

DETERMINANTS OF UNEMPLOYMENT DURATION FOR THE FIRST-TIME JOB-SEEKERS IN TURKEY¹

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ABSTRACT

This paper examines the determinants of unemployment duration for the first-time job-seekers in Turkey. We use raw data from the Household Labor Force Surveys of 2000 and 2001. In the analysis, we use the grouped duration approach. We find that first-time job-seeker females are less likely to find a job compared to males. Urban resident males are more likely to find a job compared to rural resident ones. Increases in education level do not seem to decrease the hazard for both males and females.

Keywords: *Unemployment Duration, Duration Analysis, Gender, Turkey*

INTRODUCTION

Unemployment is a serious social and economic problem for developed as well as developing countries. Therefore, over the decades, there has been a large number of theoretical and empirical studies which focus on this issue with its different aspects². One of the focus areas of these studies is the unemployment duration. This side of the unemployment has been mostly analyzed for the developed countries, such as Moffit³ for the USA and Boheim and Taylor⁴ for the UK. There are also some studies for the transition countries, including Grogan and van den Berg⁵ on Russia and Lubyova and van Ours⁶ on Slovakia, as well as for the developing countries, such as

¹ This paper is based on H. Mehmet Taşçı's PhD thesis (see Taşçı, 2005) prepared under the supervision of Aysıt Tansel at the Department of Economics, METU. H. Mehmet Taşçı would like to thank Hakan Ercan, Cem Somel, Yusuf Ziya Özcan, Abuzer Pınar and Murat Kırdar for helpful comments on his PhD thesis. Thanks are also due to Şefik Yıldızeli and Ömer Demir past and current presidents of the State Institute of Statistics (SIS) of Turkey, Nurgül Öğüt former vice-president and Enver Tasti director of the Labor Force Statistics Department of SIS for their kind help in implementing this study. Any errors are my own.

² For the detailed discussion of this issue, see, Devine, T.J. and Kiefer N.M. *Empirical Labor Economics*, Oxford University Press: Oxford, 1991.

³ Moffit, R. 'Unemployment Insurance and the Distribution of Unemployment Spells' *Journal of Econometrics*, Vol: 28, 1985, pp. 85-101.

⁴ Böheim, R. and Taylor M. P. 'Unemployment Duration and Exit States in Britain', Discussion Paper No. 2000-1 Institute for Social and Economic Research, University of Essex, 2000.

⁵ Grogan, L. and Van den Berg, G.J., 'The Duration of Unemployment in Russia', *Journal of Population Economics*, Vol: 14 (3), 2001, pp. 549-568.

⁶ Lubyova M. and Van Ours J.C., 'Unemployment Durations of Job Losers in a Labour Market in Transition', *Economics of Transition*, Vol: 7 (3), 1999, pp. 665-86.

Galiani and Hopenhagen⁷ on Argentina. There is, however, only one study for Turkey, conducted by Tansel and Tasci⁸, which examines the determinants of unemployment duration by considering the gender difference. They find that first-time job seekers have longer unemployment durations than those of the other job-seekers⁹. This paper, apart from Tansel and Tasci¹⁰, distinguishes the first-time job seekers from the other job seekers and analyzes the determinants of unemployment duration for the first-time job seekers men and women, separately. In the literature there are few studies which focus on duration to first-job, such as Wolpin¹¹, Eckstein and Wolpin¹², Chuang¹³, Lassibille et al.¹⁴. To the best of our knowledge, there is no previous study on Turkey which gives a special attention to unemployment duration of the first-time job seekers. This is the main contribution of this paper.

In this paper we employ individual level data from the quarterly Household Labor Force Surveys (HLFS) of 2000 and 2001 carried out by the State Institute of Statistics (SIS). We analyze the role of personal, household and local labor market characteristics on the duration of unemployment for the first-time job seekers in a hazard function framework. 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. 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 (a)¹⁵ and Sueyoshi¹⁶. In the analysis we initially estimate our models neglecting the gender difference, and then estimate the models under gender separation in order to explain whether men and women have different dynamics in finding a job. The organization of the paper is as follows. In Section 1, we present the main characteristics of the HLFS data used under two alternative definitions of unemployment. Section 2 provides the specification of the grouped duration models. In

⁷ Galiani, S. and Hopenhagen, H. A., 'Duration and Risk of Unemployment in Argentina', *Journal of Development Economics*, Vol: 71, 2003, pp. 199-212.

⁸ Tansel, A. and Tasci H. M., 'Determinants of Unemployment Duration for Men and Women in Turkey', IZA Discussion Paper No: 1258, 2004.

⁹ First-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, State Institute of Statistics (SIS) *Household Labor Force Survey Results 2001*, January 2003, Ankara: State Institute of Statistics, 2003.

¹⁰ Tansel, A. and Tasci H. M., 'Determinants ...', 2004.

¹¹ Wolpin, K.I., 'Estimating a Structural Search Model: The Transition from School to Work', *Econometrica*, Vol: 55(4), 1987, pp. 801-817.

¹² Eckstein, Z. and Wolpin K., 'Duration to First Job and the Return to Schooling: Estimates from a Search-Matching Model', *Review of Economic Studies*, Vol: 62, 1995, pp. 263-286.

¹³ Chuang, H-L., 'Estimating the Determinants of the Unemployment Duration for College Graduates in Taiwan', *Applied Economics Letters*, Vol: 6, 1999, 677-681.

¹⁴ Lassibille, G., Gomez L.N., Ramos I.A. and Sanchez C., 'Youth Transition from School to Work in Spain', *Economics of Education Review*, Vol: 20, 2001, pp. 139-149.

¹⁵ Kiefer, N. M. 'Analysis of Grouped Duration Data', *Contemporary Mathematics*, Vol: 80, 1988(a), pp. 107-139.

¹⁶ Sueyoshi G. T., 'A Class of Binary Response Models for Grouped Duration Data', *Journal of Applied Econometrics*, Vol: 10 (4), 1995, pp. 411-431.

Section 3 we provide the estimation results. And finally, we present the main conclusions in the last section.

