ESSAYS ON UNEMPLOYMENT IN TURKEY

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ABSTRACT

ESSAYS ON UNEMPLOYMENT IN TURKEY

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In this study we examine the Turkish labor market by using the Household Labor Force Survey data for the years 2000 and 2001. There are three main essays in this study. In the first essay, the determinants of transitions between the labor market states of employment, unemployment, and out-of-labor force are examined by using multinomial-logit models. We observe from the transitions out of employment that workers with low education and those working in the non-public sector have a higher risk of losing their job than those with higher education and those working in the public sector. In the second essay, grouped duration approach is used to find the determinants of unemployment duration and test whether there is an evidence of duration dependence in unemployment. In the third essay, we distinguish the first-time job-seekers from the other job-seekers, and analyze the determinants of unemployment duration for these groups, separately. The last two parts of this study shows the main characteristics of the short-term and long-term unemployed people in Turkey. We find that individual and demographic characteristics as well as local labor market conditions are important factors in explaining the duration of unemployment for working-age groups. We observe that individuals with higher education (i.e. graduated from a university) have shorter unemployment duration than those with lower education (i.e. primary, middle and high school graduates). Our overall findings (both from transition and duration applications) suggest that women are in the disadvantaged position in the Turkish labor market. Further, regardless of gender difference, we observe that labor market conditions are significant determinant of transitions in the labor market. The same is also observed in the unemployment duration part for all data as well as for both first-time and other job-seekers.

Keywords: Unemployment, Unemployment Duration, Transitions in the Labor Market.

ÖZ

TÜRKİYE'DE İŞSİZLİK ÜZERİNE MAKALELER

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Temel olarak üç makalenin bulunduğu bu çalışmada, Devlet İstatistik Enstitüsü'nün hazırladığı Hanehalkı İşgücü Anketi'nin 2000 ve 2001 yıllarına ait ham (mikro) veriler kullanılarak Türk işgücü piyasası analiz edilmeye çalışılmıştır. Bu makalelerin birincisinde, işgücü piyasasındaki geçişleri -örneğin işsizlikten işe veya çalışır durumdan işsiz kalmaya- belirleyen faktörler multinomial-logit tekniği kullanılarak tespit edilmeye çalışılmıştır. İstihdamdan geçişlere bakıldığında, genel olarak eğitim düzeyi düşük ve kamu dışı sektörlerde çalışanların işlerini kaybetme olasılığının eğitimli ve kamuda çalışanlara göre daha fazla olduğu gözlemlenmektedir. Çalışmanın ikinci makalesinde gruplandırılmış süre (grouped duration) modelleri kullanılarak, Türkiye'de işsizlik suresini belirleyen faktörler üzerine bir uygulama yapılmıştır. Üçüncü makalede ise, yine gruplandırılmış süre modelleri kullanılmış, fakat bu uygulamada ilk-kez iş arayanlar, diğer iş arayanlardan ayrı şekilde ele alınmıştır. Çalışmanın son iki bölümü kişisel, demografik ve bölgesel özelliklerin çalışma yaşındaki insanların işsizlik sürelerine olan etkilerini inceler, ve Türkiye'de kısa ve uzun dönemli işsizlerin genel özelliklerini ortaya koyar. Uygulama sonuçlarına göre, yüksek eğitim (üniversite) düzeyine sahip kişilerin, daha düşük eğitim düzeylerine (lise ve altı) göre daha kısa işsizlik süresine sahip oldukları gözlemlenmektedir. Hem işgücü piyasasındaki geçiş hem de süre modellerinde gözlemlenen bir diğer temel bulgu ise, kadınların işgücü piyasasında bir dezavantaja sahip olduğu savını desteklemektedir. Bir diğer gözlem ise, işgücü piyasasındaki durumun, ki modellerde işsizlik oranı kullanılarak temsil edilmiştir, hem süre hem de geçiş modellerinde önemli bir faktör olduğudur.

Anahtar Kelimeler: İşsizlik, İşsizlik Süresi, İşgücü Piyasasındaki Geçişler.

I dedicate this study to my wife, my children, and my parents.

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TABLE OF CONTENTS

PLAGARISM PAGE……. iii
ABSTRACT..... iv
ÖZ v
ACKNOWLEDGEMENTS..... vii
TABLE OF CONTENTS..... viii
LIST OF TABLES..... xii
LIST OF FIGURES xv

CHAPTERS

1. INTRODUCTION 1
1.1 Motivation and Aims of the Study..... 1
1.2 The Significance of the Study..... 4
1.3 Organization of the Study 6

2. THE MAIN CHARACTERISTICS OF THE LABOR MARKET IN TURKEY 8
2.1 Introduction..... 8
2.2 Trends in Labor Force Participation Rates (LFPRs) 12
2.2.1 LFPRs by Age..... 14
2.2.2 LFPRs by Education 16
2.2.3 LFPRs by Marital Status..... 18
2.2.4 LFPRs by Age & Marital Status 20
2.3 Trends in Unemployment Rates..... 23
2.3.1 Unemployment by Gender and Residence..... 25
2.3.2 Unemployment by Age, Gender and Residence 26
2.3.3 Unemployment by Marital Status, Gender and Residence 27
2.3.4 Unemployment by Education, Gender and Residence..... 30
2.3.5 Unemployment by Reason, Gender and Residence 32
2.3.6 Unemployment Rates by Geographical Region..... 37
2.3.7 Long-Term Unemployment..... 39
2.4 Trends in Underemployment..... 43

2.5 Concluding Remarks 51

3. TRANSITIONS IN THE TURKISH LABOR MARKET 54
3.1 Introduction 54
3.2 Literature Review 56
3.3 The Data 60
3.4 Gross Flow Methodology 65
3.5 Econometric Model 67
3.6 Empirical Results for Gross Flows 69
3.6.1 Transitions from Employment: 70
3.6.2 Transitions from Unemployment 73
3.6.3 Transitions from Out of Labor Force 75
3.7 Sources of Unemployment Rate Differentials by Gender and Residence 76
3.8 Multinomial-Logit Estimation Results 83
3.8.1 The Determinants of Transitions from Employment 84
3.8.2 The Determinants of Transitions from Unemployment 91
3.8.3 The Determinants of Transitions from Out of Labor Force 98
3.9 Concluding Remarks 102

4. DETERMINANTS OF UNEMPLOYMENT DURATION IN TURKEY 105
4.1 Introduction 105
4.2 Literature Review 106
4.2.1 Non-Parametric Methods 106
4.2.2 Grouped Duration Approach 107
4.2.3 Other Approaches 108
4.2.4 Approaches for Unobserved Heterogeneity 110
4.2.5 Summary of the Main Findings in Some Studies 110
4.3 The Model 113
4.3.1 Proportional Hazard Model (PHM) 116
4.3.1.1 Testing for Proportionality 117
4.3.2 Log-Logistic Interval Hazards 118
4.3.3 Log-Normal Interval Hazards 119
4.3.4 Unobserved Heterogeneity 120
4.4 The Data and Unemployment Definitions 121

4.4.1 The Household Labor Force Survey 121
4.4.2 Definitions of Unemployment and Their Incidence 122
4.5 Estimation Results 127
4.5.1 Non-Parametric Duration Analysis 127
4.5.2 Parametric Estimation 132
4.5.2.1 Testing for Proportionality 133
4.5.2.2 The Covariate Effects 135
4.5.2.3 Duration Dependence 141
4.5.2.4 Predicted Hazard Rates 145
4.6 Concluding Remarks 148

5. DETERMINANTS OF UNEMPLOYMENT DURATION FOR THE FIRST-TIME AND OTHER JOB-SEEKERS 152
5.1 Introduction 152
5.2 Literature Review 153
5.3 The Data 156
5.4 Estimation Results 159
5.4.1 Non-Parametric Duration Analysis 159
5.4.2 Parametric Estimation Results 164
5.4.2.2 Covariate Effects for the First-Time Job-Seekers 166
5.4.2.3 Covariate Effects for the Other-Job-Seekers 172
5.4.2.4 Duration Dependence 176
5.5 Predicted Hazards 181
5.6 Concluding Remarks 186

6. SUMMARY OF THE FINDINGS, CONLUSIONS, POLICY IMPLICATIONS AND RECOMMENDATIONS 188
6.1 Introduction 188
6.2 Summary of the Main Findings and Conclusions 189
6.3 Policy Implications 195
6.4 Recommendations for the Future Studies 198
REFERENCES 199
APPENDICES
A. SUPPLEMENTARY TABLES FOR CHAPTER FOUR 209

B. SUPPLEMENTARY TABLES FOR CHAPTER FIVE 211
C.TURKISH SUMMARY 213
VITA 223

LIST OF TABLES

TABLES

2.1: Distribution of Employment by Sector…… 9

2.2: LFPRs by Gender and Residence, 1988-2003…….. 12

2.3: LFPRs in Selected OECD Countries by Gender, 1998-2002…….. 13

2.4: Unemployment Rate, 1988-2003……... 23

2.5 Unemployment Rates in Selected OECD Countries by Gender, 1998-2002…….... 24

2.6: Proportion of the Long-Term Unemployed by Education Level, Turkey 1988-2003……..... 42

2.7: Underemployment Rate by Gender and Residence, 1988-2003……. 44

3.1: Demographic Differences between Individuals in Different Labor Market States in the First Quarters……... 63

3.2: Demographic Differences between Individuals in Different Labor Market States in the Second Quarters……..... 64

3.3: List of the Variables…… 69

3.4: Transition Probabilities between the First Quarter of 2000 and 2001……..... 71

3.5: Transition Probabilities between the Second Quarter of 2000 and 2001…… 72

3.6: Differences in Flow Probabilities (ΔPi), between Q1-2000 and Q1-2001……. 80

3.7: Differences in Flow Probabilities (ΔPi), between Q2-2000 and Q2-2001……. 81

3.8: Partial Differences in Unemployment Rates Attributable to Transition Probabilities, between Q1-2000 and Q1-2001……. 82

3.9: Partial Differences in Unemployment Rates Attributable to Transition Probabilities, between Q2-2000 and Q2-2001……..... 83

3.10: Transition from Employment to Unemployment and Out-of-Labor Force…….. 89

3.11: Transition from Employment to Unemployment and Out-of-Labor Force by Gender……..... 90

3.12: Transition from Unemployment to Employment and Out-of-Labor Force…….. 96

3.13: Transition from Unemployment to Employment and Out-of-Labor Force by Gender…… 97

3.14: Transition from Out-of-Labor Force to Employment and Unemployment…….. 100

3.15: Transition from Out-of-Labor Force to Employment and Unemployment by Gender……..... 101

4.1: Unemployment Rates Under Alternative Definitions, Turkey, 2000-2003…… 123

4.2: Unemployment Duration by Gender……... 125

4.3: Distribution of Unemployment Duration by Age……..... 125

4.4: Distribution of Unemployment Duration by Education……. 126

4.5: Log Rank Test of Differences in Hazard Rates of Selected Labor Market Groups…… 131

4.6: Testing For Proportionality -ILO Definition-……. 134

4.7: Testing For Proportionality -Broad Definition-…….. 134

4.8: Estimation Results under ILO definition…… 139

4.9: Estimation Results under Broad Definition…… 140

4.10: Predicted Hazard Rates for the Individuals with Selected Characteristics…… 147

4.11: Predicted Hazard Rates for the Non-Married Individuals……..... 148

4.12: Predicted Hazard Rates for the Rural Resident Individuals…….. 148

5.1: Unemployment Duration in by Age Group for the First-Time Job Seekers…….. 157

5.2: Unemployment Duration by Age Group for the Other Job Seekers…… 157

5.3: Unemployment Duration by Education Level for the First-Time Job Seekers….. 158

5.4: Unemployment Duration by Education Level for the Other Job Seekers…….. 159

5.5: Log Rank Test of Differences in Hazard Rates of Selected Labor Market Groups……..... 163

5.6: Testing for Proportionality –ILO Definition-……. 165

5.7: Testing for Proportionality -Broad Definition-…….. 165

5.8: Estimation Results for First-Time Job-Seekers under ILO-Definition……... 170

5.9: Estimation Results for First-time Job-Seekers under Broad-Definition ……..... 171

5.10 Estimation Results for Other Job-Seekers under ILO Definition…….. 174

5.11 Estimation Results for Other Job-Seekers under Broad Definition…… 175

5.12a: The Predicted Hazard Rates for the First-Time Job-Seekers with Selected Characteristics……..…….. 184

5.12b: The Predicted Hazard Rates for the First-Time Job-Seeker Non-Married Individuals with Selected Characteristics…….. 184

5.12c: The Predicted Hazard Rates for the First-Time Job-Seeker Rural-Resident Individuals with Selected Characteristics…….. 184

5.13a: The Predicted Hazard Rates for the Other Job-Seekers with Selected Characteristics……..…….. 185

5.13b: The Predicted Hazard Rates for the Other Job-Seeker Non-Married Individuals with Selected Characteristics……..……. 185

5.13c: The Predicted Hazard Rates for the Other Job-Seeker Rural-Resident Individuals with Selected Characteristics……..……. 185

A1: Summary Statistics of the Variables for Each Transition Model…… 210

A2: Summary Statistics of the Variables for Each Transition Model by Gender…….. 211

B1: Summary of the Variables used under ILO Definition of Unemployment…….. 212

B2: Summary of the Variables used under Broad Definition of Unemployment…….... 213

LIST OF FIGURES

FIGURES

2.1: Sectoral Distribution of Employment by Gender and Residence, 1991-2003….. 10

2.2: LFPRs by Age, Gender and Residence, 1988-2003…….. 15

2.3: LFPRs by Education, Gender and Residence, 1988-2003……. 17

2.4: LFPRs by Marital Status, Gender and Residence, 1988-2003……... 19

2.5: LFPRs by Age and Marital Status in 1990s and 2000s……. 22

2.6: Unemployment Rates by Age-Group, 1988-2003…….. 28

2.7: Unemployment Rate by Marital Status, Gender and Residence, 1988-2003……. 29

2.8: Unemployment Rates by Education Level. 1988-2003……. 31

2.9: Unemployment by Reason, Gender and Residence, 1991-2003……. 34

2.10: Unemployment by Reason and Education, 2000-2003…… 36

2.11: Unemployment Rates by Region, Gender and Residence, 2000-2003…… 38

2.12: Incidence of Long-Term Unemployment among Youth and Prime Aged Individuals in OECD Countries, 1990-2002 Average……. 40

2.13: Proportion of Long-Term Unemployed by Age Group, 1988-2003…… 41

2.14: Underemployment by Economic Activity, 1988-2003…… 45

2.15: Underemployment by Age, 1988-2003…… 46

2.16: Underemployment by Education, 1988-2003…….. 47

2.17: Underemployment by Types, 1988-2003……. 49

2.18: Underemployment OECD's Definition (unemployment + involuntary + discouraged workers) 1988-2003…….. 50

3.1: Trends in Unemployment Rates by Gender and Residence, Turkey 1988-2003... 77

4.1 Turnbull's Survival Function under ILO-Definition……... 129

4.2: Turnbull's Survival Function under Broad-Definition…….. 129

4.3: Smoothed Hazard Function under ILO Definition…… 130

4.4: Smoothed Hazard Function under Broad Definition…….. 130

4.5: Baseline Hazard under ILO Definition: All-Male-Female…… 143

4.6: Baseline Hazard under Broad Definition: All-Male-Female……. 144

5.1: Turnbull's Survival Function for the First-Time Job-Seekers and Others under ILO Definition……..…… 161

5.2: Turnbull's Survival Function for the First-Time Job-Seekers and Others under Broad Definition……..……. 161

5.3: Smoothed Hazard Function for the First-Time Job-Seekers and Others under ILO Definition……..……. 162

5.4: Smoothed Hazard Function for the First-Time Job-Seekers and Others under Broad Definition……..…….. 162

5.5: Baseline Hazard for the First-Time Job-Seekers under ILO Definition…… 177

5.6: Baseline Hazard for the First-Time Job-Seekers under Broad Definition……. 178

5.7: Baseline Hazard for the Other Job-Seekers under ILO Definition…… 179

5.8: Baseline Hazard for the Other Job-Seekers under Broad Definition…… 180

CHAPTER 1

INTRODUCTION

1.1 Motivation and Aims of the Study

Most of the studies on labor market issues in developed as well as developing countries mainly focus on the most serious and persistent problem of unemployment. Large and growing literature on this subject reflects the importance of research in this area. Bulutay (1996, p.231) states that "unemployment was everybody's concern in the period of the New Deal and in the era after the Second World War. It was seen as a major threat to the health of the society and could not be tolerated". Further, unemployment is seen as a main indicator for a country's economic performance. It is a problem not only for the developing countries, but also for the developed countries. Moreover, unemployment varies between countries, genders, age, occupation groups, industries, ethnic groups and races as well as among the geographical regions of a country (Sinclair (1987) and Jackman and Savouri (1990)). In most of the developing as well as developed countries the rate of unemployment for women is larger than that for men. For instance, the average unemployment level for the period of 1998-2001[1] is 8.5 percent in France, 7.6 percent in Germany, 8.7 in Italy, with the average value of 7.9 percent in the European Monetary Union (EMU), and 3.7 percent in the USA. The corresponding rates for women are 11.9 percent in France, 8.6 percent in Germany, 15.7 in Italy, with the average value of 11.6 percent in EMU countries, and 4.6 percent in the USA. For the transition economies the same result holds for Poland with 15.2 and 18.5 percent, for Slovak Republic with 15.9 and 16.4 percent, for men and women, respectively. Similar observations are made in some of the Latin American countries. For instance, unemployment rate is 11.9 and 14.3 percent in Argentina, 7.2 and 11.6 percent in Brazil, 1.8 and 2.6 percent in Mexico, for men and women, respectively (see World Bank, 2003).

[1] Source: World development Indicators, 2003.

Most of the countries all over the world have a significant problem in absorbing the new-comers into the labor market. This is an important policy concern for developed as well as developing countries (see World Bank, 2003, p.53). The indicator for this result is that unemployment level for youth (ages 15-24) in almost all countries in OECD is larger than that for the country averages, or for the adults[2]. For example, unemployment rate for the youth is 20.2 percent in France, 9.7 percent in Germany, 25.7 in Greece, with the average value of 14.9 in the European Union (EU-15) countries in 2002. The same rates for some of the transition countries are, for example 16.0 percent for Czech Republic, 37.4 percent for Slovak Republic and 43.9 for Poland in 2002 (see OECD, 2003). Additionally, some of the occupation groups are most prone to unemployment. In general it is possible to say that the unskilled individuals have higher unemployment levels than the skilled individuals. Jackman and Savori (1990, p.142) and Layard et al. (1991) state that the rate of unemployment for the semi-skilled and unskilled individuals is over four times larger than for the professional and managerial workers in the UK and USA. A further observation is that in some of the countries, some racial groups have larger unemployment rates than for the native groups. For example, blacks in the USA have larger unemployment rates than that for the white ones. It was 10.7 percent and 9.8 percent for the black men and women, respectively in 2002. The same numbers for whites were 5.3 and 4.9 percentages for men and women, in the same order in the same year (see BLS, 2004). Layard et al. (1991, p.5) point out that some part of the above differences among the labor market groups may originate from the dissimilarities in "social institutions", as well as "wage bargaining arrangements and/or shorter entitlements to benefits."

Furthermore, unemployment and risk of unemployment, in addition to the macroeconomic effects, have also considerable effects on the individuals, and their relatives, as well as on the society. These effects may be either physical or psychological. They, particularly, exist, if unemployment lasts long, and if an employed individual is working in an unsatisfactory or an insecure job. In this respect, unsatisfactory or insecure jobs, like unemployment, may have negative effects on those individuals. Only having a job may not guard for the physical and/or psychological effects. These outcomes include the loss of earnings and the deterioration of individuals' skills and abilities (i.e. human capital

[2] Source OECD (2003).

loss), and consequently the declining probability of receiving a new job offer since employers may possibly use unemployment experience as a signal for productivity (Lynch, 1989, and Foley, 1997, Vishwanath, 1989). These effects also include the loss of individuals' motivation "necessary to engage in job-search" (Price et al., 2002, p.304) and work, depression, poor health, divorce, alienation from society, drug addiction, crime, and even suicide (Sinclair, 1987; Lynch, 1989; Bulutay, 1996; and Price et al., 2002).

In the light of the above explanations, to reduce these negative effects of unemployment, it becomes an important policy issue to identify and examine the groups that are at a greater risk of becoming unemployed, and determine the main characteristics of the individuals who are in hazardous (risky) groups. This is the first aim (or first research question) of this study. It may also be essential to find out the most important features of individuals who have a higher probability of finding a job. Further, it is also useful to check whether the state dependence effect of unemployment exists or not. Then, the other research question is that does the length of unemployment period itself negatively affect the probability of obtaining a job. If this is the case, i.e. we observe the negative duration dependence, then preventing individuals from becoming long-term unemployed becomes another important policy concern for the authorities.

Over the last three decades, a great number of theoretical as well as empirical studies have been carried out to analyze dynamics of the labor markets. Two of the main approaches used by most of the studies are the transitions in the labor market and duration of unemployment. Such studies mainly come from the developed countries such as the USA (Moffit (1985)) and the UK (Boheim and Taylor, 2000), and more recently on some transition countries such as those on Russia by Foley (1997a,b) and by Grogan and van den Berg (2001); on Slovakia by Lubyova and van Ours (1999). There are only a few studies on developing countries, for example Galiani and Hopenhagen (2003) on Argentina, Serneels (2001) on Ethiopia.

Turkey, as a developing country, experienced two major economic shocks over the last fifteen years. One was in 1994 and the other was in 2001. During both of the crises, considerable oscillations in the living standards were observed. Particularly in the 2001

crisis a large number of plant closures were observed and a large number of individuals lost their jobs. The total employment level, in contrast to the increasing trend of total population level, declined from 21.58 million in 2000 to 21.52 million in 2001 and further to 20.35 million in 2002. When agricultural activities are excluded there are larger declines in employment such as from 13.56 million in 2000 to 13.12 million in 2001. Thus, the total rate of unemployment increased from 6.6 percent in 2000 to 8.5 percent in 2001. The effects of the 2001 crisis continued in 2002 and the unemployment rate increased to 10.6 percent in that year (SIS, 2004). This study, by using the individual level data of 2000 (quarters of Q1, Q2 and Q4) and 2001 (Q1 and Q2) Household Labor Force Survey (HLFS), which are conducted by the State Institute of Statistics (SIS), analyzes determinants of the transitions in the labor market and unemployment duration in Turkey during those years.

1.2 The Significance of the Study

While a few studies, such as Senses (1996) and Bulutay (1995), attempts to asses the labor market issues in Turkey, none of them has concentrated on determinants of transitions in the Turkish Labor Market and/or duration of unemployment. The present study proposes to examine these issues, and therefore aims to make a contribution in this area. This thesis, firstly, focuses on labor mobility across the labor market states -namely, employment, unemployment and not-in-labor-force. Secondly, it concentrates on investigating the individual unemployment duration in Turkey and its determinants. In the duration part of this study, it initially estimates the models for all of the data, and then by separating the first-time job-seekers from the other-job seekers. All transition and duration analyses are carried out for men and women separately, to see whether they have different dynamics.

This study provides the effect of individual characteristics, such as age, gender, marital status and education on the transitions, such as probability of losing job, probability of becoming unemployed, and probability of exiting from unemployment either to a job or to the out of labor force etc., in the Turkish labor market. This study also gives the effects of those characteristics on the duration of unemployment. Pedersen and Nielsen (1998, p.68) states that the individual characteristics can be considered “both as instruments to

control for individual heterogeneity and as indicators for targeting of policy instruments". Among the personal characteristics studying the impact of education level on the above estimates is a highly policy relevant factor (see, Bratberg and Nielsen (2000). The general expectations about the effects of education level in the estimated models are the followings. The first is a positive effect on the probability of finding a job regardless of the modeling approach (whether we consider the duration or transition model). Reverse (negative) effect, the second, is expected on the probability of losing a job and on the probability of exiting from the labor force. In this regard this study also provides evidence whether one observes the human capital effect in the Turkish labor market. Thus, if one finds the expected results, then one can use them as a policy argument for solving the unemployment problem in Turkey. This policy argument may offer allocation of "more resources" for the educational system. A further policy offer may include to increase or to establish "various training programs" for the unemployed as well as "re-training (or on-the-job training) programs" for employed individuals who are in the risky groups. The aims of these training programs may be equipping those individuals with the right set of skills, abilities and qualifications which make them employable as well as more productive.

Moreover, among the personal characteristics, age is also an important policy relevant factor which effects the transitions in the labor market states as well as the duration of unemployment. This study also provides an important experiment about which age groups are in the hazardous position in the Turkish labor market for the policy authorities. Furthermore, this research also gives formal evidence on whether living in a particular geographical region, such as the Marmara and the Aegean, makes a significant difference, in finding a job for those individuals residing there. Therefore, its findings may be important for constituting regional labor market policies in Turkey.

The duration analysis of this research gives the main characteristics of those individuals who are most likely to become long-term unemployed. This research also shows whether women face more problems than men in the Turkish labor market. This study provides formal and important evidence on the above issues by using the individual level data from a nationally representative data set. With this scope, its findings may be meaningful for those people "who are eager to be informed" about the main characteristics

of those individuals in the hazardous groups, such as most likely to become unemployed, to lose their jobs, to become discouraged, etc.

1.3 Organization of the Study

This thesis is comprised of five chapters. Following the introductory chapter, Chapter 2 is titled "The Main Characteristics of The Labor Market in Turkey". In this chapter we utilize the database of State Institute of Statistics (SIS) of Turkey as the main source of the data. This chapter is composed of three main parts. In the first part we analyze the trends in labor force participation rates (LFPR) over the last 15 years (1988 to 2003). Trends in LFPRs are examined under by gender, residence (rural-urban), age-group, marital status, and education levels. In this part we also present the data for some OECD countries for comparison over the years between 1998 and 2002. In the second part of this chapter, we examine the trends in unemployment rates over the period of 1988-2003. Gender, residence, age and other characteristics are considered. In this part we also look at the trends in long-term unemployment over the same period. In the final part of this chapter, we examine the trends in underemployment rates over the same period by types, age, education and economic activity.

In Chapter 3, we utilize the panel feature of the HLFS data and analyze the transitions in the Turkish labor market. The transitions between the three labor market states, namely employment, unemployment, and out-of-labor force are examined. There are six parts in this chapter. Following the introduction part, in the second part we provide an overview of the literature on the transition analysis. In the third part we provide the information on the data set used in this chapter. In the fourth and fifth part of this chapter, the methodology, and the econometric model are provided respectively. In the final section of this chapter we present and discuss the results of the econometric analysis by gender. In this part we also investigate the sources of the female-male unemployment rate differentials in urban areas of Turkey by using the Marston (1978)'s decomposition technique. Further, we examine the determinants of the transitions between the three labor market states (mentioned above) separately by using the multinomial-logit model.

Chapter 4 is devoted to the determinants of unemployment duration in Turkey. We concentrate on the duration aspect of the unemployment by using the HLFS data. In this chapter we use two alternative definitions of unemployment and estimate our models for each gender separately. The first is the unemployment definition used by the SIS which comes from the definition of the International Labor Organization (ILO). The second one, namely the broad definition, is created by dropping criterion of "actively searching". In this chapter there are six main parts. After the introduction, in the second part we provide the review of literature. The third part of this chapter presents the data and the unemployment definitions used in this part. We present the empirical model in the fourth part of this chapter. Then, we provide the non-parametric as well as the parametric estimation results in the fifth part for each of the alternative definitions. In the parametric approach we take into consideration the grouped nature of the duration data and apply the methods developed by Kiefer (1988) and Sueyoshi (1996) to estimate the determinants of the unemployment duration in Turkey by using the two alternative definitions of unemployment. The final part of this chapter provides the main conclusions from the estimation results.

In Chapter 5 we focus on the determinants of unemployment duration by labor market experience, i.e. concentrate on the first-time job seekers and other job-seekers, separately. As in the previous chapters, again we use the HLFS data and consider two alternative definitions of unemployment. There are five parts in this chapter. After an introduction, we provide the review of literature in the second part. Then we present the data and briefly look at unemployment by labor market experience (i.e. by reason) in Turkey, in the third part. In the fourth part of this chapter we consider the estimation results. In this part we initially consider the non-parametric estimation results. The determinants of the unemployment duration for these individuals are analyzed using the two definitions of unemployment by considering the grouped nature of the duration data. Finally, we provide the summary of the findings and conclusions for this chapter.

In Chapter 6 we provide the overall summary, conclusions and suggestions for further research.

CHAPTER 2

THE MAIN CHARACTERISTICS OF THE LABOR MARKET IN TURKEY

2.1 Introduction

In this Chapter we provide the main features of the Turkish labor market. The first characteristic is that the population is quite large, about 70 million, and still growing (Bulutay, 1995). The average annual population growth rate of Turkey was about 1.9 percent in the period between 1980 and 2001 (World Bank, 2003). This increase rate is bigger than the values observed in the developed countries in the same period. For example, average annual population growth rate was about 0.7 percent in the high income countries and 0.3 percent in the European Monetary Union countries (World Bank, 2003).

Further, over the last century, Turkey has experienced an important internal migration flow from rural to urban areas. For example, 38.8 percent of the population was living in the urban areas in 1970. This amount increased to 59 percent in 1990, and then to 64.7 percent in 2000 (See SIS, 2003a). Despite this migratory movement, considerable amount of the population still lives in the rural areas. Traditionally, most of the rural inhabitants are employed in the agricultural and related activities. However, this sector is inadequate with regard to employment creation and productivity growth. Therefore, "there is a serious employment problem, with the unpaid family workers having a special weight in the economy" (Bulutay, 1995 p.61). Nevertheless, the proportion of unpaid family workers employed in agricultural sector shows a declining trend. This share decreased from 62.6 percent to 54.1 percent for the years between 1991 and 2001, and then further to 52.3 percent in 2003 in rural areas. The proportion of unpaid family workers employed in agricultural sector is low in the urban areas but we do not observe a declining trend for this group over the same period. This amount was 29.6 percent in 1991 and 30.4 (30.5) percent in 2001 (2003) (see SIS, 2004).

Table 2.1: Distribution of Employment by Sector

Year	1963/70	1971/76	1977/79	1980/82	1983/87	1988/93	1994	1995/98	1999	2000/01	2002	2003
Agriculture	68.41	60.88	55.78	53.78	50.29	47.15	45.72	44.70	41.45	34.9	34.9	33.9
Industry	10.02	13.05	14.59	14.5	15.32	15.86	16.26	16.23	16.7	18.25	18.5	18.2
Construction	4.61	4.98	5.49	5.5	5.66	5.65	5.69	5.9	6.05	5.85	4.5	4.6
Services	16.97	21.1	24.13	26.2	28.73	31.3	32.33	33.18	35.8	40.95	42.1	43.4

Source: Bulutay (1995), SIS (2003), SIS (2004).

A further characteristic of the Turkish labor market is the structural shifts in the distribution of employment among the sectors as a result of industrialization (Bulutay, 1995 p.189). Table 2.1 shows that agricultural sector was the dominant sector in employment until 1999 with a declining trend from 68.4 percent in the 1960s to 41.4 percent in 1999. The decreasing trend for this sector continued in 2003 with the share of 33.9 percent of the total labor force, but still considerably large. Though the employment share of agricultural sector has been quite large over the last decade, the contribution of this sector to the total Gross National Product (GNP) is very low in comparison to other sectors. For instance, the share of this sector in GNP was 13.6 percent in 2002, in contrast to employment share of 34.9 percent (see SIS, 2003a).

In contrast to the declining trend of agriculture, the shares of industry and the service sectors increased over the period examined. Particularly, the share of the services sector more than doubles and it becomes the dominant sector in employment in the last three decades. Regarding the employment in the construction sector there is no increasing or decreasing trend over the examination period.

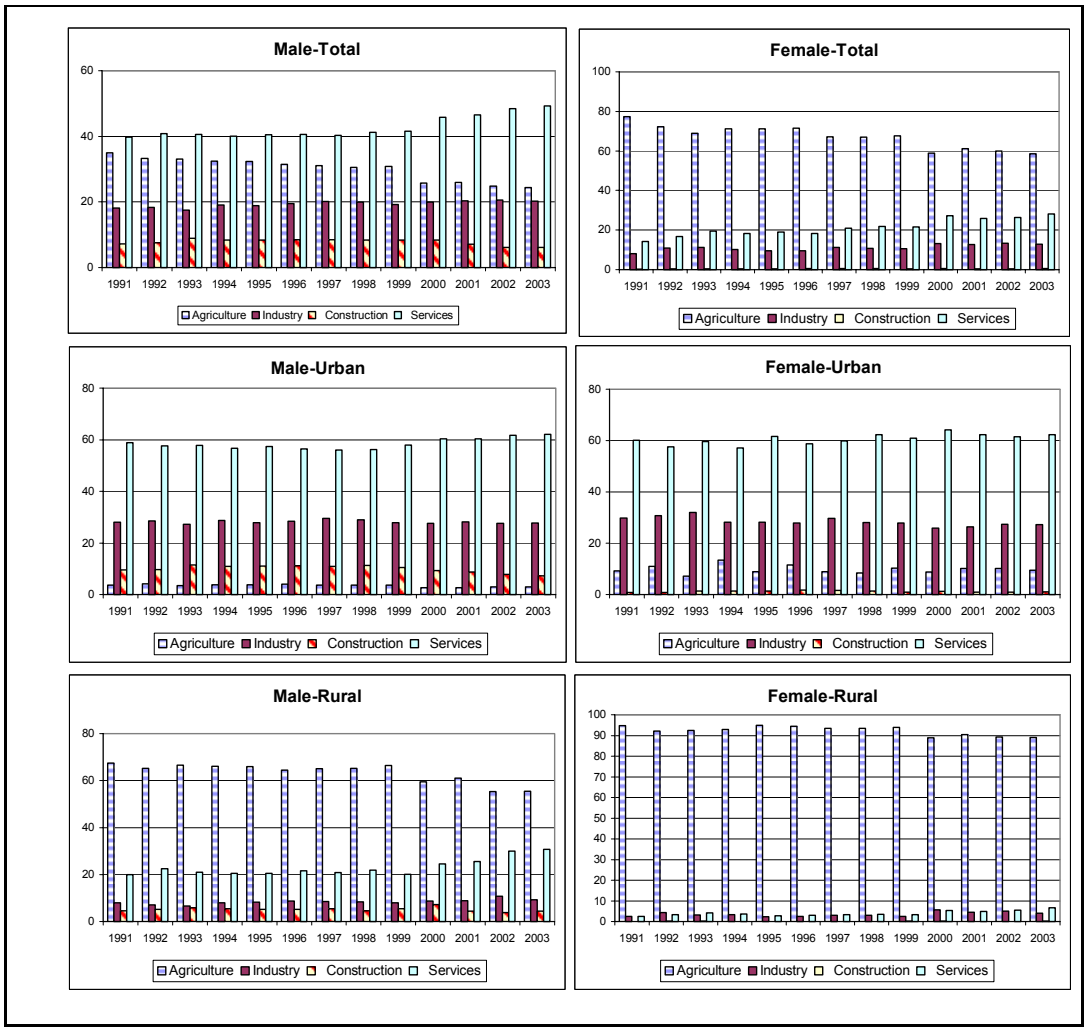

Figure 2.1: Sectoral Distribution of Employment by Gender and Residence 1991-2003

Source: SIS Database, 2004.

In Figure 2.1 we have provided the distribution of employment by economic activity considering the gender difference over the period between 1991 and 2003. One observation is that for both males and females the share of the agricultural sector declines over the examination period, with men having smaller share than women. This share decreases from 34.9 to 24.4 percent for men and 77.4 to 58.5 percent for women between 1991 and 2003. Another observation is that, contrary to declining trend of agriculture, the share of services increases for each gender over the same period. The relative increment rate in the share for women is larger than that for men. The share of services sector in total employment for men increases from 39.71 percent to 49.3 percent over the examination

period of 1991 and 2003, whereas the same amount for women rises from 16.3 percent to 28.1 percent over the same period (SIS, 2004).

When we consider the results for urban and rural areas separately, it is observed that the most dominant and growing sector is the services in employment for both men and women. The share of this sector (even though it has some fluctuations) increases from 58.8 percent to 62.1 percent for men and 60.1 percent to 62.2 percent for women over the period between 1991 and 2003. The industry sector has the second highest share[3], with about 30 percent share in employment of both genders with having no increasing or decreasing trend over the same period. We also observe the smallest share of employment for urban resident women is, as expected, in the construction sector with having about one percent share over the examination period. The corresponding sector for the urban residing men is agricultural sector which declines from 3.6 percent in 1991 to 2.9 percent in 2003. A further observation is that most of the employed women in rural areas are working in agricultural sector, with a declining trend from 94.8 percent in 1991 to 89.1 percent in 2003. The share of agricultural sector for men in rural areas is lower than that for women, but larger than the other sectors. This share has a decreasing trend from 67.4 percent in 1991 to 55.5 percent in 2003.

An additional feature of the Turkish labor market is the high share of public sector in total employment. The share of this sector in total employment also shows a declining trend over the last four decades. This share declined from 44 percent in 1963 to 26 percent in 1990, and then to 15.02 in 2001. (see Kepenek and Yentürk, 2001 and SIS, 2002).

In the following parts, we mainly focus on the labor force participation rates, unemployment and underemployment rates by gender and residence in Turkey by utilizing the data set provided in the database of SIS.

[3] The most of the individuals in industry sector are employed in the manufacturing sector. For instance, 26.9 of 27.8 percentage employment of industry sector, which corresponds to 97 %, are employed in manufacturing in urban areas in 2001 (see SIS, 2004).

2.2 Trends in Labor Force Participation Rates (LFPRs)

An important property of the labor market is the continuous decline in the labor force participation rates[4] in Turkey. The overall participation rates decreased from 57.7 percent to 48.7 percent, for the population 15 and over, in the years between 1988 and 2002 (see Table 2.2). For comparison, in Table 2.3 we have presented the participation rates, for the period between 1998 and 2002, for some selected OECD countries for men and women separately. We observe that the LFPR for men is largest for Switzerland with the value approximately 90 percent, for Japan with about 85 percent for the study period between 1998 and 2002. It is also clear from the Table 2.3 that the LFPR for men in Turkey is lower than for the OECD average value over the period of 1998-2002.

Table 2.2: LFPRs by Gender and Residence (1988-2003)

	Turkey			**Urban**			**Rural**		
	Average	**Male**	**Female**	**Av.**	**Male**	**Female**	**Av.**	**Male**	**Female**
1988	57.75	81.24	34.26	47.92	78.12	17.71	67.68	84.66	50.69
1989	58.34	80.58	36.11	47.32	76.86	17.78	69.92	84.76	55.08
1990	56.92	79.69	34.15	46.94	76.82	17.06	67.49	82.97	52.02
1991	57.14	80.24	34.04	46.28	77.03	15.53	69.65	84.01	55.29
1992	56.08	79.65	32.51	46.87	76.93	16.82	67.40	83.04	51.76
1993	52.27	78.01	26.53	45.40	75.28	15.52	60.92	81.50	40.35
1994	54.60	78.46	30.94	46.33	75.43	17.23	65.63	82.50	48.77
1995	54.15	77.78	30.53	45.44	74.21	16.66	65.87	82.59	49.16
1996	53.56	77.09	30.03	44.45	73.09	15.80	66.22	82.74	49.69
1997	52.31	76.38	28.25	44.71	72.75	16.67	63.24	81.65	44.84
1998	52.40	76.19	28.61	44.44	72.37	16.51	64.38	82.07	46.69
1999	52.90	75.73	30.26	44.72	71.76	17.68	65.7	81.98	49.43
2000	49.29	72.85	25.72	43.54	70.20	16.88	58.47	77.22	39.73
2001	48.79	71.72	25.86	43.23	69.61	16.84	58.03	75.30	40.76
2002	48.72	70.53	26.91	43.70	68.74	18.67	57.29	73.67	40.91
2003	48.78	70.47	27.1	43.73	68.87	18.6	56.73	73.17	40.3

Source: SIS Database.

[4] Labor force participation rate is defined as the ratio of the labor force (employed plus unemployed) to the working age population.

Table 2.3: LFPRs in Selected OECD Countries by Gender 1998-2002

	Male					Female				
COUNTRY	**1998**	**1999**	**2000**	**2001**	**2002**	**1998**	**1999**	**2000**	**2001**	**2002**
USA	84.2	84	83.9	83.4	83	70.7	70.7	70.7	70.4	70.1
UK	83.9	84.1	84.3	83.8	83.7	67.9	68.4	68.9	69	69.3
Austria	79.8	80	79.5	79	*	61.4	61.7	61.8	62.2	*
Germany	79.9	79.3	78.9	78.8	78.5	62.5	63	63.3	64	64.4
France	74.1	74.4	74.4	74.3	74.5	60.8	61.4	61.7	61.8	62.1
Italy	73.9	74.1	74.3	74.2	74.5	44.6	45.5	46.3	47.3	47.9
Norway	85.6	85	84.8	84	83.8	76.1	76.1	76.5	76.4	76.7
Sweden	80.7	80.9	81.2	81.4	80.9	75.5	76	76.4	77.1	77.1
Switzerland	90.1	89.6	89.4	89.2	88.7	71.8	72.2	71.6	73.2	73.9
Canada	81.4	82	82.1	82.1	82.9	69.1	69.8	70.5	70.8	71.9
Japan	85.3	85.3	85.2	85	84.8	59.8	59.5	59.6	60.1	59.7
Finland	75.1	75.9	76.4	76.7	76.2	69.7	71.2	72.1	72.5	72.7
Portugal	78.9	78.8	79	79.2	79.3	62.4	62.9	63.8	64.5	65
Spain	79.1	79.6	80.4	79.8	80.4	49.9	50.9	52.9	51.6	53.7
Turkey	79.6	79.1	76.2	75.2	74.3	30.1	31.6	27.2	27.2	28.5
Australia	82.1	82.1	82	81.7	81.6	63.9	63.6	65.5	65.8	66.1
New Zealand	83.5	83.2	83.2	83.4	83.9	67.1	67.4	67.5	68.5	69.1
OECD Average	81.3	81.2	81	80.6	80.4	59	59.3	59.4	59.4	59.6

Source: OECD Database.

The LFPRs for men in Turkey are only larger than the rate for France and Italy over the period of examination, except 2002. The LFPR for Turkish women is approximately half of the OECD average value, such as in 2002 the rate is 28.5 percent with the corresponding OECD average of 59.6 percent. It is also clear that the LFPRs of women in Turkey is one of the lowest among the OECD countries over the study period. Further, the largest participation rate for women is observed in Nordic countries, such as Norway and Sweden. The lowest participation rate, after Turkey, is observed in Italy and Spain with an increasing trend from 44.6 percent to 47.9 percent for Italy and 49.9 percent to 53.7 percent for Spain over the examination period of 1998 and 2002. Finally, the LFPRs for women in all countries under examination are always lower than the rates for men, with the largest difference being in Turkey.

Let us return to our analysis on Turkey. As mentioned previously, LFPRs for men are higher for males than it is for females. The participation rates decreased from 81.24 percent to 70.48 percent for men and from 34.26 percent to 27.1 percent for women

between 1988 and 2003 (see Table 2.2), and the largest decrease is observed in the year of 2000. The LFPRs for rural male, urban male and rural female declined by about ten percentage points during the study period of 1988-2003 but for urban female they remained about the same. Urban female's participation rate at about 17 percent during the last decade is extremely low by international standards. Two more patterns also emerge from the Table 2.2. The first is that the LFPRs in Rural areas are higher than in urban LFPRs, and the second is that the male-female differential is higher in urban areas than in rural areas. The decreasing trend in participation rate, over the study period 1988-2003, can be explained by the following factors. The first is that rapid urbanization i.e. the "structural change in labor force away from agriculture towards non-agricultural activities" (Şenses, p.417) (i.e. "rural-urban migration induced urbanization", see Tunali, p.31). The second is that "increased educational opportunities allow children to stay in school longer" (i.e. increasing school enrollment rates), "and result in reduced participation rates of the young" (see Tunalı, 2003, p.31). The third factor is the early retirement Law (see Tansel, 2002, and Şenses, 1996).

2.2.1 LFPRs by Age

Regarding the LFPR trends by age, it is observed that the rate initially increases, and reaches to its maximum value for the middle age group that is between 25 and 34, then returns to decrease after that age group for both urban and rural residing individuals (see Figure 2.2). The other age groups with higher participation rates (i.e. larger than the country average) are 35-54 and 20-24, respectively. Hence, we observe a traditional inverse-U shaped age profile for the LFPRs, especially for men. Moreover, it is also seen from the Figure 2.2, the LFPRs seem to decrease for all ages over the study period between 1988 and 2003. The largest decrease in the LFPRs is seen in the youngest age group -for instance the rate for urban resident men decreases from 56.1 percent in 1988 to 30.3 percent in 2003- because of the increase in school enrollment ratios, i.e. they stay longer time in the educational system which reduces their LFPRs, over the study period (see Tansel (2002), Şenses (1996) and Bulutay (1995)). In this regard high unemployment rate may also possibly decrease the LFPRs of the young since it encourages these people to wait for a

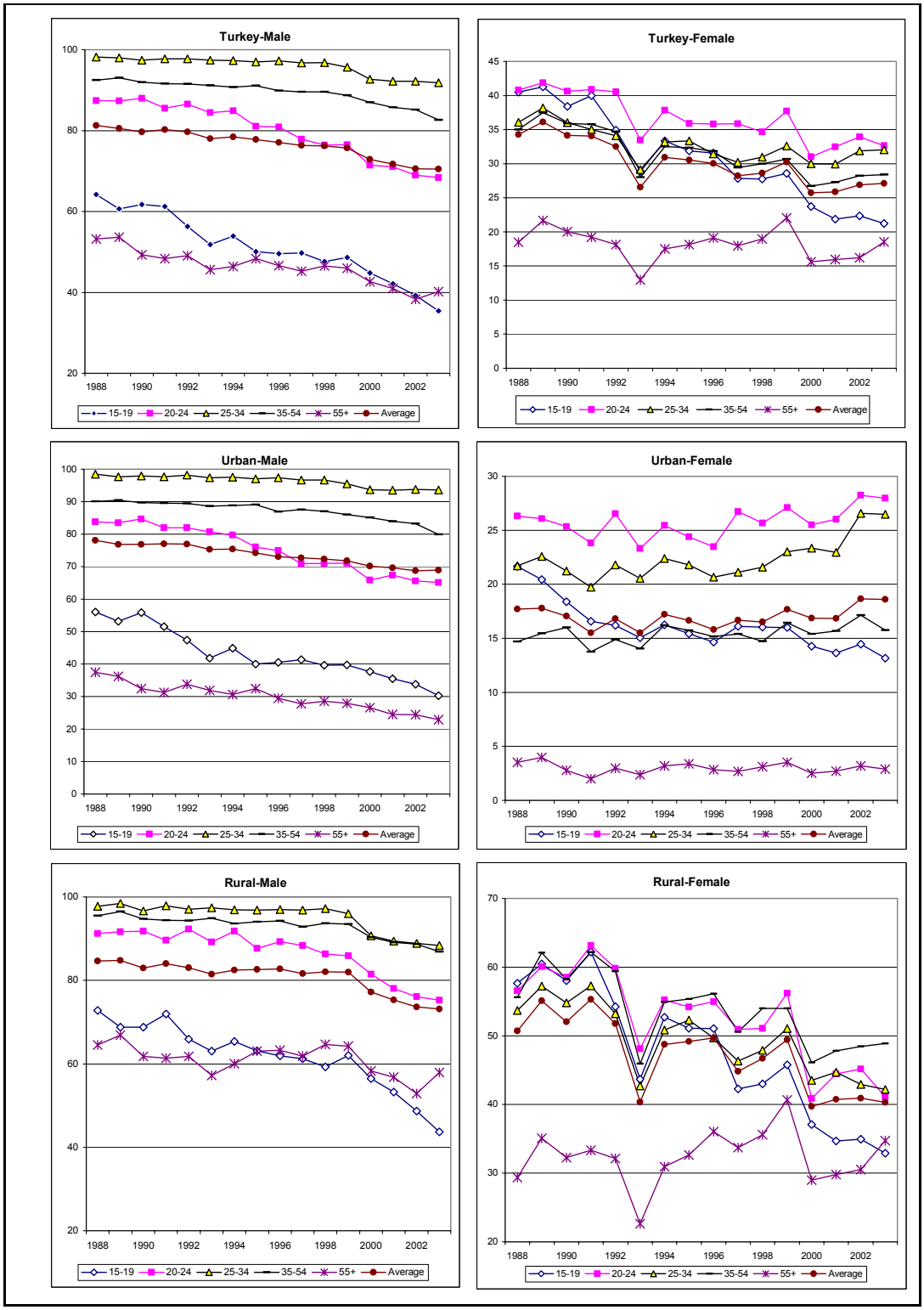

Figure 2.2: LFPRs by Age, Gender and Residence 1988-2003

Source: SIS database.

longer time at the school and obtain further education (see Blanchflower, 1999).

The main difference between men and women is that the largest rate is observed for the age group of 20-24 for women, when we look at the LFPRs by age under gender difference. Furthermore, in contrast to general decreasing trend, the urban resident women's the LFPRs seems to increase for the ages between 20-24 and 25-34 This may be explained by the changes in the supply of labor and growing employment opportunities in the service sector for women. The share of the services sector in the total women employment increases from 14.35 percent in 1991 to 26.3 percent in 2002, and then to 28.1 percent in 2003 (see SIS Database, 2004) [With the largest share being observed in the Central Anatolia]. Finally, the lowest LFPRs is observed for the older individuals (55 and over), and the rate reaches to its minimum value (i.e. lower than 5 percent) for the urban resident female in this age group.

2.2.2 LFPRs by Education

Let us now look at the LFPRs under educational attainment. As can be seen from the Figure 2.3, the lowest LFPRs is observed for the individuals with middle school degree and then for under primary school level, regardless of being male or female. For men highest participation rates are at the university level and then primary school level. Another important observation is the dramatic decrease in the LFPRs of the male with no-degree, from about 73.1 percent to 46.6 percent, during the examination period from 1988 to 2003. The lowest gender difference is observed for the university level. A further observation is that the difference between men and women is most obvious in the urban areas. Further, as can be seen from the Figure 2.3, the LFPRs increase with the increase in education level for the urban resident women. This result confirms significance of education in increasing LFPR in particular of women. The same result is also seen in individual level data studies of Tansel (1994) and (1996) for Turkey. In contrast to the females, for males the LFPRs initially decrease until middle school, then returns to increase by education. The minimum values of the LFPRs are seen for the middle school level. Tunali (2003 p. 37) states that "if this is a reflection of the demand for the marginal skills acquired in middle school, the

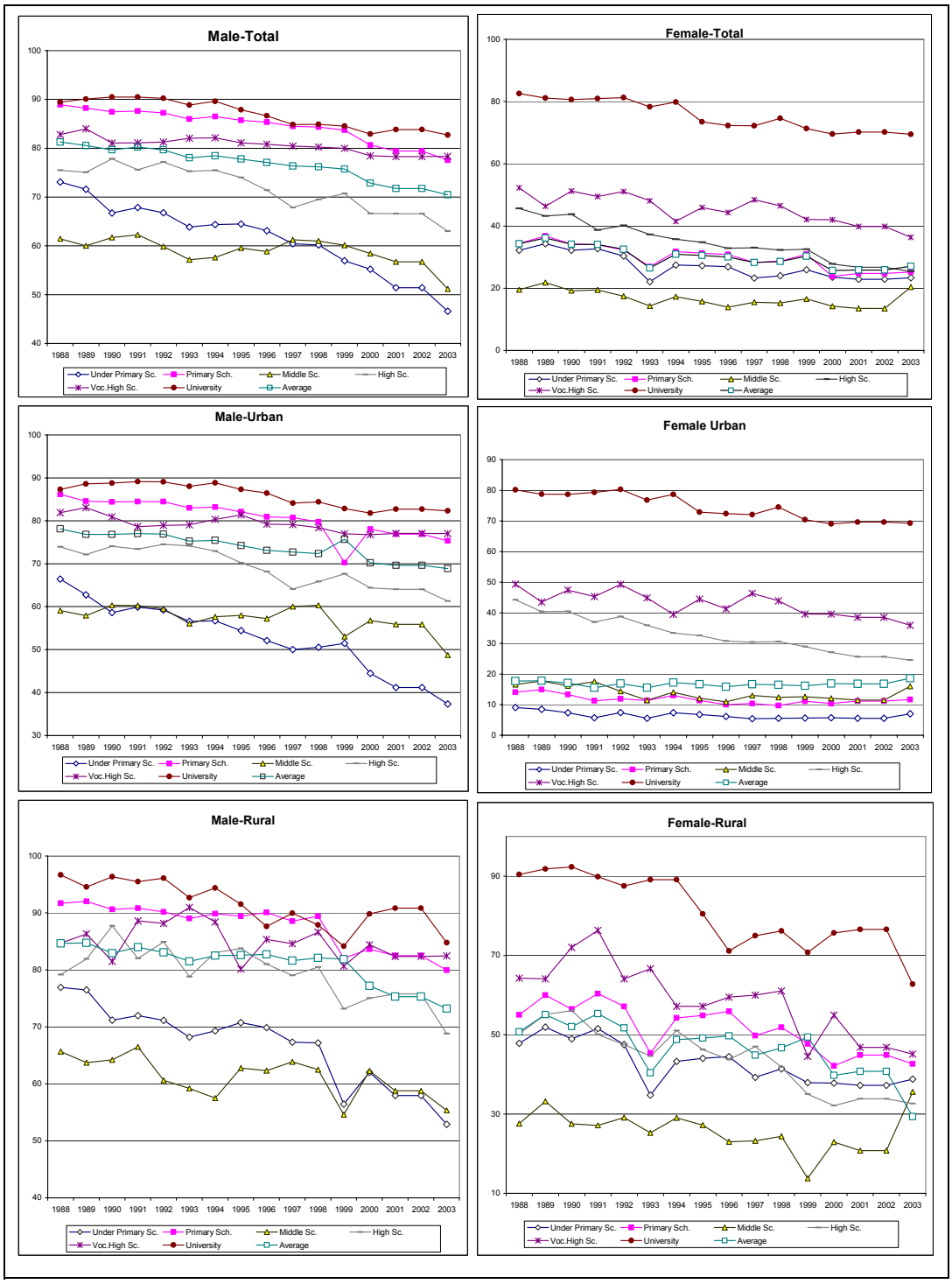

Figure 2.3: LFPRs by Education, Gender and Residence, 1988-2003

Source: SIS database.

recent extension of basic education from 5 to 8 years might not be sufficient investment for the needs of the labor market."

2.2.3 LFPRs by Marital Status

Moreover, the LFPR trends by marital status are provided in Figure 2.4 over the examination period of 1988 to 2003. As can be seen from the Figure, married men have the highest participation rates of larger than 80 percent, regardless of living in urban or rural areas. It is evident from the Figure 3.3 that widowed individuals, for both male and female, have lowest LFPRs over study period. Tansel (2002 p:128) suggests that the main factor behind the observation of lowest participation rate for the widows is that a majority of these individuals are aged and have declined the participation rates.

When we consider the results under gender difference, the much clear difference is observed for the married ones. The married males have highest LFPRs with respect to other males because of the family responsibility. However, the conclusion changes for females. For female, we observe that divorced individuals, especially urban resident ones, have highest LFPRs with respect to other females since this group might "need to support family and children" (see Tansel, 2002, p.128). After the widowed females, urban resident married women have also very low LFPRs, lying between 11.5 and 14.9 over the examination period of 1988 and 2003. On the contrary, rural resident married women have larger LFPR, with the value lying between 40 and 50 percent over the examination period. This shows the significant rural-urban differences in the LFPRs of married women. Moreover, an important difference between men and women is also observed for the urban resident single individuals. As seen from the Figure 2.4, urban resident single men have lower LFPRs than the average value, whereas reverse is observed for women.

In addition to the above results, we have also a little bit support for the added worker effect. This effect is observed in the labor market due to the unemployment of the family's head, and refers to the "forced entry" of the wife –see Humphrey, 1940- to the labor force in reaction to the loss of job by their husband. (When the usual breadwinner of the household lose his job at which point his wife start looking for a job -"forced entry" of

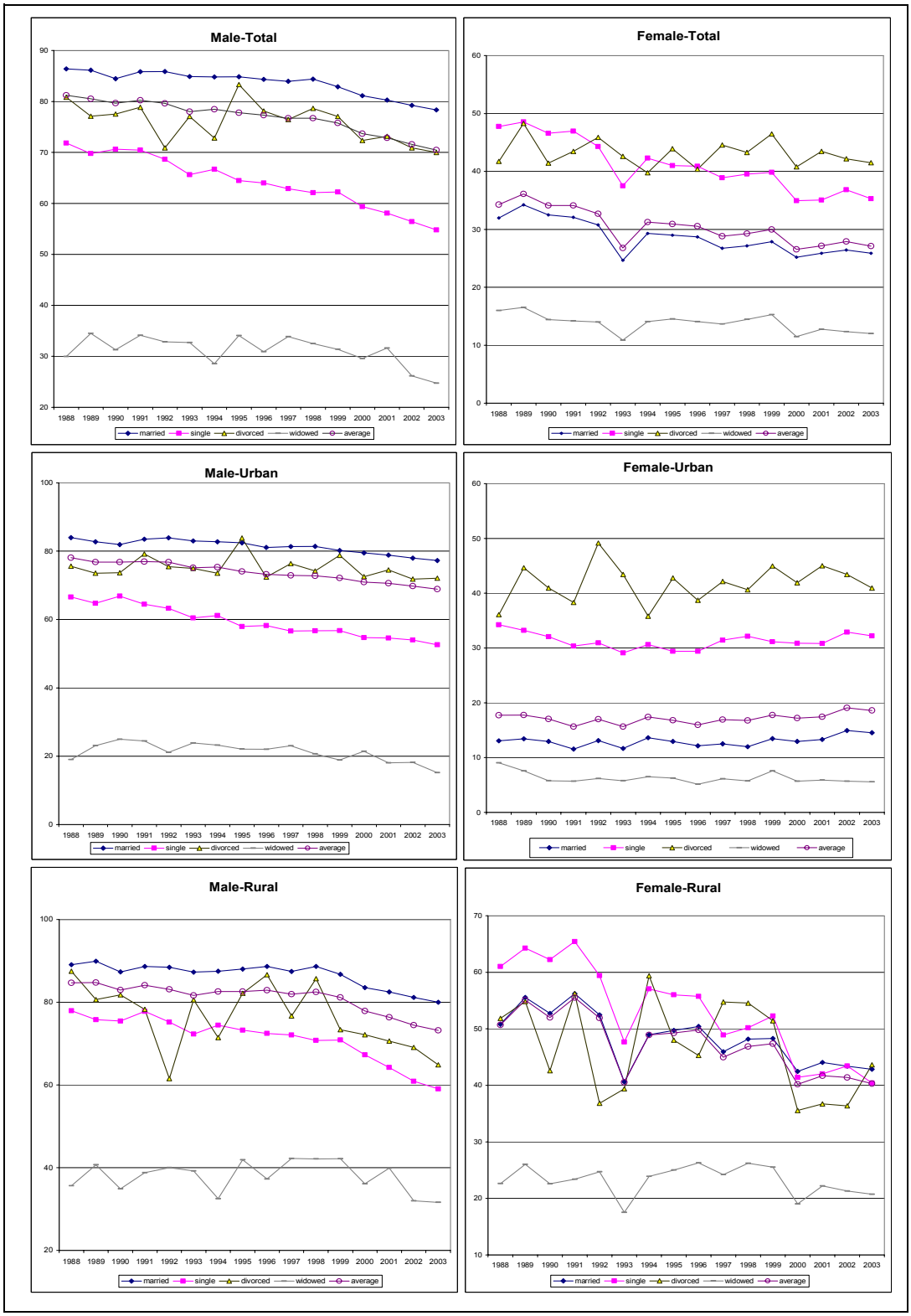

Figure 2.4: LFPRs by Marital Status, Gender and Residence, 1988-2003

Source: SIS database.

the wife-, see Humphrey, 1940). Thus, one can expect to see the added worker effect in general in the depression or crises years of the country. This justification also expects that subsequent to economic situations get better, if usual breadwinner of the household find a "stable job", and then this additional family member, i.e. the wife, goes to the out of the labor force (see Cerrutti, 2000, p.880, and Humphrey, 1940). The forced entrance of the wife is observed for the urban resident ones in 1994 with 13.62 percent that is the largest rate over the years between 1988 and 2001. The same effect is also clearly observed after the economic crisis of 2000. The LFPRs of urban residing married women increase from 12.95 in 2000 to 13.3 in 2001, and then to 14.9 percentage in 2002 (SIS 2004). The same result is also hold for the rural resident women, i.e. for the overall country average as well.

2.2.4 LFPRs by Age & Marital Status

It is also useful to look at the LFPRs by considering the relation between age and marital status under gender and residence difference. For comparison we have provided the average LFPRs for the first three years of 1990s and 2000s (see Figure 2.5). As can be seen from the Figure 2.5, for married male, the LFPR initially increases with the increase in age, reaching to it maximum level between the ages 25-39, then decreases, whether we look at the 1990s or the 2000s,. The obvious difference between these years is that the average LFPR values of the 2000s are lower than that of for the 1990s. One more observation is that the LFPR of the married men moves together with the country's average for men after the age of 25, for both urban and rural resident individuals.

For single men we observe the lowest LFPRs after age of 40, particularly in 2000s, regardless of living in urban or rural areas. The same result is also hold for the widowed men. For married women we find somewhat different results with those for men. The more clear observation is the LFPRs of married women is always lower than the single women for each alternative age group. The negative effect of the marriage on the LFPRs of women can be explained by the two factors. As mentioned above, the first, if the family's primary earner i.e. the husband, is working in a stable job with no economical problems then this can decrease the wives LFPRs, (particularly in the traditional Anatolian family). The

second, if the family has one or more children then child care may become a main concern and further decrease the LFPRs of the wives for two reasons. The first is that, in Turkey, the number of child care centers is very few and used by only a few number of families. The second is related to family structure of the Turkish society. That is, a large number of married females live in an extended family in which their old mom and/or mother-in-law provide help for the child bearing. However, this chance may not be possible for all the married females (Tunali, 2003). This effect for the married women is particularly observed for the ages between 15 and 35. After age 35 the LFPRs for women catches up and passes the average value.

If we look at the LFPRs of the divorced women it is seen that the rate is always larger than the average value in the urban areas, whether we look the 1990s or 2000s, for each of the age groups. The rate is particularly the largest one for the ages between 35 and 55 in urban areas in 2000s. However, in rural areas the LFPRs for these individuals do not have a stable figure because of the limited observations (it has peaks for different age groups).

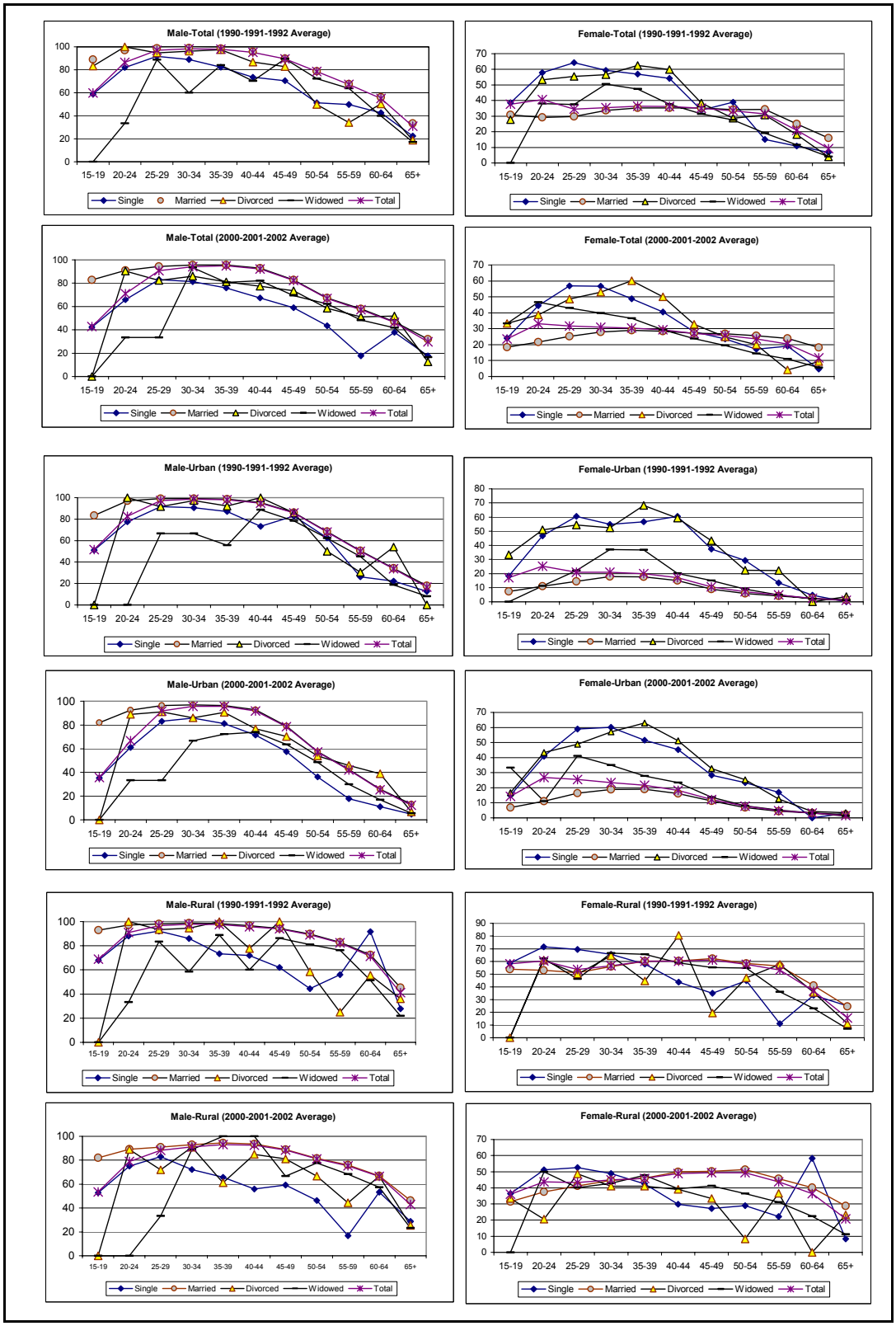

Figure 2.5: LFPRs by Age and Marital Status in 1990s and 2000s.

Source: SIS database.

2.3 Trends in Unemployment Rates

In Table 2.4, the series on the unemployment rate is shown for the period between 1988 and 2003. It seems from the table that the total unemployment rate has a decreasing trend, with some fluctuations (or peaks) until 2000. After that year the declining trend has been reversed. The total number of unemployed individuals in the urban areas was nearly 1.06 million in 2000. This number increased to 1.43 in 2001 and reached to 1.84 million in 2002 and then declined to 1.80 million in 2003, around 74 percent of whom were males (see SIS database, 2004). Hence, the overall unemployment rate in the urban areas increased from 10.38 percent in 2000, to 13.51 percent in 2001, and then to 15.94 percent in 2002, and declined to 15.25 percent in 2003.

Table 2.4: Unemployment Rate (1988-2003)

	Turkey			**Urban**			**Rural**		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
1988	9.05	7.51	10.59	19.01	9.7	28.32	4.87	5.3	4.44
1989	8.82	8.16	9.48	18.14	10.08	26.2	5.05	6.21	3.9
1990	8.14	7.78	8.49	16.45	9.51	23.39	4.67	5.96	3.38
1991	7.73	8.49	6.98	16.4	10.48	22.31	4.18	6.34	2.03
1992	8.09	8.61	7.57	15.54	10.51	20.57	4.4	6.42	2.38
1993	8.87	8.58	9.15	16.32	10.23	22.4	4.69	6.63	2.75
1994	8.25	8.56	7.95	15.19	10.29	20.08	4.4	6.44	2.37
1995	7.41	7.56	7.26	13.4	8.79	18	4.21	6.06	2.36
1996	6.31	6.73	5.88	11.73	8.45	15.02	3.22	4.57	1.87
1997	7.01	6.33	7.69	12.58	7.99	17.18	3.41	4.19	2.64
1998	6.83	6.81	6.85	12.58	8.93	16.23	2.9	3.92	1.89
1999	7.61	7.71	7.5	13.58	9.83	17.33	3.47	4.79	2.14
2000	6.56	6.63	6.49	10.38	7.77	13.0	3.52	4.92	2.11
2001	8.32	8.78	7.86	13.51	10.27	16.76	4.12	6.46	1.79
2002	10.41	10.9	9.93	15.94	13.07	18.81	5.19	7.34	3.04
2003	10.38	10.67	10.1	15.25	12.4	18.15	6.16	8.0	4.32

Source: SIS Database.

For comparison in Table 2.5, we provide the rate of unemployment for some OECD countries for the period between 1998 and 2002. It seems from the Table 2.5 that, for both male and female the lowest unemployment is observed for the Nordic countries. The largest

rate for men in 2002 is observed in Turkey with 10.9 percent, and then for Finland with 9.1 percent, and then in Canada with 8.2 percent. The leader country changes when we look at the unemployment rates for women. For women, the largest unemployment rate in 2002 is observed in Spain with 16.4 percent, and the second is Italy with 12.3 percent, and the third is France with 10.1 percent, and then Turkey is the fourth with 10.3 percent.

Table 2.5 Unemployment Rates in Selected OECD Countries by Gender, 1998-2002

	Male					Female				
Country	**1998**	**1999**	**2000**	**2001**	**2002**	**1998**	**1999**	**2000**	**2001**	**2002**
Australia	8.4	7.3	6.6	6.9	6.3	7.3	6.7	5.9	6.3	5.9
Austria	4	3.7	3.4	3.5		4.6	3.9	3.9	3.8	
Canada	8.7	7.9	7	7.6	8.2	8	7.3	6.7	6.8	7.2
Czech Republic	5	7.3	7.4	6.8	5.9	8.2	10.5	10.6	9.9	9.1
Finland	11.1	9.8	9.2	8.7	9.1	12.1	10.8	10.6	9.7	9.1
France	10.2	10.2	8.5	7.1	7.9	13.8	13.6	11.9	10.8	10.1
Germany	8.8	8.1	7.6	7.9	8.8	9.9	8.9	8.1	8	8.4
Italy	9.1	8.8	8.2	7.4	7	16.4	15.8	14.6	13.1	12.3
Japan	4.3	5	5.1	5.4	5.8	4.2	4.7	4.7	5.1	5.4
New Zealand	7.7	7.1	6.2	5.5	5.1	7.5	6.6	5.9	5.3	5.4
Norway	3.2	3.4	3.6	3.6	4.2	3.3	3	3.2	3.4	3.7
Portugal	4.2	4.1	3.3	3.4	4.5	6.5	5.3	5.2	5.4	6.5
Spain	13.6	11	9.6	7.5	8.1	26.7	23.2	20.6	15.3	16.4
Sweden	8.8	7.5	6.3	5.4	5.7	8	6.7	5.4	4.7	4.7
Switzerland	3.2	2.7	2.3	1.7	2.9	4.2	3.6	3.2	3.5	3.1
Turkey	6.8	7.7	6.6	8.8	10.9	6.8	7.5	6.5	7.8	9.9
UK	6.9	6.8	6.1	5.3	5.7	5.3	5.1	4.8	4.2	4.4
USA	4.5	4.1	3.9	4.9	6	4.7	4.4	4.1	4.7	5.7
OECD Av.	6.4	6.2	5.8	6	6.7	7.6	7.3	6.9	6.7	7.2

Source: OECD Database.

We also observe that the rate of unemployment for Turkish male is always larger than the average value for the OECD countries over the examination period. The same result seems to hold also for women, with the exception of two years. In contrast to Turkey's average, the rate of unemployment in most of the OECD countries (and also the OECDs average) is larger for women than that for men. For instance, in 2002 the rate of unemployment for men is 5.9 percent in Czech Republic, 8.1 percent in Spain, 7.0 percent in Italy, 4.5 percent in Portugal. The rates for women in the same countries are larger than the rate for men in the same year, with a larger difference being observed in Spain with

16.4 percent. The result for Turkey changes if we only consider the urban resident individuals (see Table 2.4). In the following parts we will look at the unemployment problem by considering the differences in the following characteristics: gender, residence, age, education, marital status, and the reason for unemployment.

2.3.1 Unemployment by Gender and Residence

If we look at the total unemployment rate under gender difference it is seen that there is not much difference between men and women between the years from 1988 to 2003. An important difference in unemployment rates by gender arises in the case of urban unemployment rates. The unemployment rate for women, in cities, is approximately two times the rate for men, in the same period (see Table 2.4). If we look at the general trends, it is seen that the rate of unemployment seems to be "fairly stable for males and has been on a declining trend for females" in urban areas between 1988 and 2000 (Tunalı, 2003). As mentioned above, these trends have been reversed also in the urban areas with the economic crisis of 2001.

Regarding the unemployment rates in rural areas it is clear from the Table 2.4 that the rate is always lower than the rate for that of urban resident ones, in the years between 1988 and 2003. Tunali (2003) states that due to migration from rural areas to urban areas, the workforce in the rural areas decreased from 11.07 million in 1988 to 9.96 million in 2000, and continued to get smaller in 2001 and reached to 9.88 million. This amount increased to 10.86 million in 2002 and then declined to 10.55 million in 2003. Even though the general trend was declining between the years from 1988 to 2001, approximately (in most of the years more than) 70 percent of the rural labor force was employed in agriculture for this period (SIS, 2004). The finding of lower unemployment rates for the rural resident individuals is typical for two reasons. The first is that the individuals in the rural areas are less probable to be unemployed since they need no extra qualification or skills for employment, even illiterate, such as in agricultural and related activities. However, the income earned from these activities may not enough to fulfill the requirement of the family. Therefore, that is the second reason, whereas women have been working in their own farms, men, especially young and adult men, seasonally

migrate and search for a work outside agriculture such as in construction sector to support the family income (see Tunalı, 2003). Hence, it is expected to have lower unemployment rates in the rural areas, for both male and female. In contrast to rural areas, women, particularly migrated women, in the urban areas have lower chance of finding a job. Therefore they exit from the labor force and concern themselves with their responsibilities at home for the following reasons. As mentioned by Tansel (2002 p.120), the first, as in most of the developing countries, is the "cultural values" (social constraints) against women which lowers the chance of obtaining a job offer for them. The second reason, which decreases the labor force participation as well as likelihood of employment for women in the urban areas, is their lower level of educational attainments and specific skills required for employment in the urban areas. Finally, we can not separate the difficulties of female's employment chance from the general situations in the Turkish economy as well as labor market. The harsher is the conditions in the labor market, the lower is the probability of obtaining a job offer and therefore the lower is the likelihood of employment.

