ( in = p );
by ADRESNO;
if a;
run;

PROC SQL;
CREATE TABLE work.HIA_HH_8 AS
SELECT DISTINCT t1.ADRESNO,
(SUM(t1.ES)) AS ES_SAY,
(SUM(t1.COCUK)) AS COCUK_SAY,
(SUM(t1.YALNIZ_E)) AS YALNIZ_E_SAY,
(sum(T1.EBE_CINS)) AS EBE_CINS_M,

```

```

(SUM(t1.DURUMSUZ)) AS DURUMSUZ_SAY
    FROM work.HIA_HH_8_1 t1
    GROUP BY t1.ADRESNO;
QUIT;

data work.HIA_HH_9;
merge work.HIA_HH_8_1 ( in = a )
work.HIA_HH_8 ( in = p );
by ADRESNO;
if a;
run;

data work.HIA_HH_9_2;
merge work.HIA_HH_9_1 ( in = a )
work.HIA_HH_9 ( in = p );
by ADRESNO;
if P;
run;

data work.HIA_HH_10;
set work.HIA_HH_9_2;
AILE_TUR=4;
IF HHB=1 THEN DO; AILE_TUR=1; END;
IF DURUMSUZ_SAY= HHB THEN DO; AILE_TUR=4; END;
IF DURUMSUZ_SAY=0 AND AILE_SAY=1 AND ((ES_SAY^=0) OR
(ES_SAY^=0 AND COCUK_SAY^=0) OR
(YALNIZ_E_SAY^=0 AND COCUK_SAY^=0)) THEN DO;
AILE_TUR=2; END;
IF DURUMSUZ_SAY=0 AND AILE_SAY>1 AND ((ES_SAY^=0) OR
(ES_SAY^=0 AND COCUK_SAY^=0) OR
(YALNIZ_E_SAY^=0 AND COCUK_SAY^=0)) THEN DO;
AILE_TUR=3; END;
IF DURUMSUZ_SAY^=0 AND AILE_SAY>1 THEN DO;
AILE_TUR=3; END;

IF AILE_TUR=2 AND ES_SAY^=0 AND COCUK_SAY=0 THEN DO;
AILE_TUR= 21;END;
IF AILE_TUR=2 AND ES_SAY^=0 AND COCUK_SAY^=0 THEN
DO; AILE_TUR= 22;END;
IF AILE_TUR=2 AND YALNIZ_E_SAY^=0 AND COCUK_SAY^=0
AND EBE_CINS_M=1 THEN DO; AILE_TUR= 231;END;
IF AILE_TUR=2 AND YALNIZ_E_SAY^=0 AND COCUK_SAY^=0
AND EBE_CINS_M=2 THEN DO; AILE_TUR= 232;END;

