

THE ROLE OF DEMOGRAPHIC VARIABLES ON UNEMPLOYMENT DURATION

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Öz

Demografik ve sosyo-ekonomik faktörlerin işgücünü oluşturan bireyler arasında heterojen dağılıma sahip olması bu faktörlerin işsizlik süresi üzerindeki etkisini araştırmaya değer kılmaktadır. Bu bağlamda, çalışmanın amacı 2005-2015 dönemi için cinsiyet, medeni durum, ailenin reisi olma, eğitim durumu ve yaş gibi değişkenlerin Türkiye'deki işsizlik süresine etkisini Türkiye İstatistik Enstitüsü'nün hazırladığı Hanehalkı İş Gücü anketini kullanarak açıklamaktır. Seçilen değişkenlerin, bireylerin işsizlik süresi üzerindeki etkisini ölçmek için esnek zaman bağımlılığına izin veren Cox Proportional Hazard modeli kullanılmıştır. Çalışmanın sonuçları, kadınların işsizlik süresinin daha uzun olduğunu ve yüksek eğitimin işsizlik riskini azaltmadığını göstermektedir. Ayrıca ilerleyen yaş ile bireylerin istihdam şansının düştüğü görülmüştür.

Anahtar Kelimeler: İşsizlik Süresi, Survival Analizi, Cox Proportional Hazard Model

Jel Sınıflaması: J20; J21; J64;

Abstract

The heterogeneous distribution of demographic and socio-economic factors among individuals constituting the workforce makes it worthwhile to investigate the effects of these factors on unemployment duration. From this basis, the aim of this paper is to explain the effect of the relevant variables such as gender, marital status, being head of family, educational status and age on unemployment duration in Turkey for the period 2005-2015 by using Turkish Statistical Institute's Household Labor Force Survey. Cox proportional hazard model that provides flexible time dependence is applied in order to measure the effect of selected variables on unemployment spell of individuals. Our results show that unemployment duration takes longer for females and high level of education does not mitigate the risk of unemployment. Moreover, with increasing age, employment chance is also decreasing.

Keywords: Unemployment Duration, Survival Analysis, Cox Proportional Hazard Model

JEL Classification: J20; J21; J64;

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1. Introduction

As macroeconomic indicator unemployment is one of the most important phenomenon in both developed and developing countries and it still remains as a problem that strictly needed to be solved by policy makers and economists. Long length of unemployment reflects inability of an economy to generate employment regarding individuals who want to work but not doing so, even though they are available for employment and actively seeking work (ILO, 2018). On the other hand, employment probability also gives signal about efficiency and effectiveness of an economy in absorbing its labor force in the labor market. In this context, while we are analyzing unemployment issue, the re-employment span or unemployment duration of working age population should be taken into account as well. One should be noted that, long-term unemployment has a devastating effect on workers in terms of their reproduction of themselves. By definition, unemployment duration refers to the duration period during which the person recorded as unemployed was seeking or available to work (OECD Stat, 2018). The reported duration should consist of a continuous period up to the reference period.

Duration of unemployment gives us an idea of whether unemployment is short or long run. Short-term unemployment can be evaluated as frictional and it is generally unavoidable. Further, high short-term unemployment may indicate high job creation and more turnover/mobility in the labor market. However, long-term unemployment shows being unemployed for one year or longer (ILO, 2018). Stated in other words, it can be defined as continuous periods of unemployment extending for one year or longer. While short period of joblessness is of less concern, long-term unemployment is likely to reflect structural problem in labor market

Factors on which the duration of unemployment depends are cyclical factors, structural characteristics of the labor market, demographic structures, desired of the unemployed to keep looking for a better job.

This paper offers an examination of the impact of demographic and socio-economic variables on unemployment duration in Turkey. Further, it has been seeking an answer the question that whether there is gender asymmetry in unemployment duration of individuals or not. Using Cox proportional hazard model and comprehensive data set, the effect of individual heterogeneity or demographic and socio-economic differences on unemployment duration are measured for the period 2005-2015.

Age, gender, level of education, being head of family and marital status has been used as demographic and socio-economic explanatory variables. We also use individual level of unemployment duration constructed from Household Labor Force Survey (HLFS) of 2005-2015 obtained from Turkish Statistical Institute.

This paper is organized as follows. Section 2 presents literature review on unemployment duration. Section 3 gives general picture of unemployment duration of grouped data via descriptive statistics in relevant years and informs about data structure. Section 4 explains estimation method and model. Cox proportional hazard model results are provided in Section 5. Lastly, the last section concludes the paper.

