B. İLHAN

METU 2012

YOUTH IN THE LABOR MARKET AND THE TRANSITION FROM SCHOOL TO WORK IN TURKEY

BENGİ İLHAN

FEBRUARY 2012

YOUTH IN THE LABOR MARKET AND THE TRANSITION FROM SCHOOL TO WORK IN TURKEY

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF SOCIAL SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

BENGİ İLHAN

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY
IN THE DEPARTMENT OF
ECONOMICS

FEBRUARY 2012

Approval of the Graduate School of Social Sciences

Prof. Dr. Meliha Altunışık
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Doctor of Philosophy.

Prof. Dr. Erdal Özmen
Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Doctor of Philosophy.

Assoc. Prof. Dr. İnsan Tunalı
Co-Supervisor

Assoc. Prof. Dr. Meltem Dayıoğlu Tayfur
Supervisor

Examining Committee Members

Prof. Dr. Erol Taymaz	(METU,ECON)	
Assoc. Prof. Dr. Meltem Dayıoğlu Tayfur	(METU,ECON)	
Assoc. Prof. Dr. İnsan Tunalı	(KOÇ UNIVERSITY, ECON)	
Assoc. Prof. Dr. Hakan Ercan	(METU,ECON)	
Assoc. Prof. Dr. Burak Günalp	(HU,ECON)	

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Name, Last name : Bengi İlhan

Signature :

ABSTRACT

YOUTH IN THE LABOR MARKET AND THE TRANSITION
FROM
SCHOOL TO WORK IN TURKEY

İlhan, Bengi

Ph.D., Department of Economics

Supervisor : Assoc. Prof. Dr. Meltem Dayıoğlu Tayfur

Co-Supervisor: Assoc. Prof. Dr. İnsan Tunalı

February 2012, 439 pages

In this thesis, we examine labor market outcomes for the youth (ages 15-29) using microdata from several rounds of the Turkish Household Labor Force Survey (HLFS). We begin by examining demographic trends. We then rely on synthetic cohorts. The fact that the HLFS sample frame targets the civilian non-institutional population brings about difficulties in interpreting labor market indicators. We show that a more reasonable picture of schooling and work choices emerges when a simple correction for 'missing males' who are doing their CMS and examine the effect of Compulsory Military Service (CMS) on the transition from school to work by using discrete hazard models.

We also investigate the time it takes to find the first permanent job to shed light on the recent evolution of the transition from school to work. Using Cox Proportional Hazard Model, we examine the effects of structural reforms and macro-economic conditions, and the permanence of these effects. We are able to study the differences in the hazard of obtaining the first permanent job by education levels non-parametrically.

Finally, we investigate the changes in the cumulative baseline hazards over time and test for the presence of gender differences in the hazard rates by using time varying covariates. With the help of these covariates, we are able to compute the time needed for the closure of the gender gap.

Keywords: Transitions of Youth, Compulsory Military Service, Discrete Hazard Model Duration Analysis, First Permanent Job

ÖZ

TÜRKİYE’DE İŞGÜCÜ PİYASASINDA GENÇLER: OKULDAN İŞE GEÇİŞ

İlhan, Bengi
Doktora, Ekonomi Bölümü
Tez Yöneticisi: Doç. Dr. Meltem Dayıoğlu Tayfur
Ortak Tez Yôneticisi: Doç. Dr. İnsan Tunalı

Şubat 2012, 439 sayfa

Bu tez çalışmasında, Hanehalkı İşgücü Anketi (HİA) verileri kullanılarak işgücü piyasasındaki gençlerin geçişleri incelenmektedir. HİA örneklem çerçevesinin sivil nüfusu hedef alması, işgücü piyasası göstergelerini yorumlarken zorlukları beraberinde getirmektedir. Tezin ilk bölümünde "eksik erkekler" ele alınarak temel işgücü piyasası göstergelerinin nasıl değiştiği incelenmektedir. Ayrıca, Ayrık Risk Modelleri kullanılarak, zorunlu askerlik hizmetinin okuldan işe geçiş üzerindeki etkisi ele alınmaktadır.

İkinci bölümde ise, okuldan işe geçişe ışık tutacak olan ilk kalıcı işe geçiş için gereken süre, inceleme altına alınmaktadır. Bu model çerçevesinde, yapısal reformlar ve makroekonomik koşulların, ilk kalıcı iş bulma süresine olan etkisini ve bu etkilerin kalıcı olup olmadıkları incelemektedir. Ayrıca non-parametrik olarak, eğitim seviyelerine göre ilk kalıcı işe girme hızlarının farkı da ele alınan konular arasındadır.

Son olarak, zamana bağlı olarak birikimli risk fonksiyonunda bir değişme olup olmadığını incelenmektedir. Ayrıca zamana bağlı değişkenler kullanılarak cinsiyet farklılığının varlığı test edilmektedir. Bu değişkenler yardımıyla cinsiyet farkının kapanması için gereken süre de hesaplanabilmektedir.

Anahtar Kelimeler: Okuldan İşe Geçiş, Zorunlu Askerlik Hizmeti, Ayrık Risk Modeli, Süre Analizi, Kalıcı İşe Geçiş

To My Love

ACKNOWLEDGMENTS

When I started my PhD, I had no idea that being a PhD candidate means to have a peculiar life. Nor did I know that I would be contented with a life with friends to whom I can only speak about our dissertations, advisors, and our ambiguous future career. Willingly or unwillingly, other friends remain outside the inner circle. Another important issue that I did not know, then, was to accept to be a student forever. The truth did not show its face until sometime after I became a dissertator.

Having shared many years of my life with a dissertation, it became one of my close friends. It was not psychically with me. However, I felt it all the time next to me since I could not get rid of thinking of it. It was always on my mind. It is my first, but it will not be the last. But of course, being the first makes it special. Now, the time has come: we should break up. I do not know how I will get used to living without it. I should put it aside and move on…Although it may have some deficiencies, I am proud of it. From the beginning to end, it is mine and my vestige. Therefore, before starting to thank other people, I should thank myself. Thank myself having preferred being a PhD candidate to being a regular person.

This dissertation could not have been written without Assoc. Prof. Dr. İnsan Tunalı and Assoc. Prof. Dr. Meltem Dayıoğlu Tayfur, who not only supported me as my supervisors, but also encouraged and challenged me throughout my academic program. They guided me through the dissertation process, never accepting less than my best efforts. I thank them all. I would also like to give my special thanks to Assoc. Prof. Dr. Kuzey Yılmaz for having been my wailing wall. Whenever I felt that I would not able to finish my dissertation and I felt remediless, he helped me stand up again and move on.

I would like to acknowledge and extend my heartfelt gratitude to the following friends: A. Aylin Bayar, Müge Karan, Nebile Korucu Gümüşoğlu, Dilek Çetin and Hayriye Özgül Özkan. I felt as if they were one step away from me when I needed to hear a friendly voice. They were never bored of listening to me. Aylin was the one who was with me when I took the first step in academia and she was with me while I was taking other steps. She knew me better than I do and she knew how to build up my self-confidence and, thus, she never gave up doing this. Müge was the one who shared her personal experience in her business life with me. She was very patient to me and she was able to calm me down during the last three months before the defense. I appreciate the fact that they were the first audience of my presentation, which lasted more than three hours. Thank them all.

I also would like to present special thanks to my parents, Nevin Yanık and Gıyasettin Yanık. I owe them a lot for bringing me to these days. They were always one of my biggest supporters during this challenging process. I also thank my aunt Zeynep Keleş and her husband Aydın Keleş. I felt that their house is my home in Ankara. I must not forget to thank my cousin Aslı Keleş Berber. Whenever I am disgusted with commuting between İstanbul and Ankara every week, considering to watch 'Avrupa Yakası' and eating 'Nutella' with her makes me happy. I would also thank Volkan Yanık, Müşerref İlhan and Yılmaz İlhan.

Most especially to my love, Serkan İlhan, words alone cannot express what I owe him for his encouragement and whose patient love enabled me to complete this dissertation. I am so glad to have him in my life. When I was at the limits of endurance, one sentence of him was enough for me to come to myself again and start saying to myself that 'There is nothing to worry about and the problem is not worth a fig' and then return back to working enthusiastically on the dissertation.

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CHAPTER 1

INTRODUCTION

Reaching out to young individuals is very important in order to build a sound economic environment for future generations; it creates higher human capital, closer relationships between educational institutions and industry; and therefore, smoother transition from school to work is possible. Today's young individuals constitute tomorrow's adults and parents. These young individuals have the potential to not only enhance the country's economic capacity, but also to make an economic impact and place social pressure on the society. Thus, while formulating economic, social and political policies, understanding the concerns and needs of the youth is crucial not only for the current generations, but also for future generations.

High youth unemployment rates and other difficulties that younger individuals encounter during their transition from school to work is a common problem for countries all over the world. At the macro level, these problems are attributable to structural failures of combining demand and supply in the labor market. At the micro level, obtaining the first permanent job after separation from school is individual's first experience with the search process. As such, it has the potential to influence the progress of their career.

Having a longer duration of obtaining a job after separation from school may send a negative signal to employers. In other words, those who are unable to make the transition in a reasonable amount of time compared to their peers could get stigmatized. Failure to find a job may provoke a discouraging effect and the individual may stop search and leave the labor force. From this point of view, knowledge of the factors affecting the transitions from school to other labor market states, such as being inactive, being unemployed, being employed, and in the case of males, being in the military, is crucial not only for researchers, but also for policy makers. Sometimes an entire cohort can get affected because of a major shock. Who gets the least affected, who gets most affected, what are the channels through which the effects operate are questions which can be answered via empirical work with the help of Human Capital Theory and Search Theory.

Note that, not only crises but also structural reforms (changes in educational system, in trade regime etc.) may affect youth in the labor market. These changes probably transmit via job offer rates, adjustment of market wages and composition of individuals in the labor market. In addition, the reservation wage (or the individuals' 'willingness' to accept a job) may also be affected by crises and structural changes. Within the static framework of Human Capital Theory, wage is a function of human capital and rate of return to human capital. On the other hand, Search Theory takes a dynamic view and claims that the unemployed individual faces the trade-off between accepting an available job offer and continuing to look for a better, but uncertain job offer. In Search Theory, wage is a function of the wage offer distribution, the arrival rate of job offers, and benefits of search (the value of leisure or home production and unemployment benefits which reduce the costs of searching). The challenge then, is to determine which observable attributes are responsible for the observed outcomes by linking them via the theoretical framework.

Apart from our attempt to answer the research questions by placing them within an accepted theoretical framework, another distinguishing feature of this study is the use of multiple datasets. This allows us to remedy the shortcomings of one data set by using another one. Next we provide a brief overview of the research questions and the data we rely on for answering them. In general, factors such as human capital, search costs, the arrival rate of job offers, which are captured via Human Capital and Search Theory, are the same for all young individuals. However, young males have to do their CMS (Compulsory Military Service). This introduces a complication. In HLFS (Household Labor Force Survey) there are no individual who are categorized as 'being in the military' as their current state. They are not included because HLFS targets the civilian non-institutional population. To our knowledge, this is the first study that investigates these 'missing males' and suggests a method of correction.