2.3.2 Unemployment by Age, Gender and Residence

In the Figure 2.6, we have provided the average unemployment rates as well as the composition of the unemployed broken down by broad age-groups[5] under gender and residence difference over the period 1988-2003. It is clear from the Figure that the younger age-groups (i.e 15-19 and 20-24) always have larger unemployment rates, approximately two times larger than that of the country average and that of the other remaining age groups. In contrast to the country average, the general trend of unemployment rate to for these age groups is a declining one, until 2000. This decrease can be caused by "increases in high school and university enrolment" (see Tunalı, 2003, p.48). It is also clear from the Figure that individuals in their late career (i.e. in age group 55 and over) have the lowest unemployment rates over the study period between 1988 and 2003. The general conclusion about the younger age group does not change if we look at the unemployment rates by age under gender and residence difference. Hence, youngest age groups (i.e. 15-19

[5] The categorization of the broad age group data on unemployment rate as follows: 15-19 and 20-24, 25-34, 35-54, and 55+ (see SIS, 2004).

and 20-24) have larger unemployment rates over the study period. A further observation is that the unemployment rate differential between the age groups of 15-19 and 20-24 seems to increase after 1995 in the favor of 20-24, especially for the rural resident males.

2.3.3 Unemployment by Marital Status, Gender and Residence

When we look at the unemployment rates by marital status it is observed that single and divorced individuals, regardless of being male or female have larger unemployment rates than that of the country average over the study period from 1988 to 2003 (see Figure 2.7). The unemployment rate for the single individuals is approximately two times bigger than the country average over this period. In contrast to LFPR difference between men and women, married individuals, for both male and female, have lower unemployment rates than the country average. Furthermore, for the widowed males who live in rural areas we observe the lowest unemployment rates over the study period. The rates for the divorced ones who live in rural areas have some fluctuations, starting with the lower (3.57) than the rural areas average (4.95) in 1988; and ending with higher (9.75) than the rate for the rural average (4.33) in 2003 (see SIS, 2004).

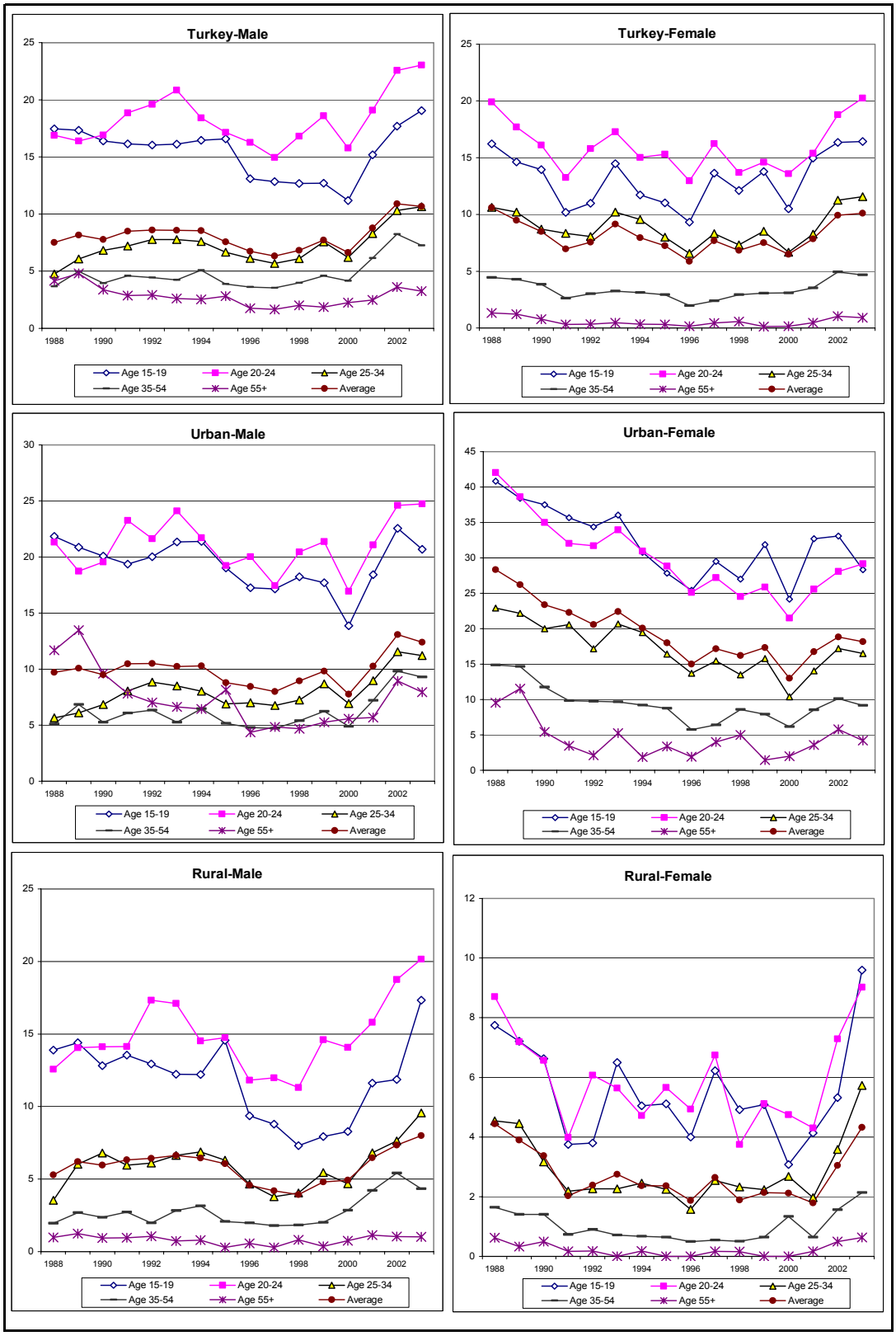

Figure 2.6: Unemployment Rates by Age-Group 1988-2003

Source: SIS database.

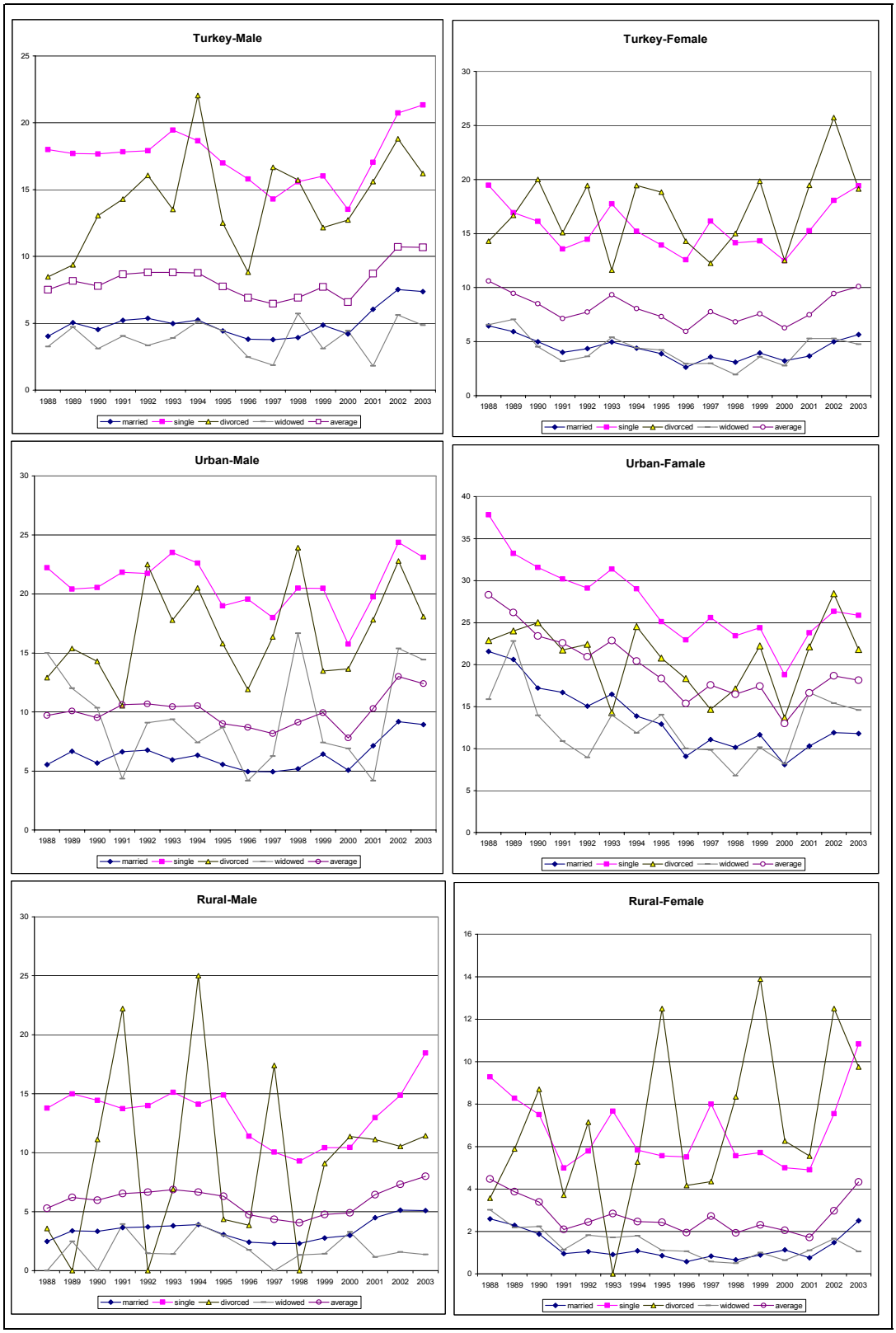

Figure 2.7: Unemployment Rate by Marital Status, Gender and Residence, 1988-2003

Source: SIS database.

2.3.4 Unemployment by Education, Gender and Residence

Let us now look at the unemployment rates by educational attainment in the period between 1988 and 2003 (see Figure 2.8). It is clear from Figure 2.8 that the rates of unemployment change significantly across different levels of education. The most striking result about the Turkish labor market is that individuals with no-degree (i.e. less than the primary education level) have the lowest unemployment rates than the other education groups. Individuals with high-school degree have highest levels of unemployment. If we consider the urban and rural resident individuals separately, our striking conclusion about the education level effect change. Then, individuals who live in urban areas regardless of being male or female with a university degree have a lowest unemployment rates compared to other education levels[6]. On the other hand, individuals in rural areas regardless of gender difference with no-degree have smallest unemployment rates compared to other individuals.

Moreover, individuals, for both males and females, in rural areas with high school and/or vocational high school degree have highest unemployment rates compared to other education levels. Another observation in the urban areas is that the unemployment rates for males do not vary too much (most of them very near to unemployment rate for urban resident male's average) with the education level except the two extreme ones, for the university group and for the no-degree group, particularly in the last three years. Furthermore, in contradiction of men, for urban resident women we observe an inverse-U shape pattern of the unemployment rate with respect to education level. In contrast to our expectation, the rate of unemployment initially increases with the increase in education level, then decreases. Hence, these two-extreme groups have lowest risk of unemployment. We further observe that rate of unemployment for the middle, high and vocational high school graduates women are always larger than the country average over the examination period of 1988 and 2003. Tunali (2003, p.52) states that this finding "may have been responsible for historically low female continuation rates after the primary school level".

[6] Another interesting result is that urban resident female with no-degree have also lower unemployment rates than the average for the urban-resident female.

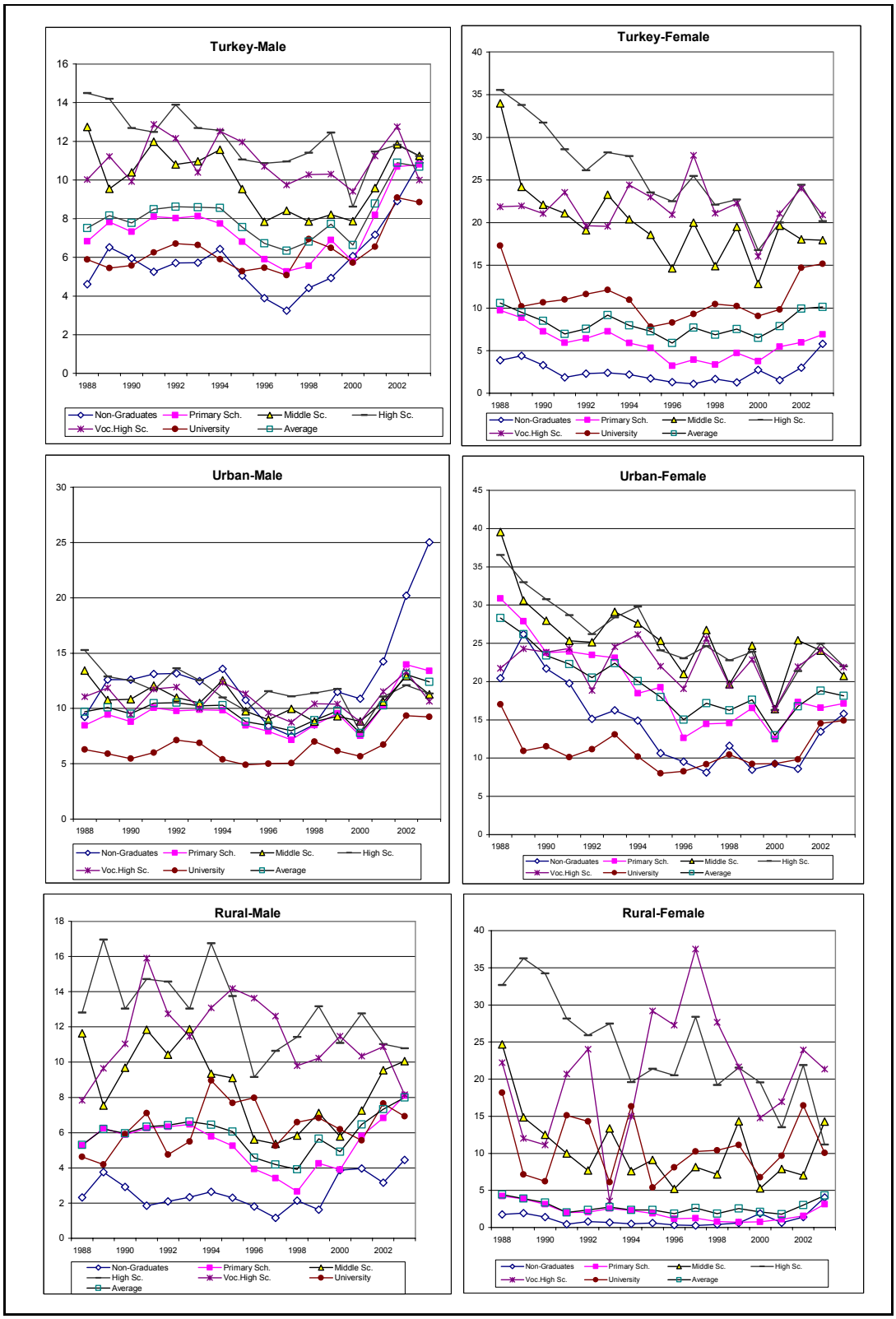

Figure 2.8: Unemployment Rates by Education Level 1988-2003

Source: SIS database.

2.3.5 Unemployment by Reason, Gender and Residence

To examine the unemployment problem in Turkey, which "can be voluntary or involuntary" (Tunalı, 2003), it is also useful to consider the reason for unemployment (see Ansal et al., 2000). Using the information provided in the Household Labor Force Survey we can look at this problem. The survey allows unemployed individuals to fill 9 alternative reasons[7] for the unemployment. We can construct three main groups of reasoning by using these alternatives; these are lost job, quit job, and first-time job seekers. In Figure 2.9, we have illustrated the changes in the shares of these three alternative groups over the period between 1991 and 2003. In the figure, following Tunalı (2003, p.45), we also illustrate the share of individuals who state that just "completed their compulsory military service" and individuals who state that "just graduated from school" among the first-time job seekers.

The main observation from the Figure 2.9 is that first-time-job-seekers have highest share among the unemployed women over the examination period and the result does not change for both the urban and rural resident ones, except in 2003. Further, it is also observed that the share of first-time job seekers seems to decrease, between 1997 and 2003, in all groups of unemployed individuals with the largest decline being observed for the rural resident ones for both males and females. The share of first-time job-seekers among rural resident unemployed men decreases from 44.8 percent in 1997 to 11.6 percent in 2003. This share for the rural resident unemployed women declines from 74.5 percent in 1997 to 20.64 percent in 2003. The corresponding share for the urban residing men (women) is also decreases from 33.47 (65.8) percent in 1997 to 13.13 (30.21) percent in 2003 (see SIS database, 2004).

Among first-time-job-seekers urban residing female the share of those who just graduated from the school, in general, shows an increasing trend for the years between 1991, with the share of 15.8 percent –with the exception of 1994 crisis-, and 1998, with the share of 28.4 percent in the urban areas (see SIS, 2004). The share of these individuals decrease after 1998, and the largest decline is observed in 2001, with 15.6 percent share. The decreasing trend in this share continues in

[7] The survey allows us to make the following groups of reasoning for unemployment, first with 1991: a**) "Lost job**: (i) worked temporarily, (ii) was dismissed, (iii) business got liquidated or went bankrupt; b) **Quit job**: (i) due to insufficient income, (ii) due to unsatisfying working conditions, (iii) retired; c) **First time job seeker**: (i) just graduated, (ii) just completed his military service, and (iii) other " (See Tunalı, 2003; p 45; and SIS (2002).

the last years of our observation and reaches to 13.9 percent in 2002 and then to 12.8 per cent in 2003. The decrease of the share of just graduated women in the total first-time job seekers women means that the share of other- first-time job seekers in the total first-time increased after 1998. Hence we find another support for the added worker effect, as in the previous part (see Tunalı, 2003). In contrast to women, for men the lost-job individuals have the highest share in the same period. Tunalı (2003, p46) suggests that since primary earners "men are much more involved in the labor market, and consequently have a smaller share of first-time-job-seekers among the unemployed".

Furthermore, we also observe that the share of lost job individuals among the unemployed women clearly increases after the year of 1998 because of the economic recession. This share increases from 14.9 percent in 1998 to 22.4 percent in 2000, and then to 33.8 percent in 2003. It is also observed from the Figure 2.9 that the share of lost-job individuals among the unemployed men seems to decline in the first-three years until 1993, then increase in 1994 because of the economic crisis. After 1994, this share decreases until 1998, and then increases because of the economic downturn from 34.8 percent in 1998 to 60.3 percent in 2002 for males. The conclusion does not change too much for both the urban and the rural resident men.

The share of lost job individuals among unemployed men increase from 34.8 percent in 1998 to 60.3 percent in 2002, and declines to 56.8 percent in 2003 but still quite large. If we look at the results for the urban and rural resident individuals separately, the effect of the economic crises becomes clearer particularly for urban resident female. We observe that the share of lost-job individuals among the unemployed female increase more than double in four years. This share increases from 14.5 percent in 1998 to 27.29 percent in 2001, and then to 29.2 percent in 2002. The increasing trend in this share is also observed for the urban resident men, but less than women.

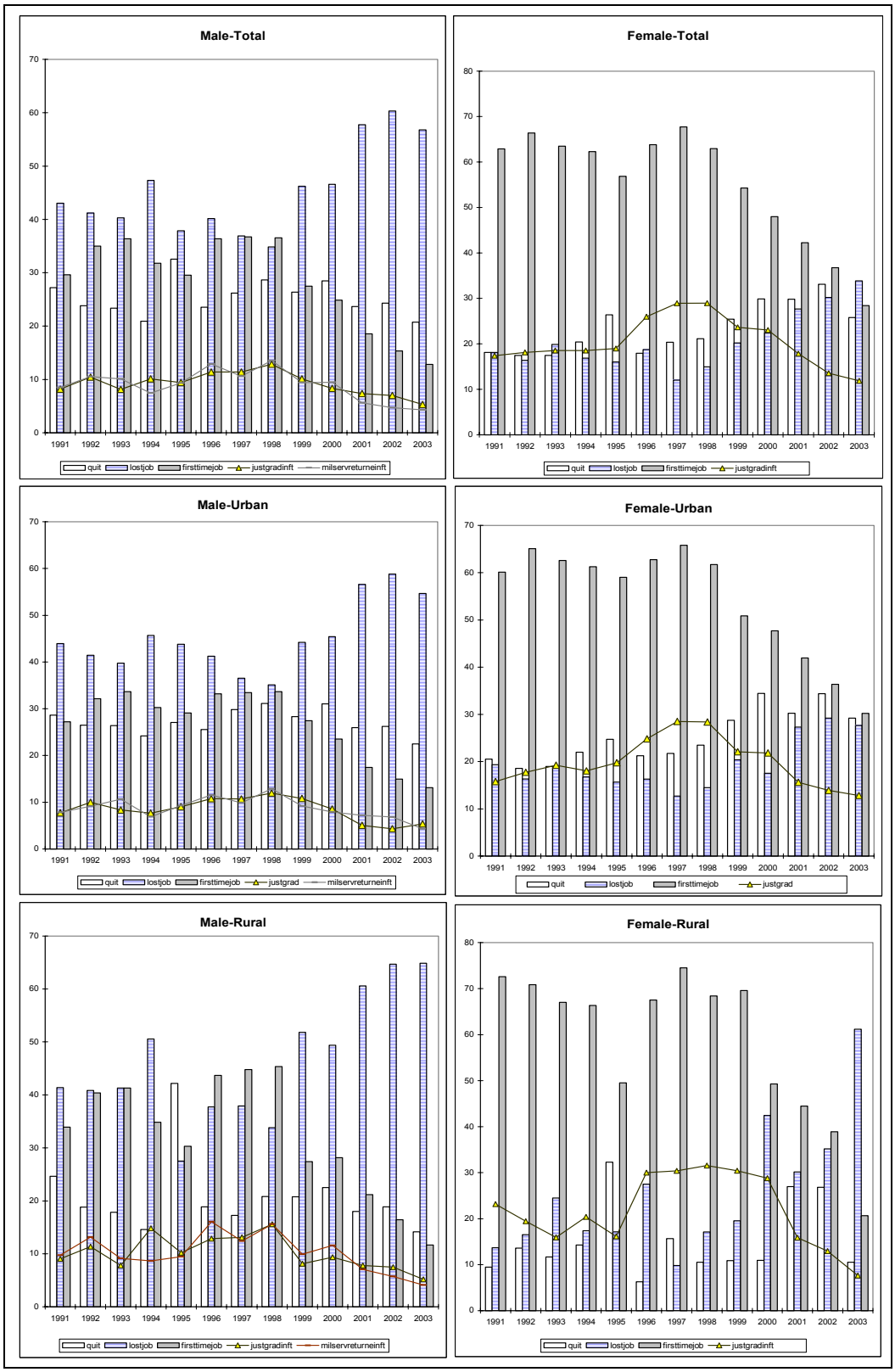

Figure 2.9: Unemployment by Reason, Gender and Residence, 1991-2003

Source: SIS database.

It is also useful to look at the unemployment by reason and education level. For doing this we have provided the composition of unemployed individuals by three main category of reason for unemployment and education level for the last four years of our observation period (i.e. from 2000 to 2003) by gender. The obvious observation from Figure 2.10 is that the share of primary school graduates is the largest one in the lost-job and quit job individuals regardless of being male or female. The individuals with middle school or less (than the middle school) education takes approximately 80 percent of the lost-job individuals. Hence these individuals have a higher risk losing their job. The lowest share is observed for the university graduates in the lost-job-men. The share of university graduate women in the lost-job and first-time job seekers group seems to increase between 2001 and 2003, and university graduates have the largest share in the first-time job seekers group in 2003. We also observe that the share of high-school graduates, regardless of being male or female, is the largest one in the first-time job-seekers in 2000 and 2001. However, the leader becomes the university graduates in the last two years of our observation.

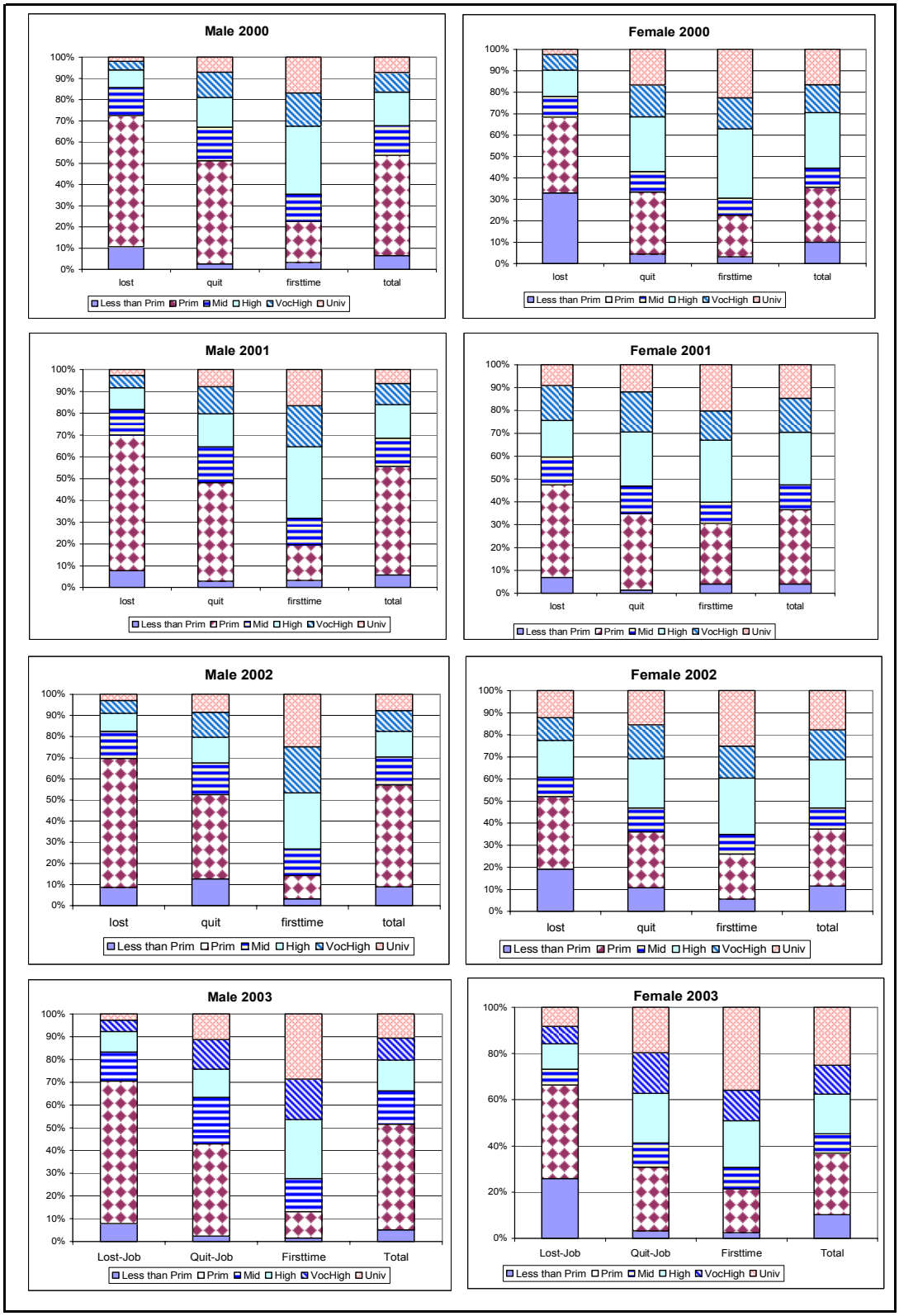

Figure 2.10: Unemployment by Reason and Education, 2000-2003

Source: SIS database.

2.3.6 Unemployment Rates by Geographical Region

Since the data on unemployment by geographical region is available after 2000, we provide the unemployment rates in Figure 2.10 for each region in the years between 2000 and 2003. We observe from the Figure 2.10 that the rate of unemployment for women is very close to or larger than the rate for men in the more developed regions, such as Marmara and Aegean. However, the rate is very low, thus lower than men, for the less-developed regions, such as East Anatolia. The difference between men and women become evident when we look at the results for the urban resident individuals. Furthermore, one more observation is that the rate for men has an increasing trend in Aegean, Central Anatolia and Southeast Anatolia because of the economic recession. The same trend is also observed for women in Marmara, Central Anatolia and in Southeast Anatolia regions. The largest increase in unemployment rate is observed in the poorest regions Southeast Anatolia, and then in East Anatolia when we look at the rates for the urban individuals. The increases in unemployment rates are rather small in the other remaining regions, with the smallest one being observed in the Black Sea Region. For urban residing men the unemployment rate increases from 9.1 percent and 6.0 percent in 2000 to 21.5 percent and 10.8 percent in 2003, in Southeast and East Anatolia, respectively. The rate for urban residing women increases more than men, from 13.0 and 9.4 percentages in 2000 in Southeast and East Anatolia, respectively to 37.6 and 23.0 percentages in 2003, in the same manner. Hence one can say that even if the country experienced an economic upturn in 2003, the effect the economic recession still continues in the urban areas of all the regions and the smaller effect is observed in the Black Sea Region.

If we look at unemployment rates in rural areas, the largest increases of the rates are observed in the Southeast and East Anatolia, and then in the Central Anatolia. The rate of unemployment for rural resident women increases from 1.2 percent to 20.5 percent; 0.1 percent to 0.8 percent and 0.7 percent to 3.5 percent, from the year 2000 to 2003, in Southeast, East and Central Anatolia, respectively. The increase in this rate for women were smaller than men starting with 4.7, 3.1 and 2.9 percentages in 2000, in the same regions in the same order, ending with 8.2, 5.5 and 19.9 percentages in 2003. Hence, it is possible to say that the effect of the economic recession in the rural areas, even though the country experienced an economic recovery in 2003, are mostly perceived by the individuals who live in the Southeast, East and Central Anatolia regions.

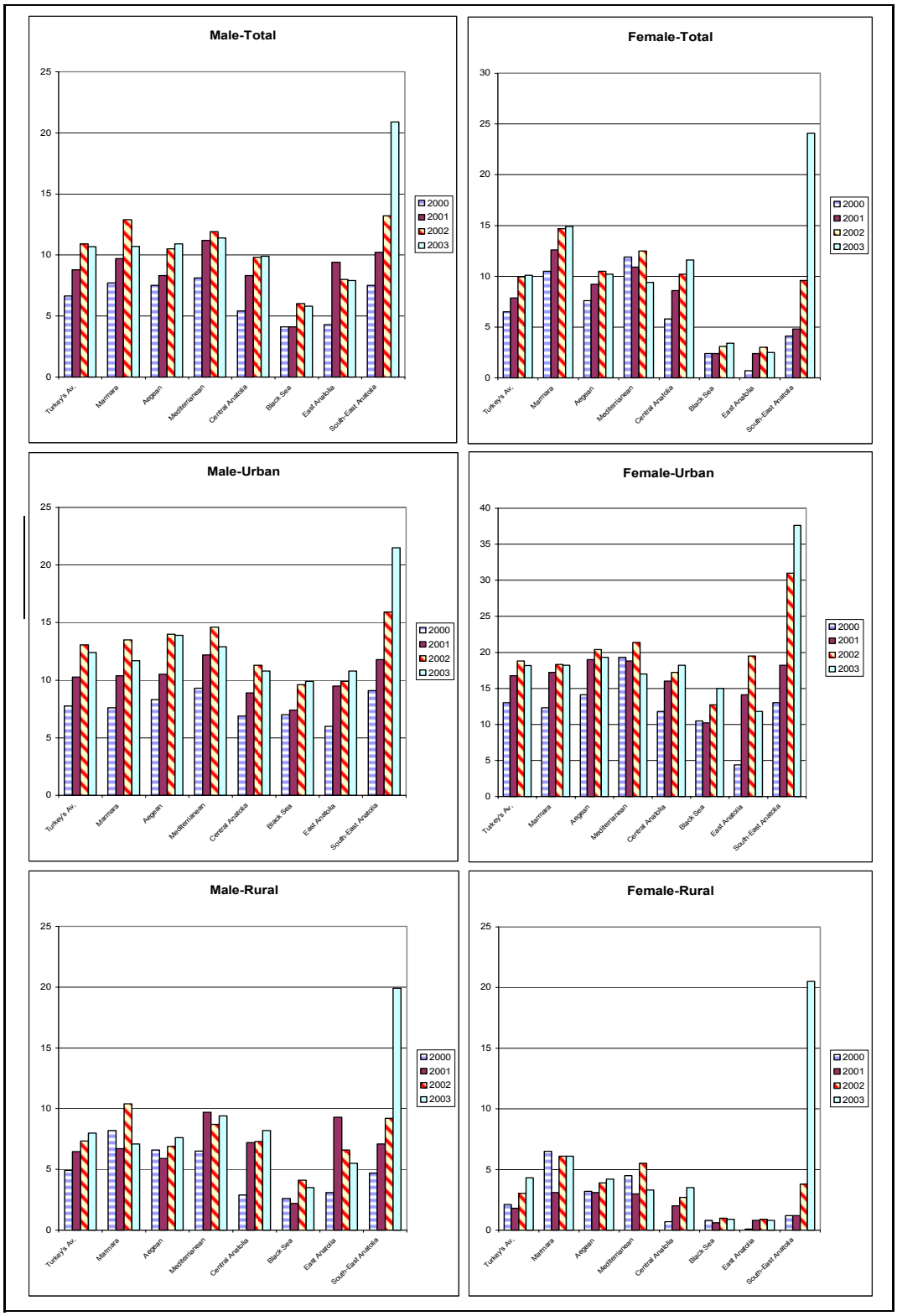

Figure 2.11: Unemployment Rates by Region, Gender and Residence, 2000-2003

Source: SIS database.

In addition, the rate of unemployment for the urban residing men or women is in almost all years lower than the Turkey's average value for the Black Sea, Central Anatolia and East-Anatolia region over the period under examination. The rate of unemployment in urban areas for the most developed regions, such as Marmara, Aegean and Mediterranean, and in the one of poorest region that is Southeast Anatolia is very close to or above than the country average. Further, we observe that the rate of unemployment for the rural residing men is lower than the country average for Black Sea and East Anatolia regions, whereas the rate is larger than the average for men who live in the rural areas of Marmara, Southeast Anatolian and Mediterranean regions.

2.3.7 Long-Term Unemployment

A further characteristic of the unemployment is the long-term unemployment. An individual is defined as a long-term unemployed if he or she as had been searching for a job for twelve months or more. On average 29.6 percent of unemployed individuals in OECD countries were long term unemployed. The share of the long-term unemployed is higher in the transition economies such as 50.7 percent in Czech Republic, 48.4 percent in Poland and 59.8 percent in Slovak Republic, in 2002. Higher proportions are also observed for some European Community countries such as 49.6 percent in Belgium, 47.9 percent in Germany, 52.4 percent in Greece in 2002. The lowest proportion of the long-term unemployment is observed for the United States with 8.5 percent and Canada with 9.7 percent in 2002[8]. The proportion of the long-term unemployed individuals in total unemployment in Turkey is about the same with the OECD average that is 29.6 percent in 2002[9].

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[8] The percentages were taken from OECD (2003).

[9] The data on the duration of unemployment comes from the Household Labor Force Survey. In the survey unemployed individuals are only asked their unemployment spells (ongoing spells) until the time when the survey conducted. Hence we do not know the exact duration of unemployment, i.e. our observations on the duration of unemployment are all right censored. For the individuals who just find a job, we do not have any information when they are employed. Thus, it is possible to say that unemployed individuals have longer unemployment duration than the spell which they reported. Tunalı (2003, pp.47-48) supports this by saying "Since individuals who have longer unemployment spells are more likely to be unemployed at a given point in time, we obtain a more pessimistic picture of time spent in the unemployed state. Put differently, because we do not know how long it took recently employed people to find job, the numbers reported above are likely to be biased upward."

In Figure 2.12, we have provided the average values of the proportion of the long-term unemployed (LTU) youth and prime aged individuals in selected OECD countries for the period of 1990 to 2002. As can be seen from the Figure 2.12, incidence of LTU were larger than Turkey's average value of 31.17 percent, in Greece with 48.57 percent, in Italy with 60.5 percent, in Spain with 41.1 percent, and finally for Ireland with 37.6 percent.. The same values 18.8 percent in France, 24.07 percent in Germany[10]. The lowest numbers between the European countries are observed for the Nordic countries. These are 9.3 percent for Denmark, 7.75 percent for Finland, in the same period. The lowest rates are observed for Canada and the USA[11], with the values of 5.48 and 4.2 percentages, respectively. As in majority of OECD countries, in Turkey the occurrence of long-term unemployment among the youths has been declined over the examination period under consideration (see OECD, 2002).

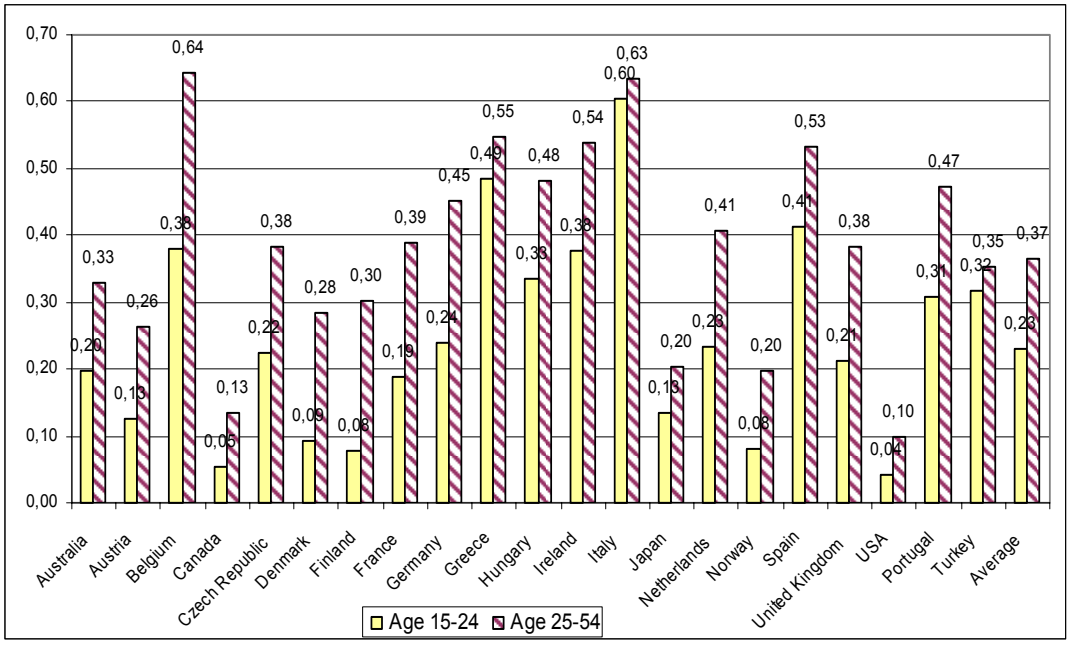

Figure 2.12: Incidence of Long-Term Unemployment among Youth and Prime Aged Individuals in OECD Countries; 1990-2002 Average

Source: OECD Database.
Notes: 1) Data for Austria refer to the average annual rate in 1992-2002
2) Data for Hungary refer to the average annual rate in 1994-2002
3) Data for Czech Republic refer to the average annual rate in 1993-2002
4) Data for Finland refer to the average annual rate in 1992-2002

[10] The numbers calculated from OECD's database from the website: www.oecd.org.
[11] For the USA average value calculated for 16 to 24 years of old.

In Figure 2.12 we also present the incidence of LTU for the prime-aged (i.e. age 25-54) individuals in OECD countries. It is clear from the figure that for Turkey the occurrence of LTU for this age group is lower than the average value for the OECD countries. The largest values are observed for Belgium with 64.3 percent, Italy with 63.4, Greece with 54.9, and Spain with 53.18 percent. The lowest values are observed in the following countries. These are USA with 9.9 percent, Canada with 13.5, Norway with 19.7 and Japan with 20.4 percent. Moreover, we observe that the prime aged individuals in all countries above, including Turkey, under the examination period have larger "incidence of long-term unemployment" than the young. In some countries the difference is more than double such as in Denmark, Finland and in the USA.

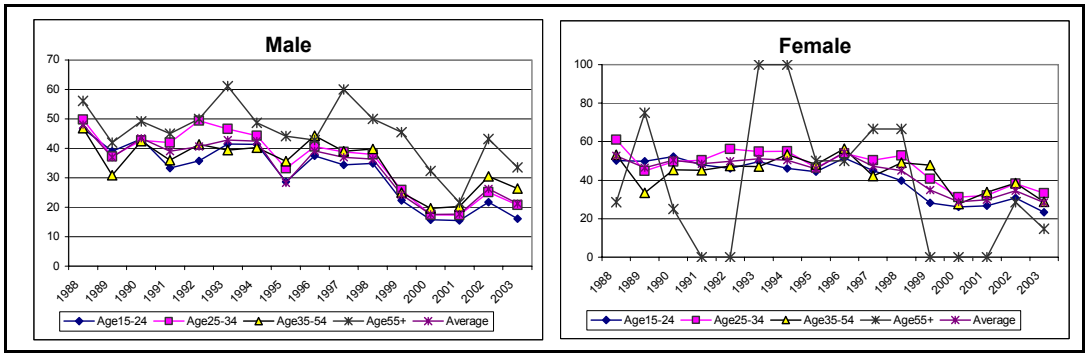

Figure 2.13: Proportion of Long-Term Unemployed by Age Group, 1988-2003

Source: SIS database.

In Figure 2.13, we have provided the proportion of the long-term unemployed men and women by considering the age group difference over the period between 1988 and 2003 in Turkey. It is clear from the Figure 2.13 that the incidence of long-term unemployment has a declining trend, even though it has some fluctuations, over the study period. Further, the proportion of the long-term unemployed in all age groups is always larger for females than for males over the examination period. Moreover, the proportion of the long-term unemployed for the youth (i.e. age 15-24) is in general, with a few exceptions such as in 1989, lower then the country average regardless of being male or female. The similar result is found for some OECD countries by Machin and Manning (1999) and in OECD Employment Outlook (2002). Further, it is worth to mentioning that in the years between 1999 and 2000, the proportion of the long-term unemployed individuals declined

by a considerable amount. This decrease can be attributable to the change in the definition of unemployment[12], rather than the changes in the economic conditions.

Table 2.6: Proportion of the Long-Term Unemployed by Education Level: Turkey 1988-2003

		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003
Male	Non-Grad	51.21	31.16	47.53	40.75	37.63	36.89	39.75	31.21	33.02	44.50	29.58	14.06	13.08	21.88	18.80
	PrimSc	49.14	37.12	45.36	33.61	42.31	42.34	41.32	28.00	38.50	37.55	37.57	14.29	15.90	24.43	17.84
	MidSc	48.91	40.57	39.23	36.88	38.06	42.59	42.94	31.61	43.84	35.80	41.46	17.12	18.32	30.56	26.93
	HighSc	48.06	41.41	45.16	46.58	42.71	48.48	47.69	39.42	39.07	38.76	32.93	23.56	22.91	30.13	24.97
	VocHighSc	43.40	38.60	33.33	38.46	35.71	43.14	45.83	42.68	45.88	34.09	44.19	25.74	19.44	27.27	25.87
	University	26.83	35.00	23.81	31.25	32.73	42.37	39.29	30.91	29.03	26.23	24.42	16.25	20.43	24.83	22.68
	Total	48.08	36.95	43.47	38.22	40.65	42.86	42.40	33.97	39.19	36.94	36.32	17.55	17.71	26.18	21.23
		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003
Female	Non-Grad	58.08	41.94	52.98	37.14	50.71	50.00	42.48	46.43	46.88	60.00	25.79	12.63	14.36	17.54	7.99
	PrimSc	54.51	37.30	49.50	46.02	46.81	44.62	50.27	39.05	53.77	50.00	42.06	28.57	28.39	31.03	22.64
	MidSc	53.97	59.65	44.79	42.75	62.40	56.52	74.07	49.49	80.56	32.87	54.76	48.99	33.33	34.65	35.42
	HighSc	57.97	64.23	52.31	57.14	56.91	58.39	54.73	56.03	55.80	51.83	54.61	36.36	33.64	39.58	41.74
	VocHighSc	42.42	62.07	44.12	57.14	57.14	62.07	51.52	48.84	61.36	50.00	39.62	40.00	30.00	36.56	36.25
	University	32.61	37.04	41.94	36.11	29.55	41.86	41.67	25.71	41.46	28.30	32.81	22.22	28.17	37.19	29.11
	Total	52.66	46.37	50.29	48.45	49.79	51.12	50.29	45.96	54.52	47.23	44.94	28.68	29.88	34.48	28.33

Source: SIS Database.

It is also useful to look at the education aspect of the long-term unemployment. In table 2.7, we have provided the proportion of the long-term unemployed by education level over the period between 1988 and 2003[13]. It is clear from the Table 2.7 that there is a decreasing trend of the proportion of the long-term unemployed for each education level and for each gender. The trend is more dramatic for the non-graduates starting with a largest amount then ending with a lowest one. The proportion of the long-term unemployed declines for men from 51.21 percent, in 1988, to 18.8 percent, in 2003, for female 58.08 in 1988 to 7.99, in 2003. However, even though the decreasing trend continues for each gender, our conclusion seems to change for men when we consider the urban-resident individuals separately. The lowest proportion for urban resident men is observed for the primary

[12] Until 2000 an individual were accepted as an unemployed if he or she used one of the job search method within the last six months. This criterion was changed in 2000. After 2000 an individual were accepted as an unemployed if he or she used one of the job search method within the last three months.

[13] Since the duration data by education for the young individuals are not available we could not consider the young separately.

school, with 22.71 percent, and then for the university graduate, with 22.82 percent, in 2003 (see SIS Database, 2004). Further, with a few exceptions (except the last few years), university graduate urban residing individuals, regardless of being male or female, have the lowest proportion of the long-term unemployment.

2.4 Trends in Underemployment

In the definition of underemployment used by SIS two main groups of employed persons are included. The **first group** is the involuntary part-time workers. An individual is considered as an involuntary part-time worker if he or she "works less than 40 hours because of economic reasons[14] during the reference period and are able to work more at their present job" (SIS, 2001a, p. XXIV). The **second group** covered in the underemployment definition of SIS inclusive of the individuals who want to change his/her current job due to an inadequate income or because the job does not match their skills properly (see SIS, 2001a, Kasnakoğlu, 2002 and Tunali, 2003, p.54). The latest part of the underemployment can be considered as an approximation to invisible underemployment

The definition of underemployment used by SIS is different from the definition used by OECD. In addition to involuntary part-time workers, OECD's definition of underemployment includes unemployed individuals plus discouraged workers (see Tunali, 2003). Discouraged workers are the individuals who are available to start a work but gave up searching for a work due to the following reasons. The first is that, they do no not know where to search. The second, they think that there is no job available for them in the area they live (see SIS, 2001a). Table 2.7 presents the underemployment rates calculated under the definition used by SIS.

Under the examination period of 1988 to 2003 the underemployment rates in Turkey have varied between 4.8 and 8.45 percent, with having its maximum in 1999 and its minimum in 2003. We also observe that there is no increasing or decreasing trend in the

[14] Economic reasons can be classified as follows: i) work slowdown owing to technical or economic reasons, ii) non-availability of work, iii) could not find full-time job, iv) the job has just started or has come to an end during the last week (see SIS, 2001a).

underemployment rate until 1999, for each gender and residence. The considerable decrease in the underemployment rate after 2000 can be explained by "the methodological changes in the Household Labor Force Surveys in the form of shorter and moving reference periods, larger sample size and higher response rates" (see Kasnakoğlu, 2002, p. 146). Further, it is seen from the Table 2.7 that for most of the years the underemployment rate in urban areas is larger than rural. But the difference of rural and urban in the underemployment rates is smaller than the difference in the unemployment rate (see Table 2.4 and 2.7). A further observation from the Table 2.7 is that the rate of underemployment for male is always larger than the rate for women (more than twice), for both urban and rural residents. One more observation is that the rate for men in rural areas is always larger than the rate for urban areas. In contrast to men, the underemployment rate for women in urban areas is always larger than rural areas.

Table 2.7: Underemployment Rate by Gender and Residence, 1988-2003

	Turkey			**Urban**			**Rural**		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
1988	6.61	8.5	2.2	6.52	7.1	3.9	6.74	9.9	1.7
1989	6.98	8.9	2.7	7.14	7.7	4.6	6.82	10.2	2
1990	6.13	8.5	1.9	7.24	7.9	4.5	5.91	9.3	1
1991	6.5	9.3	2.4	7.55	7.8	5.9	6.9	10.8	1.3
1992	7.43	10.1	3.6	7.6	8.3	4.8	8.55	12.3	3.1
1993	7.18	9.3	3.2	7.8	8.4	5.3	7.6	10.4	2.2
1994	7.72	10.2	4.2	8.7	9	7.4	8.2	11.6	2.8
1995	8.17	8.4	3.7	7.3	7.9	5.6	6.6	9	2.8
1996	7.44	8.2	3.3	6.3	6.9	4.1	7	9.7	3.4
1997	7.67	7.6	2.4	6.55	7	4.7	5.6	8.2	1.2
1998	8	7.7	2.2	6.6	7.2	4.2	5.65	8.4	1.2
1999	8.45	10.85	2.95	8.9	9.45	5.2	8.9	13.2	1.8
2000	6.98	8.4	2.8	7.4	7.9	4.9	6.5	9	1.5
2001	5	7.4	2.3	6.5	7.1	4.1	5.4	7.8	1.2
2002	5.4	6.8	2.1	5.9	6.5	3.4	4.8	7.2	1.1
2003	4.80	5.80	2.30	5.20	5.50	3.80	4.40	6.30	1.20

Source: SIS Database.

Figure 2.14 shows the underemployment by major economical activity over the examination period of 1988 and 2003 for the urban and rural residing men and women separately. We observe from the Figure 2.14 that services sector has the highest share in underemployment in the urban areas regardless of being male or female. The share of

services sector in some years for female is larger than share for men. The industry sector with about 30 percent share has been the second sector in the underemployment of female under the period of observation of 1988 and 2003. As expected, the smallest share observed in agriculture for male, in construction for female in urban areas over the period of 1988 and 2003. However, the industry and construction sectors, with no clear difference, have the second share in the underemployment of urban residing male in the same period. In contrast to urban areas the share of agriculture in the rural areas is the largest one for both males and females.

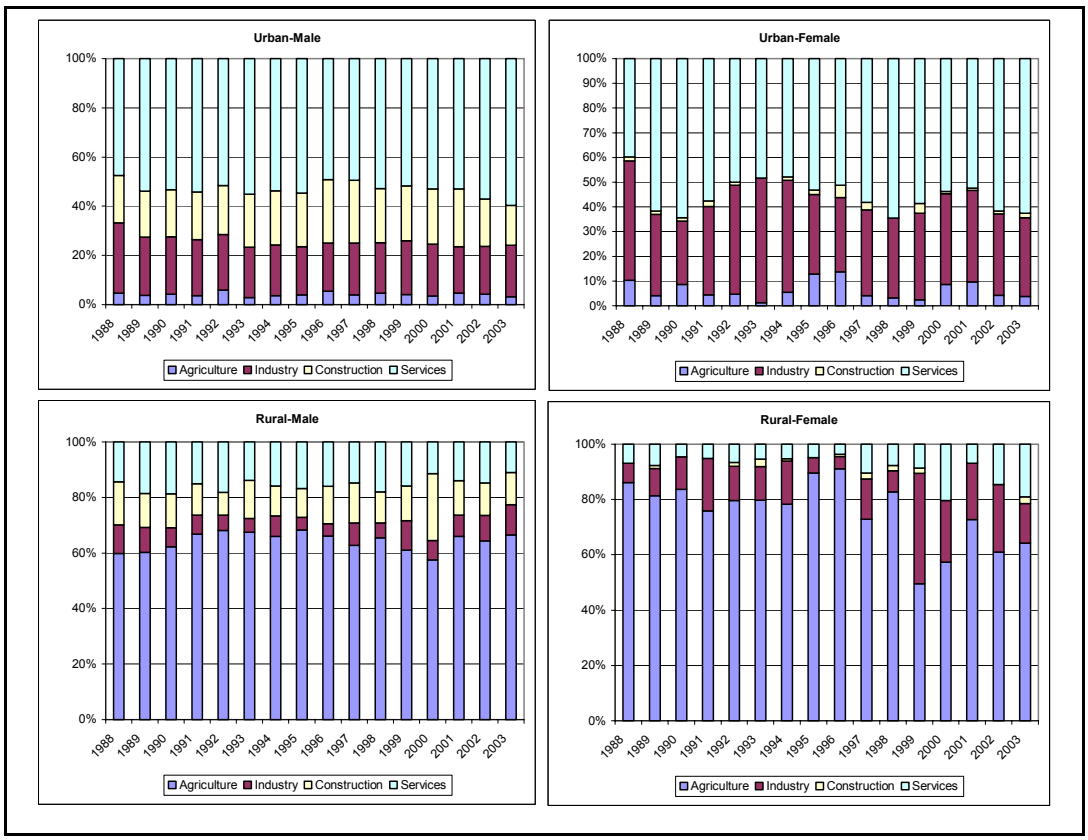

Figure 2.14: Underemployment by Economic Activity 1988-2003

Source: SIS Database.

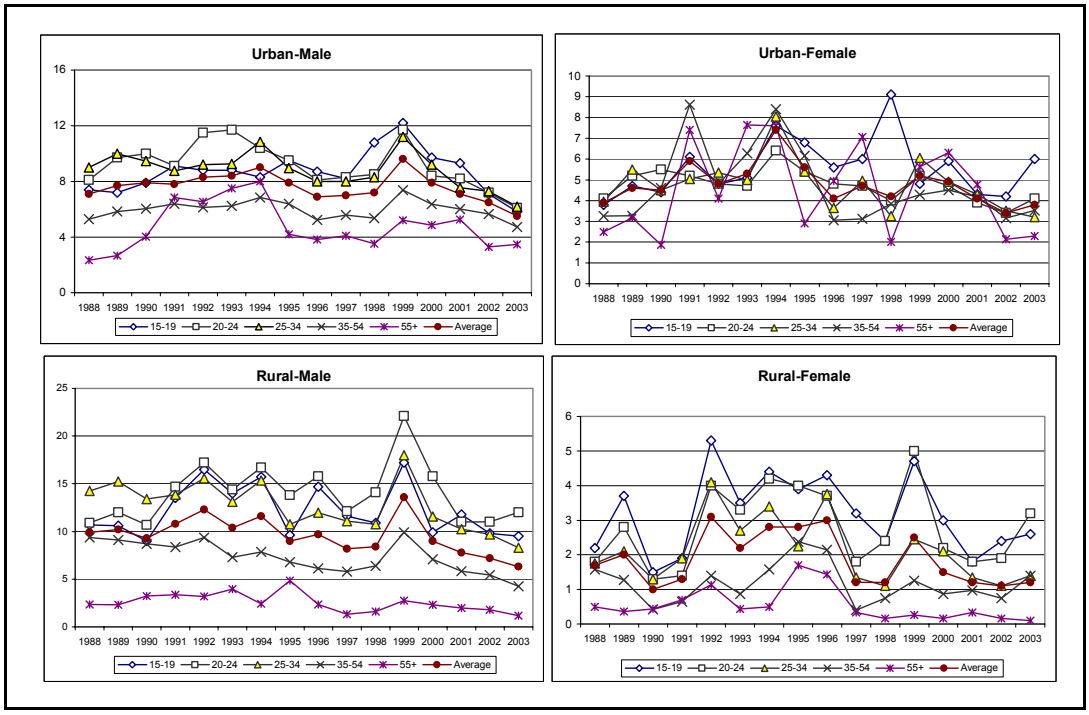

Figure 2.15: Underemployment by Age: 1988-2003

Source: SIS Database.

In Figure 2.15 we present the underemployment by broad age group over the examination period of 1988 to 2003 for the urban and rural residing men and women separately. We observe from the Figure 2.15 that the underemployment rate initially increases with the increases in age then decreases for the urban residing male, with a few exceptions during the period of observation. The men regardless of residence difference in their mid-career (age of 35-54) and late-career (age 55 and over) period have lower than the country average almost all years of our observation period. The same result also seems to hold for the rural resident female. However, there is no clear leader age group with more fluctuations and most of them near to average value for the urban resident female. One more observation is that the young individuals (i.e. 15-24) and the middle aged (i.e. 25-34) in total have more than 60 percent share in total underemployment. This amount is larger than their share in total labor force (see SIS, 2004).

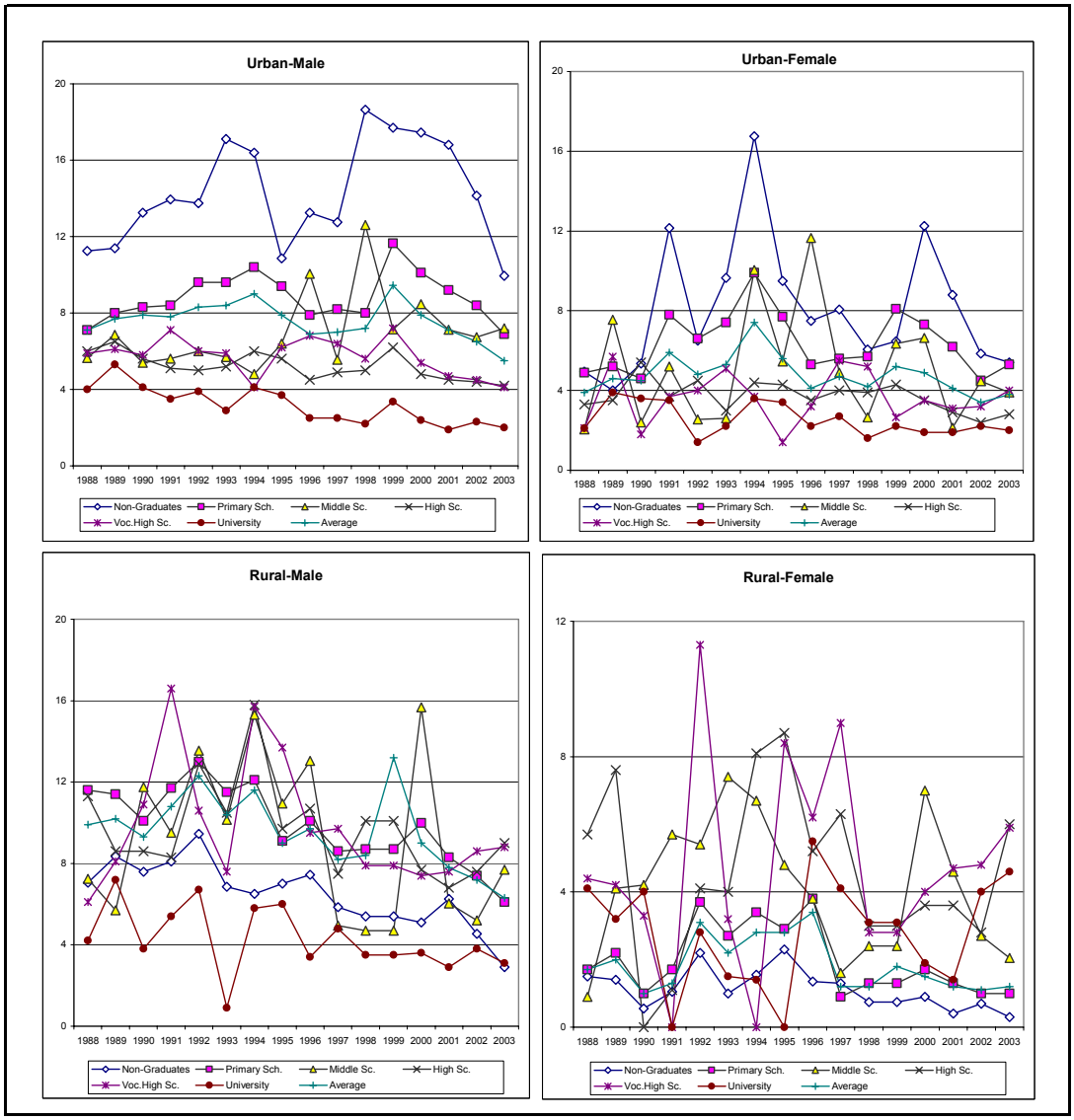

Figure 2.16: Underemployment by Education: 1988-2003

Source: SIS Database.

Figure 2.16 depicts the underemployment by educational attainment over the examination period of 1988 to 2003 for the urban and rural residing men and women separately. It is observed from the Figure 2.16 that the share of university graduates in underemployment is always lower than the country average for men regardless of living in urban or rural areas. The same result seems to hold also for the urban resident university graduate females. One more observation is that the largest share for urban residing men is observed for the non-graduates and then for the primary school graduates.

The similar result appears to hold also for the urban resident in the same education level (i.e. less than middle school degree) with having no-clear distinction between the other remaining education levels. An additional observation is that the share of urban resident men with high school or more degree in almost all years is lower than the urban average for men. If we look at the rural areas, we observe again that the university graduate men in almost all years have the lowest share in underemployment, and then the non-graduate is being the second lowest.

Figure 2.17 shows the underemployment by three reasoning of underemployment collected by SIS over the examination period of 1988 to 2003 for the urban and rural residing men and women separately. We observe that the share of individuals who are searching because they are dissatisfied with their income from the current job have the biggest share for male regardless of living in urban or rural areas. The same conclusion also can be applied to female, with the exception of 1988, 1989 and 1990 in the rural areas in which the share of involuntary part-time work (i.e. work less than 40 hours because of economic reasons) has a largest share. The share of individuals who are looking for a job because they are dissatisfied with their earnings on the current job seems to increase after the two economic crises which the country experienced (in 1994 and in 2000-2001) in the last fifteen years in the urban areas particularly for women. The share of this group, for urban resident female, increased from 52.9 percent in 2000, to 60 percent in 2002, and then to 71.15 percent in 2003. For men we do observe the same trend, the share of this group initially declined from 79.04 percent in 2000 to 78.51 percent in 2002, and then increased to 80.38 percent in 2003.

A further observation is that those who are looking for another job because they are not-working in their usual occupation have the smallest share for both male and female as well as for both urban or rural resident individuals. One more observation is that the share of individuals who are looking for a job because they are dissatisfied with their earnings for men is in almost all years larger than the share for women, regardless of residence difference. The same result holds for the involuntary part-time worker female, i.e. for female who work less than 40 hours because of economic reasons.

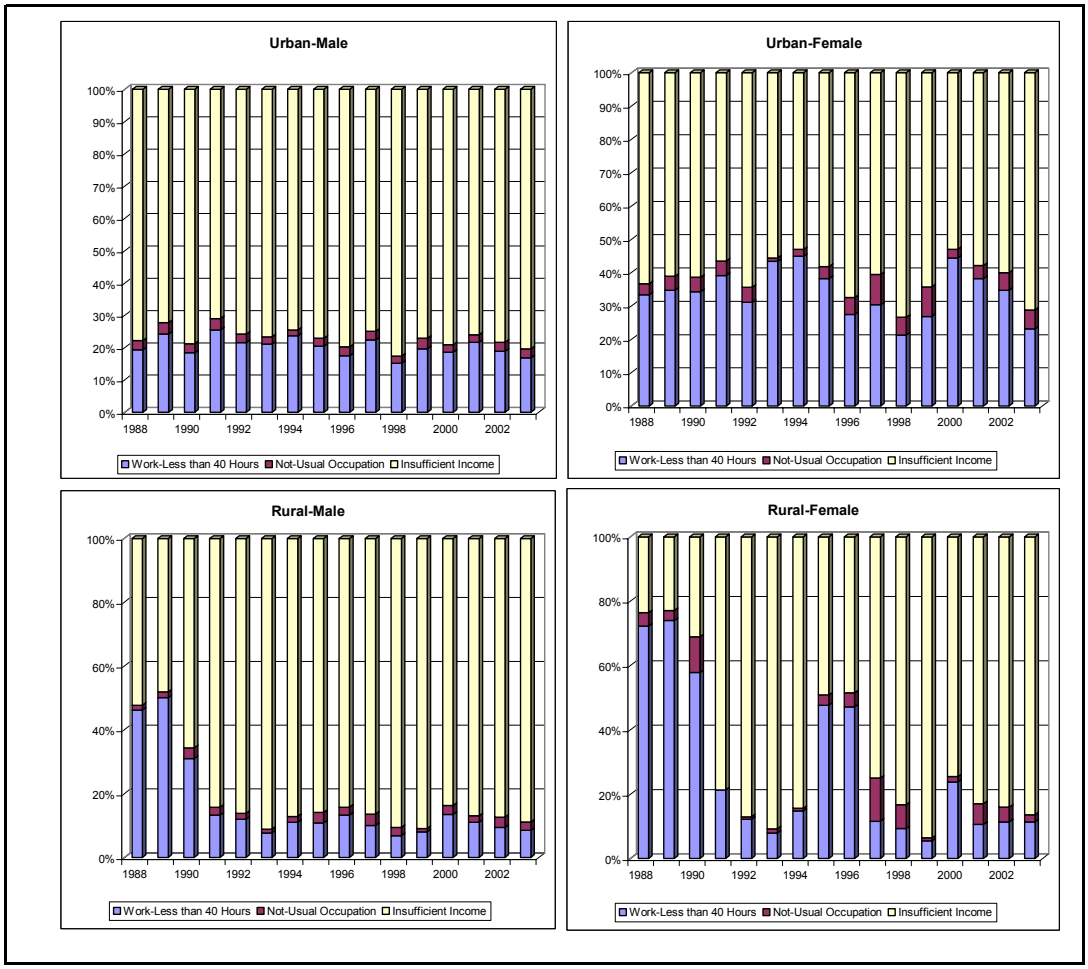

Figure 2.17: Underemployment by Types, 1988-2003

Source: SIS Database.

Finally, in Figure 2.18 we present the underemployment by using the definition employed by OECD, rather than using the SISs' definition. As mentioned previously, the underemployment definition of OECD covers the individuals who are involuntary part-time workers (this group also included in the SISs definition) plus unemployed plus the discouraged workers. Note that because the data on discouraged workers are available after 1990, the effects of this group are zero until 1991. We observe from the Figure 2.18 that the contribution of involuntary part-time workers to underemployment is larger than that of the discouraged workers for male regardless of living in urban rural areas. The same conclusion seems to hold also for the urban residing female, with a few exceptions, but not for the rural residents in which, in most of the years, the discouraged workers have larger contribution

than the involuntary part-time workers. The contribution of involuntary part-time workers to underemployment shows variations by years and gender; ranging between 0.92 and 2.13 percent for urban resident male, 0.87 and 3.34 percent for urban resident female, with the largest contribution being observed in 1994 for each gender. The total contribution of involuntary part-time workers and discouraged workers to the underemployment in urban areas ranges between 1.06 and 2.05, 0.8 and 2.2 percentages for males and females respectively in the period between 1991 and 2003. The same contribution in the rural areas ranges between 1.3 and 2.4, 1.12 and 5.11 percentages for each gender in the same order in the same period.

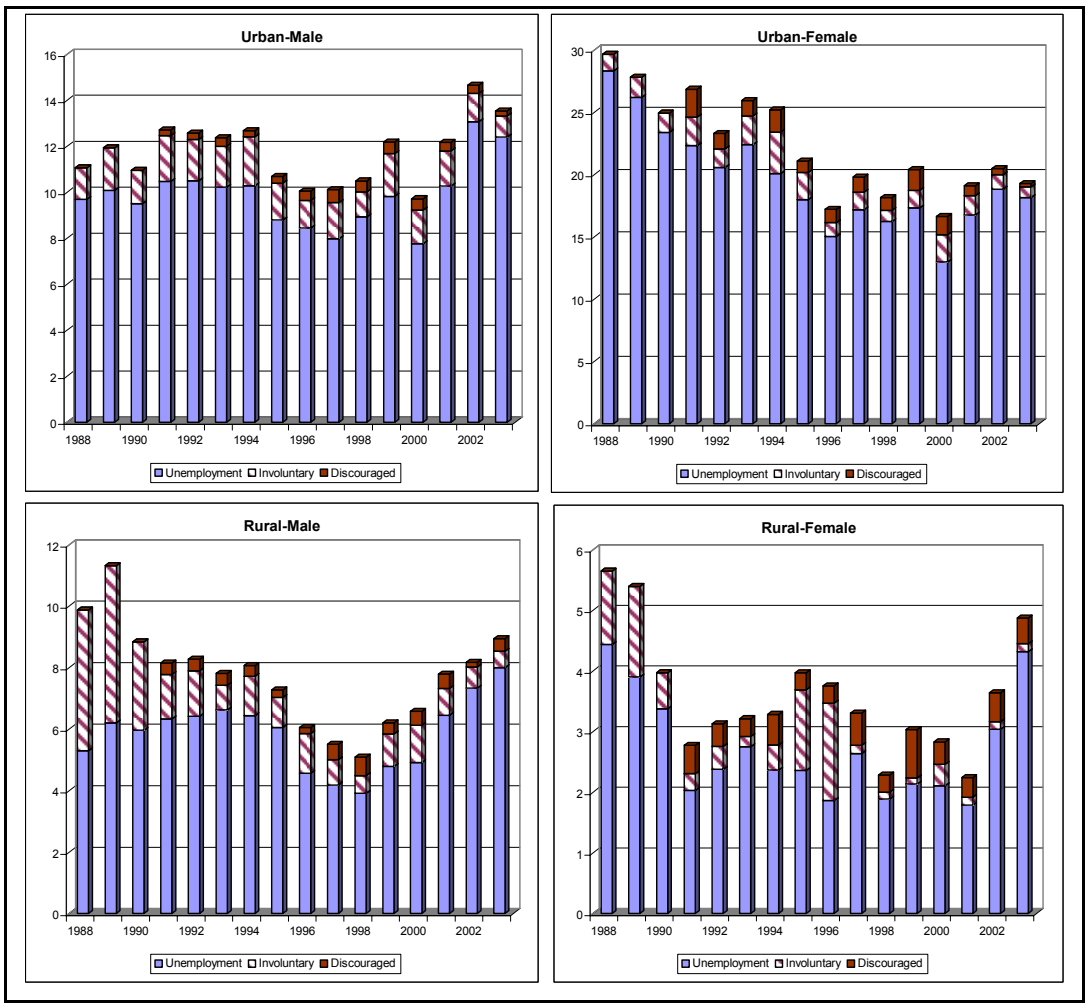

Figure 2.18: Underemployment OECDs Definition (unemployment + involuntary + discouraged workers) 1988-2003

Source: SIS Database.

Further, discouraged worker effect in urban areas for women, in almost all years, is two times larger than that for men (see Figure 2.18). One more observation is that discouraged worker effect for rural residing female in majority of our observation period is two times larger than that for the urban residing ones. A further observation is that for the last four years of our observation in contrast to increasing trend of unemployment for both urban resident male and female the contribution of both involuntary part-time workers and discouraged workers decline. The same trend is not observed in the rural areas. Hence, the effects of the 2000-2001 crises are mostly seen in the unemployment rates of both men and women. In contrast to our expectation the share of discouraged workers in the labor force does not seem to increase during the most recent (2000-2001) and past economic crisis (1994).

2.5 Concluding Remarks

Main findings of this chapter on the labor market in Turkey can be summarized as follows. The first observation is that industrialization of the country still continues. However, the share of agriculture in total employment is still quite large in comparison to OECD countries (see OECD, 2004, database). The second observation is that the share of service sector increases for both males and females over the last twelve years.

Regarding the labor force participation rates we observe a declining trend for each gender over the last 15 years. The rate for men is always larger than that for women, particularly in urban areas, and shows an inverse-U relation with respect to age over the period of 1988 to 2003. The largest LFPR is observed for the university graduates when we examine the rate by education level. If we look at the results for each gender separately the result was not different and the gender difference is lowest for the university graduates. Further, we observe that in contrast to men, married women's labor force participation rate is always lower than the country's average for women. However, married women's participation rate has increases during the last two economic crises. Thus we find some support for the added worker effect. One more observation for the married women's LFPRs is that the lowest rate is observed for the ages between 15 and 35. The main factor that

limits the participation of this age group may be having one or more children in the household since the use of child care centers are limited in Turkey. Increasing the number of these types of facilities may increase the labor force participation rate of this age group.

Concerning the trends in unemployment rates we observe that since weaker qualifications are needed for employment, the rate in rural areas is always lower than the rate for the urban areas. In this respect there is a significant difference between men and women living in urban or rural areas. The rates of unemployment in urban areas for females, because of cultural barriers against their market work and their lack of education and skills, are always larger than those for men. In the rural areas most of the women are easily employed in their own farm in agriculture working as an unpaid family worker.

A further observation is that the rate of unemployment for Turkey is always larger than the rate for the OECD countries average during the years between 1998 and 2002. As in almost all OECD countries, we observe that the young people have the highest unemployment rates over the period between 1988 and 2002. The lowest rate is observed for the oldest individuals regardless of being male or female. When we look at the rate of unemployment by marital status we observe that the unemployment rate for married individuals for both male and female is always lower than the country average. Next, the widowed individuals have the lowest unemployment rates. Regarding the unemployment rate by education we observe the lowest rates for the university graduates and for the non-graduates. Further, it is observed that during the recent economic crises the share of individuals who lost their jobs among the unemployed individuals seems to have increased, particularly for the urban residing women. The share of just-graduated ones in the first-time job seeker women declined (i.e. the share of other groups in the first-time job seekers increased) during the economic crises. This provides another support for the added worker effect. A further observation is about the human capital effect. The higher is the education level the lower is the probability of losing the job. The share of the university graduates, especially men, among the lost-job individuals is the lowest. Therefore university graduates are less likely to loose their job. However, the share of primary school graduates and non-graduates among the lost-job persons are higher than the other education levels, therefore they are less likely to keep their job.

During the most recent economic crisis the rate of unemployment increased in all regions of the country. The largest increase in the unemployment was in the Southeast Anatolia region where the rate of unemployment more than doubled in the pariod between 2000 and 2003. The lowest increase in the unemployment rates was in the Black Sea Region in the same period.

Long-term unemployment is also an important problem in Turkey, as is in almost all OECD countries. The incidence of long term unemployment among the youth (age of 15-24) in Turkey is larger than the average value for the OECD countries. However, long-term unemployment among the young is not higher than the country average of Turkey almost all years of our observation period. Incidence of long-term unemployment is the highest for the individuals in their late-career (age 55 and over) and mid-career (age 35-54) years. Contrary to our expectations from the human capital theory the lowest incidence of long-term unemployment is observed for the individuals with no-diploma (i.e. illiterates and literates without a diploma). The highest long-term unemployment is mostly observed for the high school and vocational high-school graduates.

Regarding underemployment we do not observe any increasing or decreasing trend until 1999 over the last 15 years. The rates of underemployment in urban areas are in most of the observation period larger than the rate for rural areas. After 1999 we observe a considerable decline in the underemployment rates for both male and female due to the methodological adjustments in the HLFS survey in 2000 (see Kasnakoğlu, 2002). Underemployment rates in each sector of economic activity are proportional to their shares in employment. Thus, we observe the highest share for the individuals employed, in the service sector in urban areas, agricultural sector in rural areas, for both males and females. As in the unemployment rate, the lowest underemployment rate is observed for the university graduates, particularly for men. Finally, even though we find some support for the added worker effect, we do not observe the discouraged worker effect during the last two crises that the country experienced.