2. Literature Review

At international level, many studies concentrate on unemployment duration. Using aggregate data on incomplete unemployment spells, Ridder and Kooreman (1983) estimates a model for the duration of unemployment. Theoretical background of this paper is relies on the theory of job research. Age and regional unemployment percentage are used as explanatory variables (Ridder and Kooreman, 1983, p.54). Also, females and males are considered different groups. It is found that age elasticity is greater than the unemployment elasticity (Ridder and Kooreman, 1983, p.55). Contrary, for the female group age elasticity is smaller than unemployment elasticity. Kettunen (1997) analyses relationship between education and the probability of reemployment by using Finnish microeconomic data on unemployed workers. Weibull model is also used as estimation methodology. It is presumed that schooling leads to rise in job opportunities (Kettunen, 1997, p.163). According to results, education has a positive effect on the probability of re-employment and the transition intensity of highly educated people into unemployment is rather (Kettunen, 1997, p.168).

Kyyra and Pesola (2017) claim that unemployment benefit increases unemployment spells. By using instrumental variables estimation method, it is founded that one additional week unemployment benefits leads to increase the expected unemployment duration in Finland (Kyyra and Pesola, 2017, p.30).

There is another study, which has been conducted to measure unemployment duration in Ukraine for the period 1997-2003 by using Cox proportional hazards model (Kupets, 2006, p.230). According to estimation results, men do not appear to have significantly higher re-employment probabilities than women and married females are more likely to leave unemployment (Kupets, 2006, p.230). In addition, unemployed with higher education tend to find jobs more quickly (Kupets, 2006, p.233).

Tansel and Tasci (2004) in Turkey have conducted a comprehensive study about unemployment duration. They analyze the determinants of probability of leaving unemployment by using personal and household characteristic and local market conditions for the years 2000 and 2001 (Tansel and Tasci, 2004, p.1). As econometric method, non-parametric and parametric analyses have been used. According to results of proportional hazard, log-logis-

tic and log-normal specifications, the probability of leaving unemployment for women is lower than men (Tansel and Tasci, 2004, p.23). For men being married increases the hazard rate while for women being married decreases hazard rate (Tansel and Tasci, 2004, p.24). Additionally, living in an urban area has positive effect on unemployment duration.

After analyzing the determinants of unemployment duration for men and women, Tansel and Tasci (2005) also consider on youth unemployment duration for the same years. Comparison between adult and youth unemployment shows that the incidence of unemployment is quite large among youths (Tansel and Tasci, 2005, p.542). Urban youth are more likely to get a job compared to rural one (Tansel and Tasci, 2005, p.542). Further, the probability of find a job of young women is lower than young men. Being head of household, which means family responsibility, is not statistically significant in Tansel and Tasci's (2005) study.

Using Cox Proportional Hazard Model, Borsic and Kavkler (2009) have conducted a model that measures the effect of age, gender, education and region on unemployment spell in Slovenia for the years 2002-2005. It has been found that females' unemployment takes longer time than men's and person, who has bachelor degree, is better off than person who has master degree (Borsic and Kavkler, 2009, p.155).

Using micro data for the period 1980-1994, Lentz and Tranaes (2005) measure gender asymmetry in the study *Marriage, Wealth and Unemployment Duration: A Gender Asymmetry Puzzle* with modeling basic proportional hazard. It is found that the more the man earns and the wealthier the woman is, the longer it takes for her to find a job (Lentz and Tranaes, 2009, p.8).

Fitzenberger and Wilke (2007) have constructed a model by using Censored Box-Cox regression to measure unemployment duration and post unemployment wages for the years 1996-1997 in Germany. The results show that unemployment benefit transfers leads to higher unemployment duration (Fitzenberger and Wilke, 2007, p.22).

3. Data & Descriptive Statistics

3.1. Data

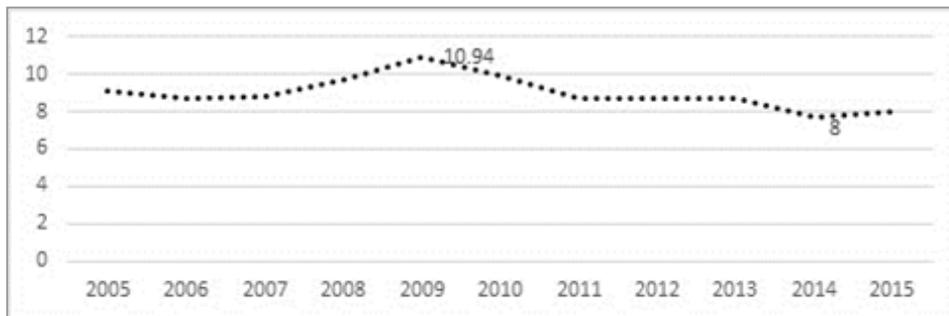
We plan to use Household Labor Force Survey (HLFS) annually prepared by Turkish Statistical Institute for the years 2005-2015 in order to obtain detailed descriptive statistics and estimation results. The Institute aims to reveal the situation of population in terms of labor force, to compile and present explicitly information regarding employed and unemployed. Basically, the content of HLFS is designed to provide information of labor force structure of country, the number of jobless, labor force statistics at regional level, economic activity and occupation, employment status and employment duration of people who are unem-

ployed, duration of seeking work of jobless. The rounds of the data we acquired for this study includes ten years from 2005 to 2015. In the surveys, there are about 1.409.902 individuals in the relevant years.