We use the HLFS database from TURKSTAT (the Turkish Statistical Institute) website for obtaining the descriptive statistics and the decomposition exercise. We also use the public use extract for the 2004, 2005 and 2006 rounds of the HLFS of

TURKSTAT to calculate male ratios by age groups. Two supplementary data sources are used to adjust the HLFS data. These are ABPRS (Address Based Population Registration System) 2007 and TDHS (Turkey Demographic and Health Survey) 2003. With the help of the supplementary data sets, we implement the correction for inclusion of the institutional population and analyze the stocks in various states with and without correction. Afterwards, we examine how the corrections affect labor market indicators and decompose the evolution of the labor market indicators by year, age and cohort effects.

We analyze the effect of CMS on the transition from school to work by using discrete hazard models. During this analysis, we use annual data from years 2004-2006 compiled by TURKSTAT. Data contain a retrospective question on states occupied one year before the survey date, including CMS. We construct the backward and forward transition matrices with CMS as one of the labor market states in the case of males. Afterwards, we rely on multinomial logit models to study the determinants of the observed transition rates, including the outflows from military and school. Our aim is to identify the factors that determine the probabilities of transition between various labor market states. Furthermore, we examine the impact of membership in previous labor market states on current labor market states by running logit models.

Another contribution of this thesis is the investigation of the evolution of the time it takes to find the first permanent job (of three months or longer) over a 25-year window. Towards that end we use the modular survey administered together with the Household Labor Force Survey in the second quarter of 2009 which targeted 15-34 year-old individuals. We employ the Cox PH (Proportional Hazard) Model which allows us to draw inferences about the effects of explanatory variables without any knowledge of the functional form of the baseline hazard.

To examine the effects of structural changes and macro-economic conditions on the duration of obtaining the first permanent job, we use dummies for year of separation from school (YSFS). We also examine the permanence of these effects. In other words, we are able to identify whether graduates whose year of separation from school coincides with a negative shock are permanently affected. We use artificial censoring, stratification and other specification tests to defend the model against misspecification. We find that stratification by education is called for, and are able to capture the differences by retrieving estimates of the baseline hazard. Thus, we are able to examine the differences in the hazard of obtaining the first permanent job via education levels non-parametrically.

Separation from school typically occurs midyear. This is likely to introduce seasonality in the hazard of obtaining the first permanent job after separation from school. This conjecture is valid especially for the individuals whose education levels are lower than university. We investigate the changes in the cumulative baseline hazards over time and shed light on this issue. In addition, one can also test for the presence of gender differences in the hazard rates by using time varying covariates. The presence of gender differences in the hazard rates can be regarded as the subsistence of the impact of CMS on the transitions from school to first permanent job. In addition, with the help of these time varying covariates, we are able to compute the time needed for the closure of the gender gap.

During the period 1988 to 2007, the share of wage workers among young employed individuals shows an increasing trend. There is reason to believe that duration of the transition will vary depending on the nature of employment. Firstly, labor market characteristics of wage workers and non-wage workers may be different. Secondly, the effects of crises and structural changes may vary according to employment status of individuals. Furthermore, since self-employed and unpaid family workers do not fit the search framework, interpretation of the results can be challenged. With these factors in mind, we examine the impact of previous labor market states on being a wage worker by running logit models. Afterwards, we repeat our exercise with the Cox PH Model and study the duration of obtaining the first permanent paid job after separation from school.

The thesis is organized under seven chapters, including this introductory one. Chapter 2 establishes the theoretical framework and provides a selective review of the empirical literature. Chapter 3 describes the main characteristics of youth in the Turkish labor market. Chapter 4 presents the aggregate picture obtained from the HLFS and the correction for inclusion of the institutional population. This chapter also provides a brief review of the data sources, their strength and shortcomings. Afterwards, we turn to our micro-econometric analyses. Chapter 5 contains our findings based on a discrete hazard framework, where focus is on the impact of previous labor market states on current labor market states. Chapter 6 contains the evidence from continuous time hazard framework where the focus shifts to the time it takes to obtain the first permanent job after separation from school. The last chapter offers a summary and concluding remarks.

CHAPTER 2

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

The object of this section is to provide the theoretical framework for our empirical work and then selectively review some of the previous studies on the youth in the labor market, the labor market effects of compulsory military service, consequences of unemployment and the factors determining the duration of unemployment.

We mainly use two distinct theories during examining the impacts of any change in the economic environment on youth in the labor market. Within the static framework, Human Capital Theory is on the scene while Search Theory takes a dynamic view. Note that, we also appeal to other theories to explain our findings[1]. In Human Capital Theory, wage is a function of human capital and rate of return to human capital. Search Theory claims that the unemployed individual faces the trade-off between accepting an available job offer and continuing to look for a better, but uncertain job offer. Put simply, an unemployed individual accepts the job offer if wage offer is higher than his reservation wage ($w \geq w_R$) and he doesn't accept the offer if ($w < w_R$) [2]. The challenge then, is to determine which observable attributes are responsible for the observed outcomes by linking them via the theoretical framework.

<u>Human Capital Theory:</u>

Since the reservation wage may depend on the time spent in unemployment, i.e., the unemployment duration, we need a model that can capture what happens to human capital when the individual is unemployed. According to Human Capital Theory,

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[1] If we are not able to explain our findings by using Human Capital Theory and Search Theory then we use other theories such as: Dual Labor Market Theory dividing the economy into two parts, called 'primary' and 'secondary' sectors and Feminist Theories. Feminist Theories are mainly concerned with non-market variables. The disadvantaged position of women in the labor market and the process that maintain this structure is caused by the patriarchy and women subordinate position in the society and the family are focused by Feminist Theories.

[2] Reservation wage is the lowest wage rate at which a worker would be willing to accept a particular type of job.

human capital decreases during the unemployment. Therefore, we decide to use Human Capital Theory as one of our cornerstones. Let's start with the functional form of the wage in Human Capital

$$w_t = r_t^H H_t \tag{2.1}$$

where H_t represents the stock of the human capital and r_t^H denotes the given rate of return to human capital. In equation below, let $s(t) \in [0,1]$ and where (φ) denotes a general human capital investment function (gross output) and the function $\varphi: R_+ \rightarrow R_+$ is strictly increasing, continuously differentiable and strictly concave. ΔH_t the change in the stock of human capital from period t to t-1, δH_t represents the human capital that is "lost" (depreciation) at a constant depreciation rate δ. In other words, ΔH_t shows the human capital accumulation which is the simple version of Ben-Porath Model:

$$H_t = (1 - \delta)H_{t-1} + \varphi(s(t)H_{t-1}; t) \tag{2.2}$$

$$\Delta H_t = \varphi(s(t)H_{t-1}; t) - \delta H_{t-1} \tag{2.3}$$

The change in the stock of human capital from last period to today is a linear combination of human capital acquirement in the previous period (investment) and the stock of human capital once acquired that is "lost" (due to depreciation). Moreover, if δ is a function of state, you can get what you need. If unemployed, $\delta > 0$, if employed $\delta = 0$. Human capital indicators can be seen as level of education, seniority, skills, on the job-learning etc. In other words, Human Capital Theory focuses on the characteristics of the unemployed person that may change during unemployment. From these equations: one can say that if the spell of unemployment lengthens, the depreciation of human capital increases. Moreover, as Neuman and Weiss (1995) find that the higher the level of education the more quickly the human capital becomes obsolete. Therefore, depreciation of human capital has probably effects on the wage offer distribution and the arrival rate of job offers. The wage offer distribution and arrival rate of job offers are two of the determinants of reservation wage function in Search Theory emphasized in the following paragraphs. From this view point, it is possible to link the Human Capital and Search Theory.

In addition, there are many studies that use Human Capital Theory to show the relationship between income and investment in education, (Stallman and Johnson, 1996; Broomhall and Johnson, 1994; Goetz, 1993). According to Human Capital Theory: people make investments in themselves due to the expectation of future returns (Blaug, 1976). Therefore, the individuals with more human capital have fewer spells of unemployment and of non-participation in the labor force, more frequent transitions between jobs and longer spells of employment than the ones with less human capital (Gilbert, 2001). The result found by Gilbert (2001) is expected since time works against the human capital due to depreciation. From this point of view, human capital theory is crucial during the examination of the transition from school to work.

Search Theory:

Now, we turn to Search Theory. In Search Theory, the unemployed individual faces the trade-off between accepting an available job offer and continuing to look for a better but uncertain job offer. This individual is able to make a decision based on the reservation wage if he knows what kind of offers to expect. Since examining the individual's decision to accept an offer or continue searching is the main issue in Search Theory, the optimal strategy can be restated as the reservation wage strategy. Therefore, in examining the duration of the search process, understanding the search theory is important.

By using the notation of Rogerson et al. (2004), we examine the basic Search Theory. Let's consider searching for a job in discrete time, taking market conditions as given: an individual seeks to maximize[3]

$$E \sum_{t=0}^{\infty} \beta^t u(x_t) \tag{2.4}$$

[3] For the continous case see Rogerson et al. (2004).

where $\beta \in (0,1)$ is a discount factor and x_t represents the income at t and E is the expectation. $u(x_t)$ is the instantaneous utility function and it is assumed that $u(x_t) = x_t$. Income is $x = w$ if employed at wage w and $x = b$ if unemployed. However, in this specification wage can capture some measure of the desirability of the job. This measure of the desirability depends on benefits, location, prestige, and other non-wage aspects of the job. In addition to that, b refers to the value of leisure or home production, and may include unemployment insurance. It also refers to the unemployment benefits which reduce the costs of searching (or raise the reservation wage) since it may also absorb the search costs.

In equation 2.5, it represents the total payoff an individual when s/he accepts a wage w is shown by $U^*(w)$ (U^* stands for working). In addition, equation 2.6 represents the total payoff an individual when s/he rejects the wage offer. These equations are the Bellman equations and the solution of these equations show the optimal search strategy.

$$U^*(w) = w + \beta U^*(w) \tag{2.5}$$

In Equation (2.6), $F(w)$ is a (i.i.d) known distribution. In addition to that, we assume that the agent cannot recall the previously rejected offer. Here, it is also assumed that if a job is accepted, the worker keeps working at that job forever.

$$U = b + \beta \int_0^\infty max\{U, U^*(w)\} dF(w) \tag{2.6}$$

w_R is unique since $U(w) = \frac{w}{1-\beta}$ is strictly increasing and w_R is called the reservation wage such that $U^*(w_R) = U$. The worker should not accept if $w < w_R$ and accept $w \geq w_R$. Substituting $U = \frac{w_R}{1-\beta}$ and $U^*(w) = \frac{w}{1-\beta}$ into equation (2.6)

$$w_R = T(w_R) = (1-\beta)b + \beta \int_0^\infty max\{w, w_R\} dF(w) \tag{2.7}$$

There is a unique solution to $w_R = T(w_R)$

This implies that if one fixes w_0 (sets $w_R = w_0$) and recursively defines $w_{N+1} = T(w_N)$ the sequence converges to w_R as $N \to \infty$. If the initial wage is $w_0 = b$, the worker's reservation wage in the final period of a finite horizon problem, w_N has the interpretation of being the reservation wage when N periods of search remain, after which the worker receives either b or their accepted wage w forever.