1. The Data

The data to analyze the determinants of unemployment duration for the first-time job seekers is obtained from the HLFS survey and summary measures are provided in the Tables 1 and 2. Table 1 shows that, as expected, most of the first-time job-seekers are composed of youth, i.e. within the age groups of 15-19 and 20-24. The results do not change for both the ILO¹⁷ and broad definition¹⁸ of unemployment (see Table 1 and 2). The individuals in their late-career (i.e. age 55 and over) have the lowest share under both definitions of unemployment. Moreover, the share of long-term unemployed is the lowest for the youth, and seems to increase with respect to age until the age of 55, among the first-time job-seekers under each definition of unemployment. An additional observation is that relaxation in the definition of unemployment seems to raise the share of long-term unemployed¹⁹ individuals. Table 2 shows that regarding the unemployment data by education, it is observed that the share of high school graduates is the highest, followed by primary school graduates among the first-time job seekers. Furthermore, under each definition, long-term unemployment is highest for the high school graduates. The lowest share in long-term unemployment is observed for the non-graduates and four-year university graduates, under the ILO and broad definition of unemployment, respectively.

¹⁷ 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, State Institute of Statistics (SIS) *Hanehalkı İşgücü Anketi: Kavramlar ve Yöntemler (Household Labor Force Survey: Concepts and Methods)*, 2001, Ankara: State Institute of Statistics, Publication No. 2484.

¹⁸ In the 'broad' definition of unemployment we relax ILO definition of unemployment by dropping criterion of actively searching for a job. That is the 'use of at least one of the job-search channel within the last three months'. For the detail of the discussion, see, Taşçı, 'Essays...', 2005.

¹⁹ Long-term unemployment definition covers all persons who have been unemployed for twelve months and over.

Table 1:
Unemployment Duration by Age Group for the 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	--	--	--	--

Source: *Computed by the author using raw data.*

Table 2:

Unemployment Duration by Education Level for the 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
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	10-11 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
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

Source: *Computed by the author using raw data.*

2. The Model

The major variable of concern is the time duration that from the commencement of unemployment spell till the measurement is conducted²⁰. In this case, the most appropriate empirical model is a parametric model of duration in which we focus on the following important question. Given that an individual survives, 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 $dt > 0$.

Some of the studies in the literature use continuous time modeling approaches, such as Grogan and van den Berg²¹ and Seernels²², under the assumption that time (T) 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. The theoretical explanation of the hazard function and the related likelihood function for this approach is provided by Prentice and Gloeckler²³, Kiefer (a)²⁴, Sueyoshi²⁵.

The hazard function for the grouped duration data is stated as follows:

$$h_i(t) = 1 - \exp[-\exp(X_i(t)\beta + \delta(t))]$$

²⁰ Lazaro, N., Molto M.L. and Sanchez R., 'Unemployment Determinants for Women in Spain', *Labour*, Vol:14(1), 2000, pp. 53-78, at p. 61.

²¹ Grogan, L. and Van den Berg, G.J., 'The Duration of Unemployment in Russia', *Journal of Population Economics*, Vol: 14 (3), 2001, pp. 549-568.

²² Serneels, P., 'Unemployment Duration in Urban Ethiopia', Discussion Paper: Center for the Study of African Economies, Oxford University, Oxford (mimeograph), 1999.

²³ Prentice, R. and Gloeckler L., 'Regression Analysis of Grouped Survival Data with Application to Breast Cancer Data', *Biometrics*, Vol: 34, 1978, pp. 57-67.

²⁴ Kiefer, N. M. 'Analysis of ...', pp. 107-139.

²⁵ Sueyoshi G. T., 'A Class of ...', pp. 411-431.

where i represents the individual, X is a set of explanatory covariates, β are the coefficients to be estimated, and $\delta(t)$ is the logarithm of the integral of the baseline hazard. In the analysis we consider three alternative distributions, namely proportional, log-normal and log-logistic hazard. The details of the model can be found in Sueyoshi²⁶ and Taşçı²⁷.

3. Estimation Results

In the following sections, we first provide the results of non-parametric duration analysis by using the Turnbull's survivor function. Then, we look at estimation results under parametric specifications, under the ILO and broad definitions of unemployment. It should be noted that the list the variables used in the estimation part is presented in the Appendix Table 1.

3.1 Non-Parametric Duration Analysis

In order to get an idea about the shape of the distribution of unemployment durations, under the 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 1 and 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. As depicted in Figures 1 and 2 that the probability of surviving beyond 12 months is about 76.9 percent for male under the ILO definition of unemployment for the first-time job-seeker. The same probability under broad definition of unemployment is 83.32 percent. However, the same probabilities for female are always higher than those of for men. The probability of surviving beyond one year for female is about 89.8 (96.5) under ILO (broad) definition of unemployment. Hence, it is possible to say that first-time job seeker women, regardless of unemployment definition, have longer unemployment durations than men.

Figure 1:

Turnbull's Survival Function under ILO Definition

²⁶ Sueyoshi G. T., 'A Class of ...', pp. 411-431.

²⁷ Taşçı, H. M., 'Essays on Unemployment in Turkey' Unpublished PhD Thesis, Ankara: Middle East Technical University, 2005.