3.2. Descriptive Statistics

Figure 1 depicts the unemployment rate for the years 2005-2015. Our calculation shows that average unemployment rate is equal to 8,9 % for selected period. As expected, unemployment rate takes its highest value in 2009 because of impact lag of 2008 crisis. After this year, gradual decrease in unemployment rate can be observed. In conclusion, unemployment rate exhibits a smooth pattern from the beginning 2005 to 2015.

Figure 1: Unemployment Rate for the Years 2005-2015 (%)



Source: Author's calculation using HLFS raw data.

It is also estimated unemployment duration of individuals according to their response to question in the survey that how long have you looking for a job. We categorize unemployment duration as 3 and lower than 3 months, 4-6 months, 7-9 months, 10-12 months and more than 12 months. The average duration of unemployment for individuals in the survey is 8.5 months between 2005 and 2015. Table 1 shows percentage distribution of unemployment durations according to years. The figure indicates that 32% of unemployed individuals have sought for a job less than three months or for three months in 2005. The share of this category has an increasing trend starting from 2007. On the one hand, we see that the share of unemployment duration in the category 4-7 is fluctuating between 18,7% and 22,67%. Except for the last category (>12), unemployment duration is slightly increasing almost in all categories for the relevant years.

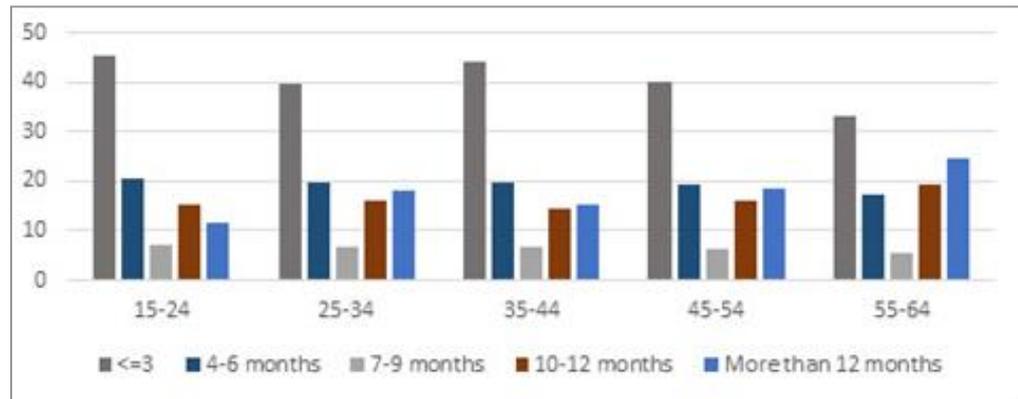
Table 1: Distribution of Unemployment Duration According to Years (%)

	<=3	4-6	7-9	10-12	>12
2005	32,5	18,7	6,36	14,65	27,78
2006	32,25	19,64	6,21	16,03	22,87
2007	40,35	19,25	6,62	16,4	17,39
2008	42,75	20,65	6,27	15,56	14,75
2009	40,14	22,67	8,31	14,92	13,93
2010	41,12	19,14	7,4	16,13	16,13
2011	44,1	18,87	6,58	15,96	14,48
2012	45,92	19,91	6,26	15,31	12,59
2013	46,28	19,93	6,15	16,3	11,34
2014	48,22	19,45	5,85	14,51	11,96
2015	47,07	19,98	6,42	15,3	11,22

Source: Author's calculation using HLFS raw data.

Figure 2 gives a clear view of unemployment duration among age categories for selected ten years. We observe that %17,65 of individuals have not been supply their labor force for more than one year, which means they have struggled with long-term unemployment. Moreover, the share of respondents who are called long-term unemployed is higher than the average, especially for the age groups 55-64 and 45-54. For example, for the age group 55-64 this share is 24,7 percent. According to our observation, people are mostly unemployed for 3 months or less than 3 months. The percentage of unemployed in this threshold is %44 for the age group 35-44.

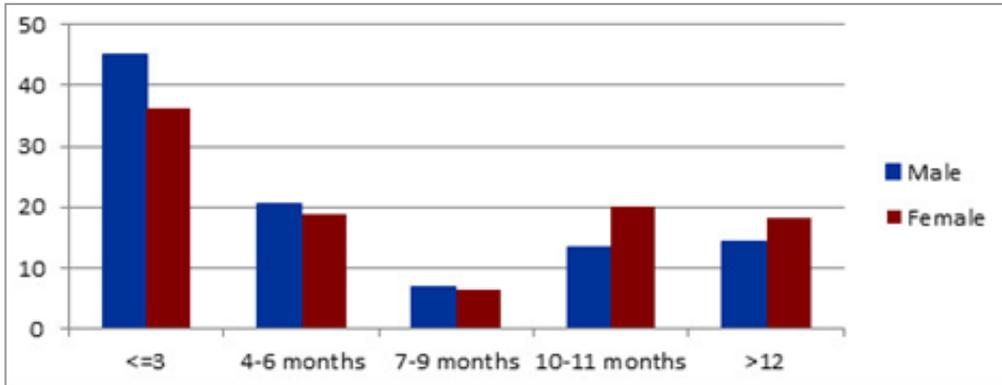
Figure 2: Distribution of Unemployment Duration by Age (%)



Source: Author's calculation using HLFS raw data.