However, one can deduct some alternative representations to the equation (2.7) which is the optimal search strategy. We subtract βw_R from both sides of (2.7) and simplify it, than it gives the standard reservation wage equation.

$$w_R = b + \frac{\beta}{1-\beta} \int_{w_R}^{\infty} (w - w_R)\, dF(w) \tag{2.8}$$

Using integration by parts, we can also write this as:

$$w_R = b + \frac{\beta}{1-\beta} \int_{w_R}^{\infty} (1 - F(w))\, dw \tag{2.9}$$

The continuous-time version of the above result is[4]:

$$w_R = b + \frac{\alpha}{r} \int_{w_R}^{\infty} (w - w_R) dF(w) \tag{2.10}$$

Again one can integrate by parts to get

$$w_R = b + \frac{\alpha}{r} \int_{w_R}^{\infty} (1 - F(w)) dw \tag{2.11}$$

As stated in equation (2.11), the standard models of job search implies that the reservation wage is a function of the wage offer distribution ($F(w)$), the arrival rate of job offers (α), and search costs b. To sum up, as stated before, an unemployed individual accepts the job offer if wage offer is higher than his reservation wage ($w \geq w_R$) and he does not accept the offer if ($w < w_R$).

Until now, we focus on the theories that we use during constructing our hypothesis. However, during the analysis of transitions from school to work, we also focus on duration of obtaining the first permanent job after separation from school and therefore, the relationship with the unemployment duration and the implications of these two theories should be mentioned. From unemployment duration perspective: the probability that an individual doesn't find a job after a spell of length t is e^{-Ht}

[4] For more information see Rogerson et al. (2004).

where $H = \alpha[1 - F(w_R)]$ is called the Hazard rate and equals the product of the offer rate α and the probability that an individual with reservation wage w_R finds a job $[1 - F(w_R)]$. In other words, duration of unemployment is a function of offer rate and reservation wage and thus by using the implications of Human Capital Theory and Search Theory related to offer rate and reservation wage, we are able to make the connection with the duration of unemployment spell and these theories.

Note that there is not only one $F(w)$: Individuals with higher human capital have $F(w)$'s that stochastically dominate those with lower human capital. Therefore, individuals with higher education levels have higher reservation wages. From this point of view, higher educated individuals may have trouble in finding acceptable jobs since the higher the reservation wage the lower the risk that an individual accepts a job offer and, consequently, leaves unemployment. In contrast, due to their more effective mobility to search for a job, higher opportunity costs of unemployment, it is argued that highly educated individuals will have more job opportunities and thus higher educated individuals are more likely to obtain a job. Therefore, the effect of education is not clear-cut; there is a positive effect due to the number of job offers but a negative effect due to a higher reservation wage. So the effect of human capital on unemployment duration depends on which effect dominates.

The reservation wage may depend on the time spent in unemployment, i.e., the unemployment duration. According to Human Capital Theory, human capital decreases during the unemployment. As human capital decreases, individual's reservation wage decreases accordingly which also lead to changes in the wage offer distribution and job arrival rate. Empirically, this means that the probability of leaving unemployment will increase. To conclude, the two theories can be viewed as complementary since they operate together to capture developments over time (Jacob, 2005).

Turning to the variations over time and across the business cycles, many explanations can be referred to. First explanation for this could be the fact that the demand for highly educated is likely to be of importance (Gartell, 2012). The second explanation comes from the reservation wage: it may or may not adjust properly to variations over time. The last one is about the search activity: search activity is also likely to affect both the risk of unemployment and the unemployment duration.

As stated above, the arrival rate of job offers affects duration of unemployment. Therefore, we also focus on in what ways the macroeconomic conditions have an impact on the duration of unemployment. Macroeconomic conditions are likely to play a role in determining reservation wages. For example, aggregate demand conditions could influence both the overall wage offer distribution and the arrival rate of job offers and, therefore, affect reservation wages. The predicted sign of this relationship is, however, unclear. Although, there is a built-in a relationship between the business cycle and unemployment duration, Search Theory does not provide an unambiguous prediction on the sign of this relationship. Higher growth raises the probability of receiving a job offer, but also it tends to increase the reservation wage. Empirical work has not resolved the issue either. For example, Meyer (1990) finds that in USA a higher state unemployment rate raises the hazard of exit rates of young unemployed individuals from unemployment while Imbens and Lynch (1993) examine that higher local unemployment rate leads to decrease the hazard rate of young unemployed individuals.

After the start of the global crisis in 2007, the youth unemployment rate and difficulties that younger individuals encounter during their transition from school to work have received increased attention. Besides the recent interest on this subject, there are numerous earlier studies on the transition from school to work. One of the early studies is done by Rees (1986). He found that the youth displays higher rates of joblessness and unemployment than adults in USA. He pointed out that this was not only due to frictional reasons at any given point in time. Instead, the youth appeared to be more sensitive to the state of the business cycle. While higher unemployment rates capture the attention, other things are going on: wages are lower, and in some cases they face longer transition periods from school to work. The weakness of the economy and the overall lack of labor demand are identified as the main sources of the youth unemployment problem in most developed countries (Freeman and Wise, 1982; Blanchflower and Freeman, 2000). There is evidence the impact of the crisis on the youth varies depending on their labor market situation (Kapsos, 2011).

Studies on developing countries corroborate findings from developed countries: higher unemployment and joblessness rates among youth are widespread (O'Higgins, 2003). Not only unemployment but also inactivity rates among the youth is very high in 13 Sub-Saharan African Countries (Guarcello et al. 2005). Higher rates of unemployment among the youth is one the main problems in transition countries in Europe as well. In Bulgaria, Croatia, Poland and Slovakia, youth unemployment is higher than 35 percent (O'Higgins, 2003).

As mentioned above, the transition from school to work differs from country to country; it may also show variations within the country. In other words, residential location must be taken into consideration. For example, Riphahn (1999) finds that living in a high unemployment region comes along with the higher risks of unemployment for school leavers. Kondylis and Manacorda (2006) argue that at a given level of labor demand, a rise in the proportion of youths in the labor market would affect the youth disproportionately since youth and adults are only imperfect substitutes in production. Therefore, countries that have a young and growing population like Turkey have to show more interest in the youth and the transition from school to work.

There is also a strand of literature which deals with the effect of education on the duration of unemployment (Chuang, 1999, Corrales and Rodrı´guez, 2004; Nguyen and Taylor 2005; Buchholz and Kurz, 2008; Salehi-Isfahani and Egel, 2010). Some researchers have been interested in the minimum duration of obtaining first significant job after education (Corrales and Rodrı´guez, 2004; Buchholz and Kurz, 2008; Franz et al. 1997). Franz et al. (1997) look at the transition from vocational training to work: the duration of the first spell of non-employment after completion of formal vocational training. They find that not only human capital variables but also family backgrounds of the youth have strong effects on the duration of the first of job. In addition to this, the youth who did not have luck finding a job shortly after graduation from vocational training are found to face a comparatively long episode of non-employment. Transition is easier in countries where apprenticeships are the predominant form of upper secondary school or in countries where school and work experiences are more commonly combined, than in countries where general upper secondary education is the rule. A number of studies (e.g., Bratberg and Nilsen, 1998; Van der Klaauw et al. 2004, Ryan, 2001; Winkelmann, 1996) also show that apprentices have better labor market chances in terms of duration of search, unemployment spells and wages compared with people who choose another type of upper secondary education. A study by Blossfeld and Stockmann (1999) arrive at similar findings for Germany: They find the German vocational education and training system to be successful and argue that it contributes to a well-trained labor force as compared to other European countries. Germany has a relatively low unemployment rate.

Compulsory Military Service (CMS) can be also studied from the perspective of the Human Capital Theory since CMS has impacts on the human capital of the individuals. There is a strand of the literature that studies the economic costs of compulsory military service, the effects of the abolition of CMS on the labor market in terms of educational attainment, and the impact of CMS on various labor market outcomes related to human capital of the individual. Given that a growing number of countries have abolished or are considering abolishing compulsory military, there is a growing interest in the effects of military conscription on labor market outcomes (Pietro, 2009). In Europe, many countries including Belgium (1994), the Netherlands (1996), France (1996), Spain (2001) and Italy (2005) have abolished conscription while Germany and Israel still have mandatory service for men (Buonanno, 2008). In 10 out of 28 NATO members, armies have compulsory military service while Latvia, Romania and Slovakia are planning to abolish it (Poutvaara and Wagener, 2006) [5,6].

With respect to the effect of the abolition of compulsory military service on labor market outcomes, there are no undisputed results: some researchers have found positive others negative effects on labor market outcomes. Pietro (2009) found that in Italy, the effect of the abolition of CMS was not statistically significant on university participation, though this effect was found to be heterogeneous. There was a

[5] Israel has mandatory military service for both men and women.

[6] These are Austria, Bulgaria, Denmark, Estonia, Germany, Greece, Norway, Lithuania, Poland and Turkey.

detrimental effect of the abolition of CMS on the enrollment of those from less advantaged backgrounds. On the other hand, Maurin and Xenogiani (2004) found that in France, there is a significant decline in the proportion of men in school between ages 18-22, with no significant change before 18 or after 22 after the reform. On the other hand, Angrist and Krueger (1992) and Card and Lemieux (2000) also find that the abolition of compulsory military service had a positive effect on college enrollment in USA.

Buonanno (2008) considers that CMS represents a career interruption and may prevent the acquisition of useful labor market experience in early life. Stroup and Heckelman (2001) argue that the opportunity cost of displacing a young man from the private sector workforce to the military is high if he is highly educated. They also add that if he is less educated, then CMS increases the quality of human capital of the young man by providing him with training opportunities as well as qualifications such as self-discipline, communication skills, and problem solving techniques that are valued in the labor market. They find empirical support for this hypothesis in Africa and Latin America. Bauer et al. (2009) argue that military service might have a positive impact on the human capital stock of the enlisted individuals and thus, enhance their labor market performance.

As conscripts have to serve during the period that the human capital investments are usually occurred, it is not clear that CMS is the best place for building experience. From this point of view and referring papers above, we can conclude that CMS leads to increase the human capital of the individuals with lower education levels while it leads to depreciation of the human capital of the ones with higher education levels. In addition, after CMS, the reservation wages probably increase because a handicap is removed and the job offer rate is likely to be higher. The increase in the reservation wage of a better educated male is probably higher than the increase in the reservation of a lower educated male. However, according to Human Capital Theory, there is a depreciation of human capital during an unemployment spell and the depreciation rate varies among education levels. From this point of view, we test whether males who were in military a year ago are more likely to be employed than the ones who were in school a year ago. We also test whether the effect of being in military a year ago differs among different education levels.

To the best of my knowledge, there is no literature on the effects of CMS on the labor market in Turkey. This is due to the fact that data are difficult to find. Nevertheless, one can find a few studies on the re-enlistment decision in Turkey[7]. Yıldırım and Erdinç (2007) investigate the magnitude of an individual's enlistment probability and how that probability depends on his personal characteristics, family background, employment situation, and expectations for further education by using surveys that have been carried out among recruits at the Ankara Armored Divisions School[8]. Another study done by Yıldırım et al. (2010) show that the determinants of re-enlistment and further education decisions of the conscripts of the Turkish Armed Forces (TAF) are related. In this study, it is discovered that an increase in the education level and previous unemployment duration of conscripts increases re-enlistment likelihood. Briefly, then our research is the first study to analyze the effects of CMS on the labor market, more specifically, the effects of CMS on transition from school to work.

One of the main criticisms about the Human Capital Theory is that it does not pay attention to the quality of education. Due to the fact that there is no exact variable to measure quality of individuals' education, mother's education is taken as a proxy. There are older studies. For example, Bee et al., (1982) and Haveman and Wolfe (1995) also examine that there are positive correlations between mothers' education children's school outcomes and cognitive developments. In most countries, there is a greater interaction between mother and children in most families, while fathers are usually the main earners (breadwinners) in the household (Kingdon, 1999). Godana (2006) finds out that in Namibia, mother's education has a positive impact on the success of children in test scores. From this point of view, one can say that mother's education has a positive effect on the quality of education. As quality of education

[7] In Yıldırım and Erdinç (2007) study, re-enlistment is defined as a conscripts' decision to join the Turkish Armed forces as specialists for at least 36 months, after that they may choose to extend their contracts.