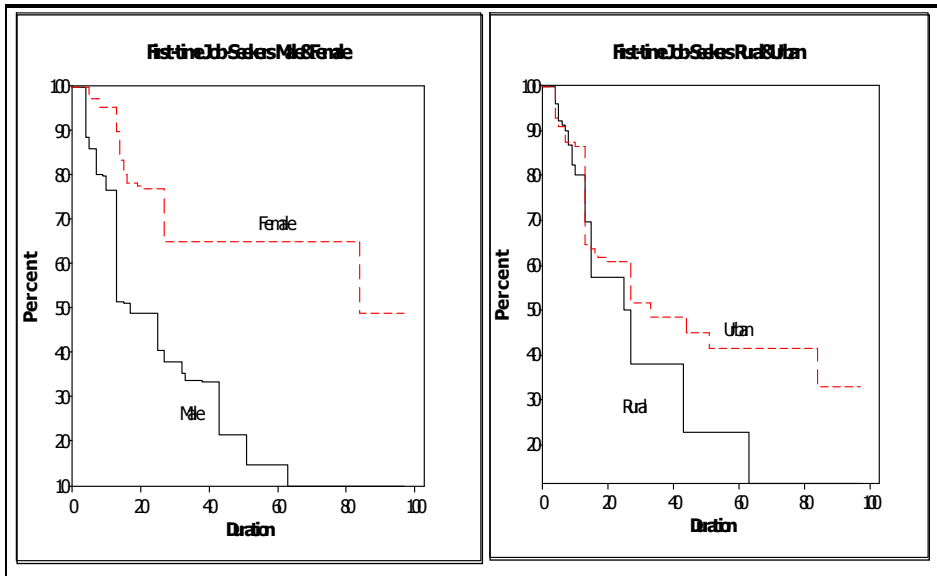
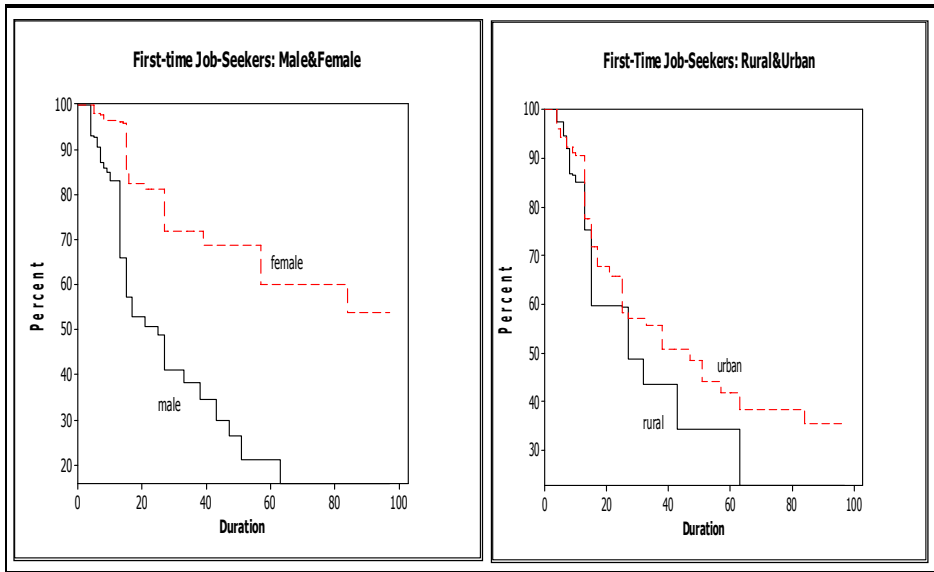


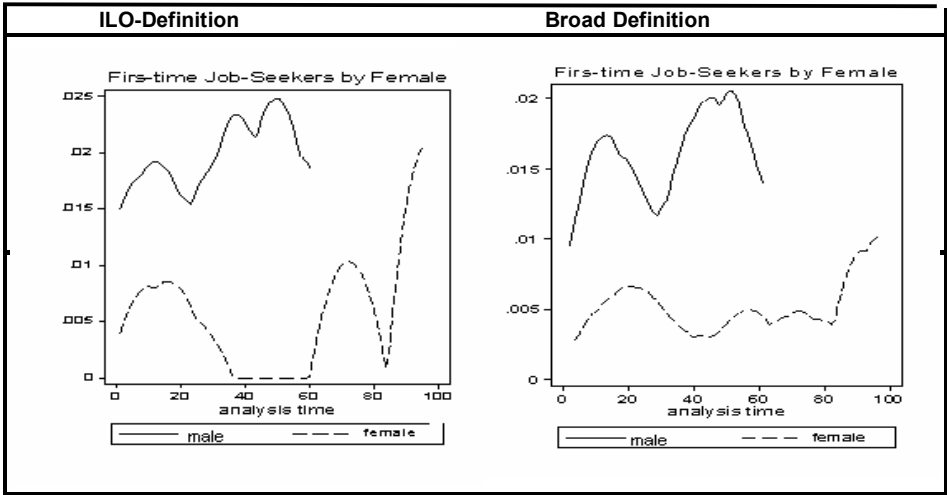
Figure 2:
Turnbull's Survival Function under Broad Definition



In the same figures we also compare the survival functions for the urban and rural resident first-time job-seeker individuals under the ILO and broad definition of unemployment. It may be observed from the Figures 1 and 2 that survival functions for urban and rural resident individuals move together until 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 higher than that for the rural resident individuals. The probabilities of surviving beyond one year in urban areas are 86.5 and 90.5 percentages under the ILO and broad definition of unemployment, respectively. The same probabilities for the rural resident ones, under both definitions of unemployment, are lower than that for the urban residing ones.

Figure 3 shows the plot of the smoothed hazard function for the first-time job seekers under alternative definitions of unemployment. It is observed from Figure 3 that the hazard for males is always higher than females. A further observation is that the hazard for males, even though it has some fluctuations, increases with respect to the increase in time, under both definitions of unemployment. However, the hazards for females show no clear time under each definition of unemployment.

Figure 3:
Smoothed Hazard Function for First-Time Job-Seekers



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 3. One clear observation from the Table 3 is that the equality of the survival functions for male and female is always rejected under both definitions of unemployment. The equality of the survival function is also rejected for different age-groups as well as for the married and non-married ones, under each definition of unemployment. However, log-rank test accepts the equality of survival function for the university graduated individuals and others, under the ILO definition of unemployment. Nevertheless, this test rejects 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, even though it has low power under the ILO definition (we reject the equality only at 10 percent significance level).

Table 3:
Log Rank Test of Differences in Hazard Rates of Selected Labor Market Groups

Labor Force	ILO Definition	BROAD Definition
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Groups		
Male/Female	60.68*** (0.00)	119.92*** (0.00)
Age Group	18.92*** (0.002)	26.75*** (0.00)
Married/Others	16.35*** (0.00)	17.49*** (0.00)
Graduated from University/Others	0.34 (0.56)	5.39** (0.02)
Lives in Urban Areas/Others	3.16* (0.075)	8.18*** (0.003)

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.