CHAPTER 3

TRANSITIONS IN THE TURKISH LABOR MARKET

3.1 Introduction

"The labor market is in continuous internal motion, with workers moving rapidly between jobs, unemployment and non-participation even during periods of stable economic activity" (see Marston, 1989, p.169). In the literature there are a lot of studies, which analyze the transitions between the labor market states. Most of these studies have been carried out for the developed countries, for example, by Marston (1989) for the USA, by Bellman et al. (1995) for Germany, by Nielsen et al. (2000) for Norway. There are also several studies for the transition countries, for instance Huitfeldt (1996), Foley (1997a) and Lauerova and Terrel (2002). However, there is no previous study on this issue for Turkey. Therefore, this will be the main contribution of the present chapter.

In the analysis, most of the empirical studies utilize the panel feature of the labor force surveys (LFS). This feature of the LFSs allows the researchers to follow individuals in the working age populations making these flows across the various labor market states. In this chapter we focus on the transitions in the Turkish Labor Market. In the analysis we use the Household Labor Force Survey Data of 2000 (quarter I and II) and 2001 (quarter I and II). This survey data is nationally representative and allows us to identify and analyze the general characteristics of the individuals making transitions between the labor market states. We consider the usual three-labor market states –employment, unemployment, and out of the labor force- and analyze annual transitions between first (and second) quarters of 2000 and 2001.

Turkish economy experienced one of the severest economic and financial crises in 2001 within the last fifty years. Therefore, year of 2001 was a very hard year for Turkey. As a result of the economic crisis in 2001, GNP declined by 9.4 percent; industrial

production of the country declined by 8.9 percent (see SIS, 2003b). Thus, the total number of employed individuals fell by about 212 thousand compared with that of previous year of 2000. The effects of this crisis were not equally perceived by economic sectors. The worst-affected sector was the construction sector where the number of employed individuals fell by 240 thousand, and then the services sector with a contraction of 84 thousand people. In contrast to the above sectors the employment level in the agricultural sector rose by about 114 thousand people (see SIS, 2003b). Thus, in the year 2001, the employment rate decreased from 46% to 44.6% in total compared with that of the previous year. The corresponding percentages declined, from 68% to 65.4% and from 24.1% to 23.8%, for males and females, respectively between the same years (see SIS, 2003b). Because of the economic crisis or recession we expect an increase in the unemployment rate for the following two reasons. The first one is that firms may decrease their capacity, i.e. their work force. Second, they may not able to make new investments, "even potentially profitable firms", to create employment opportunities for the job-seekers in the current situation (Belmann et all, 1995, p.140). Therefore, there may be more individuals who lost their jobs and new job seekers who are less likely to be employed. When we look at the effects of this economic climate (i.e. the crisis) on the unemployment side, it is seen that, in the year 2001, the nationwide unemployment rate increased from 6.56% in 2000 to 8.32% 2001. The increase in the unemployment rate in 2001 was larger than Turkey's average in urban areas compared with that of the previous year (see Table 2.4). Moreover, the increase in female unemployment rate was higher than male unemployment rate in the urban areas (see Table 2.4). Lauerova and Terrel (2002, p.1) state that differentials in the unemployment rate's of two labor market groups, such as men and women, may be a consequence of differentials in the incidence of job loss. This difference may also stem from problems, such as discrimination for against women, in obtaining a job offer that one of the groups may face more often (Lauerova and Terrel). Thus, our aim is also to provide formal evidence on this important topic and examine the sources of unemployment rate differentials, such as urban residing women and men, by using the HLFS survey data.

This chapter proceeds as follows. Section 3.2 reviews the empirical studies on the transition data. Then the HLFS and sample data used in this chapter are briefly described in Section 3.3. Section 3.4 presents the gross flow methodology. Section 3.5 gives the econometric model. Section 3.6 presents transition probabilities between the labor market states under Markovian assumptions. Section 3.7 analyzes the sources of differentials in

unemployment rates among some demographic groups by using Marston (1976)'s decomposition. Section 3.8 provides the estimation results of multinomial-logit models for determinants of transitions out of employment, unemployment and not-in-labor force. The final section provides the concluding remarks.

3.2 Literature Review

In this part we will consider the modeling approaches to analyzing the transitions in the labor market. There are several studies on this topic such as the ones by Burdett et al. (1984), Lundberg (1985), Moser (1986), Bellmann et al (1995), Foley (1997), Grogan (2000), Theeuwes et al.(1990) Huitfeldt (1996), Royalty (1998), Stromback at all (1998), Blau and Riphahn (1999), Woltermann (2002), Lauerova and Terrell (2002). Two of the early studies of this type were done by Burdett et al. (1984) and Lundberg (1985) who estimated the three-state, which are employment, unemployment and non-participation (out of labor force), Markov model. Lundberg (1985) mainly concentrates on the labor supply response of married women to their husband's unemployment. He finds that a wife's labor market transitions are influenced by her husband's labor market status. Overall results of this study, suggest a support for the added worker effect which refers to a temporary increase in the labor supply of married women whose husband's become unemployed (see Lundberg (1985).

Some of the above studies, such as DeBoer and Seeborg (1989), Huitfeldt (1996), and Lauerova and Terrel (2002), use the transition probabilities between the labor market states to explain the unemployment rate differentials in selected labor market groups based on the approach developed by Marston (1976). The detail of this approach can be seen in the gross flow methodology part of this chapter (see Section 3.4).

Let us now consider a more recent study carried out by Huitfeldt (1996) for the Czech Republic in detail. In this study he uses the Czech Labor Force Survey Data. It has a panel feature. In the survey an individual is visited maximum of five subsequent quarters. In the first part, Huitfeldt calculates the flow probabilities between the main labor market states of unemployment, employment and out-of-labor force. Then, he analyzes the differentials in the rates of unemployment among labor market groups by using Marston

(1976)'s decomposition. In the second part of the study he estimates multinomial logit models to find the determinants of labor market transitions. In the multinomial-logit estimation part, Huitfeldt investigates the function of the local unemployment rate, unemployment insurance, elapsed unemployment duration on the flow probabilities. In contrast to general use of unemployment rate or employment population ratio as a proxy for the regional or local economy, Moser (1986), develops and uses an index to capture the changes in economic conditions in place of unemployment rate or employment population ratio. However, he finds that the probability of exiting into unemployment and the probability of leaving employment and nonparticipation are both not affected by the changes in cyclical factors. Like, Lundberg (1985), he also finds support for the added worker effect, i.e. observes an increasing successful entry of other family members into labor market. In the analysis, he focuses on only the prime-age men and does not consider the effects of education level on these transition rates. Further, Theeuwes et al. (1990) using Dutch data find a significant negative relation between the level of educational attainment and the transition from employment to unemployment for men. With respect to transition from unemployment to employment, their finding for women is different than those of for men. The effects of education on this transition is found to be significant for women but not for men. They also observe that single parents have significantly lower transition rate from unemployment to employment and a significantly larger transition from employment to unemployment.

Let us now consider the estimation results of Huitfeldt (1996). In the case of "from unemployment" we have two transitions; unemployment to employment and unemployment to non-participation. The estimation results of this part suggest that there is "strong negative duration dependence". Therefore, Huitfeldt (1996:21) states that the probability of exiting from unemployment for employment declines fast over the unemployment duration. This finding is explained by the negative duration dependence as well as unobserved heterogeneity among the unemployed people. An additional finding of the study is that, even though the probability of finding a job declines with the unemployment duration, unemployed individuals do not give up searching for a job (i.e. do not become discouraged). In the second case of "employment", regardless of being male or female, it is found that the flows among the labor market states of employment and unemployment are determined by the tenure in the job. The findings related to education level effect suggest that less educated individuals are most likely to exit from their job

compared to higher educated ones (such as secondary education and university). Another remarkable result is that the increases in the rate of unemployment increase the transitions from employment to unemployment, but not to out-of-labor-force. The author has small number of transitions in the case of "non-participation". This part of the study shows that individuals with high education have a higher probability of finding a job from out-of-the-labor-force. Huitfeldt also finds that the increases in the rate of unemployment decrease the likelihood of finding a job from out-of-the-labor-force. Combining the overall results about the rate of unemployment entails that "bad labor market conditions do not force people out of the labor force, but it prevents them to re-enter" (See Huitfeldt 1996:26).

Further, Belmann et al. (1995) investigates the Eastern German labor market flows by using longitudinal survey of Labor Market Monitor which includes approximately 10,000 individuals. They initially calculate the transition probabilities from November 1990 to November 1991 under Markovian assumptions between the labor market states. Next, they analyze the determinants of these transitions by using multinomial logit model. Initial findings of the study suggest that there is high degree of state dependency for the labor market states of employment (EE, that is 83.6 %) and not-in-labor force (NN, that is 79.9 %), but not for unemployment (UU, that is 37.3 %). They also observe that women have higher risk of exiting from their jobs than men. At the same time, their chance of obtaining a job, from unemployment and from out-of-the-labor force is lower than that of men. They also find that, regardless of being male or female, age and marital status are significant covariates of exiting from unemployment. They also observe that the females with higher educational attainment are more likely to find a job, from both of the labor market states (i.e. from unemployment and from out-of-the-labor force) compared to other educational attainments. Moreover, Belmann et al. (1995) also find that region dummies (differentials) that are used as a "proxy for the level of local labor market activity," are found to be significant "in determining male labor force exits" (outflows). One further observation from this study is that transitions from employment to unemployment, regardless of being male or female, are positively related with private ownership of the firm, but significant effect is observed only in the male's equation.

Foley (1997a) uses the Russian Longitudinal Monitoring Survey Data to examine the dynamics in the Russian labor market. He finds that the probability of remaining in the initial state of employment is 91.0 percent. The same probability for the state of out-of-the-

labor force is 89.9 percent. These probabilities are to some extent larger than that found by Bellman at al. (1992) for the East Germany. The finding for the re-employment probability for the unemployed individuals, that is 52 percent, is larger than that of selected OECD countries, such as the UK (29 %), the USA (49 %) and Belgium (22 %) (see Foley, 1997). Another important finding of the study is that the workers in the private sector have highest risk of losing their job. The probability of keeping their job for more than one year is less than 39 percent for in this sector. Regarding the age variables there are two findings. The first is that youth individuals are more likely to lose their job. The second is that aged individuals (and women also) are more probable to go out-of-labor force i.e. become discouraged. Foley uses the education level dummies in order to capture the human capital effect. He observes for the Russian workers that the likelihood of exiting from the job decreases with the increase in the educational attainment. However, the significant marginal effect is only seen for the higher education levels in keeping the job. Moreover, the less educated individuals are more likely to exit out-of-labor force, both from employment or unemployment. With respect to skill level that is classified in relation to occupation groups, individuals in elementary occupations, such as agricultural and animal workers, have the highest risk of losing their jobs. Furthermore, for the transition from unemployment to the other states, he finds that the unemployment duration parameters have large and significant effects on the transitions from unemployment.

Wolterman (2002) gives more special attention to the impacts of the different search methods on the transition probability from unemployment to other labor market states of Brazilian workers by using multinomial logit models. In this study, the other labor market states are classified as “formally employed”, “informally employed” “self employed” and “inactive”. The main findings of the study are the followings. The job search method of “asked employer” is found to be significant and positive effect on both for the transition from unemployment to “formal and informal work”. The use of “employment agency or union” has a positive, but it is significant at 10 percent level, effect on the transition to informal work. This variable has a negative and significant (at 5% level) impact on moving to “self-employment or inactivity”. With respect to education, he finds expected results that individuals with higher education are more likely to move to formal jobs and less likely to exit labor force (i.e. inactive). However, the variables of “age” and “average household income” show no significant effect on these transitions for Brazilian workers.

Lauerova and Terrell (2002) analyze the gender differences in unemployment rates by using differences in transition probabilities for men and women for some transition countries. These are Czech Republic, Russia, Poland and East Germany. In the study they also analyze the determinants of flows across labor market states in the Czech Republic by using multinomial-logit model for each gender during the period of 1993(Q2)-1996(Q4) (i.e. uses fourteen consecutive quarters of Labor Force survey data). The Czech Republic data suggest that there is a high degree of state dependency for employment and not-in-labor force. The probability of remaining in the current job is 98.28 percent for men and 97.79 percent for women. Similarly, the probability of remaining in the out-of-the-labor force is 97.02 percent for men and 97.76 percent for women. The corresponding probabilities in the case of unemployment are not too high. They are 66.54 and 69.36 percent for men and women respectively. As in Huitfeldt (1996), this study also tries to find that the sources female-male unemployment differentials in terms of transition probabilities. The probability of finding a job from the state of unemployment for women is lower than that for men. This difference is stated by Lauerova and Terrell (2002) as the main source of the unemployment rate differentials between female and male in the Czech Republic, Russia, Poland and East Germany. The multinomial-logit model estimation results of the study show that the less educated individuals are more likely to lose their job and less likely to obtain a job from both unemployment and out-of-labor force. Further, younger individuals are more likely to find a job from both unemployment and out-of-labor force. Nevertheless, they are more likely to exit their job compared to older individuals, as in developed countries.

3.3 The Data

The data used in this analysis is taken from the Turkish Household Labor Force Survey (HLFS), which is nationally representative and covers rich information about the Turkish labor market. Between the period of 1988 and 1999, the survey was conducted biannually, in April and October. After 1999, application frequency, sample size, questionnaire design and estimation dimension are changed. Since 2000 the survey has been conducted on a quarterly basis by the State Institute of Statistics of Turkey. The survey includes about 23,000 households in every quarter. The survey conveys information

about all individuals in the household. The data covers the following concepts: Employment, unemployment, discouraged workers, seasonal workers, working hours, informal sector, economic activity, occupation, status in employment, duration of unemployment, search method, educational status and marital status etc. (See SIS, 2001a). The data does not give information about wages or unearned income; this is the main shortcoming of the HLFS survey data.

To analyze the transitions in the labor market we need panel data. This feature was not available in the HLFS data before 2000. In that year the panel feature was introduced to measure the changes between the successive quarters and years (see SIS, 2001b; pp:17). Approximately, half of the individuals surveyed in the first quarter of 2000 are re-interviewed in the first quarter of 2001 in which the sample is still representative of the country. With this property, one can follow the same individual in the labor market during a given period. Thus, one can observe whether, for example an unemployed individual finds a job, or an employed individual loses his job, during the period of observation.

HLFS distinguishes between the following labor market states: employed, unemployed, and not in labor force (out of labor force). In order to identify these three labor market states, the following internationally accepted definitions are used in the HLFS. The employed cover all individuals aged 15 or over who during the reference period were economically active as regular employee, casual employee, employer, self-employed or family worker for at least one hour. In this definition, individuals with a job, who did not work during the reference period for various reasons but have a job attachment, are also included. In the unemployment definition we include all individuals aged 15 or older who were not employed (neither worked for profit, payment in kind or family gain at any job even one hour, who have no job attachment) during the reference period. They should have used also at least one of the job search channels for seeking work during the last three months and should be available to start work within 15 days. The individuals who are in the out of labor force group are the remaining ones aged 15 and over (see HLFS 2001a, p.XXIII-XXIV).

Our data set for the transition analysis consist of the first two rounds (quarters) of 2000(Q1-Q2) and 2001(Q1-Q2). We restricted the sample to individuals between the ages 15 and 65. The number of matching individuals over the first quarter of 2000 and 2001 is 19,653; the

corresponding number for the second quarter is 18,813. In the gross-flow part of the study we have used these observations. We can compute the main characteristics of the individuals in the three labor market states by using the survey data (see Table 3.1 a,b and 3.2 a,b). As can be seen from the Table 3.1 (3.2) the unemployment rate increases from 9.09 (6.9) to 10.38 (8.57) percent between the first (second) quarters of 2000 and 2001. From the raw data, we can also calculate the unemployment rate differentials for the selected labor market sub-groups such as women and men. The Table 3.1 indicates that the unemployment rate difference between these groups also increase from 2.46 to 5.01 percent between the first quarters (see Table 3.1a and 3.1b). This difference mainly comes from the urban resident women since the unemployment rate of women in rural areas is lower than that of men. The corresponding gender differential in unemployment rates in urban areas increase from 6.66 to 9.85 percent between the first quarters of 2000 and 2001 (see Table 3.1a,b).

Table 3.1: Demographic Differences between Individuals in Different Labor Market States in the First Quarters

a) 2000		Employment (in % of the population)	Unemployment (in % of the labor force)	Out of Labor Force (in % of the population)
All		38.93	9.09	57.18
By Sex	Male	62.72	8.19	31.42
	Age 15-24	36.67	17.11	55.76
	Age 25-54	79.62	6.89	14.49
	Age 55pl	40.30	3.71	58.15
	Female	16.37	9,61	81.61
	Age 15-24	16.04	20.69	79.77
	Age 25-54	17.69	6.88	81.00
	Age 55pl	10.31	0.74	89.62
Rural		45.40	5.79	51.81
Urban		36.90	10.30	58.87
	Urban-Male	62.15	9.02	31.69
	Rural-Male	64.54	7.07	30.56
	Urban-Female	13.01	15.68	84.57
	Rural-Female	27.12	2.74	72.12
Education				
	Non-Graduate	20.16	6.68	78.40
	Primary School	40.32	9.11	55.64
	Middle School	32.47	9.76	64.02
	High School	41.29	11.18	53.52
	Voc.High School	56.75	12.24	35.33
	Two-Years University	65.29	10.48	27.07
	Four Years University	76.30	3.72	20.75
Non-Married		29.38	17.37	64.44
Married		43.50	6.04	53.70
	Married Male	74.17	6.15	20.97
	Non-Married Male	39.24	16.77	52.85
	Married Female	14.76	5.54	84.38
	Non-Married Female	19.79	18.51	75.71

b) 2001		Employment (in % of the population)	Unemployment (in % of the labor force)	Out of Labor Force (in % of the population)
All		39.32	10.38	56.12
Sex				
	Male	64.14	9.28	29.30
	Age 15-24	37.83	20.31	52.52
	Age 25-54	80.24	7.11	13.62
	Age 55pl	41.30	3.64	57.14
	Female	16.01	14.29	81.32
	Age 15-24	15.52	24.85	79.34
	Age 25-54	17.39	10.19	80.63
	Age 55pl	9.81	0.81	90.10
Rural		46.04	6.86	50.57
Urban		37.26	11.62	57.83
	Urban-Male	63.31	9.73	29.85
	Rural-Male	66.87	7.78	27.49
	Urban-Female	12.63	19.58	84.29
	Rural-Female	26.89	4.69	71.79
Education				
	Non-Graduate	21.67	6.07	76.93
	Primary School	40.06	9.88	55.55
	Middle School	31.38	12.26	64.23
	High School	43.16	15.20	49.11
	Voc.High School	54.46	13.47	37.06
	Two-Years University	61.02	6.90	34.46
	Four Years University	77.37	4.81	18.72
Non-Married		29.54	21.02	62.60
Married		43.86	6.44	53.12
	Married Male	75.05	6.31	19.90
	Non-Married Male	40.78	19.36	49.43
	Married Female	14.68	7.07	84.20
	Non-Married Female	18.89	24.20	75.08

Table 3.2: Demographic Differences between Individuals in Different Labor Market States in the Second Quarters

a) 2000	Employment (in % of the population)	Unemployment (in % of the labor force)	Out of Labor Force (in % of the population)
All	43.73	6.90	53.03
Sex Male	69.04	6.19	26.40
Age 15-24	43.44	13.90	49.55
Age 25-54	85.21	4.48	10.79
Age 55pl	44.82	3.63	53.49
Female	20.04	9.13	77.94
Age 15-24	19.30	14.93	77.31
Age 25-54	21.68	7.30	76.61
Age 55pl	13.57	1.10	86.27
Rural	56.18	2.70	42.26
Urban	39.76	8.68	56.47
Urban-Male	66.44	7.19	28.42
Rural-Male	77.24	3.36	20.07
Urban-Female	14.77	14.46	82.73
Rural-Female	36.54	1.37	62.95
Education			
Non-Graduate	26.16	4.63	72.57
Primary School	45.42	6.01	51.67
Middle School	35.91	8.97	60.55
High School	46.05	9.57	49.08
Voc.High School	57.46	9.83	36.28
Two-Years University	70.74	7.78	23.30
Four Years University	77.52	4.83	18.55
Non-Married	34.21	13.97	60.24
Married	48.19	4.28	49.65
Married Male	80.15	3.83	16.66
Non-Married Male	45.61	14.01	46.96
Married Female	18.49	6.09	80.31
Non-Married Female	23.39	13.89	72.84

b) 2001	Employment (in % of the population)	Unemployment (in % of the labor force)	Out of Labor Force (in % of the population)
All	42.57	8.27	53.59
Sex			
Male	66.80	7.57	27.73
Age 15-24	40.94	15.33	51.65
Age 25-54	82.70	6.06	11.97
Age 55pl	42.56	3.94	55.69
Female	20.13	10.36	77.54
Age 15-24	18.40	19.37	77.18
Age 25-54	22.13	7.33	76.12
Age 55pl	14.02	0.56	85.91
Rural	57.03	3.12	41.14
Urban	38.05	10.50	57.48
Urban-Male	64.05	8.76	29.79
Rural-Male	75.61	4.18	21.09
Urban-Female	13.96	17.21	83.14
Rural-Female	39.87	1.21	59.64
Education			
Non-Graduate	26.82	6.02	71.46
Primary School	44.23	7.25	52.32
Middle School	32.62	9.71	63.87
High School	44.05	12.19	49.84
Voc.High School	58.54	11.74	33.67
Two-Years University	62.47	8.06	32.05
Four Years University	75.87	5.39	19.81
Non-Married	32.09	16.62	61.51
Married	47.44	5.29	49.91
Married Male	77.53	5.26	18.17
Non-Married Male	43.74	15.43	48.28
Married Female	19.59	5.39	79.30
Non-Married Female	21.31	18.80	73.76

3.4 Gross Flow Methodology

Lauerova and Terrel (2002, p.5) point out that the movements of the individuals from one of the labor market states to another one can be considered "as a dynamic process". This process can be illustrated as a Markov Process with three labor market states. These are employment (E), unemployment (U) and out-of-the labor force (OLF). In this process individuals at each period are observed in one of these three labor market states. It should be noted that under a Markov Process, "flow probabilities between labor market states depends only on the state currently occupied" (Bellmann at al., 1995, p.145). Corresponding to these three labor market states nine flows or transitions between states i and j can be observed. These are provided in the following matrix notation as:

$$T = \begin{bmatrix} P_{ee} & P_{eu} & P_{eolf} \\ P_{ue} & P_{uu} & P_{uolf} \\ P_{olfe} & P_{olfu} & P_{olfolf} \end{bmatrix} \qquad (3.1)$$

In the cells of the matrix, T, we show the transition probabilities between the labor market states. For example, P_{uu} denotes the probability that an individuals stays in unemployment between time t and $t+1$; P_{ue} refers to the probability of leaving unemployment for employment, and etc. To calculate the probability of making a transition between the different labor market states we divide the number of individuals in the flow by the number of individuals in the original state (Marston, 1976). Hence, the gross probability of transition from state i to state j is given by:

$$P_{ij} = \frac{FLOW_{ij}}{STOCK_{ij}} \qquad \text{i, j = \{e,u,olf\}} \qquad (3.2)$$

In the equation (3.2) $FLOW_{ij}$ denotes the number of persons in state i at time t who are in state j at time $t + 1$, $STOCK_{ij}$ represents the stock of persons in the original state i at time t (see Lauerova and Terrel, 2002, p.6).

Marston (1976, p.171) states that we do not need to know all of the transition probabilities between the labor market states to depict the system. Since the probability of keeping the initial position in any one of the labor market states is equal to one minus the probability that the individual exits from the initial position for the other states, we need only two of the each row. Thus, we have six independent transition probabilities. All of these probabilities can be transformed in various alternative techniques. In this respect, for example, one can calculate the "probability of successful labor-force entry" as:

$$P_{ns} = \frac{P_{olfe}}{P_{olfe} + P_{olfu}} \tag{3.3}$$

Following the equation developed by Marston (1976) we can express the rate of unemployment (UR) in terms of the flow probabilities. Thus, if the transitions into and out of employment are equal, i.e. the labor market is in a "steady state".

$$(\mathrm{P_{ue}})\mathrm{U} + (\mathrm{P_{olfe}})\mathrm{OLF} = (\mathrm{P_{eu}} + \mathrm{P_{eolf}})\mathrm{E} \tag{3.4}$$

and the transitions into and out of unemployment are equal,

$$(\mathrm{P_{eu}})\mathrm{E} + (\mathrm{P_{olfu}})\,\mathrm{OLF} = (\mathrm{P_{ue}} + \mathrm{P_{uolf}})\mathrm{U} \tag{3.5}$$

hence, the rate of unemployment, defined as $\left(\frac{Unemployment}{Unemployment + Employment}\right)$, can be written in terms of the flow probabilities as:

$$UR = \frac{P_{eu} + (1 - P_{ns})P_{eolf}}{P_{eu} + (1 - P_{ns})P_{eolf} + P_{ue} + P_{ns}P_{uolf}} \tag{3.6}$$

It should be noted that the rate of unemployment shown in the equation (3.6) would not be equal to the actual unemployment rate owing to two reasons. The first reason is the biases in the gross flow data. The second is the fact that the labor market may not be in steady state (see DeBoer and Seeborg, 1989, p.407). Nevertheless, this formula may be very functional in examining the impacts of changes in the flow probabilities on the rate of unemployment for the selected labor market groups, such as female and male.

The relation between the unemployment rate and the transition probabilities is obvious from the equation (3.6). We observe that rises in the P_{eu}, P_{eo}, and P_{ou} rise the rate of unemployment. However, increases in P_{ue}, P_{uo}, and P_{olfe} reduce the rate of unemployment. By using the above equation we can look at the sources differentials in the unemployment rates of two labor market groups, such as female and male, in terms of flow probabilities. This is calculated as given below:

$$U^{female} - U^{male} = \sum_i \frac{\partial U}{\partial P_i}(P_i^{female} - P_i^{male}), \qquad i=eolf,eu,uolf,ue,olfe. \tag{3.7}$$

By using Marston (1976)'s approach, the partial derivatives $\left(\frac{\partial U}{\partial P_i}\right)$ in equation (3.7) can be found as the sum of the partial derivatives for the two alternative labor market groups. The partial derivative for female and male is given by:

$$\frac{\partial U}{\partial P_i} = \frac{1}{2}\frac{\partial U}{\partial P_i^{female}} + \frac{1}{2}\frac{\partial U}{\partial P_i^{male}} \tag{3.8[15]}$$

Lauerova and Terrel (2002) suggests that if we distinguish which of the flows are crucial for decreasing the rate of unemployment for a particular labor market group, then we can design the true policies to decrease it.

3.5 Econometric Model

To establish the determining factors of different forms of labor market transitions we have estimated multinomial logit models. In this case, the transition probabilities (i.e. Markov probability) between the labor market states of employment, unemployment and out-of-the-labor-force becomes a function of the personal characteristics and local labor market conditions. The multinomial logit model is given by:

[15] For the formula see Huitfeldt (1996, p.18) and Marston (1976, p.203).

$$\Pr(Y_{it} = j \mid Y_{it-1} = k) = \frac{\exp(\beta'_j Z_i)}{\sum_k \exp(\beta'_k Z_i)}, \qquad j,k=1,2,. \tag{3.9}$$

where subscript i represents the individual and Z_{ijk} are the characteristics of the *i-th* individual moving from state k to state j. The equation (3.9) shows the probability of individual i leaving one labor market state for another, conditional on being in one state, say k. The covariates contained in the Z matrix are provided in Table (3.3). To estimate the parameters of the multinomial logit model one can use the maximum likelihood method based on the following log-likelihood function:

$$\ln L = \sum_{i=1}^{n} \sum_{j=1}^{2} D_{ij} \ln \Pr[Y_i = j] \tag{3.10}$$

where D_{ij} equals one if the worker is observed in state j and zero otherwise. Greene (1994, p.666) states that the coefficients of the multinomial-logit model are difficult to interpret. Therefore, we obtain the marginal effects. The marginal effect of a covariate, z_i, on the flow probability to state j, P_j, is given by:

$$\frac{dP_j}{dz_i} = P_j \left[b_j - \sum_k P_k b_k \right], \tag{3.11}$$

where b is the relevant element of the parameter vector β. Consequently, the size and course of a variable's effect depends on the choice of *Pj* (Foley (1997a, p.24) and Lauerova and Terrel (2002, p.8). In the tables from 3.10 to 3.21, we provide the estimates of marginal effects and their stand errors evaluated at the sample means of the variables.

Table 3.3: List of the Variables

1. "Urban" is a dummy variable taking value 1 if a man or woman lives in a town of more than 20,000 inhabitants and 0 otherwise
2. "Female" is a dummy variable taking value 1 if the sex is female and 0 otherwise
3. "Married" is a dummy variable taking value 1 if the survey respondent is married and 0 otherwise
4. "FemMar" is an interaction dummy taking value 1 if the sex is female and marital status is married and zero otherwise.

5. Region of residence is a set of seven dummies: Central Anatolia (base category), Marmara, Aegean, Mediterranean Black Sea, East Anatolia, South East Anatolia.

6. Education consists of a set of six dummies: The reference category includes those who are illiterate plus those who are literate but did not graduate from a school.
   - "Primary": Primary School
   - "Middle": Middle School
   - "High": High School
   - "VocHigh": Vocational High School
   - "TwoYear": Two Years University
   - "FourYearOver": Four Years University and over (or "Univ4pl")

7. Age is a set of six dummies:
   - "age1519": Age 15-19 (base category)
   - "age2024": Age 20-24
   - "age2534": Age 25-34
   - "age3544": Age 35-44
   - "age4554": Age 45-54
   - "age55pl": Age 55 and over.

8. "unemprate" is the local unemployment rate.

9. Occupations of the unemployed persons consist of eight dummies:
   - "occup1": Professional and related workers (base category),
   - "occup2": Administrative and managerial workers
   - "occup3": Clerical and Related Workers,
   - "occup4": Sales Workers,
   - "occup5": Service Workers,
   - "occup6": Agricultural Workers,
   - "occup7": Non-Agricultural Workers
   - "occup8": Workers not classified by Occupation

10. Status in the current job (latter job for the unemployed persons) consists of six dummies:
    - "statu1": Regular Employee (base category)
    - "statu2": Casual Employee
    - "statu3": Paid family Workers
    - "statu4": Employer
    - "statu5": Self Employed
    - "statu6": Unpaid Family Workers

Variable(s) used only in transitions from employment:
11. Public Sector dummy takes value 1 if an individual works in the public sector, 0 (zero) otherwise.

Variables used only in transitions from unemployment:
12. Search Method dummies takes value 1 if used by an unemployed individual.
13. Duration of unemployment is set of five group dummies. Takes value of one if the duration of unemployment lies into that group; duration 1-3 (month) (base category), duration 4-6, duration 7-12, duration 13-24,duration 24 plus.

3.6 Empirical Results for Gross Flows

In this part we will look at the annual transitions from the first (second) quarter of 2000 to the first (second) quarter of 2001. Table 3.4 and Table 3.5 present gross annual transition probabilities of various age, residence, marriage, education and sex etc. groups into all three labor market states. Let us now look at the transitions group by group.

3.6.1 Transitions from Employment:

We observe from Table 3.4 (3.5) that the probability that an individual keeps his or her job (i.e. P_{ee}) from the first (second) quarter of 2000 to the first (second) quarter of 2001 is 79.4 (80.59) percent. This probability is not very high over this period, because of the crisis that the economy was experiencing in the first two quarters of 2001. If we look at males and females separately, it is seen that P_{ee} is lower with 61.4 percent for females than for males with 86.1 percent (see Table 3.4). Hence, women have higher risk of losing their jobs compared to men. From the table it is also clear that the most of the women who loose their jobs go out of the labor force not to unemployment i.e. they become discouraged.

Moreover, the similar result holds if we consider the residence difference of men and women. The transition probability from employment to out of labor force for women in the urban areas is approximately 30 percent, but this amount in the rural areas is 43.5 and 27.7 percent between first and second quarters, respectively.

Furthermore, the probability of keeping his or her job for a married individual is 83.4 (84.9) percent between the first (second) quarters, whereas the same probability is lower for an unmarried individual and it is 66.5 percent and 66.2 percent between the first and second quarters, respectively (see Tables 3.4 and 3.5). Examining the transition probability of P_{ee} under gender and marital status difference shows that the gender differential is lower for unmarried than for married individuals. This difference between married male and married female is about 27.9 (18) percent in the first (second) quarter transitions. The differential between the non-married male and female is about 8.2 (9.9) in the same period. Thus, the married men have the lower probability of losing their jobs

Table 3.4: Transition Probabilities between the First Quarter of 2000 and 2001

	Puu	Pue	Pun	Peu	Pee	Pen	Pnu	Pne	Pnn
All	**46.23**	45.66	8.11	3.48	**79.47**	17.04	2.28	11.56	**86.16**
By Sex									
Male	**39.68**	55.87	4.45	3.81	**86.15**	10.04	5.15	22.89	**71.96**
Female	**73.84**	19.77	6.40	2.13	**61.40**	36.47	1.16	6.69	**92.15**
By Place									
Urban	**47.33**	45.44	7.23	3.87	**82.10**	14.04	2.46	8.72	**88.82**
Rural	**40.98**	46.72	12.30	2.56	**73.23**	24.21	1.60	22.00	**76.40**
By Urban-Male									
Urban-Male	**40.45**	55.53	4.02	3.98	**86.99**	9.03	5.36	19.49	**75.14**
Rural-Male	**36.46**	57.29	6.25	3.31	**83.70**	12.99	4.40	34.42	**61.17**
Urban-Female	**72.73**	21.43	5.84	2.93	**66.14**	30.93	1.38	4.23	**94.39**
Rural-Female	**83.33**	5.56	11.11	1.09	**55.33**	43.58	0.30	16.21	**83.48**
Marital Status									
Non-Married	**49.83**	35.64	14.52	6.91	**66.56**	26.53	4.52	13.47	**82.01**
Married	**45.45**	52.34	2.20	2.42	**83.43**	14.14	1.10	10.04	**88.86**
By Married-Male									
Married-Male	**39.93**	58.75	1.32	2.89	**88.72**	8.39	3.77	25.50	**70.73**
Non-Married-Male	**42.07**	47.56	10.37	7.86	**73.69**	18.45	6.49	18.61	**74.90**
Married-Female	**75.44**	21.05	3.51	0.44	**60.74**	38.82	0.47	6.37	**93.16**
Non-Married-Female	**73.64**	19.09	7.27	5.63	**65.44**	28.93	3.07	7.26	**89.67**
Age Group									
Age15-19	**53.61**	30.93	15.46	6.78	**58.19**	35.03	3.25	11.80	**84.96**
Age20-24	**44.53**	47.66	7.81	5.58	**72.32**	22.10	4.76	12.50	**82.74**
Age25-34	**46.81**	50.35	2.84	4.50	**85.86**	9.64	2.49	10.22	**87.29**
Age35-44	**46.23**	52.83	0.94	2.25	**88.10**	9.65	1.87	9.64	**88.49**
Age45-54	**55.71**	42.86	1.43	1.86	**80.46**	17.68	1.03	11.00	**87.97**
Age55pl	**47.06**	52.94	0.00	0.34	**70.18**	29.48	0.18	8.19	**91.63**
By Age Group- MALE-									
Age15-19	**43.33**	41.67	15.00	6.69	**69.60**	23.71	4.25	16.55	**79.20**
Age20-24	**39.24**	59.49	1.27	7.44	**78.51**	14.05	12.02	24.04	**63.94**
Age25-34	**38.14**	60.82	1.03	5.17	**90.09**	4.74	14.50	46.56	**38.93**
Age35-44	**37.78**	61.11	1.11	2.66	**93.12**	4.22	13.24	45.59	**41.18**
Age45-54	**50.79**	47.62	1.59	2.25	**84.71**	13.05	4.16	22.60	**73.25**
Age55pl	**50.00**	50.00	0.00	0.43	**75.59**	23.97	0.47	13.06	**86.47**
By Age Group- FEMALE-									
Age15-19	**80.65**	12.90	6.45	9.03	**49.31**	41.67	2.38	6.63	**90.99**
Age20-24	**65.00**	25.00	10.00	3.08	**68.21**	28.72	2.44	7.16	**90.40**
Age25-34	**69.05**	28.57	2.38	1.37	**70.96**	27.67	1.47	6.35	**92.18**
Age35-44	**93.75**	6.25	0.00	0.52	**66.58**	32.90	0.86	6.39	**92.75**
Age45-54	**100.00**	0.00	0.00	0.00	**59.79**	40.21	0.00	7.11	**92.89**
Age55pl	**100.00**	0.00	0.00	51.49	**48.51**	0.00	5.03	94.97	**0.00**
Education Group									
Non-Graduate	**43.75**	47.92	8.33	1.16	**64.92**	33.91	0.45	9.09	**90.47**
Primary	**43.70**	49.58	6.72	4.20	**79.11**	16.69	1.73	10.87	**87.40**
Middle School	**44.19**	51.16	4.65	3.72	**81.73**	14.55	2.37	6.86	**90.76**
High School	**63.30**	25.69	11.01	2.89	**88.45**	8.66	5.36	12.18	**82.46**
Voc. High School	**53.57**	32.14	14.29	3.55	**91.13**	5.32	7.51	12.72	**79.77**
Two-Years University	**17.24**	72.41	10.34	1.92	**91.35**	6.73	2.22	11.11	**86.67**
Four-Years Un.and over	**38.89**	50.00	11.11	1.10	**94.12**	4.78	3.33	15.00	**81.67**
By Education Group- MALE-									
Non-Graduate	**34.48**	65.52	0.00	2.51	**77.82**	19.67	3.35	23.46	**73.18**
Primary	**39.30**	56.84	3.86	4.57	**86.17**	9.26	5.60	25.63	**68.77**
Middle School	**36.51**	61.90	1.59	3.91	**86.72**	9.38	3.06	9.91	**87.03**
High School	**55.93**	37.29	6.78	2.19	**92.43**	5.38	9.09	22.55	**68.36**
Voc. High School	**46.15**	38.46	15.38	3.03	**92.93**	4.04	9.72	22.22	**68.06**
Two-Years University	**9.52**	85.71	4.76	1.45	**92.75**	5.80	5.56	16.67	**77.78**
Four-Years Un. and over	**36.36**	54.55	9.09	1.08	**95.12**	3.79	1.67	21.67	**76.67**
By Education Group -FEMALE-									
Non-Graduate	**64.71**	23.53	11.76	0.00	**54.41**	45.59	0.12	7.12	**92.75**
Primary	**72.41**	20.69	6.90	2.78	**48.78**	48.44	0.71	6.59	**92.69**
Middle School	**93.75**	6.25	0.00	3.13	**57.81**	39.06	1.79	3.05	**95.16**
High School	**85.71**	9.52	4.76	3.47	**79.17**	17.36	3.29	5.23	**91.47**
Voc. High School	**72.00**	24.00	4.00	3.90	**89.61**	6.49	5.94	5.94	**88.12**
Two-Years University	**37.50**	37.50	25.00	2.86	**88.57**	8.57	0.00	3.85	**96.15**
Four-Years Un. and over	**50.00**	50.00	0.00	0.59	**92.35**	7.06	5.00	8.33	**86.67**
By Household Head									
Non-Head	**50.25**	36.82	12.94	4.45	**65.55**	30.00	2.14	9.93	**87.93**
Head	**41.47**	57.19	1.34	2.95	**88.11**	8.94	2.91	19.68	**77.41**
By Youth (15-24 Age group)and Education									
Primary and Non-Grad. -Male-	**43.48**	47.83	8.70	8.86	**78.16**	12.97	10.96	36.99	**52.05**
Middle School -Male-	**33.33**	63.33	3.33	5.61	**69.16**	25.23	2.44	7.10	**90.47**
High School -Male-	**41.67**	43.75	14.58	7.07	**73.74**	19.19	10.12	19.84	**70.04**
University -Male-	**28.57**	71.43	0.00	0.00	**75.00**	25.00	0.00	100.00	**0.00**
By Youth (15-24 Age group)and Education									
Primary and Non-Grad. -Female-	**54.17**	25.00	20.83	6.11	**52.78**	41.11	0.79	8.83	**90.37**
Middle School -Female-	**100.00**	0.00	0.00	6.67	**53.33**	40.00	1.91	2.73	**95.36**
High School -Female-	**81.25**	14.58	4.17	6.06	**74.75**	19.19	6.12	7.55	**86.33**
University -Female-	**75.00**	25.00	0.00	4.00	**88.00**	8.00	16.67	16.67	**66.67**
By Middle (25-54) Age group and Education									
Primary and Non-Grad. -Male-	**37.16**	61.01	1.83	4.11	**87.34**	8.56	8.83	32.94	**58.23**
Middle School -Male-	**40.63**	59.38	0.00	3.76	**92.74**	3.49	4.62	32.31	**63.08**
High School -Male-	**75.00**	25.00	0.00	1.88	**94.75**	3.36	7.14	33.67	**59.18**
University -Male-	**15.79**	78.95	5.26	1.12	**96.19**	2.69	7.32	26.83	**65.85**
By Middle (25-54) Age group and Education									
Primary and Non-Grad. -Female-	**78.72**	19.15	2.13	0.83	**52.09**	47.08	0.53	7.00	**92.47**
Middle School -Female-	**87.50**	12.50	0.00	0.00	**70.00**	30.00	1.78	3.55	**94.67**
High School -Female-	**81.25**	12.50	6.25	2.37	**85.21**	12.43	2.07	4.66	**93.26**
University -Female-	**33.33**	50.00	16.67	1.01	**90.95**	8.04	2.25	5.62	**92.13**
Number of Transitions	**326**	320	57	272	**6206**	1330	254	1288	**9600**
Number of Observations	**703**	703	703	7808	**7808**	7808	11142	11142	**11142**

Table 3.5: Transition Probabilities between the Second Quarter of 2000 and 2001

	Puu	Pue	Pun	Peu	Pee	Pen	Pnu	Pne	Pnn
All	**19.69**	42.66	37.65	3.53	**80.46**	16.00	2.51	11.52	**85.97**
By Sex									
Male	**19.57**	53.62	26.81	4.05	**86.77**	9.18	5.13	20.06	**74.8**
Female	**24.12**	20.59	55.29	2.01	**68.98**	29.01	1.66	7.68	**90.66**
By Place									
Urban	**20.19**	41.36	38.45	4.55	**79.62**	15.83	2.74	8.78	**88.48**
Rural	**15.63**	53.13	31.25	1.42	**82.22**	16.36	1.52	23.34	**75.15**
By Urban-Male									
Urban-Male	**19.69**	52.00	28.31	4.75	**85.64**	9.61	5.35	17.79	**76.86**
Rural-Male	**18.75**	64.58	16.67	2.20	**89.76**	8.04	4.13	30.23	**65.63**
Urban-Female	**25.16**	20.75	54.09	3.76	**65.38**	30.86	1.88	4.82	**93.30**
Rural-Female	**9.09**	18.18	72.73	0.11	**72.88**	27.01	0.73	19.87	**79.40**
Marital Status									
Non-Married	**21.27**	41.42	37.31	5.25	**66.21**	28.55	4.81	12.71	**82.48**
Married	**18.25**	43.07	38.69	2.96	**84.98**	12.06	1.20	10.23	**88.57**
By Married-Male									
Married-Male	**19.59**	55.67	24.74	3.53	**89.24**	7.22	3.74	23.05	**73.21**
Non-Married-Male	**18.99**	50.00	31.01	6.49	**75.03**	18.49	5.94	16.06	**77.99**
Married-Female	**16.00**	13.33	70.67	0.91	**71.35**	27.74	0.71	7.47	**91.81**
Non-Married-Female	**31.40**	25.58	43.02	4.03	**64.26**	31.71	4.34	8.20	**87.46**
Age Group									
Age15-19	**18.42**	38.16	43.42	4.89	**58.32**	36.79	3.40	9.58	**87.02**
Age20-24	**17.35**	46.94	35.71	4.84	**73.45**	21.71	6.69	13.90	**79.41**
Age25-34	**17.89**	47.15	34.96	3.95	**86.83**	9.23	3.01	10.84	**86.14**
Age35-44	**27.08**	38.54	34.38	3.10	**88.75**	8.15	0.94	10.03	**89.04**
Age45-54	**16.98**	41.51	41.51	3.03	**82.21**	14.76	1.29	9.48	**89.22**
Age55pl	**5.26**	36.84	57.89	1.42	**73.30**	25.28	0.36	9.47	**90.17**
By Age Group- MALE-									
Age15-19	**16.67**	52.38	30.95	5.22	**69.97**	24.80	3.76	11.96	**84.27**
Age20-24	**12.70**	58.73	28.57	5.54	**83.03**	11.44	17.29	22.56	**60.15**
Age25-34	**21.62**	63.51	14.86	4.70	**91.88**	3.42	13.64	46.59	**39.77**
Age35-44	**27.94**	51.47	20.59	3.55	**93.07**	3.38	7.32	52.44	**40.24**
Age45-54	**18.18**	47.73	34.09	3.69	**84.66**	11.65	4.81	17.95	**77.24**
Age55pl	**5.88**	35.29	58.82	1.92	**76.76**	21.32	0.97	14.20	**84.82**
By Age Group- FEMALE-									
Age15-19	**25.00**	21.43	53.57	4.89	**51.09**	44.02	3.70	6.78	**89.53**
Age20-24	**33.33**	22.22	44.44	4.85	**66.50**	28.64	3.70	8.74	**87.56**
Age25-34	**13.33**	22.22	64.44	1.40	**73.60**	25.00	2.41	7.97	**89.62**
Age35-44	**25.93**	7.41	66.67	1.50	**74.09**	24.41	0.57	7.39	**92.05**
Age45-54	**11.11**	11.11	77.78	0.00	**75.29**	24.71	0.19	7.03	**92.78**
Age55pl	**0**	50.00	50.00	0	**63.29**	36.71	0	6.60	**93.40**
Education Group									
Non-Graduate	**7.69**	38.46	53.85	3.04	**68.69**	28.27	0.45	12.00	**87.55**
Primary	**19.57**	45.65	34.78	4.05	**81.70**	14.25	1.74	11.09	**87.16**
Middle School	**16.87**	43.37	39.76	3.56	**80.80**	15.63	2.07	4.23	**93.70**
High School	**15.48**	40.48	44.05	3.03	**87.16**	9.81	7.06	8.82	**84.12**
Voc. High School	**36.84**	28.07	35.09	3.59	**90.88**	5.52	2.79	18.99	**78.21**
Two-Years University	**15.38**	46.15	38.46	1.55	**94.57**	3.88	4.76	7.14	**88.10**
Four-Years Un.and over	**25.93**	51.85	22.22	1.49	**91.79**	6.72	7.62	21.90	**70.48**
By Education Group- MALE-									
Non-Graduate	**14.29**	61.90	23.81	7.44	**80.17**	12.40	3.68	18.38	**77.94**
Primary	**21.00**	54.50	24.50	4.48	**87.59**	7.93	5.20	26.99	**67.80**
Middle School	**13.21**	54.72	32.08	3.23	**84.38**	12.39	2.39	5.87	**91.74**
High School	**13.33**	62.22	24.44	3.11	**90.84**	6.04	9.39	17.84	**72.77**
Voc. High School	**28.13**	34.38	37.50	4.24	**91.87**	3.89	5.08	25.42	**69.49**
Two-Years University	**28.57**	42.86	28.57	1.08	**96.77**	2.15	5.56	16.67	**77.78**
Four-Years Un. and over	**26.67**	46.67	26.67	0.83	**92.22**	6.94	6.67	26.67	**66.67**
By Education Group -FEMALE-									
Non-Graduate	**0.00**	15.38	84.62	0.27	**63.01**	36.71	0.07	11.27	**88.66**
Primary	**19.35**	20.97	59.68	2.42	**65.50**	32.08	0.98	7.09	**91.93**
Middle School	**26.92**	15.38	57.69	6.58	**63.16**	30.26	1.89	2.58	**95.53**
High School	**21.88**	15.63	62.50	2.26	**77.44**	20.30	5.80	4.00	**90.20**
Voc. High School	**57.14**	14.29	28.57	0.00	**90.00**	10.00	1.75	14.04	**84.21**
Two-Years University	**0.00**	50.00	50.00	2.94	**91.18**	5.88	4.17	0.00	**95.83**
Four-Years Un. and over	**30.00**	50.00	20.00	2.47	**91.98**	5.56	7.14	14.29	**78.57**
By Household Head									
Non-Head	**19.52**	37.43	43.05	3.48	**70.14**	26.38	2.49	10.34	**87.17**
Head	**20.00**	52.20	27.80	3.57	**87.30**	9.14	2.62	17.92	**79.46**
By Youth (15-24 Age group)and Education									
Primary and Non-Graduate -Male-	**14.81**	55.56	29.63	4.87	**84.74**	10.39	14.46	27.71	**57.83**
Middle School -Male-	**18.75**	50.00	31.25	3.97	**61.11**	34.92	1.29	4.65	**94.06**
High School -Male-	**14.63**	56.10	29.27	6.08	**79.05**	14.86	10.26	16.92	**72.82**
University -Male-	**16.67**	50.00	33.33	7.14	**85.71**	7.14	0.00	33.33	**66.67**
By Youth (15-24 Age group)and Education									
Primary and Non-Graduate -Female-	**15.00**	15.00	70.00	3.91	**56.09**	40.00	1.55	10.84	**87.61**
Middle School -Female-	**31.25**	25.00	43.75	12.50	**55.00**	32.50	1.63	1.09	**97.28**
High School -Female-	**44.44**	22.22	33.33	3.13	**76.04**	20.83	9.22	9.22	**81.57**
University -Female-	**0.00**	75.00	25.00	10.00	**80.00**	10.00	42.86	14.29	**42.86**
By Middle (25-54) Age group and Education									
Primary and Non-Graduate -Male-	**24.46**	56.12	19.42	5.04	**88.65**	6.31	6.51	33.88	**59.61**
Middle School -Male-	**6.67**	63.33	30.00	2.99	**92.29**	4.73	15.00	15.00	**70.00**
High School -Male-	**27.27**	45.45	27.27	2.89	**94.48**	2.63	3.57	29.76	**66.67**
University -Male-	**40.00**	50.00	10.00	0.46	**94.05**	5.49	10.26	28.21	**61.54**
By Middle (25-54) Age group and Education									
Primary and Non-Graduate -Female-	**14.89**	19.15	65.96	1.11	**67.90**	31.00	0.61	7.93	**91.46**
Middle School -Female-	**20.00**	0.00	80.00	0.00	**73.53**	26.47	2.12	5.29	**92.59**
High School -Female-	**22.73**	9.09	68.18	2.07	**84.14**	13.79	3.23	2.96	**93.82**
University -Female-	**22.22**	33.33	44.44	1.49	**92.08**	6.44	3.70	11.11	**85.19**
Number of Transitions	**114**	247	218	298	**6788**	1350	246	1129	**8423**
Number of Observations	**579**	579	579	8436	**8436**	8436	9798	9798	**9798**

compared to married women. (Since married-men are the breadwinner of the traditional Turkish family, so they show greater attachment to their jobs more than married women).

Further, if we look at the same transition for each of the education group, it is seen that the probability of losing job decreases with the increase in education level. For men this probability is lower than ten percent for the high school graduates and over, in the first quarter transitions (see Table 3.4). For women the same probability is lower than ten percent for four-year university and over graduates in the same period (see Table 3.4). Furthermore, the probability of losing job for the head of a household is 11.89 (12.87) percent in the first (second) quarter transition, whereas the same probability for the other individuals (non-head of household) is 34.45 percent and 29.77 percent in the first and second quarter transitions, respectively. The largest part of the non-head of households who lose their jobs go out of the labor force, rather than to the unemployment, because of the recession.

In addition, if we look at the broad age group (15-24 and 25-54 age groups) and education, the probability of keeping job increases with the increase in education level. Also, the number of people who go out-of-the-labor-force from employment decreases with the increase in the education level. This result supports our previous finding in the previous paragraph. In Table 3.6 and 3.7 we also provided the differences in flow probabilities. As can be seen from both tables – first two columns of the Table 3.6 and 3.7-, whether we consider age category, residence, marriage or education, the transition probability difference between women and men, from employment to not in labor force, is always positive. This positive difference compensates the negative difference in the transition probability from employment to unemployment. Thus, it is possible to say that women have higher risk of losing their jobs and more likely to become out of the labor force (or discouraged worker) between 2000 and 2001.

3.6.2 Transitions from Unemployment

The probability that an individual finds a job from unemployment from the first quarter of 2000 to 2001 is about 45.6 (see Table 3.4). This probability is very high, even if

it decreases to 42.66 percent in the second quarter, under the economic crisis that the Turkish economy experienced in the first two quarters of 2001. Moreover, as can be seen from the Tables 3.3 and 3.4, the likelihood of remaining in the labor market state of unemployment from 2000 to 2001 was higher for women than for men in both quarters. The main difference between the first and second quarter transitions between these years is the increase in the probability of going out-of-the-labor-force (i.e. become discouraged) from unemployment and this increase is larger for women than men. In the urban areas, the probability of moving to not-in-the-labor-force from unemployment increases from 4.02 to 28.31 percent for males, and from 5,84 to 54.09 percent for females. As can be seen from the Table 3.4 and 3.5 this increase, especially, is larger for married female and rural female, than for men. During an economic depression individuals may become discouraged as a result of lower likelihood of obtaining a job. The discouraged worker effect leads us to expect an increase in the probability of going out-of-the-labor-force from unemployment in recessions (see Seeborg and DeBoer, 1989). In the light of above explanation it is possible to say that there is a drop in the general labor demand in Turkey because of the economic downturn and the effect of this crisis is mostly observed in unemployed women rather than men.

Furthermore, the probability of finding a job does not seem to increase with the increase in education level between the first quarters. We observe from the Table 3.4 that the probability of obtaining a job from unemployment for the individuals with high and vocational high school diploma is lower than that for the non-graduates. It is also seen from the same table that the individuals with university degree have larger probabilities of finding a job from unemployment compared to non-graduates. Our findings on education levels are somewhat different in the second quarter transitions. We observe from Table 3.5 that non-graduated individuals have the lowest probability of finding a job from unemployment with respect to educated ones. We also find that probability of going to out-of-labor force increases for all education levels, in the second quarters compared to the first quarters. For example, for the non-graduated ones this probability increases from 8.33 percent to 56.76 percent that is the largest increase, between the first and second quarters, respectively (see Table 3.4 and 3.5).

Furthermore, the probability of finding a job for a household head is 57.19 percent in the first quarter transitions, while this probability decreases to 52.2 percent in the second

quarter. The same probability for the other members of the household is 36.8 percent in the first quarter and this number increases to 37.43 percent in the second quarter.

3.6.3 Transitions from Out of Labor Force

We observe from the Tables 3.4 and 3.5 the probability that a person remains out of labor force group (P_{olfolf}) from the first (second) quarter of 2000 to the first (second) quarter of 2001 is 86.16 (85.51) percent. The transition probability from out of labor force to unemployment increases from 2.28 percent to 2.51 percent in the second quarter. The increase in this probability provided by women, since this probability decreases for men, hence they –women- enter the labor market as added workers. The analysis of transitions by marital status supports the findings above and the greater part of the increase provided by married women with about 65 percent increase (from 0.47 to 0.72). Because of the economic conditions, especially the drop in household income as the male workers become unemployed reduce the reservation wage of women pushing them to the labor market and participate.

Moreover, men are more likely to find a job from this state (out of labor force) even if the probability of finding a job decreases from 22.89 to 20.52 percent between the first and second quarter transitions. In contrast to men, the corresponding probability for women increases from 6.69 to 8.17 percent in the same period of time in spite of the economic recession. Furthermore, in Tables 3.4 and 3.5 we also presented the same probabilities by broad age group and education under gender differences. As seen, the probability of finding a job from out of labor force for women is always lower than men in the same period. However, for women, the probability of going to unemployment from this state (i.e. out-of-labor force) increases for all age and education group, except youth one with middle school diploma between the first and second quarter transitions. For example, the probability of exiting to unemployment from out-of-labor force for the youth (middle aged) female increases from about 16.6 (2.2) percent to about 42.8 (3.6) percent for the university graduated ones.

General findings above demonstrate that there are considerable differentials between the transition probabilities of males and females. These differentials are generally

in the favor of men with a small number of exclusions. We should also mention that an individual's position in the household and marital status also have an important role in shaping the magnitude of these transitions. In the following section, we examine these transition probabilities by using Marston's decomposition equation that is provided in the previous section.

3.7 Sources of Unemployment Rate Differentials by Gender and Residence

The trends in annual unemployment rates, between 1988 and 2003, in the urban and rural areas are provided in Figure 3.1. As can be seen from Figure 3.1, for men the rate of unemployment had been quite steady while for women it had been on a decreasing tendency, in the urban areas. Nevertheless, the latest crisis negatively affected these tendencies (Tunali p.45, 2003). Especially, in the years between 2000 and 2002, the rate of unemployment in urban areas increased from 7.77 percent to 13.07 percent for men and from 13.00 percent to 18.81 percent for women, and from 10.38 percent to 15.94 percent overall. In contrast to urban areas, the unemployment rates have been noticeably lower in rural areas, during the period under study. The most recent data shows that 68.1 percent of the total labor force in 2002 employed in the agricultural sector in the rural areas. As mentioned in Chapter 2, employment in the agricultural sector does not need any extra qualification, for that reason finding a job in this sector is the easiest one in comparison to other sectors. The results under gender separation show that about 90 percent of women labor force employed in the agricultural sector. The same number for male is about 55 percent (see SIS, 2004). This finding supports the suggestion of Tunalı (2003 p.46) that "while women have traditionally been economically active in family-owned farms, young men have sought work outside agriculture to supplement farming income". Therefore, the rate of unemployment for females in the rural areas is generally lower than for males. In this part of the study, due to the reasons explained above we will mainly focus on sources of unemployment rate differentials of urban resident women and men by using the individuals matched in the HLFS survey data of 2000 and 2001.

Terrel and Lauerova (2002, p.11) suggest that to make clear the differentials in the rates of unemployment for the selected labor market groups we should look at the differences among all six flow probabilities rather than looking only transitions in and out

of unemployment. It is clear from the equation (8) that the unemployment rate is negatively correlated with the probabilities of P_{ue}, P_{uolf}, and P_{olfe}. Thus, the increases in these three transition probabilities will decrease the rate of unemployment for a given labor market group. On the other hand, the probabilities of P_{eu}, P_{eolf} and P_{olfu} are positively related with the rate of unemployment.

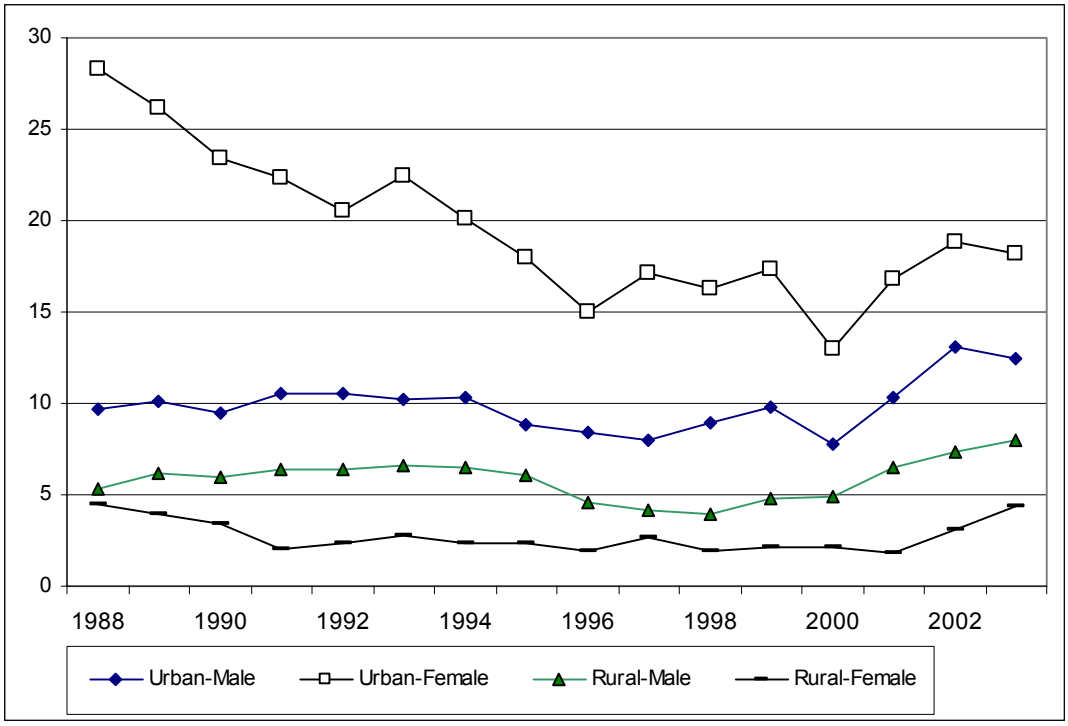

Figure 3.1: Trends in Unemployment Rates by Gender and Residence, Turkey 1988-2003

Source: SIS Database, 2004

Before looking at the sources of unemployment rate differentials for women and men let us look at the difference between urban and rural areas. As can be seen from the Table 3.1 and 3.2, the urban resident group has a higher unemployment rate than rural workers, and this gap increases in the second quarter transition because of the economic crisis. There are two main sources of the difference and the increase in this difference. The first is the differences in the probability of successful labor market entry (P_{olfe}) and the second difference in the exit from employment to unemployment (P_{eu}), and the last one increase from 1.31 to 3.13 in the second quarter (see Tables 3.6 and 3.7). Another fact that increases the unemployment rate gap between urban and rural areas is the difference in the

probability of finding a job from unemployment in favor of urban areas. The main reason for this difference is the increase in the seasonal jobs in the rural areas. However, overall effect of the positive difference in P_{ue} does not explain the increase in unemployment rate differentials between urban and rural areas. Since the main factors explaining this difference comes from (P_{olfe}) and (P_{eu}) (see Tables 3.6 and 3.7).

Let us now look at the sources of unemployment rate differentials between females and males in the urban areas. We know that larger values of the probabilities of P_{ue}, P_{uolf}, and P_{olfe} for males compared to females increase the unemployment rate differential between females and males. Since these transition probabilities are decreasing the rates of unemployment for males more than that of for females. Therefore, as shown in Tables 3.5 and 3.6, women's larger unemployment rate is being forced by differences in the two probabilities. These are the probability of move from unemployment and out-of-the-labor-force to employment (P_{ue} and P_{olfe}). Since, these probabilities are 34.10 (15.26) and 31.25 (13.19) percentage points larger for men than for women in the first (second) quarters. Even though, the differences in the P_{uolf} is in favor of women (i.e. decreasing the rate of unemployment for women more than that for men) and 1.82 (25.78) percentage in the same period, but this cannot compensate the other differences mentioned above. The findings above may imply the same conclusion as Terrel and Lauerova (2002, p.12) states for Czech Republic. That is, the rate of unemployment for women can be cut down, through non-participation rather than through enlarged employment opportunities, compared with that of men.

Let us now look at the other remaining three probabilities: P_{eu}, P_{eolf} and P_{olfu}. We know that if one of these flow probabilities is lower for males than for females, it decreases rate of unemployment for males compared with that of for females. Thus, it increases the differences among them. However, as can be observed from the Tables 3.3 and 3.4, P_{eolf} and P_{olfu} are higher for females than males. Thus these two probabilities give a contribution to increase the gender differential in unemployment rates, and the largest contribution comes from P_{eolf}. Thus, females are more likely to leave the labor force from employment to a much greater extent than men, i.e. become discouraged. Also, the difference in P_{eu} is in favor of women, but this cannot compensate the other differences, which are against the women, to decrease the unemployment rate differential in the urban areas.

Furthermore, let us look at the unemployment rate differentials between non-married and married individuals. This gap is positive in the two transition periods that we have examined. All the flows that determine the rate of unemployment are against the unmarried individuals, except P_{uolf} in the first quarter transitions. And, the probability of losing a job and going to unemployment (P_{eu}) is more than three times higher for unmarried individuals than that for the married ones in the first quarter transitions. Moreover, the difference between unmarried female and unmarried male is also positive. It is seen from the table that two main sources that explains unmarried female's higher unemployment rate with respect to unmarried male are the transition probability from unemployment to employment and employment to not-in-labor force. The difference in the first probability is –24.42, that is, negatively related to the unemployment rate, and 13.2 in the second one, which is positively related to the rate of unemployment in the first quarter transitions. Therefore these probabilities increase the unemployment rate differential between unmarried female and unmarried male. Although, the difference in the flow probability from employment to unemployment in favor of unmarried women, this cannot outweigh the above difference (see Tables 3.6 and 3.7). As shown in the Table 3.8, the most pronounced difference in unemployment rates is seen between unmarried female and married female. There are three sources of this difference; these are P_{eu}, P_{ue}, and P_{olfe}.

When we control for education level, we observe that the unemployment rate differential between non-graduates and other education levels are negative for the individuals with less than university degree in both transition periods. It is observed from the Tables of 3.8 and 3.9 that two main sources of this negative difference are the differential between P_{ns} and P_{uolf}. In addition, in the Tables 3.8 and 3.9 we also provided the partial differences in unemployment rates by broad age and education groups between females and males. As can be seen from the Tables 3.8 and 3.9, the difference between females and males is generally, i.e. the general conclusion does not change, and this gap reaches its maximum level in middle school graduates youth (age 15-24) case in both quarters. Finally, as expected the unemployment rate differential between non-head of household and head is positive and all transition probabilities contribute to increase the unemployment rate differential, except P_{uolf}.

Table 3.6: Differences in Flow Probabilities (ΔPi), between Q1-2000 and Q1-2001

	Pen	Peu	Pue	Pun	Pns
Female-Male	26.43	-1.68	-36.10	1.95	0.04
Rural-Urban	10.17	-1.31	1.28	5.07	0.15
Rural Male-Urban Male	3.96	-0.67	1.76	2.23	0.10
Rural Female-Urban Female	12.65	-1.84	-15.87	5.27	0.23
UrbanFemale-UrbanMale	21.90	-1.05	-34.10	1.82	-0.03
Rural Female-Rural Male	30.59	-2.22	-51.73	4.86	0.10
Non-Married-Married	12.39	4.49	-16.70	12.32	-0.15
Non-Married Male-Married Male	10.06	4.97	-11.19	9.05	-0.13
Non-Married Female - Married Female	-9.89	5.19	-1.96	3.76	-0.23
Married Female-Married Male	30.43	-2.45	-37.70	2.19	0.06
Non Married Female-Non Married Male	10.48	-2.23	-28.47	-3.10	-0.04
Female1519-Male1519	17.96	2.34	-28.77	-8.55	-0.06
Female2024-Male2024	14.67	-4.36	-34.49	8.73	0.08
Female2534-Male2534	22.93	-3.80	-32.25	1.35	0.05
Female3544-Male3544	28.68	-2.14	-54.86	-1.11	0.11
Female4554-Male4554	27.16	-2.25	-47.62	-1.59	0.16
Female55pl-Male55pl	76.03	51.06	-50.00	100.00	-0.02
Non-Graduate-Primary Edu.	17.22	-3.04	-1.66	1.61	0.09
Non-Graduate-Middle School	19.36	-2.56	-3.24	3.68	0.21
Non-Graduate-High School	25.25	-1.73	22.23	-2.68	0.26
Non-Graduate-Voc.High School	28.59	-2.39	15.78	-5.96	0.32
Non-Graduate-Two Years Univ.	27.18	-0.76	-24.49	-2.01	0.12
Non-Graduate-Four Years Univ.	29.13	0.06	-2.08	-2.78	0.13
High School-Non-Graduate	-25.25	1.73	-22.23	2.68	-0.26
High School-Primary School	-8.03	-1.31	-23.89	4.29	-0.17
High School-Middle School	-5.89	-0.83	-25.47	6.36	-0.05
High School-Voc.High Sch.	3.34	-0.66	-6.45	-3.28	0.07
High School-Two Years Univ.	1.93	0.97	-46.72	0.67	-0.14
High School-Four Years Univ.	3.88	1.79	-24.31	-0.10	-0.12
Non-Grad. Female-Non-Grad. Male	25.92	-2.51	-41.99	11.76	0.11
Prim Female-Prim Male	39.18	-1.79	-36.15	3.04	0.08
Middle Sc.Female-Middle Sc.Male	29.68	-0.78	-55.65	-1.59	-0.13
HSc.Female-HSc.Male	11.98	1.28	-27.77	-2.02	-0.10
VHSc.Female-VHSc.Male	2.45	0.87	-14.46	-11.38	-0.20
Two Years Female-Two Years Male	2.77	1.41	-48.21	20.24	0.25
Four Years Female-Four Years Male	3.27	-0.49	-4.55	-9.09	-0.30
Non Head of Household-Household Head	21.06	1.50	-20.37	11.60	-0.05
Age 15-24 and Education					
Prim.&Non-Grad. (Female-Male)	28.14	-2.75	-22.83	12.13	0.15
Mid.Sc.(Female-Male)	14.77	1.06	-63.33	-3.33	-0.16
H.Sch.(Female-Male)	0.00	-1.01	-29.17	-10.41	-0.11
University (Female-Male)	-17.00	4.00	-46.43	0.00	-0.50
Age 25-54 and Education					
Prim.&Non-Grad. (Female-Male)	38.52	-3.28	-41.86	0.3	0.14
Mid.Sc.(Female-Male)	26.51	-3.76	-46.88	0	-0.21
H.Sch.(Female-Male)	9.07	0.49	-12.5	6.25	-0.13
University (Female-Male)	5.35	-0.11	-28.95	11.41	-0.07

Table 3.7: Differences in Flow Probabilities (ΔPi), between Q2-2000 and Q2-2001

	Pen	Peu	Pue	Pun	Pns
Female-Male	19.83	-2.04	-33.03	28.48	0.03
Rural-Urban	0.53	-3.13	11.77	-7.20	0.18
Rural Male-Urban Male	-1.57	-2.55	12.58	-11.64	0.11
Rural Female-Urban Female	-3.85	-3.65	-2.57	18.64	0.25
UrbanFemale-UrbanMale	21.25	-0.99	-31.25	25.78	-0.05
Rural Female-Rural Male	18.97	-2.09	-46.40	56.06	0.08
Non-Married-Married	16.49	2.29	-1.65	-1.38	-0.17
Non-Married Male-Married Male	11.27	2.96	-5.67	6.27	-0.13
Non-Married Female - Married Female	3.97	3.12	12.25	-27.65	-0.26
Married Female-Married Male	20.52	-2.62	-42.34	45.93	0.05
Non Married Female-Non Married Male	13.22	-2.46	-24.42	12.01	-0.08
Female1519-Male1519	19.22	-0.33	-30.95	22.62	-0.11
Female2024-Male2024	17.20	-0.69	-36.51	15.87	0.14
Female2534-Male2534	21.58	-3.30	-41.29	49.58	-0.01
Female3544-Male3544	21.03	-2.05	-44.06	46.08	0.05
Female4554-Male4554	13.06	-3.69	-36.62	43.69	0.19
Female55pl-Male55pl	15.39	-1.92	14.71	-8.82	0.06
Non-Graduate-Primary Edu.	14.02	-1.01	-7.19	19.07	0.10
Non-Graduate-Middle School	12.64	-0.52	-4.91	14.09	0.29
Non-Graduate-High School	18.46	0.01	-2.02	9.80	0.41
Non-Graduate-Voc.High School	22.75	-0.55	10.39	18.76	0.09
Non-Graduate-Two Years Univ.	24.39	1.49	-7.69	15.39	0.36
Non-Graduate-Four Years Univ.	21.55	1.55	-13.39	31.63	0.22
High School-Non-Graduate	-18.46	-0.01	2.02	-9.80	-0.41
High School-Primary School	-4.44	-1.02	-5.17	9.27	-0.31
High School-Middle School	-5.82	-0.53	-2.89	4.29	-0.12
High School-Voc.High Sch.	4.29	-0.56	12.41	8.96	-0.32
High School-Two Years Univ.	5.93	1.48	-5.67	5.59	-0.04
High School-Four Years Univ.	3.09	1.54	-11.37	21.83	-0.19
Non-Grad. Female-Non-Grad. Male	24.31	-7.17	-46.52	60.81	0.16
Prim Female-Prim Male	24.15	-2.06	-33.53	35.18	0.04
Middle Sc.Female-Middle Sc.Male	17.87	3.35	-39.34	25.61	-0.13
HSc.Female-HSc.Male	14.26	-0.85	-46.59	38.06	-0.25
VHSc.Female-VHSc.Male	6.11	-4.24	-20.09	-8.93	0.06
Two Years Female-Two Years Male	3.73	1.86	7.14	21.43	-0.75
Four Years Female-Four Years Male	-1.38	1.64	3.33	-6.67	-0.13
Non Head of Household-Household Head	17.24	-0.09	-14.77	15.25	-0.07
Age 15-24 and Education					
Prim.&Non-Grad. (Female-Male)	29.61	-0.96	-40.56	40.37	0.22
Mid.Sc.(Female-Male)	-2.42	8.53	-25.00	12.50	-0.38
H.Sch.(Female-Male)	5.97	-2.95	-33.88	4.06	-0.12
University (Female-Male)	2.86	2.86	25.00	-8.33	-0.75
Age 25-54 and Education					
Prim.&Non-Grad. (Female-Male)	24.69	-3.93	-36.97	46.54	0.09
Mid.Sc.(Female-Male)	21.74	-2.99	-63.33	50	0.21
H.Sch.(Female-Male)	11.16	-0.82	-36.36	40.91	-0.41
University (Female-Male)	0.95	1.03	-16.67	34.44	0.02

Table 3.8: Partial Differences in Unemployment Rates Attributable to Transition Probabilities between Q1-2000 and Q1-2001

	Peu	Pen	Pue	Pun	Pns	Total Difference
Female&Male	8.00	-3.15	15.06	-0.69	-1.88	17.33
Rural&Urban	-2.21	1.97	0.20	0.66	4.59	5.22
Rural Male&Urban Male	0.91	-0.93	-0.22	-0.23	-1.63	-2.09
Rural Female&Urban Female	3.60	-6.30	10.76	-3.03	-32.40	-27.36
Urban Female&Urban Male	8.58	-1.76	16.00	-0.65	1.19	23.36
Rural Female&Rural Male	3.74	-6.95	17.16	-1.56	-11.32	1.07
Non-Married&Married	2.99	6.50	4.08	-2.36	4.77	15.98
Non-Married Male&Married Male	2.51	6.63	2.08	-1.30	2.43	12.34
Non-Married Female&Married Female	-3.51	12.64	1.35	-2.00	20.72	29.21
Married Female&Married Male	6.26	-5.76	9.62	-0.51	-4.19	5.42
Non-Married Female&Non-Married Male	4.18	-3.16	17.62	1.36	1.53	21.53
Non-Graduate &Primary Edu.	2.37	-4.67	0.21	-0.18	-3.65	-5.93
Non-Graduate &Middle School	4.27	-3.90	0.44	-0.41	-8.10	-7.69
Non-Graduate &High School	9.48	-3.31	-4.97	0.44	-10.20	-8.56
Non-Graduate &Voc.High School	11.12	-4.20	-2.64	0.70	-11.26	-6.27
Non-Graduate&Two Years Univ.	3.64	-1.05	1.51	0.11	-3.82	0.39
Non-Graduate &Four Years Univ.	5.31	0.10	0.14	0.17	-4.30	1.41
Non Head&Head	4.73	2.21	4.11	-1.95	1.47	10.57
Youth Age (age15-24) and Education						
Prim. And Non-Graduate (Female&Male)	5.76	-3.81	6.83	-3.09	-6.47	-0.79
Mid.Sc.(Female&Male)	2.05	0.58	143.17	4.48	2.19	152.46
H.Sch.(Female&Male)	0.00	-1.46	25.90	5.28	3.63	33.34
University (Female&Male)	-9.76	7.39	17.05	0.00	13.34	28.03
Middle Age (age25-54) and Education						
Prim.and Non-Graduate (Female&Male)	9.92	-7.62	16.23	-0.11	-11.90	6.53
Mid.Sc.(Female&Male)	13.35	-7.40	48.74	0.00	8.26	62.95
H.Sch.(Female&Male)	7.06	1.59	9.35	-3.37	3.84	18.46
University (Female&Male)	1.78	-0.14	1.47	-0.42	0.58	3.26

Table 3.9: Partial Differences in Unemployment Rates Attributable to Transition Probabilities between Q2-2000 and Q2-2001

	Peu	Pen	Pue	Pun	Pns	Total Difference
Female-Male	4.48	-2.43	3.70	-2.59	-0.73	2.44
Rural-Urban	0.09	-3.56	-0.98	0.48	-3.78	-7.76
Rural Male-Urban Male	-0.32	-2.93	-0.97	0.72	-1.34	-4.83
Rural Female-Urban Female	-0.70	-4.11	0.32	-1.72	-9.71	-15.91
Urban Female-Urban Male	6.20	-1.13	5.41	-3.28	1.54	8.74
Rural Female-Rural Male	1.70	-2.37	1.39	-1.51	-1.74	-2.53
NonMarried-Married	3.33	2.50	0.21	0.14	4.50	10.69
NonMarried Male-Married Male	2.47	3.23	0.65	-0.56	2.22	8.03
NonMarried Female-Married Female	0.99	3.62	-2.25	3.51	11.16	17.02
Married Female-Married Male	2.71	-3.07	2.51	-2.41	-1.22	-1.47
Non Married Female-Non Married Male	4.43	-2.66	5.86	-1.96	2.81	8.48
Non-Graduate &Primary Edu.	1.34	-1.08	0.49	-1.16	-2.51	-2.93
Non-Graduate &Middle School	2.58	-0.56	0.46	-0.97	-7.94	-6.44
Non-Graduate &High School	5.43	0.01	0.19	-0.60	-10.11	-5.08
Non-Graduate &Voc.High School	2.57	-0.69	-0.80	-1.30	-1.98	-2.19
Non-Graduate&Two Years Univ.	6.90	1.74	0.40	-0.61	-7.01	1.43
Non-Graduate &Four Years Univ.	4.11	1.82	0.73	-1.43	-4.60	0.62
Non Head&Head	3.13	-0.10	1.51	-1.29	1.20	4.44
Youth Age (age15-24) and Education						
Prim. And Non-Graduate (Female&Male)	7.42	-1.02	4.95	-3.78	-7.13	0.44
Mid.Sc.(Female&Male)	-0.82	7.56	9.15	-2.21	17.22	30.90
H.Sch.(Female&Male)	3.24	-3.57	11.02	-0.70	4.01	14.01
University (Female&Male)	0.89	2.65	-3.33	0.55	8.62	9.38
Middle Age (age25-54) and Education						
Prim.and Non-Graduate (Female&Male)	3.35	-4.56	2.70	-2.94	-2.15	-3.62
Mid.Sc.(Female&Male)	10.32	-3.71	8.15	-4.19	-6.22	4.35
H.Sch.(Female&Male)	5.46	-1.20	7.57	-4.58	10.69	17.94
University (Female&Male)	0.37	1.55	0.99	-1.51	-0.18	1.21

3.8 Multinomial-Logit Estimation Results

Before looking at the estimation results of multinomial logit model it should be noted in this part, as in Lauerova and Terrell (2002), we pool the two quarters (quarter transition data) of the HLFS data and estimate each model at the means of the explanatory variables. Consequently we have 31,614 individuals in the multinomial-logit estimation part altogether. In the Appendix Table 1 and 2 we provide the means and the standard

deviations of the variables used in the analysis by labor market state of origin: employment, unemployment and out of labor force. In the following sections we provide and discuss the estimation results[16] of the models for each type of the transition.