[8] Two separate surveys have been conducted. The first survey was carried out on 4 August 2003 with 682 participants and the second one was carried out on 27 December 2003 with 595 participants. giving an aggregate of 1277 (Yıldırım and Erdinç, 2007).

leads to increase in productivity of the workers, mother's education may have a positive effect on the transition from school to work. In other words, it may shorten the duration of obtaining the first permanent job after separation from school. On the other hand, since the quality of education increases, the reservation wage of the individual increases and this may lengthen the duration of obtaining the first permanent job after separation from school. In our study, we test whether higher level of mother's education speeds the transition.

Since reservation wage is likely to depend on observables such as gender as well preferences that affect education obtained, job experience, year of separation from school, and in the case of males having done compulsory military service, each individual has a personal reservation wage. Therefore, the availability of detailed individual- and household-specific information is crucial for analyzing the determinants of reservation wages. For instance, conditional on other characteristics, an individual with alternative sources of income would tend to have lower search costs as stated in the Search Theory. Further, agents in households with higher levels of wealth might have better access to financial instruments to insure against labor income risk and would tend to have higher reservation wages. Under this framework, unemployment insurance benefits affect unemployment duration and exit rates. Especially for young unemployed people, who are often not yet entitled to benefits, these additional resources will be very important in the job search process (Jacob, 2005).

One should not forget that these benefits may have positive and negative effects on unemployed individuals. In Burdett (1979) paper, it is stated that the benefits are seen as a "search subsidy" and they lead to decrease the opportunity costs of job search giving time to find not just a job but the "right job". For example, if young people have the means to support themselves, such as through transfers from their parents, they will have high reservation wages. A study by Egel and Salehi-Isfahani (2010) corroborates this: High reservation wages, which are reflected by father's education which stands for parental resources, delay the transition from school to work. In addition, high reservation wages can induce long waits or active search for the right job to come along (Egel and Salehi-Isfahani, 2010). Marimon and Zilibotti

(1999) argue that unemployment benefits have positive effects on the subsequent employment outcomes of individuals since they help unemployed individuals to find suitable jobs.

Viewed from the resource perspective, long unemployment durations need not be a disadvantage. Böheim and Taylor (1999) find that there is a positive effect of unemployment duration on the subsequent job tenure in UK. They interpret that those who spend more time searching for work are rewarded with a better worker-firm match. Moreover, the effect of unemployment benefits in UK, Germany, France and the UK are compared by Tatsiramos (2004). In Germany, it is found that there is a positive correlation of unemployment duration and subsequent job tenure. However, this positive correlation can only be found for medium-term unemployed and only those searching for a long period. From this perspective, we also test whether father's education (as a proxy of family resources which lead to increase reservation wage of an individual as in the Search Theory) lengthens the duration of obtaining the first permanent job.

There has been a steady stream of work looking at whether unemployment damages future employment chances or earnings, whether there is duration dependence, which looks at the decline in the probability of leaving unemployment for work as duration lengthens, and whether current spells of unemployment increase the propensity to experience unemployment in the future (Arulampalam et al. 2000; Arulampalam, 2001; Machin and Manning, 1999). One of the earliest papers, which focus on scarring of young workers, is by Ellwood (1982). Following Ellwood, many researchers have looked at this issue. Arulampalam (2001) finds that unemployment leaves a permanent scar. He finds that an unemployed individual obtaining a job has a wage that is 6% less than the wage of an individual who makes an employment to employment transition. Moreover, Mroz and Savage (2006) indicates that after four years of an unemployment spell, the effects of unemployment on annual earnings and probability of being unemployment are statistically significant.

Compared to later unemployment spells, first unemployment spell may have a more harmful effect. Using US data, Ellwood (1982) finds that unemployment spell after graduation has a small effect on being employed while it has a big effect on wages.

Corcoran (1982) focuses on females' unemployment spell after graduation. He finds that the effect of an unemployment spell after graduation has a big and permanent effect not only on wages but also on the probability of remaining in employment. In Skans (2011) paper, it is discovered that unemployment spell after graduation has negative effects not only on the unemployment probability both also on wages. This effect is not permanent, it decreases over time. Gregg and Tominey (2001) work on young male unemployment and they find that unemployment spell has a permanent effect on wages.

Nevertheless, Jones (1988) finds that a longer duration of unemployment allows the unemployed to become better informed. This leads to search for jobs and receive higher wages than the unemployed who accepts a job offer after a short duration of unemployment. This is probably due to the fact that an individual who has been unemployed for a long period of time is likely to have a rather high reservation wage, given the individual's other characteristics. Note that, this is in contrast with the presumption of Human Capital Theory where unemployment is associated with depreciation in human capital and hence lower post-unemployment wages (Cripps et al., 1974).

Another set of studies investigate whether there is a difference among cohorts in the likelihood of obtaining their first permanent job after separation from school. For example, Buchholz and Kurz (2008) find higher likelihood for younger cohorts to have a temporary contract in the first employment after leaving school. This helps to explain the focus on first permanent job. Note that, since different cohorts face different macroeconomic conditions, examining the difference among them would help to understand the effects of the business cycles on the transition from school to work.

The initial difficulties experienced by young people in the labor market may also have consequences outside the labor market (Fares and Tiongson, 2007). In other words, being unemployed is not only related with economic, but also with social issues. Young workers who are exposed to high unemployment prospects respond with adjustments at different margins, including by staying in school and/or residing with parents longer (Card and Lemieux 2000). In addition, economic circumstances are proven to be of crucial importance in young adults' decisions to leave home (Whittington and Peters, 1996; Nilsson and Strandh, 1999; Aassve et al. 2002). Therefore one might suppose that the unemployed youth are less likely to leave their parents' household as they lack the necessary money to establish their own households (Wallace, 1987; Jones, 1988; Whittington and Peters, 1996; Nilsson and Strandh, 1999). These results are confirmed by studies that analyze returns to the parents' home after leaving: young people with labor-market problems are more likely to return home than young people with regular employment (DaVanzo and Goldscheider, 1990; Nilsson and Strandh, 1999).

In Europe, the average age at which the youth leave their homes is increasing, especially in southern European countries. For example, in Italy, 80 percent of males aged 18-30 live with their parents, compared with 25 percent in USA. In Germany and Spain, it is found that there is a significant positive relationship between leaving home and youth employment status and labor earnings (Blanco and Kluve, 2002). Note that, delaying leaving parental home is also affected by the duration of unemployment. The longer unemployment lasts, the less likely that young people move out of the parental home (Jacob, 2008)[9].

A contrary result is found by Murphy and Sullivan (1986): in their study young unemployed leave home earlier than employed. They explain their finding by increasing tension and stress the young unemployed experience in their families. Note that, there may be a reverse causality such that those who live at home longer with their parents may be more likely to turn down the job offers and therefore experience longer durations. As predicted in the Search Theory, if young people have the means to support themselves, such as living with their parents, they decrease their search costs and they have high reservation wages, which will reduce their work incentives.

Moreover, there is a relationship between marriage and unemployment. Marriage typically means independent living, and is therefore related to financial independency (Pejic, 2003). Across OECD countries the average age at marriage has

[9] Those who live at home longer are likely to turn down job offers and therefore experience longer durations of unemployment.

increased and the average number of children per household has fallen (Fares and Tiongson, 2007). Men with formal wage work have a higher probability to marry than those with informal wage work [10](Binzel and Assaad, 2009). To sum up, it is obvious that being unemployed affects future life of a young individual and therefore, analyzing duration of finding first permanent job after permanent separation from school is crucial, especially for a country like Turkey which has a young, growing and jobless population.

In the literature, we also encounter studies that focus on gender differences in the entry to employment (for example: Paleocrassas et al. 2003; Smyth, 2010). Smyth (2010) analyzes gender differentiation in early labor market outcomes across a range of European countries. He finds that gender differences in trajectories within the educational system play an important role in channeling young people towards gender-typical careers. He also finds that gender continues to have a strong direct effect on labor market outcomes in both track-differentiated and general educational systems. Paleocrassas et al. (2003) also discuss gender differences by comparing female and male transitions relative to the 'gender' of their training course. Their hypothesis is that female graduates from male or neutral training courses display more favorable transition performances than female graduates of female trainings. They find that mixed (non-segregated) training programs offer protection from traditionally observed gender disparities. From this point view, we test whether the effect of education level on transition from school to work differs between males and females. We also focus on the effects of being male on the probability of being a wage worker conditional on being employed.

To put things together, youth not only have higher unemployment rates but also lower wages than their older counterparts and in some countries they have excessively longer transition periods after permanent separation from school. If successful entry into labor market after graduation is taken as an evidence of success of the education system, then difficulties in finding a job soon after graduation can be thought of as a sign for problems. Prolonged transition may serve as a negative

[10] Note that, there may be unobserved heterogeneity and thus individuals who are not married are more likely to be in the informal sector.

signal, attach stigma to the searcher and adversely affect future career prospects (Genda, 2001). There are several reasons for this: First one is to do with human capital: work experience forgone during the unemployment spell or during the spell of inactivity cause individuals' skills to deteriorate (Edin and Gustavsson, 2004). Second is about the hiring process. Since the hiring process is taken under uncertainty about worker productivity, employers may use previous unemployment spells as indicators of productivity and therefore, prefer to hire workers with shorter unemployment histories. The last one is related to institutions such as seniority rules. These rules protect workers who have long tenure. This causes those receiving jobs early to have an advantage over those receiving their jobs later. Therefore, it is important to examine the determinants of the transition from school to work.

There are no previous studies on labor market transitions of youth in the context of Turkey, especially using our empirical tools. This is due to the lack of data source and interest on young individuals. However, there is a World Bank Report focused on the transitions from school to work via descriptive statistics (World Bank Report, 2008). The difficult challenges young individuals are facing during their transitions from school to work are highlighted in this report. Our study sheds light on the problem by bringing together evidence from multiple data sources.

This research contributes to the literature on Turkish youth transitions in the labor market by focusing on the effects of compulsory military service on the labor market. To our knowledge, none of the papers address the problem that is caused by not including non-civilian population in HLFS. Therefore this is the first study that investigates these "missing males" and suggests a method of correction. Another contribution of this research is its focus on the time it takes to find the first permanent job (of three months or longer), which helps shed light on the recent evolution of the transition from school to work. In addition to this, using parental education, we try to tease out the influences of unobservables (i.e. family resources, family specific human capital and school quality, emotional support, social networks or cultural capital etc.) that typically undermine transition studies.

In addition, during the time span we analyze, there are structural changes in the economy, economic crises, changes in compulsory education and changes in the trade regime. Therefore, we need to examine the duration of obtaining the first permanent job by looking at the year of separation from school. In addition to this, examining whether years of separation from school have a state dependence effect is another question. In other words, from the results of this study we shall be able to identify whether the individuals whose year of separation from school coincides with crises years/structural changes etc…, are permanently affected. In addition, we are able to examine whether there is any seasonality in obtaining the first permanent job after separation from school. Furthermore, data also allows us to test whether being a male shortens the duration of obtaining the first permanent job after separation from school. And if there is a difference then one may ask whether this difference is permanent or not.