3.2 Parametric Estimation Results

We estimate our econometric models under three alternative hazard specifications, namely proportional, log-logistic and log-normal hazards. The models are estimated with and without considering unobserved heterogeneity. However, our models reject the inclusion of the unobserved heterogeneity. Therefore, we prefer reporting only the results from the standard grouped duration model without unobserved heterogeneity term²⁸. Before interpreting the estimation results we test the proportionality assumption in the proportional hazard model (PHM) and select the best fitting model by using the Akaike Information Criterion (AIC)²⁹.

3.2.1 Testing for Proportionality and Model Selection

In the proportional hazard model we assume that the coefficients of the covariates in the hazard function are constant over time. There are two alternative ways of testing for the proportionality assumption in the PHM³⁰. The results for these tests are provided in Tables 4 and 5 under the ILO and broad definitions of unemployment, respectively. In the first route, we test the restriction of equal baseline hazards (i.e. the PHM model is reduced to exponential model), and we reject this restriction in all cases (see Tables 4 and 5). Hence, we choose the proportional hazard model with respect to exponential

²⁸ Prior to estimation we re-organize the data set in person-period form in which grouping of the duration intervals corresponds to the following month groups: (1-3), (4-6), (7-9), (10-12), (13-15), (16-18), (19-21), (22-24), (25-30), (31-36), (37-47) and (48 and over).

²⁹ For the formula of the AIC, see, Hardin, J. and Hilbe J., *Generalized Linear Models and Extensions*, Stata Press, Texas-USA, 2001, p. 45.

³⁰ For the detail of the testing procedure, see, Taştı, 'Essays...', 2005.

model. In the second route, we consider the model with time varying coefficients as an unrestricted version of the PHM. It is clearly observed from Tables 4 and 5 that the proportionality assumption can not be rejected by the data for each alternative group of unemployed under both definitions of unemployment, with no exception. Hence, we accept the proportionality assumption in the PHM.

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, the AIC. It is clear from the Tables 6 and 7 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 represents the chosen model with a slight difference. In the following part we discuss the estimation results under ILO and broad definition of unemployment.

Table 4:
Testing For Proportionality -ILO Definition-

Proportional Hazard Model and Exponential Model					
	Proportional Hazard Model	Exponential Model	LR test PH& Exponential	Critical Value	Decision
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
Proportional Hazard Model & Unrestricted Model with time varying Coefficients					
	PH Model	Non-PH	LR test Non-PH and PH	Critical Value	Decision
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

Table 5:

Testing For Proportionality -Broad Definition-

Proportional Hazard Model and Exponential Model					
	PH Model	Exponential Model	LR test PH& Exponential	Critical Value	Decision
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
Proportional Hazard Model & Unrestricted Model with time varying Coefficients					
	PH Model	Non-PH	LR test Non-PH and PH	Critical Value	Decision
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

3.2.2 Covariate Effects

Tables 6 and 7 show that 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 the 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 6 and 7). Let us now look at the estimation results for the first-time job-seekers with the alternative models that we have.

Tables 6 and 7 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, the 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'³¹ 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 the results of Tansel and Tasci³² 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 alternative distributions, residents of Marmara and South-Eastern 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 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), the 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 7). Regarding the results under gender separation we observe that only living in Marmara 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 somewhat different results for the first-time-job-seekers from Tansel and Tasci³³'s findings for the pooled data under the 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 6 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 7). For women, in contrast to men, we observe the positive, but not significant, effect on the hazard only from the university degrees of two-year and four-year under ILO definition of unemployment (see Table 6). The other remaining education level

³¹ 'FemMar' is an interaction dummy taking value 1 if the sex is female and marital status is married.

³² Tansel, A. and H. M. Tasci, 'Determinants of', 2004.

³³ Tansel, A. and H. M. Tasci, 'Determinants of', 2004.

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 7).

With respect to age group dummies, 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 6). 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 6 and 7).