IF CESLI=1 THEN AILE_TUR=3;
RUN;

```

APPENDIX-C VARIABLES USED IN ANALYSIS, UNWEIGHTED

Variable name	Breakdown of the variable	Total	Labour force	Not in the labour force	Total (%)	Labour force (%)
	Total	380 709	189 320	191 389	100.0	49.7
REGION						
<i>(NUTS-1 regions)</i>						
	Istanbul	34 328	18 587	15 741	19.4	56.3
	West Marmara	27 259	13 776	13 483	4.5	53.2
	Aegean	46 807	24 266	22 541	13.5	54.0
	East Marmara	30 921	15 299	15 622	9.8	51.8
	West Anatolia	42 777	21 167	21 610	9.8	52.3
	Mediterranean	43 152	21 269	21 883	12.5	50.9
	Central Anatolia	25 531	12 597	12 934	4.9	50.8
	West Black Sea	34 258	17 737	16 521	5.8	52.9
	East Black Sea	17 654	9 415	8 239	3.4	54.4
	Northeast Anatolia	20 162	10 131	10 031	2.6	50.4
	Centraleast Anatolia	24 875	11 079	13 796	4.5	45.6
	Southeast Anatolia	32 985	13 997	18 988	9.3	43.7
HH_SIZE						
<i>(Size of households)</i>						
	1	17 020	4 668	12 352	5.5	35.8
	2	73 647	28 623	45 024	15.6	44.6
	3	81 716	45 122	36 594	19.5	57.8
	4	89 175	50 172	39 003	23.4	57.4
	5 and more	119 151	60 735	58 416	36.0	51.0
AGE_GR						
<i>(Completed age of persons in 10 years intervals)</i>						
	15-24	72 583	28 661	43 922	20.2	42.4
	25-34	67 036	45 240	21 796	21.1	69.5
	35-44	73 302	50 811	22 491	20.2	70.0
	45-54	63 711	37 661	26 050	15.8	58.0
	55-64	51 697	19 568	32 129	11.7	35.6
	65 and above	52 380	7 379	45 001	11.0	11.8
SEX						
<i>(Sex of persons)</i>						
	Male	184 749	127 630	57 119	49.4	72.0
	Female	195 960	61 690	134 270	50.6	32.5
PL_BIRTH						
<i>(Place of birth of persons)</i>						
	Turkey	372 921	186 136	186 785	97.3	52.2
	Abroad	7 788	3 184	4 604	2.7	43.6
MIG						
<i>(Migration status of persons)</i>						
	Not migrated	239 753	117 357	122 396	57.5	51.1
	Migrated	140 956	71 963	68 993	42.5	53.2
RES_ABROAD						
<i>(Abroad residency status of persons)</i>						
	Never resided abroad	364 427	182 131	182 296	95.2	52.2
	Resided abroad	16 282	7 189	9 093	4.8	47.2

APPENDIX C. VARIABLES USED IN ANALYSIS, UNWEIGHTED (continued)

Variable name	Breakdown of the variable	Total	Labour force	Not in the labour force	Total	Labour force
EDU_ST						
<i>(Level of education)</i>	No school completed	65 252	15 477	49 775	15.6	23.2
	Primary school	203 377	99 246	104 131	51.8	50.1
	High school	63 219	36 582	26 637	17.9	59.7
	Higher education	48 861	38 015	10 846	14.7	79.7
MAR_STA						
<i>(Marital status of persons)</i>	Single	89 850	44 426	45 424	26.4	54.5
	Married	255 901	137 050	118 851	64.4	54.9
	Divorced	8 860	5 197	3 663	2.7	60.0
	Widowed	26 098	2 647	23 451	6.5	9.5
LFS_SPS						
<i>(Labour force status of spouse's)</i>	No spouse	131 711	55 345	76 366	37.3	46.8
	Employed	125 096	71 253	53 843	31.9	54.8
	Unemployed	8 879	4 731	4 148	2.7	53.5
	Not in labour force	115 023	57 991	57 032	28.1	55.7
EDU_SPS						
<i>(Education status of spouse's)</i>	No spouse	131 711	55 345	76 366	37.3	46.8
	No school completed	40 924	20 294	20 630	9.4	51.8
	Primary school	140 343	75 231	65 112	34.8	53.7
	High school	36 923	19 805	17 118	10.0	55.3
	Higher education	30 808	18 645	12 163	8.6	64.3
CHILD						
<i>(Child member aged between 0-5)</i>	Household has no child member	290 525	138 281	152 244	74.1	50.6
	Household has a child member	90 184	51 039	39 145	25.9	56.1
HH_TYPE						
<i>(Type of household)</i>	One-person households	17 020	4 668	12 352	5.5	35.8
	Couples without resident children	60 244	22 717	37 527	12.3	43.5
	Couples with at least one resident child	202 897	114 056	88 841	53.8	57.0
	Lone parents with at least one resident child	21 054	9 434	11 620	5.1	48.4
	Extended family households	74 120	35 880	38 240	21.7	49.0
	Multi-person households without nuclear families	5 374	2 565	2 809	1.5	57.6

APPENDIX-D ORIGINALITY REPORT

MODELLING LABOUR FORCE PARTICIPATION BY HOUSEHOLD TYPES

Yazar Eda Evin Aksu

Gönderim Tarihi: 03-Oca-2019 09:26AM (UTC+0300)

Gönderim Numarası: 1061275521

Dosya adı: EDA_EVIN_AKSU_MA_THESIS_BLANK_P.docx (829.25K)

Kelime sayısı: 41825

Karakter sayısı: 226838

MODELLING LABOUR FORCE PARTICIPATION BY HOUSEHOLD TYPES

ORIJINALLIK RAPORU

%9

BENZERLIK ENDEKSI

%6

İNTERNET
KAYNAKLARI

%4

YAYINLAR

%2

ÖĞRENCİ ÖDEVLERİ

BIRINCIL KAYNAKLAR

1

www.measuredhs.com

İnternet Kaynağı

%1

2

www.unece.org

İnternet Kaynağı

<%1

3

unstats.un.org

İnternet Kaynağı

<%1

4

ailetoplum.aile.gov.tr

İnternet Kaynağı

<%1

5

Submitted to Hacettepe University

Öğrenci Ödevi

<%1

6

ro.uow.edu.au

İnternet Kaynağı

<%1

7

Submitted to Bilkent University

Öğrenci Ödevi

<%1

8

A Bheemeshwar Reddy. "Labour force participation of elderly in India: patterns and determinants", International Journal of Social

<%1