CHAPTER 3

MAIN CHARACTERISTICS OF YOUTH IN THE TURKISH LABOR MARKET

This chapter describes the main characteristics of the youth in the Turkish labor market. It is comprised of four sections. Section 1 looks at the demographic trends. Section 2 focuses on the timing of leaving home while the marriage decision which has also links with the situation of the individuals in the labor market is examined in Section 3. In Section 4, we discuss the labor market activities of the youth over time and in terms of birth cohorts. An overview of these elements helps us to understand main factors affecting the transition from school to work. Actually, understanding the main factors behind the poor performance of the youth in the labor market is critical since without such an understanding it is almost impossible to evaluate active labor market programs.

3.1 Demographic Trends

The world population has been going through a demographic transition whose consequences have important implications for the future. This demographic transition is occurring as a result of decreasing fertility and increasing aging. In Turkey, having a decreasing fertility and increasing aging is a new phenomenon for us. Since demographic transition influences the labor market, financial markets, social security system and the budget, governments have to design social and economic policies accordingly. From developed countries perspective, although increases in longevity are accepted as a development indicator, not being able to come up with effective solutions to counteract the negative consequences of ageing is problematic. Many European countries are affected badly by this demographic transition. Even though Turkey has also been going through a demographic transition process, she is not affected negatively yet. Here, we mostly focus the linkages of the demographic transition with the labor market since transition affects the balance between the ‘productive’ and ‘dependent’ shares of the population.

In order to understand demographic trends in detail, one should look at a population pyramid. In Figure 3.1, the population pyramid of Turkey which is a graphical illustration that shows the distribution of various age groups in the population is given for 1935, 2000, 2020 and 2050. The population pyramid for the year 1935 shows a high proportion of young individuals and a low proportion of older people. By 2000, the population starts to show a broad base pyramid which means that there is a high proportion of children, a rapid rate of population growth, and a low proportion of older people. Over time, the proportion of older individuals is predicted to increase, while the proportion of the youth to decrease. By 2020, there are lower percentages of younger individuals. In addition, by 2050 population starts to ageing which means percentages of older individuals are nearly same as the percentages of younger individual[1]. Talking with numbers, Turkey fertility is approaching replacement levels (2.15 in 2008). By 2050, the demographic window of opportunity will close[2]. The graphical illustrations given in Figure 3.1 clearly show that that the population of Turkey is ageing. As a result of the ageing population, there will be more individuals who receive pensions, health expenses will increase and long-term nursing will be needed (Seyhun, 2006). This demographic trend will also result in the ageing of the labor force and as a result, a decline in the population capable of working. Therefore, today's jobless young individuals will endanger the future of social systems. Thus, it is important to provide the opportunity for younger individuals to have a successful transition from school to work. This motivates us to work on young individuals.

[1] In the DPT (2007) report, it is noted that Census results were used for the 1935-2000 period and the Turkish Statistical Institute projections for the years that followed.
[2] Demographic window is defined to be that period of time in a nation's demographic evolution when the proportion of population of working age group is particularly prominent.

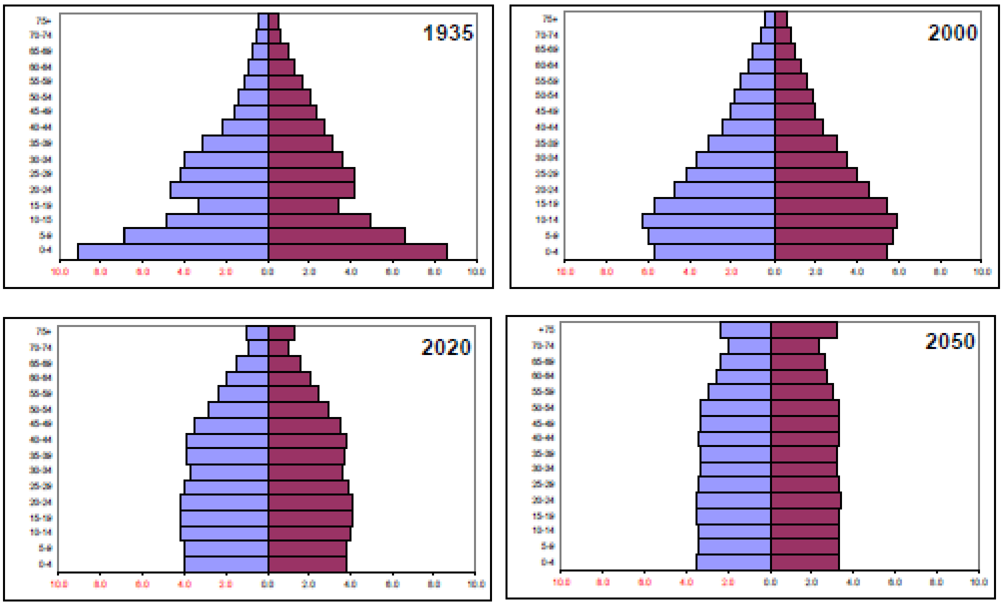

Figure 3.1: Population Pyramid of Turkey, 1935, 2000, 2020, 2050
Source: The Situation of Elderly People in Turkey and National Plan of Action on Ageing, Report No: 2741, DPT (2007), Graphic 2

In Turkey, the ratio of the population under 30 years of age in the total population in 2009 was 52.2% whereas the ratio of the population over 64 years of age was 14.2%. To put it differently, 37.8 million individuals out of a total of 72.5 million are under 30. Of these, 19 million of are between 15 and 29. These figures confirm once again that there is a young and growing population in Turkey. Thus Turkey has a demographic gift especially to design a sustainable pension scheme.

Dependency ratio is accepted as one of the indicators of demographic transition. If this ratio is high, this means that people younger than 15 or older than 64 are financed by fewer working individuals and thus, more burden falls on working individuals[3]. In other words, there are two age groups – less than 15 and older than 64 - that affect the dependency ratio. In order to understand which of the two age groups is causing a change in the dependency ratio, two separate dependency ratios could be calculated.[4] Figure 3.2 shows the dependency ratios of Turkey for the period 1970 to 2015. Census data are used for the projections, so it is possible to

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[3] Dependency ratio is the ratio of dependents (younger than 15 or older than 64) to the working-age population (aged 15-64).
[4] Young Dependency ratio: The ratio of people younger than 15 to the working age populaton (aged 15-64).
Old Dependency ratio: The ratio of people older than 64 to the working age population.

estimate the dependency ratio for all years. These projections are obtained by running the SPECTRUM program, which uses data from the UN. Until 1980s, due to the rapid increase in the population, the general dependency ratio and the dependency ratio that takes into account the youth only – the young dependency ratio - are high. Afterwards, they start to decline. On the other hand, the old dependency ratio that takes into account older people as dependent only starts to increase after 1990.

In Seyhun's (2006) study, it is noted that due to the decrease in the population growth rate, the ratio of the young population is expected to decrease and not only the dependency ratio but also the young dependency ratio will decrease from 2000 to 2025. He also states that from 2025 to 2030, while the dependency ratio is expected to remain constant, the young dependency ratio is expected to continue to decrease while the old dependency ratio is expected to continue to increase. After 2030, since the population growth rate is projected to become negative, Turkey is going to face the same problems related to the aging population as most European countries face today. Of course, this problem will be worse if young individuals do not transit successfully from school to work, in other words if they are not covered by the social security system. Turning to European countries situation about ageing problem, Giannakouris (2008) finds out that in 2008, the old dependency ratio was 25.4% in EU27. In his study, it is also stated that this number is projected to increase from 25.4% to 53.5% in 2060. Turning to young dependency ratio, it is projected to increase to 25% in 2060. In other words, for every individual aged 65 years or over, 4 people were working in 2008 while in 2060, it is expected to the fact that 2 people will be working for every individual aged 65 aged or over. From this point of view, comparing Turkey with European countries, Turkey has a young population and lower dependency ratios than European countries.

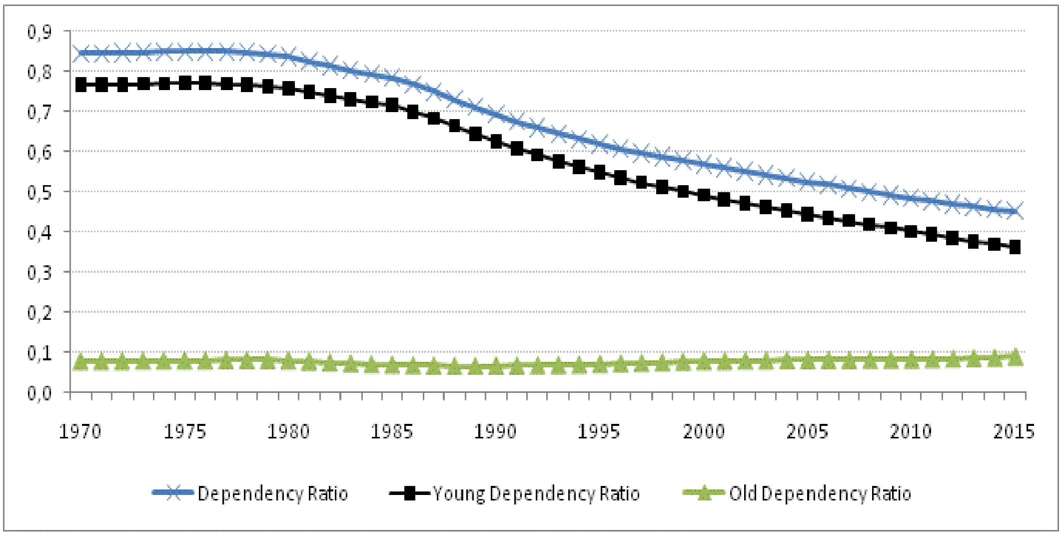


Figure 3.2: Dependency Ratio, Turkey
Source: Projections are obtained by running the SPECTRUM program, which uses data from the UN

As a conclusion, the population structure has the potential to exacerbate the unemployment problem. Most of the young individuals, who are not in school, are inactive or unemployed thus; one can say that Turkey has not yet taken full advantage of the demographic window of opportunity. However, Turkey has to find ways of benefiting from these young individuals as soon as possible. The fact that Turkey has a young population and yet it cannot benefit from this young population has motivated us to study young individuals, especially their situation in the labor market.

3.2 Marriage

Young individuals' attitudes and behaviors towards marriage are closely related to demographic trends, especially in Turkey since almost all births occur within marriage and therefore, age at first marriage is the onset of a woman to exposure to pregnancy risk (Ergöçmen and Eryurt, 2004). Furthermore, marriage is almost universal in Turkey and marital status is an important predictor of labor market participation, which is especially valid in urban areas. The highest participation rate among males belongs to married men while among females, the second lowest rate after widowed women belongs to married women (Dayıoğlu and Kırdar, 2010). In other words, 'marriage effect' works in the opposite direction for males and females. This motivates us to monitor the age at first marriage of males and females in Turkey over time.

Age at first marriage in Turkey increases over time. Koç (2008) indicates that in the beginning of the 1940s, mean age at first marriage was 23 for males whereas it was 19 for females. In 1990s, age at first marriage increased to 25 for males and 22 for females (Koç, 2008). Figure 3.3 shows the mean age at first marriage by gender. The upper line represents the grooms while the lower line represents the brides. By 2010, age at first marriage had increased to 26.5 among men and to 23 among women. Compare to European countries, in Turkey age at first marriage is lower than most of the European countries: In 2008, in Germany: 30 for females, 33 for males, in Sweden 32.5 for females, 35.1 for males, in Greece 28.9 for females, 31.8 for males[5]. However, comparing the age at first marriage in Turkey with European countries, there are some European countries that the gap in the age at first marriage is not huge: in Poland 25.6 for females, 27.7 for males, Romania 25.9 for females, 29.1 for males, in Bulgaria 26.1 for females, 29.3 for males.