3.8.1 The Determinants of Transitions from Employment

In this part we will analyze, the determinants of transitions from employment to unemployment and to out of labor force. In the models we have the following explanatory variables: residence where the individual lives (urban), marital status, gender, age group, education level, geographical region, local unemployment rate, occupation, status in employment, sector of work (Public Sector). As mentioned by Huitfeldt (1996, p.24) and Bellmann et al. (1995), the probability of exiting from employment is larger for the unskilled individuals, casual workers and for those individuals in their early employment profession. Moreover, it is expected that the risk of becoming unemployed rises in an economy where there is an economic crisis in which there is a low demand for labor. The results for the determinants of transition from employment to unemployment and out-of-labor force are displayed in Table 3.10 for the whole sample and in Table 3.11 separately for women and men. As we expected, the marginal effect of marriage on the transition from employment to unemployment is negative and significant, because of family responsibility they are less likely to become unemployed and this result is true for each gender. On the other hand, the transition from employment to out of labor force equations show that regardless of the marriage women are most likely to go out of the labor force if they loose their jobs (see Tables 3.11). Regarding the results about the residence variable it is seen that the marginal effect of living in urban areas on the transition from employment to unemployment is positive, but it is not significant. The effect of this variable becomes significant when we exclude the occupation dummies from the model (see column 2 Table 3.10). The same observation seems to hold with respect to results under gender separation (see Table 3.11). In Table 3.10 and 3.11 we also present the multinomial logit estimation results for the transition from employment to out-of-labor-force. It is observed that the effect of living in urban areas on this transition model also positive for whole sample data case (see Table 3.10). The positive effect of this variable on this transition (peolf) seems to

[16] In the tables from 3.10 to 3.15, we provide the marginal effects and their standard errors calculated at means of the variables. These marginal effects are calculated by using "mfx" command of Stata.

continue when we look at the results under gender separation. Overall results about the effect of living in urban areas on the transitions from employment imply that the individuals who live in the urban areas are most probably to loose their jobs in comparison to those who live in the rural areas.

Furthermore, the estimation results about the region dummies show that there is no significant regional variation in employment outflows to unemployment, even if the marginal effects of the all region dummies are positive, except Mediterranean region, with respect to Central Anatolia (see Table 3.10). However, there are significant differences between geographical regions in the transition from employment to out of the labor force equations. It is seen from the Table 3.10 that individuals who live in Marmara, East and South-East Anatolia are most likely to go out of labor force from employment, with respect to Central Anatolian Region. Our conclusion seems to change when we look at the results under gender separation. It is observed for men that there is no significant difference, except Black Sea Region with a positive sign, between the geographical regions to become out of labor force if they loose their job. Women who live in the Marmara and South-East Anatolia region are most probably to go out of the labor force if they loose their job. (see Table, 3.11).

Moreover, concerning the education level, as shown in Table 3.10, for the whole sample the marginal effects of increases in the education level on the transition from employment to unemployment are in general negative, but significant effect only observed for the university (two-year or four year) graduate individuals if we exclude the occupation dummies from the model (see Table 3.10). The effects of these variables (education level) become clearer when we consider the transitions to out-of-the labor force from employment (see Table 3.10). This result confirms our previous finding that university graduated individuals have lowest risk of becoming unemployed from employment in the Turkish labor market. Regarding the results for the transition to unemployment from employment under gender separation, it is observed that, for females, there is no significant difference between the base category of less than primary education (non-graduates) and other levels of education (see Table 3.11). It is seen that the educated women who lose their job are less likely to go to the out-of-the labor force. Regardless of the gender difference, the estimation results in Table 3.11 show that the marginal effects of increases in the education level on the transition from employment to out of labor force is in expected sign and negative for

each alternative models. The difference between the genders is that for men the significant effect is observed for the primary, high, vocational high and university graduates at 5 percent significance level. Whereas, for women, the significant effects are being observed for the high school and more than high school graduates. Overall results about the education level may imply that the probability of leaving a job for out of labor force decreases with the increase in education level, and reaches its minimum value for the four-years and over university graduates. This finding is true for each gender.

Regarding the age categories, the marginal effects of increases in age groups on the transition from employment to unemployment are observed to be inverted U-shaped but not significant for the ages between 20 and 54. It becomes negative and significant for the individuals in their late career period -i.e. age 55 and over- (see Table 3.10). Whereas, the reverse signs of marginal effects of increases in age are observed in the transition from employment to out-of-labor force equation, but with a difference that all age categories now are significant (see Table 3.10). Let us now consider the estimation results under gender separation. It is observed from the Table 11 that for male the effects of age increases on the transition from employment to unemployment is in the same direction as for the whole sample estimation (i.e. initially positive and then becomes negative). However, there is no significant difference between the base age category of 15-19 and other age categories, except 20-24 age-group. The estimation results for females show that the increases in age decrease the probability of becoming unemployed from employment. In contrast to men, for women age categories of 45-54 and 55 and over show statistically significant difference compared to the base age category of 15-19 (see Table 3.11). Further, as shown in Table 3.11 the effects of these variables (i.e. age categories) on the transition from employment to out-of-labor force are in the same direction for males. Thus, individuals are more likely to go out of the labor force from employment at a higher rate late in their labor market career. However, for females we observe that the probability of going to out-of-labor force declines with the increase in age compared to the base age category of 15-19.

Furthermore, the marginal effects of the unemployment rate on the transition from employment to unemployment and to go out of the labor force is in expected sign, i.e. positive, and highly significant in the whole sample estimations. This finding implies that individuals who live in the high unemployment rate cities are more likely to become unemployed or out of labor force. Regardless of the transition difference from employment,

all the estimation results under gender separation show the same direction effect of increases in unemployment rate.

With respect to occupation group dummies it is seen from P_{eu} equation results (see Table 3.10) that there is no significant difference between professional and related workers (occup1) that is the base category, and other occupation groups, with the exception of agricultural workers (occup6). The same observation also holds for agricultural worker men, but not for women, if we look at the estimation results under gender separation (see Table 3.11). Furthermore, we find that the individuals in the other occupation groups, except workers in the not-classified by occupation group (i.e. occup8), are less likely to move out-of-the-labor-force from employment (see Table 3.10). Particularly, the individuals in the following occupations groups show highly significant difference with respect to professionals and related workers at 5 percent significance level. These are clerical and related workers (occup3), sales workers (occup4) service workers (occup5), non-agricultural workers (occup7) (see Table 3.10). However, the occupation dummies become non-significant for male, but not for female, if we look at the estimation results under gender separation (see Table 3.11).

Once we control for the status in employment, as shown in Table 3.10, it is obvious that causal employees are more likely to become unemployed from employment with respect to regular employee. The other status groups are less likely to become unemployed. The same conclusion seems to hold for men, but not for women, when we look at the results under gender separation (see Table 3.11). The effects of the status in employment dummies in the transition from employment to out-of-the-labor-force are not in the same direction as in the transition from employment to unemployment. It is observed from the Table 3.10 that the marginal effects of being in the other status, compared to regular employee, are positive on the transitions from employment to out of labor force. Thus, the individuals working in these statutes are most likely to become out of labor force if they loose their job. Combining the overall results about the effects of status in employment on the transitions from employment imply that the individuals working as a casual workers are most likely to loose their job.

Finally, in these models we also included an employment sector dummy that is public sector, to capture the effect of establishment ownership. As can be seen from the

whole sample estimations, the marginal effects of the public sector dummy in the both transition model, transition from employment to unemployment and to out-of the labor force are in the expected sign, i.e. negative and significant at 1 percent level. That's why it is possible to say that working in public sector is an advantage for workers and these workers are most likely to keep their jobs with respect to the private sector workers, even under economic crisis.

Table 3.10: Transition from Employment to Unemployment and Out-of-Labor Force

Variables	peu	peu	peolf	peolf
urban	0.001	0.008***	0.047***	0.042***
	[0.003]	[0.003]	[0.007]	[0.006]
female	-0.001	-0.004	0.166***	0.167***
	[0.003]	[0.003]	[0.015]	[0.015]
FemMar	-0.012***	-0.014***	0.103***	0.107***
	[0.004]	[0.004]	[0.017]	[0.017]
married	-0.012***	-0.013***	-0.102***	-0.103***
	[0.004]	[0.005]	[0.014]	[0.014]
REGION				
Marmara	0.000	0.000	0.031***	0.031***
	[0.003]	[0.004]	[0.010]	[0.011]
Aegean	0.005	0.006	0.007	0.007
	[0.004]	[0.005]	[0.011]	[0.011]
Mediterranean	-0.003	-0.004	0.020*	0.020*
	[0.004]	[0.004]	[0.011]	[0.011]
BlackSea	0.001	0.002	0.013	0.013
	[0.004]	[0.005]	[0.011]	[0.011]
EastAnatolia	0.002	0.003	0.032**	0.033***
	[0.005]	[0.005]	[0.013]	[0.013]
SouthEastAnatolia	0.008	0.008	0.033**	0.035**
	[0.006]	[0.006]	[0.014]	[0.014]
EDUCATION				
PrimarySchool	-0.001	0.001	-0.006	-0.007
	[0.004]	[0.004]	[0.009]	[0.008]
MiddleSchool	-0.002	-0.001	*0.022**	*0.020*
	[0.004]	[0.005]	*[0.013]*	*[0.012]*
HighSchool	-0.002	-0.002	-0.028***	-0.032***
	[0.005]	[0.005]	[0.011]	[0.010]
VocHighSchool	-0.001	-0.001	-0.063***	-0.062***
	[0.005]	[0.006]	[0.009]	[0.009]
TwoyearsUniv	-0.010*	-0.011*	-0.079***	-0.073***
	[0.006]	[0.006]	[0.010]	[0.011]
Univ4pl	-0.008	-0.011**	-0.092***	-0.082***
	[0.005]	[0.004]	[0.008]	[0.008]
AGE				
age2024	0.008	0.009	-0.044***	-0.044***
	[0.005]	[0.006]	[0.007]	[0.007]
age2534	0.004	0.004	-0.092***	-0.092***
	[0.004]	[0.005]	[0.008]	[0.008]
age3544	-0.001	-0.001	-0.093***	-0.093***
	[0.004]	[0.005]	[0.009]	[0.009]
age4554	-0.002	-0.004	-0.028***	-0.028***
	[0.005]	[0.005]	[0.010]	[0.010]
age55pl	-0.013***	-0.016***	*0.049***	*0.050***
	[0.004]	[0.004]	*[0.017]*	*[0.017]*
Unemprate	0.126***	0.143***	0.396***	0.390***
	[0.020]	[0.022]	[0.055]	[0.055]
OCCUPATION				
occup2	0.000		-0.020	
	[0.010]		[0.020]	
occup3	0.003		-0.051***	
	[0.007]		[0.010]	
occup4	0.008		-0.043***	
	[0.008]		[0.011]	
occup5	0.011		-0.037***	
	[0.009]		[0.012]	
occup6	-0.015***		-0.027*	
	[0.005]		[0.014]	
occup7	0.011		-0.038***	
	[0.007]		[0.012]	
occup8	0.027		0.011	
	[0.025]		[0.032]	
STATU				
statu2	0.012***	0.013***	0.079***	0.082***
	[0.004]	[0.004]	[0.013]	[0.013]
statu3	-0.008	-0.007	0.100*	0.096*
	[0.014]	[0.016]	[0.056]	[0.054]
statu4	-0.014***	-0.015***	0.000	0.003
	[0.003]	[0.003]	[0.014]	[0.013]
statu5	-0.008***	-0.011***	0.043***	0.044***
	[0.003]	[0.003]	[0.011]	[0.010]
statu6	-0.011***	-0.018***	0.028**	0.031***
	[0.003]	[0.003]	[0.012]	[0.011]
PublicSector	*-0.022****	*-0.024****	*-0.034****	*-0.030****
	[0.002]	*[0.002]*	*[0.009]*	*[0.009]*
q2q2	0.000	0.000	-0.019***	-0.019***
	[0.002]	[0.002]	[0.005]	[0.005]
Log-Likelihood	-7922.087	-7956.79	-7922.087	-7956.79
Wald-Test of Chi2	2482.6	2499.5	2482.6	2499.5
Prob>chi2	0.000	0.000	0.000	0.000
Pseudo R2	0.176	0.172	0.176	0.172
Number of Transitions	570	570	2683	2683
Observations	16117	16117	16117	16117

Notes 1) Standard errors in brackets
2) * significant at 10%; ** significant at 5%; *** significant at 1%

Table 3.11: Transition from Employment to Unemployment and Out-of-Labor Force by Gender

	MALE				FEMALE			
Variables	**peu**	**peu**	**peolf**	**peolf**	**peu**	**peu**	**peolf**	**peolf**
urban	-0.001	0.007**	0.020***	0.013**	0.000*	0.001**	0.181***	0.205***
	[0.004]	[0.003]	[0.006]	[0.005]	[0.000]	[0.000]	[0.027]	[0.023]
married	-0.019***	-0.020***	-0.067***	-0.066***	-0.001**	-0.001**	-0.015	-0.017
	[0.006]	[0.006]	[0.013]	[0.013]	[0.000]	[0.000]	[0.025]	[0.025]
REGION								
Marmara	0.000	0.000	0.014	0.014	0.000	0.000	0.069**	0.073**
	[0.004]	[0.005]	[0.009]	[0.009]	[0.000]	[0.000]	[0.033]	[0.033]
Aegean	0.006	0.008	0.010	0.009	0.000	0.000	-0.012	-0.005
	[0.006]	[0.006]	[0.010]	[0.010]	[0.000]	[0.000]	[0.033]	[0.033]
Mediterranean	-0.004	-0.006	0.013	0.015	0.000	0.000	0.039	0.036
	[0.004]	[0.005]	[0.010]	[0.010]	[0.000]	[0.000]	[0.037]	[0.037]
BlackSea	0.003	0.005	0.021**	0.021**	0.000	0.000	*-0.035*	*-0.038*
	[0.006]	[0.006]	[0.011]	[0.010]	[0.000]	[0.000]	*[0.032]*	*[0.032]*
EastAnatolia	0.005	0.006	0.011	0.011	0.000	0.000	0.072*	0.078**
	[0.006]	[0.007]	[0.011]	[0.011]	[0.000]	[0.000]	[0.039]	[0.039]
SouthEastAnatolia	0.007	0.008	0.003	0.003	0.001	0.001	0.181***	0.186***
	[0.007]	[0.007]	[0.011]	[0.011]	[0.001]	[0.001]	[0.049]	[0.049]
EDUCATION								
PrimarySchool	-0.008	-0.006	-0.020**	-0.022***	0.001	0.001	-0.015	-0.008
	[0.005]	[0.005]	[0.008]	[0.008]	[0.000]	[0.001]	[0.024]	[0.024]
MiddleSchool	-0.008*	-0.008	0.013	0.012	0.001	0.001	-0.049	-0.046
	[0.005]	[0.005]	[0.011]	[0.011]	[0.001]	[0.001]	[0.040]	[0.039]
HighSchool	-0.008*	-0.008	-0.012	-0.012	0.001	0.001	-0.169***	-0.180***
	[0.005]	[0.005]	[0.010]	[0.009]	[0.001]	[0.001]	[0.033]	[0.030]
VocHighSchool	-0.005	-0.006	-0.023**	-0.023**	0.000	0.000	-0.283***	-0.272***
	[0.005]	[0.006]	[0.009]	[0.009]	[0.001]	[0.001]	[0.022]	[0.023]
TwoyearsUniv	-0.019***	-0.021***	-0.030**	-0.028**	0.001	0.001	-0.308***	-0.288***
	[0.005]	[0.005]	[0.013]	[0.013]	[0.002]	[0.002]	[0.019]	[0.025]
Univ4pl	-0.017***	-0.020***	-0.032***	-0.028***	0.001	0.001	-0.375***	-0.346***
	[0.005]	[0.004]	[0.009]	[0.009]	[0.001]	[0.001]	[0.016]	[0.018]
AGE GROUP								
age2024	0.021**	0.023**	-0.021***	-0.021***	0.000	0.000	-0.125***	-0.125***
	[0.010]	[0.010]	[0.007]	[0.007]	[0.000]	[0.000]	[0.029]	[0.029]
age2534	0.013*	0.014*	-0.063***	-0.063***	0.000*	0.000*	-0.182***	-0.185***
	[0.007]	[0.007]	[0.007]	[0.007]	[0.000]	[0.000]	[0.030]	[0.029]
age3544	0.008	0.008	-0.058***	-0.058***	0.000	0.000*	-0.193***	-0.197***
	[0.007]	[0.007]	[0.009]	[0.009]	[0.000]	[0.000]	[0.031]	[0.031]
age4554	0.009	0.007	0.020	0.020	0.000**	-0.001***	-0.175***	-0.178***
	[0.008]	[0.008]	[0.013]	[0.013]	[0.000]	[0.000]	[0.030]	[0.030]
age55pl	-0.009	-0.012*	0.107***	0.111***	-0.007***	-0.008***	-0.087**	-0.090**
	[0.007]	[0.006]	[0.025]	[0.025]	[0.002]	[0.002]	[0.037]	[0.037]
Unemprate	0.159***	0.178***	0.284***	0.277***	0.002	0.002	0.756***	0.768***
	[0.025]	[0.026]	[0.044]	[0.044]	[0.001]	[0.001]	[0.216]	[0.215]
OCCUPATION								
occup2	-0.003		-0.009		0.001		-0.139	
	[0.013]		[0.015]		[0.001]		[0.093]	
occup3	-0.004		-0.006		0.001		-0.210***	
	[0.008]		[0.013]		[0.001]		[0.033]	
occup4	0.007		-0.011		0.001		-0.156***	
	[0.010]		[0.011]		[0.001]		[0.043]	
occup5	0.009		-0.011		0.001		-0.181***	
	[0.010]		[0.011]		[0.001]		[0.040]	
occup6	-0.018***		0.004		0.000		-0.220***	
	[0.006]		[0.014]		[0.000]		[0.057]	
occup7	0.008		-0.015		0.001		-0.140***	
	[0.008]		[0.011]		[0.001]		[0.046]	
occup8	0.027		-0.001		0.002		-0.005	
	[0.032]		[0.028]		[0.002]		[0.099]	
STATU								
statu2	0.016***	0.017***	0.036***	0.035***	0.000	0.000	0.232***	0.219***
	[0.005]	[0.005]	[0.010]	[0.009]	[0.000]	[0.000]	[0.047]	[0.046]
statu3	-0.026***	-0.028***	-0.070***	-0.070***	0.000	0.000	0.225**	0.182**
	[0.002]	[0.002]	[0.003]	[0.003]	[0.001]	[0.001]	[0.092]	[0.088]
statu4	-0.017***	-0.019***	-0.024***	-0.024***	0.000	0.000	0.275***	0.283***
	[0.003]	[0.003]	[0.007]	[0.007]	[0.000]	[0.000]	[0.094]	[0.091]
statu5	-0.013***	-0.016***	-0.012*	-0.009	0.000	0.000	0.275***	0.262***
	[0.003]	[0.003]	[0.007]	[0.007]	[0.000]	[0.000]	[0.039]	[0.036]
statu6	-0.008*	-0.015***	0.036***	0.043***	-0.001*	-0.001**	0.153***	0.125***
	[0.005]	[0.004]	[0.013]	[0.013]	[0.000]	[0.000]	[0.039]	[0.034]
PublicSector	-0.027***	-0.029***	-0.035***	-0.034***	0.000***	-0.001***	-0.044	-0.017
	[0.003]	[0.003]	[0.007]	[0.006]	[0.000]	[0.000]	[0.039]	[0.036]
q2q2	0.001	0.001	-0.008**	-0.008**	0.000	0.000	-0.072***	-0.073***
	[0.002]	[0.002]	[0.004]	[0.004]	[0.000]	[0.000]	[0.016]	[0.017]
Log-Likelihood	-5152.80	-5174.17	-5152.80	-5174.17	-2524.011	-2547.47	-2524.011	-2547.47
Wald-Test of Chi2	3756.2	5426.1	3756.2	5426.1	27321.2	33076.0	27321.2	33076.0
Prob>Chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R2	0.127	0.124	0.127	0.124	0.162	0.155	0.162	0.155
Number of Transitions	483	483	1208	1208	87	87	1475	1475
Observations	12110	12110	12110	12110	4007	4007	4007	4007

Note: See Table 10.

3.8.2 The Determinants of Transitions from Unemployment

This part discusses the determinants of transitions from unemployment to employment and to out of labor force. The results for the models of unemployment exits are reported in Tables 3.12 and 3.13. In the estimated models in addition to standard explanatory variables that we mentioned above we included the duration of unemployment at first interview in order to capture the heterogeneity among the unemployed (See Foley (1997) and Huitfeldt (1996)). Moreover, as stated by Huitfeldt (1996) the probability of finding a job from unemployment can be considered as the functions of the following. The first group of the covariates includes the characteristics of the individuals that have an effect on individual's likelihood of finding a job. The second group covers the covariates that influence the individual's likelihood of being offered the job and the likelihood of non-rejecting this job opportunity. It is highly likely that the probability of receiving an offer rely on an individual's job search strategy (Devine and Kiefer (1991)). To capture this effect, in our estimations we also incorporated a group of dummy variables for the job-search methods used by the unemployed individuals. Let us now look at the estimation results in detail.

It is observed from Table 3.12 that, as expected, females are less likely to find a job from unemployment compared to men. Further, we observe from the Table 3.12 that the marginal effect of residence on the transition from unemployment to employment equation is, in general, with the expected sign, i.e. positive but insignificant in the whole sample estimation. Whereas, as shown in Table 3.13, the effect of this variable becomes significant for the female sample, when we exclude the occupation dummies from the model, if we look at the estimation results under gender separation. Thus, particularly for female, living in urban areas increases the probability of employment from unemployment (see Table 3.13). Regarding the results for the whole sample data in Table 3.12 it is observed that living in urban areas decreases the probability of going out-of-the-labor force from unemployment, even though it is statistically insignificant. Whereas our conclusion becomes reverse for male, again not significant, if we consider same transition model estimates under gender separation. That is, we observe from the Table 3.13 that probability of moving to out-of-the-labor force from unemployment, for male, increases with living in urban areas. In contrast to male, urban variable is statistically significant in the female's equation. This implies that, for female, the probability of exiting to out-of-the-labor force

from unemployment decreases with living in urban areas.

Furthermore, as expected, since the marginal effect of being married is positive, but significant only at 10 percent when we exclude the occupation dummies, in the male's estimation, we can say that the marriage increases the probability of finding a job from unemployment for men. The reverse observation is seen in the transition from unemployment to out of labor force equation for men. These findings imply that because of family responsibility of men –since he is the breadwinner in the traditional Turkish family-, they are more likely to find a job and less likely to go out-of-the-labor-force. In contrast to men, for women, being married seems to increase both the probability of finding a job from unemployment and probability of moving to out-of-the-labor-force -but with non-significant coefficients in both equations- (see Table 3.13).

Regarding the education levels, it is found that the marginal effects of these variables on the transition from unemployment to employment equation are in expected sign and positive, with a few exceptions. This effect reaches its maximum value for the two-year and over university graduates and becomes significant at 1 percent level in the whole sample. The conclusion does not seem to change, if we look at the same estimation results under gender separation (see Table 3.13). Regarding the transition from unemployment to out of labor force equation, we find that more educated individuals are less likely to go out-of-the-labor-force with respect to non-graduates. We observe that education level dummies are statistically significant and their marginal effect on transition to out-of-labor force from unemployment decreases with the increase in the education level (see Table 3.12). Regarding the results under gender separation we observe that the effects of education level dummies on the transition from unemployment to out of labor force is again mostly significant in women's equation rather than men's (see Table 3.13). Combining the estimation results for the transitions from unemployment imply that the increases in education level may increase the probability of obtaining a job. However, the statistically significant difference is observed only for the university graduates, but not for the other education groups. Further, having a vocational high school diploma does not have a significant effect in obtaining a job.

In addition, we observe that living in the Aegean, Mediterranean and South-East Anatolia regions increases the probability of exiting from unemployment for a job

compared to the base category of Central Anatolia (see Table 3.12). Individuals in these geographical regions are more likely to find employment in comparison to Central Anatolia. However, living in the other remaining regions does not make a statistically significant variation. Regarding the transition to out-of-the-labor-force from unemployment it is observed that the marginal effects of living in Marmara, Aegean and Mediterranean regions are negative, and the remaining are positive (see Table 3.12). However, all region dummies make no significant difference compared to Central Anatolia. Regarding the results under gender separation we have somewhat different results for men compared to women. While men who live in the South-East Anatolia most likely to find a job, women who live in the East-Anatolia, as expected, less likely to find a job from unemployment, compared to the base category of Central Anatolia. Moreover, women who live in the East-Anatolia more likely to go out-of-labor force compared to the base group.

With respect to age categories, we observe from the Table 3.12 that the marginal affect of increases in age on finding a job from unemployment is initially positive, and then turn to negative after the age group of 25-34. We observe an inverted-U-shaped relation between age and probability of finding a job from unemployment. The highest negative effect is observed for the individuals in their late career period. The reverse observation seems to hold in the transitions from unemployment to out-of-the-labor force equation estimates (see Table 3.12). Regarding the results under gender difference we observe the expected results only for men that the marginal effect of the age increase on the transition from unemployment to out-of-the-labor force equation is initially negative then turn to positive (U-shaped). This finding may imply that men are more likely to leave the labor force from unemployment at a higher rate late in their labor market career. However, the same conclusion is not seemed to hold for women if they are still in the labor force.

Additionally, the effects of the local unemployment rate on the transition from unemployment to employment (P_{ue}) equation is in expected sign for each gender, but significant only in the men's equation (see Table 3.13). Thus, the negative marginal effect of this variable, in both equations implies that individuals who live in high unemployment rate areas are less likely to find employment from unemployment. Regarding the results for the transition from unemployment to out of labor force it is observed that the increases in unemployment rate increases the probability of exiting from unemployment to out-of-the-labor force for men, whereas for women we observe the reverse effect, even insignificant

for each gender. Regardless of the gender difference overall results about marginal effects of the province level unemployment rate on the transitions from unemployment imply that the probability of obtaining a job is lower in provinces with high unemployment rates. However, men, but not women, in these provinces are most probably to go out of the labor force, i.e. become discouraged, at a higher rate than other unemployed.

Moreover, in the estimated models we also included the occupation dummies for each of the unemployed individuals. As can be seen from the Table 3.13, all the occupation groups, with respect to professional workers, have positive marginal effects on the transition from unemployment to employment equation for each gender. This finding implies that the individuals in the other occupation groups are most likely to find a job and less likely to go out-of-labor force from unemployment compared to professional workers.

When we control the status in previous employment, it is seen that the following status group have positive and significant marginal effect on transition from unemployment to employment. These are employer (statu4), self-employed (statu5) and unpaid family workers (statu6). The individuals in these groups most likely to a find from unemployment compared to regular employee. The other remaining variables also show a negative but not significant marginal effect in finding a job. For men, significant effect of these variables is seen, again, in the group of "employer, self-employed and unpaid family workers". Thus these groups of male workers are more likely to find a job compared to regular employees. Whereas for women we observe that there is no significant difference between the status in employment in finding a job from unemployment, except paid family workers with a negative sign, compared to the base category of regular employees.

Furthermore, to capture the duration dependence effect we have also included the unemployment duration group dummies in the transitions from unemployment equation. Regardless of the gender difference it is observed from the Table 3.13 that the probability of transition from unemployment to employment declines with the increases in unemployment duration. Hence, there is negative duration dependence. This result is supported in the transition from unemployment to out of the labor force, particularly for men (see Table 3.13), since the probability of exiting from labor force increases with the increases in unemployment duration. This finding supports the "discouraged worker effect"

hypothesis.

Finally, the effects of job search methods on the transition from unemployment to employment (P_{ue}) are also presented in Table 3.12 for the whole sample in Table 3.13 for men and women separately. As shown in Table 3.12 the marginal effects of using “friends and relatives”, “newspapers”, “employment office” and “workers agent” as a job search method on the exiting from unemployment for employment is positive, but statistically significant effect is observed only for the “workers agent”. As expected, the negative and significant effect is only observed for the search channel of “try to provide equipment, credit, place to establish own business”. Thus, using this job-search method decreases the probability of obtaining a job. Even though the marginal effect of using employment office on the transition from unemployment to employment is positive but not significant, the effect of this search channel on the transition to out-of-the-labor force from unemployment is negative and statistically significant at 1 percent level for male. This is why the registration rate to the employment office is very low, in comparison to the developed countries. Overall results for the each transition from unemployment imply that use of “workers agent and mediators” is the most useful job-search channel in obtaining a job, but not the employment office.

Table 3.12: Transition from Unemployment to Employment and Out-of-Labor Force

Variables	pue	pue	puolf	puolf
urban	0.042	0.048	-0.029	-0.048
	[0.059]	[0.051]	[0.048]	[0.042]
female	-0.191***	-0.280***	0.005	0.051
	[0.058]	[0.050]	[0.038]	[0.039]
FemMar	-0.184**	-0.244***	0.301***	0.349***
	[0.081]	[0.074]	[0.093]	[0.087]
married	0.095	0.163***	-0.092*	-0.122***
	[0.068]	[0.062]	[0.049]	[0.046]
REGION				
Marmara	0.094	0.079	-0.005	-0.021
	[0.067]	[0.065]	[0.046]	[0.043]
Aegean	0.159**	0.161**	-0.055	-0.068*
	[0.076]	[0.069]	[0.048]	[0.040]
Mediterrian	0.196***	0.138**	-0.027	-0.011
	[0.070]	[0.065]	[0.046]	[0.045]
BlackSea	0.126	0.055	0.031	0.049
	[0.082]	[0.075]	[0.060]	[0.060]
EastAnatolia	-0.089	-0.073	0.120	0.096
	[0.082]	[0.087]	[0.096]	[0.090]
SouthEastAnatolia	0.193**	0.131*	-0.010	0.015
	[0.087]	[0.079]	[0.056]	[0.058]
EDUCATION				
PrimarySchool	0.000	0.041	-0.109***	-0.128***
	[0.079]	[0.073]	[0.042]	[0.041]
MiddleSchool	0.088	0.117	-0.100***	-0.113***
	[0.096]	[0.084]	[0.033]	[0.029]
HighSchool	0.018	-0.027	-0.090***	-0.093***
	[0.097]	[0.088]	[0.035]	[0.032]
VocHighSchool	0.108	0.131	-0.157***	-0.157***
	[0.109]	[0.097]	[0.026]	[0.022]
TwoyearsUniv	0.374***	0.313***	-0.155***	-0.140***
	[0.107]	[0.097]	[0.024]	[0.029]
Univ4pl	0.554***	0.380***	-0.184***	-0.164***
	[0.043]	[0.069]	[0.018]	[0.018]
AGE				
age2024	0.065	0.138**	-0.054	-0.087***
	[0.070]	[0.060]	[0.035]	[0.030]
age2534	-0.031	0.098	-0.072*	-0.119***
	[0.076]	[0.069]	[0.038]	[0.032]
age3544	-0.221***	-0.097	-0.032	-0.072*
	[0.070]	[0.076]	[0.047]	[0.040]
age4554	-0.277***	-0.161*	0.035	-0.020
	[0.067]	[0.084]	[0.065]	[0.052]
age55pl	-0.281***	-0.213**	0.118	0.070
	[0.067]	[0.094]	[0.107]	[0.095]
Unemprate	-2.287***	-2.130***	0.321	0.357
	[0.685]	[0.666]	[0.522]	[0.487]
OCCUPATION				
occup2	0.428***		-0.146***	
	[0.150]		[0.030]	
occup3	0.513***		-0.177***	
	[0.050]		[0.019]	
occup4	0.511***		-0.203***	
	[0.054]		[0.021]	
occup5	0.582***		-0.193***	
	[0.040]		[0.020]	
occup6	0.576***		-0.188***	
	[0.043]		[0.022]	
occup7	0.687***		-0.288***	
	[0.048]		[0.035]	
occup8	0.485***		-0.148***	
	[0.079]		[0.027]	
STATU				
statu2	-0.071	0.056	0.032	-0.045
	[0.050]	[0.046]	[0.044]	[0.030]
statu3	-0.070	0.197	0.212	-0.013
	[0.193]	[0.172]	[0.187]	[0.095]
statu4	0.401***	0.378***	-0.051	-0.075
	[0.111]	[0.094]	[0.099]	[0.079]
statu5	0.366***	0.390***	-0.110***	-0.156***
	[0.060]	[0.045]	[0.037]	[0.023]
statu6	0.307***	0.417***	-0.108***	-0.158***
	[0.086]	[0.045]	[0.041]	[0.018]
DURATION				
duration46	-0.113**	-0.134***	0.042	0.069*
	[0.046]	[0.044]	[0.036]	[0.036]
duration612	-0.114**	-0.130***	0.023	0.042
	[0.049]	[0.047]	[0.038]	[0.038]
duration1224	-0.137*	-0.155**	0.146**	0.175***
	[0.071]	[0.065]	[0.066]	[0.065]
duration24pl	-0.173*	-0.250***	0.245**	0.306***
	[0.090]	[0.077]	[0.098]	[0.097]
SEARCH METHOD				
Friendsetc	0.055	0.038	-0.029	-0.021
	[0.043]	[0.041]	[0.031]	[0.030]
Newspapers	0.102	0.079	0.039	0.045
	[0.071]	[0.062]	[0.061]	[0.054]
EmploymentOffice	0.041	0.003	-0.089***	-0.081***
	[0.064]	[0.061]	[0.032]	[0.031]
Workersagent	0.343**	0.269**	-0.119**	-0.096**
	[0.150]	[0.105]	[0.055]	[0.048]
Trytoprovideequipment	-0.300***	-0.318***	0.069	0.058
	[0.082]	[0.096]	[0.099]	[0.091]
Othermethods	-0.199	-0.278**	-0.058	-0.021
	[0.131]	[0.110]	[0.075]	[0.089]
q2q2	-0.081**	-0.047	0.332***	0.283***
	[0.037]	[0.036]	[0.029]	[0.027]
Log Likelihood	-945.74	-1050.09	-945.74	-1050.09
Wald-Test of Chi2	454.55	406.54	454.55	406.54
Prob>Chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.3084	0.2321	0.3084	0.2321
Number of Transitions	570	570	303	303
Observations	1283	1283	1283	1283

Note: See Table 3.10.

Table 3.13: Transition from Unemployment to Employment and Out-of-Labor Force by Gender

	MALE				FEMALE			
	pue	pue	Puolf	Puolf	pue	pue	Puolf	Puolf
urban	0.041	-0.002	0.000	0.002	0.016*	0.059***	-0.359***	-0.373***
	[0.069]	[0.057]	[0.011]	[0.010]	[0.008]	[0.015]	[0.119]	[0.105]
married	0.062	0.112*	-0.010	-0.019	0.000	0.015	0.165*	0.136
	[0.075]	[0.066]	[0.011]	[0.012]	[0.010]	[0.027]	[0.097]	[0.091]
REGION								
Marmara	0.070	0.057	-0.006	-0.008	0.038	0.093	0.130	0.027
	[0.066]	[0.065]	[0.010]	[0.010]	[0.046]	[0.097]	[0.156]	[0.151]
Aegean	0.079	0.099	-0.001	-0.011	0.197	0.243	-0.138	-0.118
	[0.071]	[0.066]	[0.013]	[0.011]	[0.178]	[0.198]	[0.166]	[0.164]
Mediterrian	0.122*	0.095	-0.003	0.001	0.157	0.179	0.129	0.064
	[0.065]	[0.063]	[0.011]	[0.013]	[0.145]	[0.147]	[0.196]	[0.170]
BlackSea	0.100	0.057	-0.003	0.003	0.101	0.087	0.260	0.188
	[0.077]	[0.073]	[0.013]	[0.016]	[0.122]	[0.131]	[0.173]	[0.179]
EastAnatolia	-0.083	-0.043	0.022	0.013	-0.037***	-0.102***	0.451***	0.446***
	[0.091]	[0.088]	[0.027]	[0.025]	[0.013]	[0.024]	[0.147]	[0.164]
SouthEastAnatolia	0.150**	0.139**	-0.008	-0.007	0.087	0.029	0.254	0.303*
	[0.069]	[0.066]	[0.010]	[0.012]	[0.143]	[0.097]	[0.208]	[0.168]
EDUCATION								
PrimarySchool	-0.019	0.015	-0.017	-0.025*	0.005	-0.001	-0.202*	-0.220**
	[0.089]	[0.079]	[0.012]	[0.014]	[0.017]	[0.031]	[0.111]	[0.098]
MiddleSchool	0.109	0.131*	-0.014*	-0.018**	-0.007	-0.022	-0.279***	-0.283***
	[0.093]	[0.078]	[0.008]	[0.009]	[0.014]	[0.027]	[0.097]	[0.088]
HighSchool	0.006	-0.044	-0.013	-0.013	0.016	-0.004	-0.227*	-0.286***
	[0.110]	[0.101]	[0.009]	[0.010]	[0.026]	[0.031]	[0.123]	[0.093]
VocHighSchool	0.110	0.155*	-0.016**	-0.021***	0.018	0.012	-0.477***	-0.479***
	[0.102]	[0.083]	[0.008]	[0.007]	[0.039]	[0.041]	[0.051]	[0.049]
TwoyearsUniv	0.234***	0.202**	-0.023***	-0.022***	0.650*	0.482*	-0.375***	-0.364***
	[0.083]	[0.083]	[0.006]	[0.009]	[0.377]	[0.269]	[0.084]	[0.107]
Univ4pl	0.344***	0.253***	-0.026***	-0.022***	0.765***	0.333*	-0.444***	-0.432***
	[0.035]	[0.058]	[0.004]	[0.007]	[0.197]	[0.198]	[0.048]	[0.049]
AGE GROUP								
age2024	0.087	0.112*	-0.014*	-0.022***	0.001	0.006	-0.062	-0.023
	[0.077]	[0.064]	[0.007]	[0.007]	[0.011]	[0.023]	[0.119]	[0.107]
age2534	-0.031	0.041	-0.021**	-0.032***	-0.016	-0.017	-0.059	0.008
	[0.095]	[0.079]	[0.009]	[0.008]	[0.010]	[0.024]	[0.127]	[0.116]
age3544	-0.182*	-0.089	-0.014	-0.025***	-0.031***	-0.072***	-0.215*	-0.149
	[0.107]	[0.095]	[0.010]	[0.009]	[0.010]	[0.017]	[0.111]	[0.115]
age4554	-0.265**	-0.155	-0.005	-0.017*	-0.023***	-0.063***	-0.055	0.012
	[0.120]	[0.109]	[0.013]	[0.010]	[0.007]	[0.013]	[0.169]	[0.173]
age55pl	-0.299**	-0.213	0.017	0.005	NA	NA	NA	NA
	[0.131]	[0.131]	[0.025]	[0.019]				
unemprate	-1.876***	-1.950***	0.062	0.107	-0.385*	-0.519	-0.756	-1.020
	[0.686]	[0.662]	[0.118]	[0.126]	[0.224]	[0.483]	[1.777]	[1.503]
OCCUPATION								
occup2	0.215		-0.023***		NA		NA	
	[0.155]		[0.005]					
occup3	0.326***		-0.026***		0.300**		-0.306***	
	[0.040]		[0.004]		[0.135]		[0.094]	
occup4	0.350***		-0.032***		0.061		-0.428***	
	[0.046]		[0.006]		[0.058]		[0.051]	
occup5	0.370***		-0.031***		0.782***		-0.396***	
	[0.042]		[0.005]		[0.168]		[0.056]	
occup6	0.398***		-0.032***		0.258		-0.227*	
	[0.038]		[0.006]		[0.163]		[0.118]	
occup7	0.577***		-0.076***		0.650***		-0.297***	
	[0.072]		[0.017]		[0.147]		[0.073]	
occup8	0.299***		-0.022***		0.385		-0.331***	
	[0.059]		[0.006]		[0.524]		[0.105]	
STATU								
statu2	-0.060	0.027	0.011	-0.006	-0.009	0.063	-0.153	-0.252***
	[0.054]	[0.045]	[0.009]	[0.007]	[0.010]	[0.068]	[0.158]	[0.097]
statu3	NA	NA	NA	NA	-0.018***	0.049	0.331	0.037
					[0.006]	[0.071]	[0.213]	[0.219]
statu4	0.309***	0.292***	-0.014	-0.018	NA	NA	NA	NA
	[0.045]	[0.046]	[0.012]	[0.014]				
statu5	0.247***	0.262***	-0.019***	-0.028***	0.057	0.669**	-0.267	-0.374***
	[0.050]	[0.040]	[0.006]	[0.006]	[0.073]	[0.276]	[0.208]	[0.132]
statu6	0.218***	0.305***	-0.103***	-0.113***	NA	NA	NA	NA
	[0.079]	[0.048]	[0.015]	[0.014]				
DURATION								
duration46	-0.084	-0.082	0.002	0.003	-0.022**	-0.068***	0.063	0.150
	[0.056]	[0.052]	[0.009]	[0.010]	[0.010]	[0.018]	[0.110]	[0.103]
duration612	-0.096	-0.102*	0.017	0.024*	-0.010	-0.031*	-0.145	-0.093
	[0.062]	[0.057]	[0.012]	[0.013]	[0.008]	[0.018]	[0.101]	[0.101]
duration1224	-0.054	-0.056	0.061*	0.077**	-0.020***	-0.047***	-0.013	0.093
	[0.102]	[0.093]	[0.031]	[0.037]	[0.008]	[0.016]	[0.144]	[0.134]
duration24pl	-0.109	-0.115	0.139**	0.150**	-0.004	-0.050***	-0.044	0.062
	[0.136]	[0.127]	[0.060]	[0.069]	[0.021]	[0.017]	[0.186]	[0.187]
SEARCH METHOD								
Friendsetc	0.064	0.055	-0.010	-0.009	0.005	-0.024	-0.020	0.002
	[0.048]	[0.043]	[0.008]	[0.008]	[0.010]	[0.025]	[0.100]	[0.091]
Newspapers	0.125**	0.114**	0.002	0.006	0.012	-0.004	0.161	0.159
	[0.057]	[0.054]	[0.013]	[0.014]	[0.026]	[0.036]	[0.195]	[0.141]
EmploymentOffice	0.036	-0.002	-0.022***	-0.024***	-0.005	-0.039**	-0.001	-0.028
	[0.074]	[0.071]	[0.006]	[0.006]	[0.012]	[0.016]	[0.148]	[0.125]
Workersagent	0.263***	0.221***	-0.020***	-0.020*	0.001	-0.015	-0.037	-0.074
	[0.089]	[0.085]	[0.007]	[0.010]	[0.029]	[0.037]	[0.234]	[0.209]
Trytoprovideequipment	-0.333**	-0.324**	0.022	0.013	-0.023***	-0.065***	0.067	0.013
	[0.140]	[0.147]	[0.032]	[0.027]	[0.007]	[0.015]	[0.248]	[0.246]
Othermethods	-0.259	-0.320**	-0.020***	-0.022**	-0.027***	-0.077***	0.201	0.294
	[0.168]	[0.153]	[0.006]	[0.010]	[0.009]	[0.017]	[0.273]	[0.219]
q2q2	0.035	0.051	0.066***	0.067***	-0.009	-0.011	0.657***	0.588***
	[0.042]	[0.039]	[0.011]	[0.010]	[0.007]	[0.015]	[0.050]	[0.052]
Log-Likelihood	-666.234	-718.65	-666.234	-718.65	-220.91	-277.19	-220.91	-277.19
Wald-Test of Chi2	12103.99	10062.75	12103.99	10062.75	10716.70	12666.56	10716.70	12666.56
Prob>Chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.2457	0.1864	0.2457	0.1864	0.4573	0.3190	0.4573	0.3190
Number of transitions	493	493	149	149	77	77	154	154
Observations	897	897	897	897	386	386	386	386

Notes:1) See Table 3.10.
2) NA:Not Applicable

3.8.3 The Determinants of Transitions from Out of Labor Force

Before moving to the estimation results it should be noted that the total number of transitions from out of labor force to employment is 2414 which is very high in comparison to transition from unemployment to employment. As shown in Table 3.14, the marginal effect of "urban" (living in urban areas) on the transition from out-of-the-labor force to employment (P_{olfe}) is negative and significant in the whole sample estimation. As in the transition probability from unemployment to employment equation (P_{ue}), the marginal effect of marriage on transition to employment from out-of-the-labor force (P_{olfe}) is also seen to be positive for men, and negative for women (see Table 3.15).

Regarding to regional variations, it is found there is a significant difference between the geographical regions for each gender. It is observed from the Table 3.15 that the men who live in the Marmara, Mediterranean and South-East Anatolia are most likely to obtain a job from out-of-the-labor force compared to Central Anatolia. In this case the significant difference is observed for men who live in the South-East Anatolia (and Marmara when we exclude the occupation dummies) at 1 percent significance level. While, women who live in Marmara, Aegean and Black Sea regions are less likely to find a job, women in South-East Anatolia are more likely to obtain a job, from out-of-labor-force compared to Central Anatolia. These region dummies are highly significant in the female's equation (see Table 3.15).

In addition, the marginal effects of age groups are similar in both models of transition from out-of-the-labor force, that is initially positive and turns to negative for the older individuals (inverted U-shaped). With respect to the local unemployment rate we find expected results that the increase in the rate of unemployment decreases the exit to employment from out of the labor for each gender. Regarding to the transition from out of labor force to unemployment equation we find reverse effect of the unemployment rate. Therefore, it is possible to say that, as expected, the individuals who live in the high unemployment areas are less likely to obtain a job from out-of-the labor force.

Additionally, if we look at the effects of the education level on the transition from out-of-the-labor force to employment, it is seen that the marginal effects is initially negative

and then become positive, and mostly significant (some of them at 10 percent significance level) for the whole sample estimation (see Table 3.14). The most obvious observation from the estimation results under gender separation is that, whether male or female, the individuals, with a four year university or over degree are most probably to find a job from out-of-the labor force. Furthermore, the marginal effect of these variables in the transition to unemployment from out-of-the-labor force is always positive, and they are highly significant for the individuals with more than middle school diploma (see Table 3.14). Regarding the results under gender separation we observe that while non of the education dummies significant for male, all of them have positive sign and mostly significant at 10 percent level for female (see Table 3.15).

Finally, there is a significant difference between the occupation groups for each gender. We observe that the individuals in the other occupation groups are most likely to find employment from out-of-the labor force compared to the base category of "professionals and etc." (see Table 3.15). Regarding the status in employment it seen that there is a significant difference between these groups of individuals. Regardless of being male or female, we observe that finding a job from the out-of-the-labor-force as a "regular employee" is the most difficult one among the other alternative statutes such as "causal employee" and "self employment" (see Table 3.15).

Table 3.14: Transition from Out-of-Labor Force to Employment and Unemployment

	polfe	polfe	polfu	polfu
urban	-0.017***	-0.027***	0.001	0.003**
	[0.002]	[0.004]	[0.001]	[0.001]
female	-0.013***	-0.052***	-0.004**	-0.005***
	[0.003]	[0.007]	[0.002]	[0.002]
FemMar	-0.005*	-0.053***	-0.017***	-0.030***
	[0.003]	[0.008]	[0.003]	[0.004]
married	-0.008***	0.013**	-0.001	0.004**
	[0.003]	[0.006]	[0.002]	[0.002]
REGION				
Marmara	-0.005***	0.003	0.000	0.001
	[0.002]	[0.004]	[0.001]	[0.002]
Aegean	-0.012***	-0.022***	0.001	0.003
	[0.002]	[0.005]	[0.002]	[0.003]
Mediterrenean	-0.002	0.002	0.001	0.001
	[0.002]	[0.005]	[0.002]	[0.002]
BlackSea	-0.009***	-0.015***	0.000	0.001
	[0.001]	[0.004]	[0.002]	[0.002]
EastAnatolia	0.000	-0.008*	-0.001	-0.001
	[0.002]	[0.005]	[0.002]	[0.002]
SouthEastAnatolia	0.038***	0.054***	-0.001	-0.003
	[0.008]	[0.014]	[0.002]	[0.002]
EDUCATION				
PrimarySchool	-0.009***	-0.009**	0.004*	0.008***
	[0.002]	[0.004]	[0.002]	[0.002]
MiddleSchool	-0.009***	-0.021***	0.002	0.005
	[0.002]	[0.004]	[0.003]	[0.003]
HighSchool	-0.001	0.010	0.017***	0.024***
	[0.001]	[0.007]	[0.006]	[0.007]
VocHighSchool	0.008*	0.072***	0.019**	0.031***
	[0.005]	[0.015]	[0.007]	[0.010]
TwoyearsUniv	0.036*	0.044*	0.033*	0.028*
	[0.019]	[0.024]	[0.019]	[0.016]
Univ4pl	0.163***	0.190***	0.044***	0.038**
	[0.039]	[0.031]	[0.017]	[0.015]
AGE GROUP				
age2024	0.003	0.026***	0.006***	0.008***
	[0.003]	[0.008]	[0.002]	[0.003]
age2534	0.002	0.036***	0.007***	0.012***
	[0.003]	[0.009]	[0.003]	[0.003]
age3544	-0.006***	0.015**	-0.001	0.002
	[0.002]	[0.007]	[0.002]	[0.003]
age4554	-0.016***	-0.014***	-0.008***	-0.006***
	[0.002]	[0.005]	[0.001]	[0.002]
age55pl	-0.023***	-0.044***	-0.014***	-0.013***
	[0.002]	[0.003]	[0.001]	[0.001]
Unemprate	-0.083***	-0.150***	0.003	0.009
	[0.022]	[0.048]	[0.017]	[0.017]
OCCUPATION				
occup2	0.276***		-0.004	
	[0.063]		[0.005]	
occup3	0.421***		0.016***	
	[0.035]		[0.005]	
occup4	0.593***		0.019***	
	[0.033]		[0.006]	
occup5	0.555***		0.016***	
	[0.031]		[0.005]	
occup6	0.371***		0.007*	
	[0.029]		[0.004]	
occup7	0.463***		0.017***	
	[0.024]		[0.004]	
occup8	0.497***		0.012	
	[0.073]		[0.010]	
STATU				
statu2	0.029***	0.377***	0.019***	0.033***
	[0.006]	[0.024]	[0.005]	[0.006]
statu3	0.155**	0.757***	0.061	0.045
	[0.068]	[0.063]	[0.049]	[0.038]
statu4	0.162***	0.582***	0.012	0.004
	[0.037]	[0.052]	[0.011]	[0.008]
statu5	0.078***	0.532***	0.000	0.000
	[0.011]	[0.022]	[0.003]	[0.003]
statu6	0.042***	0.532***	-0.004***	-0.003*
	[0.008]	[0.017]	[0.002]	[0.002]
q2q2	-0.005***	-0.016***	0.000	0.000
	[0.002]	[0.003]	[0.001]	[0.001]
Log-Likelihood	-5506.26	-6456.45	-5506.26	-6456.45
Wald-Test of Chi2	4068.05	4318.53	4068.05	4318.53
Prob>Chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.4341	0.3364	0.4341	0.3364
Number of Transitions	2414	2414	500	500
Observations	20584	20584	20584	20584

Note: See Table 3.13.

Table 3.15: Transition from Out-of-Labor Force to Employment and Unemployment by Gender

	MALE				FEMALE			
	polfe	polfe	polfu	polfu	polfe	polfe	polfu	polfu
urban	-0.008	0.000	0.001	0.005	-0.010***	-0.022***	0.000**	0.000***
	[0.015]	[0.016]	[0.008]	[0.007]	[0.002]	[0.003]	[0.000]	[0.000]
married	0.029	0.117***	0.001	0.010	-0.004***	-0.014***	0.000***	0.000***
	[0.022]	[0.028]	[0.011]	[0.010]	[0.001]	[0.004]	[0.000]	[0.000]
REGION								
Marmara	0.023	0.066***	0.004	0.005	-0.005***	-0.008***	0.000	0.000
	[0.017]	[0.022]	[0.009]	[0.008]	[0.001]	[0.002]	[0.000]	[0.000]
Aegean	-0.053***	-0.054**	-0.004	-0.001	-0.005***	-0.015***	0.000	0.000*
	[0.019]	[0.026]	[0.013]	[0.012]	[0.001]	[0.002]	[0.000]	[0.000]
Mediterrenean	0.005	0.025	0.002	0.003	-0.002	-0.003	0.000	0.000
	[0.018]	[0.023]	[0.010]	[0.009]	[0.001]	[0.003]	[0.000]	[0.000]
BlackSea	-0.022	-0.007	-0.013	-0.010	-0.005***	-0.014***	0.000*	0.000*
	[0.017]	[0.022]	[0.008]	[0.008]	[0.001]	[0.002]	[0.000]	[0.000]
EastAnatolia	-0.007	-0.006	0.009	0.009	0.001	-0.004*	0.000*	0.000**
	[0.021]	[0.024]	[0.011]	[0.011]	[0.001]	[0.003]	[0.000]	[0.000]
SouthEastAnatolia	0.130***	0.150***	0.010	0.006	0.022***	0.039***	0.000***	0.000***
	[0.047]	[0.052]	[0.019]	[0.016]	[0.006]	[0.011]	[0.000]	[0.000]
EDUCATION								
PrimarySchool	-0.021	0.039*	0.006	0.017	-0.002**	-0.003	0.000**	0.000***
	[0.018]	[0.023]	[0.014]	[0.013]	[0.001]	[0.002]	[0.000]	[0.000]
MiddleSchool	-0.061***	-0.078***	-0.016	-0.011	-0.002	-0.002	0.000	0.000*
	[0.020]	[0.022]	[0.011]	[0.011]	[0.001]	[0.004]	[0.000]	[0.000]
HighSchool	-0.006	-0.001	0.009	0.011	0.002	0.023***	0.001**	0.001**
	[0.024]	[0.027]	[0.014]	[0.014]	[0.002]	[0.007]	[0.000]	[0.000]
VocHighSchool	0.035	0.129***	0.007	0.012	0.007*	0.071***	0.001*	0.001**
	[0.036]	[0.044]	[0.017]	[0.016]	[0.004]	[0.021]	[0.000]	[0.000]
TwoyearsUniv	0.070	-0.012	0.035	0.016	0.037	0.112**	0.001	0.001
	[0.073]	[0.048]	[0.044]	[0.031]	[0.024]	[0.052]	[0.001]	[0.001]
Univ4pl	0.348***	0.185***	0.000	0.001	0.177***	0.293***	0.002*	0.002*
	[0.080]	[0.054]	[0.021]	[0.020]	[0.060]	[0.049]	[0.001]	[0.001]
AGE GROUP								
age2024	0.019	0.083***	0.057***	0.059***	0.000	0.006	0.000	0.000
	[0.021]	[0.028]	[0.018]	[0.018]	[0.001]	[0.005]	[0.000]	[0.000]
age2534	0.083**	0.249***	0.056**	0.059***	-0.002**	0.000	0.000*	0.000**
	[0.035]	[0.044]	[0.022]	[0.022]	[0.001]	[0.004]	[0.000]	[0.000]
age3544	-0.048**	0.084*	-0.001	0.019	-0.004***	-0.005	0.000	0.000
	[0.021]	[0.044]	[0.015]	[0.019]	[0.001]	[0.004]	[0.000]	[0.000]
age4554	-0.152***	-0.127***	-0.034***	-0.018*	-0.005***	-0.009***	0.000***	0.000***
	[0.012]	[0.021]	[0.008]	[0.010]	[0.001]	[0.003]	[0.000]	[0.000]
age55pl	-0.212***	-0.202***	-0.072***	-0.058***	-0.007***	-0.018***	-0.005***	-0.005***
	[0.014]	[0.019]	[0.008]	[0.007]	[0.001]	[0.002]	[0.001]	[0.001]
Unemprate	-0.495***	-0.518**	-0.015	0.013	-0.027**	-0.050	0.000	0.000
	[0.190]	[0.221]	[0.101]	[0.093]	[0.011]	[0.031]	[0.000]	[0.000]
OCCUPATION								
occup2	0.647***		-0.029*		0.040		0.000***	
	[0.062]		[0.015]		[0.042]		[0.000]	
occup3	0.673***		-0.013		0.318***		0.000***	
	[0.041]		[0.012]		[0.050]		[0.000]	
occup4	0.741***		-0.005		0.508***		0.000**	
	[0.029]		[0.010]		[0.059]		[0.000]	
occup5	0.690***		0.000		0.615***		0.000*	
	[0.034]		[0.010]		[0.048]		[0.000]	
occup6	0.709***		-0.018*		0.250***		0.000	
	[0.039]		[0.010]		[0.035]		[0.000]	
occup7	0.642***		0.012		0.402***		0.000**	
	[0.033]		[0.010]		[0.036]		[0.000]	
occup8	0.633***		-0.003		0.540***		0.000	
	[0.094]		[0.029]		[0.103]		[0.000]	
STATU								
statu2	0.122***	0.391***	0.075***	0.069***	0.010***	0.432***	0.000	0.000*
	[0.028]	[0.031]	[0.019]	[0.015]	[0.004]	[0.036]	[0.000]	[0.000]
statu3	NA	NA	NA	NA	0.058*	0.831***	0.001	0.000
					[0.033]	[0.053]	[0.001]	[0.000]
statu4	0.430***	0.592***	0.028	0.000	0.130	0.812***	0.000***	0.000***
	[0.062]	[0.042]	[0.034]	[0.020]	[0.094]	[0.101]	[0.000]	[0.000]
statu5	0.337***	0.546***	0.000	-0.012	0.035***	0.656***	0.000***	0.000***
	[0.038]	[0.029]	[0.014]	[0.009]	[0.008]	[0.026]	[0.000]	[0.000]
statu6	0.118***	0.611***	-0.035***	-0.033***	0.016***	0.478***	0.000	0.000
	[0.042]	[0.030]	[0.007]	[0.005]	[0.005]	[0.019]	[0.000]	[0.000]
q2q2	-0.036***	-0.056***	-0.005	-0.004	-0.001*	-0.005**	0.000	0.000
	[0.012]	[0.015]	[0.006]	[0.006]	[0.001]	[0.002]	[0.000]	[0.000]
Log-Likelihood	-2523.89	-2857.18	-2523.89	-2857.18	-2777.22	-3315.01	-2777.22	-3315.01
Wald-Test of Chi2	1423.60	1178.82	1423.60	1178.82	87405.60	128434.53	87405.60	128434.53
Prob>Chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.3530	0.2676	0.3530	0.2676	0.4686	0.3657	0.4686	0.3657
Number of Transitions	1262	1262	280	280	1152	1152	220	220
Observations	5227	5227	5227	5227	15357	15357	15357	15357

Note: See Table 3.13.

3.9 Concluding Remarks

In this chapter, we have examined the labor market transitions in Turkey by using the HLFS data. In the first part, we analyzed the transition probabilities between the labor market states of "employment, unemployment, and out-of-the-labor force" under Markovian assumptions. We analyzed the sources of unemployment rate differentials, such as residence and gender, by using the Marston's (1976) decomposition. In the final part of the study, we further analyzed the transitions in the Turkish labor market by estimating multinomial logit models. In this part we concentrated on the role of individual characteristics, such as marriage and education, as well as the other determinants, for instance, region, occupation, status in employment. The main findings of the study are summarized in this section.

For designing the relevant policy tool which concentrates on reducing the unemployment rate differentials among some of the labor market groups it may be useful to have an idea about the differentials in the following six transition probabilities (see Lauerova and Terrell (2002). These are P_{eu}, P_{eolf}, P_{ue}, P_{uolf}, P_{olfu}, P_{olfe}. For example, for the urban-resident individuals our implementation of the Marston's decomposition shows that the main factors explaining the higher unemployment rates are the following. Urban resident individuals are less likely to enter labor market successfully and more likely to exit from employment for unemployment, even if they are less likely to go from employment to out-of-the-labor force, compared to the rural residents. Furthermore, for unmarried individuals, the most important factor explaining their higher unemployment rates are that they are less likely to enter the labor market successfully than the married individuals, and they are more likely to leave (quit or lose) their jobs for unemployment (P_{eu}).

Moreover, we observe that the main factors behind the unemployment rate differential between females and males in the urban areas are as follows. The first is the probability of exiting from employment for out-of-the-labor force for women is larger than the probability for those of men. Hence, because of the economic crisis most of the job-loser women become discouraged. The second is the probability that women leave unemployment for a job (P_{ue}) is lower than men's. Thus, due to the above factors the rate of unemployment is considerably higher for the urban residing women than men. This

observed unemployment rate differential can be considered one of the factors behind the female's lower labor force participation in the urban areas (see Tunali, 2003). In this regard, Turkish policy makers might consider creating a policy tool to increase their participation rate. A further policy tool might be developed to increase their chances of obtaining a job from unemployment. Another policy tool, for women, might focus on reducing the higher risk of losing job relative to men.

Let us now consider the estimation results of the multinomial logit model. It is found that for both men and women, there is a significant difference between the education groups in the probability of becoming unemployed from employment. For men, we observe that the educated individuals are less likely to go both to unemployment and to out-of-labor force compared to non-graduated individuals. However, for female, we find that while educated individuals are less likely to go out-of-labor force, they are most likely to go to unemployment if they lose their job.

A further finding is that the individuals, regardless of being male or female, with university degree are more likely to find a job from unemployment compared to non-graduates. However, having a vocational high school diploma does not make any significant difference in obtaining a job from unemployment**.** Hence, human capital effect is only seen for the university graduates. This finding is also supported by the estimation results of transitions from out-of-labor-force to employment

When we look at the geographical variation we found no significant difference between the regions, for both males and females, in the case of transition from employment to unemployment. However, women who live in the East-Anatolia are less likely to find a job and more likely to go out-of-labor force from unemployment compared to Central Anatolia. Men who live in the South-East Anatolia most likely to find a job compared to the same base group. With respect to labor market conditions by using a proxy, that is the province level unemployment rate, we found significant and expected marginal effects for each gender in the cases of P_{olfu}, P_{eu}, and P_{olfe} (and also P_{eolf} at 10 percent level). In the other transition cases of P_{uolf}, P_{ue}, this variable has a negative sign but not significant marginal effect for women. It has a significant and negative effect for men in P_{ue} equation.

One of the important findings is that when we check the status in employment we found that casual employees are most likely to loose their work compared to regular employees**.** However, the other groups are less likely to exit their jobs for unemployment. Regarding the employment sector the most striking result is that the public sector variable has highly significant negative marginal effects on both transitions from employment, suggesting that working in the public sector is safer for the workers in terms of a secure job. Combining both findings, on casual and non-public sector, imply that these groups are most probably to exit from their job compared to other groups. Findings about these groups bring to mind the problems related to "employment security". Therefore, these groups may be considered as special target group by the policy makers. Developing a relevant law for solving the "employment security" issue should be in the policy agenda of the Turkish governors.

Regarding the unemployment duration parameters in the transitions from unemployment case, in general, we found expected and significant effects. This is explained by the negative duration dependence. Hence, the probability of leaving unemployment decreases with the increase in unemployment duration.

Finally, for the job search methods in P_{ue} equation, we found negative significant effect for "try to provide equipment, credit, place to establish own business" and positive effect comes from "workers agent and mediators" variable compared to "personally job seekers" for men. If we look at the P_{uolf} equation, negative and significant effect only comes from "employment office" variables. Therefore, it is possible to say that even if the "employment office" variable does not have enough contribution to finding a job for unemployed men, this (employment office) ties them to the labor force. Since use of "employment office" as a job search method, for the unemployed men, decreases the probability of moving to out-of-the-labor-force from unemployment. However, all of the job search method dummies are insignificant in the both transitions from unemployment in the female's equations.

CHAPTER 4

DETERMINANTS OF UNEMPLOYMENT DURATION IN TURKEY

4.1 Introduction

In chapter 2 we reviewed some of the main characteristics of the labor market in Turkey over the last fifteen years, with the available data, including unemployment as well as the long-term unemployment problem**.** It is of great significance to know the rate of unemployment for policy purposes. However, it may also be useful to distinguish the main features of individuals who have a higher probability of finding a job. This chapter focuses on this issue and analyzes the determinants of unemployment duration for men and women, separately.

A popular tool used for analyzing the unemployment duration data is the hazard function. This function determines how the individual's chance of getting out of unemployment for employment changes with his/her characteristics provided that he or she has been unemployed until a specified point in time. Empirical applications of this type of analysis mainly come from the developed countries. For instance, by van den Berg and van Ours (1999) for France, by Böheim and Taylor (2000) for the UK, and by Jenkins and Serrano, (2004) for Spain. There are also similar studies which focus on transition economies, such as by Grogan and van den Berg (2001) on Russia, and Lubyova and van Ours (1997) on Slovakia. On the other hand, because of the data problem, the empirical applications of this type of modeling in developing countries are not very frequent. There are a small number of studies in developing countries such as, by Tunali and Assaad (1992) on Egypt and by Serneels (2001) on Ethiopia. In this respect, even though earlier studies, such as Şenses (1994) and Bulutay (1995) consider the incidence of unemployment in Turkey, there is no previous study which analyses the duration aspect of unemployment. This is the main contribution of this chapter.

In this chapter we employ individual level data from the quarterly Household Labor Force Surveys (HLFS) of 2000 and 2001 carried out by SIS. We analyze the role of personal, household and local labor market characteristics on the duration of unemployment in a hazard function framework. In the analysis we make use of two alternative definitions of unemployment, namely the ILO and the broad definition of unemployment. In the estimation we employ the grouped duration approach developed by Kiefer (1988a) and Sueyoshi (1996). In the analysis we initially estimate our models neglecting the gender difference, and then estimate the models under gender separation in order to see whether men and women have different dynamics in finding a job.

The organization of this chapter as follows. Section 4.2 reviews the literature on unemployment duration. We provide the specification of the reduced-form, group duration models in Section 4.3. In Section 4.4 we present the main characteristics of the HLFS data used and discus the construction of unemployment durations with two alternative definitions of unemployment. In Section 4.5 we provide the estimation results. And finally, we present the policy implications and conclusions in Section 4.6.

4.2 Literature Review

In the literature there have been a large number of empirical studies using developed country data to examine the effects of personal and regional characteristics as well as the length of the unemployment duration on the probability of leaving unemployment. In this section we initially review some of the main approaches, such as non-parametric methods and grouped duration approach, in estimating the duration data models. Next, we review the approaches to capture unobserved heterogeneity. Finally, we present the summary of the main findings of the some studies.

4.2.1 Non-Parametric Methods

Devine and Kiefer (1991, p.39) suggested that “non-parametric methods are useful for displaying data on durations and for preliminary analyses of homogenous observations, perhaps to suggest functional forms, with homogeneity perhaps being achieved according

to observed variables". Conventionally, non-parametric analysis of the unemployment duration data is carried out by Kaplan Meier (or product limit) estimator (Alvarez et al. (2003). The main advantage of this approach is being able to use the right-censored data. Kaplan Meier method used in most of the empirical studies on unemployment duration such as Moffitt (1985), Ahn and Olazabal (1995), Foley (1997b), Grogan and van den Berg (2001) and Seernels (2001). However, this method may not be applied for the interval censored or readout data. For the readout data, the non-parametric approach developed by Turnbull can be used (see Lindsey and Ryan, 1998). Even though the use of this method in Bio-statistics is very popular, it is rarely used in the unemployment duration data case.

4.2.2 Grouped Duration Approach

Grouped duration data arise when each duration is only known to fall into a certain time interval, such as a week, a month, or even a year (Wooldridge, 2002; p.706). For example, the data on unemployment duration mostly come from a labor force survey in which the data is provided and observed in grouped form (measured to the nearest week or month), rather than being continuous. However, without considering the grouped nature of the data some of the studies use continuous time modeling approaches, such as Chuang (1999), Grogan and van den Berg (2001), Seernels (2001). The theoretical developments of the hazard function and the associated likelihood function with the grouped duration data are provided by Prentice and Gloeckler (1978), Kiefer (1988a), Sueyoshi (1995). This approach allows us to estimate the duration models with unrestricted baseline hazards. Han and Hausman (1990), Meyer (1990), Sueyoshi (1995), Arulampalam and Stewart (1995), Carling at al. (1996), Portugal and Addison (2000), Stewart (2001), Bover at al. (2002) and Jensen at al. (2003) use the grouped duration approach. Han and Hausman (1990) suggest a flexible parametric specification for the proportional hazard, where the explanatory variables are assumed to be independent of time, by estimating the baseline hazard non-parametrically. In this respect, there are close similarities between the Sueyohi's approach and that of the Han and Hausman approach apart from the handling of explanatory variables as time varying.

The grouped duration approach has the following main advantages. In this approach we do not impose duration dependence to be either negative or positive, but we

allow a flexible specification for the baseline hazard, and thus we allow for different signs at different levels of duration. Hence, the first advantage of this model is that it keeps away from inconsistency and bias which originates from misspecification of the baseline hazard (Meyer, 1995). The second advantage of this approach is that neglected heterogeneity term can simply be included in the model. Introduction of the unobserved heterogeneity term to the grouped duration model was firstly proposed by Meyer (1990) in which closed form solution exists for the likelihood. In addition to Meyer, there are other studies which consider the neglected heterogeneity in a grouped duration framework, such as Carling at al. (1996), Han and Hausman (1990), Portugal and Addison (2000), Stewart (2001), Jensen at al. (2003), Jenkins and Serrano (2004). Even though most of the studies which employ the grouped duration approach find that the inclusion of the neglected heterogeneity have a significant contribution to the model, such as Stewart (2001), Portugal and Addison (2000), there are some studies which find the reverse that the inclusion of neglected heterogeneity term does not have significant contribution to the model, such as Carling at al. (1996) for the Swedish data, Jenkins and Serrano (2004) for the Spanish data. Most of the studies that employ the grouped duration approach use the proportional hazard model, in which the effects of explanatory variables on the hazard are assumed to be constant over time, but the baseline hazard has different values for each group interval of the data. The various approaches to testing the assumption of the proportionality are discussed in Kiefer (1988a), Ercan (1993) and Neumann (1995). The detail of the test is provided in the Section 4.3.1.1 Most of the studies that employ the grouped duration approach by using the proportional hazard model do not test the proportionality assumption such as Carling at al. (1996) and Jensen (2003). However, there are some studies which employ alternative non-proportional hazard specifications such as logistic and log-normal hazard specification in addition to the proportional hazard model (see Sueyoshi, 1996). Furthermore, Bover et al. (2002) and Jenkins and Serrano (2004) also use the grouped duration approach, but they employ only logistic hazard specification.