Figure 3 illustrates the share of unemployment duration according to gender differences. As expected, long-term unemployment is higher among women than men. In reference to our observation, while the share of long-term unemployed females is %18, same ratio is %14 for males for the period 2005-2015. Domestic affairs and child bearing are mostly thought as females' responsibility. That is, these factors can be the reason of higher female long-term unemployment.

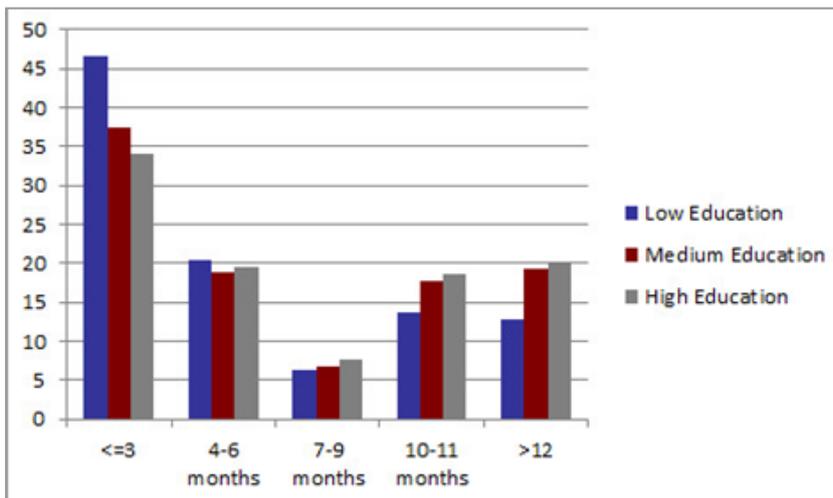
Figure 3: Distribution of Unemployment Duration According to Gender (%)



Source: Author’s calculation using HLFS raw data.

The distribution of the length of time to find a job by education level is another categorization that informs us. Our expectation as to effect of educational status is that increase in schooling year leads to raise re-employment probability of respondents, but it seems that unemployment duration and education level are not negatively correlated. We observe that job seeking duration of highly educated people (university graduate and above) is longer than primary, secondary and high school graduates. The percentage of well-educated people unemployment is about 20,12 between 2005 and 2015. Also, the share of high school graduates long-term unemployment is close to university graduates. Individuals graduated from primary or secondary school has the lowest long-term unemployment share in relevant years.

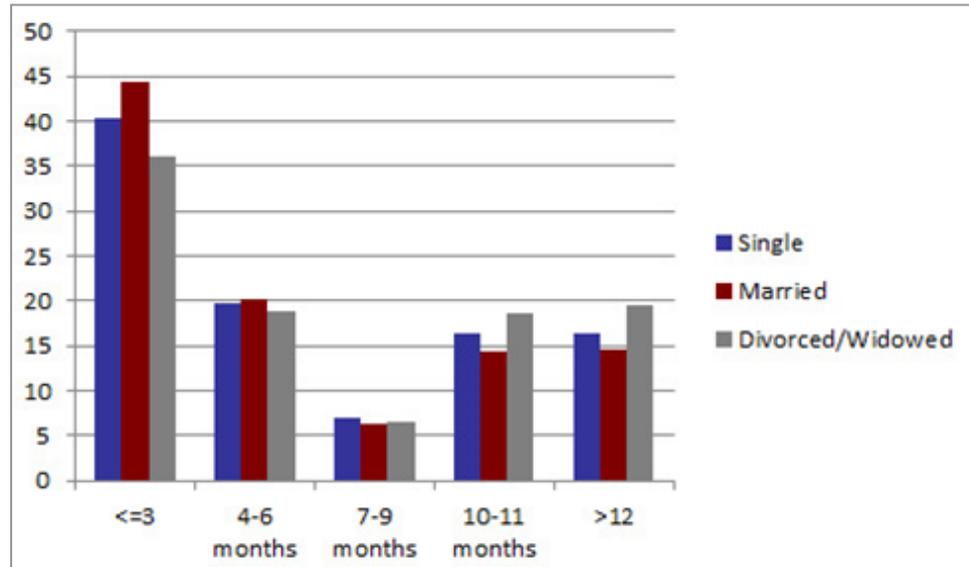
Figure 4: Distribution of Unemployment Duration According to Education Level (%)



Source: Author’s calculation using HLFS raw data.