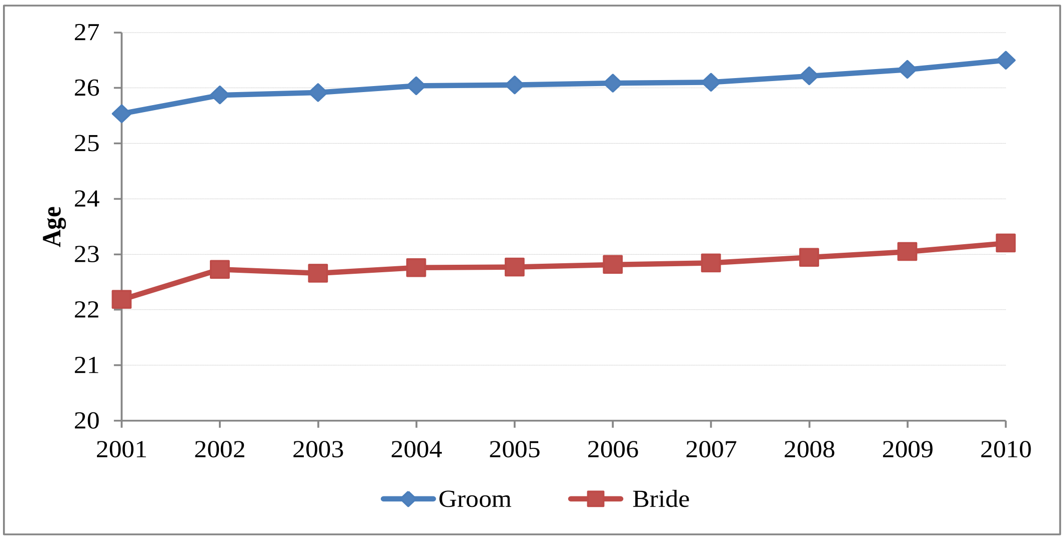


Figure 3.3: Mean age at first marriage, Turkey
Source: TURKSTAT website 2001-2010

Figure 3.4 presents the share of married individuals by age groups in Turkey for the period 1988-2010. The line with the diamond marker shows the share of 15-19 year-old married individuals while the line with the square marker represents the share for 20-24 year-olds. The upper line with asterisk marker is for 35-39 year-olds while the lower one is for the 30-34 year-olds. For all age groups, shares of married individuals show decreasing trends. Nevertheless, the decrease is sharper for 20-24 and 25-29

[5] Source: http://w3.unece.org/pxweb/dialog/Saveshow.asp?lang=1

age groups. The share of married individuals among 20-24-year-olds has decreased from 50.7% to 29.8% over 1988-2010 while it has decreased from 82.3% to 63.2% among 25-29-year-olds. On the other hand, the decrease is not more than 10 percent points for 30-34-year-olds and 35-39-year-olds. This finding confirms that marriage is postponed to later years. Increased schooling and/or the time it takes to obtain a permanent job are likely to effect the age at marriage. For example, an individual may postpone marriage since s/he prolongs his/her education. In addition to that, since she/he goes to school longer, she/he will start working in a permanent job at a later age after separation from school. Nevertheless, a married individual may accept a job offer after a short duration of unemployment since s/he has more responsibilities than a single individual. Therefore, marital status and transition from school to work may be related to this phenomenon. Note that, the causality may be other way around: an individual who is more enthusiastic to get married may leave the school earlier or an individual who is more enthusiastic to continue education may postpone marrying.

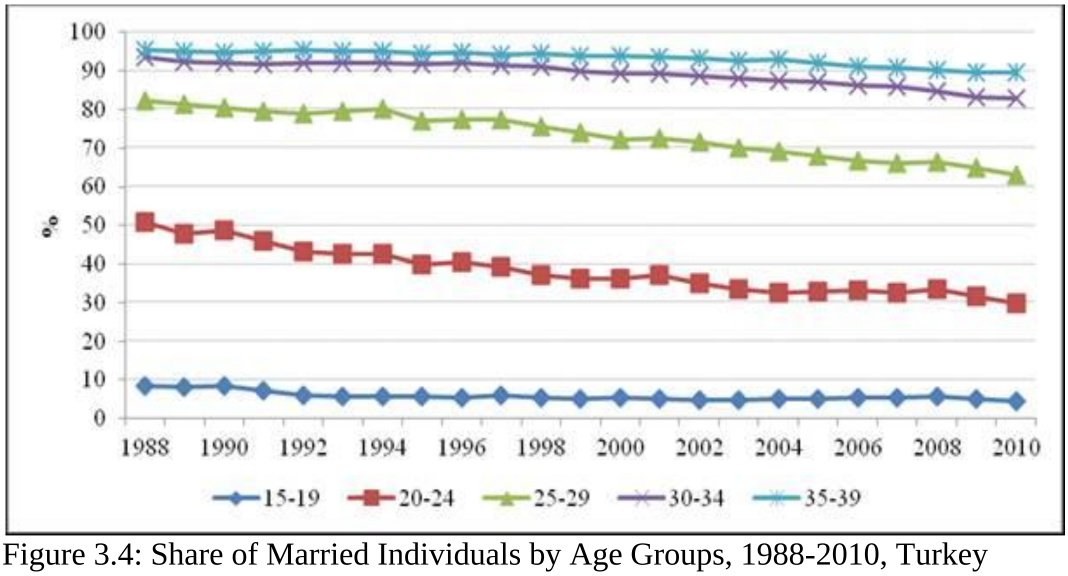


Figure 3.4: Share of Married Individuals by Age Groups, 1988-2010, Turkey
Source: HLFS database, TURKSTAT (1988-2010)

3.3 Leaving Parental Home

In the leaving parental home literature, leaving home is classified into three groups: early, on time and late home leavers (Tang, 1996; Goldscheider and Goldscheider, 1998; Billari et al. 2001; White, 1994). The reason for the distinction is that the main causes for an 18-year-old youth to leave home might be different from those leading a 25-or 30-year-old person to leave home. Early home leaver phenomenon is often an intermediate step between leaving parental home and establishing an independent residence. College dormitories, military barracks, boarding and lodging houses are the most common locus that provides temporary housing for some young individuals. In the case of Turkey, all males must do their military service when they reach age 19, unless they are in school and a young man is perceived as an 'adult' only after finishing his military service (Koç, 2004). In other words, the timing of leaving parental home is important in understanding the characteristics of the youth since at different ages young individuals leave their parental home for different reasons, which might be to do with their labor market or factors that affect their labor market situation. Briefly, then we attempt to link the age of leaving home with compulsory military service, education and marriage.

In order to examine leaving home by age in one-year period, we used the short panel component of 2000-2001 and 2002 HLFS data. We used only 2001 year due to the rotating sample frame. Due to the fact that a household is interviewed in two subsequent quarters, rested for the next two, and re-interviewed in two additional subsequent rounds, only year 2001 have individuals who are in the rotation plan that comprises one year. Individuals who leave their parental house after the first interview or the second interview, which means that we observe individuals who leave within three months following the first interview or nine months after the second interview. By using 2001 HLFS, we draw Figures 14-16. Figure 3.5 represents the share of individuals who left home within a year of the survey by gender. The line with the square marker shows the share of leaving home for females while the line with the diamond market shows it for males[6]. As individuals age, the share of those leaving home increases. This phenomenon continues until age 19 and

[6] Note that, in the literature, the term 'leaving home' is generally used.

then it starts to decline slightly. Although the share of individuals leaving home among males and females show nearly the same pattern by age, suddenly at age 21 the share of males decreases. The reasons for the jumps at age 19 and 21 could be related to marriage, compulsory military service, continuation of education. In other words, except fort these ages, the share of home leaving is nearly the same for males and females. Since age at first marriage is lower for females than males as previously mentioned, we expect leaving home for females is earlier than males nevertheless, we do not see evidence from the figures.

Figure 3.6 shows the share of home leavers by urban and rural areas. Until age 20, the share of those leaving parental home in rural areas is higher than in urban areas. This may be due to the fact that secondary education requires a move to areas that have schools and the age at first marriage is earlier in rural araes than in urban areas. Note that, not only in rural areas, but also in urban areas, there are individuals who stay in boarding houses and dormitories.[7] At age 21, there is a sharp decline in rural areas. There is a decline in urban areas at this age as well but it is not as much as it is in rural areas. This is due to the fact that the education level in rural areas is lower than urban areas. Therefore, males whose levels of education are less than university degree leave their homes to do their military service.

[7] There were 574 regional primary boarding schools in the 2009-2010 school year and 265,285 students (out of 10,916,643) were enrolled in these schools. 145,695 of them are male whereas 119,590 of them are female (National Education Statistics, 2009-2010). 2.6% of males and 2.3% of females are enrolled in these boarding schools. The total number of boarding houses (for primary, secondary and high school) in Turkey was 2,068 in 2009-2010 and the number of students in these boarding houses was 343,551. The number of males is 216,206 whereas the number of females is 127,305. There are also private dormitories. These are not only for higher education but also for secondary and tertiary education. If we assume that 15-19 year-old individuals are enrolled in a high school, in 2009 5.6% of males aged 15-19 are in boarding houses. For females, this ratio is %4.03 (Appendix A, Table A.1, A.2 and A.3). Of course, these values are not only the source of the variations in the share of leaving home among different ages.