4.2.3 Other Approaches

The most commonly used parametric approach is the Weibull specification in the applied econometric literature (Lancaster, 1991; Arulampalam and Stewart, 1995; and Devine and Kiefer, 1991; Serneels, 2002). The main advantage of the Weibull distribution

is being able to model whether the duration dependence is positive or negative[17]. The following studies employ the Weibull distribution: Lancaster (1979), Podgursky and Swaim (1987), Meyer (1990), Narendrenathan, Nickell, and Stern (1985), Aaberge (1996), Chuang (1999), Francesconi (1999) and Gonzalo and Saarela (2000), Seernels (2002). There are also some studies which use some other alternative distributions[18] as well as the Weibull distribution. For example Seernels (2001), Steinberg and Montforte(1987)[19] Grogan and van den Berg (2001)[20].

Cox's (1972) proportional hazard model, because of its easy estimation, has also received a great deal of attention in the survival analysis literature. The following studies that employ the unemployment duration data, use this model as an alternative to fully parametric methods: Dynarski and Sheffrin (1990), Francesconi (1999), Steinberg and Montforte(1987)[21], Kettunen (1997) and Serneels (2001).

Piece-wise constant hazard specification is also a popular approach to analyzing the determinants of unemployment duration. It is used by researchers such as Portugal and Addison (2000), Grogan and van den Berg (2001), Serneels (2001) and Addison and Portugal (2003). As in grouped duration approach, an interesting finding is that the inclusion of the unobserved heterogeneity does not have a significant contribution when one uses this type of modeling (see Portugal and Addison (2000) and Grogan and van den Berg (2001)).

Furthermore, there are some studies which use the discrete choice models. For example, Gottvald et al. (1999) estimate a probit model (in addition to continuous time Weibull) and, Folmer and Dijk (1988) estimate a logit. Additionally, Lazaro at al. (2000) apply an ordered-logit model to analyzing the determinants of unemployment duration for Spanish women, since their data come in an ordered form.

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[17] This distribution has a shape parameter (p). If this parameter is less than one, then there is negative duration dependence. This implies that the longer an unemployed person remains in unemployment, the more likely he or she is to wait as an unemployed. If the shape parameter (p) is larger than one then there is positive duration dependence (Kiefer, 1985).
[18] For example Gompertz, Log-normal, Log-logistic, Exponential and Generalized Gamma distributions.
[19] Quoted in Devine and Kiefer (1991).
[20] As an alternative to Weibull distribution Grogan and van den Berg (2001) use log-logistic specification in the working paper version of their study.
[21] Quoted in Devine and Kiefer (1991).

4.2.4 Approaches for Unobserved Heterogeneity

In the unemployment duration analysis considering the unobserved heterogeneity is also an important issue. To capture the neglected heterogeneity both the parametric and non-parametric approaches are used. Use of the non-parametric methods to capture the unmeasured heterogeneity is rare. Two such studies are Kettunen (1997) and Bover at al. (2002). However, Trussell and Richards, (1985, p.247) points out that for the causes of expediency, investigators commonly prefer the use of parametric representation of the distribution of neglected heterogeneity that is mathematically tractable. The parametric distributions that are used most often are the followings: gamma, gaussian, inverse-gaussian and Burr distributions. Lancaster (1979), Meyer (1990), Han and Hausman (1990), Aaberge (1996), Chuang (1999), Stewart (2001) use a gamma, Flinn and Heckman (1982) employ a normal distribution, Addison and Portugal (1998) use both gamma and Burr, Jenkins and Serrano (2004) use both gamma and normal, Seernels (2002) use both gamma and inverse-gaussian distribution of heterogeneity. On the other hand, there are also some studies which do not consider the unobserved heterogeneity such as Folmer and Dijk (1988), Ahn and Olazabal (1995), Lubyova and van Ours (1997), Gottvald et al. (1999) and Lazaro at al (2000)).

4.2.5 Summary of the Main Findings in Some Studies

In this section we provide the summary of the main findings of some empirical studies on the determinants of unemployment duration on developed as well as the developing and the transition countries. Let us start with the findings on duration dependence. Most of the studies find negative duration dependence such as Lancaster (1979), Koorman and Ridder (1983), Posgursky and Swaim (1987), Arulampalm and Stwerat (1995), Aaberge (1996), van den Berg and van Ours (1996). Hence the probability of finding a job, even after accounting for unobserved heterogeneity, declines with the increase in unemployment duration. With the negative duration dependence, one can observe some health effects on unemployed individuals such as deterioration of skills and abilities, and stigma effects. Vishwanath (1989, p.488) states that “the stigma effect

generally means that a firm is less inclined to hire a worker with longer unemployment duration". These effects also decrease the likelihoods of receiving a job offer and "long-term unemployment develops" (Steiner, 2001, p.91). Steiner (2001, p.92) suggested that the "true" negative duration dependence necessitates labor market policies such as special "publicly financed training programs, public works or wage subsidies" (p.111) on the individuals who are most likely to become long-term unemployed, or are already in this position, to get back these individuals into employment. However, there are some studies that find the reverse (i.e. positive duration dependence) such as Edin (1989), Carling et al. (1996), Hernaes and Strom (1996), Grogan and van den Berg (2001) Seernels (2002). Further, U-shaped duration dependence is found by Ham and Rea (1987) and Moffit (1985). Moreover, some of the studies found inverted U-shaped duration dependence, such as Foley (1997b), Addison and Portugal (1998) and Lubyova and van Ours (1998). There are also some studies which find no-duration dependence, such as Meghir et al. (1988) and van den Berg and van Ours (1994).

The following studies show that the probability of finding a job increases with the education level and work experience and decreases with age and being female. These are Lancaster (1979), Nickell (1979) and Koorman and Ridder (1983). Moffit (1985) and Meyer (1990), by contrast, find that the level of education decreases the probability of finding job. Further, it is expected to find that the hazard rate declines with the increases with the local unemployment rate in the studies such as these by Aaberge (1996), Carling et al. (1996), Foley (1997b), Portugal and Addison (2000), whereas Dynarski and Sheffrin (1990) find the reverse effect.

For the Finnish data, Kettunen (1997) mainly focuses on the effects of education level on the unemployment duration. He observes that the probability of finding a job initially increases with the increases in education level. The highest probability observed for those individuals with about 13-14 years of education, but later decreases with education. Individuals with a master or PhD degree (having more than 16 years of education) have less chance of getting a job, since selectivity is highest for them. He also finds that regional demand, captured by regional vacancy/unemployment ratio (V/U), and the training for further employment increases the probability of exiting from unemployment for employment, i.e. increases the hazard rate. However, marriage, gender, number of children does not have statistically significant effect on the re-employment probability. In

another study with the Finnish data, Gonzalo and Saarale (2000) find a significant inverted U-shaped (or bell-shaped) relation between the age and probability of finding a job. Kettunen (1997) considers only a dummy for the individuals in their late career (i.e. age 56-65) and finds a strong negative effect of this dummy on the hazard. This is the result that we expect from the search theory.

Bover et al. (2002) and Jenkins and Serrano (2004) mainly concentrate on the effects of unemployment benefit duration on the unemployment duration for the Spanish men. In this respect, there are close similarities between Bover et al.'s and Jenkins and Serrano's approach apart from the treatment of unobserved heterogeneity. Both studies use the grouped duration approach and employ the logistic hazard distribution. For handling of the unobserved heterogeneity Bover et al. use non-parametric approach, but Jenkins and Serrano use a parametric approach. Even though the treatment of neglected heterogeneity in these studies is different, the inclusion of this term to the model makes little change in the first study (Bover et al.), and does not make any contribution in the second study (Jenkins and Serrano). Bover et al. find out that the hazard (i.e. probability of finding a job) initially increases until about the third month, and then decreases. That is, they observe negative duration dependence for the individuals who do not receive unemployment benefits. However, the same result does not seem to hold for the unemployed receiving benefits. For these individuals even though the hazard initially increases until the third month, after this month "hazard levels off, or declines mildly" (see Bover et al., p.243). Jenkins and Serrano find the similar results for the workers receiving benefits. Regarding age, Jenkins and Serrano find out significant differences in re-employment probabilities, with older individuals having the lowest hazard rate. Both studies report that having a family responsibility increases the hazard rate. Regarding the unemployment rate the earlier study (i.e. Bover et al.) find the expected results, that is, increases in the local unemployment rates decrease the probability of finding a job, but not the latest one (i.e. Jenkins and Serrano). Another study on Spain for unemployed women was done by Lazaro et al. (2000). Their findings on unemployment duration for women are different from those found for men in above studies. They report that even if both age and education level do not have any significant effect on the duration of unemployment, labor market conditions such as unemployment rate have a significant effect.

We now consider the studies, such as Lubyova and van Ours (1997), Ham et al.

(1998), Gottvald et al. (1999), on the transition countries. Lubyova and van Ours (1997), employ the proportional hazard model to analyze the determinants of unemployment duration for men and women separately in Slovakia. They find different results for each gender for the effects of education level on the hazard rate. Gotwalld et al. (1999) and Lubyova and van Ours (1997) also find that education level has positive and significant effect on the probability of finding a job for men, but not significant effect for women. They also find that age and having a child does not have a significant effect on the probability of getting a job. Furthermore, Grogan and van den Berg (2001)'s study is one of the latest works on this subject. In this paper they use Russian data to examine the determinants of the unemployment duration. They estimate the models by using the tools of reduced-form duration analysis that specify the hazard as a function of explanatory variables and the elapsed duration itself. In the application they compare the estimation results for four types of unemployment definitions which are derived from the ILO's definition and the survey responses. They found that workers with high education have significantly higher hazards, i.e. lower unemployment durations, compared to lower or less educated individuals. As in Czech Republic (see Gottvald et al., 1999), in Russia also women tend to have lower probability of obtaining a job, i.e. they have relatively higher expected unemployment durations than men. Ham et al. for Czech and Slovak republics, and Grogan and van den Berg for Russia find that being married have a positive and significant effect on the hazard rate for men. A similar study for Russia also was carried out by Foley (1997b) in which he used only ILO definition of unemployment. Foley (1997b)'s results are the same with those found by Grogan and van den Berg (2001) with a few differences. The main difference is the finding related to the education level. He finds that even though the rate of unemployment is lower for the higher educated, they are less likely to get a job, i.e. have higher unemployment spells, compared to the lower educated ones.

4.3 The Model

The major variable of concern is the time duration that from the commencement of unemployment spell till the measurement is conducted (Lazaro at al., p.61). In this case the most useful empirical model is a parametric model of duration. In the model, duration of the spell is assumed to be stochastic and represented by the variable T. This variable follows a certain distribution. Suppose that the random variable T has a continuous

probability distribution f(t) , with t a realization of T (Greene, 1994; p.716). The cumulative distribution function of T is denoted by F, then F(t)=Pr(T<=t), with F(0)=0, which specifies the probability that the random variable T is less than some value of t. Kiefer (1988b; p651) states that "in studying duration data it is useful to define the survivor function of T". It is equal to one minus the cumulative distribution function and is denoted by S(t)=1-F(t). This gives the probability that random variable T will equal or exceed the value t.

We focus on the following important question. Given that an individual were survived, i.e. unemployed, until time t, what is the likelihood of individual's finding a job in the next very small interval of time, say *dt*? We define this to be the hazard rate, where *dt*>0. Ham and Rea (1987) maintain that the use of hazard type modeling is very popular in the literature for the following three reasons. First, these models can easily include the time varying economic variables. The second is that these models enable incorporation of incomplete (censored) unemployment spells. The final is that these models allow us to examine how the probability of exiting unemployment changes with the duration of spell.

Given the assumption that *T* is a "positive, continuous random variable for the time to exit from a given state, the hazard function at time t is defined as the conditional probability of exiting the state, given survival up to time t" (see Sueyoshi, 1995, p.412):

$$\lambda(t) = \lim_{dt \to 0} \frac{\Pr ob(t \le T < t + dt \mid T \ge t)}{dt} \qquad (4.1)$$

In the model, the hazard λ is allowed to differ across individuals through a parameterization which depends upon observable variables *X* and parameters β; this more general hazard function is represented by $\lambda(t, X, \beta)$. Then we can write the corresponding survivor function for this hazard as: $S(t, X, \beta) = \Pr ob(T \ge t) = \exp(-\int_0^t \lambda(s, X, \beta) ds$, then the corresponding probability density function for T is: $f(t, X, \beta) = \lambda(t, X, \beta) S(t, X, \beta)$ (see Sueyoshi ,1995, p.413)

As stated in the previous part, some of the studies in the literature use continuous time modeling approaches, such as Grogan and van den Berg (2001) and Seernels (2001), under the assumption that T (time) is a continuous random variable Even though T is continuous, it is, in practice, observed and reported in grouped form. In the HLFS data it is available in monthly form. Hence, the best modeling approach for this kind of duration data is the grouped duration approach. Further, Bergström and Edin (1992) suggest that the estimation results may be biased by assuming the grouped duration data as continuous. The theoretical explanation of the hazard function and the related likelihood function for this approach is provided by Prentice and Gloeckler (1978), Kiefer (1988a), Sueyoshi (1995). Let us now briefly look at the alternative specifications for this kind of data following Sueyoshi (1995, p.413-419).

Consider a set of arbitrarily chosen durations t_j for j=1,2,3,……J. For instance, t_j may be taken as the months of unemployment observed in the sample. It is customary to divide the time until period t_j into half-open intervals such as $[t_{k-1},t_k]$ for k=1,2…..J. the survival to time t_j is the same as surviving each of these intervals. The survivor function for the k^{th} interval is defined by.

$$\alpha_k(X,\beta) = S(t_k, X, \beta \mid T \geq t_{k-1}) = \exp\left(-\int_{t_{k-1}}^{t_k} \lambda(s, X, \beta)ds\right) \qquad (4.2)$$

This is the probability of surviving the k^{th} duration interval conditional on that the individual survived the previous interval (see Kiefer, 1988a). Then, the survivor function at an arbitrary t_j is given by $S(s, X, \beta) = \prod_{k=1}^{j} \alpha_k(X, \beta)$.

The probability of surviving the first (j-1) intervals but not surviving the j^{th} is given by (see Sueyoshi, 1996, p.413):

$$\Pr(t_{j-1} \leq T \leq t_j = S(t_{j-1}, X, \beta) - S(t_j, X, \beta) = ((1-\alpha_j(X,\beta))\prod_{k=1}^{j=1}\alpha_k(X,\beta), \quad (4.3)$$

Let (Y_i,δ_i,X_i) denote the individual i's unemployment duration. Here Yi is the interval associated with the elapsed grouped duration, δ_i is the indicator of right censoring and X_i is the vector of explanatory variables. Then, the log-likelihood function for the N* individuals in the sample, is given by:

$$LogL(\theta) = \sum_{i=1}^{N^*} \log\left(((1 - \alpha_{Y_i}(X_i, \theta))^{1-\delta_i} \prod_{k=1}^{Y_i - 1} \alpha_k(X_i, \beta) \right) \tag{4.4}$$

where θ is the vector of unknown parameters including β.

We now consider the alternative hazard specifications. Let j index the interval of interest and Fj and fj are the cumulative distribution and density functions for an arbitrarily chosen random variable. We define time-varying index function, $Z_j(t) = X\beta + h_j(t)$, and the grouped hazard function at t as:

$$\lambda_j(t, X, \beta) = h_j'(t)\left\{ \frac{f_j(Z_j(t))}{1 - F_j(Z_j(t))} \right\} \tag{4.5}$$

The derivative of the log-hazard at t in interval j with respect to the X_m is given by (Sueyoshi, 1995, p.415):

$$\frac{\partial \log \lambda(t, X, \beta)}{\partial X_m} = \beta_m \left\{ \frac{f'(Z_j(t))}{f(Z_j(t))} + \frac{f((Z_j))}{1 - F(Z_j(t))} \right\} \tag{4.6}$$

Then, proportionality exists if and only if the log-derivative is independent of the period of observation. This will be the case if the expression in parentheses on the right hand side is a constant. We now illustrate the alternative specifications about the hazards provided by Sueyoshi (1995) in the following sections.

4.3.1 Proportional Hazard Model (PHM)

For each group of interval we assume a Type-I extreme value random variable. h_j is the time-function for the j-th interval assumed to satisfy:

$$h_j(t) = \log \int_{t-1}^{t} \lambda_0(s) ds \tag{4.7}$$

where $\lambda_0(s)$ is an-arbitrary non-negative function.

We then have,

$$h'_j(t) = \frac{\lambda_0(t)}{\int_{t-1}^{t} \lambda_0(s)ds} \tag{4.8}$$

In general h_j, may take different forms and the within-interval dynamics of the hazard depend on these forms as well as the specification for the duration dependence. The hazard function for the j-th interval is given by (see Sueyoshi, 1995, p.416):

$$\lambda_j(t, X, \beta) = \frac{\lambda_0(t)}{\int_{t-1}^{t} \lambda_0(s)ds} \exp\left[Z_j(t)\right] = \lambda_0(t)\exp(X\beta) \tag{4.9}$$

This is the traditional proportional hazard specification which is separable in t and X. Then the derivatives of the log-hazards with respect to the explanatory variables are independent of time where the following holds for intervals and durations:

$$\frac{\partial \log \lambda_j(t, X, \beta)}{\partial X_m} = \beta_m \tag{4.10}$$

For ease in interpreting the parameters it is suggested to measure the vector X in mean deviations form (Sueyoshi, 1995 and Kiefer, 1988a).

4.3.1.1 Testing for Proportionality

One of the assumptions of the proportional hazard model is that the coefficients of the explanatory variables are independent of time while the baseline hazard takes on different values for each group interval of the data. If the proportionality assumption is not accepted, the coefficients of the covariates will have dissimilar values for each of the interval groups (Ryu, 1994). Then testing for proportionality assumption becomes an important issue.

Neumann (1995) states that testing for the proportionality assumption in the grouped proportional hazard model entail the testing for variability of the covariate effects over time. There are two alternative ways of testing for that the proportionality assumption is violated by the data. Both of these procedures involve estimating the restricted and the unrestricted model and comparing their likelihood values by means of likelihood ratio Chi-square test statistic. In the first way, the restricted model is obtained by assuming baseline hazards have the same values between the intervals. When we omit the baseline hazard dummies the model reduces to the exponential model with constant hazard and no-duration dependence. Then we test whether the baseline hazard dummies should be included or not with a standard likelihood ratio test of the hypothesis that all the h_j (i.e. baseline hazards) are the same over the intervals. Rejecting the null hypothesis of equivalent baseline hazards imply that we accept the proportional hazard model (Kiefer, 1988a). In the second route, the unrestricted model is obtained by assuming that the coefficients of the explanatory variables and the baseline hazards vary across the intervals. The unrestricted model can be estimated by estimating the model separately for each of the interval. There is no efficiency loss in this procedure since the Hessian is block-diagonal (Ercan, 1993). The log-likelihood value for the unrestricted model is derived by summing the values obtained in each interval-estimation. The restricted model is given by proportional hazard model where the coefficients are equal across intervals. The likelihood ratio test statistic is distributed as a Chi-square with [(r-1)*M] degrees of freedom where r is the number of intervals M is the number of covariates. The null hypothesis of equality of the coefficients of the covariates across intervals is rejected if the computed test statistic is larger than the corresponding critical value (Kiefer, 1988a).

If the proportionality assumption is rejected by the data, group duration models can be estimated by non-proportional hazard specifications which are due to Sueyoshi (1995) and Jenkins (1995). We now turn to a discussion of them.

4.3.2 Log-Logistic Interval Hazards

In this non-proportional hazard specification, F is chosen to be the logistic cumulative distribution. Then, the likelihood function is the same as that for a standard binary-logit regression model (see Jenkins, 1995). The time function of h_j *is specified as:*

$$h_j(t) = \delta \log(t_j - t_{j-1}) + C \tag{4.11}$$

for δ>0 and C is a constant. This is called as "a local memory specification for hj in the sense that time function depends upon the elapsed duration rather than on the elapsed total duration" (Sueyoshi, 1995, p.417). The hazard function can be written as:

$$\lambda_i(t, X, \beta, \delta) = \frac{\delta}{t - t_{j-1}} \left[\frac{\exp(X\beta + \delta \log(t_j - t_{j-1}) + C}{1 + \exp(X\beta + \delta \log(t_j - t_{j-1}) + C} \right] \tag{4.12}$$

The derivative of the log-hazard with respect to a covariate X_m is given by:

$$\frac{\partial \log \lambda_j(t, X, \beta, \delta)}{\partial X_m} = \beta_m \left\{ 1 - \lambda(t, X, \beta, \delta) \frac{(t_j - t_{j-1}}{\delta} \right\} \tag{4.13}$$

The final equation entails β_m but weighted by a time-dependent term. This term rely on "elapsed interval duration" and the hazard level. Since this term is less than one the marginal effect of a covariate within an interval will be less than in the case of the PHM (Sueyoshi, 1995, p.418).

4.3.3 Log-Normal Interval Hazards

Here we choose F to be the standard normal distribution function and the time function of h_j is specified as in the case of the Log-Logistic Interval Hazards. Then, the hazard function is given by (see Sueyoshi, p.419):

$$\lambda_i(t, X, \beta, \delta) = \frac{1}{t - t_{j-1}} \left[\frac{\exp(X\beta + \log(t_j - t_{j-1}) + C}{1 + \exp(X\beta + \log(t_j - t_{j-1}) + C} \right] \tag{4.14}$$

The derivative of the log-hazard with respect to a covariate X_m is given by,

$$\frac{\partial \log \lambda_j(t, X, \beta, \delta)}{\partial X_m} = \beta_m \left\{ -Z_j(t) + \frac{\phi(Z_j(t))}{1 - \Phi(Z_j(t))} \right\} \qquad (4.15)$$

Where ϕ and Φ are the standard normal density and distribution function. Again, the marginal effect of a covariate X_m involves β_m weighted by a time-dependent term. This term depends on X, β and t through $Z_j(t)$ and through the Mills-ratio evaluated at $Z_j(t)$ (Sueyoshi, 1995, p.419).

4.3.4 Unobserved Heterogeneity

In the duration models incorporation of the neglected heterogeneity is important for two reasons. The first is that the survey that we use may not include all the relevant factors in the analysis. The second is that there may remain some characteristics such as ability, skills and motivation which affect the hazards after controlling for all relevant observed factors (Foley, 1997b, p.9). It is important to consider these differences, i.e. neglected or unobserved heterogeneity[22], after modeling the hazard, since exclusion of these factors may lead to biased or distorted estimates in duration models. If one does not take into account the neglected heterogeneity, the estimated hazard becomes biased toward negative duration dependence. Hence, ignoring the unmeasured heterogeneity "decreases the level of the hazards for some unemployed individuals and thus lengthens their spells of unemployment" (see Devine and Kiefer, 1991 p.98).

To capture the neglected heterogeneity we use an error term in our models. Wooldridge (2002: p.703) points out that the following assumptions should hold for this error term. This term is assumed to be independent of observed characteristics, as well as starting times and censoring times. Also, it enters the hazard multiplicatively and has a distribution known up to a finite number of parameters. To incorporate the unobserved heterogeneity it is usual to assume a gaussian (or gamma) distribution with unit mean and variance σ^2. Note that to compare the models with and without unobserved heterogeneity we will use Likelihood Ratio test, since these two alternative models are nested.

[22] Some of the studies use "neglected, unmeasured, unobserved heterogeneity, or frailty models" All of the terms mean the same.

Assume that an unobserved variable ***v***, holds the above conditions. Then, with a scalar of ***v,*** representing omitted heterogeneity, the instantaneous hazard rate can be specified as:

$$\lambda_j = \lambda_0(t) v_i e^{X'\beta} = \lambda_0(t)\exp(X'\beta + \log(v_i)) \quad (4.16)$$

where v_i is a Gaussian (or gamma) heterogeneity with unit mean and variance σ^2, and the discrete-time hazard function corresponding to equation (4.16) is given by:

$$(1-\alpha_k(X,\beta)) = 1 - \exp(-\exp(X'\beta + h_j + \log(v_i)) \quad (4.17)$$

Meyer (1990) assumes that the distribution of unobserved heterogeneity term (v_i) is gamma, with unit mean, and finds the log-likelihood function in closed form. Given that we have chosen the model with or without unobserved heterogeneity, to select the best fitting model for different distributions –or specifications- (i.e. proportional hazard, logistic and log-normal distributions) one can use the Akaikie Information Criterion (AIC) (Klein and Moeschberger (1997). AIC is given by,

$$\text{AIC} = \frac{\text{- 2 * loglikelih ood + 2M}}{\text{n}}$$

where, M is the number of covariates and n is the number of observatio ns
(see Hardin and Hilbe, 2001, pp : 45).

4.4 The Data and Unemployment Definitions

4.4.1 The Household Labor Force Survey

The primary data used in this study is extracted from The Household Labor Force Survey (HLFS). This survey represents the whole nation and includes the relevant questions on individual's status in the labor market as well as personal and household characteristics. The series of the data we used for the duration analysis consist of three

quarters (Q1, Q2 and Q4) from the 2000 survey and two quarters (Q1 and Q2) from the 2001 survey. Since we have given the relevant information about the HLFS survey in Chapter 3, we skip this part for brevity.

4.4.2 Definitions of Unemployment and Their Incidence

The standard definition of unemployment used by The State Institute of Statistics of Turkey comes from the International Labor Organization (ILO) definition. This definition classifies an individual as an unemployed if he or she holds the following conditions: The first is that he or she is 15 years of age and over who was not employed during the reference period. The second he or she should have used at least one of the search channels for searching a job during the last three months. Finally, he or she should be available to start work within 15 days (See SIS, 2001b). This is the first-definition of unemployment we used in the duration analysis and labeled as "ILO-unemployment".

Bulutay (1996) suggests that the official reports regarding unemployment rates in Turkey does not give a true picture of real unemployment problem. Besides, some of the recent studies, such as Hussmanns *at al.* (1990) and Byrne and Strobl (2004), also discuss need for the relaxation in the International Labor Office (ILO)'s definition of unemployment for the developing countries. As in most of the developing countries including Turkey, the traditional job-search methods such as use of employment office, may not be relevant in the urban labor markets where labor absorption (probability of finding a job) is low, and in the rural markets where self-employment and unpaid family work (especially for women) are common (see Hussmanns et al., 1990, p.105). In view of that, we relax our definition of unemployment by dropping criterion of actively[23] searching for a job. This yields the new definition of unemployment that we use in the analysis and called as "Broad-unemployment". The purpose of the broad unemployment rate is to include those unemployed who are willing to work but do not actively look for a job. Those who are out of labor force are excluded from our ILO and broad definition both. Naturally, if they are included, both unemployment rates would increase. We have calculated the

[23] The actively searching criterion is the "use of at least one of the job-search channel within the last three months". We drop this criterion.

unemployment rates using the HLFS database for the years between 2000 and 2003 corresponding to these two alternative definitions. The results are provided in Table 4.1.

TABLE 4.1: Unemployment Rates under Alternative Definitions, Turkey, 2000-2003

		ILO			BROAD		
		Total	**Male**	**Female**	**Total**	**Male**	**Female**
Turkey	2000	6.60	6.63	6.49	9.46	9.29	9.85
	2001	8.50	8.78	7.86	11.43	11.61	11.15
	2002	10.30	10.90	9.93	13.00	13.36	12.20
	2003	10.50	10.68	10.10	12.96	13.03	12.87
Urban	2000	8.80	7.77	13.00	12.39	10.70	19.40
	2001	11.50	10.27	16.76	15.36	13.54	23.15
	2002	14.20	13.07	18.81	17.69	16.03	23.81
	2003	13.80	12.40	18.15	17.04	15.32	23.44
Rural	2000	4.00	4.92	2.11	5.96	7.27	3.27
	2001	4.80	6.46	1.79	6.54	8.64	2.81
	2002	5.70	7.34	3.04	7.45	9.40	4.10
	2003	6.50	8.00	4.33	7.96	9.63	5.17

Source: Computed by the author using SIS (HLFS) database.
Notes: Broad Unemployment is obtained by dropping the actively searching criterion for work.

It is observed from the Table 4.1 that with the relaxation in the unemployment definition, the rate of unemployment increases from 6.6 percent under ILO definition to 9.6 percent under broad definition in 2000. The same trends are perceived for the other years of observation such as it increases from 10.5 to 12.6 with the relaxation in unemployment in the final year of our observation period. In respect to the unemployment rates under residence difference we observe the largest increase in the urban areas with the relaxation of unemployment definition. For instance, unemployment rate increases from 8.8 percent to 12.39 percent in 2000. The same number rises from 11.50 percent to 15.36 percent in 2001 with the relaxation in the unemployment definition.

One further finding from the Table 4.1 is that the increase is largest for the women who live in the urban areas. For example, the rate of unemployment for the urban resident women is 13.0 percent and 16.76 percent in 2000 and 2001, respectively under ILO definition of unemployment. With the relaxation, the unemployment rate increases by about seven percentage points in the same years of our observation. The increase in the

unemployment rate for the rural residing women is lower than that for the urban residing ones. Regarding the results for the urban resident men, it is observed that with the broad definition the rate of unemployment increases by about 3 percent in comparison to ILO definition. This increase in the unemployment rate for men is lower than that for women. Thus, it is possible to say that urban residing women can be considered as unemployed but not actively seeking for a job. A further observation from the Table 4.1 is that the rate of unemployment for the rural residing men increases (about 2 percent) more than that for women with the relaxation in the unemployment definition. It is also clear from the Table 4.1 that for both the ILO and the broad definition of unemployment, the unemployment rate for women is larger than men in urban locations. For example, the rate of unemployment for women in urban areas is 13.0 (19.4) percent under the ILO (broad) definition of unemployment, whereas the corresponding rate for men is 7.7(10.7) in 2000. The similar observations also hold for the other years of our observation period. Another observation is that in contrast to urban areas, the rate for women is lower than men in the rural areas. Since the trends in the unemployment rates are discussed in Chapter 2, we do not give the detail for brevity.

The survey respondents reply a question how on long he or she has searched for a job and his/her current job search strategies. The question no. 40 asks "How long have you been seeking a job (in months)?" (See SIS, 2001b: appendix-6: pp:3). Duration of unemployment is calculated from the answer given to this question. Overall data sets that we have include total of 4,834 unemployed individuals for the years of 2000 and 2001 under ILO definition of unemployment. The observation number for the relaxed definition of unemployment, i.e. broad definition of unemployment, is 6,983. By utilizing the panel feature of the HLFS data, we observe that 1089 (1555) individuals found a job during the period of observation, under ILO (broad) definition of unemployment. However, since the survey does not ask respondents to state their tenure in the job or when they started their job, we have no information when unemployed individuals found their job. We only know that they got a job between the two time values (for instance, between the first and second quarter of 2000). The average truncated (or right censored) duration of unemployment for all individuals is 6.79 and 8.77 months under the ILO and broad definitions, in that order.

In Table 4.2 we provide the percentage distribution of unemployment duration by gender. It is clear from the table that women are more likely to become long-term (had been

so for a year or more) unemployed than men. These percentages are about 16.28 and 28.88 for men according to ILO and broad definitions of unemployment respectively. On the other hand, the same numbers for females are larger than that for males, and about 24.7 and 40.01 percent under ILO and broad definition of unemployment, respectively.

Table 4.2 Unemployment Duration by Gender

		N	<=3 month(%)	4-6 month	7-9 month (%)	10-11 months (%)	12 Months and over (%)
ILO definition	Male	3532	56.94	20.55	4.39	1.84	16.28
	Female	1302	44.09	20.28	4.22	2.53	28.88
Broad definition	Male	4956	41.53	24.64	6.72	2.42	24.7
	Female	2027	29.26	21.81	6.27	2.66	40.01

Source: Computed by the authors using the raw data.
Notes: See Table 4.1.

Table 4.3: Distribution of Unemployment Duration by Age

ILO definition	N	<=3 months	4-6 months	7-9 months	10-11 months	12 months and over
Total	4834	53.48	20.48	4.34	2.03	19.67
Age1519	843	54.33	21.95	5.1	2.02	16.61
Age2024	1208	52.9	18.63	5.13	2.9	20.45
Age2534	1345	53.23	20.07	4.31	2.01	20.34
Age3544	855	57.43	20.23	3.16	1.64	17.54
Age4554	444	50.0	23.2	2.7	0.68	23.42
Age55pl	139	42.45	24.46	5.76	1.44	25.9
Broad definition	N	<=3 months	4-6 months	7-9 months	10-11 months	12 months and over
Total	6983	37.96	23.81	6.59	2.5	32.4
Age1519	1254	37.48	25.68	8.37	3.27	25.2
Age2024	1794	36.62	22.24	7.19	3.51	30.43
Age2534	1925	38.29	23.38	6.18	1.87	30.29
Age3544	1162	43.2	24.35	4.99	1.98	25.47
Age4554	650	34.77	24.77	5.69	1.23	33.54
Age55pl	198	29.8	24.24	6.06	1.52	38.4

Source: Computed by the authors using the raw data.
Notes: See Table 4.1.

Further, we provide the percentage distribution of unemployment duration by broad age group in the Table 4.3. It is observed from the table that youngest age group (age 15-19) is less likely to become long-term unemployed under both definitions of unemployment. Moreover, regardless of the unemployment definition the individuals in their late careers (age 55 and over) are most likely to become long-term unemployed. The incidence of long-term unemployment for this age group is about 25.9 percent under ILO definition of unemployment. The same number is about 38.4 under broad definition of

unemployment. Regardless of the age group, we also observe that the incidence of long-term unemployment is larger, by about ten percent, under ILO definition than the broad definition.

Table 4.4: Distribution of Unemployment Duration by Education (%).

ILO definition	N	<=3 months	4-6 months	7-9 months	10-11 months	12 months and over
Total	4834	53.48	20.48	4.34	2.03	19.67
Non-Graduate	274	54.38	24.09	3.65	2.19	15.69
Primary School	2304	57.29	20.10	3.43	1.87	17.32
Middle School	670	54.18	21.79	4.33	1.49	18.21
High School	807	46.1	19.33	6.2	2.6	25.77
Voc.High School	414	50.0	20.5	4.35	2.17	22.95
Two-Year Univ.	140	42.14	18.57	7.86	4.29	27.14
Four-Year Univ. and over	225	51.11	21.3	5.78	1.33	20.44
Broad Definition	N	<=3 months	4-6 months	7-9 months	10-11 months	12 months and over
Total	6983	37.96	23.81	6.59	2.5	32.4
Non-Graduate	396	39.4	29.5	5.8	1.77	23.48
Primary School	3139	42.8	23.8	5.96	2.3	25.23
Middle School	968	38.5	24.4	5.6	2.27	28.82
High School	1352	28.4	23.4	7.5	3.11	37.65
Voc.High School	629	34.34	20.8	7.0	2.7	35.14
Two-Year University	199	30.65	22.61	10.05	4.02	32.66
Four-Year Univ. and over	300	39.67	24	9.0	2.0	25.3

Source: Computed by the authors using the raw data.
Notes: See Table 4.1.

The percentage distribution of unemployment duration by education group is shown in Table 4.4. This table demonstrates that, according to the ILO definition of unemployment, the proportion of long-term unemployed individuals for four years and over university graduates is approximately 20.4 percent, but this rate is 25.3 percent under the broad definition. These percentages are not very low. On the other hand, the proportion of middle school graduates with the same unemployment duration is slightly lower with about 18.2 percent under ILO definition of unemployment. We further observe that the incidence of long-term unemployment is the largest, with about 27.14 percent, for the two years university graduate under ILO definition of unemployment. Whereas, the leader becomes high school graduates, with about 37.6 percent, when we look at the results under broad definition of unemployment.

Before looking at the empirical model and estimation results it should be noted that the HLFS survey data does not include information about the wage or unearned income. In addition, in Turkey unemployment insurance system started in 1 June 2000 for the unemployed persons, but no benefits were being paid when the surveys of 2000 and 2001 were conducted[24]. Therefore it is not possible to include reservation wage and the unemployment insurance in the estimated models.

4.5 Estimation Results[25]

In the following sections, firstly, we provide the results of non-parametric duration analysis by using Turnbull's survivor function. It is the simplified version of Kaplan-Meier survivor function for the interval censored or readout data. Secondly, we discuss the determinants of the hazard rate using the results of the parametric models under ILO and broad definition of unemployment.

4.5.1 Non-Parametric Duration Analysis

In order to have an idea about the shape of the distribution of unemployment durations, we provide the Turnbull's survival functions in Figures 4.1 and 4.2 under ILO and broad definitions of unemployment, respectively. The survivor function indicates how many people remain in unemployment state ('survive' in the state of unemployment) with the passage of time.

The Turnbull's survivor functions reveal that the probability of surviving beyond

[24] The first payment of the unemployment benefit was done in February of 2002 (ISKUR, 2004).

[25] In this study we initially estimate our models in the context of continuous time framework. Since our data is interval-censored, we initially applied some rules of thumb, about the unobserved period, that are commonly used in the literature (see for example, Grogan and van den Berg, 2001 and Foley, 1997b). These rules included the assumptions of zero time spent in unemployment, 50 percent time spent in unemployment, all time spent in unemployment and the random time spent in unemployment. We carried out extensive sensitivity analysis by experimenting with these rules in the context of continuous time framework. Specifically in the continuous time framework we estimated exponential, Weibull, log-logistic and log-normal models. We obtain the best results under the log-normal distribution according to Akaike's Information Criterion. These results are not presented here for brevity. Later on, we switched to the grouped duration framework recognizing the grouped nature of the data. Here we take the interval-censoring explicitly into account. We consider the groups narrow enough to prevent information loss but wide enough to include each unemployment spell's true durations.

12 months is about 77 and 79 percent under the ILO and broad definitions of unemployment, respectively. The survivor functions under gender and residence differences are shown in the Figures 4.1 and 4.2. Regardless of the definition it is obvious from the graphs that females have longer unemployment durations than men. The lines start approximately together, but the probability for males decline more steeply than for females. It implies that unemployed male find job earlier than female. The probability of surviving beyond 12 months, for women, is about 90 percent under both definitions of unemployment. Whereas, the same numbers for men are about the 71 and 74 percent under ILO and broad definitions of unemployment respectively.

We further observe that the individuals who live in the urban areas have longer unemployment duration than those in the rural areas. The probability of surviving beyond 12 months is about 77.02 and 80.1 percent for the individuals who live in the urban areas under the ILO and broad definitions of unemployment respectively whereas for rural unemployed the same percentages are 71.66 and 71.6. For both the ILO and the broad definition, it is evident from the Figures 4.1 and 4.2 that first-time job-seekers have longer unemployment durations than the other unemployed individuals. We can use the log-rank test for the equality of survivor functions for the above labor market groups.

Prior to looking at the log-rank test results, let us now consider at the hazard functions. The hazard function shows the number of people exiting from unemployment at *t*, relative to the total number of people unemployed at *t*. In Figures 4.3 and 4.4 we provide the hazard functions under ILO and broad definition of unemployment. The figures show that the hazard rate initially increases until about the 10^{th} month, then returns to decrease until about the end of the 6^{th} year (about 70^{th} month) under each definitions. Another observation is that the hazard rate mostly stays below 2.5 and 1.5 percent under the ILO and broad definitions of unemployment, respectively. We also observe that the hazard for women is always lower than for men, under each definition of unemployment.

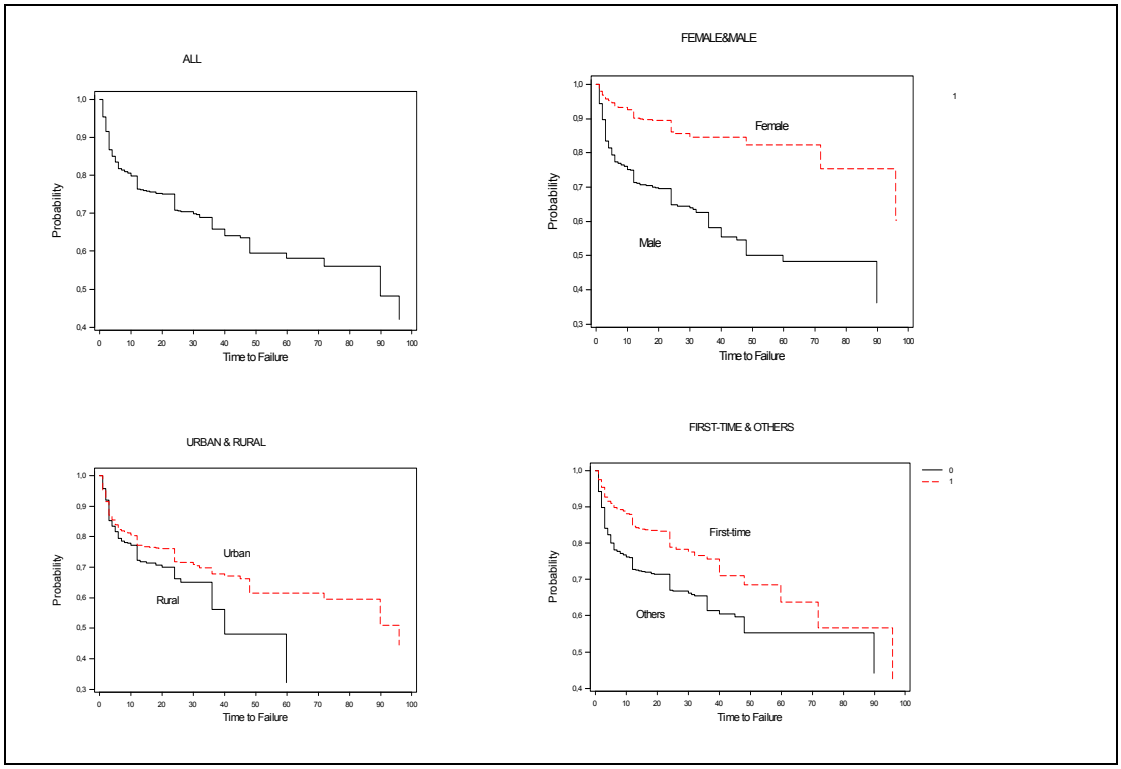

Figure 4.1 Turnbull's Survival Function under ILO-Definition

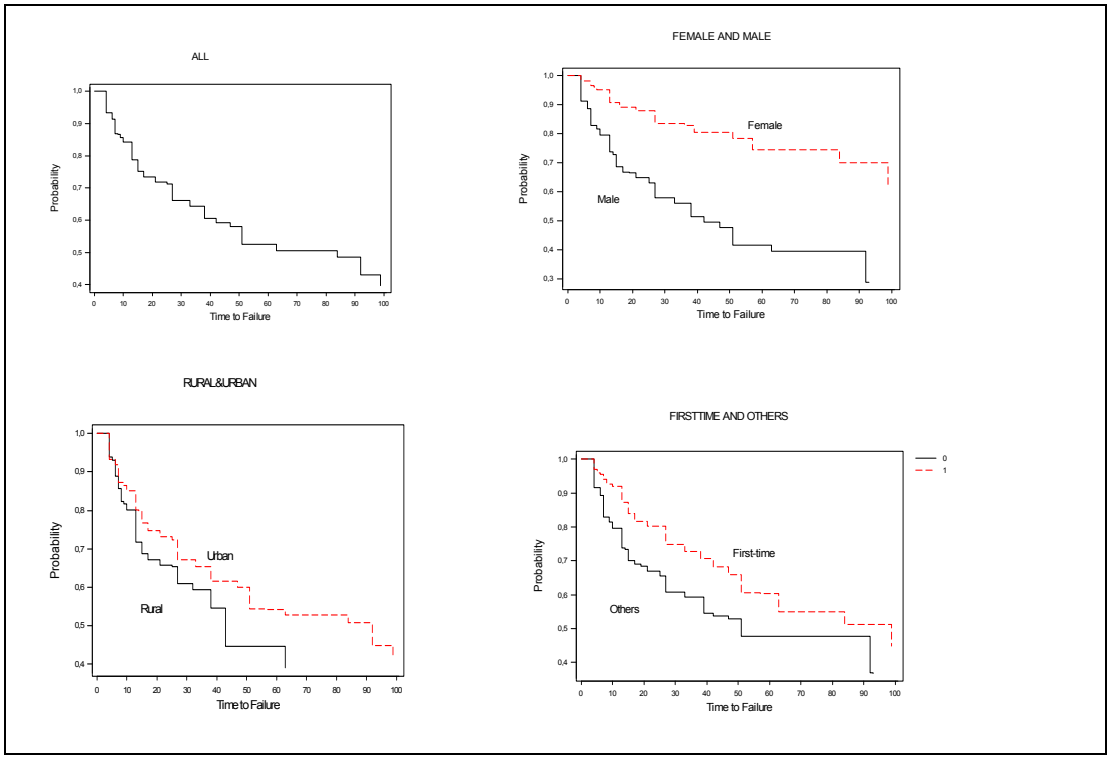

Figure 4.2: Turnbull's Survival Function under Broad-Definition

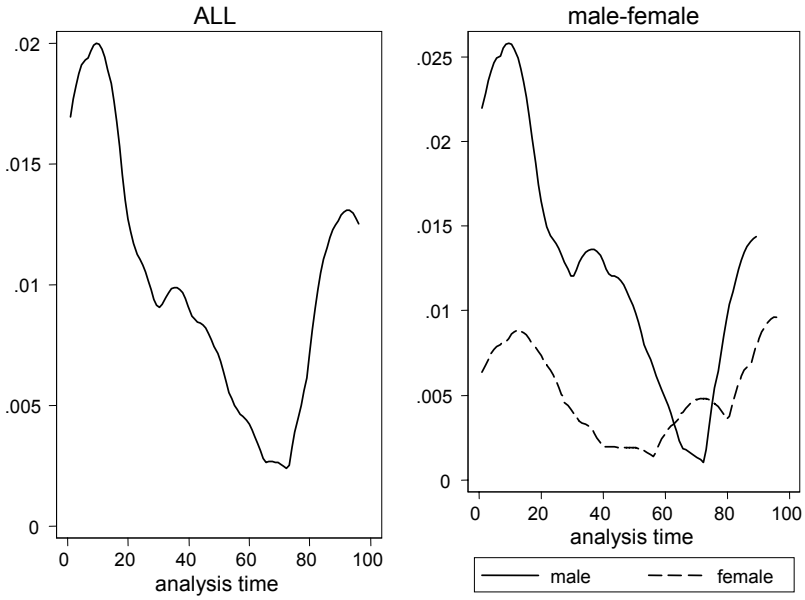

Figure 4.3: Smoothed Hazard Function under ILO Definition

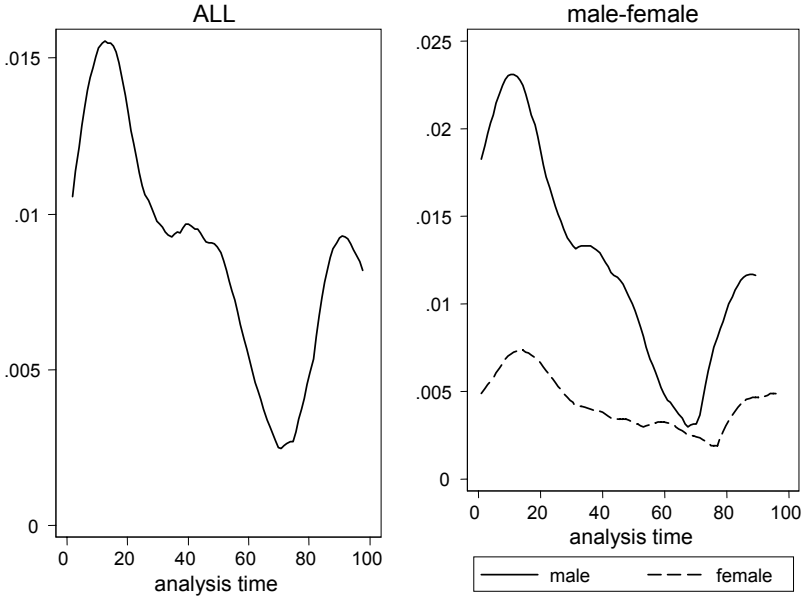

Figure 4.4: Smoothed Hazard Function under Broad Definition

As stated before, the equality of the survivor functions, for two or more groups in the labor market, can be carried out by using the log-rank test. In this test the null hypothesis is that the groups come from the same population. In Table 4.5 we provide the test results for different labor force groupings. It is observed from the table that the equality of the survivor functions for men and women is rejected under both definitions of unemployment. Moreover, the null hypothesis of equality of survivor functions for different age groups, and married versus other groups are also rejected. Nevertheless, it is not rejected for university graduates against other levels of education. Regarding the results under gender difference it is observed that the test of equality for women is rejected for university graduates against other levels of education under each definition of unemployment. A further finding is that the equality of survivor function for the first-time versus other-job seekers is also rejected, for both male and female, under ILO and broad definitions of unemployment, respectively. Let us now move on to the parametric estimation part, in which we estimated our models initially for all the pooled data, then for the males and females separately.

Table 4.5: Log Rank Test of Differences in Hazard Rates of Selected Labor Market Groups

	ILO Definition			**Broad Definition**		
Labor Force Groups	All	Male	Female	All	Male	Female
Male/Female	214.6***	-	-	321.6***	-	-
Age Group	29.15***	26.32***	4.16	31.55***	33.32***	3.81
First-time/Others	109.9***	42.04***	11.89***	137.86***	46.64***	13.99***
Married/Others	74.2***	44.25***	5.42**	83.8***	49.40***	5.85**
Graduated from University/Others	2.44	2.67*	9.22***	0.34	1.50	17.39***
Lives in Urban Areas/Others	6.54***	1.26	0.44	20.63***	10.22***	0.12

*Notes: 1) *** Significant at 1 % ; ** Significant at 5 % ; * Significant at 10 %*

2) Age groups are: age 15-19, 20-24, 25-34, 35-44, 45-54, above 55

4.5.2 Parametric Estimation[26]

The estimation results under the PHM, Log-Logistic and Log-Normal grouped duration approaches are shown in Tables 4.8 and 4.9 under ILO and broad definitions of unemployment, in the same order. Before looking at the estimation results it should be noted that although the respondents of the HLFS report unemployment spells in months (or in some cases in weeks), in empirical applications it is aggregated into some groups of intervals. The grouping of the unemployment duration data is undertaken in the following way corresponding to the following intervals. These are (1-3), (4-6), (7-9), (10-12), (13-15), (16-18), (19-21), (22-24), (25-30), (31-36) (36-48) and more than 48 months. It should be noted here that we initially re-organized the data in person-period form depending on the above grouping prior to the estimation. By following the above grouping, for example if an unemployed individual reports that he or she has been unemployed for 12 months (i.e. he or she has a right censored observation) then he or she contributes four person-periods which take the values of 0, 0, 0 and 0 (see, for example, Allison, 1989). However, if the unemployed reports that he or she found a job in the 12^{th} month, then the grouped observations take the values of 0, 0, 0 and 1. By using this approach we reached from 4,834 individual observations to 11,544 person-period observations under ILO while 6,983 observations to 19,672 person-period observations under broad definition of unemployment. Note that estimating the data with some other alternative groupings did not alter the overall estimation results of the models.

In the estimations we also consider the neglected heterogeneity under Gaussian distribution. Yet, the inclusion of this term is rejected by the data. On that ground, in the Tables 4.8 and 4.9 we provide the results without neglected heterogeneity. Similar findings also observed in some of the empirical applications which use the grouped duration approach and also other modeling approaches as well, such as Carling et al. (1996), Boheim and Taylor (2000), Jenkins and Serrano (2004). In the estimation of the alternative specifications (PHM, Log-Logistic and Log-Normal) duration dependence is built into the specification through period-specific constants (see Sueyoshi, 1995). The maximum

[26] In this chapter we examined the transitions from unemployment to employment under the assumptions that the transitions to other labor market states as right censored at the point of exit, i.e. we treated independence between the risks, as it is done in the literature such as Narendranathan and Stewart (1993), Carling et al. (1996) and Gonzalo (1998).

likelihood estimation of these models carried out by using the Gauss-Newton algorithm in an iterated, weighted non-linear least square procedure.

Following Kiefer (1988a) and Sueyoshi (1995), for convenience in the interpretation of the parameters, we measure the explanatory variables as deviations from their means. Most of the variables that we use in this chapter are the same as those used in Chapter 3. Therefore, we do not provide their definitions here, for brevity. In addition to variables defined in Chapter 3, we use also a dummy variable indicating whether an individual is a first-time job seeker or not, that is titled as "firsttime". We further include period specific constants (h_i's) to capture duration dependence (see Tables 4.8 and 4.9). In these tables we also provide the Wald Chi-squared test statistic for the overall significance of the model, labeled as "Wald Chi2". To select the best fitting model we provide the Akaike's Information Criterion, denoted by "AIC". In the tables we also provide for the exclusion restriction test results for the occupation group dummies ("LR of Occupation"). As shown in the Tables 4.8 and 4.9, testing results imply that occupation dummies are jointly statistically significant in each of the alternative models. Prior to a closer examination of the estimation results, let us look at the results for testing proportionality, which is assumed in the PHM model.

4.5.2.1 Testing for Proportionality

As stated in Part 4.3.1, in the proportional hazard model we assume that the coefficient of the covariates in the hazard are constant over time. The detail of the testing procedure can be seen in Part 4.3.1.1 in this Chapter. To test for proportionality, we have estimated two alternative models that we mentioned before (i.e. an exponential model and a model with time varying coefficients) and we have used the likelihood ratio test statistic values since our models are nested (see Kiefer, 1988a). In the Tables 4.6 and 4.7, we have provided the test results under ILO and broad definition of unemployment, respectively. Assume that baseline hazards are the same between each of the intervals i.e. use exponential model as a restricted model. Then, the proportional hazard model is now our unrestricted model. The test results are provided in part 1 of Tables 4.6 and 4.7. If we look at the Table 4.6, for example, the calculated likelihood ratio test statistic for the hypothesis that the h_j are all the same, involving 11 restrictions, takes the value 243.2 and 251.5 under

ILO and broad definitions of unemployment for the pooled data case. With the corresponding critical value of 19.7, we reject the null hypothesis of equal baseline hazards. Regardless of the unemployment definition, the conclusion does not change when we consider the test results under gender difference. Hence, we choose the proportional hazard model in comparison to exponential model.

Table 4.6: Testing For Proportionality -ILO Definition-

a) *Proportional Hazard Model (PHM) and Exponential Model*					
	PH Model	Exponential Model	LR test PH& Exponential	Critical Value	**Decision**
All	-3077.07	-3198.68	243.22	19.7	**Accept PH**
Male	-2570.77	-2809.7	477.86	19.7	**Accept PH**
Female	-462.82	-482.36	39.08	19.7	**Accept PH**
b) Proportional Hazard Model & Unrestricted Model with time varying Coefficients					
	PH Model	Non-PH	LR test Non-PH and PH	Critical Value	**Decision**
All	-3077.07	-2870.48	413.18	373.08	***Reject PH***
Male	-2570.77	-2393.64	354.26	349.65	***Reject PH***
Female	-462.82	-351.41	222.82	349.65	**Accept PH**

Table 4.7: Testing For Proportionality -Broad Definition-

1) Proportional Hazard Model and Exponential Model					
	PH Model	Exponential Model	LR test PH& Exponential	Critical Value	**Decision**
All	-4700.58	-4826.35	251.54	19.7	**Accept PH**
Male	-3888.48	-3986.71	196.46	19.7	**Accept PH**
Female	-766.308	-803.25	73.88	19.7	**Accept PH**
2) Proportional Hazard Model & Unrestricted Model with time varying Coefficients					
	PH Model	Non-PH	LR test Non-PH and PH	Critical Value	**Decision**
All	-4700.58	-4523.13	354.9	373.08	**Accept PH**
Male	-3888.48	-3728.77	319.42	349.65	**Accept PH**
Female	-766.308	-625.56	281.49	349.65	**Accept PH**

Let us now move on the test statistic values for the model with time varying coefficients. Log-likelihood values for these models can be obtained by summing the values obtained in each interval estimation (see Kiefer (1988a), Ercan (1994)). As shown in the second part of Tables 4.6 and 4.7, the calculated test statistic for the whole sample data under ILO (broad) definition of unemployment is 413.1 (354.9). These values are greater than the critical value of 373.08. Hence, we reject the proportional hazard model at 5 percent significance level for the whole sample data case under ILO definition, but not under the broad definition. The same result also holds for male under ILO definition. Thus, we reject the proportionality assumption for the above two cases. This means that that the coefficients of the covariates in those cases of proportional hazard model can not be interpreted in the usual way. As an alternative to proportional hazard model we have estimated our models under "log-logistic" and "log-normal" distributions. These are non-proportional models. Because the last two models are non-nested models, to select the best fitting model we use the AIC.

It is clear from the Tables 4.8 and 4.9 that the calculated AIC values (and log-likelihood values) are almost identical across specifications. With a small difference we choose the log-normal model for each gender under both definitions of unemployment. In the tables for comparison we present the results for each of the distributions, the bold one represent the chosen model with a slight difference. In the next section we discuss the main findings for each gender under ILO and broad definitions of unemployment.

4.5.2.2 The Covariate Effects

Our estimation results under each specification and definitions are provided in the Tables 4.8 and 4.9. From the pooled sample data results, it is clear that living in "urban" areas has positive and significant contribution to the models under each definition of unemployment at 5 % significance level. Regarding the results under gender difference it is observed that this variable is only significant at 10 percent level for female under ILO definition. Whereas it has a positive sign, and is significant for both men and women under broad definition of unemployment. Thus, it is possible to say that living in urban areas (with respect to rural areas) increases the probability of finding a job. In other words, probability of survival decreases with living in urban areas. This finding also suggests that

unemployment duration is lower in the urban areas in comparison to rural areas which may be considered as the factor behind the high-rates of rural-urban migration.

Moreover, with respect to variables of "female" and "FemMar" in the pooled data models, we find negative effects of these variables on the hazard rate or alternatively positive effects on the survival probability. These findings imply that females have longer unemployment durations than males. Moreover, married women also have lower chance to obtain a job with respect to others. Regarding the results under gender difference we observe that the effects of the coefficients of marriage on the hazard are opposite of each other in the male and female samples. For males, marriage increases the likelihood of finding a job. The same observation is also relevant to those in OECD countries (see Part 2 of this chapter). Conversely, for women marriage decreases the hazard under both definitions of unemployment opposite of what is found in some of the OECD countries.

Furthermore, regarding the geographical region dummies, we found that, in all alternative models residents of South-East Anatolia have shorter unemployment durations than the base category of Central Anatolia under ILO definition of unemployment (see Table 4.8). However, individuals who live in the Black Sea region have longer unemployment durations with respect to the base category of Central Anatolia under the broad definition of unemployment (see Table 4.9). If we look at the estimation results for the geographical region dummies under gender differentiation the general conclusions does not change for males who live in South-East Anatolia, for both under the ILO and the broad definition. On the other hand, for women we found not much significant difference between the geographical regions of Turkey under ILO definition. However, women who are resident in the Black Sea region have longer unemployment durations than the Central Anatolians under broad definition of unemployment.

Additionally, with respect to education level dummies we find expected results for the whole sample data under the ILO definition of unemployment. The effects of education level on the probability of finding (survival probability) a job is positive (negative) in the under all alternative distributions for the whole sample data. These results indicate that increases in the education level increases (decreases) the hazard rate (survival probability); i.e. more educated individuals have shorter unemployment durations than the base category of less-educated (less-than-primary education) individuals. However, with the relaxation of

the unemployment definition (i.e. use broad definition), we find rather different results. Although the coefficients of all education dummies have the expected sign, i.e. positive, the significant difference is observed for the individuals who have university degree (regardless of having two-year or four-year university degree). The individuals in these education levels are most likely to find job with respect to less-educated ones. Hence, human capital effect is only observed for the university graduate individuals under broad definition of unemployment. Regarding the results under gender separation we observe somewhat different results for men than for women under ILO definition of unemployment. For men, all education level dummies, except high school, have a positive and significant effect on the hazard. However, for women only having a university degree make significant difference compared to the individuals under-primary education.

Regarding the result for the age group variables, it seems that the probability of finding a job decreases with the increases in age, but the significant effect is seen for the age groups of "age 45-54" and "age55 plus", with respect to base category of "age 15-19", under ILO definition of unemployment. This observation holds for the whole sample as well as for the male sample. The results for female sample are somewhat different than those of men. In this case, all the age-groups, except 20-24, have significant contribution to our models under the ILO definition of unemployment. It should be noted that, regardless of the gender difference, the direction of the effects of age groups on the hazard seems not to change under the broad definition of unemployment. Overall results about the age effect on the hazard may imply that the older individuals are less likely to find a job. This is the same result as it is observed by Serneels (2001) in Ethiopia.

Regarding the coefficient estimates of local (province level) unemployment rate, for each of the alternative models (regardless of being male or female), we find expected results under each alternative definition of unemployment. The effect of this variable on the hazard rate is negative in all alternative distributions under consideration. Thus, individuals who live in the provinces with high unemployment rates have longer unemployment durations than the other individuals. This result implies that reducing the level of local unemployment may reduce the unemployment duration.

Furthermore, when we look at the occupation dummies we see that the inclusion of these dummies makes significant contribution to our estimation results. They are overall

statistically significant and the increase in Log-likelihood value is very high (i.e. we reject the exclusion of these variables –see LR of Occupations from the tables-). As expected, it is found that with respect to "Professionals and etc." other occupation groups (with only two exception that "clerical and related workers" and "workers not-classified by occupation", have shorter unemployment durations under ILO definition of unemployment. Our result does not change too much when we look at the results for each gender separately.

Regarding the results for the labor market experience, denoted by the dummy variable of "firsttime", we observe that being first-time job seeker decreases the probability of obtaining a job. This finding is statistically significant for the whole sample under each definition of unemployment. Regarding the results under gender separation we observe the same result for female as for the whole sample regardless of using the ILO or the broad definition of unemployment. Being first-time job-seeker reduces the likelihood of finding a job for men also, but now significant effect is being observed under the broad definition of unemployment. Overall results about this variable may imply that first-time job-seekers have longer unemployment duration than the other job seekers.

Table 4.8: Estimation Results under ILO definition

Variables	ALL			MALE			FEMALE		
	Proportional	Log-log	**Log-Normal**	Proportional	Log-log	**Log-Normal**	Proportional	Log-log	**Log-Normal**
urban	0.196**	0.234**	**0.138*** **	0.172*	0.204*	**0.121** **	0.694	0.728*	**0.340***
	[0.089]	[0.099]	**[0.052]**	[0.093]	[0.104]	**[0.056]**	[0.428]	[0.436]	**[0.184]**
female	-0.540***	-0.560***	**-0.257*** **						
	[0.118]	[0.125]	**[0.061]**						
married	0.437***	0.488***	**0.270*** **	0.420***	0.472***	**0.257*** **	-0.486*	-0.529**	**-0.258** **
	[0.090]	[0.101]	**[0.054]**	[0.094]	[0.106]	**[0.058]**	[0.255]	[0.265]	**[0.121]**
FemMar	-1.038***	-1.122***	**-0.578*** **						
	[0.230]	[0.239]	**[0.111]**						
Marmara	0.057	0.053	**0.029**	0.038	0.034	**0.019**	0.171	0.180	**0.094**
	[0.108]	[0.119]	**[0.062]**	[0.114]	[0.126]	**[0.067]**	[0.398]	[0.408]	**[0.174]**
Aegean	0.042	0.043	**0.029**	0.017	0.015	**0.010**	0.272	0.292	**0.149**
	[0.121]	[0.134]	**[0.070]**	[0.128]	[0.143]	**[0.077]**	[0.426]	[0.434]	**[0.185]**
Mediterrianean	0.106	0.112	**0.059**	0.082	0.083	**0.048**	0.244	0.253	**0.099**
	[0.119]	[0.131]	**[0.068]**	[0.126]	[0.140]	**[0.074]**	[0.434]	[0.440]	**[0.185]**
BlackSea	-0.086	-0.120	**-0.080**	-0.035	-0.061	**-0.043**	-0.284	-0.318	**-0.173**
	[0.130]	[0.142]	**[0.074]**	[0.138]	[0.153]	**[0.082]**	[0.449]	[0.455]	**[0.193]**
EastAnatolia	0.189	0.193	**0.091**	0.190	0.192	**0.094**	-0.140	-0.195	**-0.173**
	[0.138]	[0.154]	**[0.082]**	[0.141]	[0.159]	**[0.086]**	[1.058]	[1.050]	**[0.450]**
SouthEastAnatolia	0.449***	0.487***	**0.251*** **	0.515***	0.576***	**0.314*** **	-1.753	-1.804	**-0.677**
	[0.128]	[0.144]	**[0.078]**	[0.132]	[0.151]	**[0.083]**	[1.086]	[1.122]	**[0.454]**
Primary	0.414**	0.460**	**0.238** **	0.404**	0.457**	**0.255** **	0.302	0.302	**0.089**
	[0.171]	[0.183]	**[0.095]**	[0.175]	[0.189]	**[0.099]**	[0.774]	[0.802]	**[0.334]**
Middle	0.407**	0.455**	**0.236** **	0.359*	0.405**	**0.220** **	1.010	1.049	**0.449**
	[0.184]	[0.199]	**[0.104]**	[0.190]	[0.207]	**[0.109]**	[0.803]	[0.832]	**[0.349]**
High	0.358*	0.408**	**0.226** **	0.216	0.250	**0.146**	1.390*	1.446*	**0.620***
	[0.190]	[0.205]	**[0.106]**	[0.199]	[0.216]	**[0.113]**	[0.779]	[0.811]	**[0.341]**
VocHigh	0.544***	0.614***	**0.329*** **	0.483**	0.550**	**0.305** **	1.048	1.106	**0.491**
	[0.204]	[0.221]	**[0.114]**	[0.213]	[0.232]	**[0.122]**	[0.813]	[0.847]	**[0.358]**
TwoYear Un.	1.298***	1.431***	**0.739*** **	1.094***	1.217***	**0.640*** **	2.397***	2.529***	**1.170*** **
	[0.241]	[0.264]	**[0.137]**	[0.277]	[0.305]	**[0.161]**	[0.800]	[0.837]	**[0.360]**
FourYear Un. Plus	1.169***	1.337***	**0.718*** **	0.797***	0.921***	**0.508*** **	2.711***	2.878***	**1.325*** **
	[0.242]	[0.268]	**[0.137]**	[0.280]	[0.312]	**[0.163]**	[0.798]	[0.840]	**[0.365]**
age2024	-0.001	0.008	**0.007**	0.025	0.037	**0.030**	-0.478*	-0.500*	**-0.243***
	[0.112]	[0.122]	**[0.062]**	[0.125]	[0.137]	**[0.073]**	[0.257]	[0.270]	**[0.125]**
age2534	-0.201*	-0.221*	**-0.122***	-0.157	-0.173	**-0.091**	-0.670**	-0.690**	**-0.329** **
	[0.116]	[0.127]	**[0.066]**	[0.129]	[0.143]	**[0.077]**	[0.288]	[0.298]	**[0.135]**
age3544	-0.192	-0.220	**-0.132***	-0.112	-0.128	**-0.068**	-0.991**	-1.021**	**-0.490*** **
	[0.131]	[0.144]	**[0.076]**	[0.144]	[0.161]	**[0.087]**	[0.421]	[0.435]	**[0.189]**
age4554	-0.598***	-0.670***	**-0.375*** **	-0.520***	-0.584***	**-0.324*** **	-1.330**	-1.392**	**-0.632** **
	[0.154]	[0.169]	**[0.088]**	[0.166]	[0.183]	**[0.099]**	[0.556]	[0.580]	**[0.264]**
age55pl	-0.945***	-1.044***	**-0.567*** **	-0.848***	-0.939***	**-0.502*** **	-15.572***	-16.099***	**-4.362*** **
	[0.226]	[0.243]	**[0.124]**	[0.233]	[0.253]	**[0.132]**	[0.523]	[0.540]	**[0.208]**
unemprate	-4.207***	-4.650***	**-2.518*** **	-3.774***	-4.183***	**-2.298*** **	-8.639***	-9.200***	**-4.363*** **
	[0.772]	[0.834]	**[0.424]**	[0.806]	[0.878]	**[0.460]**	[2.755]	[2.803]	**[1.186]**
occup2	0.859***	0.962***	**0.517*** **	0.970***	1.095***	**0.609*** **	0.353	0.372	**0.157**
	[0.331]	[0.367]	**[0.189]**	[0.358]	[0.401]	**[0.214]**	[1.070]	[1.096]	**[0.484]**
occup3	-0.376*	-0.353	**-0.136**	-0.708**	-0.705**	**-0.319** **	-0.051	-0.008	**0.036**
	[0.216]	[0.224]	**[0.102]**	[0.293]	[0.303]	**[0.139]**	[0.349]	[0.360]	**[0.162]**
occup4	1.159***	1.258***	**0.643*** **	1.126***	1.228***	**0.651*** **	1.116***	1.215***	**0.597*** **
	[0.188]	[0.203]	**[0.100]**	[0.223]	[0.240]	**[0.121]**	[0.395]	[0.414]	**[0.195]**
occup5	0.573***	0.643***	**0.343*** **	0.418*	0.467*	**0.255** **	1.576***	1.702***	**0.813*** **
	[0.193]	[0.207]	**[0.100]**	[0.227]	[0.243]	**[0.120]**	[0.389]	[0.410]	**[0.196]**
occup6	2.011***	2.300***	**1.264*** **	1.911***	2.202***	**1.237*** **	2.535***	2.718***	**1.333*** **
	[0.191]	[0.215]	**[0.110]**	[0.223]	[0.249]	**[0.129]**	[0.560]	[0.595]	**[0.287]**
occup7	0.981***	1.073***	**0.556*** **	0.871***	0.949***	**0.500*** **	1.394***	1.510***	**0.728*** **
	[0.177]	[0.190]	**[0.092]**	[0.211]	[0.226]	**[0.112]**	[0.344]	[0.366]	**[0.177]**
occup8	-0.230	-0.198	**-0.054**	-0.811	-0.813	**-0.355**	1.919***	2.130***	**1.077*** **
	[0.418]	[0.435]	**[0.202]**	[0.544]	[0.558]	**[0.247]**	[0.695]	[0.774]	**[0.373]**
firsttime	-0.334***	-0.365***	**-0.197*** **	-0.204**	-0.220*	**-0.114***	-0.884***	-0.929***	**-0.431*** **
	[0.092]	[0.099]	**[0.050]**	[0.104]	[0.115]	**[0.061]**	[0.198]	[0.208]	**[0.094]**
h1	-2.354***	-2.283***	**-1.290*** **	-2.106***	-2.019***	**-1.161*** **	-4.120***	-4.118***	**-2.038*** **
	[0.051]	[0.054]	**[0.026]**	[0.058]	[0.061]	**[0.031]**	[0.203]	[0.207]	**[0.089]**
h2	-2.602***	-2.557***	**-1.436*** **	-2.343***	-2.284***	**-1.303*** **	-4.339***	-4.366***	**-2.175*** **
	[0.074]	[0.080]	**[0.040]**	[0.082]	[0.089]	**[0.046]**	[0.259]	[0.268]	**[0.117]**
h3	-3.784***	-3.816***	**-2.058*** **	-3.580***	-3.611***	**-1.986*** **	-5.159***	-5.217***	**-2.553*** **
	[0.168]	[0.173]	**[0.080]**	[0.184]	[0.190]	**[0.087]**	[0.411]	[0.416]	**[0.174]**
h4	-2.338***	-2.284***	**-1.297*** **	-2.171***	-2.120***	**-1.228*** **	-3.538***	-3.547***	**-1.800*** **
	[0.096]	[0.105]	**[0.055]**	[0.108]	[0.119]	**[0.064]**	[0.234]	[0.246]	**[0.115]**
h5	-3.682***	-3.706***	**-2.004*** **	-3.555***	-3.586***	**-1.987*** **	-4.641***	-4.664***	**-2.291*** **
	[0.266]	[0.271]	**[0.125]**	[0.299]	[0.303]	**[0.139]**	[0.586]	[0.596]	**[0.236]**
h6	-4.379***	-4.398***	**-2.255*** **	-4.187***	-4.207***	**-2.195*** **	-5.622***	-5.656***	**-2.632*** **
	[0.412]	[0.420]	**[0.177]**	[0.451]	[0.461]	**[0.194]**	[1.000]	[1.013]	**[0.386]**
h7	-5.370***	-5.409***	**-2.738*** **	-5.002***	-5.043***	**-2.601*** **	-18.503***	-18.966***	**-6.026*** **
	[0.705]	[0.706]	**[0.260]**	[0.706]	[0.708]	**[0.269]**	[0.164]	[0.164]	**[0.083]**
h8	-2.504***	-2.447***	**-1.364*** **	-2.440***	-2.399***	**-1.372*** **	-3.313***	-3.281***	**-1.667*** **
	[0.187]	[0.203]	**[0.104]**	[0.215]	[0.231]	**[0.121]**	[0.384]	[0.402]	**[0.184]**
h9	-3.980***	-3.990***	**-2.091*** **	-4.334***	-4.359***	**-2.272*** **	-3.888***	-3.927***	**-2.031*** **
	[0.507]	[0.524]	**[0.228]**	[0.711]	[0.725]	**[0.301]**	[0.713]	[0.710]	**[0.311]**
h10	-2.631***	-2.608***	**-1.488*** **	-2.277***	-2.227***	**-1.288*** **	-18.464***	-18.929***	**-5.907*** **
	[0.285]	[0.301]	**[0.152]**	[0.289]	[0.312]	**[0.166]**	[0.217]	[0.214]	**[0.081]**
h11	-2.145***	-2.073***	**-1.189*** **	-1.866***	-1.779***	**-1.037*** **	-3.948***	-3.990***	**-2.068*** **
	[0.317]	[0.349]	**[0.186]**	[0.334]	[0.374]	**[0.209]**	[0.980]	[0.970]	**[0.424]**
h12	-2.011***	-1.901***	**-1.098*** **	-2.043***	-1.957***	**-1.125*** **	-2.731***	-2.675***	**-1.375*** **
	[0.460]	[0.512]	**[0.267]**	[0.587]	[0.648]	**[0.352]**	[0.728]	[0.775]	**[0.391]**
Wald chi2	4550.263	3837.037	**5187.195**	3308.918	2690.864	**3538.149**	45496.898	54154.178	**47537.454**
Prob>chi2	0.000	0.000	**0.000**	0.000	0.000	**0.000**	0.000	0.000	**0.000**
AIC	0.540	0.540	**0.540**	0.668	0.667	**0.667**	0.270	0.270	**0.269**
Log-Likelihood	-3077.07	-3074.59	**-3072.73**	-2570.77	-2568.41	**-2565.39**	-462.82	-462.37	**-461.56**
LR of Occupation	276.54	281.11	**286.11**	250.79	255.13	**261.38**	52.30	52.91	**53.02**
Prob>chi2 (p(7)=14.07)	0	0	**0**	0	0	**0**	0	0	**0**
Observations	11544	11544	**11544**	7816	7816	**7816**	3728	3728	**3728**