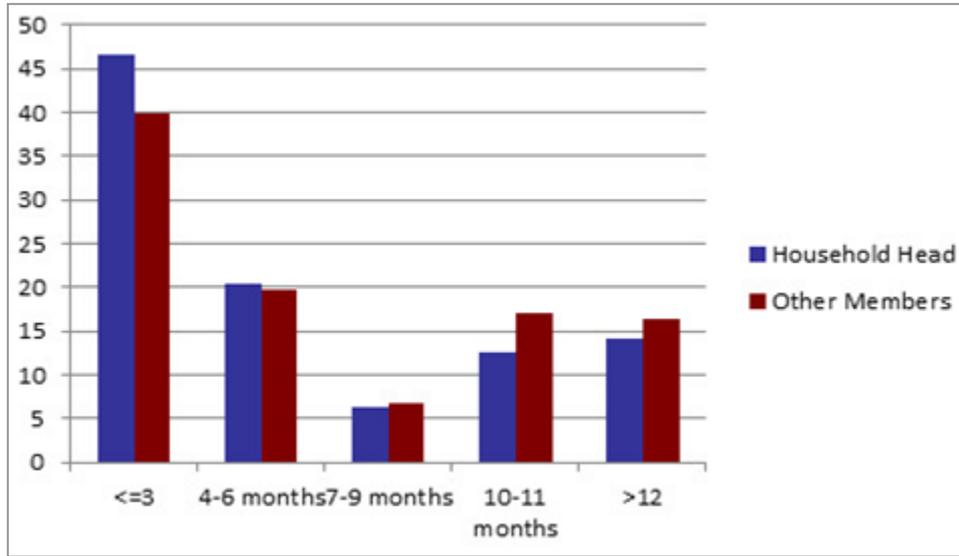
Figure 5 shows the proportion of unemployment duration differentiated by marital status for the years 2005-2015 in Turkey. Being single, married and divorced/widowed represent three subpopulations of sample in the survey. We combine being divorced and being widowed in one category due to their relatively low number of observations. According to Figure 5, the share of long-term unemployment of divorce or widowed individuals is higher than single or married individuals. We claim that almost 20 percent of divorced/widowed people are looking for a job more than 12 months.

Figure 5: Distribution of Unemployment Duration According to Marital Status (%)



Source: Author's calculation using HLFS raw data.

In order to understand the distribution of unemployment duration among family members, we determine two categories that are head of family and others. We observe that the share of long-term unemployment is 14 percent for head of family. Same ratio is higher for the other members of family. This result is parallel with the general view that, in Turkey, head of family is responsible for meet the need of household members.

Figure 6: Distribution of Unemployment Duration of Family Members (%)

Source: Author's calculation using HLFS raw data.

4. Estimation Methodology and Model

4.1. Survival Analysis

4.1.1. Cox Proportional Hazard Model

Survival analysis is a statistical method that is used in analyzing expected duration of time till one or more events happen (Jenkins, 2005, p.10). Furthermore, it is also called duration analysis, transition analysis, failure time analysis and time-to-event analysis. Modeling of relationship between outcome variable and independent predictor variables is commonly employed in virtually fields. *Cox Proportional Hazard Model* is the semi parametric method of survival analysis. (Hosmer and Lemeshow, 1999, p.1). The Cox proportional hazard model is mostly preferred in regression models of medical research in investigating possible association between the survival time of patients and predictor variables (Fox and Weisberg, 2011, p.2). On the other hand, due to its plausible models that can be easily fit, evaluated and interpreted, the method becomes popular in biology. Measuring relationship between nutritional status and demographic/physical characteristics is a good example of this method in the context of relevant field.

In order to predict possible association between outcome and explanatory variables in feasible topics of economics, survival analysis is also started to use as a method of econometrics in recent years. This method is useful to estimate loan performance (borrowers obtain loans and then they either default or continue to repay their loans), to compute firm survival and exit, to observe time to retirement or find a job, to understand adoption of new technology (firms either adopt new technology or still have not adopted it).

Instead of estimating nonparametric versions, the reason we use the model is that Cox proportional hazard model allow the inclusion of independent variables. Another advantage of this model is that it is suitable to conduct an estimation of grouped data (McKeague and Zhang, 1991, p.5). Because of that, we conduct *Cox Proportional Hazard Model* as a semi parametric method of hazard function in estimating individual heterogeneity and gender asymmetry on unemployment spell (Therneau and Grambsch, 2000, p. 40). Assuming n individuals under observation, the form of Cox proportional hazard model at time t ($\lambda_i(t)$) as follows;

$$(1) \quad \lambda_i(t) = e^{x_i' \beta} \cdot \lambda_0(t) = c_i \lambda_0(t), \quad i=1,2,\dots,n$$

where $x_i = (x_{i1}, x_{i2}, \dots, x_{ik})'$ is the vector of k covariate values for individual i , $\beta = (\beta_1, \beta_2, \dots, \beta_k)'$ is the vector of regression coefficients and it measures the impact of covariates, $\lambda_i(t)$ is the hazard function of individual i which is determined by a set of covariates and $\lambda_0(t)$ is the baseline hazard. Base line hazard corresponds to the value of hazard if all covariates values (x_i) are equal to zero. Lastly, in the model t represents the survival time. In our study, the Cox model is expressed by hazard function ($\lambda_i(t)$) which is interpreted as the risk of remain unemployed/not find a job.