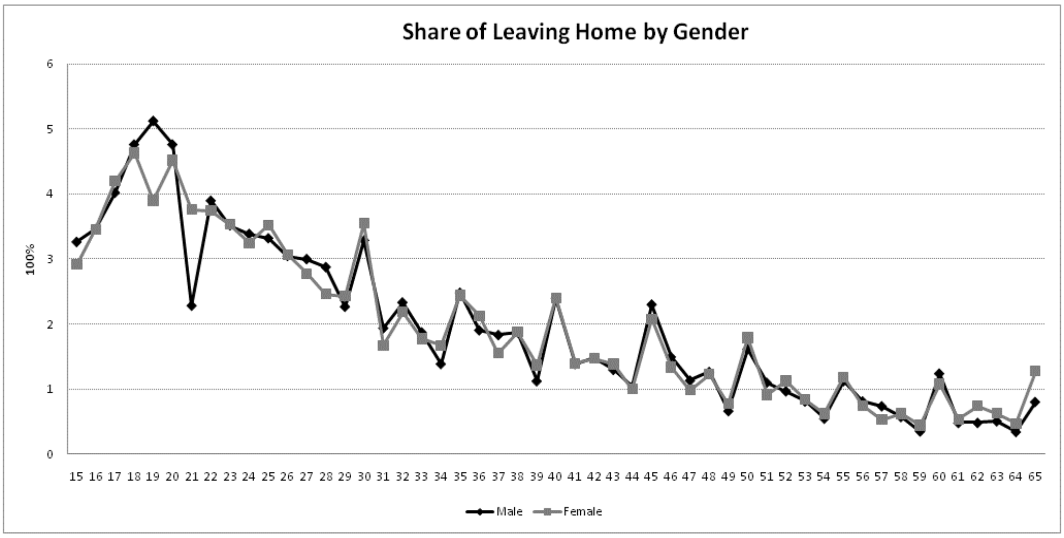


Figure 3.5: Share of Leaving Home by Gender, 2001
Source: Micro data HLFS 2001

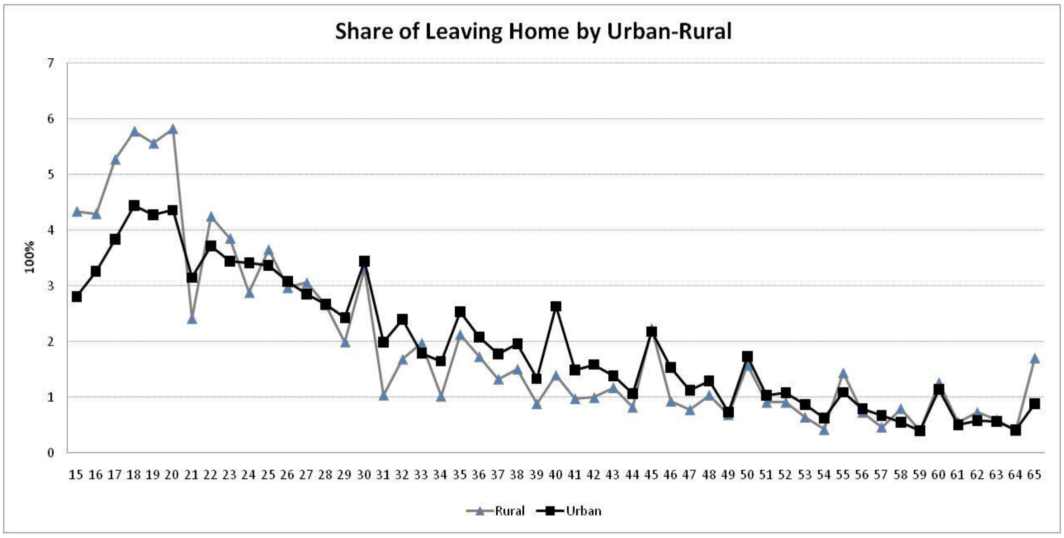


Figure 3.6: Share of Leaving Home by Urban-Rural Areas, 2001
Source: Micro data 2001

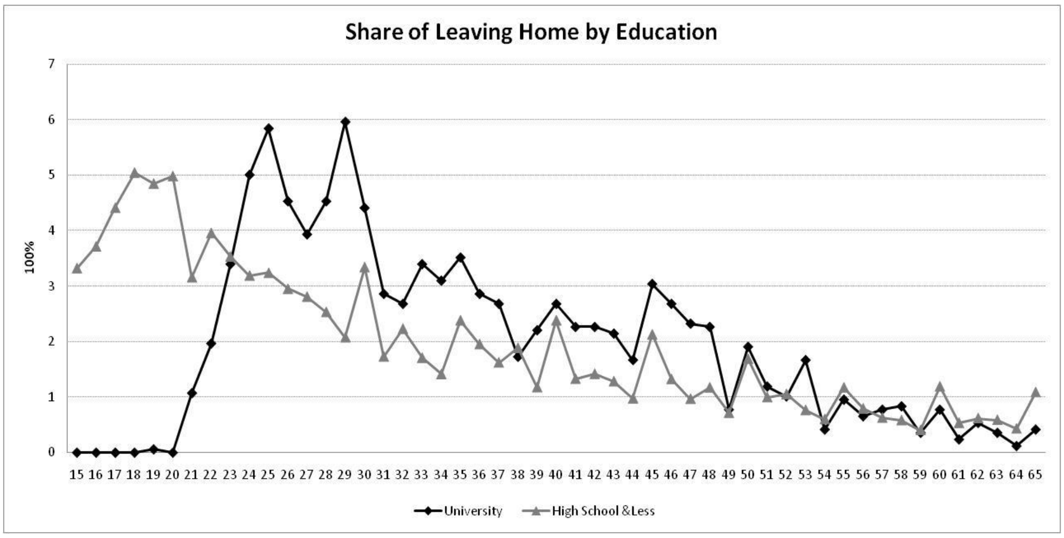


Figure 3.7: Share of Leaving Home by Education, 2001
Source: Micro data 2001

To conclude, the share of males who leave home shows a sharp decline at age 21 and the share of those leaving home differs by education. From these findings about the share of leaving home at each age, we are able to link the leaving parental home with continuation education, finding a job in a different area than where their families live, doing their compulsory military service, getting married, or setting up their own households. No matter what the reason of leaving home is, it has links with the transition from school to work and with labor market activities. Note that, if home leaving is related to compulsory military service (CMS), this individual is not counted in HLFS (Household Labor Force Survey) due to its sample frame work explained in the following chapters in details. Therefore, this will probably have effects on labor market since timing of CMS coincides with the transitions from school to work. Due to the fact that males with high school graduates are more likely to leave home at age 21, there is a sharp decline at that age and this means there is a variation in the sample since these males who are in military are not counted in HLFS. For the case of university graduate males, there is a sharp decline at age 26. The same reasoning as high school graduates is valid for university graduates.

The initial difficulties experienced by young people in the labor market may also have consequences outside the labor market (Fares and Tiongson, 2007). In other words, being unemployed is not only related with economic, but also with social issues. Young workers who are exposed to high unemployment prospects respond with adjustments at different margins, including by staying in school and/or residing with parents longer (Card and Lemieux 2000). In addition, economic circumstances are proven to be of crucial importance in young adults' decisions to leave home (Whittington and Peters, 1996; Nilsson and Strandh, 1999; Aassve et al. 2002). Therefore one might suppose that the unemployed youth are less likely to leave their parents' household as they lack the necessary money to establish their own households (Wallace, 1987; Jones, 1988; Whittington and Peters, 1996; Nilsson and Strandh, 1999). These results are confirmed by studies that analyze returns to the parents' home after leaving: young people with labor-market problems are more likely to return home than young people with regular employment (DaVanzo and Goldscheider, 1990; Nilsson and Strandh, 1999).

In Europe, the average age at which the youth leave their homes is increasing, especially in southern European countries. For example, in Italy, 80 percent of males aged 18-30 live with their parents, compared with 25 percent in USA. In Germany and Spain, it is found that there is a significant positive relationship between leaving home and youth employment status and labor earnings (Blanco and Kluve, 2002). Note that, delaying leaving parental home is also affected by the duration of unemployment. The longer unemployment lasts, the less likely that young people move out of the parental home (Jacob, 2008)[8].

A contrary result is found by Murphy and Sullivan (1986): in their study young unemployed leave home earlier than employed. They explain their finding by increasing tension and stress the young unemployed experience in their families. Note that, there may be a reverse causality such that those who live at home longer with their parents may be more likely to turn down the job offers and therefore experience longer durations. As indicated in the Search Theory, if young people have the means to support themselves, such as leaving with their parents, they decrease their search costs and they have high reservation wages, which will reduce their work incentives. From this perspective, we test whether family resources have effects on the transitions from school to work in the following chapters.

3.4 Activities of Youth over Time and by Birth Cohort

In this section of the Chapter, we examine the labor market activities of the youth over time and by birth cohort. This section is organized under five headings that involve the youth in school, compulsory military service, employment, unemployment and inactivity. An additional section decomposes the labor market states into year, age and cohort effects.

3.4.1 In school

The time spent in school has important consequences in terms of the transition from school-to-work since the labor market rewards increases in education with higher earnings. Job opportunities for the less educated tend to be limited. Besides its

[8] Note that, there may be reserse causality: Those who live at home longer are likely to turn down job offers and therefore experience longer durations of unemployment.

human capital effect time spent in school lengthens the transition from school-to-work. This motivates us to examine the education system in Turkey. Although the quality of education also matters, we mostly focus on educational attainment, in other words the quantity of education, since we do not have data on school quality.

The education system in Turkey and the trends in the educational attainment of the population and the labor force are presented in this section. Here, we focus on the effects of the educational reforms 1997, 1998 and 2005 on educational attainment and the labor market. Empirical analyses are based on the HLFS database from TURKSTAT. There are many changes in the educational system during the period 1988 to 2010. One of the main changes is the increase in compulsory education from five to eight years in 1997. The first graduates from primary (8-year) school graduates are in 2000. Therefore, we mostly focus on changes before and after 2000s in order to see the effects of the extension of compulsory education. One of the effects of compulsory education is that it prolongs the transition from school to work. The other effect can be thought as the increase in the AYS (Average Years of Schooling).

There is an increase in the AYS in the after-the-policy-change era for both 15-24 year-old males and females and in both rural and urban areas. This is true when one also considers the labor force and inactive categories (İlhan and Avşar, 2009). While the AYS in urban areas was 6.54 in 1988, it increased to 8.29 in 2006 (see Table 3.1). In rural areas, the increase was from 5.26 in 1988 to 7.17 in 2006. For the urban labor force, the AYS was 7.84 in 1988. By 2006, it increased to 9.33. In rural areas, while the AYS of the labor force was 5.13 in 1988, it increased to 7.67. For urban inactives, while the AYS was 5.06, it increased to 6.89 in 2006. The change for rural inactives was from 5.04 to 6.09 over the same period. Apart from the increase in the AYS, the new law impacted on high school enrollments and prolonged the transition from school to work.

Table 3.1: Average Years of Schooling

		Pop		LF		Inactive		Pop	LF	Inactive
		1988	2006	1988	2006	1988	2006	1988-2006	1988-2006	1988-2006
TOTAL	Urb	6.54	8.29	7.84	9.33	5.06	6.89	1.27	1.19	1.36
	Rur	5.26	7.17	5.13	7.67	5.04	6.09	1.36	1.50	1.21
MALE	Urb	6.98	8.70	7.37	8.76	7.07	8.56	1.25	1.19	1.21
	Rur	5.94	7.97	5.62	8.02	6.89	7.54	1.34	1.43	1.09
FEMALE	Urb	6.13	7.88	8.48	10.27	4.88	6.47	1.29	1.21	1.33
	Rur	4.68	6.50	4.52	7.09	4.45	5.69	1.39	1.57	1.28
GENDER GAP	Urb	0.84	0.82	-1.11	-1.51	2.19	2.09			
	Rur	1.27	1.46	1.10	0.93	2.44	1.85			
URBAN-RURAL GAP	Total	1.27	1.12	2.71	1.66	0.02	0.80			
	Male	1.03	0.73	1.75	0.74	0.18	1.02			
	Female	1.45	1.38	3.96	3.18	0.43	0.78			

Source: İlhan and Avşar, 2009, Table A.1, original data were obtained from TURKSTAT HLFS

The other change is the extension of high school education from three to four years in the 2005-2006 school year. This also leads to an increase in the AYS and prolongs the transition from school to work. In addition to that, there is another effect which is related to CMS. The age of high school graduate males who do not attend university increases by one year.

We focus on the evolution of school attainment over the period 1988-2010 as reflected in the HLFS. Figures 3.8 through 3.10 represent the educational attainments of 15-19 year-olds while Figures 3.11 through 3.13 represent the educational attainments of 20-24 year-olds. Years are shown on the horizontal-axis and fractions of graduates with specific schooling levels on the vertical-axis. There are seven educational categories: illiterates, literates without a diploma, five-year primary school graduates, middle school, vocational middle school, general high school, vocational high school and university graduates. For the years after 2000, there is an additional educational category, which is eight-year primary school graduates. We combine middle school, vocational middle school and primary eight year graduates in a single category and call it ‘eight-year primary school graduates’. We use five educational categories for 15-19 year-olds and six educational categories for 20-24 year-olds. We do not use university graduates for 15-19 year-olds since in this age group share of university graduates is very small.