Note: See Table 3.10

Table 4.9: Estimation Results under Broad Definition

Variables	ALL			MALE			FEMALE		
	Proportional	Log-log	**Log-Normal**	Proportional	Log-log	**Log-Normal**	Proportional	Log-log	**Log-Normal**
urban	0.197***	0.224***	**0.129*** **	0.145*	0.164**	**0.094** **	0.796***	0.857***	**0.399*** **
	[0.072]	[0.079]	**[0.040]**	[0.076]	[0.083]	**[0.043]**	[0.271]	[0.294]	**[0.134]**
female	-0.609***	-0.640***	**-0.303*** **						
	[0.095]	[0.099]	**[0.047]**						
married	0.458***	0.501***	**0.270*** **	0.437***	0.479***	**0.256*** **	-0.420**	-0.449**	**-0.213** **
	[0.075]	[0.082]	**[0.043]**	[0.078]	[0.085]	**[0.046]**	[0.198]	[0.203]	**[0.089]**
FemMar	-0.955***	-1.017***	**-0.508*** **						
	[0.179]	[0.185]	**[0.085]**						
Marmara	0.048	0.049	**0.027**	-0.001	-0.004	**-0.003**	0.314	0.321	**0.138**
	[0.088]	[0.096]	**[0.049]**	[0.094]	[0.102]	**[0.054]**	[0.281]	[0.291]	**[0.126]**
Aegean	0.023	0.026	**0.019**	0.028	0.032	**0.025**	0.052	0.057	**0.016**
	[0.103]	[0.113]	**[0.058]**	[0.110]	[0.121]	**[0.065]**	[0.313]	[0.323]	**[0.141]**
Mediterrianean	0.017	0.017	**0.007**	-0.010	-0.015	**-0.008**	0.247	0.246	**0.078**
	[0.098]	[0.106]	**[0.054]**	[0.105]	[0.114]	**[0.059]**	[0.301]	[0.308]	**[0.130]**
BlackSea	-0.202*	-0.238**	**-0.141** **	-0.131	-0.159	**-0.094**	-0.483	-0.524	**-0.273** **
	[0.105]	[0.113]	**[0.057]**	[0.112]	[0.122]	**[0.064]**	[0.313]	[0.321]	**[0.138]**
EastAnatolia	0.144	0.143	**0.066**	0.170	0.177	**0.092**	-0.695	-0.739	**-0.354**
	[0.107]	[0.118]	**[0.062]**	[0.111]	[0.123]	**[0.066]**	[0.548]	[0.553]	**[0.236]**
SouthEastAnatolia	0.235**	0.247**	**0.118***	0.275**	0.298**	**0.157** **	-0.706	-0.750	**-0.389***
	[0.104]	[0.115]	**[0.061]**	[0.108]	[0.120]	**[0.065]**	[0.507]	[0.524]	**[0.230]**
Primary	0.157	0.170	**0.084**	0.200	0.217	**0.113**	-0.390	-0.412	**-0.172**
	[0.127]	[0.138]	**[0.071]**	[0.135]	[0.147]	**[0.077]**	[0.403]	[0.428]	**[0.197]**
Middle	0.026	0.028	**0.010**	0.005	0.001	**-0.005**	0.176	0.171	**0.067**
	[0.142]	[0.154]	**[0.079]**	[0.151]	[0.164]	**[0.086]**	[0.435]	[0.462]	**[0.212]**
High	0.088	0.100	**0.054**	0.036	0.039	**0.022**	0.290	0.282	**0.105**
	[0.144]	[0.156]	**[0.080]**	[0.155]	[0.168]	**[0.088]**	[0.414]	[0.444]	**[0.206]**
VocHigh	0.187	0.211	**0.117**	0.177	0.201	**0.116**	0.131	0.119	**0.042**
	[0.160]	[0.173]	**[0.088]**	[0.173]	[0.188]	**[0.097]**	[0.450]	[0.477]	**[0.218]**
TwoYear Un.	0.578***	0.617***	**0.313*** **	0.555**	0.607**	**0.331** **	0.542	0.556	**0.263**
	[0.213]	[0.229]	**[0.115]**	[0.251]	[0.274]	**[0.143]**	[0.470]	[0.505]	**[0.234]**
FourYear Un. Plus	0.649***	0.726***	**0.394*** **	0.338	0.382	**0.223***	1.367***	1.402***	**0.623*** **
	[0.202]	[0.221]	**[0.112]**	[0.240]	[0.261]	**[0.135]**	[0.469]	[0.502]	**[0.233]**
age2024	0.062	0.070	**0.038**	0.065	0.074	**0.046**	-0.127	-0.119	**-0.051**
	[0.090]	[0.097]	**[0.049]**	[0.100]	[0.109]	**[0.056]**	[0.211]	[0.219]	**[0.099]**
age2534	-0.185*	-0.199*	**-0.109** **	-0.139	-0.152	**-0.079**	-0.463**	-0.473**	**-0.220** **
	[0.096]	[0.104]	**[0.052]**	[0.108]	[0.117]	**[0.061]**	[0.225]	[0.235]	**[0.106]**
age3544	-0.297***	-0.323***	**-0.178*** **	-0.223*	-0.242*	**-0.128***	-0.907***	-0.935***	**-0.441*** **
	[0.109]	[0.118]	**[0.061]**	[0.121]	[0.132]	**[0.070]**	[0.344]	[0.355]	**[0.153]**
age4554	-0.793***	-0.865***	**-0.462*** **	-0.716***	-0.784***	**-0.419*** **	-1.087**	-1.120**	**-0.508** **
	[0.130]	[0.140]	**[0.071]**	[0.140]	[0.151]	**[0.079]**	[0.459]	[0.473]	**[0.207]**
age55pl	-1.209***	-1.314***	**-0.702*** **	-1.137***	-1.235***	**-0.657*** **	-0.288	-0.357	**-0.257**
	[0.196]	[0.207]	**[0.102]**	[0.203]	[0.215]	**[0.108]**	[1.015]	[0.998]	**[0.450]**
unemprate	-5.033***	-5.440***	**-2.802*** **	-4.826***	-5.243***	**-2.767*** **	-7.124***	-7.390***	**-3.456*** **
	[0.629]	[0.669]	**[0.330]**	[0.667]	[0.713]	**[0.361]**	[1.883]	[1.924]	**[0.814]**
occup2	0.606**	0.661**	**0.346** **	0.667**	0.737**	**0.398** **	0.040	0.060	**0.042**
	[0.259]	[0.284]	**[0.148]**	[0.276]	[0.306]	**[0.164]**	[1.071]	[1.122]	**[0.484]**
occup3	-1.070***	-1.085***	**-0.472*** **	-1.355***	-1.388***	**-0.632*** **	-0.748***	-0.764***	**-0.332*** **
	[0.169]	[0.174]	**[0.077]**	[0.227]	[0.235]	**[0.106]**	[0.269]	[0.276]	**[0.118]**
occup4	0.717***	0.762***	**0.384*** **	0.710***	0.762***	**0.398*** **	0.530*	0.555*	**0.250***
	[0.141]	[0.150]	**[0.074]**	[0.164]	[0.176]	**[0.090]**	[0.318]	[0.333]	**[0.149]**
occup5	0.108	0.122	**0.072**	-0.006	-0.001	**0.007**	0.715**	0.740**	**0.314** **
	[0.146]	[0.154]	**[0.074]**	[0.168]	[0.179]	**[0.089]**	[0.320]	[0.332]	**[0.148]**
occup6	1.492***	1.674***	**0.924*** **	1.343***	1.512***	**0.846*** **	2.588***	2.732***	**1.301*** **
	[0.146]	[0.161]	**[0.083]**	[0.165]	[0.182]	**[0.097]**	[0.363]	[0.396]	**[0.196]**
occup7	0.483***	0.512***	**0.260*** **	0.404***	0.428***	**0.220*** **	0.721**	0.743**	**0.317** **
	[0.131]	[0.139]	**[0.067]**	[0.152]	[0.162]	**[0.082]**	[0.292]	[0.305]	**[0.136]**
occup8	-0.359	-0.363	**-0.152**	-0.880**	-0.912**	**-0.432** **	1.410**	1.537**	**0.725** **
	[0.321]	[0.335]	**[0.157]**	[0.409]	[0.421]	**[0.191]**	[0.559]	[0.611]	**[0.290]**
firsttime	-0.302***	-0.331***	**-0.182*** **	-0.208**	-0.226**	**-0.124*** **	-0.546***	-0.580***	**-0.280*** **
	[0.073]	[0.078]	**[0.039]**	[0.082]	[0.090]	**[0.047]**	[0.160]	[0.165]	**[0.073]**
h1	-2.674***	-2.623***	**-1.461*** **	-2.437***	-2.372***	**-1.339*** **	-3.886***	-3.872***	**-2.030*** **
	[0.047]	[0.049]	**[0.024]**	[0.055]	[0.057]	**[0.028]**	[0.173]	[0.176]	**[0.074]**
h2	-2.675***	-2.628***	**-1.466*** **	-2.426***	-2.364***	**-1.336*** **	-3.880***	-3.885***	**-2.054*** **
	[0.056]	[0.060]	**[0.030]**	[0.064]	[0.068]	**[0.034]**	[0.189]	[0.195]	**[0.086]**
h3	-3.609***	-3.618***	**-1.959*** **	-3.357***	-3.360***	**-1.846*** **	-4.787***	-4.819***	**-2.462*** **
	[0.109]	[0.112]	**[0.052]**	[0.118]	[0.122]	**[0.058]**	[0.319]	[0.321]	**[0.131]**
h4	-2.317***	-2.242***	**-1.269*** **	-2.152***	-2.073***	**-1.188*** **	-2.974***	-2.957***	**-1.642*** **
	[0.069]	[0.075]	**[0.038]**	[0.079]	[0.086]	**[0.045]**	[0.167]	[0.173]	**[0.081]**
h5	-2.667***	-2.621***	**-1.460*** **	-2.475***	-2.426***	**-1.373*** **	-3.384***	-3.367***	**-1.831*** **
	[0.114]	[0.122]	**[0.061]**	[0.126]	[0.135]	**[0.070]**	[0.293]	[0.301]	**[0.130]**
h6	-3.488***	-3.481***	**-1.870*** **	-3.247***	-3.234***	**-1.767*** **	-4.481***	-4.485***	**-2.264*** **
	[0.220]	[0.227]	**[0.104]**	[0.239]	[0.249]	**[0.117]**	[0.591]	[0.602]	**[0.235]**
h7	-4.554***	-4.570***	**-2.336*** **	-4.342***	-4.358***	**-2.276*** **	-5.378***	-5.393***	**-2.612*** **
	[0.409]	[0.414]	**[0.170]**	[0.448]	[0.454]	**[0.188]**	[1.008]	[1.016]	**[0.360]**
h8	-2.189***	-2.081***	**-1.155*** **	-2.121***	-2.027***	**-1.151*** **	-2.519***	-2.447***	**-1.384*** **
	[0.145]	[0.161]	**[0.084]**	[0.171]	[0.189]	**[0.101]**	[0.289]	[0.305]	**[0.141]**
h9	-18.507***	-19.017***	**-6.071*** **	-18.624***	-18.459***	**-5.846*** **	-17.107***	-18.298***	**-5.574*** **
	[0.087]	[0.083]	**[0.027]**	[0.112]	[0.118]	**[0.055]**	[0.177]	[0.169]	**[0.062]**
h10	-18.507***	-19.017***	**-6.071*** **	-18.624***	-18.459***	**-5.846*** **	-17.107***	-18.298***	**-5.574*** **
	[0.087]	[0.083]	**[0.027]**	[0.112]	[0.118]	**[0.055]**	[0.177]	[0.169]	**[0.062]**
h11	-2.148***	-2.072***	**-1.176*** **	-1.900***	-1.813***	**-1.045*** **	-3.029***	-3.005***	**-1.673*** **
	[0.229]	[0.252]	**[0.134]**	[0.249]	[0.277]	**[0.155]**	[0.588]	[0.605]	**[0.272]**
h12	-2.259***	-2.175***	**-1.237*** **	-2.262***	-2.193***	**-1.248*** **	-2.381***	-2.368***	**-1.415*** **
	[0.358]	[0.388]	**[0.197]**	[0.450]	[0.483]	**[0.253]**	[0.567]	[0.575]	**[0.283]**
Wald chi2	106248.098	128087.519	**167318.698**	64542.447	56395.299	**34108.228**	32851.369	48062.529	**48100.716**
Prob>chi2	0.000	0.000	**0.000**	0.000	0.000	**0.000**	0.000	0.000	**0.000**
AIC	**0.482**	**0.482**	**0.481**	**0.610**	**0.610**	**0.609**	**0.238**	**0.237**	**0.237**
Log-Likelihood	**-4700.578**	**-4697.87**	**-4693.002**	**-3888.476**	**-3886.831**	**-3883.941**	**-766.308**	**-766.121**	**-765.11**
LR of Occupation	419.824	422.812	**427.228**	356.846	359.35	**363.218**	97.502	97.43	**97.08**
Prob>chi2 (p(7)=14.07)	0	0	**0**	0	0	**0**	0	0	**0**
Observations	19672	19672	**19672**	12883	12883	**12883**	6789	6789	**6789**

Note : See Table 3.10

4.5.2.3 Duration Dependence

Baseline hazards show the relation between the hazard rate and the duration of unemployment. Regardless of the direction, they indicate whether the duration dependence is present in the data or not. Figures[27] 4.5 and 4.6, under the ILO and broad definitions of unemployment, demonstrate the graphs of the baseline hazards evaluated at the means of the variables for different distributions under gender separation. It is observed from the figure 4.5 that the baseline hazards under different distributions have a declining trend until about the end of the second year (i.e. between 18 and 21 months) and then a rising trend for the whole sample data as well as for men under ILO definition of unemployment. As illustrated in Figure 4.5, under ILO definition the shape of the baseline hazard for women show a constant time trend, even though it has two dips at the 7^{th} and the 10^{th} periods, which correspond to the end of second and third year, respectively. Overall, one can say that there is a slight U-shaped hazard for men and constant hazard for women under the ILO definition of unemployment.

The shape of the baseline hazard under the broad definition of unemployment is different from those of under the ILO definition. It seems that the shape of the baseline hazard under the broad definition of unemployment have a constant time trend until the end of the second year. After the second year it has a U-shaped relation with the unemployment duration implying that probability of exiting from unemployment for a job initially declines with staying in unemployment then increases. The same observation seems to hold whether we consider the whole sample or the results under gender separation. Similar observations are also observed for some OECD countries. For instance, U-shaped hazard found for men in the studies by Moffit (1985) for the USA, by Ham and Rea (1987) for Canada, and by van den Berg and Klaaauw (2000) for France.

Serneels (2001) suggests the following factors as a source of non-decreasing trend in the baseline hazard, i.e. duration dependence. These are the finiteness of the unemployment benefits, the existence of active labor market policies, segmentation of the labor market and the business cycle effects. As mentioned before, in Turkey the payments

[27] In the figures "seqvar" represents the (grouped) period of unemployment duration.

of unemployment insurance to the unemployed individuals started in the month of February in 2002. Therefore, this variable was not available to use as an explanatory variable and test its effects on unemployment duration. Nevertheless, taking a support from the family and relatives is prevalent in Turkey. However, family income and related questions were not included in the HLFS survey. For that reason, the inclusion of this variable was not also possible in our analysis. Regarding the active labor market policies it seems that they exist only in a limited scale, therefore it is not also relevant for our case. Nonetheless, Tansel (2000) suggests that Turkish labor market would be regarded as segmented between the formal sector (with good jobs) and the informal sector (with bad jobs). Therefore, the observation of non-duration dependence for women indicates that women may be waiting in unemployment for good and relevant jobs while being supported by their family.

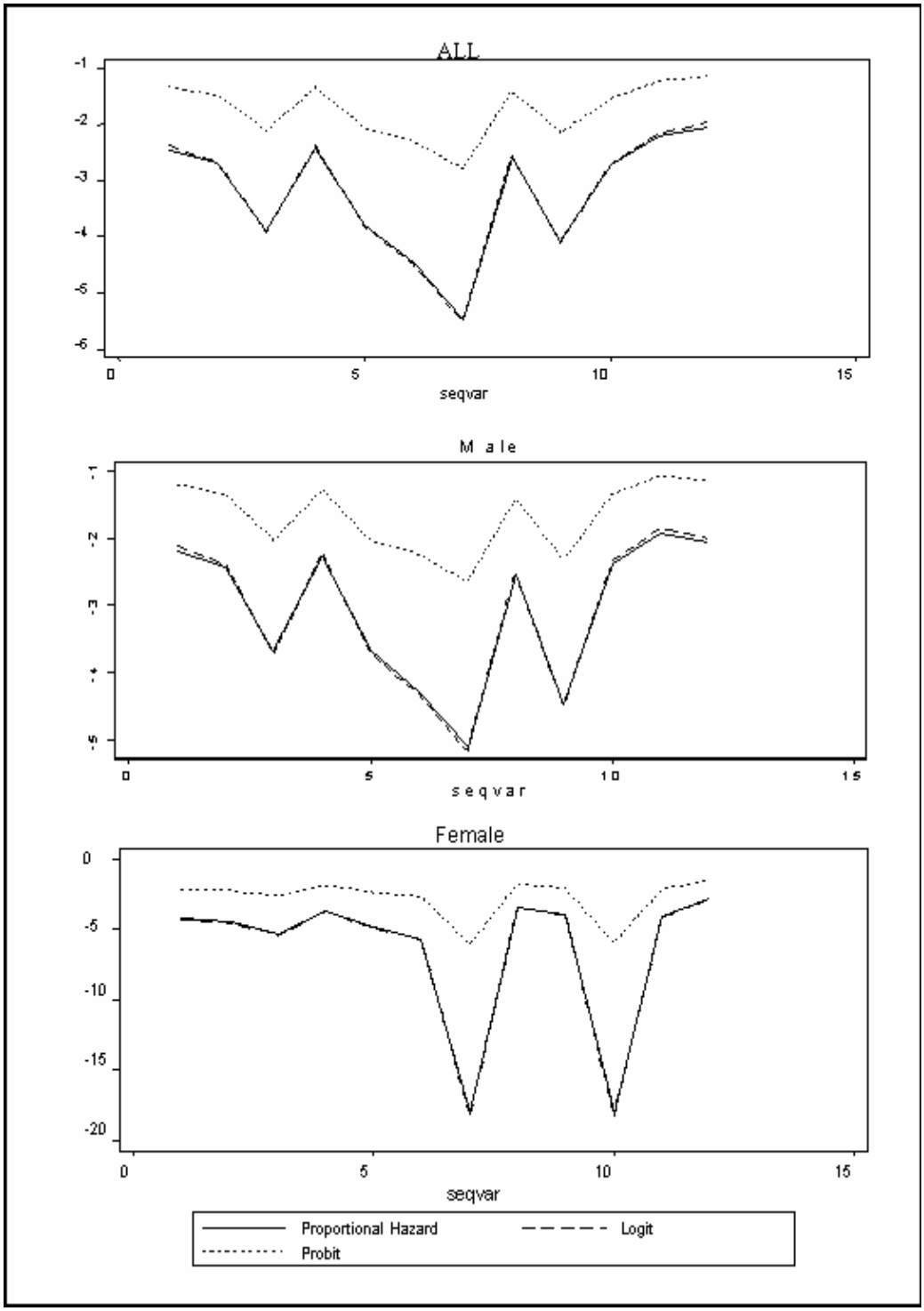

Figure 4.5: Baseline Hazard under ILO Definition: All-Male-Female

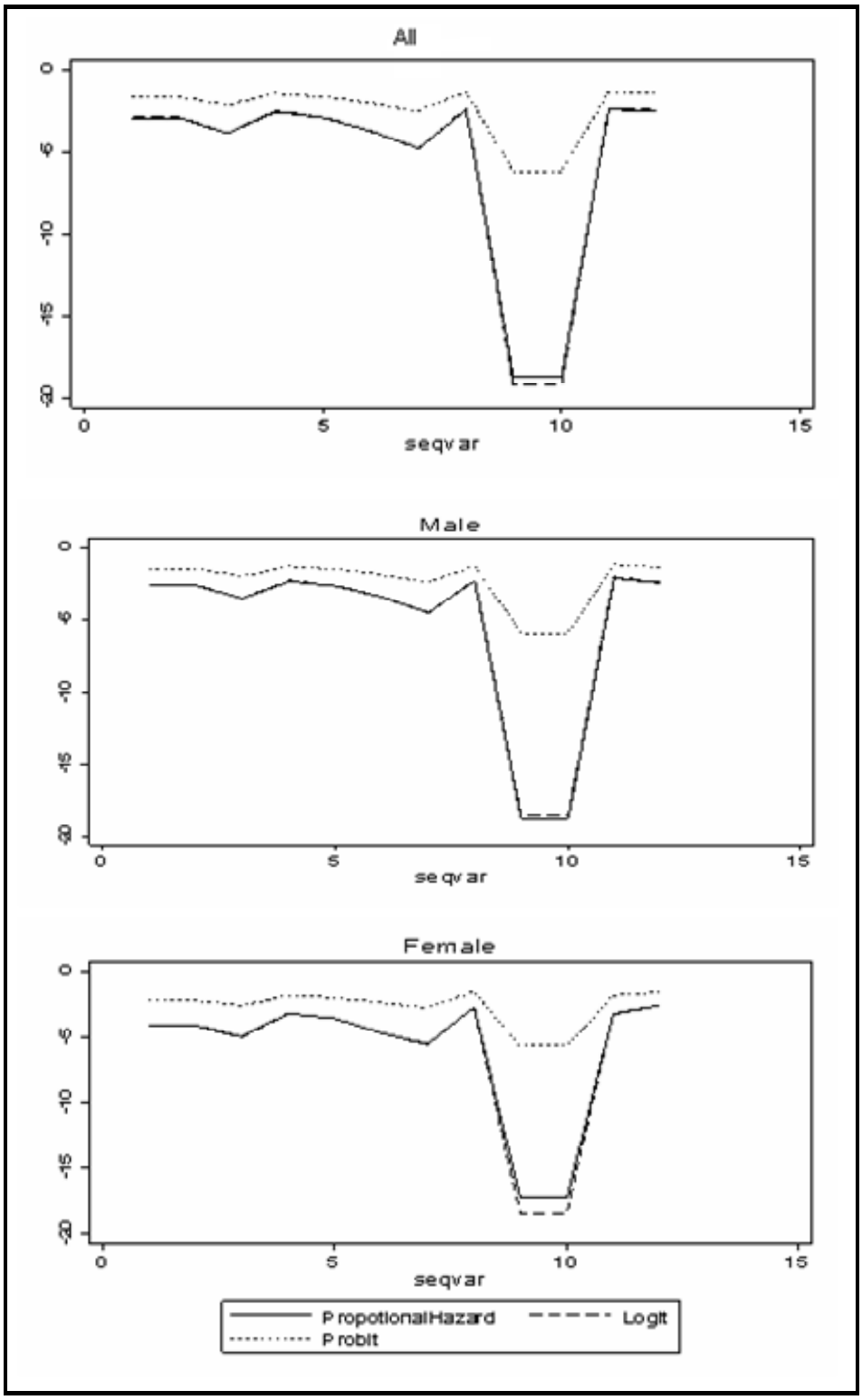

Figure 4.6: Baseline Hazard under Broad Definition: All-Male-Female

4.5.2.4 Predicted Hazard Rates

In the table 4.10 we have provided the predicted hazard rates (i.e. the predicted probability of finding a job) in the first three months of unemployment for the individuals with selected characteristics, under ILO and broad definitions of unemployment. We mainly focus on the effects of the changes in age-group and education level on the hazard rate, given the following characteristics of the individuals. These are urban resident, married, and other remaining variables set to their mean values. We observe from the Table 4.10 that the predicted hazards, under proportional hazard assumption, for men with primary school degree and in the age group of 20-24 are 17.12 and 13.62 percent under ILO and broad definitions of unemployment. The same probabilities for women are lower than that for men. These are 3.53 and 2.85 percentages under each definitions of unemployment, respectively. If we look at the same probabilities for the age group of 25-34, that is the median age group, for each gender the predicted hazard is lower than for the 20-24 age-group. These probabilities are 14.02 and 10.65 percentages, for men; 2.89 and 2.23 percentages, for women, under ILO and broad definitions of unemployment, respectively. The main observation, for the different age groups, is that the predicted hazard (i.e. the predicted probability of finding a job) decreases with increases in age group for both men and women, regardless of the definition of unemployment.

Let us now look at the effects of the changes in education level on the predicted hazard rates. As can be seen from the Table 4.10, after the under primary education level, the lowest predicted hazard is observed for the High School graduates. They have the highest unemployment rates among the other education levels, under ILO definition of unemployment for each gender and age groups. The predicted hazards for men and women in the age group of 25-34 with High School diploma are 13.25 and 2.74 percentages under proportional hazard assumption and under ILO definition. It should be noted here that the individuals with vocational high school diploma have higher predicted hazard values than the high school graduates, under ILO definition, regardless of being male or female for each age group. Regarding the results under broad definition of unemployment, the lowest predicted hazard is again seen for the individuals under primary education level group. This is group followed by the middle school level, regardless of being men or women, under all alternative distributions. The predicted hazard values for these individuals are 9.34 and 1.95

percentages in the age group of 25-34, under proportional hazard model, for men and women, respectively.

Furthermore, the highest predicted hazard values are observed for the individuals with two-years-university degree, for both male and female, under ILO definition of unemployment. The corresponding probabilities in the age group of 25-34 are 32.94 and 7.01 percentages for men and women, in that order, under proportional hazard assumption. The same probabilities for the log-logistic model are 41.02 and 7.63, for man and women, respectively. Regarding the broad definition of unemployment we observe the highest predicted hazard values for the individuals with the four-years-university degree, for each gender. The related probabilities in the age group of 25-34 are 17.43 and 3.65 percentages, for men and women, in that order, under proportional hazard assumption. The same probabilities for the log-logistic model are 20.24 and 3.86, for men and women, respectively.

For comparison with the married individuals, we have provided the predicted hazard values for the non-married ones in the median age group of 25-34 and with the above characteristics being held constant. It is observed from the Table 4.11 that we have different results for each gender. As expected, for males the predicted hazard value is lower for the non-married individuals than those for the married ones (because of the family responsibility of men). These are 9.05 (6.74) and 14.02 (10.65) percentages under ILO (Broad) definition of unemployment for the non-married and married individuals with primary school diploma, respectively. The general conclusion does not change when we look at the results for the other remaining alternative education groups. In contrast to males, for females the predicted hazard rate is higher for the non-married individuals than the married ones. The corresponding percentages for the primary school graduates are 5.28 (3.66) and 2.89 (2.23) under ILO (broad) definition of unemployment, for non-married and married individuals, in that order. Furthermore, as for the married individuals, we observe the highest predicted hazard rate for the individuals with two-years (four-years) university degree under ILO (broad) definition of unemployment.

For assessment we have also presented the predicted hazards for the rural resident individuals in the median age group and with holding the above characteristics as constant. As can be seen from the Table 4.12, the predicted hazard rate for the rural resident men is

lower than the value for the urban resident ones. These values are 11.52 (8.84) and 14.02 (10.65) under ILO (broad) definition of unemployment for the rural and urban resident men with primary school diploma, respectively. Our general result does not alter if we look at the predicted values for the other remaining education levels. Contrary to men, for women the predicted hazard rate is higher for the rural residing individuals than for the urban residing ones.

Table 4.10: The Predicted Hazard Rates for the Individuals with Selected Characteristics

	MALE										FEMALE									
	ILO-Definition					Broad-Definition					ILO-Definition					Broad-Definition				
Proportional Hazard	Age1519	Age2024	Age2534	Age3544	Age4554	Age1519	Age2024	Age2534	Age3544	Age4554	Age1519	Age2024	Age2534	Age3544	Age4554	Age1519	Age2024	Age2534	Age3544	Age4554
Non-graduate	11.32	11.31	9.26	9.34	6.23	10.95	11.65	9.10	8.13	4.96	2.34	2.33	1.91	1.93	1.29	2.29	2.44	1.90	1.70	1.04
Primary School	17.14	17.12	14.02	14.14	9.42	12.80	13.62	10.65	9.51	5.80	3.54	3.53	2.89	2.92	1.95	2.68	2.85	2.23	1.99	1.21
Middle Sc.	17.02	17.00	13.92	14.04	9.36	11.24	11.95	9.34	8.35	5.09	3.51	3.51	2.87	2.90	1.93	2.35	2.50	1.95	1.75	1.06
High Sc.	16.20	16.18	13.25	13.36	8.91	11.96	12.73	9.94	8.88	5.41	3.34	3.34	2.74	2.76	1.84	2.50	2.66	2.08	1.86	1.13
Voc. High Sc.	19.52	19.50	15.97	16.10	10.73	13.20	14.04	10.97	9.80	5.97	4.03	4.02	3.30	3.32	2.22	2.76	2.94	2.30	2.05	1.25
Two-Years Univ.	41.48	41.44	33.94	34.22	22.81	19.53	20.78	16.24	14.51	8.84	8.56	8.55	7.01	7.06	4.71	4.08	4.35	3.40	3.03	1.85
Four Years Univ.	NA	36.39	29.80	30.05	20.03	NA	22.30	17.43	15.57	9.49	NA	7.51	6.15	6.20	4.14	4.38	4.67	3.65	3.26	1.98
Log-Logistic	Age1519	Age2024	Age2534	Age3544	Age4554	Age1519	Age2024	Age2534	Age3544	Age4554	Age1519	Age2024	Age2534	Age3544	Age4554	Age1519	Age2024	Age2534	Age3544	Age4554
Non-graduate	12.23	12.32	9.81	9.81	6.26	11.95	12.82	9.80	8.65	5.03	2.27	2.29	1.82	1.82	1.16	2.28	2.44	1.87	1.65	0.96
Primary School	19.37	19.52	15.53	15.53	9.91	14.16	15.19	11.60	10.25	5.96	3.60	3.63	2.89	2.89	1.84	2.70	2.90	2.21	1.95	1.14
Middle Sc.	19.28	19.43	15.46	15.46	9.86	12.29	13.18	10.07	8.90	5.17	3.58	3.61	2.87	2.88	1.83	2.34	2.51	1.92	1.70	0.99
High Sc.	18.39	18.53	14.75	14.75	9.41	13.21	14.17	10.82	9.56	5.56	3.42	3.45	2.74	2.74	1.75	2.52	2.70	2.06	1.82	1.06
Voc. High Sc.	22.60	22.78	18.13	18.13	11.56	14.76	15.83	12.10	10.69	6.21	4.20	4.23	3.37	3.37	2.15	2.81	3.02	2.31	2.04	1.18
Two-Years Univ.	51.15	51.54	41.02	41.03	26.17	22.14	23.75	18.15	16.03	9.32	9.51	9.58	7.63	7.63	4.87	4.22	4.53	3.46	3.06	1.78
Four Years Univ.	NA	46.93	37.35	37.36	23.83	NA	26.49	20.24	17.88	10.40	NA	8.73	6.95	6.95	4.43	4.71	5.05	3.86	3.41	1.98
Log-Normal	Age1519	Age2024	Age2534	Age3544	Age4554	Age1519	Age2024	Age2534	Age3544	Age4554	Age1519	Age2024	Age2534	Age3544	Age4554	Age1519	Age2024	Age2534	Age3544	Age4554
Non-graduate	30.41	30.62	26.92	26.66	20.90	30.24	31.42	27.12	25.30	19.05	13.20	13.30	11.69	11.57	9.07	13.43	13.96	12.05	11.24	8.46
Primary School	38.56	38.83	34.14	33.80	26.50	32.87	34.15	29.48	27.50	20.71	16.74	16.86	14.82	14.68	11.51	14.60	15.17	13.10	12.22	9.20
Middle Sc.	38.52	38.79	34.10	33.77	26.47	30.55	31.75	27.40	25.57	19.25	16.72	16.84	14.81	14.66	11.49	13.57	14.10	12.18	11.36	8.55
High Sc.	38.13	38.40	33.76	33.43	26.21	31.91	33.15	28.62	26.70	20.11	16.55	16.67	14.66	14.51	11.38	14.18	14.73	12.72	11.86	8.93
Voc. High Sc.	42.25	42.55	37.41	37.04	29.04	33.99	35.32	30.49	28.44	21.42	18.34	18.47	16.24	16.08	12.61	15.10	15.69	13.54	12.64	9.52
Two-Years Univ.	63.64	64.10	56.35	55.79	43.74	41.34	42.96	37.08	34.60	26.05	27.63	27.83	24.46	24.22	18.99	18.37	19.09	16.48	15.37	11.57
Four Years Univ.	NA	62.78	55.20	54.65	42.84	NA	46.58	40.21	37.51	28.25	NA	27.26	23.96	23.73	18.60	19.92	20.69	17.86	16.67	12.55

Table 4.11: The Predicted Hazard Rates for the Non-Married Individuals with Selected Characteristics

	ILO Definiton: Non-married&age 25-34						Broad Definiton: Non-Married& age 25-34					
	Proportional		Log-Logistic		Log-Normal		Proportional		Log-Logistic		Log-Normal	
Education Level	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Non-graduate	5.98	3.49	6.02	3.44	20.54	15.89	5.76	3.13	5.93	3.13	20.70	15.29
Primary	9.05	5.28	9.53	5.44	26.05	20.15	6.74	3.66	7.03	3.71	22.51	16.62
Mid	8.99	5.24	9.49	5.42	26.02	20.13	5.91	3.21	6.10	3.22	20.92	15.45
High	8.56	4.99	9.05	5.17	25.76	19.93	6.29	3.42	6.56	3.46	21.85	16.14
VocHigh	10.31	6.01	11.12	6.35	28.55	22.08	6.94	3.78	7.33	3.86	23.27	17.19
Two-Years	21.92	12.77	25.17	14.37	43.00	33.26	10.27	5.59	10.99	5.80	28.31	20.91
FourYears	19.25	11.22	22.92	13.09	42.12	32.58	11.03	6.00	12.26	6.46	30.69	22.67

Table 4.12: The Predicted Hazard Rates for the Rural Resident Individuals with Selected Characteristics

	ILO Definiton: Rural age 25-34						Broad Definiton: Rural age 25-34					
	Proportional		Log-Logistic		Log-Normal		Proportional		Log-Logistic		Log-Normal	
Education Level	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Non-graduate	7.61	1.57	7.76	1.44	23.46	10.19	7.48	1.56	7.83	1.49	23.84	10.59
Primary	11.52	2.38	12.29	2.29	29.75	12.92	8.74	1.83	9.28	1.77	25.92	11.52
Mid	11.44	2.36	12.23	2.27	29.72	12.90	7.67	1.60	8.05	1.54	24.09	10.70
High	10.89	2.25	11.67	2.17	29.42	12.77	8.17	1.71	8.65	1.65	25.16	11.18
VocHigh	13.13	2.71	14.34	2.67	32.60	14.15	9.01	1.89	9.67	1.84	26.80	11.91
Two-Years	27.90	5.76	32.46	6.04	49.10	21.32	13.33	2.79	14.51	2.77	32.60	14.48
FourYears	24.50	5.06	29.56	5.50	48.10	20.88	14.32	2.99	16.18	3.09	35.35	15.71

4.6 Concluding Remarks

In this chapter we analyze the determinants of unemployment duration in Turkey. In the study, individual level data from the years of 2000 and 2001 Household Labor Force Surveys of the State Institute of Statistics are used. In the empirical analysis we make use of two alternative definitions of unemployment, namely the ILO and the broad definitions. We estimate the models under some alternative distributions; namely proportional hazard, log-logistic and log-normal. For all of the distributions we have included the unobserved heterogeneity term under Gaussian distribution. However, our models rejected the inclusion of this term, so we provided the results with the exclusion of this term. Prior to considering the general findings it should be noted that using a variety of specifications and relaxing the standard ILO definition of unemployment yield roughly the similar results.

One of the important findings of this study is that the hazard for women is lower than that for men. This implies that women less likely to obtain a job compared to men. This finding can also be considered as a result of cultural values of Turkish society which discriminates against women in the labor market. Another source of the lower probability of obtaining a job is that women are traditionally taken to be responsible for home production activities in Turkey and therefore they have a high reservation wage. Regarding the results for marriage we find contradicting findings for men and women. Being married increases the probability of finding a job for men. Due to the traditional role of family responsibility, i.e. bread winner of the family, men search for a job more intensively and attach to the labor market more powerfully than women, and obtain a job. While for women marriage decreases the probability of finding a job.

We further observe that residents of urban areas have lower unemployment durations than the residents of the rural areas. The coefficient on the dummy variable for "urban" is positive and significant for the whole sample under both definitions of unemployment indicating that urban residing individuals more likely to find a job compared to rural residing ones. This seems to be one of the factors encouraging people to move from rural areas to urban areas. In this regard it should be noted that this movement, i.e. migration, should not be encouraged unless suitable job opportunities were created to employ these people. It is also necessary to make available adequate shelter, education and health care services for those individuals. Moreover, we find that there are no significant regional differences in the hazard rate with the exception of men who live in the Southeast Anatolia. Residing in this region decreases the length of unemployment duration for men, under ILO definition of unemployment. This is a surprising result since this region is one of the less developed regions of Turkey. There may be two alternative explanations for this finding. The first is that unemployment is higher among those who can afford it. The second is that individuals with high propensity to unemployment migrate from this region.

Next, we consider the province level unemployment rate which denotes the local labor market conditions. It has a sign in the expected direction and mostly statistically significant. This finding implies that the hazard, i.e. the probability of finding a job, is larger for the individuals who live in the provinces with low unemployment rates compared to the other provinces. The effect of this variable on the hazard of female is larger than that

for men. Thus, one can say that situations in the local labor market are more important for women than for men. Overall results for the province level unemployment rate imply that to decrease the risk of long-term unemployment public programs initially may focus on the provinces with high unemployment rates. Another policy tool to reduce the same risk may include encouraging the labor mobility between provinces (from high unemployment areas to low unemployment areas). This encouragement may not be useful if the relevant work chances are not created for employing these individuals.

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We further observe that the hazard, i.e. the probability of finding a job increases with the increase in the education level. This result is particularly true for the university graduate individuals under each alternative definitions of unemployment. This finding implies a policy tool that increasing the education level of the less educated individuals may increase their chance of obtaining a job. This policy tool may be in terms of re-schooling or re-training activities, and may cover all individuals with a degree less than university level.

A further observation is that there is a negative relation between the hazard and age. This finding indicates that the increases in ages increase the duration of unemployment. The negative effect of the age on the hazard is particularly large for men over 45 and for women over 35 compared to the young ages. Similar results related to age effect on hazard are also observed for some OECD countries.

The coefficient estimates of “first-time” dummy variable are significant and have negative effect on the hazard. This indicates the duration of unemployment is larger for the first-time job-seekers than the other job-seekers. Hence, another policy target group is the first-time job-seekers. The policy tool for this group may include counseling, providing knowledge about the job openings, and giving information about effective job search strategies.

As a final point, the shape of the baseline hazard for men seems to be different than that for women under the ILO definition of unemployment, but not under the broad definition of unemployment. We observe a slight U-shape relation for men between the hazard rate and the duration of unemployment. While for women we find a constant relation of hazard and unemployment duration.

Overall findings of the study imply the following as a target groups for the policy makers. These are women particularly the married women, non-married men, individuals with low levels of education, individuals in their late career period, first-time job-seekers and finally the individuals who live in the provinces with high levels of unemployment rates.

CHAPTER 5

DETERMINANTS OF UNEMPLOYMENT DURATION FOR THE FIRST-TIME AND OTHER JOB-SEEKERS

5.1 Introduction

In this chapter, the information obtained from HLFS for the unemployment is used to see whether first-time job seekers have different dynamics in finding a job from other unemployed individuals. The firs-time job seekers consist of individuals who have just graduated from the school, just completed his military service as well as other individuals with no job-market experience. The other job seekers group covers both the lost-job and quit job individuals (see SIS, 2004)[28]. Our initial estimation results from the previous chapter show that first-time job seekers have longer unemployment durations than those of the other job-seekers. In this chapter, we give special attention to these groups of unemployed individuals.

This chapter is organized as follows. In the following section we briefly discuss the data for the first-time job seekers and others, separately. Section 5.3 is divided into two parts. In the first part we briefly discuss the non-parametric estimation results, such as Turnbull's survival function. In the second part initially we test for the proportionality assumption and then move on to the parametric (or semi-parametric) estimation results. As in the previous chapter we estimate our models under three alternative distributions, i.e. proportional hazard, log-logistic hazard and log-normal hazard, under two alternative definitions of unemployment. We, first, look at the estimation results without considering the gender difference, later concentrate on the estimation results for males and females separately. It should be noted that since the estimation methodology and model are presented in the previous chapter we do not provide these information again to save space.

[28] Since the number of observations for the quit job individuals is relatively low, we combined lost-job individuals and quit job individuals into one other job seekers category.

5.2 Literature Review

There is a large number of empirical studies on unemployment duration, but much of these studies do not distinguish between first-time and other job-seekers, with a few exceptions such as Lubyova and van Ours (1999). There are also some studies which prefer only including a dummy (or dummies) for unemployment reason. For instance, Poterba and Summers (1995) rather than analyzing separately, include two dummies for the unemployment reason and observe that job losers and job leavers both have lower probabilities of obtaining a job than the other unemployed groups. Further, Stewart (2001) includes five different dummies for the unemployment reasons. These are illness, health limitation, quit, laid-off and dismissed or fired from the job. He finds that the probability of finding a job, i.e. the hazard rate, is lower for the individuals who left the job because of illness or health limitation. He also observes that the hazard rate is larger for the quit-job individuals, but there are no significant differences between the other groups of unemployed individuals.

However, there are some studies which focus only on one of the above groups. For instance, the following studies focus on only the determinants of duration to first-job; Wolpin (1987), Eckstein and Wolpin (1995), Chuang (1999), Nielsen (2001), Lassibille (2001), Andrews (2002). Further, studies which concentrate on the displaced workers can be considered into the other-job seekers category, such as Addison and Portugal (1992, 1998), Portugal and Addison (2000) Podgursky and Swaim (1987).

Lubyova and van Ours (1999) study determinants of unemployment duration in Slovak republic in the years between 1994 and 1996 using proportional hazard model specification. In the analysis they distinguish between job-losers and unemployed school leavers by considering the unobserved heterogeneity. The inclusion of the neglected heterogeneity is found to have a significant contribution to the models. “The introduction of this term causes the negative duration dependency in the exit rate to a job to change into positive duration dependence (p.675)”. They observe for the job-losers that younger ones, males and non-single individuals find a job more quickly than the others. Further, the effects of education level on the hazard rate are also found to be significant, thus higher educated job-losers have a higher hazard rate than the others. Moreover, for the job-losers,

even though the level of minimum living standard and having a child are found to have non-significant effect, the district level unemployment is found to have an expected and significant effect on finding a job. Regarding the results for the school-leavers it is observed that there is no significant difference between male and female as well as the individuals with higher education and others. A further observation for the school leavers is the non-significant effects of the level of minimum living standard and having a child on the hazard rate.

Roed and Nordberg (2003), in a Norwegian study, focus on the duration of unemployment for the dismissed individuals by distinguishing temporary and permanent dismissals. For the temporary dismissed individuals they use competing risk formula, in which transition from temporary dismissal to employment is separated from temporary dismissal to permanent unemployment. In the estimation the authors consider the unobserved heterogeneity by using mass-point approach. The model yields the best result for the permanent dismissals under 6 and for the temporary dismissals under 16 mass-points. The effects of unobserved heterogeneity are found to have a significant effect on the models. The effects of work experience is found to be significant and increasing the probability of employment. The effect of this variable is larger for the temporary unemployed individuals than the permanent one. Regarding the results for individual characteristics, such as age, gender, and marital status, it is observed that these variables are statistically significant with expected signs. The effects of these variables are larger for the permanent dismissed individuals than for the temporary unemployed.

With respect to the studies which focus only on the duration to the first-job for the school leavers, it is mostly expected to find that the probability of finding a job declines with the time spent in unemployment. For instance negative duration dependence is observed by Chuang (1999) and Nielsen et al. (2001). However, as stated in the previous chapter, the estimated coefficients and negative duration dependence are very sensitive to inclusion of neglected heterogeneity. In this respect, Nielsen et al. (2002)'s study is different from Chuang's, since the first one does not control for the unobserved heterogeneity. It is found in some of the studies that the observation of negative duration dependence is a result of not considering the unobserved heterogeneity, since this finding changes when one controls for the neglected heterogeneity (for detail see Chapter, 4). For instance, Chuang (1999) and Andrews et al. (2001)'s findings support this idea for the

school-leavers. Chuang (1999) find that the degree of negative duration dependence declines after controlling for the neglected heterogeneity. Andrews et al. (2002) find no duration dependence when they consider unobserved heterogeneity.

There are other covariates, such as education and gender that affect the probability of finding a job for the first-time job seekers. Bratberg and Nielsen (2000, p.911) point out that the level of educational attainment could be considered as a screening tool for sorting the unemployed "individuals according to their skills and abilities". Thus, in contrast to Lubyova and van Ours (1996), Dolton et al. (1994), Nielsen et al. (2001), Eckstein and Wolpin (1995), Chuang (1999) and Andrews et al.(2002) find the expected result that individuals with higher levels of education have more chance to obtain a job in comparison to individuals with lower levels of education, thus, they have shorter unemployment duration.

Lassibille et al. (2001) observes something different from the above results for the Spanish school leavers. They find that individuals who have the upper secondary education have more difficulty in finding a job than the other individuals at the start of their working life. On the other hand, "participation in non-formal education programs" is found to be significantly decreasing the duration of unemployment (p.148). Lassibille et al. (2001) also observes that males have shorter unemployment duration than females as in Chuang (1999). To capture the influence of parents they use father's occupation as a proxy, but no significant effect is found. To capture the characteristics of the labor market Lassibille et al. (2001) use the unemployment rate and service sector's size in the region where the individual resides. As expected the increases in unemployment rate decreases the probability of finding a job, i.e. increases the duration of unemployment. The size of service sector is also found to decrease the probability of obtaining a job for the individuals who just graduated from the school.

Moreover, Wolpin (1992) considers the effects of ethnicity on transition to first-job and found that whites have a lower probability of obtaining a job offer than blacks in the USA. In contrast to Wolpin, Bowlus et al. (2001) find that whites have a higher probability of receiving a job offer in comparison to blacks in the USA.

5.3 The Data

As in the previous chapter the data used in this chapter, to analyze the determinants of unemployment duration for the first-time and other job-seekers comes from the HLFS survey and summary measures are provided in the Tables from 5.1 to 5.4. Regardless of the definition we observe that the incidence of long-term unemployment among the first-time job seekers is larger than among the other job-seekers. Moreover, Table 5.1 shows that, as expected, most of the first-time job-seekers are youth, i.e. in the age groups of 15-19 and 20-24. In contrast to first-time job-seekers, most of the other job-seekers are in the middle age-groups of 25-34 and 35-44 (see Table 5.2). The results do not change for both ILO and broad definition of unemployment (see Table 5.1 and 5.2). The individuals in their late-career (i.e. age 55 and over) have the lowest share, for each group of unemployed under both definitions of unemployment. Moreover, the share of long-term unemployed is the lowest for the youth, and seems to increase with age until the age of 55, among the first-time job-seekers under each definition of unemployment. The same result also holds for the other job seekers. An additional observation is that relaxation in the definition of unemployment seems to raise the share of long-term unemployed individuals for both groups of unemployed individuals. Regarding the unemployment data by education, it is observed that the share of high school graduates is the highest, and then primary school graduates among the first-time job seekers (see Table 5.3). However, the largest share for the other job-seekers is observed for the primary school graduates, and then for the middle school graduates (see Table 5.4). Furthermore, under each definition, long-term unemployment is highest for the high school graduates among the first-time job-seekers. However, this amount is the largest for the two year university graduate individuals among the other job-seekers. As for the first-time job seekers, for the other job-seekers also the lowest share in long-term unemployment is observed for the four year university graduates. The summary of the variables used in the analysis is presented in the Appendix.

Table 5.1: Unemployment Duration in by Age Group for First-Time Job Seekers

ILO Definition	N	<=3 months	4-6 months	7-9 months	10-11 months	12-17 months	18-23 months	≥ 24 months
Total	1496	43.38	20.99	6.02	3.14	14.57	2.54	9.36
Age1519	438	44.06	24.2	7.08	2.97	14.61	2.74	4.34
Age2024	724	46.41	19.89	5.8	3.59	12.71	1.5	8.84
Age2534	267	33.71	19.85	6.37	1.87	19.1	3.77	17.6
Age3544	53	47.17	15.09	--	5.66	16.98	--	11.32
Age4554	13	38.46	15.38	--	--	15.38	---	30.77
Age55pl	1	--	100	--	---	--	--	---
Broad Definition	N	<=3 months	4-6 months	7-9 months	10-11 months	12-17 months	18-23 months	≥ 24 months
Total	2453	27.56	22.5	8.03	3.63	22.38	3.71	12.19
Age1519	742	27.22	26.82	9.3	4.45	23.72	3.23	5.36
Age2024	1128	30.76	22.34	7.89	3.99	19.4	4.43	11.17
Age2534	467	20.77	16.92	7.28	1.5	23.62	3	22.91
Age3544	97	25.77	18.56	4.12	4.12	21.65	3.09	22.68
Age4554	17	29.41	17.65	--	--	23.53	--	29.41
Age55pl	2	--	50	50	--	--	--	--

Table 5.2: Unemployment Duration by Age Group for the Other Job Seekers

ILO Definition	N	<=3 months	4-6 months	7-9 months	10-11 months	12-17 months	18-23 months	≥ 24 months
Total	3338	58	20.25	3.59	1.53	9.29	1.11	6.23
Age1519	405	65.43	19.51	2.96	0.99	8.15	0.99	1.98
Age2024	484	62.6	16.74	4.13	1.86	8.47	1.03	5.17
Age2534	1078	58.07	20.13	3.8	2.04	8.91	0.93	6.12
Age3544	802	58.1	20.57	3.37	1.37	8.6	1.25	6.73
Age4554	431	50.35	23.43	2.78	0.7	12.76	1.39	8.58
Age55pl	138	42.75	23.91	5.8	1.45	11.59	1.45	13.04
Broad Definition	N	<=3 months	4-6 months	7-9 months	10-11 months	12-17 months	18-23 months	≥ 24 months
Total	4530	43.6	24.53	5.81	1.88	14.19	1.61	8.39
Age1519	512	52.34	24.02	7.03	1.56	11.33	0.97	2.73
Age2024	666	46.55	22.07	6.01	2.7	14.11	1.65	6.91
Age2534	1458	43.9	25.45	5.83	1.99	12.69	1.78	8.37
Age3544	1065	44.79	24.88	5.07	1.78	13.24	1.41	8.83
Age4554	633	34.91	24.96	5.85	1.26	19.4	1.74	11.85
Age55pl	196	30.1	23.98	5.61	1.53	21.47	2.55	14.8

Source: Computed by the author using raw data.

Table 5.3: Unemployment Duration by Education Level for the First-Time Job Seekers

ILO Definition	N	<=3 months	4-6 months	7-9 months	10-12 months	13-18 months	19-24 months	>24 months
Total	1496	43.38	20.99	6.02	3.14	14.57	2.54	9.36
Non-Graduate	39	41.03	33.33	2.56	5.13	10.26	--	7.69
Primary	389	41.65	22.37	3.08	3.6	16.45	2.06	10.8
Middle Sc.	221	47.51	20.81	6.79	1.81	13.12	1.36	8.6
High Sc.	434	41.71	18.89	6.45	3.0	14.29	3.92	11.75
Voc. H. Sc.	205	48.29	21.95	5.37	2.44	10.73	4.88	6.34
Two Year University	81	35.8	18.52	13.58	7.41	14.81	--	9.88
Four Year Univ. &over	127	44.88	20.47	9.45	2.36	19.69	--	3.15

Broad Definition	N	<=3 months	4-6 months	7-9 months	10-12 months	13-18 months	19-24 months	>24 months
Total	2453	27.56	22.5	8.03	3.63	22.38	3.71	12.19
Non-Graduate	65	24.62	32.31	7.69	4.62	21.54	3.08	6.15
Primary	601	27.79	21.3	7.32	3.49	23.63	3.00	13.48
Middle Sc.	359	30.64	22.28	7.8	3.06	21.45	2.23	12.53
High Sc.	799	23.65	22.4	7.13	4.13	23.90	5.26	13.52
Voc. H. Sc.	333	31.53	22.52	7.51	3.00	18.92	4.80	11.71
Two Year University	121	24.79	22.31	14.88	4.96	21.49	1.65	9.92
Four Year Univ. &over	175	33.71	24	11.43	2.86	20.57	1.71	5.71

Table 5.4: Unemployment Duration by Education Level for the Other Job Seekers

ILO Definition	N	<=3 months	4-6 months	7-9 months	10-12 months	13-18 months	19-24 months	>24 months
Total	3338	58	20.25	3.59	1.53	9.29	1.11	6.23
Non-Graduate	241	56.02	23.24	3.73	1.66	7.47	--	7.88
Primary	1914	60.45	19.64	3.5	1.52	8.99	0.94	4.96
Middle Sc.	449	57.46	22.27	3.12	1.34	8.02	1.11	6.68
High Sc.	373	51.21	19.84	5.9	2.14	10.19	1.88	8.85
Voc. H. Sc.	209	51.67	19.14	3.35	1.91	12.92	2.39	8.61
Two Year University	56	53.57	16.07	--	--	14.35	1.82	14.3
Four Year Univ. &over	96	59.38	21.88	1.04	--	11.34	1.03	5.13

Broad Definition	N	<=3 months	4-6 months	7-9 months	10-12 months	13-18 months	19-24 months	>24 months
Total	4530	43.6	24.53	5.81	1.88	14.19	1.61	8.39
Non-Graduate	337	42.14	29.38	5.34	1.19	11.57	0.89	9.50
Primary	2537	46.28	24.36	5.64	2.01	12.89	1.46	7.37
Middle Sc.	609	43.19	25.62	4.93	1.81	13.14	1.48	9.85
High Sc.	553	35.26	24.77	7.96	1.63	19.71	1.81	8.86
Voc. H. Sc.	296	37.5	18.92	6.42	2.36	20.95	2.70	11.15
Two Year University	75	41.33	21.33	2.67	2.78	13.89	4.17	13.89
Four Year Univ. &over	123	47.97	23.58	5.69	0.79	12.70	2.38	7.14

Source: Computed by the author using raw data.

5.4 Estimation Results

In the following sections, firstly, we provide the results of non-parametric duration analysis by using the Turnbull's survivor function. In the second part, we look at estimation results under semi-parametric specifications while controlling for the neglected heterogeneity, under ILO and broad definitions of unemployment.

5.4.1 Non-Parametric Duration Analysis

In order to get an idea about the shape of the distribution of unemployment durations, under ILO and broad definitions, the Turnbull's survival functions -which directly consider the special nature of the data, that is interval censored- are plotted for men and women separately (see Figure 5.1 and 5.2). This function indicates the probability that an individual survives in the state of unemployment for at least a specified period of time. Turnbull's survival function suggests a clear difference between men and women under each definition of unemployment, regardless of being first-time or other job seekers. As depicted in Figures 5.1 and 5.2 that the probability of surviving beyond 12 months, for male, is about 76.9 and 57.33 percentages under ILO definition of unemployment for the first-time job-seekers and other job-seekers, respectively. The same probabilities under broad definition of unemployment are 83.32 and 65.73, in the same order. However, the same probabilities for female are always larger that those of for men. The probability of surviving beyond one year for female is about 89.8 (96.5) and 62.4 (88.4) under ILO (broad) definition of unemployment for the first-time and other job seekers, respectively. Hence, it is possible to say that first-time job seekers, regardless of gender difference, have longer unemployment durations than the other unemployed individuals.

In the same figures we also compare the survival functions for the urban and rural resident first-time and other job-seeker individuals under ILO and broad definition of unemployment. It may be seen from the Figures 5.1 and 5.2 that survival functions for urban and rural resident individuals move together until about the end of the first-year for each group (rural & urban) of individuals. However, after one year survival probability for

the urban resident individuals is larger than that for the rural resident individuals. The probabilities of surviving beyond one year in urban areas are about 86.5 (90.5) and 64.3 (72.2) percentages under ILO (broad) definition of unemployment for the first-time and other job-seekers, respectively. The same probabilities for the rural resident ones, for both first-time and other job-seekers, are lower than that for the urban residing ones.

Figures 5.3 and 5.4 shows the plots of the hazard function for the first-time and other job-seekers under ILO and broad definitions of unemployment. It is observed from the figures that the hazard for males, for both first-time and other job-seekers, is always larger than that for females. A further observation is that the hazard, even though it has some fluctuations, increases with the increase in time for first- time job-seeker males, under both definitions of unemployment. On the other hand,

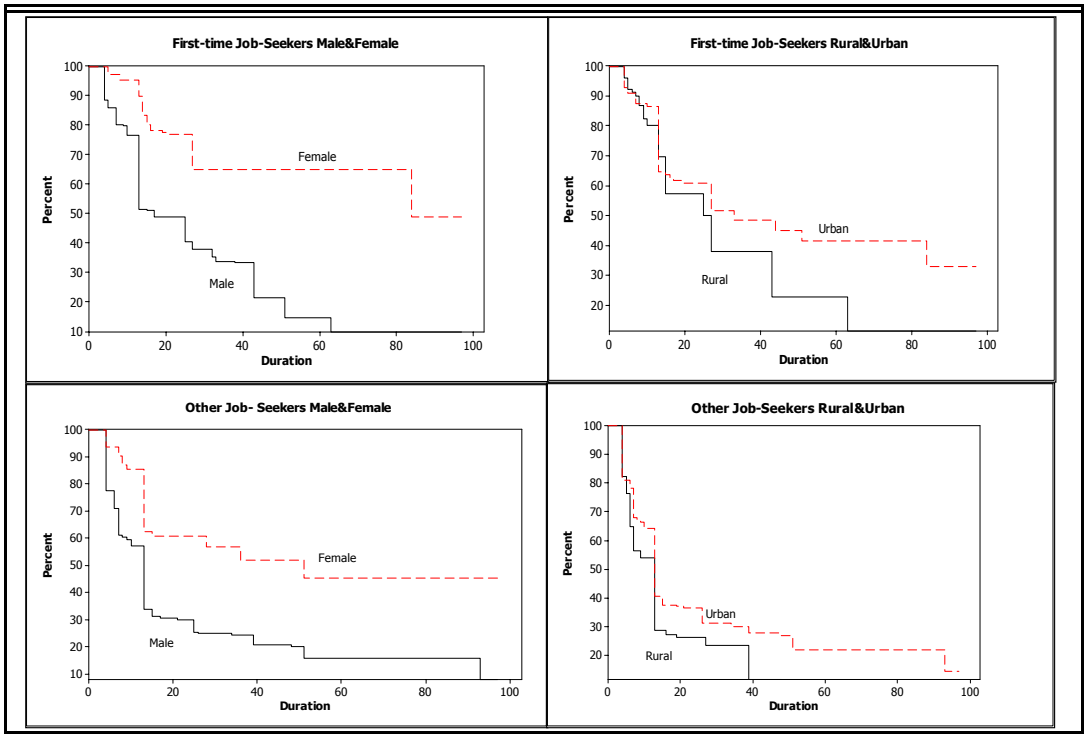

Figure 5.1: Turnbull's Survival Function for the First-time Job-seekers and Others under ILO Definition

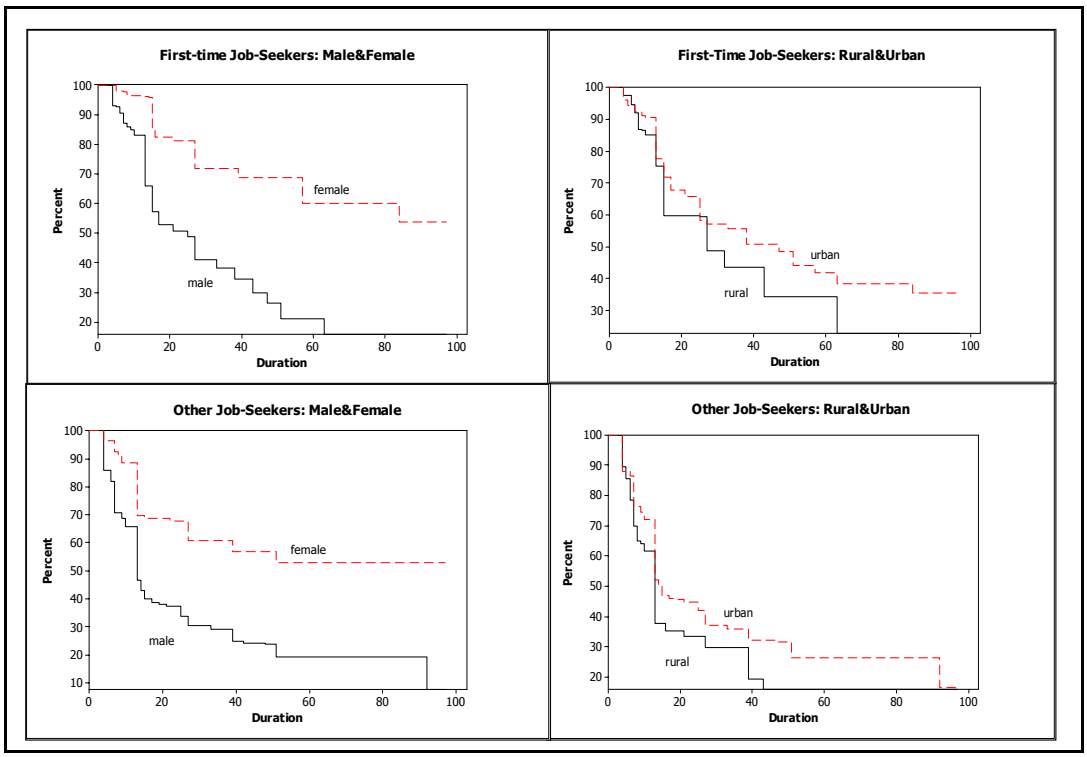

Figure 5.1: Turnbull's Survival Function for the First-time Job-seekers and Others under Broad Definition

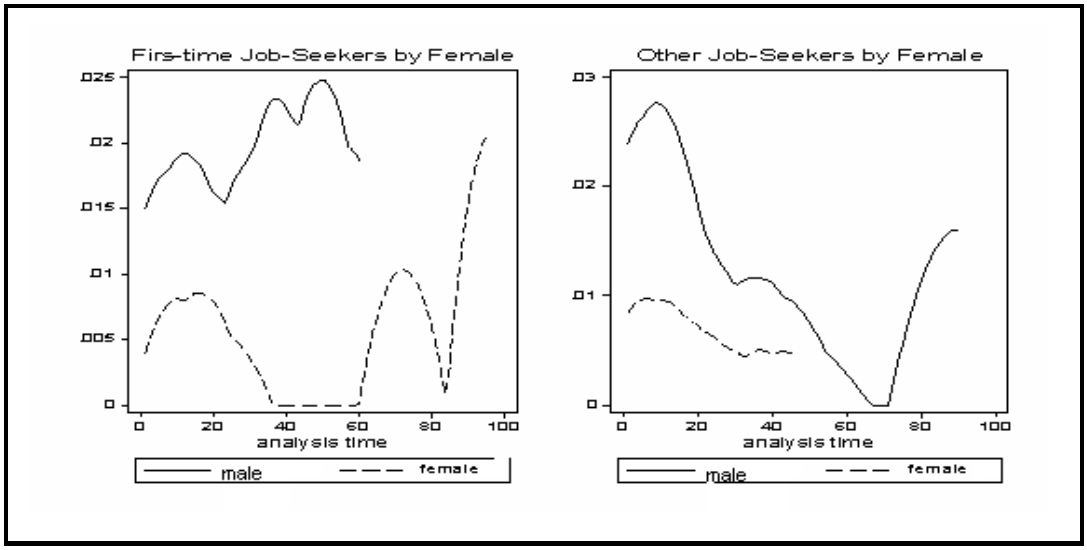

Figure 5.3: Smoothed Hazard Function for First-Time Job-Seekers and Others under ILO Definition

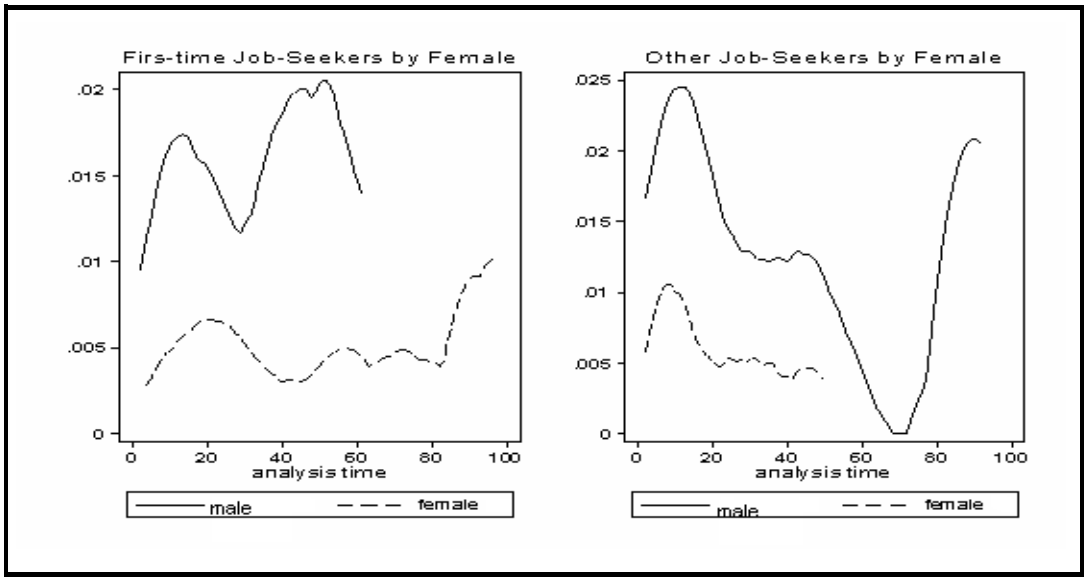

Figure 5.4: Smoothed Hazard Function for First-Time Job-Seekers and Others under Broad Definition

the hazard for the other-job seeker males shows, with an initial increase until about 12th month, a declining trend until about the end of the seventh year. The same result holds under each definitions of unemployment. The largest increase in the hazard after that year can be explained by low number of observations in that group. Regarding the hazards for females, even though it has no clear time profile for the first-time job-seekers, it has a

decreasing trend for the other job-seeker females, with an initial increase, as for males in the same group, under both definitions of unemployment.

Table 5.5: Log Rank Test of Differences in Hazard Rates of Selected Labor Market Groups

	ILO DEFINITION		BROAD DEFINITION	
Labor Force Groups	Firs-time Job Seekers	Other Unemployed	Firs-time Job Seekers	Other Unemployed
Male/Female	60.68*** (0.00)	102.54*** (0.00)	119.92*** (0.00)	141.06*** (0.00)
Age Group	18.92*** (0.002)	18.94*** (0.002)	26.75*** (0.00)	28.14*** (0.00)
Married/Others	16.35*** (0.00)	42.20*** (0.00)	17.49*** (0.00)	43.73*** (0.00)
Graduated from University/Others	0.34 (0.56)	0.39 (0.53)	5.39** (0.02)	0.03 (0.87)
Lives in Urban Areas/Others	3.16* (0.075)	8.25*** (0.004)	8.18*** (0.003)	16.44*** (0.00)

*Notes 1) *** significant at 1 % ; ** significant at 5 % ; * significant at 10 %.*
2) Age groups are: age 15-19, 20-24, 25-34, 35-44, 45-54, above 55.

As mentioned in the previous chapter, by using non-parametric techniques, such as log-rank test, one can test for the equality of survival functions. Before considering the parametric estimation, let us look at the log-rank tests results provided in Table 5.5. One clear observation from the Table 5.5 is that the equality of the survival functions for male and female is always rejected under both definitions of unemployment, regardless of being first-time or other job-seekers. The equality of the survival function is also rejected for different age-groups as well as for the married and non-married ones for both first-time and other job seekers, under each definition of unemployment. However, log-rank test accepts the equality of survival function for the university graduated individuals and others, under ILO definition of unemployment, for both first-time and other job-seekers. Nevertheless, this test rejected the same hypothesis (i.e. the equality of survival function for the university graduated individuals and others) for the first-time job-seekers under broad definition of unemployment. Further, rural/urban equality is also rejected by the data, under each definition of unemployment for each group of unemployed, (i.e. first-time and others) even though it has low power for the first-time job seekers under ILO definition (we reject the equality only at 10 percent significance level).

5.4.2 Parametric Estimation Results

In this part we estimate our models initially for the first-time and other-job seekers separately without considering the gender difference, later discuss the results for each gender separately. We estimate our econometric models, again, under proportional, logistic and log-normal specifications with and without unobserved heterogeneity. It should also be noted that our models, as in the previous chapter, reject the inclusion of the unobserved heterogeneity. Therefore, we prefer reporting only the results from the standard grouped duration model without unobserved heterogeneity term. Before interpreting the estimation results we test the proportionality assumption and select the best fitting model by using the AIC.

5.4.2.1 Testing for Proportionality and Model Selection

As stated in Chapter 4, in the proportional hazard model we assume that the coefficients of the covariates in the hazard function are constant over time. Since the testing procedure is provided in Chapter 4, we do not give the detail of this method. Testing results for proportionality are provided in Tables 5.6 and 5.7 under ILO and broad definitions of unemployment, respectively. As Tables of 5.6 and 5.7 show, the restriction of equal baseline hazards is accepted (i.e. we accept the exponential model with respect to proportional hazard model) only for the other-job-seekers-female under ILO definition of unemployment, since the calculated test statistic is greater than the critical value at 5 percent significance level. In all of the other cases we choose the proportional hazard model with respect to exponential model. Regarding the test statistic values for the model with time varying coefficients, it is clearly observed that in all cases the proportionality assumption can not be rejected by the data for each alternative groups of unemployed under both definitions of unemployment, with no exception. As alternatives to the proportional hazard model we have estimated our models under “log-logistic” and “log-normal” distributions -these are non-proportional models-. Since the last two models are non-nested models, to select the best fitting model we use, again, the AIC. It is clear from the Tables 5.8 through 5.11 that the calculated AIC values (and log-likelihood values) are very near to each other. In the tables for comparison we present the results for each of the distributions, the bold one represent the chosen model with a slight difference. In the following part we initially provide the estimation results for the first-time job-seekers and then move on the

results for the other job-seekers, under ILO and broad definition of unemployment.

Table 5.6: Testing For Proportionality -ILO Definition-

Proportional Hazard Model and Exponential Model						
		Proportional Hazard Model	Exponential Model	LR test PH& Exponential	Critical Value	Decision
Firstime	All	-718.56	-754.06	71	19.7	Accept PH
	Male	-514.8	-541.87	54.14	19.7	Accept PH
	Female	-168.13	-188.57	40.88	19.7	Accept PH
Others	All	-2300.04	-2410.89	221.7	19.7	Accept PH
	Male	-2015.06	-2108.1	186.08	19.7	Accept PH
	Female	-264.64	-273.65	18.02	19.7	*Reject PH*
Proportional Hazard Model & Unrestricted Model with time varying Coefficients						
		PH Model	Non-PH	LR test Non-PH and PH	Critical Value	Decision
Firstime	All	-718.56	-580.78	275.57	361.37	Accept PH
	Male	-514.8	-414.27	201.05	314.4	Accept PH
	Female	-168.13	-90.06	156.13	337.91	Accept PH
Others	All	-2300.04	-2137.94	324.2	361.37	Accept PH
	Male	-2015.06	-1869.89	290.35	337.91	Accept PH
	Female	-264.64	-201.55	126.17	337.91	*Accept PH*

Table 5.7: Testing For Proportionality -Broad Definition-

Proportional Hazard Model and Exponential Model						
		Proportional Hazard Model	Exponential Model	LR test PH& Exponential	Critical Value	Decision
Firstime	All	-1276.21	-1340.95	129.48	19.7	Accept PH
	Male	-927.57	-962.52	69.9	19.7	Accept PH
	Female	-321.01	-364.41	86.8	19.7	Accept PH
Others	All	-3359.46	-3441.31	163.7	19.7	Accept PH
	Male	-2917.85	-2991.59	147.48	19.7	Accept PH
	Female	-408.99	-419.08	20.18	19.7	*Accept PH*
Proportional Hazard Model & Unrestricted Model with time varying Coefficients						
		PH Model	Non-PH	LR test Non-PH and PH	Critical Value	Decision
Firstime	All	-1276.21	-1127.19	298.04	361.37	Accept PH
	Male	-927.57	-804.98	245.18	314.4	Accept PH
	Female	-321.01	-209	224.01	337.91	Accept PH
Others	All	-3359.46	-3206.87	305.19	361.37	Accept PH
	Male	-2917.85	-2786.33	263.03	337.91	Accept PH
	Female	-408.99	-328.85	160.29	337.91	*Accept PH*

5.4.2.2 Covariate Effects for the First-Time Job-Seekers

As in the previous chapter, the AIC values are almost identical across specifications with a slight variation. We can choose the lognormal model under both definitions of unemployment, without considering the gender difference. Our model choice slightly changes under gender difference. The proportional hazard model is selected for males under ILO definition, and for females under broad definition of unemployment. Furthermore, in the tables we have also presented the exclusion restriction test results for the occupation group dummies. As can be seen, we again reject the exclusion of these variables from the models (see LR of occupations from the Tables 5.8 and 5.9). Let us now look at the estimation results for the first-time job-seekers with the alternative models that we have.

Tables 5.8 and 5.9 suggests that living in "urban" areas have positive and significant effect on the probability of finding a job (i.e. on the hazard rate) in all of the alternative distributions for the first-time-job-seekers in the whole sample estimation. The same result holds for both ILO and broad definition of unemployment. The sign of the variable does not change when we look at the estimation results under gender separation, while significant contribution (at 5 percent level) is only seen for males under both definitions of unemployment. Thus, urban-resident first-time-job-seekers, particularly men, have shorter unemployment durations than the rural resident ones.

Furthermore, regarding the dummy variables of "female" and "FemMar[29]" we find the same result, as in the pooled data models. Thus first-time-job-seeker females, regardless of marriage, have longer unemployment durations than first-time job-seeker males. However, in contrast to our previous expectation, the results under gender difference reveals that the effect of marriage on the probability of finding a job is for the first-time job-seeker males is negative and significant (not-significant) under ILO (broad) definition of unemployment. This result contradicts with our previous results with pooled data that marriage increases the hazard for men due to the "bread winner" role of men in the traditional Turkish family.

In addition, with respect to geographical region dummies, we find that, in all

[29] "FemMar" is an interacion dummy taking value 1 if the sex is female and marital status is married.

alternative distributions, residents of Marmara and South-East Anatolia region have shorter unemployment durations than the base category of Central Anatolia under ILO definition of unemployment. However, our conclusion slightly changes when we look at the estimation results under gender difference for the first-time-job-seekers. For instance, first-time job seeker females who live in East and South-East Anatolia have longer unemployment durations than those who live in Central Anatolia. However, Aegean (and also Marmara at 10 percent significance level) region resident females have shorter unemployment durations than the base category. When we relax our definition of unemployment, in addition to Marmara (with a positive effect), Black Sea region also becomes significant at 10 percent level with negative effect on the hazard rate for the whole sample data case (see Table 5.9). Regarding the results under gender separation we observe that only living in Marmarra region have a significant effect on the probability of exiting from unemployment at 10 percent level, but the other remaining region dummies show no significant difference for each gender under broad definition of unemployment.