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 6 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 the following three occupation groups. These are ‘managerial and related workers’ (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 7). Regarding the results under gender separation we observe for both males and females that individuals working in the ‘agricultural sector’ (occup6) have shorter unemployment durations than the base category (see Table 6). 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 6:
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	0.369* [0.192]	0.437* [0.214]	0.515* [0.104]	0.463* [0.215]	0.555* [0.236]	0.291* [0.118]	0.464 [0.567]	0.485 [0.564]	0.488 [0.238]
female	-0.692*** [0.180]	-0.737*** [0.190]	-0.339*** [0.088]						
married	-0.524 [0.328]	-0.603* [0.345]	-0.321* [0.174]	-0.653* [0.344]	-0.742** [0.371]	-0.405** [0.189]	-1.228** [0.588]	-1.331** [0.591]	-0.673** [0.243]
FemMar	-1.240* [0.662]	-1.270* [0.670]	-0.560* [0.294]						
Marmara	0.555** [0.273]	0.567** [0.298]	0.242* [0.141]	0.425 [0.308]	0.436 [0.336]	0.227 [0.168]	1.020 [0.705]	1.073 [0.721]	0.498* [0.293]
Aegean	0.268 [0.296]	0.305 [0.324]	0.173 [0.154]	-0.095 [0.359]	-0.091 [0.390]	-0.018 [0.194]	1.362** [0.683]	1.414** [0.707]	0.620** [0.292]
Mediterranean	-0.037 [0.315]	-0.024 [0.342]	-0.025 [0.155]	-0.016 [0.344]	-0.009 [0.379]	0.002 [0.183]	-0.363 [0.900]	-0.371 [0.912]	-0.155 [0.360]
BlackSea	-0.034 [0.305]	-0.083 [0.326]	-0.083 [0.152]	-0.056 [0.350]	-0.109 [0.375]	-0.091 [0.184]	0.744 [0.747]	0.708 [0.765]	0.195 [0.314]
EastAnatolia	0.339 [0.297]	0.301 [0.324]	0.093 [0.173]	0.438 [0.313]	0.408 [0.343]	0.155 [0.173]	-14.610*** [0.708]	-14.698*** [0.724]	-3.999*** [0.292]
SouthEastAnatolia	0.790** [0.322]	0.802** [0.353]	0.367** [0.175]	0.843** [0.340]	0.884** [0.379]	0.437** [0.196]	-14.588*** [0.675]	-14.689*** [0.683]	-3.971*** [0.262]
Primary	0.034 [0.458]	0.025 [0.484]	-0.006 [0.238]	0.299 [0.527]	0.318 [0.564]	0.154 [0.290]	-1.662* [0.858]	-1.722* [0.880]	-0.731* [0.398]
Middle	0.044 [0.469]	0.027 [0.495]	-0.005 [0.244]	0.285 [0.535]	0.289 [0.572]	0.127 [0.294]	-0.837 [0.879]	-0.872 [0.883]	-0.370 [0.399]
High	0.052 [0.463]	0.057 [0.491]	0.034 [0.242]	0.067 [0.537]	0.074 [0.575]	0.042 [0.294]	-0.105 [0.903]	-0.118 [0.895]	-0.043 [0.397]
VocHigh	0.250 [0.487]	0.267 [0.515]	0.145 [0.255]	0.430 [0.549]	0.439 [0.586]	0.232 [0.302]	-0.094 [1.000]	-0.072 [1.011]	-0.038 [0.444]
TwoYear Un.	0.421 [0.508]	0.479 [0.546]	0.274 [0.271]	0.173 [0.624]	0.218 [0.670]	0.118 [0.341]	1.009 [0.967]	1.009 [0.976]	0.526 [0.434]
FourYear Un. Plus	1.091** [0.522]	1.272** [0.561]	0.645** [0.276]	0.914 [0.623]	1.134* [0.682]	0.608* [0.349]	1.496 [0.981]	1.572 [1.008]	0.712 [0.457]
age2024	0.279 [0.171]	0.287 [0.184]	0.124 [0.091]	0.446** [0.192]	0.486** [0.208]	0.254** [0.106]	-0.947** [0.401]	-0.983** [0.412]	-0.447** [0.181]
age2534	-0.423* [0.254]	-0.448* [0.270]	-0.226* [0.127]	-0.309 [0.302]	-0.325 [0.326]	-0.130 [0.166]	-1.212** [0.494]	-1.279** [0.513]	-0.590** [0.232]
age3544	0.121 [0.515]	0.099 [0.543]	0.099 [0.256]	0.875 [1.044]	0.835 [1.092]	0.374 [0.583]	-0.290 [0.723]	-0.302 [0.762]	-0.161 [0.331]
age4554	-0.342 [0.999]	-0.346 [1.000]	-0.239 [0.420]				-0.842 [0.922]	-0.897 [0.922]	-0.436 [0.395]
age55pl	-9.727*** [0.986]	-8.194*** [1.007]	-2.324*** [0.350]				-16.290*** [1.135]	-16.511*** [1.188]	-4.193*** [0.435]