By using individuals i and j , the ratio of the hazard functions is estimated. It is equal to;

$$(2) \quad \frac{\lambda_i(t)}{\lambda_j(t)} = \frac{e^{x_i' \beta} \lambda_0(t)}{e^{x_j' \beta} \lambda_0(t)} = e^{(x_i - x_j)' \beta}$$

The proportional hazard assumption can be defined as the ratio of covariate effects for both individuals. Hazard rate specifies the probability that individual experience the event at a certain time period-in our case event is find a job- while that he/she is at risk for experiencing the event (Katchova, 2013, p.6). Technically, the odds ratio of logistic regression and hazard ratio are also similar in interpretation.

Specifically, in the model, the event presents finding a job and failure shows not find a job. Further, our basic interest is to understand how long they stay in the sample (sur-

vival/the length of time to find a job) with the effect of explanatory variables². The risk of failure means being unemployed (hazard rate) of individuals is our last concentration in the model. If hazard ratio is lower than 1, the risk that does not find a job decreases. Contrary, if hazard ratio exceeds 1, individual experiences longer unemployment duration or remains unemployed.

4.2. Model

In this study, the main or explained variable is unemployment duration, which is individual level and is constructed from the Household Labor Force Survey for the period 2005-2015 by the Turkish Statistical Institute. It is calculated from the response of the question that how long you have been seeking a job (in months). And, the list of explanatory variables as follows;

1. “*Gender*” is a dummy variable taking value 0 if sex is female and 1 if sex is male,
2. “*Head*” is a dummy variable taking value 1 if the respondent is head of household and 0 otherwise,
3. “*Education*” is a categorical variable consist of a set of three dummies: “Low education” represents the information of respondents graduated from primary schools, “Medium education” shows the individuals graduated from secondary and high school and “High education” indicates university graduation, master and doctorate degree,
4. “*Marital Status*” is a categorical variable taking value 0 if respondent is single, 1 if respondent is married and 2 if respondent is divorced or widowed,
5. “*Age*” is continuous explanatory variable.

As we mentioned before, heterogeneity in demographic and socio-economic factors among individuals constituting the workforce makes it worthwhile to investigate the effects of these factors on unemployment duration. In this sense, we select gender, being head of family, education level, marital status and age as independent variables in explaining their effect on the length of time to find a new job (survival).

² Relevant results that the effect of selected explanatory variables on unemployment duration are given in Table 2 in the previous section.

5. Results

The factors age, gender, educational status, being head of family, and marital status are employed as explanatory variables in the Cox proportional hazard model. We would like to estimate the impact of these variables on the length of unemployment spells in Turkey from 2005 to 2015. The reference categories of explanatory variables are as follows; female, primary education, single, and other members of family. The results of the Cox regression can be found in Table 2.

Table 2: Cox Proportional Hazards Model Results including Outliers

	Coefficient	Std. Err.	p-value	Conf. Interval
Age	-0.018	0.000	0.000	(-0.019_ -0.018)
Male	0.158	0.006	0.000	(0.146-0.171)
Head	0.234	0.008	0.000	(0.217-0.250)
Medium Educ.	-0.157	0.006	0.000	(-0.169_ -0.164)
High Educ.	-0.070	0.007	0.000	(-0.086_ -0.055)
Married	0.095	0.007	0.000	(0.080-0.110)
Divorced/Widowed	0.093	0.014	0.000	(0.065-0.121)

Note: The number of observations and failures are 179.988 and 144.421 respectively.