Concerning the education level dummies we find the somewhat different results for the first-time-job-seekers from our previous findings for the pooled data under ILO definition of unemployment. The effects of education level dummies on the hazard rate (survival probability) are positive after the middle school level, but significant effect is observed for the four-year university graduated individuals. This implies that four-year university graduated first-time job-seekers have shorter unemployment durations than the base category of less-educated (less-than-primary education) ones. Regarding the results under gender difference we observe somewhat different results for men than for women. For men it is seen from the Table 5.8 that all education level dummies have positive, but not significant effect at 5 percent significance level, on the hazard. The same observation is also hold under broad definition of unemployment (see Table 5.9). For women, in contrast to men, we observe the positive, but not significant, effect on the hazard only from the university degrees of two-years and four-years under ILO definition of unemployment (see Table 5.8). The other remaining education level dummies have negative effect on the hazard of first-time job-seeker women. The effect of two-year university degree on the hazard also becomes negative with the relaxation in unemployment definition (see Table 5.9).

With respect to age variables, we find that there is no significant difference between the base category of age15-19 and the other age groups under the ILO definition of unemployment, except the oldest individuals (see Table 5.8). Regarding the results under gender separation we observe that first-time job-seeker males who are in the age group of 20-24 have shorter unemployment durations than the youngest age group, for both the ILO and the broad definitions of unemployment. The estimation result is different for the first-time job-seeker females than males. The effect of age dummies on the hazard is always negative under each definition of unemployment. This implies that the individuals in the other age groups are less likely to find a job with respect to the base category of age 15-19 (see Tables 5.8 and 5.9).

Moreover, the estimation results concerning to local (province level) unemployment rate, for each of the alternative models, yield the same result as in the case of pooled data under both definitions of unemployment again. Hence, it is possible to say that first-time-job-seekers who live in the provinces with high unemployment rates have longer unemployment durations than the other unemployed individuals. Regarding the results with gender separation produce somewhat different conclusions. For the first-time-job-seeker-males there is no-significant difference between the high unemployment areas and other areas under the ILO definition of unemployment, but not under the broad definition.

Regarding the results for the occupation dummies we observe that the inclusion of these dummies, again make significant contribution to our estimation results. It is revealed from the Table 5.8 that with respect to “Professionals and etc.” other occupation groups have significantly shorter unemployment durations under the ILO definition of unemployment, with the exception of three that “managerial and related” (occup2), “clerical and related workers” (occup3) and “workers not-classified by occupation” (occup8). Our conclusion somewhat change if we look at the estimation results under the broad definition of unemployment (see Table 5.9). Let us now look at the estimation results under gender separation. It is evident from the Table 5.9 that the “clerical and related workers” (occup3) have longer unemployment durations than “professionals”. We further observe that, for both males and females, the individuals working in the “agricultural sector” (occup6) have shorter unemployment durations than the base category. The conclusion does not change too much when we relax our definition of unemployment. A

further observation for females is that, regardless of the definition, “workers non-classified by occupation (occup8)” are more likely to obtain a job. The same conclusion also holds for men in the occupation group of “non-agricultural workers”.

Table 5.8: Estimation Results for First-time Job-Seekers under ILO-Definition

Variables	ALL			MALE			FEMALE		
	Proportional	Log-log	**Log-Normal**	Proportional	Log-log	**Log-Normal**	Proportional	Log-log	**Log-Normal**
urban	0.359*	0.437**	**0.231****	0.483**	0.555**	**0.291****	0.464	0.485	**0.209**
	[0.192]	[0.214]	**[0.104]**	[0.215]	[0.236]	**[0.118]**	[0.567]	[0.564]	**[0.238]**
female	-0.692***	-0.737***	**-0.339*****						
	[0.180]	[0.190]	**[0.088]**						
married	-0.524	-0.603*	**-0.321***	-0.653*	-0.742**	**-0.405****	-1.228**	-1.331**	**-0.673*****
	[0.328]	[0.345]	**[0.174]**	[0.344]	[0.371]	**[0.189]**	[0.588]	[0.591]	**[0.243]**
FemMar	-1.240*	-1.270*	**-0.560***						
	[0.662]	[0.670]	**[0.294]**						
Marmara	0.555**	0.567*	**0.282****	0.425	0.436	**0.227**	1.020	1.073	**0.498***
	[0.273]	[0.298]	**[0.141]**	[0.308]	[0.336]	**[0.168]**	[0.705]	[0.721]	**[0.293]**
Aegean	0.268	0.305	**0.173**	-0.095	-0.091	**-0.018**	1.362**	1.414**	**0.620****
	[0.296]	[0.324]	**[0.154]**	[0.359]	[0.390]	**[0.194]**	[0.683]	[0.707]	**[0.292]**
Mediterrianean	-0.037	-0.024	**-0.025**	-0.016	-0.009	**0.002**	-0.363	-0.371	**-0.155**
	[0.315]	[0.342]	**[0.155]**	[0.344]	[0.379]	**[0.183]**	[0.900]	[0.912]	**[0.360]**
BlackSea	-0.034	-0.083	**-0.083**	-0.056	-0.109	**-0.091**	0.744	0.708	**0.195**
	[0.305]	[0.326]	**[0.152]**	[0.350]	[0.375]	**[0.184]**	[0.747]	[0.765]	**[0.314]**
EastAnatolia	0.339	0.301	**0.093**	0.438	0.408	**0.155**	-14.610***	-14.698***	**-3.999*****
	[0.297]	[0.324]	**[0.157]**	[0.313]	[0.343]	**[0.173]**	[0.708]	[0.724]	**[0.292]**
SouthEastAnatolia	0.790**	0.802**	**0.367****	0.843**	0.884**	**0.437****	-14.588***	-14.689***	**-3.971*****
	[0.322]	[0.353]	**[0.175]**	[0.340]	[0.379]	**[0.196]**	[0.675]	[0.683]	**[0.262]**
Primary	0.034	0.025	**-0.006**	0.299	0.318	**0.154**	-1.662*	-1.722*	**-0.731***
	[0.458]	[0.484]	**[0.238]**	[0.527]	[0.564]	**[0.290]**	[0.858]	[0.880]	**[0.398]**
Middle	0.044	0.027	**-0.005**	0.285	0.289	**0.127**	-0.837	-0.872	**-0.370**
	[0.469]	[0.495]	**[0.244]**	[0.535]	[0.572]	**[0.294]**	[0.879]	[0.883]	**[0.399]**
High	0.052	0.057	**0.034**	0.067	0.074	**0.042**	-0.105	-0.118	**-0.043**
	[0.463]	[0.491]	**[0.242]**	[0.537]	[0.575]	**[0.294]**	[0.903]	[0.895]	**[0.397]**
VocHigh	0.250	0.267	**0.145**	0.430	0.439	**0.232**	-0.094	-0.072	**-0.038**
	[0.487]	[0.515]	**[0.255]**	[0.549]	[0.586]	**[0.302]**	[1.000]	[1.011]	**[0.444]**
TwoYear Un.	0.421	0.479	**0.274**	0.173	0.218	**0.118**	0.861	1.009	**0.526**
	[0.508]	[0.546]	**[0.271]**	[0.624]	[0.670]	**[0.341]**	[0.967]	[0.976]	**[0.434]**
FourYear Un. Plus	1.091**	1.272**	**0.645****	0.914	1.134*	**0.608***	1.496	1.572	**0.712**
	[0.522]	[0.561]	**[0.276]**	[0.623]	[0.682]	**[0.349]**	[0.981]	[1.008]	**[0.457]**
age2024	0.279	0.287	**0.124**	0.446**	0.486**	**0.254****	-0.947**	-0.983**	**-0.447****
	[0.171]	[0.184]	**[0.091]**	[0.192]	[0.208]	**[0.106]**	[0.401]	[0.412]	**[0.181]**
age2534	-0.423*	-0.448*	**-0.226***	-0.309	-0.325	**-0.130**	-1.212**	-1.279**	**-0.590****
	[0.254]	[0.270]	**[0.127]**	[0.302]	[0.326]	**[0.156]**	[0.494]	[0.513]	**[0.232]**
age3544	0.121	0.099	**-0.028**	0.875	0.835	**0.374**	-0.290	-0.302	**-0.151**
	[0.515]	[0.543]	**[0.256]**	[1.044]	[1.092]	**[0.583]**	[0.723]	[0.762]	**[0.331]**
age4554	-0.342	-0.346	**-0.239**				-0.842	-0.897	**-0.436**
	[0.999]	[1.000]	**[0.420]**				[0.922]	[0.922]	**[0.395]**
age55pl	-9.727***	-8.194***	**-2.324*****				-16.290***	-16.511***	**-4.193*****
	[0.986]	[1.007]	**[0.350]**				[1.135]	[1.188]	**[0.435]**
unemprate	-3.255*	-3.730**	**-2.047****	-2.203	-2.611	**-1.530**	-3.918	-4.288	**-2.309**
	[1.672]	[1.768]	**[0.827]**	[1.786]	[1.903]	**[0.934]**	[4.747]	[4.937]	**[2.029]**
occup2	0.656	0.680	**0.348**	-9.829***	-12.207***	**-2.981*****	0.252	0.298	**0.095**
	[1.098]	[1.161]	**[0.517]**	[0.719]	[0.744]	**[0.275]**	[1.127]	[1.140]	**[0.507]**
occup3	-0.301	-0.241	**-0.064**	-0.765	-0.696	**-0.244**	0.212	0.242	**0.072**
	[0.356]	[0.368]	**[0.160]**	[0.515]	[0.527]	**[0.226]**	[0.689]	[0.697]	**[0.291]**
occup4	1.090***	1.194***	**0.595*****	1.145***	1.265***	**0.664*****	0.890	0.918	**0.399**
	[0.341]	[0.359]	**[0.170]**	[0.422]	[0.443]	**[0.211]**	[0.771]	[0.799]	**[0.357]**
occup5	1.125***	1.237***	**0.628*****	1.125***	1.246***	**0.654*****	0.926	0.960	**0.358**
	[0.325]	[0.343]	**[0.162]**	[0.383]	[0.403]	**[0.193]**	[0.875]	[0.877]	**[0.364]**
occup6	2.558***	2.929***	**1.566*****	2.528***	2.884***	**1.565*****	3.103***	3.324***	**1.647*****
	[0.315]	[0.369]	**[0.185]**	[0.383]	[0.437]	**[0.221]**	[0.850]	[0.907]	**[0.438]**
occup7	1.415***	1.558***	**0.784*****	1.412***	1.567***	**0.815*****	1.168*	1.270**	**0.570***
	[0.276]	[0.296]	**[0.141]**	[0.345]	[0.368]	**[0.176]**	[0.612]	[0.639]	**[0.294]**
occup8	0.388	0.468	**0.273**	-0.599	-0.545	**-0.246**	3.758***	3.947***	**1.742*****
	[0.644]	[0.671]	**[0.316]**	[1.051]	[1.059]	**[0.435]**	[1.110]	[1.223]	**[0.581]**
h1	-3.455***	-3.388***	**-1.796*****	-2.740***	-2.731***	**-1.507*****	-7.565***	-7.613***	**-3.257*****
	[0.198]	[0.205]	**[0.096]**	[0.230]	[0.242]	**[0.124]**	[0.468]	[0.492]	**[0.202]**
h2	-3.787***	-3.739***	**-1.963*****	-3.146***	-3.169***	**-1.715*****	-7.382***	-7.471***	**-3.256*****
	[0.237]	[0.248]	**[0.117]**	[0.274]	[0.293]	**[0.148]**	[0.469]	[0.499]	**[0.218]**
h3	-4.775***	-4.808***	**-2.471*****	-4.122***	-4.228***	**-2.262*****	-8.405***	-8.536***	**-3.734*****
	[0.363]	[0.370]	**[0.168]**	[0.406]	[0.414]	**[0.197]**	[0.724]	[0.749]	**[0.292]**
h4	-2.911***	-2.823***	**-1.516*****	-2.469***	-2.458***	**-1.371*****	-5.990***	-6.033***	**-2.591*****
	[0.238]	[0.250]	**[0.121]**	[0.284]	[0.303]	**[0.159]**	[0.380]	[0.390]	**[0.169]**
h5	-4.275***	-4.265***	**-2.194*****	-3.925***	-4.010***	**-2.176*****	-7.012***	-7.078***	**-3.076*****
	[0.473]	[0.487]	**[0.222]**	[0.599]	[0.607]	**[0.282]**	[0.699]	[0.714]	**[0.294]**
h6	-4.976***	-4.973***	**-2.478*****	-4.775***	-4.858***	**-2.522*****	-7.534***	-7.601***	**-3.245*****
	[0.721]	[0.740]	**[0.315]**	[1.008]	[1.021]	**[0.415]**	[1.030]	[1.058]	**[0.419]**
h7	-5.519***	-5.539***	**-2.832*****	-4.578***	-4.668***	**-2.492*****	-21.958***	-22.118***	**-7.205*****
	[1.002]	[0.996]	**[0.380]**	[1.010]	[1.010]	**[0.414]**	[0.223]	[0.229]	**[0.096]**
h8	-2.860***	-2.708***	**-1.425*****	-2.585***	-2.559***	**-1.426*****	-5.558***	-5.496***	**-2.278*****
	[0.345]	[0.375]	**[0.182]**	[0.466]	[0.504]	**[0.259]**	[0.517]	[0.546]	**[0.231]**
h9	-3.870***	-3.840***	**-2.043*****	-2.944***	-2.952***	**-1.644*****	-21.840***	-21.923***	**-6.874*****
	[0.725]	[0.752]	**[0.338]**	[0.747]	[0.805]	**[0.395]**	[0.231]	[0.234]	**[0.071]**
h10	-3.635***	-3.626***	**-1.982*****	-2.629***	-2.652***	**-1.532*****	-21.874***	-21.955***	**-6.885*****
	[0.700]	[0.713]	**[0.331]**	[0.730]	[0.775]	**[0.398]**	[0.232]	[0.236]	**[0.070]**
h11	-2.260***	-2.228***	**-1.278*****	-0.513	-0.367	**-0.283**	-21.910***	-21.967***	**-6.943*****
	[0.544]	[0.585]	**[0.319]**	[0.560]	[0.672]	**[0.419]**	[0.282]	[0.287]	**[0.081]**
h12	-1.414**	-1.186*	**-0.697***	0.584	0.710	**0.206**	-4.573***	-4.530***	**-1.842*****
	[0.630]	[0.706]	**[0.391]**	[0.843]	[1.043]	**[0.679]**	[0.719]	[0.792]	**[0.450]**
Wald chi2	1846.401	1629.587	**2654.124**	1404.015	1506.647	**2207.925**	89995.071	90381.722	**193324.263**
Prob>chi2	0.000	0.000	**0.000**	0.000	0.000	**0.000**	0.000	0.000	**0.000**
AIC	**0.362**	**0.362**	**0.361**	0.507	0.507	**0.506**	0.206	0.206	**0.205**
Log-Likelihood	**-718.56**	**-717.25**	**-715.15**	**-514.80**	**-514.63**	**-514.30**	**-168.13**	**-168.22**	**-167.45**
LR of Occup	124.73	127.09	**130.16**	110.56	111.54	**113.52**	24.05	23.83	**24.78**
Prob>chi2	0	0	**0**	0	0	**0**	0	0	**0**
Observations	4191	4191	**4191**	2178	2178	**2178**	2013	2013	**2013**

Note: See Table 3.10

Table 5.9: Estimation Results for First-time Job-Seekers under Broad-Definition

Variables	ALL			MALE			FEMALE		
	Proportional	Log-log	**Log-Normal**	Proportional	Log-log	**Log-Normal**	**Proportional**	Log-log	Log-Normal
urban	0.409***	0.461***	**0.228*** **	0.374**	0.411**	**0.209** **	**0.685***	0.741*	0.312*
	[0.148]	[0.162]	**[0.078]**	[0.162]	[0.175]	**[0.086]**	**[0.383]**	[0.415]	[0.182]
female	-0.719***	-0.786***	**-0.380*** **						
	[0.134]	[0.142]	**[0.066]**						
married	-0.228	-0.257	**-0.117**	-0.264	-0.296	**-0.149**	**-1.078*** **	-1.147***	-0.532***
	[0.229]	[0.250]	**[0.123]**	[0.227]	[0.246]	**[0.122]**	**[0.404]**	[0.410]	[0.169]
FemMar	-0.850**	-0.868**	**-0.426** **						
	[0.424]	[0.438]	**[0.192]**						
Marmara	0.503***	0.513**	**0.249** **	0.383*	0.390*	**0.198***	**0.714***	0.746*	0.314*
	[0.187]	[0.203]	**[0.098]**	[0.217]	[0.236]	**[0.120]**	**[0.391]**	[0.415]	[0.176]
Aegean	0.101	0.113	**0.077**	0.068	0.072	**0.065**	**0.300**	0.312	0.136
	[0.222]	[0.242]	**[0.117]**	[0.265]	[0.289]	**[0.146]**	**[0.415]**	[0.440]	[0.193]
Mediterrian	-0.136	-0.173	**-0.120**	-0.072	-0.102	**-0.080**	**-0.475**	-0.481	-0.241
	[0.215]	[0.227]	**[0.105]**	[0.244]	[0.260]	**[0.126]**	**[0.487]**	[0.493]	[0.194]
BlackSea	-0.274	-0.344	**-0.202***	-0.170	-0.233	**-0.146**	**-0.486**	-0.526	-0.283
	[0.208]	[0.221]	**[0.105]**	[0.240]	[0.256]	**[0.128]**	**[0.418]**	[0.433]	[0.184]
EastAnatolia	0.140	0.078	**-0.015**	0.255	0.218	**0.074**	**-0.760**	-0.848	-0.444
	[0.201]	[0.218]	**[0.106]**	[0.219]	[0.239]	**[0.121]**	**[0.620]**	[0.647]	[0.278]
SouthEastAnatolia	0.094	0.058	**-0.009**	0.214	0.189	**0.073**	**-0.859**	-0.902	-0.477
	[0.244]	[0.263]	**[0.126]**	[0.258]	[0.279]	**[0.139]**	**[1.024]**	[1.021]	[0.384]
Primary	0.120	0.142	**0.073**	0.339	0.377	**0.203**	**-0.799**	-0.811	-0.333
	[0.387]	[0.407]	**[0.200]**	[0.457]	[0.476]	**[0.236]**	**[0.823]**	[0.864]	[0.383]
Middle	0.117	0.125	**0.058**	0.339	0.364	**0.195**	**-0.853**	-0.864	-0.367
	[0.398]	[0.419]	**[0.206]**	[0.467]	[0.487]	**[0.242]**	**[0.846]**	[0.886]	[0.403]
High	0.241	0.255	**0.127**	0.285	0.312	**0.175**	**-0.192**	-0.189	-0.095
	[0.394]	[0.414]	**[0.204]**	[0.466]	[0.485]	**[0.240]**	**[0.855]**	[0.887]	[0.395]
VocHigh	0.144	0.192	**0.131**	0.252	0.300	**0.197**	**-0.081**	-0.071	-0.026
	[0.407]	[0.429]	**[0.211]**	[0.477]	[0.498]	**[0.247]**	**[0.876]**	[0.916]	[0.409]
TwoYear Un.	0.205	0.233	**0.164**	0.325	0.379	**0.250**	**-0.433**	-0.363	-0.059
	[0.444]	[0.474]	**[0.234]**	[0.527]	[0.557]	**[0.280]**	**[0.922]**	[0.990]	[0.435]
FourYear Un. Plus	0.855*	0.958**	**0.511** **	0.825	0.945	**0.532***	**0.714**	0.743	0.366
	[0.455]	[0.482]	**[0.235]**	[0.547]	[0.577]	**[0.287]**	**[0.934]**	[0.971]	[0.426]
age2024	0.310**	0.333**	**0.151** **	0.428***	0.461***	**0.232*** **	**-0.309**	-0.291	-0.130
	[0.133]	[0.142]	**[0.069]**	[0.146]	[0.156]	**[0.078]**	**[0.303]**	[0.318]	[0.138]
age2534	-0.241	-0.231	**-0.111**	-0.201	-0.201	**-0.071**	**-0.567**	-0.579	-0.271
	[0.182]	[0.193]	**[0.091]**	[0.210]	[0.225]	**[0.110]**	**[0.380]**	[0.392]	[0.165]
age3544	-0.592	-0.629	**-0.328***	-0.624	-0.641	**-0.286**	**-1.050**	-1.088	-0.512*
	[0.400]	[0.415]	**[0.185]**	[0.597]	[0.636]	**[0.293]**	**[0.644]**	[0.671]	[0.287]
age4554	0.092	0.111	**0.070**				**-0.397**	-0.401	-0.110
	[0.718]	[0.743]	**[0.345]**				**[0.789]**	[0.837]	[0.395]
age55pl	-15.077***	-14.683***	**-4.151*** **	-14.065***	-15.045***	**-4.041*** **	**-14.246*** **	-15.070***	-3.644***
	[0.689]	[0.620]	**[0.155]**	[0.667]	[0.470]	**[0.195]**	**[0.977]**	[1.154]	[0.346]
unemprate	-3.720***	-4.024***	**-1.968*** **	-3.842***	-4.158***	**-2.064*** **	**-2.285**	-2.530	-1.423
	[1.272]	[1.337]	**[0.619]**	[1.408]	[1.486]	**[0.720]**	**[2.912]**	[2.967]	[1.208]
occup2	0.071	0.067	**0.038**	-0.086	-0.096	**-0.038**	**0.062**	0.134	0.064
	[0.764]	[0.809]	**[0.373]**	[1.045]	[1.087]	**[0.513]**	**[1.186]**	[1.286]	[0.530]
occup3	-1.438***	-1.436***	**-0.588*** **	-1.781***	-1.786***	**-0.743*** **	**-1.191*** **	-1.232***	-0.515***
	[0.262]	[0.273]	**[0.118]**	[0.361]	[0.374]	**[0.166]**	**[0.427]**	[0.437]	[0.175]
occup4	0.519**	0.575**	**0.316*** **	0.580**	0.643**	**0.359** **	**0.033**	0.015	0.041
	[0.239]	[0.252]	**[0.121]**	[0.271]	[0.288]	**[0.145]**	**[0.615]**	[0.632]	[0.262]
occup5	0.370	0.414*	**0.234** **	0.285	0.336	**0.210**	**0.423**	0.408	0.162
	[0.233]	[0.246]	**[0.116]**	[0.271]	[0.286]	**[0.142]**	**[0.519]**	[0.528]	[0.223]
occup6	2.028***	2.296***	**1.256*** **	1.819***	2.060***	**1.160*** **	**3.047*** **	3.208***	1.559***
	[0.230]	[0.265]	**[0.136]**	[0.264]	[0.303]	**[0.161]**	**[0.525]**	[0.572]	[0.275]
occup7	0.646***	0.702***	**0.370*** **	0.610***	0.674***	**0.370*** **	**0.453**	0.487	0.256
	[0.203]	[0.215]	**[0.103]**	[0.236]	[0.251]	**[0.126]**	**[0.429]**	[0.449]	[0.195]
occup8	0.094	0.111	**0.080**	-0.383	-0.380	**-0.176**	**2.084** **	2.174**	0.970**
	[0.488]	[0.508]	**[0.244]**	[0.615]	[0.627]	**[0.289]**	**[0.926]**	[0.977]	[0.452]
h1	-3.764***	-3.737***	**-1.910*** **	-3.461***	-3.458***	**-1.768*** **	**-5.526*** **	-5.537***	-2.632***
	[0.154]	[0.161]	**[0.074]**	[0.183]	[0.193]	**[0.088]**	**[0.362]**	[0.369]	[0.148]
h2	-3.809***	-3.787***	**-1.929*** **	-3.552***	-3.561***	**-1.817*** **	**-5.134*** **	-5.178***	-2.494***
	[0.170]	[0.180]	**[0.083]**	[0.197]	[0.209]	**[0.098]**	**[0.365]**	[0.388]	[0.166]
h3	-4.598***	-4.624***	**-2.334*** **	-4.274***	-4.329***	**-2.203*** **	**-6.309*** **	-6.405***	-3.036***
	[0.244]	[0.252]	**[0.113]**	[0.278]	[0.289]	**[0.130]**	**[0.585]**	[0.601]	[0.239]
h4	-2.912***	-2.829***	**-1.462*** **	-2.845***	-2.801***	**-1.429*** **	**-3.635*** **	-3.655***	-1.851***
	[0.161]	[0.172]	**[0.082]**	[0.198]	[0.214]	**[0.104]**	**[0.265]**	[0.273]	[0.119]
h5	-3.222***	-3.158***	**-1.629*** **	-3.067***	-3.041***	**-1.566*** **	**-3.957*** **	-3.992***	-2.035***
	[0.209]	[0.223]	**[0.107]**	[0.249]	[0.268]	**[0.133]**	**[0.378]**	[0.384]	[0.165]
h6	-4.070***	-4.057***	**-2.041*** **	-4.043***	-4.083***	**-2.083*** **	**-4.546*** **	-4.580***	-2.253***
	[0.371]	[0.391]	**[0.178]**	[0.466]	[0.488]	**[0.227]**	**[0.603]**	[0.619]	[0.251]
h7	-4.853***	-4.885***	**-2.465*** **	-4.321***	-4.386***	**-2.251*** **	**-18.178*** **	-18.966***	-5.888***
	[0.579]	[0.587]	**[0.248]**	[0.585]	[0.601]	**[0.273]**	**[0.191]**	[0.184]	[0.106]
h8	-2.541***	-2.361***	**-1.200*** **	-2.593***	-2.502***	**-1.283*** **	**-2.948*** **	-2.920***	-1.490***
	[0.247]	[0.274]	**[0.137]**	[0.326]	[0.364]	**[0.192]**	**[0.339]**	[0.361]	[0.170]
h9	-18.089***	-17.637***	**-6.183*** **	-17.204***	-18.177***	**-6.193*** **	**-18.229*** **	-18.924***	-5.839***
	[0.229]	[0.273]	**[0.143]**	[0.372]	[0.389]	**[0.187]**	**[0.240]**	[0.231]	[0.084]
h10	-18.089***	-17.637***	**-6.183*** **	-17.204***	-18.177***	**-6.193*** **	**-18.229*** **	-18.924***	-5.839***
	[0.229]	[0.273]	**[0.143]**	[0.372]	[0.389]	**[0.187]**	**[0.240]**	[0.231]	[0.084]
h11	-2.265***	-2.146***	**-1.108*** **	-1.668***	-1.462***	**-0.693** **	**-3.632*** **	-3.638***	-1.843***
	[0.364]	[0.419]	**[0.219]**	[0.427]	[0.555]	**[0.314]**	**[0.745]**	[0.779]	[0.349]
h12	-2.080***	-1.921***	**-1.010*** **	-2.023***	-1.850**	**-0.898***	**-2.637*** **	-2.637***	-1.408***
	[0.486]	[0.542]	**[0.280]**	[0.775]	[0.920]	**[0.482]**	**[0.600]**	[0.624]	[0.323]
Wald chi2	19361.23	13093.93	**12301.91**	6712.65	8375.22	**6784.27**	**49672.74**	69149.77	41541.402
Prob>chi2	0.000	0.000	**0.000**	0.000	0.000	**0.000**	**0.000**	0.000	0.000
AIC	**0.326**	**0.325**	**0.324**	**0.472**	**0.472**	**0.472**	**0.180**	**0.180**	**0.181**
Log-Likelihood	**-1276.212**	**-1274.351**	**-1269.734**	**-927.521**	**-927.073**	**-925.885**	**-321.017**	**-322.053**	**-322.457**
LR of Occup	250.648	252.336	**255.02**	193.79	194.48	**196.818**	**74.138**	72.062	69.748
Prob>chi2	0	0	**0**	0	0	**0**	**0**	0	0
Observations	8091	8091	**8091**	4087	4087	**4087**	**4004**	4004	4004

Note: See Table 3.10

5.4.2.3 Covariate Effects for the Other-Job-Seekers

The estimation results for the other-job-seekers are provided in the Tables 5.10 and 5.11. Table 5.10 shows that living in "urban" areas have significant affect on the probability of finding job only at 10 percent level under the ILO definition of unemployment, for the whole sample data. The significance level increases to 5 percent if we use the broad definition of unemployment (see Table 5.11). If we look at the estimation results under gender difference we observe a similar result for women as for the whole sample, but not for men.

Likewise, for the variables of "female", "FemMar" and "married" we observe that for both the ILO and the broad definition of unemployment, other-job-seeker women (and married-women) have longer unemployment durations than other-unemployed men. However, our conclusion about the effect of marriage on the unemployment duration changes when we estimate our models under gender separation. The effect of this variable on the hazard (or on the probability of finding a job) is positive and significant in the case of men under both definitions of unemployment, but not significant for women.

Furthermore, regarding the estimation results for the education level dummies we find the parallel results with our previous findings as for the pooled data under the ILO definition of unemployment. As can be seen from the Table 5.10, more educated individuals have shorter unemployment durations than the base category of non-graduates under this definition. Our conclusion changes if we consider the results under broad definition of unemployment. It is observed from Table 5.11 that only having a university degree makes a significant and positive effect on the probability of getting job, while the other education levels do not make significant effects. The significance level of the education dummies slightly changes, but not their signs, if we look at the estimation results considering the gender difference under the ILO definition of unemployment (see Table 5.10). Regarding the age variables, we find the expected results that the increases in age decreases the probability of finding a job under both definitions of unemployment. However, the significant difference is observed for the ages more than 35 (25) under the ILO (broad) definition of unemployment without considering the gender difference. With regard to estimation results under gender separation we observe the similar results. Overall findings imply that older individuals, particularly in their mid-career and late-career, have

longer unemployment durations than the younger or the youngest ones.

Further, as in the pooled data models, estimation results related to local (province level) unemployment rate, for each of the alternative models under both definitions and also under gender separation, produce the same result. Hence, individuals who live in provinces with high-unemployment rate have less chance of finding a job, regardless of gender difference.

Concerning the estimation results for the occupation dummies we see that the inclusion of these dummies, again make significant contribution to our estimation results. It is observed from Tables 5.10 and 5.11 the individuals in the following occupations have shorter unemployment duration than the base category of "Professionals and etc." These occupations are "managerial and related", "sales workers", "agricultural workers" and "non-agricultural workers" under the ILO definition of unemployment. The results for these occupations do not change under broad definition of unemployment. The estimation results under gender separation give only one important difference. Working as a managerial worker increases the probability of finding a job for men, while it decreases the same probability for women regardless of the definition of unemployment used.

Table 5.10 Estimation Results for the Other Job-Seekers under ILO Definition

Variables	ALL			MALE			FEMALE		
	Proportional	Log-log	Log-Normal	Proportional	Log-log	Log-Normal	Proportional	Log-log	Log-Normal
urban	0.151	0.177	**0.109***	0.118	0.135	**0.083**	2.065*	**2.101***	0.916**
	[0.102]	[0.115]	**[0.062]**	[0.105]	[0.119]	**[0.065]**	[1.208]	**[1.218]**	[0.437]
female	-0.442***	-0.450**	**-0.203****						
	[0.165]	[0.177]	**[0.088]**						
married	0.584***	0.659***	**0.365*****	0.568***	0.643***	**0.355*****	-0.257	**-0.287**	-0.120
	[0.109]	[0.121]	**[0.065]**	[0.114]	[0.128]	**[0.070]**	[0.307]	**[0.319]**	[0.147]
FemMar	-0.926***	-1.020***	**-0.534*****						
	[0.265]	[0.280]	**[0.135]**						
Marmara	-0.071	-0.087	**-0.046**	-0.054	-0.066	**-0.032**	-0.438	**-0.437**	-0.189
	[0.119]	[0.132]	**[0.070]**	[0.124]	[0.138]	**[0.074]**	[0.484]	**[0.496]**	[0.227]
Aegean	-0.037	-0.052	**-0.025**	0.007	-0.000	**0.003**	-0.511	**-0.478**	-0.149
	[0.135]	[0.150]	**[0.080]**	[0.139]	[0.157]	**[0.085]**	[0.627]	**[0.639]**	[0.271]
Mediterrianean	0.112	0.121	**0.067**	0.070	0.071	**0.040**	0.197	**0.226**	0.116
	[0.130]	[0.145]	**[0.077]**	[0.137]	[0.153]	**[0.083]**	[0.534]	**[0.538]**	[0.242]
BlackSea	-0.096	-0.130	**-0.080**	-0.046	-0.071	**-0.045**	-0.771	**-0.799**	-0.351
	[0.146]	[0.162]	**[0.087]**	[0.153]	[0.171]	**[0.094]**	[0.600]	**[0.610]**	[0.273]
EastAnatolia	0.157	0.161	**0.087**	0.151	0.149	**0.079**	0.780	**0.746**	0.325
	[0.161]	[0.184]	**[0.102]**	[0.164]	[0.188]	**[0.105]**	[1.153]	**[1.199]**	[0.625]
SouthEastAnatolia	0.351**	0.378**	**0.200****	0.430***	0.483***	**0.266*****	-1.922	**-1.953**	-0.718
	[0.140]	[0.160]	**[0.088]**	[0.143]	[0.165]	**[0.092]**	[1.198]	**[1.239]**	[0.508]
Primary	0.447**	0.503**	**0.271*****	0.404**	0.461**	**0.258****	0.630	**0.625**	0.194
	[0.183]	[0.196]	**[0.102]**	[0.186]	[0.202]	**[0.106]**	[1.117]	**[1.148]**	[0.422]
Middle	0.446**	0.505**	**0.269****	0.359*	0.407*	**0.220***	1.485	**1.534**	0.652
	[0.200]	[0.216]	**[0.113]**	[0.204]	[0.223]	**[0.118]**	[1.143]	**[1.171]**	[0.439]
High	0.378*	0.433*	**0.242****	0.254	0.292	**0.166**	1.561	**1.644**	0.720*
	[0.211]	[0.228]	**[0.119]**	[0.219]	[0.239]	**[0.126]**	[1.128]	**[1.154]**	[0.431]
VocHigh	0.446*	0.515**	**0.286****	0.357	0.417	**0.231**	1.293	**1.354**	0.579
	[0.235]	[0.254]	**[0.132]**	[0.247]	[0.271]	**[0.143]**	[1.183]	**[1.220]**	[0.462]
TwoYear Un.	1.608***	1.818***	**0.973*****	1.461***	1.671***	**0.911*****	2.747**	**2.877****	1.301***
	[0.293]	[0.330]	**[0.174]**	[0.321]	[0.370]	**[0.202]**	[1.208]	**[1.253]**	[0.489]
FourYear Un. Plus	1.019***	1.148***	**0.630*****	0.603*	0.664*	**0.355***	2.787**	**3.010****	1.420***
	[0.286]	[0.317]	**[0.167]**	[0.333]	[0.365]	**[0.194]**	[1.145]	**[1.194]**	[0.465]
age2024	-0.228	-0.237	**-0.108**	-0.307*	-0.332*	**-0.160**	-0.205	**-0.227**	-0.139
	[0.155]	[0.171]	**[0.090]**	[0.177]	[0.196]	**[0.106]**	[0.362]	**[0.383]**	[0.183]
age2534	-0.273*	-0.299*	**-0.158***	-0.309**	-0.345*	**-0.185***	-0.340	**-0.377**	-0.219
	[0.141]	[0.157]	**[0.084]**	[0.158]	[0.177]	**[0.097]**	[0.374]	**[0.384]**	[0.180]
age3544	-0.309**	-0.346**	**-0.193****	-0.311*	-0.351*	**-0.190***	-1.042*	**-1.115****	-0.597**
	[0.152]	[0.169]	**[0.091]**	[0.168]	[0.189]	**[0.104]**	[0.552]	**[0.556]**	[0.242]
age4554	-0.707***	-0.794***	**-0.441*****	-0.708***	-0.802***	**-0.445*****	-1.321*	**-1.367***	-0.656**
	[0.172]	[0.190]	**[0.101]**	[0.188]	[0.209]	**[0.114]**	[0.680]	**[0.711]**	[0.318]
age55pl	-1.051***	-1.160***	**-0.621*****	-1.062***	-1.183***	**-0.634*****	-15.453***	**-15.010*****	-4.306***
	[0.240]	[0.261]	**[0.135]**	[0.250]	[0.274]	**[0.145]**	[0.745]	**[0.755]**	[0.282]
unemprate	-4.408***	-4.958***	**-2.727*****	-4.125***	-4.669***	**-2.621*****	-7.854**	**-8.278****	-3.806**
	[0.874]	[0.954]	**[0.501]**	[0.914]	[1.005]	**[0.536]**	[3.613]	**[3.650]**	[1.560]
occup2	0.739**	0.879**	**0.497****	0.725*	0.877**	**0.500****	-14.117***	**-13.511*****	-3.463***
	[0.367]	[0.419]	**[0.220]**	[0.381]	[0.439]	**[0.233]**	[0.919]	**[0.950]**	[0.338]
occup3	-0.347	-0.340	**-0.152**	-0.565	-0.577	**-0.293**	-0.106	**-0.052**	0.012
	[0.280]	[0.294]	**[0.139]**	[0.367]	[0.386]	**[0.186]**	[0.481]	**[0.489]**	[0.222]
occup4	1.080***	1.193***	**0.630*****	0.989***	1.100***	**0.590*****	1.309**	**1.434****	0.702***
	[0.238]	[0.261]	**[0.131]**	[0.273]	[0.301]	**[0.156]**	[0.539]	**[0.559]**	[0.265]
occup5	0.309	0.360	**0.203**	0.075	0.096	**0.058**	1.814***	**2.003*****	0.988***
	[0.245]	[0.265]	**[0.131]**	[0.277]	[0.303]	**[0.154]**	[0.522]	**[0.557]**	[0.273]
occup6	1.720***	1.986***	**1.107*****	1.603***	1.882***	**1.067*****	2.425**	**2.575****	1.162**
	[0.248]	[0.276]	**[0.142]**	[0.279]	[0.313]	**[0.165]**	[1.053]	**[1.073]**	[0.490]
occup7	0.740***	0.814***	**0.432*****	0.583**	0.637**	**0.334****	1.669***	**1.835*****	0.902***
	[0.228]	[0.248]	**[0.122]**	[0.261]	[0.285]	**[0.145]**	[0.498]	**[0.525]**	[0.255]
occup8	-0.589	-0.585	**-0.249**	-0.970	-0.995	**-0.465**	1.564	**1.728**	0.872
	[0.556]	[0.574]	**[0.266]**	[0.643]	[0.662]	**[0.301]**	[1.133]	**[1.212]**	[0.591]
h1	-2.209***	-2.131***	**-1.214*****	-2.017***	-1.931***	**-1.120*****	-3.771***	**-3.709*****	-1.831***
	[0.064]	[0.068]	**[0.033]**	[0.075]	[0.080]	**[0.040]**	[0.230]	**[0.237]**	[0.101]
h2	-2.413***	-2.358***	**-1.336*****	-2.199***	-2.134***	**-1.228*****	-4.075***	**-4.042*****	-2.005***
	[0.087]	[0.095]	**[0.049]**	[0.098]	[0.107]	**[0.056]**	[0.350]	**[0.364]**	[0.156]
h3	-3.628***	-3.658***	**-1.992*****	-3.479***	-3.514***	**-1.945*****	-4.764***	**-4.759*****	-2.327***
	[0.196]	[0.203]	**[0.095]**	[0.213]	[0.221]	**[0.103]**	[0.514]	**[0.524]**	[0.222]
h4	-2.344***	-2.307***	**-1.324*****	-2.147***	-2.108***	**-1.231*****	-3.731***	**-3.696*****	-1.876***
	[0.120]	[0.131]	**[0.070]**	[0.131]	[0.145]	**[0.079]**	[0.358]	**[0.368]**	[0.169]
h5	-3.683***	-3.719***	**-2.027*****	-3.503***	-3.545***	**-1.973*****	-4.991***	**-4.962*****	-2.355***
	[0.332]	[0.338]	**[0.157]**	[0.353]	[0.359]	**[0.167]**	[1.053]	**[1.075]**	[0.376]
h6	-4.378***	-4.408***	**-2.289*****	-4.080***	-4.108***	**-2.158*****	-18.921***	**-18.307*****	-6.020***
	[0.504]	[0.514]	**[0.212]**	[0.507]	[0.519]	**[0.221]**	[0.217]	**[0.246]**	[0.102]
h7	-5.665***	-5.713***	**-2.845*****	-5.375***	-5.425***	**-2.728*****	-18.947***	**-18.329*****	-6.032***
	[0.999]	[1.003]	**[0.360]**	[1.001]	[1.006]	**[0.369]**	[0.226]	**[0.256]**	[0.106]
h8	-2.626***	-2.599***	**-1.466*****	-2.454***	-2.429***	**-1.403*****	-3.950***	**-3.910*****	-1.970***
	[0.239]	[0.255]	**[0.131]**	[0.253]	[0.271]	**[0.142]**	[0.761]	**[0.767]**	[0.323]
h9	-4.336***	-4.359***	**-2.236*****	-18.279***	-17.141***	**-5.869*****	-3.123***	**-3.109*****	-1.624***
	[0.719]	[0.737]	**[0.309]**	[0.129]	[0.148]	**[0.091]**	[0.728]	**[0.726]**	[0.353]
h10	-2.467***	-2.441***	**-1.399*****	-2.197***	-2.158***	**-1.256*****	-18.731***	**-18.127*****	-5.872***
	[0.312]	[0.332]	**[0.174]**	[0.315]	[0.340]	**[0.184]**	[0.353]	**[0.374]**	[0.150]
h11	-2.207***	-2.103***	**-1.173*****	-2.099***	-2.007***	**-1.145*****	-2.795***	**-2.813*****	-1.522***
	[0.396]	[0.443]	**[0.230]**	[0.425]	[0.470]	**[0.249]**	[0.938]	**[0.922]**	[0.472]
h12	-2.662***	-2.648***	**-1.517*****	-2.339***	-2.312***	**-1.359*****	-18.238***	**-17.595*****	-5.541***
	[0.699]	[0.731]	**[0.368]**	[0.700]	[0.735]	**[0.385]**	[0.469]	**[0.488]**	[0.151]
Wald chi2	3037.391	2472.497	**3247.354**	26055.059	17780.665	**7571.359**	43762.196	**32018.291**	56290.011
Prob>chi2	0.000	0.000	**0.000**	0.000	0.000	**0.000**	0.000	**0.000**	0.000
AIC	**0.641**	0.640	**0.640**	**0.729**	**0.728**	**0.728**	0.353	**0.353**	**0.354**
Log-Likelihood	**-2314.70**	-2313.23	**-2313.06**	**-2015.56**	**-2013.54**	**-2012.16**	-263.64	**-263.58**	**-264.27**
LR of Occup	160.15	162.57	**162.78**	152.83	156.17	**156.61**	35.92	**36.41**	35.83
Prob>chi2	0	0	**0**	0	0	**0**	0	**0**	0
Observations	7353	7353	**7353**	5638	5638	**5638**	1715	**1715**	1715

Note: See Table 3.10

Table 5.11 Estimation Results for the Other Job-Seekers under Broad Definition

Variables	ALL			MALE			FEMALE		
	Proportional	Log-log	Log-Normal	Proportional	Log-log	Log-Normal	Proportional	Log-log	Log-Normal
urban	0.153*	0.174*	**0.104****	0.102	0.114	**0.067**	1.520***	**1.621*****	0.784***
	[0.085]	[0.093]	**[0.049]**	[0.087]	[0.095]	**[0.051]**	[0.553]	**[0.578]**	[0.260]
female	-0.528***	-0.550***	**-0.263*****						
	[0.137]	[0.145]	**[0.071]**						
married	0.611***	0.670***	**0.359*****	0.588***	0.647***	**0.344*****	-0.099	**-0.118**	-0.055
	[0.093]	[0.102]	**[0.053]**	[0.098]	[0.107]	**[0.056]**	[0.245]	**[0.250]**	[0.112]
FemMar	-0.898***	-0.963***	**-0.479*****						
	[0.217]	[0.227]	**[0.107]**						
Marmara	-0.076	-0.084	**-0.042**	-0.097	-0.108	**-0.058**	0.153	**0.147**	0.059
	[0.101]	[0.109]	**[0.057]**	[0.105]	[0.115]	**[0.061]**	[0.464]	**[0.474]**	[0.200]
Aegean	-0.022	-0.026	**-0.012**	-0.008	-0.011	**-0.002**	-0.030	**-0.043**	-0.023
	[0.119]	[0.130]	**[0.068]**	[0.123]	[0.136]	**[0.073]**	[0.544]	**[0.552]**	[0.230]
Mediterrian	0.040	0.044	**0.027**	-0.023	-0.027	**-0.011**	0.526	**0.526**	0.208
	[0.112]	[0.121]	**[0.063]**	[0.118]	[0.128]	**[0.068]**	[0.480]	**[0.487]**	[0.205]
BlackSea	-0.181	-0.211	**-0.121***	-0.149	-0.176	**-0.101**	-0.246	**-0.285**	-0.167
	[0.123]	[0.134]	**[0.071]**	[0.129]	[0.141]	**[0.076]**	[0.540]	**[0.550]**	[0.234]
EastAnatolia	0.185	0.210	**0.129**	0.180	0.202	**0.122**	0.044	**0.037**	-0.013
	[0.131]	[0.147]	**[0.080]**	[0.132]	[0.149]	**[0.082]**	[1.162]	**[1.180]**	[0.498]
SouthEastAnatolia	0.235**	0.256*	**0.137***	0.250**	0.280**	**0.154****	-0.296	**-0.322**	-0.170
	[0.118]	[0.131]	**[0.071]**	[0.120]	[0.135]	**[0.074]**	[0.669]	**[0.688]**	[0.314]
Primary	0.157	0.170	**0.087**	0.189	0.202	**0.103**	-0.668	**-0.695**	-0.298
	[0.135]	[0.147]	**[0.077]**	[0.142]	[0.156]	**[0.082]**	[0.469]	**[0.494]**	[0.233]
Middle	0.008	0.009	**0.001**	-0.040	-0.053	**-0.040**	0.250	**0.253**	0.121
	[0.157]	[0.170]	**[0.088]**	[0.166]	[0.181]	**[0.095]**	[0.493]	**[0.521]**	[0.251]
High	0.037	0.046	**0.029**	0.011	0.010	**0.005**	0.022	**0.020**	0.017
	[0.162]	[0.176]	**[0.091]**	[0.172]	[0.188]	**[0.099]**	[0.503]	**[0.527]**	[0.249]
VocHigh	0.080	0.098	**0.058**	0.107	0.124	**0.065**	-0.353	**-0.365**	-0.149
	[0.194]	[0.210]	**[0.107]**	[0.207]	[0.227]	**[0.118]**	[0.555]	**[0.581]**	[0.269]
TwoYear Un.	0.838***	0.904***	**0.467*****	0.861**	0.949**	**0.521****	0.611	**0.647**	0.329
	[0.280]	[0.305]	**[0.158]**	[0.342]	[0.384]	**[0.206]**	[0.606]	**[0.640]**	[0.305]
FourYear Un. Plus	0.518**	0.578**	**0.321****	0.129	0.135	**0.078**	1.323**	**1.387****	0.670**
	[0.245]	[0.270]	**[0.140]**	[0.299]	[0.325]	**[0.169]**	[0.555]	**[0.594]**	[0.289]
age2024	-0.208	-0.218	**-0.103**	-0.308**	-0.336**	**-0.170***	0.073	**0.073**	0.023
	[0.131]	[0.143]	**[0.074]**	[0.149]	[0.164]	**[0.087]**	[0.298]	**[0.313]**	[0.149]
age2534	-0.321***	-0.351***	**-0.186*****	-0.340**	-0.379**	**-0.203****	-0.390	**-0.406**	-0.204
	[0.123]	[0.134]	**[0.070]**	[0.138]	[0.153]	**[0.082]**	[0.299]	**[0.312]**	[0.147]
age3544	-0.438***	-0.478***	**-0.256*****	-0.448***	-0.495***	**-0.265*****	-0.809*	**-0.837***	-0.408**
	[0.132]	[0.145]	**[0.076]**	[0.146]	[0.162]	**[0.087]**	[0.448]	**[0.457]**	[0.197]
age4554	-0.945***	-1.034***	**-0.553*****	-0.942***	-1.041***	**-0.561*****	-1.225**	**-1.262****	-0.594**
	[0.149]	[0.161]	**[0.084]**	[0.162]	[0.177]	**[0.094]**	[0.573]	**[0.585]**	[0.248]
age55pl	-1.325***	-1.440***	**-0.765*****	-1.349***	-1.475***	**-0.789*****	-0.138	**-0.238**	-0.220
	[0.209]	[0.222]	**[0.111]**	[0.219]	[0.235]	**[0.120]**	[1.018]	**[0.978]**	[0.462]
unemprate	-5.372***	-5.867***	**-3.110*****	-5.129***	-5.631***	**-3.024*****	-7.617***	**-7.862*****	-3.627***
	[0.734]	[0.786]	**[0.398]**	[0.773]	[0.831]	**[0.428]**	[2.620]	**[2.670]**	[1.149]
occup2	0.587**	0.662**	**0.362****	0.615**	0.700**	**0.385****	-13.843***	**-13.648*****	-3.329***
	[0.293]	[0.329]	**[0.174]**	[0.309]	[0.350]	**[0.186]**	[0.669]	**[0.683]**	[0.251]
occup3	-0.674***	-0.699***	**-0.331*****	-0.861***	-0.907***	**-0.452*****	-0.314	**-0.306**	-0.140
	[0.224]	[0.233]	**[0.108]**	[0.297]	[0.310]	**[0.145]**	[0.385]	**[0.396]**	[0.174]
occup4	0.750***	0.801***	**0.409*****	0.742***	0.798***	**0.417*****	0.769*	**0.823***	0.398**
	[0.185]	[0.198]	**[0.099]**	[0.217]	[0.235]	**[0.120]**	[0.429]	**[0.445]**	[0.201]
occup5	-0.029	-0.030	**-0.011**	-0.137	-0.152	**-0.079**	0.814*	**0.868***	0.400*
	[0.193]	[0.205]	**[0.100]**	[0.221]	[0.237]	**[0.119]**	[0.445]	**[0.461]**	[0.209]
occup6	1.248***	1.394***	**0.766*****	1.157***	1.301***	**0.721*****	2.244***	**2.414*****	1.178***
	[0.195]	[0.213]	**[0.110]**	[0.221]	[0.243]	**[0.127]**	[0.602]	**[0.639]**	[0.310]
occup7	0.370**	0.388**	**0.193****	0.297	0.303	**0.147**	1.006**	**1.057****	0.463**
	[0.177]	[0.189]	**[0.093]**	[0.205]	[0.221]	**[0.111]**	[0.427]	**[0.447]**	[0.203]
occup8	-0.602	-0.627	**-0.286**	-1.144**	-1.200**	**-0.583****	1.717**	**1.843****	0.892**
	[0.426]	[0.445]	**[0.208]**	[0.549]	[0.564]	**[0.251]**	[0.733]	**[0.794]**	[0.387]
h1	-2.471***	-2.411***	**-1.360*****	-2.290***	-2.221***	**-1.270*****	-3.480***	**-3.456*****	-1.839***
	[0.058]	[0.061]	**[0.030]**	[0.069]	[0.073]	**[0.036]**	[0.206]	**[0.210]**	[0.092]
h2	-2.433***	-2.372***	**-1.341*****	-2.233***	-2.160***	**-1.234*****	-3.546***	**-3.543*****	-1.900***
	[0.069]	[0.073]	**[0.037]**	[0.079]	[0.085]	**[0.043]**	[0.228]	**[0.236]**	[0.107]
h3	-3.387***	-3.392***	**-1.859*****	-3.202***	-3.203***	**-1.777*****	-4.329***	**-4.351*****	-2.251***
	[0.129]	[0.134]	**[0.063]**	[0.140]	[0.146]	**[0.070]**	[0.392]	**[0.397]**	[0.167]
h4	-2.266***	-2.201***	**-1.259*****	-2.074***	-2.001***	**-1.161*****	-3.182***	**-3.165*****	-1.738***
	[0.089]	[0.097]	**[0.051]**	[0.100]	[0.109]	**[0.058]**	[0.261]	**[0.267]**	[0.125]
h5	-2.624***	-2.587***	**-1.452*****	-2.437***	-2.396***	**-1.367*****	-3.510***	**-3.505*****	-1.885***
	[0.148]	[0.158]	**[0.081]**	[0.158]	[0.170]	**[0.088]**	[0.475]	**[0.483]**	[0.212]
h6	-3.446***	-3.442***	**-1.867*****	-3.135***	-3.119***	**-1.708*****	-18.049***	**-17.856*****	-5.787***
	[0.281]	[0.289]	**[0.132]**	[0.286]	[0.298]	**[0.142]**	[0.184]	**[0.193]**	[0.120]
h7	-4.730***	-4.744***	**-2.388*****	-4.833***	-4.850***	**-2.465*****	-4.523***	**-4.526*****	-2.243***
	[0.581]	[0.588]	**[0.237]**	[0.709]	[0.715]	**[0.276]**	[1.019]	**[1.040]**	[0.410]
h8	-2.291***	-2.209***	**-1.233*****	-2.134***	-2.048***	**-1.169*****	-2.978***	**-2.941*****	-1.604***
	[0.193]	[0.211]	**[0.111]**	[0.211]	[0.231]	**[0.122]**	[0.540]	**[0.562]**	[0.253]
h9	-18.508***	-17.326***	**-5.726*****	-17.187***	-18.390***	**-5.714*****	-17.774***	**-17.581*****	-5.486***
	[0.110]	[0.132]	**[0.050]**	[0.144]	[0.135]	**[0.062]**	[0.267]	**[0.274]**	[0.105]
h10	-18.508***	-17.326***	**-5.726*****	-17.187***	-18.390***	**-5.714*****	-17.774***	**-17.581*****	-5.486***
	[0.110]	[0.132]	**[0.050]**	[0.144]	[0.135]	**[0.062]**	[0.267]	**[0.274]**	[0.105]
h11	-2.288***	-2.224***	**-1.267*****	-2.093***	-2.026***	**-1.178*****	-3.100***	**-3.100*****	-1.753***
	[0.304]	[0.327]	**[0.172]**	[0.318]	[0.344]	**[0.185]**	[0.984]	**[0.979]**	[0.428]
h12	-2.828***	-2.809***	**-1.593*****	-2.493***	-2.460***	**-1.425*****	-17.515***	**-17.313*****	-5.325***
	[0.570]	[0.590]	**[0.286]**	[0.571]	[0.595]	**[0.301]**	[0.317]	**[0.323]**	[0.106]
Wald chi2	66441.544	41222.863	**43445.823**	35987.404	46122.561	**29136.488**	41146.071	**36991.230**	40631.405
Prob>chi2	0.000	0.000	**0.000**	0.000	0.000	**0.000**	0.000	**0.000**	0.000
AIC	**0.587**	**0.587**	**0.587**	**0.672**	**0.672**	**0.672**	**0.322**	**0.322**	**0.322**
Log-Likelihood	**-3359.521**	**-3358.463**	**-3357.876**	**-2917.859**	**-2916.43**	**-2914.853**	**-408.994**	**-408.903**	-409.086
LR of Occup	189.106	189.836	**189.758**	176.522	177.944	**177.792**	33.688	**34.188**	35.108
Prob>chi2	0	0	**0**	0	0	**0**	0	**0**	0
Observations	11581	11581	**11581**	8796	8796	**8796**	2785	**2785**	2785

Note: See Table 3.10

5.4.2.4 Duration Dependence

Figures 5.5 to 5.8 depict graphs of the baseline hazards at means of the explanatory variables for the first-time job-seekers as well as for the other job-seekers for each alternative distribution under the ILO and the broad definitions of unemployment. Main observations from the graphs can be summarized as follows.

The shape of the baseline hazard seems to be "tulip" or "U-shaped" for the first-time job-seekers and other-job-seekers when we look at the graphs without considering the gender difference (i.e. whole sample) under the ILO definition of unemployment. We observe that the hazard initially declines until about the third period (which corresponds to 9^{th} month), then increases sharply at fourth period, and next decreases until about the seventh period, after that increases. Even though, its shape is similar for the first-time job-seeker-men as for the whole sample, it is different for women under the ILO definition of unemployment. The hazard for first-time job-seeker women has no increasing or decreasing trend until about the 18^{th} month, and then has two dips about the 21^{st} month, and between the 27^{th} and 30^{th} months.

The figure of the baseline hazards under the broad definition of unemployment is slightly different from those under the ILO definition. Regardless of the labor market experience (for both first-time job-seekers and other-job-seekers) it has no time trend until about the end of the second year for the whole sample as well as for men under each alternative definitions of unemployment.

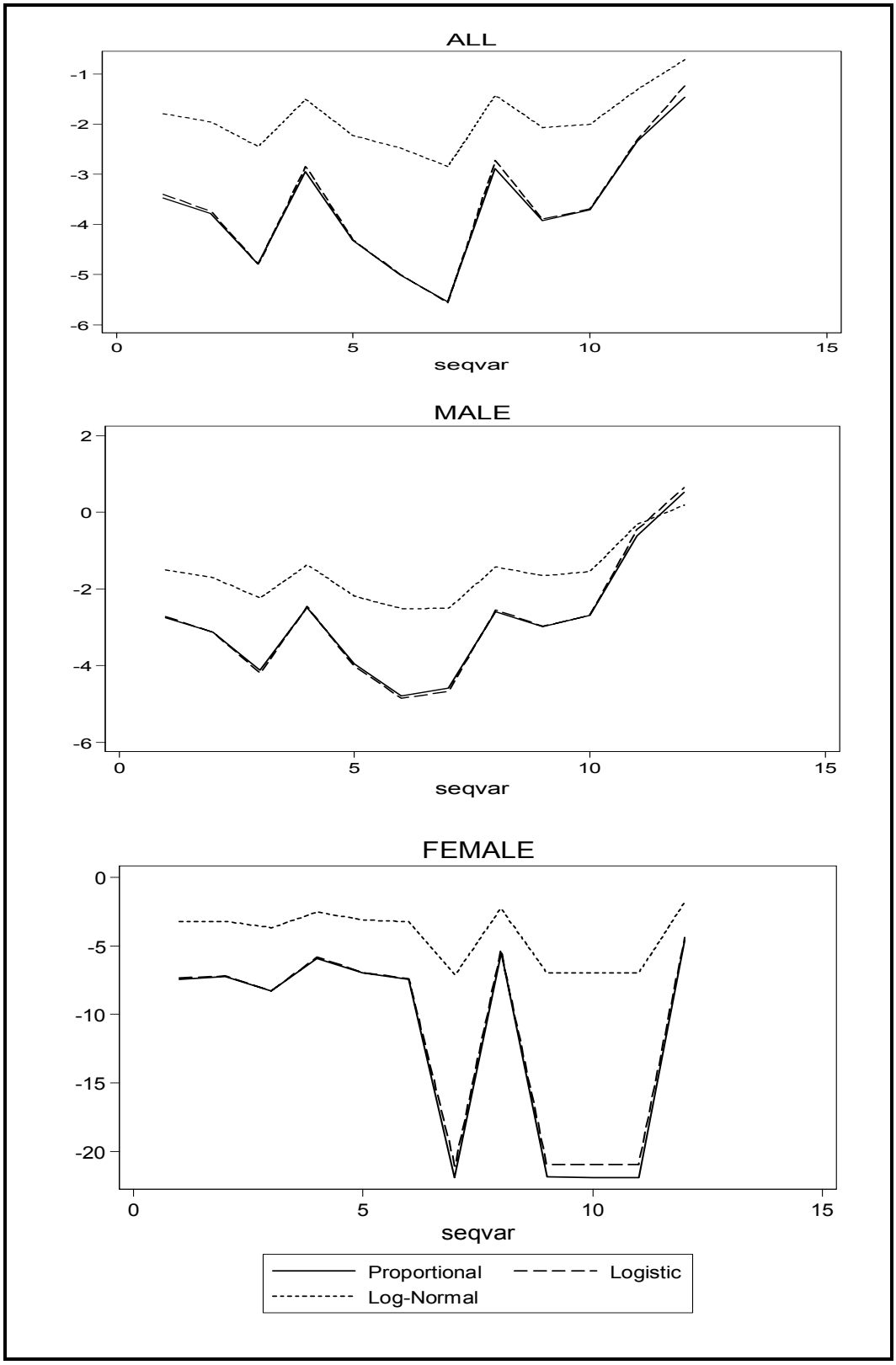

Figure 5.5: Baseline Hazard for First-time Job-Seekers under ILO Definition

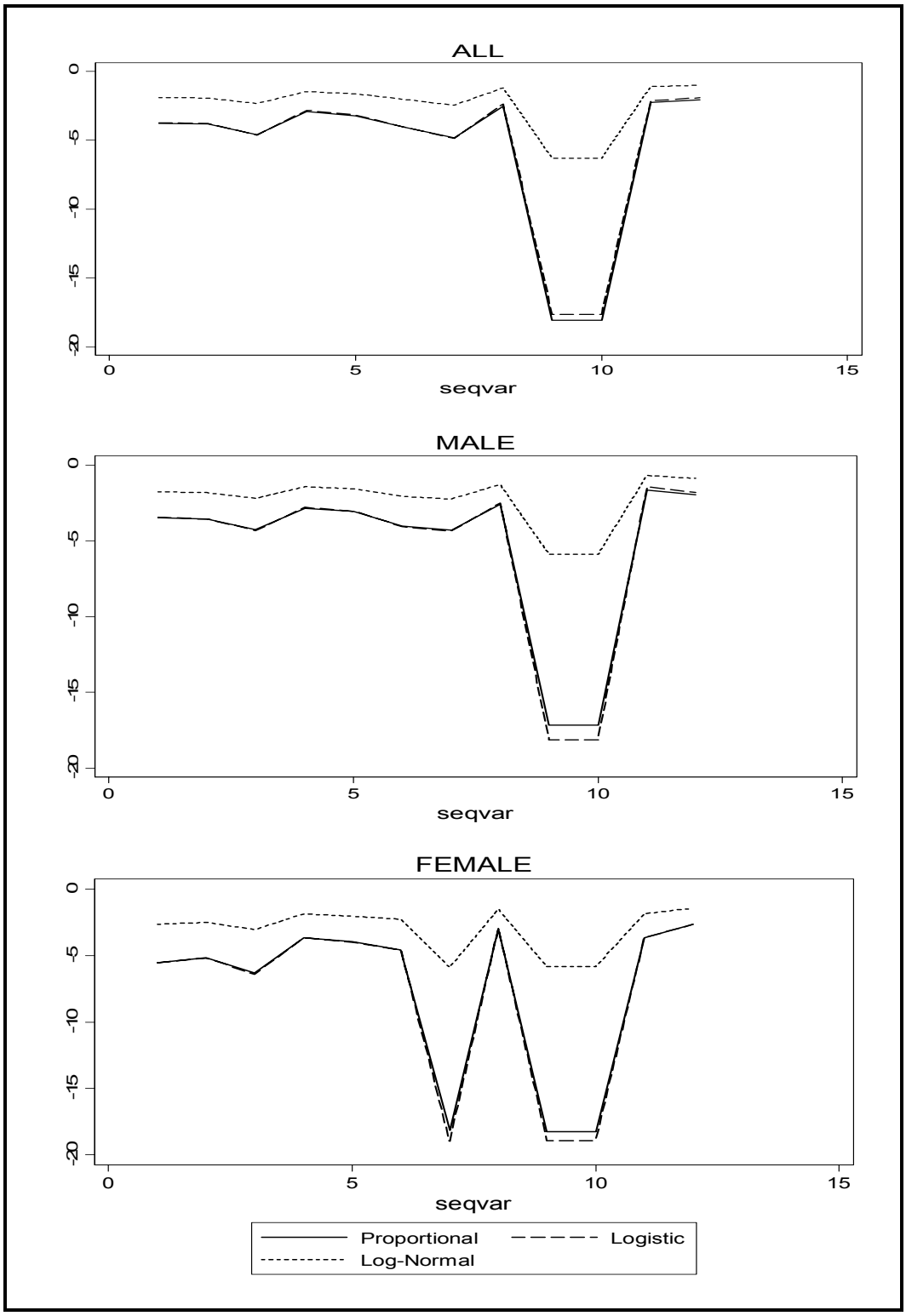

Figure 5.6: Baseline Hazard for First-time Job-Seekers under Broad Definition

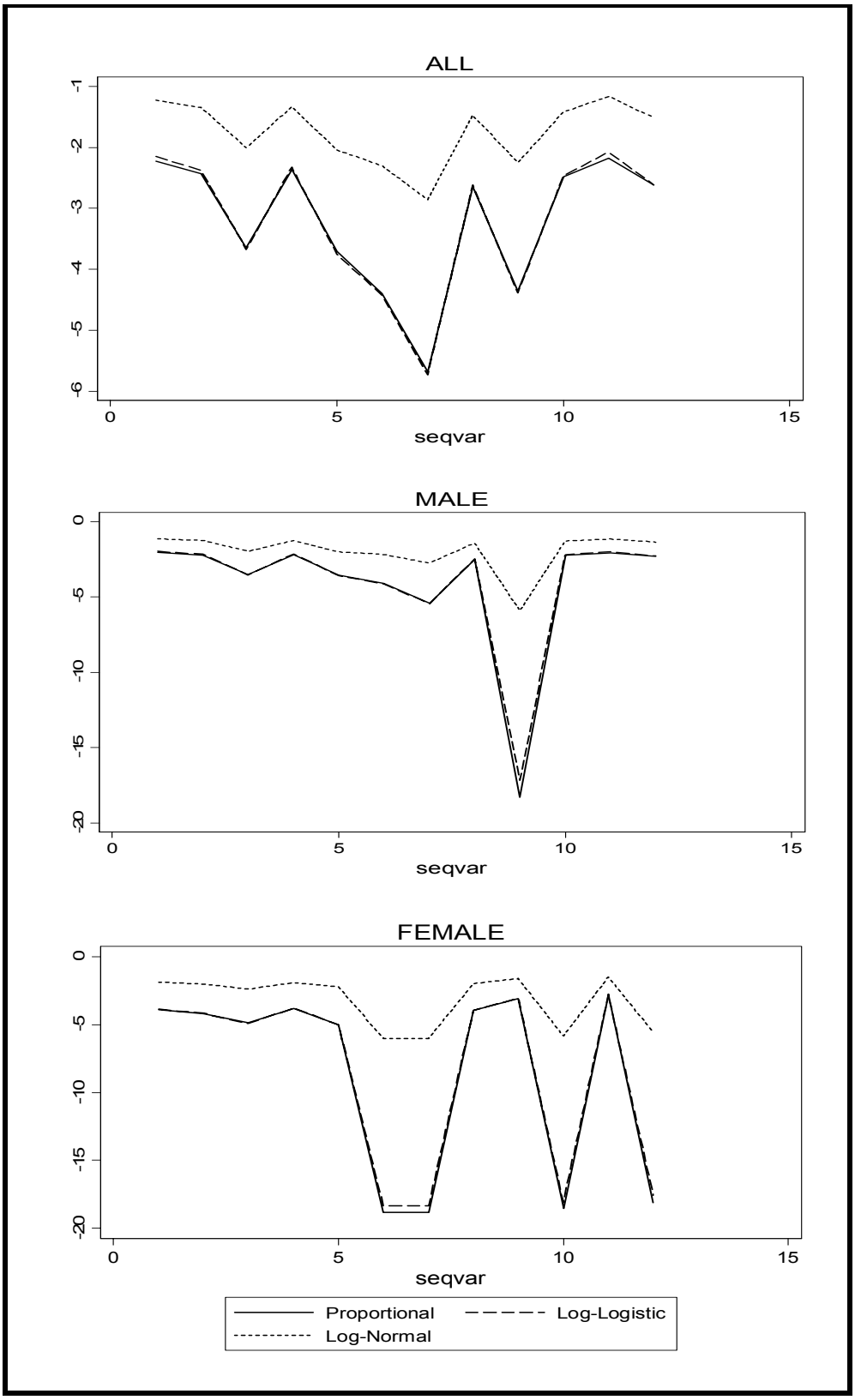

Figure 5.7: Baseline Hazard for Other Job-Seekers under ILO Definition

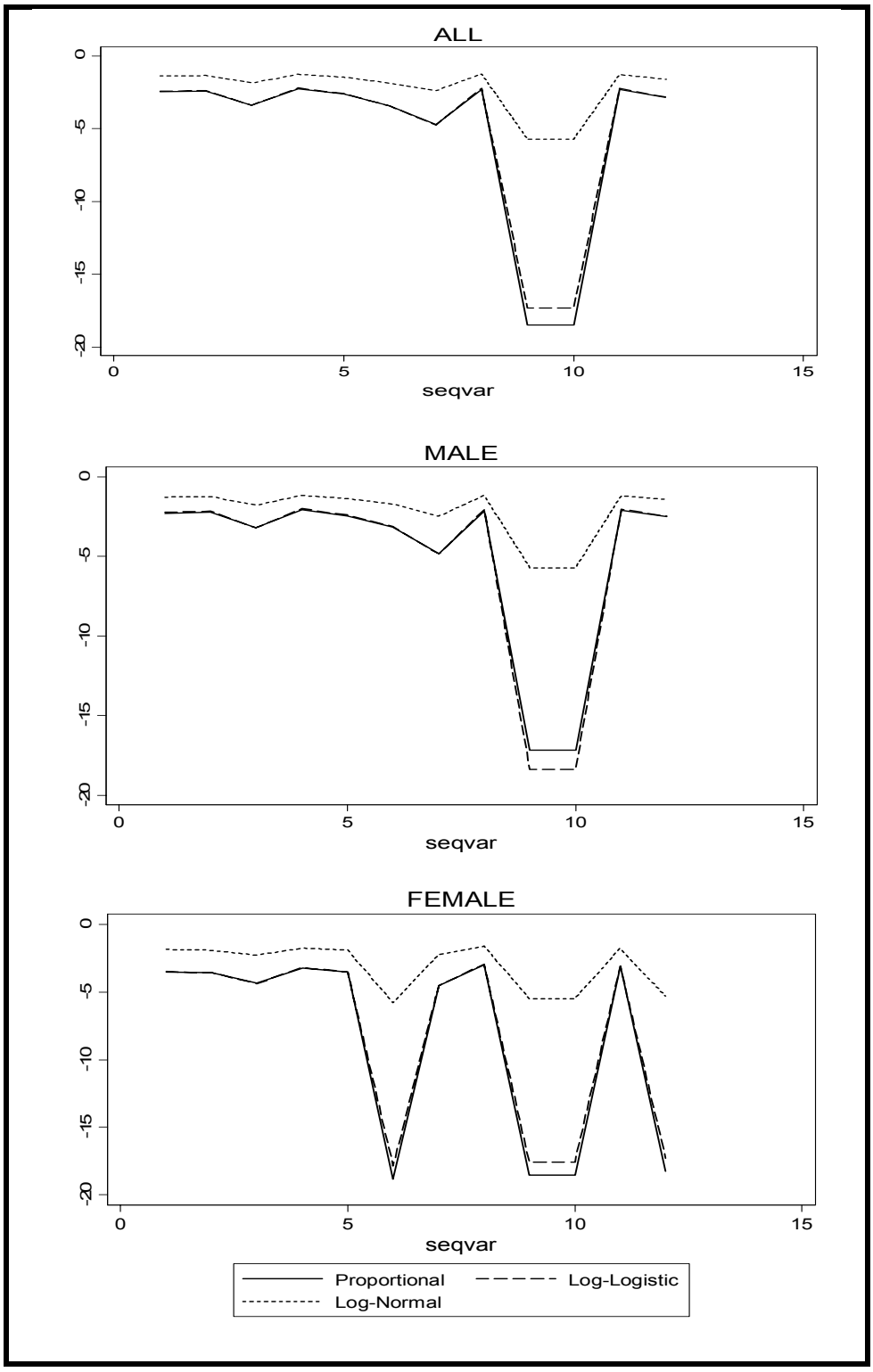

Figure 5.8: Baseline Hazard for Other Job-Seekers under Broad Definition

5.5 Predicted Hazards

In Tables 5.12 (a,b,c) and 5.13 (a,b,c) we provide the predicted hazard rates, i.e. probability of finding a job, in the first-three months of unemployment period for the first-time job-seekers and other-job-seekers, respectively, with selected properties. In the part (a) of these tables we provide the predicted hazard values by education levels for the individuals in the age between 25-34, urban resident, and married. The other remaining covariates are assumed to be in their mean values. In the second part (b) we differentiate the non-married individuals from the individuals in part (a). In the final part (c) we distinguish the rural residing individuals from the individuals in part (a). It is evident from all of the tables that, regardless of gender difference, the predicted hazard rate for the first-time job-seekers is lower than those for the other-job-seekers. This finding confirms our previous findings from the non-parametric as well as parametric estimation results in the Chapter 4 that first-time job-seekers have longer unemployment durations than the other-job-seekers. The results do not change regardless of using the ILO or broad definition of unemployment, under each alternative distribution. The difference between the other-job-seekers and first-time job-seekers is in its minimum level among the non-graduated individuals for both men and women. It is in its maximum level among the two-year university graduated men, and four-year university graduated women (see Table 5.12a, 5.13a). Regardless of the labor market experience (for both first-time job-seekers and the others) it observed that the predicted hazard for men is always larger than those for women. The conclusion does not change with the change in the education level.

We further observe that first-time job-seeker married men have approximately two times lower hazard rates than non-married men. In contrast to first-time job-seekers, for the other-job-seeker men we observe that the predicted hazard for the married is larger than that for the non-married one. The conclusion seems to not change for both non-graduates and university graduated individuals. Further, for women we notice the similar observation that for both first-time job-seekers and others, the non-married women are more likely to obtain a job within three months relative to married women (see Tables of 5.12a,b and 5.13a,b). It should be noted that the relaxation in the definition of unemployment does not change the above conclusion.

Regardless of the unemployment definition we also find that urban resident first-time job-seekers are more likely to find a job within three months than the rural residing

ones. The same conclusion also holds for the other-job-seekers. Another observation is that the difference between the non-graduate individuals and university graduates becomes lower if we look at the results under broad definition of unemployment rather than the ILO definition of unemployment (see Table 5.12a and 5.13a). This can be explained by the fact that the individuals included in the broad definition, who are not actively searching for a job, are mostly in the lower education levels (than university) relative to the ILO definition.

Regarding the results by education levels we observe that the lowest hazard rates for the non-graduates for the first-time job-seeker men as well as for the other job-seeker men. As for the first-time-job-seeker men, regardless of marital status, we further find that primary school graduate individuals are more likely to find a job than the middle or high school graduates (and also vocational high school graduates) ones under the ILO (broad) definition of unemployment. For instance as shown in Table 5.12a, the probability of obtaining a job within the first three months for the primary school graduate urban resident first-time job-seekers married male is 14.16 percent under log-normal distribution. However, the same probabilities for the middle and high school graduates are 13.78 and 12.66, respectively, with the above characteristics. It is also evident from the same table that the predicted hazard for vocational high school graduates of both married men and women are larger than those for the high-school graduates.