unemprate	-3.255* [1.672]	-3.730*** [1.768]	-2.047** [0.827]	-2.203 [1.786]	-2.611 [1.903]	-1.530 [0.934]	-3.918 [4.747]	-4.288 [4.937]	-2.309 [2.029]
occup2	0.656 [1.089]	0.680 [1.161]	0.348 [0.517]	-9.829*** [0.719]	-12.207*** [0.744]	-2.981*** [0.275]	0.252 [1.127]	0.298 [1.140]	0.095 [0.597]
occup3	-0.301 [0.356]	-0.241 [0.368]	-0.064 [0.160]	-0.765 [0.515]	-0.696 [0.527]	-0.244 [0.226]	0.212 [0.689]	0.242 [0.697]	0.072 [0.291]
occup4	1.090*** [0.341]	1.194*** [0.359]	0.595*** [0.170]	1.145*** [0.422]	1.265*** [0.443]	0.664*** [0.211]	0.890 [0.771]	0.918 [0.799]	0.399 [0.357]
occup5	1.125*** [0.325]	1.237*** [0.343]	0.628*** [0.162]	1.125*** [0.383]	1.246*** [0.403]	0.654*** [0.193]	0.926 [0.875]	0.960 [0.877]	0.358 [0.364]
occup6	2.568*** [0.315]	2.929*** [0.369]	1.566*** [0.185]	2.528*** [0.383]	2.884*** [0.437]	1.565*** [0.221]	3.103** [0.850]	3.324** [0.907]	1.647*** [0.436]
occup7	1.415*** [0.276]	1.559*** [0.296]	0.784*** [0.141]	1.412*** [0.345]	1.567*** [0.368]	0.815*** [0.176]	1.168* [0.612]	1.270** [0.639]	0.570* [0.294]
occup8	0.388 [0.644]	0.488 [0.671]	0.273 [0.316]	-0.599 [1.051]	-0.545 [1.059]	-0.246 [0.435]	3.758** [1.110]	3.947** [1.223]	1.742*** [0.581]
h1	-3.455*** [0.198]	-3.388*** [0.205]	-1.796*** [0.096]	-2.740*** [0.230]	-2.731*** [0.242]	-1.507*** [0.124]	-7.565*** [0.468]	-7.613*** [0.492]	-3.257*** [0.202]
h2	-3.787*** [0.237]	-3.739*** [0.248]	-1.963*** [0.117]	-3.146*** [0.274]	-3.169*** [0.293]	-1.715*** [0.148]	-7.382*** [0.469]	-7.471*** [0.499]	-3.256*** [0.218]
h3	-4.775*** [0.363]	-4.808*** [0.370]	-2.471*** [0.168]	-4.122*** [0.406]	-4.228*** [0.414]	-2.262*** [0.197]	-8.405*** [0.724]	-8.536*** [0.749]	-3.734*** [0.292]
h4	-2.911*** [0.238]	-2.823*** [0.250]	-1.516*** [0.121]	-2.469*** [0.284]	-2.458*** [0.303]	-1.371*** [0.159]	-5.990*** [0.380]	-6.033*** [0.390]	-2.591*** [0.169]
h5	-4.275*** [0.473]	-4.265*** [0.487]	-2.194*** [0.222]	-3.925*** [0.599]	-4.010*** [0.607]	-2.176*** [0.282]	-7.012*** [0.699]	-7.078*** [0.714]	-3.076*** [0.294]
h6	-4.976*** [0.721]	-4.973*** [0.740]	-2.478*** [0.315]	-4.775*** [1.008]	-4.858*** [1.021]	-2.522*** [0.415]	-7.534*** [1.030]	-7.601*** [1.058]	-3.245*** [0.419]
h7	-5.519*** [1.002]	-5.539*** [0.999]	-2.832*** [0.380]	-4.578*** [1.010]	-4.668*** [1.010]	-2.492*** [0.414]	-21.958*** [0.233]	-22.118*** [0.229]	-7.205*** [0.956]
h8	-2.860*** [0.345]	-2.708*** [0.375]	-1.425*** [0.182]	-2.585*** [0.466]	-2.559*** [0.504]	-1.426*** [0.259]	-5.558*** [0.517]	-5.596*** [0.546]	-2.278*** [0.231]
h9	-3.870*** [0.725]	-3.840*** [0.752]	-2.043*** [0.338]	-2.944*** [0.747]	-2.952*** [0.805]	-1.644*** [0.395]	-21.840*** [0.231]	-21.923*** [0.234]	-6.874*** [0.071]
h10	-3.635*** [0.700]	-3.626*** [0.713]	-1.982*** [0.331]	-2.629*** [0.730]	-2.652*** [0.775]	-1.532*** [0.398]	-21.874*** [0.232]	-21.955*** [0.236]	-6.885*** [0.070]
h11	-2.260*** [0.544]	-2.228*** [0.585]	-1.278*** [0.319]	-0.513 [0.580]	-0.367 [0.672]	-0.283 [0.419]	-21.910*** [0.282]	-21.967*** [0.287]	-6.943*** [0.081]
wald chi2	1846.401 [0.630]	1629.587 [0.706]	2654.124 [0.331]	1404.015 [0.843]	1506.647 [1.043]	2207.926 [0.679]	89995.071 [0.719]	90381.722 [0.792]	193324.263 [0.450]
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	0.506	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