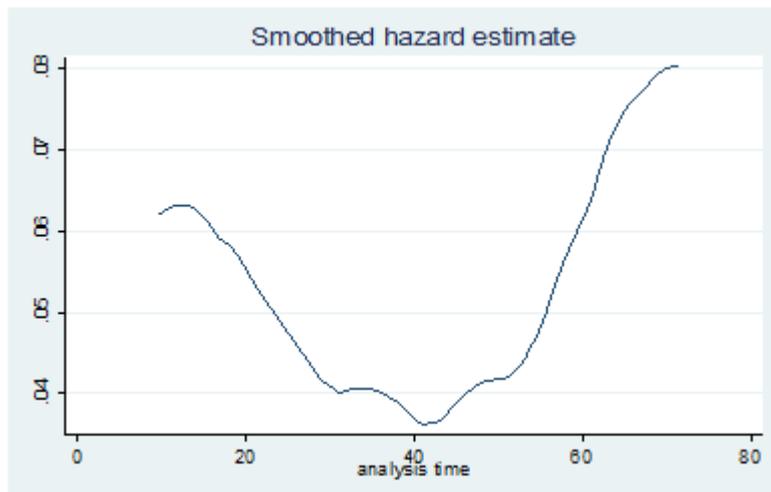
All selected explanatory variables are highly significant. Elder individuals have higher unemployment duration. Unemployment spell of males is 15.9% lower than females in relevant years. One explanation of this result is that women may be less likely to search for a job than men (Tasci and Tansel, 2010, p.26). Another possible reason can be social status of females in Turkey regarding child bearing and intra household responsibilities. As expected, unemployment duration of householders is not long as much as unemployment duration of other family members. Highly educated individuals' unemployment duration is 7% higher than low educated people. Unemployment spell of married and divorce/widowed respondents in the survey are 9.5% and 9.3% lower than single respondents respectively.

Table 3: Hazard Function Results including Outliers

	Hazard Ratio	Std. Err.	p-value	Conf. Interval
Age	0.981	0.000	0.000	(0.980-0.981)
Male	1.172	0.007	0.000	(1.157-1.186)
Head	1.263	0.010	0.000	(1.243-1.284)
Medium Educ.	0.854	0.005	0.000	(0.842-0.865)
High Educ.	0.931	0.007	0.000	(0.917-0.946)
Married	1.100	0.008	0.000	(1.083-1.116)
Divorced/Widowed	1.097	0.015	0.000	(1.067-1.129)

Note: The number of observations and failures are 179.988 and 144.421 respectively.

The result of estimating hazard function is placed in Table 3. According to the table, males have 17.2% greater chance for employment than females. In other words, the probability of being employed of Turkish males is higher than Turkish females. With increasing age, the hazard increases by 2% each year that means elder respondents are less likely find a new job. The hazard for the unemployment duration to end is 17.2% higher for unemployed males than for unemployed females. Chance for employment of head of family is 26% higher than other family members. Individuals who have primary school education have 15% and 7% high employment chance than individuals who have medium and high level education. One explanation of this result can be selective attitude of more educated people during their job seeking period. The hazard for single is 10% and 9.7% higher than married and divorced/widowed respectively.

Graph 1 Smoothed Hazard Estimate including Outliers

Source: Author's calculation using HLFS raw data.

In Graph 1, smoothed hazard estimate shows the probability of having the event (finding a job) going down from %6 to %2 beginning from time period 10 to 44. In other words, respondents are less likely to experience the event or find a job. It is starting to go up at 50 months until 78 months. First, having the event that means find a job goes down and then it increases.

In the data set, we observe many outliers. For example, the number of individuals who are looking for a job for 120 months is equal to fifty-nine or twenty-six respondents' unemployment duration is eighty months. In order to measure whether or not the results reported in Table 2 and Table 3 are caused from these outlier, we restrict the unemployment duration as 18 months and we repeat same estimation. Approximately, 23.447 individuals are dropped from the sample. The results are reported in Table 4 and Table 5.

Table 4: Cox Proportional Hazards Model Results (unemployment duration<=18 months)

	Coefficient	Std. Err.	p-value	Conf. Interval
Age	-0.010	0.000	0.000	(-0.010, -0.009)
Male	0.187	0.006	0.000	(0.173-0.201)
Head	0.177	0.008	0.000	(0.159-0.194)
Medium Educ.	-0.104	0.006	0.000	(-0.118, -0.090)
High Educ.	-0.069	0.008	0.000	(-0.086, -0.053)
Married	0.056	0.008	0.000	(0.039-0.072)
Divorced/Widowed	0.039	0.015	0.011	(0.009-0.070)

Note: The number of observations and failures are 156.541 and 126.966 respectively.

The category divorced/widowed becomes insignificant in the second model that includes respondents who has 18 months or lower unemployment duration. Individuals at higher ages have higher unemployment duration. Unemployment spell of males is 18.7% lower than females. Other members of family spend their time in order to find a job 17.7% more than head of family. In addition, unemployment duration of respondents who has medium and high education is 10% and 6% higher than low educated individuals respectively.