As for the first-time job-seeker women, regardless of marital status or residence, we find that the predicted hazard values for the non-graduate individuals is higher (i.e. they are more likely to find a job) than the other education levels, except both two-years or four-year university graduates under the ILO definition of unemployment. The same argument may not apply for the other job-seekers women. For these individuals we observe that the hazard for the non-graduate is always lower than the other remaining education levels and the highest hazard is observed for the four-years graduated ones under the ILO definition of unemployment. Similar observations, with a few exceptions, can also be seen with the broad definition of unemployment. We further find that the hazard for the vocational high-school graduates is lower than the high school graduates (for the other-job-seeker-female) under the ILO definition of unemployment (see Table 5.13a). While the hazard rate for the vocational high-school graduate females (males) is 21.87 (38.36) percent, the same probability for the high school graduates is 25.17 (35.95) percent under log-normal distribution.

When we look at the predicted hazards for the other-job-seeker men we observe that primary school graduates are more likely to find a job within three months than the other education levels, except two-year or four-year university under the ILO definition of unemployment, two-year university under the broad one. Regardless of the unemployment definition, the individuals with vocational high-school diploma can be considered as the fourth best group in finding a job.

Table 5.12a: The Predicted Hazard Rates for the First-time Job-Seekers with Selected Characteristics

	ILO Definiton: Married&Urban&age 25-34						Broad Definiton: Married&Urban& age 25-34					
	Proportional		Log-Logistic		Log-Normal		Proportional		Log-Logistic		Log-Normal	
Education Level	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Non-Graduate	2.02	0.07	1.87	0.06	12.13	3.45	2.32	0.49	2.25	0.48	13.06	6.88
Primary Sc.	2.72	0.01	2.57	0.01	14.16	1.66	3.25	0.22	3.28	0.21	15.99	4.93
Middle Sc.	2.68	0.03	2.50	0.02	13.78	2.38	3.25	0.21	3.24	0.20	15.87	4.77
High Sc.	2.16	0.06	2.01	0.05	12.66	3.30	3.08	0.40	3.07	0.40	15.56	6.26
Voc-High Sc.	3.10	0.06	2.90	0.05	15.31	3.32	2.98	0.45	3.04	0.45	15.90	6.70
Two-Year Un.	2.40	0.15	2.33	0.16	13.65	5.83	3.20	0.32	3.29	0.33	16.77	6.49
Four-Year Un.	5.03	0.29	5.81	0.28	22.29	7.02	5.29	1.00	5.79	1.01	22.22	9.92

Table 5.12b: The Predicted Hazard Rates for the First-Time Job-Seeker Non-Married Individuals with Selected Characteristics

	ILO Definiton: Non-married&age 25-34						Broad Definiton: Non-Married& age 25-34					
	Proportional		Log-Logistic		Log-Normal		Proportional		Log-Logistic		Log-Normal	
Education Level	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Non-Graduate	3.87	0.22	3.93	0.22	18.18	6.75	3.02	1.44	3.03	1.51	15.16	11.71
Primary Sc.	5.22	0.04	5.40	0.04	21.22	3.25	4.23	0.65	4.41	0.67	18.57	8.39
Middle Sc.	5.14	0.10	5.24	0.09	20.65	4.67	4.23	0.61	4.36	0.63	18.43	8.11
High Sc.	4.14	0.20	4.23	0.20	18.97	6.47	4.01	1.19	4.13	1.25	18.07	10.65
Voc-High Sc.	5.95	0.20	6.09	0.21	22.94	6.50	3.88	1.33	4.08	1.40	18.46	11.41
Two-Year Un.	4.60	0.53	4.88	0.61	20.46	11.43	4.18	0.93	4.42	1.05	19.47	11.04
Four-Year Un.	9.66	0.99	12.20	1.07	33.40	13.76	6.89	2.94	7.79	3.17	25.80	16.89

Table 5.12c: The Predicted Hazard Rates for the First-Time Job-Seeker Rural Resident Individuals with Selected Characteristics

	ILO Definiton: Rural age 25-34						Broad Definiton: Rural age 25-34					
	Proportional		Log-Logistic		Log-Normal		Proportional		Log-Logistic		Log-Normal	
Education Level	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Non-Graduate	1.24	0.04	1.07	0.04	9.07	2.80	1.59	0.25	1.49	0.23	10.59	5.04
Primary Sc.	1.68	0.01	1.47	0.01	10.58	1.35	2.24	0.11	2.17	0.10	12.97	3.61
Middle Sc.	1.65	0.02	1.43	0.02	10.30	1.93	2.24	0.11	2.15	0.10	12.88	3.49
High Sc.	1.33	0.04	1.15	0.03	9.46	2.68	2.12	0.20	2.04	0.19	12.62	4.58
Voc-High Sc.	1.91	0.04	1.66	0.03	11.44	2.69	2.05	0.23	2.01	0.21	12.90	4.91
Two-Year Un.	1.48	0.10	1.33	0.10	10.20	4.73	2.20	0.16	2.18	0.16	13.60	4.75
Four-Year Un.	3.10	0.18	3.33	0.17	16.66	5.70	3.64	0.50	3.84	0.48	18.03	7.26

Table 5.13a: The Predicted Hazard Rates for the Other-Job-Seekers with Selected Characteristics

	ILO Definiton: Married&Urban&age 25-34						Broad Definiton: Married&Urban& age 25-34					
	Proportional		Log-Logistic		Log-Normal		Proportional		Log-Logistic		Log-Normal	
Education Level	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Non-Graduate	11.95	1.51	12.83	1.49	30.45	12.25	11.91	4.01	13.01	4.16	31.07	17.89
Primary Sc.	17.90	2.83	20.35	2.78	39.43	14.88	14.40	2.06	15.93	2.07	34.45	13.28
Middle Sc.	17.12	6.66	19.29	6.89	37.93	23.51	11.44	5.15	12.34	5.35	29.84	20.20
High Sc.	15.42	7.19	17.19	7.70	35.95	25.17	12.04	4.10	13.15	4.24	31.24	18.20
Voc-High Sc.	17.08	5.50	19.48	5.76	38.36	21.87	13.26	2.82	14.73	2.89	33.16	15.41
Two-Year Un.	51.51	23.53	68.24	26.40	75.76	45.02	28.19	7.39	33.61	7.93	52.33	24.87
Four-Year Un.	21.84	24.48	24.92	30.15	43.42	50.68	13.55	15.05	14.90	16.63	33.59	34.97

Table 5.13b: The Predicted Hazard Rates for Other-Job-Seeker Non-Married Individuals with Selected Characteristics

	ILO Definiton: Non-married&age 25-34						Broad Definiton: Non-Married& age 25-34					
	Proportional		Log-Logistic		Log-Normal		Proportional		Log-Logistic		Log-Normal	
Education Level	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Non-Graduate	6.77	1.95	6.75	1.98	21.36	13.82	6.62	4.43	6.82	4.67	22.02	18.90
Primary Sc.	10.14	3.66	10.70	3.70	27.66	16.79	8.00	2.27	8.35	2.33	24.41	14.03
Middle Sc.	9.70	8.61	10.14	9.18	26.61	26.52	6.36	5.69	6.47	6.02	21.15	21.34
High Sc.	8.73	9.29	9.04	10.25	25.22	28.39	6.69	4.53	6.89	4.77	22.14	19.23
Voc-High Sc.	9.68	7.11	10.24	7.67	26.91	24.67	7.36	3.11	7.72	3.25	23.50	16.28
Two-Year Un.	29.18	30.43	35.88	35.16	53.15	50.77	15.66	8.16	17.61	8.92	37.08	26.27
Four-Year Un.	12.37	31.66	13.10	40.17	30.46	57.17	7.53	16.62	7.80	18.71	23.80	36.95

Table 5.13c: The Predicted Hazard Rates for the Other-Job-Seeker Rural Resident Individuals with Selected Characteristics

	ILO Definiton: Rural age 25-34						Broad Definiton: Rural age 25-34					
	Proportional		Log-Logistic		Log-Normal		Proportional		Log-Logistic		Log-Normal	
Education Level	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Non-Graduate	10.62	0.19	11.21	0.18	28.02	4.90	10.76	0.88	11.62	0.82	29.05	8.17
Primary Sc.	15.91	0.36	17.77	0.34	36.28	5.95	13.01	0.45	14.22	0.41	32.20	6.06
Middle Sc.	15.21	0.84	16.85	0.84	34.90	9.40	10.34	1.13	11.02	1.06	27.90	9.22
High Sc.	13.70	0.91	15.01	0.94	33.08	10.07	10.88	0.90	11.73	0.84	29.20	8.31
Voc-High Sc.	15.18	0.70	17.01	0.70	35.29	8.75	11.98	0.62	13.15	0.57	31.00	7.04
Two-Year Un.	45.78	2.98	59.59	3.23	69.70	18.01	25.47	1.62	30.00	1.57	48.92	11.35
Four-Year Un.	19.41	3.11	21.76	3.69	39.94	20.27	12.24	3.29	13.30	3.29	31.40	15.97

5.6 Concluding Remarks

The main objective of this chapter is to analyze the role of personal as well as regional characteristics on the duration of unemployment for the first-time job-seekers and other-job-seekers in Turkey. To accomplish this objective, we estimate our models under gender separation by considering two alternative definitions of unemployment, labeled as the "ILO" and the "broad". As in the previous chapter, estimations of the models are made under three alternative distributions; namely proportional hazard, log-logistic and log-normal. The results are found to be close each other. Since the inclusion of the unobserved heterogeneity term is rejected by the model, we provide the results without this term. Main findings of this chapter can be summarized as follows.

The empirical results of this chapter indicate that living in urban areas increases the probability of finding a job for the first-time job-seekers as well as for the other-job-seekers. The effect of this variable is particularly significant for the first-time job-seeker males and other-job-seeker females under both definitions of unemployment. We further observe that, as in the previous chapter, females, regardless of being first-time job-seeker or not, have longer unemployment durations than males. This result can be a consequence of discrimination in the Turkish labor market against women. Therefore, women receive smaller amount of job offers compared to men. An additional source of the longer unemployment duration for women compared to men is the traditional role of women in the home production activities and for that reason they have a high reservation wage.

Concerning the estimation results for marriage we observe somewhat different results for the first-time job-seeker men and the other-job-seeker men. While being married increases the probability of finding a job for the other-job-seekers men, it decreases this probability for the first-time job-seeker men. The results for the married-female are similar to those we observed for the whole sample in the previous chapter. Being married decreases the probability of finding a job for women.

We further observe that living in the most developed region of Turkey, i.e. living in the Marmara, increases the probability of finding a job for the first-time job-seekers. Men who live in the South-East Anatolia are more likely to obtain a job than those who live in the Central Anatolia. First-time job-seeker women who live in the less developed regions of

East and South-East Anatolia are less likely to obtain a job, implying a policy target group. In addition to regional factors, we also find that the province level unemployment rates are an important factor in determining the unemployment duration of first-time job-seekers and other-job-seekers. For both first-time job-seekers and other-job-seekers we observe that the individuals who reside in high unemployment areas have lower probability of finding a job, and therefore they have longer unemployment durations.

Even though most of the education level dummies (except four-year university graduates) have a positive effect on the hazard, they are not significant determinant of the unemployment duration for the first-time job-seekers under both definitions of unemployment. Regarding the findings for the other-job seekers, we observe that the education level dummies are mostly significant under the ILO definition of unemployment. However, with the relaxation in the definition of unemployment we find different results from those under the ILO definition. In this case, a university degree is found to be a significant covariate of unemployment duration only for the other job-seekers.

With regard to estimation results for the age effects on the hazard we find that the increases in the age decrease the probability of finding a job for the other-job-seekers, regardless of being male or female. The hazard for this group seems to have a declining trend with age. Especially, the other-job-seekers in their mid-career and late-career periods have longer duration of unemployment than the youngest ones under the ILO definition of unemployment. Concerning the estimation results for the first-time job-seeker males we observe no clear time profile for the hazard with age. The result for the first-time job-seeker females is similar with those for the other-job-seeker females.

CHAPTER 6

SUMMARY OF THE FINDINGS, CONLUSIONS, POLICY IMPLICATIONS AND RECOMMENDATIONS

6.1 Introduction

The main purpose of this study was to investigate the impact of individual as well as local labor market characteristics on the transitions in the labor market and on the duration of unemployment in Turkey. In this chapter, we briefly summarize the main findings of this research and discuss some of the policy implications which can be drawn from the findings of previous empirical chapters. Next, we provide recommendations for the future studies.

The main properties of the labor market in Turkey over the last 15-years are dealt with in Chapter 2. In this chapter we focus on the following issues over the examination period of 1988 to 2003, where the data is available. These are labor force participation, unemployment, long-term unemployment as well as underemployment. To overview these topics we utilize the database of the HLFS provided by the SIS of Turkey. In this chapter we also provide a comparison of Turkey with some of the OECD countries in terms of labor force participation, unemployment and long-term unemployment.

The second subject investigated in the thesis is the determinants of the transitions in the main labor market states (see Chapter 3). These labor market states are employment, unemployment, and out-of-the-labor market. In Chapter 3, we initially provide the transition probabilities between the mentioned states, and later we present the sources of unemployment rate differentials of selected labor market groups in terms of these transition probabilities by using Marston (1978)'s decomposition. Next, we use multinomial-logit models to estimate the determinants of flows in the Turkish labor market.

The third topic analyzed is the role of personal and labor market characteristics in the duration of unemployment. For this aim we initially estimate the grouped duration data models for the whole sample data in Chapter 4. Later, we estimate the models by distinguishing the first-time job-seekers from the other job-seekers in Chapter 5 to see

whether they have different labor market dynamics. In Chapter 4 and Chapter 5 we use two alternative definitions of unemployment. These are the ILO and the broad definitions of unemployment. To examine the sensitivity of covariate effects on unemployment duration to different distributional assumptions we estimate our models under three alternative distributions. These are proportional hazard, logistic, and log-normal distributions. In the duration models we include the unobserved heterogeneity term under "gaussian" distribution. However, our preliminary estimation results reject the inclusion of this term. Therefore, we provide the estimation results without unobserved heterogeneity term. All of the econometric applications above are carried out by considering the gender difference as well.

6.2 Summary of the Main Findings and Conclusions

The major findings of the study can be summed up as follows.

Residence Effects:

The trends in unemployment rates reveal that the rate of unemployment in urban areas is always larger than in the rural areas. On the other hand, our empirical applications using individual level data on unemployment duration show that, regardless of being male or female, the individuals who live in urban areas are more likely to find a job compared to those who live in the rural areas. This can be considered one of the main reasons of migration from rural to urban areas. This finding is also supported for females, but not for males, by the transition data. Females who live in the urban areas are most likely to exit to employment, and are less likely to go out-of-labor force, from unemployment compared to females who live in the rural areas. However, urban females are less likely to keep their job compared to rural resident ones. Finally, the individuals who lose their jobs are most likely to exit from the labor force.

Gender Differentials:

A further observation is about the gender differentials in unemployment rates. While the total data on unemployment rates show no significant difference between men

and women, the data by residence reveals a considerable difference. The rate of unemployment for women is higher than for men in the urban areas, but not in the rural areas. However, our evidence from the econometric results of both the transitions in the labor market and unemployment duration suggests that women are in the disadvantaged position in the Turkish labor market for the following reasons. The first is that, they have lower probability of finding a job both from the out-of-the labor-force and the unemployment states. While the probability of obtaining a job from unemployment (out-of-the-labor-force) for men is about 55.8 (22.8) percent, it is about 19.7 (6.69) for women in the period between the first quarter of 2000 and 2001. The second is that, women also face also a higher risk of losing their job. While the probability of keeping their job for women is about 61.4 percent, the same probability for men is about 86.15 percent for the period between the first quarter of 2000 and 2001. A considerable amount of women who are fired from their jobs go out-of-labor force.

The final point is that women also have longer unemployment durations, for both the first-time job-seekers and the other job-seekers, than men[30]. Therefore, they are most likely to become long-term unemployed, and then become discouraged. These findings might be considered as some of the factors behind the lower LFPRs of women, relative to men.

Age Effects:

Further, we observe that unemployment rates among the youth (i.e. age between 15 and 24), regardless of gender difference, are higher than those for the individuals in their middle or late career periods. Nevertheless, the share of youth in the long-term unemployed individuals is lower than that of the other age groups (see Chapter 2). Thus, youth are more likely to face the unemployment problem, but less likely to become long-term unemployed. Our empirical findings from the individual level data support this view. From the transition application we observe that while the youth are less likely to keep their jobs, they are more likely to find a job from unemployment. Note that most of the job-loser youth go out-of-the-labor force, i.e. become "discouraged". Another support for the above result comes from the observations on the duration models. From the empirical implementation of these

[30] The same result holds whether we look at the non-parametric or parametric estimation part.

models we find, for both male and female as well as for both the first-time-job-seekers and the others, that individuals in their early labor market experience are more likely to find a job relative to older ages. Therefore, youth have lower unemployment durations than the other ages, so that they are less likely to become long-term unemployed.

Education Level Effects:

As for the different education levels we observe an inverse-U shaped relation. The lowest unemployment is seen for the two extreme levels of education, such as the non-graduates and the university graduates. The same trend seems to exist also in the case of long-term unemployment. Long-term unemployment is particularly high among the high-school and the vocational high school graduates.

The empirical evidence from the transition models and duration models show somewhat different results. In the transitions from unemployment to employment we observe that only graduation from a "university" makes a significant difference compared to non-graduate individuals. A considerable difference among the education levels are observed in the transitions from employment. In this case we observe that the individuals in the less educated groups, i.e. primary school or lower, have higher risk of losing their jobs. The individuals, particularly "university graduated men", have the lowest risk of losing their jobs.

Regarding the results for the education levels from the duration models we observe somewhat different results for the first-time job-seekers than the other-job-seekers. While the increases in education level seem to increase hazard for the other-job-seekers, the same observation does not hold for the first-time job-seekers under ILO definition of unemployment. However, relaxation in the unemployment definition, i.e. using the broad definition, decreases the significance level of all education levels, except university levels, for the other job-seekers. Further, having a university diploma makes a significant difference compared to non-graduates for the first-time job-seekers under both the ILO and the broad definitions of unemployment. It is also interesting to find that having a vocational high school diploma for the first-time job-seekers does not make any significant contribution to finding a job.

Marital Status Effects:

Unemployment rate for the married individuals, particularly for married men, is lower than the Turkey's average over the period between 1988 and 2003. We find from both the transition application and duration models (except the first-time job-seekers group) that married male have lower risk of unemployment. They have higher hazards i.e. lower unemployment durations, than the others. There may be three main reasons behind this finding. The first is that men are the classical bread winners of the Turkish family. Therefore they search intensively and effectively for a job, and obtain a work. The second is that they (married male) cannot take risks because of family responsibility. As a result, leaving from the already held job for finding another or job-to-job moving may not be attractive for them. The final point is related to the employer side that employers in Turkey generally or traditionally prefer to keep married individuals in the job relative to the non-married ones if they have to prefer one of the two.

As for the married women we have two different observations. The first is that since their attachment in the labor market is very low they are less likely to find a job compared to non-married ones. This result is observed in both the transition models (in the case of transition from unemployment to employment) and the duration models. The second observation for the married women is related to "added worker effect". It is found in the transition from out-of-labor-force to both employment and unemployment that as a response to economic downturn (in our observation period of 2000 and 2001) the above probabilities (i.e. transition probabilities from out-of-labor-force to both employment and unemployment) seem to increase for the married women.

Geographical Region Differences:

Unemployment problem is not equally distributed among different geographical regions of Turkey. It is interesting to find that the rate of unemployment is higher than the country average for the most developed regions of the Marmara and the Aegean. The same is observed also for the Mediterranean and the Southeast Anatolia regions. We further observe that unemployment rate increased in all regions during the most recent crises of 2001. While, the rate of unemployment more than doubled for the Southeast Anatolia region, it increased the least for the Black Sea region.

Regarding the observations from the duration models we find that there are some differences between the geographical regions of Turkey for different groups in the labor market. For example, in contrast to our preliminary expectation, regardless of being first-time job-seekers or the others, Southeast Anatolia residing men have lower unemployment durations than those in the other regions. One can explain this interesting observation with the followings. It may be the case that unemployment is higher among those who can afford it. Another explanation may be that individuals with high propensity to unemployment migrate from this region. The findings for the first-time job-seeker women are different from those for men. While living in the most developed regions of Aegean and Marmara, as expected, increases the probability of finding a job, living in the least developed regions of South-East and East Anatolia decreases the same probability for the first-time job-seeker women under the ILO definition of unemployment.

Provincial Unemployment Rates:

The provincial unemployment rates are used, as a proxy for labor market conditions. We find the expected results in most cases that the individuals in the low unemployment areas have higher hazards than those in the high unemployment areas. Therefore, they have lower unemployment durations, and therefore they are less likely to become long-term unemployed. Similar observations are also seen in the transition models. The higher is the unemployment rate the lower is the probability of finding a job from both of the labor market states of unemployment and out-of-labor-force. The higher is the local unemployment rate the higher is the probability of exiting from employment.

Occupation Effects:

The estimation results of transition from unemployment to employment indicate that there is a significant difference between occupational groups. The individuals, regardless of being male or female, in the other occupation groups are most likely to find a job from both unemployment and out-of-labor force compared to professionals. Similarly, duration models show also a significant difference between the occupation groups. In the duration models we observe somewhat different results for men and women. For men we find that being in the following occupation groups decreases the unemployment duration

compared to “Professionals and etc.”. These are “administrative and managerial workers”, “sales workers”, “agricultural workers” and “non-agricultural workers”. Note that being in the “clerical and related worker” category reduces the hazard for men. For women we observe that the following occupation groups have shorter unemployment durations than those in the “Professionals and etc.” These are “sales workers”, “agricultural workers”, “non-agricultural workers” and “occupations non-classified by group”.

Status in Employment:

In the transition models, for the status in the job variables we find that the individuals, regardless of being male or female working as a “casual employee” have higher risk of losing their jobs compared to a “regular employee”. Most of the job-looser females in the “casual employee” group prefer to go to out-of-labor-force rather than go into unemployment if they lose their jobs. We further observe that “employer men” are less likely to exit from employment relative to the base category of “regular employee”. Regardless of the gender, as expected, the individuals working as “unpaid family worker” are more (less) likely to go to out-of-labor force (unemployment) if they lose their job. Further, “self-employed” individuals are less (more) likely to go to unemployment (out-of-the-labor-force) if they lose their jobs.

Public Sector versus Non-Public Sector

The workers in the public sector are less likely to exit from their job compared to the workers in the non-public sector. Therefore, regardless of being male or female, working in the public sector has a job security.

Job-Search Methods

The job-search methods are used in the transition models. It is interesting to find that using the “employment office” as a search method does not make significant effect on exiting from unemployment to employment compared to “personally” job seeking. However, significant effect comes from the following variables. While using “workers agent and mediators” as a search method increases the probability of finding a job for men, using “try to provide equipment, credit, place to establish own business” decreases the same probability.

Duration Dependence:

Findings related to the baseline hazards show somewhat different results for men than that of for women. For men we observe a slight U-shaped baseline hazard implying that the probability of finding a job declines until the end of second year, and then start to increase. However, in the baseline hazard for women neither an increasing nor a declining trend is observed.

6.3 Policy Implications

The findings summarized in the previous section show that transitions in the Turkish labor market as well as duration of unemployment are not only affected by the characteristics of individuals, but also the conditions in the labor market. Therefore, macro as well as micro level policies should be developed for the individuals who are in the risky situations in the Turkish labor market. In the following lines we provide some of the main characteristics of individuals which should be given priority by the policy designers of the Turkish labor market.

Overall findings about the role of province level unemployment rate indicate that the individuals who live in the high unemployment areas are in the hazardous position in the labor market of Turkey. The conclusion is the same for both the males and females as well as for both the first-time job-seekers and the other job-seekers. Therefore the main concern of the policy makers initially should be given to those provinces with higher unemployment rates. The aim of the policies should be enhancing the employment potential (or creation) in these provinces, and therefore, decreasing the level of unemployment in these provinces. These policies may be in terms promotions or subsidies and/or tax benefits (tax exemptions or reductions) to encourage entrepreneurship, investments and activities in the employment creating sectors in these provinces. In this respect, reducing the barriers or impediments such as formalities to the creation and expansion of enterprises, particularly in these provinces, can be considered as an important policy issue for the policy makers. It should be mentioned here that creating a better and stable macroeconomic environment is also an essential policy concern of governments for the business start-ups.

Observations on the role of residence imply that residing in urban areas have both positive impacts on the risk of unemployment and negative impacts on unemployment duration. Starting from the rural areas, it is known that the main factor behind the labor force migration from rural to urban areas is the limited availability of "work opportunities" or "employment possibility" in the non-farm sector in the rural areas. That is, because of the rise in the family members, division of land and the other factors such as technology-based unemployment (with the technological improvement the need for worker in some areas declined) "the income" obtained from the agricultural activities may not as much as necessary to fulfill the cost of living of the family. The non-farm sector in the rural areas is not enough to employ or absorb these unemployed individuals. The lack of employment possibilities and other income generating opportunities in the rural areas encourages individuals to migrate from rural to urban areas with the hope finding a job and economic betterment. Therefore, providing some supports to the non-farm sectors for increasing their employment potential may decline the migration flow from rural to urban areas (even, may have a reverse effect on the direction of migration). These supports may be in terms of giving "long-term credits (with zero- or near-to-zero rent) or finance" or "promotions" to the non-farm sectors in the rural areas. In this respect, reducing the "formalities" or "problems" in obtaining the credits becomes an essential question for the policy designers. Generation of well-developed control mechanism -to make sure that whether the given credits are used in the "relevant" areas or jobs- is also an important policy issue. That is, creating a superior climate for the small and medium scale enterprises (SMEs) in the rural as well as in the urban areas are also an important policy question for the policy designers of Turkey. Since SMEs can be considered as essential generators of employment as well as income.

Overall observations regarding the role of gender differences show that females face more problems than males in the Turkish labor market. Particularly urban residing women have both lower LFPR and higher unemployment rates compared to men. Female's disadvantaged position is also supported by the micro-data analysis of the transition as well as the duration. This may be due to the following factors. The first is the cultural barriers against women. The second is the lower level of education and marketable skills of women compared to men. These two factors reduce the chances of employment for women. These two problems can be solved by increasing the overall education level and providing particular training courses (and seminars) for women to raise their skills and capabilities for

employment. Municipalities, local administrations and the employment offices may play an important role in providing these courses. The third factor is related to the "non-availability of employment or work" (or limited opportunities of employment) for women. It could be the case that open jobs (existing jobs) in some sectors are not available to women therefore the demand for women's labor is low. For that reason, giving special importance to some "female intensive" sectors, such as services and textile may increase the employment probability of females. The final factor which reduces the women's attachment in the labor market is the lack of "child-care centers" in Turkey. Increasing the number of these centers may increase the LFPR of married women as well as decrease the level of unemployment for them.

In addition to the above policies, policy makers in Turkey should concentrate on the following groups in designing the policy tools. These are first-time job-seekers (most of them young), single men, individuals with low levels of education and long-term unemployed. Among the first-time job seekers particular attention can be given to the South-East and the East Anatolia resident women. Causal workers and the workers in the non-public sector can also be considered as a special target group by the policy makers. Findings about these groups bring to mind the problems related to "employment security" in the non-public sector. Developing a relevant law for solving the "employment security" issue should be in the policy agenda of the Turkish governors.

Finally, our observations on the job search methods indicate that use of the employment office (ISKUR) is very rare among the unemployed. This may be owing to the following facts. The first is that the role of employment office in placing the unemployed seem to be not important or not effective compared to the other job-search methods. Our findings support this idea. The second is that this office may not be preferred by the employers i.e. lack of demand for labor. In this respect, increasing the role of employment office in the labor market is another policy issue for the policy designers of Turkey. Since employment office may play a key role between the unemployed and the employer. Doing this may involve a number of actions. Employment office may increase its relation with the employers. It can provide related training courses to develop skills required in the private sector. To encourage unemployed individuals to join these courses some benefits can be given. This can enhance the employability of the unemployed individuals. Further it can also increase the number of offices therefore it needs more personal and equipment.

6.4 Recommendations for the Future Studies

In the analyses we used the HLFS data set. This individual data set has the following restrictions. The first is that it does not have any questions related to "income" of the households. Therefore, in the analyses we could not test the effects of "income" and related factors on the transitions as well as unemployment durations in Turkish labor market. The second limitation of the data set is the lack of information on unemployment insurance, which is also an important determinant of unemployment duration. This is due to the fact that first payment of the unemployment insurance was made in February of 2002 after the collection of the data used in this study. Obtaining a data set with these variables would benefit the future studies. By the way, the individual data set with the "unemployment insurance" variable should be available to academic use from the employment office (ISKUR) as well as SIS, without "any restrictions".

The data set used in the analyses comes from the recession years of 2000 and 2001. These were the crises years. The crises occurred first in November of 2000 and this was followed by the severe February 2001 crisis. Unemployment rate increased after these crises. Having a data set for stable years may be fruitful for future studies.

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APPENDICES

APPENDIX A: SUPPLEMENTARY TABLES FOR CHAPTER FOUR

Table A1: Summary Statistics of the Variables for Each Transition Model

	Employment		Out of Labor Force		Unemployment	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
urban	0.691	0.462	0.799	0.401	0.853	0.355
female	0.249	0.432	0.746	0.435	0.301	0.459
FemMar	0.158	0.365	0.543	0.498	0.117	0.321
married	0.783	0.412	0.661	0.473	0.533	0.499
Marmara	0.236	0.425	0.231	0.422	0.259	0.438
Aegean	0.139	0.346	0.137	0.344	0.154	0.361
MiddleAnatolia	0.142	0.350	0.173	0.379	0.206	0.404
Mediterrianean	0.157	0.364	0.171	0.377	0.128	0.334
BlackSea	0.143	0.350	0.119	0.324	0.114	0.318
EastAnatolia	0.108	0.310	0.114	0.318	0.062	0.240
SouthEastAnatolia	0.073	0.261	0.078	0.269	0.079	0.269
Non-Graduate	0.093	0.291	0.193	0.395	0.069	0.254
PrimarySchool	0.502	0.500	0.474	0.499	0.493	0.500
MiddleSchool	0.118	0.322	0.153	0.360	0.134	0.341
HighSchool	0.118	0.323	0.112	0.315	0.164	0.370
VocHighSchool	0.067	0.250	0.039	0.194	0.072	0.258
Twoyear Univ.	0.024	0.152	0.010	0.101	0.027	0.163
Fouryear Univ. Plus	0.078	0.269	0.018	0.134	0.037	0.188
age1519	0.082	0.274	0.202	0.401	0.152	0.359
age2024	0.084	0.277	0.111	0.314	0.224	0.417
age2534	0.257	0.437	0.188	0.391	0.269	0.444
age3544	0.310	0.462	0.181	0.385	0.202	0.402
age4554	0.180	0.384	0.168	0.374	0.115	0.320
age55pl	0.088	0.283	0.151	0.358	0.038	0.192
Unemprate	0.104	0.051	0.078	0.035	0.093	0.032
occup1	0.096	0.295	0.025	0.157	0.037	0.188
occup2	0.027	0.161	0.005	0.070	0.011	0.104
occup3	0.077	0.267	0.029	0.168	0.053	0.224
occup4	0.137	0.344	0.027	0.162	0.098	0.298
occup5	0.116	0.320	0.034	0.182	0.102	0.303
occup6	0.229	0.420	0.108	0.310	0.087	0.281
occup7	0.311	0.463	0.092	0.289	0.386	0.487
occup8	0.007	0.083	0.005	0.068	0.009	0.092
statu1	0.452	0.498	0.150	0.357	0.373	0.484
statu2	0.106	0.307	0.039	0.193	0.248	0.432
statu3	0.003	0.054	0.002	0.039	0.005	0.074
statu4	0.065	0.246	0.005	0.073	0.017	0.130
statu5	0.238	0.426	0.052	0.222	0.100	0.300
statu6	0.136	0.343	0.077	0.267	0.037	0.190
PublicSector	0.196	0.397				
duration13					0.486	0.500
duration46					0.214	0.410
duration612					0.185	0.388
duration1224					0.076	0.264
duration24pl					0.040	0.195
Personally					0.884	0.321
Friendsetc					0.733	0.443
Newspapers					0.078	0.268
Employment Office					0.084	0.278
Workersagent					0.020	0.141
Trytoprovide Own Eq.					0.016	0.124
Othermethods					0.012	0.111
q2q2	0.523	0.499	0.649	0.477	0.504	0.500
Num.Obs.	16117		20584		1283	

Table A2: Summary Statistics of the Variables for Each Transition Model by Gender

	Employment				Out of Labor Force				Unemployment			
	Men		Women		Men		Women		Men		Women	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
urban	0.735	0.441	0.557	0.497	0.790	0.407	0.802	0.399	0.834	0.372	0.896	0.305
married	0.832	0.374	0.636	0.481	0.463	0.499	0.728	0.445	0.595	0.491	0.389	0.488
Marmara	0.242	0.428	0.219	0.414	0.221	0.415	0.235	0.424	0.242	0.428	0.298	0.458
Aegean	0.133	0.339	0.160	0.366	0.126	0.332	0.140	0.347	0.147	0.354	0.168	0.375
MiddleAnatolia	0.152	0.359	0.114	0.318	0.179	0.383	0.171	0.377	0.204	0.403	0.210	0.408
Mediterrianean	0.141	0.348	0.207	0.405	0.181	0.385	0.168	0.373	0.111	0.315	0.166	0.372
BlackSea	0.144	0.352	0.140	0.347	0.129	0.335	0.116	0.320	0.126	0.332	0.085	0.280
EastAnatolia	0.109	0.312	0.105	0.306	0.108	0.311	0.116	0.320	0.079	0.270	0.021	0.143
SouthEastAnatolia	0.079	0.270	0.055	0.229	0.073	0.260	0.080	0.272	0.090	0.287	0.052	0.222
Non-Graduate	0.056	0.230	0.205	0.404	0.087	0.282	0.229	0.420	0.060	0.238	0.091	0.288
PrimarySchool	0.526	0.499	0.431	0.495	0.352	0.478	0.516	0.500	0.547	0.498	0.365	0.482
MiddleSchool	0.134	0.341	0.067	0.250	0.283	0.451	0.108	0.311	0.132	0.338	0.140	0.347
HighSchool	0.122	0.327	0.107	0.309	0.164	0.370	0.094	0.292	0.136	0.343	0.228	0.420
VocHighSchool	0.069	0.253	0.062	0.241	0.064	0.246	0.031	0.173	0.064	0.244	0.091	0.288
Twoyear Univ.	0.022	0.146	0.029	0.167	0.019	0.135	0.008	0.087	0.029	0.168	0.023	0.151
Fouryear Univ. Plus	0.072	0.258	0.099	0.299	0.032	0.175	0.014	0.117	0.032	0.177	0.047	0.211
age1519	0.068	0.251	0.124	0.330	0.364	0.481	0.146	0.354	0.137	0.344	0.187	0.390
age2024	0.062	0.242	0.148	0.355	0.122	0.327	0.107	0.309	0.202	0.402	0.275	0.447
age2534	0.262	0.440	0.242	0.428	0.079	0.270	0.225	0.418	0.253	0.435	0.306	0.461
age3544	0.327	0.469	0.256	0.437	0.058	0.233	0.223	0.416	0.217	0.413	0.166	0.372
age4554	0.192	0.394	0.144	0.351	0.154	0.361	0.173	0.378	0.142	0.349	0.054	0.227
age55pl	0.088	0.284	0.086	0.280	0.223	0.417	0.126	0.331	0.049	0.216	0.013	0.113
Unemprate	0.106	0.052	0.099	0.048	0.079	0.036	0.077	0.035	0.093	0.033	0.093	0.029
occup1	0.084	0.277	0.133	0.339	0.047	0.212	0.018	0.132	0.028	0.165	0.057	0.232
occup2	0.032	0.175	0.011	0.107	0.015	0.121	0.002	0.040	0.013	0.115	0.005	0.072
occup3	0.065	0.246	0.115	0.319	0.045	0.206	0.024	0.153	0.025	0.155	0.119	0.324
occup4	0.162	0.369	0.062	0.241	0.072	0.259	0.012	0.107	0.110	0.314	0.070	0.255
occup5	0.128	0.335	0.078	0.269	0.091	0.288	0.015	0.121	0.117	0.322	0.067	0.251
occup6	0.160	0.367	0.436	0.496	0.105	0.307	0.109	0.312	0.098	0.298	0.060	0.237
occup7	0.362	0.481	0.156	0.363	0.244	0.430	0.040	0.196	0.494	0.500	0.135	0.342
occup8	0.006	0.080	0.008	0.092	0.009	0.094	0.003	0.056	0.009	0.094	0.008	0.088
statu1	0.469	0.499	0.401	0.490	0.345	0.476	0.084	0.277	0.369	0.483	0.383	0.487
statu2	0.118	0.323	0.068	0.252	0.090	0.287	0.021	0.144	0.324	0.468	0.070	0.255
statu3	0.001	0.024	0.010	0.099	0.000	0.014	0.002	0.045	0.000	0.000	0.018	0.134
statu4	0.082	0.274	0.013	0.112	0.019	0.137	0.001	0.027	0.025	0.155	0.000	0.000
statu5	0.270	0.444	0.141	0.348	0.114	0.318	0.031	0.174	0.134	0.341	0.021	0.143
statu6	0.060	0.237	0.368	0.482	0.060	0.237	0.084	0.277	0.042	0.202	0.026	0.159
PublicSector	0.205	0.404	0.168	0.374								
duration13									0.541	0.499	0.360	0.481
duration46									0.205	0.404	0.233	0.423
duration612									0.163	0.369	0.236	0.425
duration1224									0.055	0.227	0.124	0.330
duration24pl									0.037	0.188	0.047	0.211
Personally									0.926	0.261	0.785	0.411
Friendsetc									0.715	0.452	0.775	0.418
Newspapers									0.082	0.275	0.067	0.251
Employment Office									0.078	0.268	0.098	0.298
Workersagent									0.025	0.155	0.010	0.101
Try to provide own Eq.									0.020	0.140	0.005	0.072
Othermethods									0.013	0.115	0.010	0.101
q2q2	0.514	0.500	0.552	0.497	0.614	0.487	0.661	0.473	0.478	0.500	0.562	0.497
Number of Obs.	12110		4007		5227		15357		897		386	

APPENDIX B: SUPPLEMENTARY TABLES FOR CHAPTER FIVE

Table B1: Summary of the Variables used under ILO Definition of Unemployment

	ALL		MALE		FEMALE	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
urban	0.843	0.364	0.818	0.386	0.909	0.288
female	0.269	0.444				
married	0.490	0.500	0.550	0.498	0.328	0.470
FemMar	0.088	0.284				
Marmara	0.281	0.449	0.264	0.441	0.326	0.469
Aegean	0.135	0.341	0.125	0.331	0.160	0.367
MiddleAnatolia	0.122	0.328	0.129	0.336	0.103	0.304
Mediterrianean	0.195	0.396	0.189	0.391	0.214	0.410
BlackSea	0.112	0.316	0.104	0.306	0.133	0.340
EastAnatolia	0.072	0.258	0.092	0.289	0.017	0.129
SouthEastAnatolia	0.083	0.276	0.096	0.295	0.048	0.213
Non-graduate	0.051	0.220	0.053	0.225	0.045	0.206
Primary	0.481	0.500	0.528	0.499	0.353	0.478
Middle	0.142	0.349	0.146	0.353	0.131	0.338
High	0.174	0.379	0.149	0.357	0.242	0.428
VocHigh	0.090	0.286	0.081	0.272	0.114	0.318
TwoYear Un.	0.029	0.167	0.023	0.152	0.043	0.203
FourYear Un. Plus	0.046	0.209	0.033	0.180	0.079	0.270
age1519	0.174	0.379	0.146	0.354	0.250	0.433
age2024	0.250	0.433	0.231	0.422	0.300	0.459
age2534	0.278	0.448	0.275	0.447	0.287	0.453
age3544	0.177	0.382	0.198	0.399	0.118	0.323
age4554	0.092	0.289	0.111	0.315	0.039	0.194
age55pl	0.029	0.167	0.038	0.190	0.005	0.068
unemprate	0.113	0.050	0.113	0.051	0.114	0.048
occup1	0.079	0.269	0.059	0.235	0.132	0.339
occup2	0.006	0.079	0.007	0.082	0.005	0.068
occup3	0.171	0.376	0.097	0.296	0.372	0.483
occup4	0.092	0.290	0.089	0.285	0.101	0.302
occup5	0.158	0.365	0.157	0.364	0.161	0.367
occup6	0.044	0.206	0.051	0.221	0.026	0.160
occup7	0.432	0.495	0.520	0.500	0.193	0.395
occup8	0.017	0.131	0.020	0.140	0.010	0.099
firsttime	0,309	0,462	0,249	0,432	0,471	0,499
Number of Observations	4834		3532		1302	

Table B2: Summary of the Variables used under Broad Definition of Unemployment

	ALL		MALE		FEMALE	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
urban	0.832	0.374	0.805	0.396	0.896	0.305
female	0.290	0.454				
married	0.469	0.499	0.529	0.499	0.324	0.468
FemMar	0.094	0.292				
Marmara	0.252	0.434	0.240	0.427	0.283	0.450
Aegean	0.113	0.317	0.106	0.308	0.130	0.337
MiddleAnatolia	0.130	0.337	0.134	0.340	0.121	0.327
Mediterrianean	0.211	0.408	0.203	0.402	0.228	0.420
BlackSea	0.121	0.326	0.108	0.310	0.154	0.361
EastAnatolia	0.086	0.281	0.107	0.310	0.035	0.183
SouthEastAnatolia	0.086	0.281	0.101	0.302	0.049	0.216
Non-graduate	0.048	0.215	0.051	0.220	0.042	0.200
Primary	0.460	0.498	0.512	0.500	0.333	0.472
Middle	0.139	0.346	0.145	0.352	0.124	0.329
High	0.195	0.396	0.164	0.371	0.269	0.443
VocHigh	0.090	0.286	0.077	0.266	0.122	0.327
TwoYear Un.	0.027	0.162	0.020	0.141	0.043	0.203
FourYear Un. Plus	0.041	0.199	0.030	0.172	0.067	0.250
age1519	0.180	0.384	0.158	0.365	0.232	0.422
age2024	0.257	0.437	0.232	0.422	0.318	0.466
age2534	0.276	0.447	0.268	0.443	0.295	0.456
age3544	0.166	0.372	0.187	0.390	0.115	0.319
age4554	0.093	0.291	0.116	0.321	0.036	0.186
age55pl	0.028	0.166	0.038	0.192	0.004	0.063
unemprate	0.116	0.053	0.116	0.054	0.114	0.051
occup1	0.076	0.266	0.054	0.227	0.130	0.336
occup2	0.006	0.079	0.007	0.086	0.003	0.059
occup3	0.203	0.402	0.120	0.325	0.406	0.491
occup4	0.088	0.283	0.086	0.280	0.092	0.289
occup5	0.160	0.367	0.163	0.370	0.152	0.360
occup6	0.046	0.210	0.053	0.225	0.029	0.168
occup7	0.401	0.490	0.493	0.500	0.174	0.379
occup8	0.015	0.121	0.018	0.132	0.008	0.089
firsttime	0,351	0,477	0,281	0,449	0,521	0,499
Number of Observations	6983		4956		2027	

APPENDIX C

TURKISH SUMMARY

İşgücü piyasasındaki gelişmelere ilişkin çalışmaların bir çoğunluğu işsizlik konusu üzerine yoğunlaşmıştır. İşsizlik, bilindiği üzere, hem gelişmiş hem de gelişmekte olan ülkeler için çözülmesi gerekli olan çok önemli bir olgudur. Çünkü, işsizlik ihmale gelmeyecek derecede ehemmiyetli ve toplumun her kesimini bir şekilde de olsa etkileyen bir problemdir. İşsizlik bir ülkenin ekonomik performansının bir göstergesidir. Ayrıca, toplumun bazı kesimleri işsizlik problemiyle daha sık karşılaşmaktadır. Örneğin, hem gelişmiş hem de gelişmekte olan ülkelerin bir çoğunda kadınlara ait işsizlik oranı erkeklere ait değerlerden daha fazladır. 1998 ile 2001 yılları ortalama değerlere baktığımızda, erkek işsizlik oranı Fransa'da yüzde 8.5, Almanya'da 7.6, İtalya'da 8.7 ve Avrupa Para Birliği (EMU) ülkelerinde ise ortalama yüzde 7.9 olarak gerçekleşmiştir. Aynı yıllar için kadın işsizlik oranı ise erkeklere ait değerlerden yüksektir. Gerçekleşen değerler sırasıyla Fransa'da yüzde 11.9, Almanya'da 8.6, İtalya'da 15.7 ve EMU ülkelerinde ise yüzde 11.6 olmuştur. Benzer gözlemler hem geçiş ekonomileri (transition countries) hem de Latin Amerika ülkeleri içinde doğrudur. Aynı yıllar için işsizlik oranları örneğin, sırasıyla erkek ve kadın için, Polonya'da yüzde 15.7 ve 18.5; Slovakya'da yüzde 15.9 ve 16.4 ve de Arjantin'de yüzde 7.2 ve 11.6 olarak gerçekleşmiştir (Bknz. World Bank, 2003). İşsizliğin bir diğer yönü de işsizliğin gençler arasında daha yaygın olmasıdır. Genç işsizliğinin çözümü için hem gelişmekte olan hem de gelişmiş ülkeler politika üretme gayreti içindedirler. Yukarıdaki işgücü piyasası grupları dışında şu gruplarında daha fazla işsizlik problemiyle karşı karşıya oldukları söylenebilir. Eğitim düzeyi düşük, herhangi bir mesleğe sahip olmayan veya kalifiye olmayan insanlar (örnek için bknz. Jackman and Savori, 1990), ve bazı ülkelerde etnik azınlık grupları (örneğin Amerika Birleşik Devletinde yaşayan siyahlar beyazlara oranla daha fazla işsizlik oranına sahiptirler).

İşsizlik ve işsizlik riski hem bunu yaşayan insanlar, bu kişilerin yakınları hem de tüm toplum üzerinde çok önemli fiziki ve psikolojik etkilere sahiptir. Bu etkiler özellikle eğer bir insan uzun dönemli işsizse veya geliri ve güvencesi yeteri kadar olmayan bir işte çalışıyorsa ortaya çıkmaktadır. Bu bağlamda bir insanın sadece çalışıyor olması onun huzuru için yeterli olmayabilir ve bu etkiler o kişi veya kişiler üzerinde de gözlemlenebilir. Yukarıda bahsetmiş olduğumuz fiziki ve psikolojik etkilerinden bazıları şunlardır. Gelir

kaybı (daha az verimli çalışmaktan dolayı), -gerek işsizlik gerekse işsizlik riski nedeniyle yaşanan stresin neden olduğu- yetenek kaybıdır. Dolayısıyla iş bulma olasılığının düşmesi ki, bunun temel nedeni işverenlerin uzun süre işsiz kalanları tercih etmemeleridir. İşsizlik ayrıca diğer sağlık problemlerine, toplumdan soyutlanmaya, eroin türü uyuşturucu kullanımına, suç işleme temayülünün artmasına ve hatta intihara kadar giden kötü durumların ortaya çıkmasına neden olabilir.

Yukarıdaki açıklamalar ışığında, işsizliğin negatif etkilerinin azaltılması için işgücü piyasasında hangi grupların daha fazla işsizlik riski ve/veya uzun dönemli işsizlik gibi problemlerle karşı karşıya kaldıklarının ortaya çıkartılması çok önemli bir politika sorunu haline gelmektedir. Bu çalışmanın ilk amacı budur. Bunun yanında, kimlerin daha kolay iş bulabildiğinin ortaya çıkarılması ve de işsizlik süresindeki artışın gerçektende iş bulma ihtimalini düşürüp düşürmediğinin (negative duration dependence) test edilmesi gerekli önemli bir sorundur.

Son otuz yılda işgücü piyasasındaki dinamikleri analiz etmek için bir çok çeşit çalışma yapılmıştır. Bunlardan ikisi "işgücü piyasasındaki geçişler (transitions in the labor market)" ve "işsizlik suresi (unemployment duration)" üzerine yoğunlaşan modelleme çalışmalarıdır. Bu tür çalışmalar genel olarak gelişmiş ülkeler için yapılmıştır. Örneğin, Moffit (1985) ABD için, Boheim ve Taylor (2000) İngiltere için çalışmalar yapmışlardır. Bu konuda geçiş ülkeleri içinde birkaç çalışma yapılmıştır. Mesela, Foley (1997a,b) ve Grogan ve van den Berg (2001)) Rusya , Lubyova ve van Ours (1999)'da Slovakya üzerine uygulamalar yapmışlardır. Bir çok alanda olduğu gibi bu alanda da gelişmekte olan ülkeler üzerine çok az çalışma yapılmıştır. Örneğin, Seernels (2001) Etiyopya üzerine, ve Galiani ve Hopenhagen (2001) Arjantin üzerine çalışmalar yapmışlardır. Gelişmekte olan ülkeler üzerine yapılan çalışmaların az olmasının temel nedenlerinden birisi veri eksikliği ve de veriye ulaşımın zor oluşudur.

Her ne kadar Türk İşgücü Piyasası üzerine bazı çalışmalar yapılmış olsa da, örneğin Şenses (1996) ve Bulutay (1996), bunlardan hiçbirisi işgücü piyasasındaki geçişler ve/veya işsizlik süresi üzerine yoğunlaşmamıştır. Bizim bu çalışmamız bu konular üzerine yoğunlaşır ve bu alanda bir katkı yapmayı amaçlar. Çalışmada Devlet İstatistik Enstitüsü'nün (DİE) hazırlamış olduğu Hanehalkı İşgücü Anketi'nin (HİA) 2000 (I,II ve IV. Dönem) ve 2001 (I ve II. Dönem) yılı ham verileri kullanılmıştır. Çalışma uygulama

bölümünden önce Türk işgücü Piyasasını genel olarak gözden geçirir. Bu kısımda istihdam, işgücüne katılım, işsizlik ve eksik-istihdam konuları DIE'nin hazırlamış olduğu HIA veri-tabanı kullanılarak irdelenir ve bazı OECD ülkeleriyle karsılaştırmalar yapılır. Çalışmanın ilk uygulama bölümü ise çalışma yaşındaki insanların işgücü piyasası durumları, ki bunlar temel olarak işsizlik, istihdam, işgücüne katılmamadır, arasındaki hareketliliğine yada geçişlere odaklaşır. Çalışmanın ikinci bölümünde ise, Türkiye'de işsizlik süresini belirleyen faktörler üzerine yoğunlaşılmaktadır. Çalışmanın ikinci bölümü iki alt kısma ayrılmış olup, bunlardan ilki tüm veri setini analiz ederken, ikincisi ilk-kez iş arayanları diğer iş arayan gruplardan ayrı olarak mütalaa eder. İşgücü piyasasındaki dinamik farklılıklarını da görebilmek için, yukarıda anlatılan tüm uygulamalar aynı zamanda kadın erkek ayırımı yapılarak ta yapılmıştır. Süre modellerinde DİE'nin kullandığı işsizlik tanımının (ILO-tanımı) yanında genişletilmiş (Geniş-tanım) bir işsizlik tanımı daha kullanılmıştır. Bu tür analizlerde genel olarak kişisel özelliklerin (cinsiyeti, evlilik durumu, eğitim düzeyi, mesleği vb.) yanında, yaşanan yerin özellikleri (şehir-kır ayırımı, coğrafi bölge, işsizlik oranı vb.) de analizlere dahil edilmiştir. Analizlerin genel sonuçları aşağıda özet bir şekilde değerlendirilmeye çalışılmıştır.

Ekonometrik Uygulamaların Genel Sonuçları

İkamet (Residence) Etksi

1988-2003 yılı arası zaman serilerine bakıldığında genel olarak kentsel alanda yaşayan insanların kırsal alanlara göre daha fazla işsizlik oranına sahip oldukları gözlemlenmektedir. Bununla birlikte, işsizlik süresi uygulamaları göstermiştir ki kentsel alanda yaşayan insanlar daha kısa işsizlik süresine sahiptirler ve daha kolay iş bulabilmektedirler. Bu sonuç hem kadın hem de erkek için geçerli bir sonuçtur. Bu bulgu kırdan kente göçün nedenlerinden biri olarak değerlendirilebilir. İnsanlar kentsel alanda daha kolay iş bulabilmektedirler. Geçiş (Transition) modellerinin sonuçlarına bakılacak olursa, işsizlikten işe geçişte sadece kadın için yukarıdaki sonucu destekleyen bulgulara rastlanır. Bu bölümdeki bir diğer bulgu ise, kentsel alanda yaşayan kadınların kırda yaşayan hemcinslerine göre, işsizlikten işe geçiş olasılığının daha fazla; işsizlikten işgücüne katılmamaya geçiş olasılığının daha düşük olmasıdır. Bununla birlikte kentsel alanda yaşayan kadınlar kırsal alanlara göre işlerini daha kolay kaybetmektedirler ve işlerini kaybeden bu kadınlar genelde işgücüne katılmama tercihini (ki bu bir tercih midir tartışılır) kullanmaktadırlar.

Cinsiyet Etkisi

Makro verilere bakıldığında Türkiye genelinde kadın erkek işsizlik oranları arasında 1988-2003 döneminde pek fazla bir farklılık gözükmemektedir. Fakat, kır-kent ayırımı yapılarak bu verilere bakıldığında kadınlara ait işsizlik oranının erkeklere ait oranlardan daha yüksek olduğu gözlemlenmektedir. Ekonometrik uygulamaların bulguları açısından bakıldığında ise, hem geçiş modelleri hem de işsizlik süresi (gerek parametrik gerekse parametrik olmayan) modelleri göstermektedir ki kadınlar Türk işgücü piyasasında bir dezavantaja sahiptirler. Bu sonucu destekleyen bulgular şu şekildedir. İlk olarak, kadınlar hem işsizlikten hem de işgücüne katılmama durumlarından işe geçme olasılığı bakımından erkeklere göre daha düşük olasılık değerlerine sahiptirler. Örneğin, 2000 ve 2001 yıllarının ilk çeyrekleri arasında kadınların işsizlikten ve işgücünü katılmamadan işe geçme olasılığı sırasıyla yüzde 19.7 ve 6.69 iken bu değerler erkekler için çok daha yüksek ve sırasıyla yüzde 55.8 ve 22.8 şeklindedir. Ayrıca, kadınlar erkeklere göre işlerini daha kolay kaybetmektedirler. Örneğin, bir önceki örnekteki dönem için kadınların işlerini koruma olasılığı yüzde 61.4 iken aynı oran erkekler için yüzde 86.15'dir. Son olarak, hem tüm hem de ilk-kez iş arayanları diğerlerinden ayıran veri seti ile yapılan işsizlik süresi uygulamaları kadınların erkeklere göre daha zor iş bulabildiklerini göstermektedir. Bu bulgular hem ILO hem de geniş tanım altında fazla değişiklik arz etmemektedir. Dolayısıyla kadınların erkeklere göre daha uzun süre işsiz kalma ve ümitsiz duruma gelme olasılığı daha fazladır. Bütün bu bulgular "neden kadınların işgücüne katılma oranı erkeklere oranla çok daha düşüktür?" sorusuna yanıt verir mahiyettedir.

Yaş Grubu Etkisi

1988-2003 yılı arası zaman serilerine bakıldığında gençler (15-24 yaş grubu) arasındaki işsizlik oranının diğer gruplara oranla daha fazla (bazı dönemlerde bu oran iki kattan da fazladır) olduğu gözlemlenmektedir. Aynı zaman serisi, ayrıca gençlere ait ortalama işsizlik süresinin diğer yaş gruplarına göre daha düşük olduğunu göstermektedir. Çalışmanın ekonometrik uygulamalardan elde ettiği bulgular bu sonucu destekler niteliktedir. Geçiş uygulamalarından görmekteyiz ki gençler işlerini koruyamamakta (dolayısıyla daha kolay işlerini kaybetmekte) ve daha kolay iş bulmaktadırlar (hem işsizlikten işe geçiş hem de işgücüne katılmamadan işe geçiş). Yukarıdaki sonuçlara bir diğer destekte işsizlik süresi uygulamalarından (hem cinsiyet hem de tecrübe ayırımına göre) gelmektedir. Dolayısıyla gençler her ne kadar daha fazla işsizlik problemiyle

karşılaşıyor olsalar da daha kısa süreli işsiz kalmaktadırlar.

Eğitim Düzeyi Etkisi

Makro veriler açısından bakıldığında Türkiye genelinde işsizlik oranının iki-uç (two-extreme) eğitim düzeyi için, herhangi bir eğitime sahip olmayanlar ve üniversite eğitimi almış kesimlerin, diğer eğitim düzeylerine göre daha düşük olduğu, yani işsizlik oranı ile eğitim düzeyi arasında ters-U şeklinde bir ilişkinin olduğu, gözlemlenmektedir. Bir diğer önemli gözlem ise uzun dönemli işsizliğin lise ve mesleki lise mezunları arasında daha yaygın olmasıdır. Eğer çalışmanın ampirik uygulama sonuçlarına bakılacak olursa, geçiş modelleri ve süre modellerinin biraz farklı bulgulara sahip olduğunu görürlür. Elde edilen bulgular şu şekilde özetlenebilir. İşsizlikten işe geçişte sadece üniversite mezunları, herhangi bir eğitim düzeyine sahip olmayanlara göre, istatistiksel olarak anlamlı farklılığa sahiptirler. Eğitim düzeyinin etkisi özellikle işinden ayrılma riski açısından ortaya çıkmaktadır. Dolayısıyla, eğitimli (özellikle üniversite mezunu) insanlar işlerini daha zor kaybetmektedirler. Süre modellerinin bulguları ise ilk-kez iş arayanlar ve diğer gruplar arasında farklılık göstermektedir. ILO-tanımı altında, eğitim düzeyindeki artışlar diğer iş arayanların iş-bulma olasılığını artırırken (dolayısıyla işsizlik süresini azaltırken), aynı etkiyi ilk-kez iş-arayanlarda görememekteyiz. Bununla birlikte, işsizlik tanımının genişletilmesiyle eğitim düzeyinin etkisi, üniversite mezunları dışında, diğer iş-arayanlar grubu içinde ortadan kalkmaktadır. İlk-kez iş-arayanlar için, hem ILO-tanımı hem de Geniş-tanım altında, sadece üniversite mezunu olmanın işsizlik süresin azalttığını gözlemlemekteyiz. Burada göze çarpan bir diğer önemli bulgu da "mesleki-eğitim" düzeyine sahip olan insanların genel olarak "herhangi bir eğitime düzeyine sahip olmayanlarla" bir farklılığa sahip olmamasıdır.

Medeni Durum Etkisi

1988-2003 yılı arası işsizlik oranlarına medeni durumu göz önüne alarak bakacak olursak, evli kişilere, özellikle evli erkeklere ait, işsizlik oranının Türkiye ortalamasının altında olduğunu gözlemliyoruz. Çalışmamızın ekonometrik uygulama sonuçları genel olarak bu bulguyu erkekler için destekler mahiyettedir. Hem geçiş modelleri hem de işsizlik süresi modelleri, ilk-kez iş arayanlar dışında, göstermiştir ki evli erkekler hem daha kolay iş bulmakta (aynı zamanda, daha kısa işsizlik süresine sahip olmakta) hem de hali hazırdaki işlerini daha zor kaybetmektedirler. Bu bulgunun arkasında temel olarak üç faktörün olduğunu söyleyebiliriz. Bunlardan birincisi, erkekler, genel olarak Türk aile yapısından

kaynaklanan nedenlerle, ailenin "ekmek parası" kazanıcısı olması nedeniyle daha sıkı ve gayretli iş aramakta ve bulmaktadırlar. İkinci neden olarak, evli erkekler, eğer kesin bir garanti yoksa aile sorumluluğu nedeniyle, hali hazırdaki işinden ayrılıp başka bir iş arama riskine girmemeleri olarak söylenebilir. Son olarak, olaya işveren açısından bakıldığında onların genel olarak, bir tercih söz konusu olduğunda evli insanları tercih ettiğini söyleyebiliriz. Eğer sonuçlarımıza evli kadınlar açısından bakacak olursak temel olarak iki bulgudan bahsedebiliriz. Bunlardan ilki, evli kadınlar diğer kadınlara göre daha zor iş bulmaktadırlar. Bunun nedeni ise, aile sorumluluğunun geleneksel olarak erkekte olmasından kaynaklanmaktadır. İkincisi bulgu "ilave-işgücü etkisi (added worker effect)"le ilgilidir. Ekonomik krizin etkisiyle kadınların iş gücüne katılmamadan katılmaya, dolayısıyla işe ve işsizliğe geçişlerindeki artıştır. Bunun nedeni gayet açıktır. Kriz sonucunda bir çok insan işini kaybetmiş, bir çoğunun gelir seviyesi düşmüştür. Buna tepki olarak ta, hanedeki işgücüne katılmayan kadınlar ilave işgücü olarak iş arama yoluna gitmişler ve bunların bir kısmı bunda başarılı olmuşlardır.

Coğrafi Bölge Etkisi

Makro veriler açısında bakıldığında,[31] Marmara ve Ege bölgelerine, ki bu bölgeler ülkemizin ekonomik olarak en gelişmiş bölgeleridir, ait değerlerin Türkiye ortalamasının üzerinde olduğunu gözlemliyoruz. Ayrıca, ekonomik krizle birlikte işsizliğin tüm bölgelerde arttığını ve bu artışın en fazla Güney Doğu Anadolu, en az ise Karadeniz Bölgesi'nde olduğunu gözlemliyoruz. Çalışmamızın işsizlik süresi uygulama sonuçlarından şu noktalar göze çarpmaktadır. Beklentimizin aksine, ki ekonomik olarak daha gelişmiş bölgelerde yaşayanların daha kolay iş bulmalarını ve daha kısa işsizlik süresine sahip olmalarını bekliyoruz, Güney Doğu Anadolu'da yaşayan erkekler İç Anadolu Bölgesi'nde yaşayanlara göre daha kolay iş bulmakta, diğer bölgeler ise istatistiksel olarak bir farklılık göstermemektedir. Bu bulgu hem ilk-kez iş arayanlar hem de diğer iş arayanlar için geçerlidir. Erkeklerin aksine, kadınlar için beklentimizi doğrular mahiyette sonuçlar bulunmuştur. Dolayısıyla, Marmara ve Ege bölgelerinde yaşayan ilk-kez iş arayan kadınlar daha kısa işsizlik süresine sahipken, Doğu ve Güney Doğu Anadolu'da yaşayanlar daha uzun işsizlik süresine sahiptirler.

[31] Bölge bazında işsizlik oranı verileri DİE tarafından 2000 yılından itibaren yayınlanmaya başlamıştır. Çalışmada 2000-2003 yıllarına ait değerler kullanılmıştır.

İşsizlik Oranı Etkisi

Modellerimizde işsizlik oranlarını işgücü piyasasının durumunun bir göstergesi olarak içerdik. Uygulamalarımızın hemen hepsinde, hem geçiş modelleri hem de işsizlik süresi modellerinde, beklentimizi destekler nitelikte sonuçlar elde edilmiştir. Daha açık bir ifadeyle, işsizlik oranının yüksek olduğu yerlerde yaşayanlar daha zor iş bulmakta, dolayısıyla daha uzun işsizlik süresine sahip olmaktadır, ve işlerini daha kolay kaybetmektedirler.

Meslek Grubu Etkisi

Çalışmanın geçiş modeli uygulaması sonuçlarına bakıldığında, profesyonellere göre diğer iş gruplarındaki insanların, hem işe katılmamadan hem de işsizlikten, işe geçişte istatistiksel olarak farklılıklar olduğu ve diğer grupların daha kolay iş bulduğu görülmektedir. Bu sonuçlar hem erkek hem de kadınlar açısından farklılık göstermemektedir. Çalışmanın işsizlik süresi uygulama sonuçları geçiş uygulaması sonuçlarından biraz farklılıklar arz etmektedir. Örneğin, erkeklerde "müteşebbisler ve yöneticiler", "satış elemanları", "tarım çalışanları" ve "tarım dışı faaliyetlerde çalışanlar" "profesyoneller"e göre istatistiksel olarak farklılık arz etmekte, ve bu gruplar daha kolay iş bulamakta, dolayısıyla daha kısa işsizlik süresine sahip iken "idari personel ve benzeri çalışanlar" daha zor iş bulmaktadırlar. Kadın içinse şu meslek dallarındaki insanların "profesyoneller"e göre daha kolay iş bulduğu söylenebilir. Bunlar, "satış elemanları", "tarım çalışanları" ve "mesleği tayin edilemeyenler" iş grubundaki fertlerdir.

İşteki Durumun Etkisi

Geçiş modelleri uygulamalarında kullanılan bu gruptaki değişkenlere ait bulgular şu şekilde özetlenebilir. Beklendiği gibi, gerek kadın gerekse erkek olsun, geçici bir işte çalışanlar düzenli bir işte çalışanlara göre işlerini daha kolay kaybetmektedirler. İşlerini kaybeden kadınların çoğunluğu, istatistiksel olarak anlamlı bir şekilde, "işsizlik" durumuna geçmek yerine "işgücüne katılmama" durumuna geçmeyi tercih etmektedirler. Bir diğer gözlem ise "işveren" konumunda çalışan erkeğin "düzenli" bir işte çalışanlara göre işlerini daha zor kaybettiğidir. Çalışmanın bir diğer bulgusu ise, beklendiği gibi, cinsiyet farkı gözetmeksizin, "ücretsiz aile işçisi" olarak çalışanların işlerini kaybettikleri takdirde tercih olarak "işsizlik" durumuna geçmek yerine "işgücüne katılmama" durumuna geçmeyi, istatistiksel olarak anlamlı bir şekilde, tercih etmeleridir.

Kamu & Kamu Olmayan Sektör Ayırımı Etkisi

Çalışmanın, geçiş modeli uygulaması göstermiştir ki, beklendiği üzere, kamu sektöründe çalışanlar kamu dışında çalışanlara göre işlerini daha zor kaybetmektedirler ve bu ilişki istatistiksel olarak çok anlamlıdır. Dolayısıyla, kamu sektöründe çalışanların, gerek erkek gerekse kadın olsun, iş güvencesine sahip olduğu söylenebilir.

İş Arama Metodu Etkisi

Bu grup değişkenler de çalışmanın sadece işsizlikten geçiş modeli uygulaması bölümünde yer almıştır. Beklentimizin aksine iş aramak için "Türkiye İş Kurumu'na" başvuran insanlar iş bulmada "şahsi" olarak iş arayanlarla istatistiksel olarak anlamlı bir farklılık arz etmemektedirler. Bununla birlikte, istatistiksel olarak anlamlı farklılıklar diğer iş arama kanallarından ikisinden gelmektedir. İş bulmak için "İşçi simsar ve aracıları" ile irtibata geçenler daha kolay iş bulurken, "kendi işyerini kurmak amacıyla girişimde bulunanlar", birazda kriz ortamının etkisiyle daha zor iş bulabilmektedir.

Çalışmanın Bulgularından Çıkarılabilecek Bazı Politika Önerileri

Çalışmanın "ikamet etkisi" bulguları genel olarak şunları ifade etmektedir. Kentsel kesimde yaşayanlar her ne kadar daha fazla işsizlik riski problemiyle karşı karşıya kalsalar da daha kolay iş bulmakta ve dolayısıyla daha kısa işsizlik süresi yaşamaktadırlar. Daha önce ifade edildiği gibi bu bulgu kırdan kente göçün nedenlerinden biri olarak kabul edilebilir. Daha açık bir ifadeyle insanlar geçicide olsa bir iş bulurum ümidiyle kentsel alanlara göç etmektedirler. Bunun ardında yatan temel neden, bilindiği üzere, kırsal alandaki tarım-dışı sektörlerdeki istihdam olanağının çok sınırlı olmasıdır. Açıkçası, aile fertlerinin sayısının artması ve dolayısıyla toprağın bölünmesi ve diğer nedenler, ki örneğin teknoloji-kaynaklı işsizlik, birçok ailenin tarımsal aktivitelerden elde etmiş oldukları gelirlerin geçimlerini sağlayamayacak kadar azalmasına neden olmuştur. İşsiz kalan veya geliri yetersiz olan bu insanların bir çoğunluğu kırsal alandaki diğer iş alanlarının da istihdam olanağı bakımından yetersiz olması nedeniyle iş bulma ve daha iyi bir ortamda yaşama ümidiyle kentsel alanlara göç etmek zorunda kalmaktadırlar. Bu nedenle, kırsal alandaki tarım-dışı sektörlerin istihdam olanağının artırılması, ki bu bir takım destekler ve teşvikler sağlamakla olabilir, insanların bu alanlardan göç etme meylini azaltabilir ve hatta

bunu tersine dahi çevirebilir. Bu amaçla, kırsal alanda yeni istihdam yaratıcı tarım ve tarım dışı sektörlere yapılacak yatırımlara sıfır veya çok düşük faizli kredi verilmesi veya vergi indirimi gibi olanaklar sağlanabilir. Bu bağlamda, krediye ulaşmada yaşanan bir takım problem ve formalitelerin azaltılması çok önem arz etmektedir. Bunu yanı sıra, verilen kredi ve teşviklerin gerçektende verilme amacına uygun bir şekilde kullanılıp kullanılmadığının "işin uzmanlarınca" çok iyi bir şekilde kontrol ve teftiş edilmesi de çok büyük bir ehemmiyet arz etmektedir. Bu bağlamda, hem kırsal hem de kentsel alanlarındaki küçük ve orta ölçekli işletmeler (KOBİ) desteklemeli ve onların faaliyetlerini sürdürebilmeleri gerekli ekonomik ve siyasi istikrar ortamı oluşturulmalıdır. Çünkü KOBİ'ler istihdam ve gelir oluşturma bakımından çok önemlidirler.

Öte yandan, "cinsiyet" farklılığının etkisine yönelik bulgulardan hareketle, kadınların Türk işgücü piyasasında bir dezavantaja hatta bir ayrımcılık problemiyle karşı karşıya olduklarını söyleyebiliriz. Dolayısıyla kadınların erkeklere göre istihdam şansı daha düşüktür. Bu bulguların ardında yatan temel faktörlerden bazıları şu şekilde sıralanabilir. Bunlardan ilki "kültürel" faktörler, ikincisi ise kadınların, özellikle kırdan kentsel alanlara göç etmiş kadınların, eğitim düzeylerinin erkeklere oranla daha düşük olmasıdır. Bu iki faktörde ancak ülke genelinde eğitim düzeyinin yükseltilmesi, kadınlara yönelik, onların üretim yeteneklerini artırıcı, kurs ve seminerlerin düzenlenmesi yöntemleriyle aşılabilir. Bu konuda yerel yönetimlere (belediyelere ve kaymakamlıklara vs.) ve Türkiye İş Kurumu'na önemli roller düşmektedir. Kadınların istihdam şansını azaltan bir diğer faktörde yaratılan iş imkanlarının başka bir ifadeyle açık işlerin daha çok erkek ağırlıklı sektörlerde olması ve dolayısıyla kadın işgücüne yönelik talebin yetersiz olmasıdır. Bu nedenle, kadın istihdamı yoğun olan sektörlere, servis ve tekstil sektörü gibi, ağırlık verilmesi onların istihdam şansını artırabilir. Son olarak, Türkiye'de "çocuk bakım" servislerinin azlığı, yada yetersizliği de kadınların hem işgücüne katılımını hem de istihdam şansını (istihdam edilebilme yetenek ve kabiliyetine sahip olsa da) düşüren bir diğer faktör olarak değerlendirilebilir. Bu bağlamda, bu tür servis olanaklarının artırılmasına yönelik faaliyetlere bir takım teşvik ve destekler sağlanabilir. Böylelikle, işgücüne katılmak ve çalışmak isteyen fakat çocuğuna bakacak kimsesi olmayan kadınlarında istihdam edilme olanağı sağlanmış olacaktır.

Yukarıdaki önerilerin yanı sıra, çalışmanın uygulama bulgularından hareketle politika dizaynında şu işgücü piyasası grupları hedef kitle olarak seçilip onlara öncelik

verilebilir. Bunlar, ilk-kez iş arayanlar, ki bunların çoğunluğu genç (15-24) yaştadırlar, bekar erkekler, düşük eğitim düzeyine sahip fertler ve uzun dönemli işsizlerdir. İlk-kez iş arayan insanlar arasında da özel olarak Doğu ve Güney Doğu Anadolu'da yaşayan kadınlara öncelik verilebilir. Bir diğer hedef kitle ise kamu-dışı sektörlerde çalışanlar olabilir. Bu kitle ile ilgili bulgular akla "iş güvencesi" ile ilgili bir takım problemleri getirmektedir. Dolayısıyla, bu sıkıntıları azaltacak (daha doğrusu en az seviyeye indirecek) ve ülke gereksinimlerine uygun daha gelişmiş bir "iş güvencesi" yasasının çıkarılması ülke politikasına yön verenlerin ajandasında bulunması gerekli olan çok önemli bir ihtiyaçtır.

Son olarak, iş arama teknikleri üzerine elde edilmiş olan bulgular bize işsizlerin, genel olarak şahsi yada eş-dost vasıtasıyla iş arama yoluna gitmeyi tercih ettiklerini, ve Türkiye İş Kurumu'na başvurma oranının çok düşük olduğunu göstermektedir. Fertlerin bu kuruma başvurmama nedenleri şunlar olabilir. Birincisi, bu kurum iş bulma şansı (veya istihdam imkanı sunma) yönünden diğer iş arama tekniklerine göre daha az bir olanak sağlamaktadır, ki bizim bulgularımız bunu destekler mahiyettedir. İkinci olarak, bu kurum iş verenler tarafından da fazla tercih edilmemektedir, dolayısıyla bu kurum vasıtasıyla gelen işgücü talebi istihdam olanağı oluşturma bakımından piyasa ihtiyacını karşılamadan uzak olarak gözükmektedir. Bu bağlamda, ülke politikasına yön verenlerin Türkiye İş Kurumu'nun işgücü piyasasında daha fazla ve daha aktif olarak rol alması için gerekli gayret ve çalışmaları yapmaları elzemdir. Çünkü, bu kurum işveren ve işgücü arasında çok önemli roller üstlenebilir, ki bunlar onun bu iki kesim ile ilişkilerini geliştirmesine bağlıdır. Bu ilişkiyi geliştirmesi içinse Türkiye İş Kurumu şu faaliyetlerde bulunabilir. Bir takım meslek kazandırma eğitim ve seminerleri düzenleyerek kamu ve özel sektörün ihtiyaç duyduğu kalifiye işgücünü temin edebilir. Bu kurslara katılımı artırmak ve kaliteyi artırmak içinse bir takım teşvik ve ödemeler yapılabilir. Ayrıca, Türkiye İş Kurumu şube sayısını da artırma yoluna gitmeli, hatta ilçelere dahi şubeler açmalıdır. Bütün bunların yapılabilmesi de ancak bu kuruma ait bütçe ve kalifiye personel imkanlarının artırılmasına bağlıdır.

VITA

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