Table 7:
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*** [0.148]	0.461*** [0.162]	0.228*** [0.078]	0.374** [0.162]	0.411** [0.175]	0.209** [0.086]	0.685* [0.383]	0.741* [0.415]	0.312* [0.182]
female	-0.719*** [0.134]	-0.786*** [0.142]	-0.380*** [0.066]						
married	-0.228 [0.229]	-0.257 [0.250]	-0.117 [0.123]	-0.264 [0.227]	-0.296 [0.246]	-0.149 [0.122]	-1.078*** [0.404]	-1.147*** [0.410]	-0.532*** [0.169]
FemMar	-0.850** [0.424]	-0.868** [0.438]	-0.426** [0.192]						
Marmara	0.503*** [0.187]	0.513** [0.203]	0.249** [0.098]	0.383* [0.217]	0.390* [0.236]	0.198* [0.120]	0.714* [0.391]	0.746* [0.415]	0.314* [0.176]
Aegean	0.101 [0.222]	0.113 [0.242]	0.077 [0.117]	0.068 [0.265]	0.072 [0.289]	0.065 [0.146]	0.300 [0.415]	0.312 [0.440]	0.136 [0.193]
Mediterrian	-0.136 [0.215]	-0.173 [0.227]	-0.120 [0.105]	-0.072 [0.244]	-0.102 [0.260]	-0.080 [0.126]	-0.475 [0.487]	-0.481 [0.493]	-0.241 [0.194]
BlackSea	-0.274 [0.208]	-0.344 [0.221]	-0.202* [0.105]	-0.170 [0.240]	-0.233 [0.256]	-0.146 [0.128]	-0.486 [0.418]	-0.526 [0.433]	-0.283 [0.184]
EastAnatolia	0.140 [0.201]	0.078 [0.218]	-0.015 [0.106]	0.255 [0.219]	0.218 [0.239]	0.074 [0.121]	-0.760 [0.620]	-0.848 [0.647]	-0.444 [0.278]
SouthEastAnatolia	0.094 [0.244]	0.058 [0.263]	-0.009 [0.126]	0.214 [0.258]	0.189 [0.279]	0.073 [0.139]	-0.859 [1.024]	-0.902 [1.021]	-0.477 [0.384]
Primary	0.120 [0.387]	0.142 [0.407]	0.073 [0.200]	0.339 [0.457]	0.377 [0.476]	0.203 [0.236]	-0.799 [0.823]	-0.811 [0.864]	-0.333 [0.383]
Middle	0.117 [0.398]	0.125 [0.419]	0.058 [0.206]	0.339 [0.467]	0.364 [0.487]	0.195 [0.242]	-0.853 [0.846]	-0.864 [0.886]	-0.367 [0.403]
High	0.241 [0.394]	0.255 [0.414]	0.127 [0.204]	0.285 [0.466]	0.312 [0.485]	0.175 [0.240]	-0.192 [0.865]	-0.189 [0.887]	-0.095 [0.395]
VochHigh	0.144 [0.407]	0.192 [0.429]	0.131 [0.211]	0.252 [0.477]	0.300 [0.498]	0.197 [0.247]	-0.081 [0.876]	-0.071 [0.916]	-0.026 [0.409]
TwoYear Un.	0.205 [0.444]	0.233 [0.474]	0.164 [0.234]	0.325 [0.527]	0.379 [0.557]	0.250 [0.280]	-0.433 [0.922]	-0.363 [0.990]	-0.512 [0.435]
FourYear Un. Plus	0.855* [0.455]	0.958** [0.482]	0.511** [0.235]	0.825 [0.547]	0.945 [0.577]	0.532* [0.287]	0.714 [0.934]	0.743 [0.971]	0.366 [0.426]
age2024	0.310** [0.133]	0.333** [0.142]	0.151** [0.069]	0.428*** [0.146]	0.461*** [0.156]	0.232*** [0.078]	-0.309 [0.303]	-0.291 [0.318]	-0.130 [0.138]
age2534	-0.241 [0.182]	-0.231 [0.193]	-0.111 [0.091]	-0.201 [0.210]	-0.201 [0.225]	-0.071 [0.140]	-0.567 [0.380]	-0.579 [0.382]	-0.271 [0.165]
age3544	-0.502 [0.400]	-0.529 [0.415]	-0.239 [0.185]	-0.524 [0.597]	-0.541 [0.636]	-0.286 [0.293]	-1.050 [0.644]	-1.098 [0.671]	-0.512 [0.287]
age4554	0.092 [0.718]	0.111 [0.743]	0.070 [0.345]	0.065 [0.737]	0.073 [0.843]	0.033 [0.293]	-0.397 [0.789]	-0.401 [0.837]	-0.110 [0.395]
age55pl	-15.077*** [0.689]	-14.683*** [0.620]	-4.151*** [0.155]	-14.065*** [0.667]	-15.045*** [0.470]	-4.041*** [0.195]	-14.246*** [0.977]	-15.070*** [1.154]	-3.644*** [0.346]
unemprate	-3.720*** [1.272]	-4.024*** [1.337]	-1.968*** [0.619]	-3.842*** [1.408]	-4.158*** [1.486]	-2.064*** [0.720]	-2.285 [2.912]	-2.530 [2.967]	-1.423 [1.208]
occup2	0.071 [0.764]	0.067 [0.809]	0.038 [0.373]	-0.068 [1.045]	-0.036 [1.087]	-0.036 [0.513]	0.052 [1.186]	0.134 [1.286]	0.054 [0.530]
occup3	-1.438*** [0.262]	-1.436*** [0.273]	-0.588*** [0.118]	-1.781*** [0.361]	-1.786*** [0.374]	-0.743*** [0.166]	-1.191*** [0.427]	-1.232*** [0.437]	-0.515*** [0.175]
occup4	0.519** [0.239]	0.575** [0.252]	0.316*** [0.121]	0.580** [0.271]	0.643** [0.288]	0.359** [0.145]	0.033 [0.615]	0.015 [0.632]	0.041 [0.262]
occup5	0.370 [0.233]	0.414* [0.246]	0.234** [0.116]	0.285 [0.271]	0.336 [0.296]	0.210 [0.142]	0.423 [0.519]	0.408 [0.528]	0.162 [0.223]
occup6	2.029*** [0.230]	2.296*** [0.265]	1.258*** [0.136]	1.919*** [0.264]	2.060*** [0.303]	1.160*** [0.161]	3.047*** [0.526]	3.208*** [0.572]	1.599*** [0.275]
occup7	0.646** [0.203]	0.702** [0.215]	0.370** [0.103]	0.610** [0.236]	0.674** [0.251]	0.370** [0.126]	0.453 [0.429]	0.487 [0.449]	0.256 [0.195]
occup8	0.094 [0.488]	0.111 [0.508]	0.080 [0.244]	-0.383 [0.615]	-0.380 [0.627]	-0.176 [0.289]	2.084** [0.926]	2.174** [0.977]	0.970* [0.452]
h1	-3.764*** [0.154]	-3.737*** [0.161]	-1.910*** [0.074]	-3.461*** [0.183]	-3.458*** [0.193]	-1.768*** [0.088]	-5.526*** [0.362]	-5.537*** [0.369]	-2.632*** [0.148]
h2	-3.809*** [0.170]	-3.787*** [0.180]	-1.929*** [0.093]	-3.552*** [0.197]	-3.561*** [0.209]	-1.817*** [0.098]	-5.134*** [0.365]	-5.178*** [0.388]	-2.494*** [0.166]
h3	-4.598*** [0.244]	-4.624*** [0.252]	-2.334*** [0.113]	-4.274*** [0.278]	-4.329*** [0.289]	-2.203*** [0.130]	-6.309*** [0.585]	-6.405*** [0.601]	-3.036*** [0.239]
h4	-2.912*** [0.161]	-2.829*** [0.172]	-1.462*** [0.082]	-2.845*** [0.198]	-2.801*** [0.214]	-1.429*** [0.104]	-3.635*** [0.265]	-3.655*** [0.273]	-1.851*** [0.119]
h5	-3.222*** [0.209]	-3.158*** [0.223]	-1.629*** [0.107]	-3.067*** [0.249]	-3.041*** [0.268]	-1.566*** [0.133]	-3.957*** [0.378]	-3.992*** [0.384]	-2.035*** [0.165]
h6	-4.070*** [0.371]	-4.057*** [0.391]	-2.041*** [0.178]	-4.043*** [0.468]	-4.083*** [0.488]	-2.083*** [0.227]	-4.546*** [3.047***]	-4.580*** [3.208***]	-2.253*** [0.251]
h7	-4.853*** [0.579]	-4.893*** [0.587]	-2.465*** [0.248]	-4.321*** [0.585]	-4.386*** [0.601]	-2.255*** [0.273]	-8.179*** [0.191]	-8.968*** [0.184]	-5.888*** [0.106]
h8	-2.541*** [0.247]	-2.361*** [0.274]	-1.200*** [0.137]	-2.583*** [0.326]	-2.502*** [0.364]	-1.283*** [0.192]	-2.948*** [0.339]	-2.920*** [0.361]	-1.490*** [0.170]
h9	-18.089*** [0.229]	-17.637*** [0.273]	-6.183*** [0.143]	-17.204*** [0.372]	-18.177*** [0.389]	-6.193*** [0.187]	-18.229*** [0.240]	-18.924*** [0.231]	-5.839*** [0.084]
h10	-18.089*** [0.229]	-17.637*** [0.273]	-6.183*** [0.143]	-17.204*** [0.372]	-18.177*** [0.389]	-6.193*** [0.187]	-18.229*** [0.240]	-18.924*** [0.231]	-5.839*** [0.084]
h11	-2.285*** [0.364]	-2.148*** [0.419]	-1.108*** [0.219]	-1.688*** [0.427]	-1.462*** [0.555]	-0.633*** [0.314]	-3.632*** [0.745]	-3.638*** [0.779]	-1.843*** [0.349]
h12	-2.080*** [0.486]	-1.921*** [0.542]	-1.010*** [0.280]	-2.023*** [0.775]	-1.850*** [0.920]	-0.898* [0.482]	-2.637*** [6.000]	-2.637*** [6.242]	-1.408*** [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