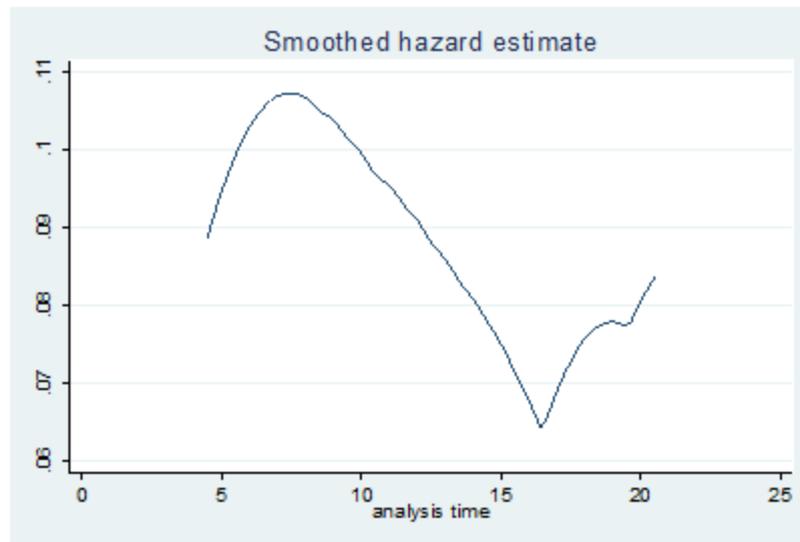
Table 5: Hazard Function Results

	Hazard Ratio	Std. Err.	p-value	Conf. Interval
Age	0.989	0.000	0.000	(0.989-0.990)
Male	1.206	0.008	0.000	(1.189-1.222)
Head	1.193	0.010	0.000	(1.173-1.215)
Medium Educ.	0.900	0.006	0.000	(0.888-0.913)
High Educ.	0.932	0.007	0.000	(0.917-0.948)
Married	1.502	0.008	0.000	(1.040-1.075)
Divorced/Widowed	1.040	0.016	0.011	(1.009-1.073)

Note: The number of observations and failures are 156.541 and 126.966 respectively.

Table 5 gives us hazard function results of limited model. With increasing age, the hazard increases by 1.1% each year that means an additional year of age decreases the chances for employment. The same result that males have greater chance for employment than females is still valid. In the case of Turkey, males are more likely find a new job than females. The hazard for the unemployment duration to end is 20.6% higher for unemployed males than for unemployed females. Individuals who have primary school education have 9% and 9.3% employment chance than individuals who have medium and high level education. The hazard, which means unemployment risk for single, is 50% higher than married individuals. There is a big difference of the hazards of single respondent between Table 2 and Table 4. Stated in other words, employment chance of single individuals is 40% lower in limited model than first model.

Graph 2 Smoothed Hazard Estimate



Source: Author's calculation using HLFS raw data.

According to Graph 2 that shows smoothed hazard estimate, the probability of having the event (finding a job) is going up from %9 to %10 in the over 10 time periods. It is starting to go down in 9 months until 16 months. In this period, people are less likely to experience to the event, which means less likely find a job. First, having the event goes up and then it decreases until 16-time period. Then, the probability finding a job of individuals increases until 24 periods.

6. Conclusion

This paper examines the effect of demographic and socio-economic factors on unemployment duration in Turkey using the 2005-2015 Household Labor Force Survey. In other words, the role of individual heterogeneity on unemployment spell is analyzed. For this purpose, a semi-parametric survival estimate Cox proportional hazard model is used in order to understand unemployment duration and chance for employment of respondents.

As we all know, one of the most famous labor market measure is unemployment rate and its usefulness in conveying valuable information of a country's labor market situation and the fact that it is widely recognized as a headline labor market indicator are important (ILO, 2018, p.1). Besides, its duration is also crucial to understand labor market structure.

Long-term unemployment or high unemployment duration can be associated with personal characteristic or demographic/socio-economic differences, along with labor market structure. Long length of time to find a new job indicates serious problems especially for low income groups in labor market. In the absence of compensatory income mechanism, unemployed people have to overcome unemployment using their own coping strategies.

As expected, the results of Cox proportional hazard model show that the probability of leaving unemployment for females is lower than males in Turkey. This result can be explained by intra-household responsibilities of females like childbearing and home production activities. Our findings, according to gender differences, are parallel with the Tansel and Taşçı's (2004) estimation results. At the same time, the risk of remains unemployed for women is higher than men. While the hazard is increasing for single individuals, the chance for employment for married persons is increasing. Another consequence is that the probability of unemployment for high skill workers is more than low skilled workers. One explanation well-educated worker is more selective and they may prefer to wait for a better job. Arslan and Şentürk (2018) also reach a similar result that higher education triggers higher length of time to find a job.

The estimation result of being head of family is consistent with our expectation. The status of householders in family regarding their responsibilities like being bread-winner etc. reduces their unemployment spell. It can be claimed that, contrary to well-educated workers' selective attitude, head of family does not wait so much to start working due to his/her household. Moreover, according to our estimation results, the probability of event (finding a job) of head of family is more than other family members. In both estimations, age and unemployment duration move in same direction. That is, with increasing age, unemployment duration is increasing. Additionally, individuals' employment chance in early period of life is more than later period. The result is also consistent with Danacica and Babucea's (2010) study that age has a significant impact for unemployment spell.

The study suggests that to mitigate well-educated people unemployment duration, job creation mechanism of the labor market should be ameliorated. As a long-term policy proposal, equal distribution of intra-household responsibilities among household members-particularly between spouses-may decrease longer unemployment duration of females.

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