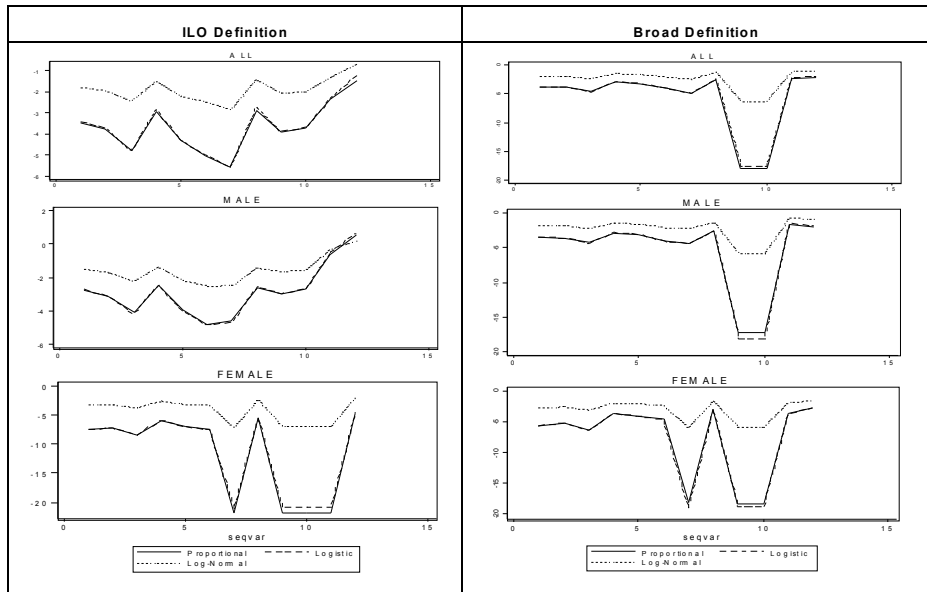
3.2.4 Duration Dependence

Figure 4³⁴ depicts the graphs of the baseline hazards at means of the explanatory variables for the first-time 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 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 9th 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 18th month, and then has two dips about the 21st month, and between the 27th and 30th months.

The figure of the baseline hazards under the broad definition of unemployment is slightly different from those under the ILO definition. 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 4:
Baseline Hazards for the First-time Job Seekers under Alternative Definitions



3.3 Predicted Hazards

³⁴ In figures ‘seqvar’ denotes the grouping interval or the period.

In Table 8 (a,b,c) we provide the predicted hazard rates, i.e. probability of finding a job, in the first-three months of the unemployment period for the first-time job-seekers 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 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. The conclusion seems to not change for both non-graduates and university graduated individuals. Further, for women we observe that the non-married women are more likely to obtain a job within three months relative to married women (see Tables of 8a and 8b). 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. Another observation is that the difference between the non-graduated and university graduated individuals becomes lower if we look at the results under broad definition of unemployment rather than the ILO definition of unemployment (see Table 8). 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. Regardless of marital status, we further find that primary school graduate males are more likely to find a job than the middle or high school graduated (and also vocational high school graduates) ones under the ILO (broad) definition of unemployment. For instance as shown in Table 8a, the probability of obtaining a job within the first three months for the primary school graduate urban resident first-time job-seeker 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. Moreover, for females, regardless of marital status or residence, we find that the predicted hazard values for the non-graduates are 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. Similar observations, with a few exceptions, can also be seen with the broad definition of unemployment.

Table 8a:
The Predicted Hazard Rates for the First-time Job-Seekers with Selected Characteristics

Education Level	ILO Definiton: Married&Urban&age 25-34						Broad Definiton: Married&Urban& age 25-34					
	Proportional		Log-Logistic		Log-Normal		Proportional		Log-Logistic		Log-Normal	
	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 8b:
The Predicted Hazard Rates for First-time Job-Seeker Non-Married Individuals with Selected Characteristics

Education Level	ILO Definiton: Non-married&age 25-34						Broad Definiton: Non-Married& age 25-34					
	Proportional		Log-Logistic		Log-Normal		Proportional		Log-Logistic		Log-Normal	
	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 8c:

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

Concluding Remarks

The main objective of this paper is to analyze the role of personal as well as regional characteristics on the duration of unemployment for the first-time 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’. 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 paper can be summarized as follows.

The empirical results of this paper indicate that living in urban areas increases the probability of finding a job for the first-time job-seekers. The effect of this variable is particularly significant for the first-time job-seeker males under both definitions of unemployment. We further observe that females 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 being married decreases the probability of finding a job for both first-time job-seeker men and women under each definition of unemployment.

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. 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. With regard to estimation results for the age effects on the hazard we find no clear time profile for the first-time job seeker males. However, the hazard seems to decline with age for the first-time job seeker females.

Appendix Table 1:

Variables Used in the Estimation of the Models

1. "urban" is a dummy variable taking value 1 if the individual 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" and "South East Anatolia".
6. Education consists of a set of six dummies:
"Non-Graduate": Illiterate plus those who are literate but did not graduate from a school (Base Category)
"Primary": Primary School
"Middle.": Middle School
"High": High School
"Voc.High.": Vocational High School
"Two Year Un.": Two Year University
"Four Year Un. Plus": Four Year University and Over
7. Age consists of 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 provincial 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. h 's are period specific constants that measure the duration dependence.