In Figures 3.8-3.13, the line with the diamond marker shows the fraction of illiterates, while the line with the square markers shows the fraction of literates without a diploma. The fraction of literates without a diploma shows an increasing trend over time. This is probably due to the increase in drop-outs after five years of education. As it is expected the fraction of primary five year graduates (the line with the triangle marker) is decreasing while primary eight year graduates are increasing (the line with the asterisk marker)[9].

High school graduates (the lighter line with the square marker) has an increasing trend until 2008. It suddenly decreases in 2008. Afterwards, in 2009 and 2010 it has nearly the same values. The sudden decrease is due to the fact that general high school education increased from 3 to 4 years in 2005-2006. Therefore, there are no new general high school graduates in 2008. This is another important year for us. This may lead to 20-year-olds to remain in high school. The same patterns can be seen for males and females. When we move to 20-24 year-olds, the increases in the primary eight year graduates is noticeable. In addition to that drop-outs increase after high school, which can be deduced from the widening gap between the fraction of university and high school graduates.

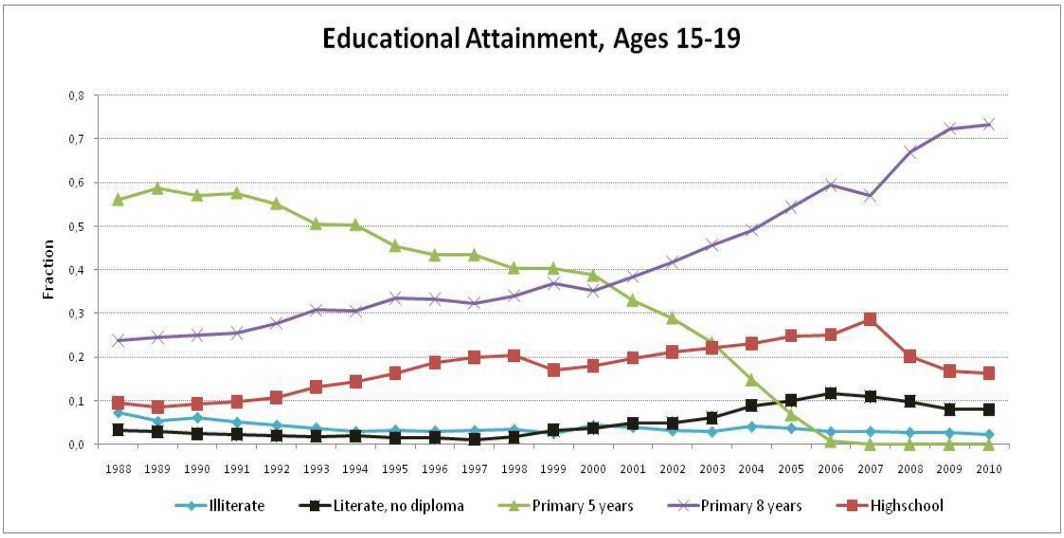


Figure 3.8: Educational Attainment, Ages 15-19
Source: HLFS database, TURKSTAT (1988-2010)

[9] We also include middle school and vocational middle school.

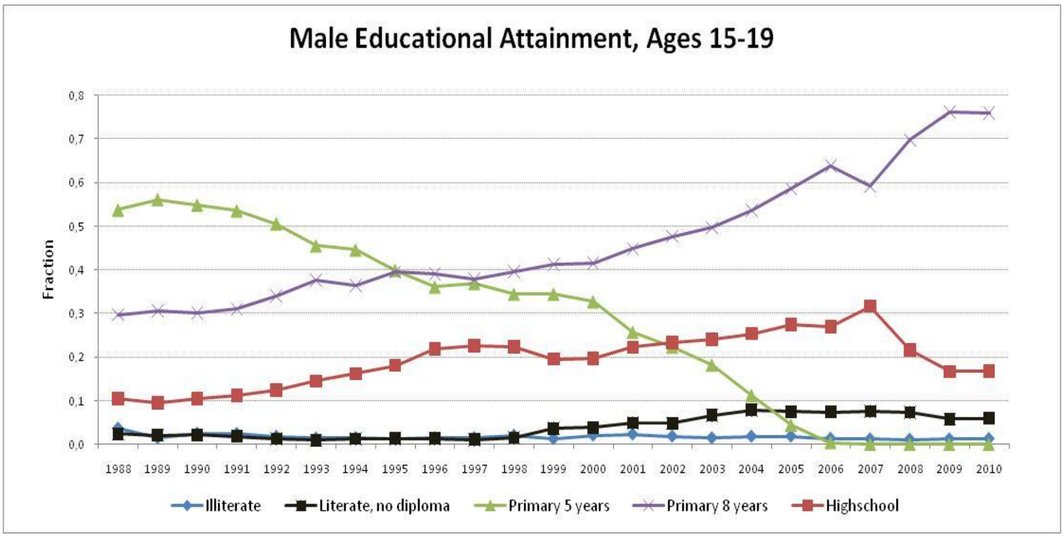


Figure 3.9: Male Educational Attainment, Ages 15-19
Source: HLFS database, TURKSTAT (1988-2010)

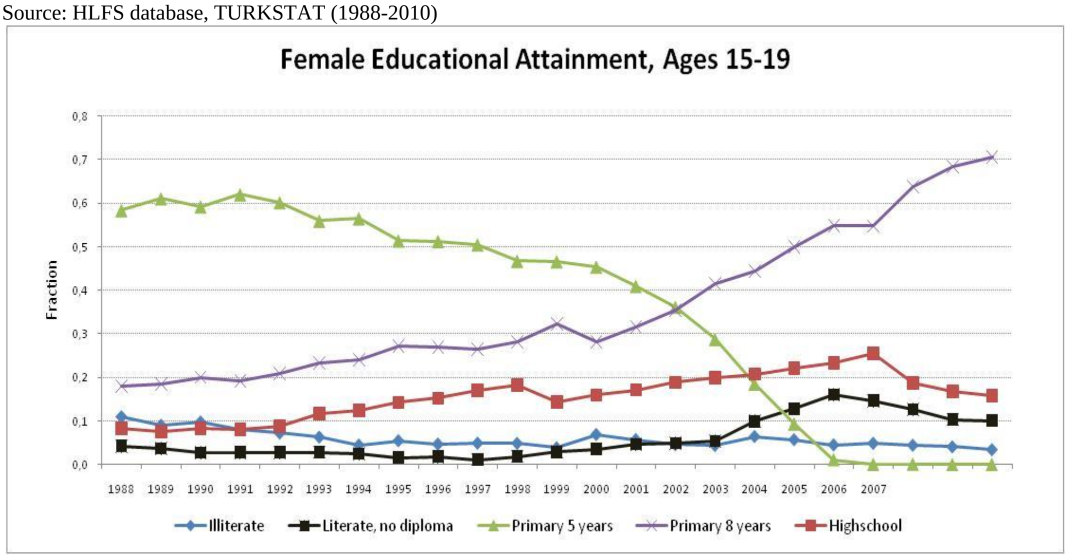


Figure 3.10: Female Educational Attainment, Ages 15-19
Source: HLFS database, TURKSTAT (1988-2010)

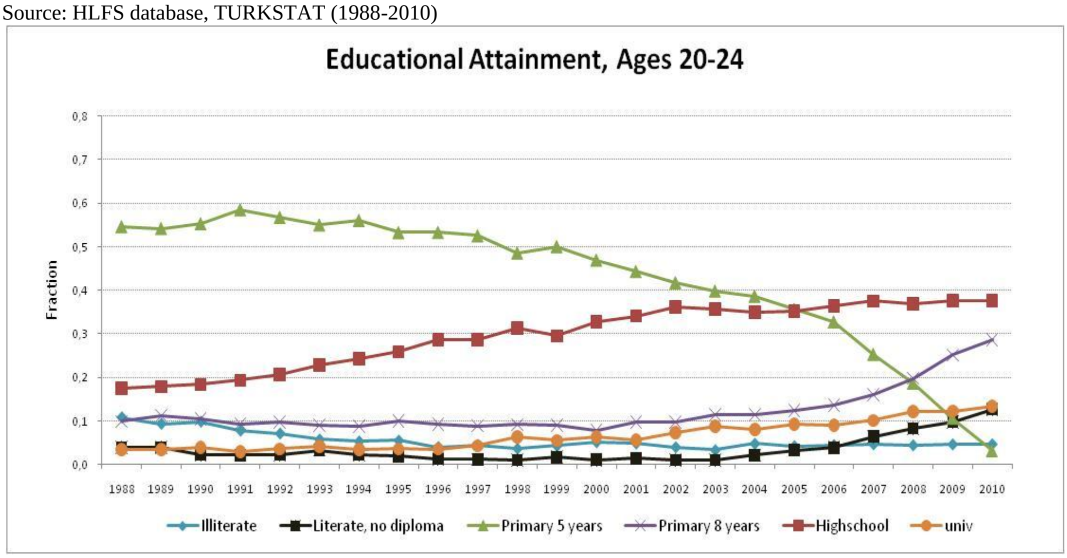


Figure 3.11: Educational Attainment, Ages 20-24
Source: HLFS database, TURKSTAT (1988-2010)

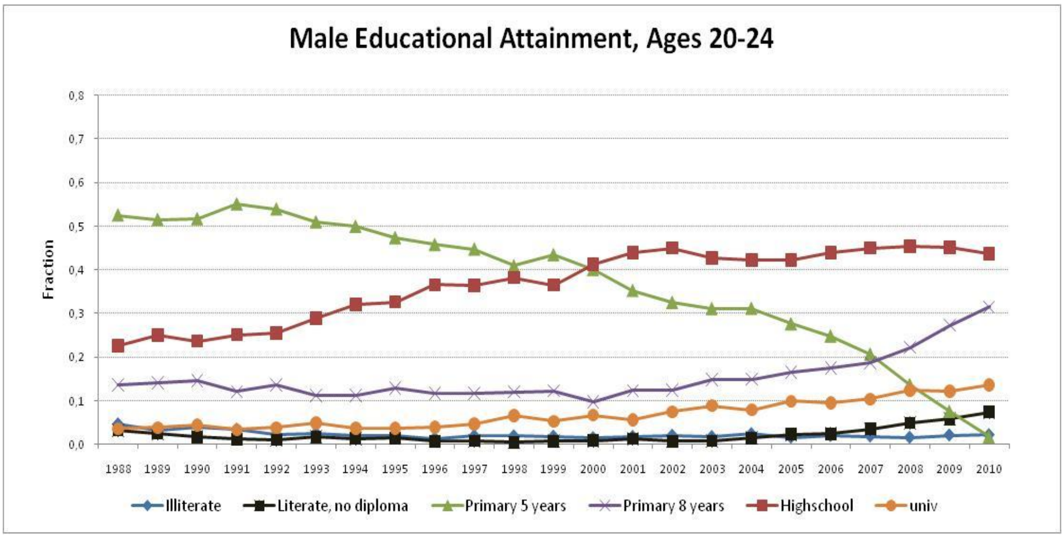


Figure 3.12: Male Educational Attainment, Ages 20-24
Source: HLFS database, TURKSTAT (1988-2010)

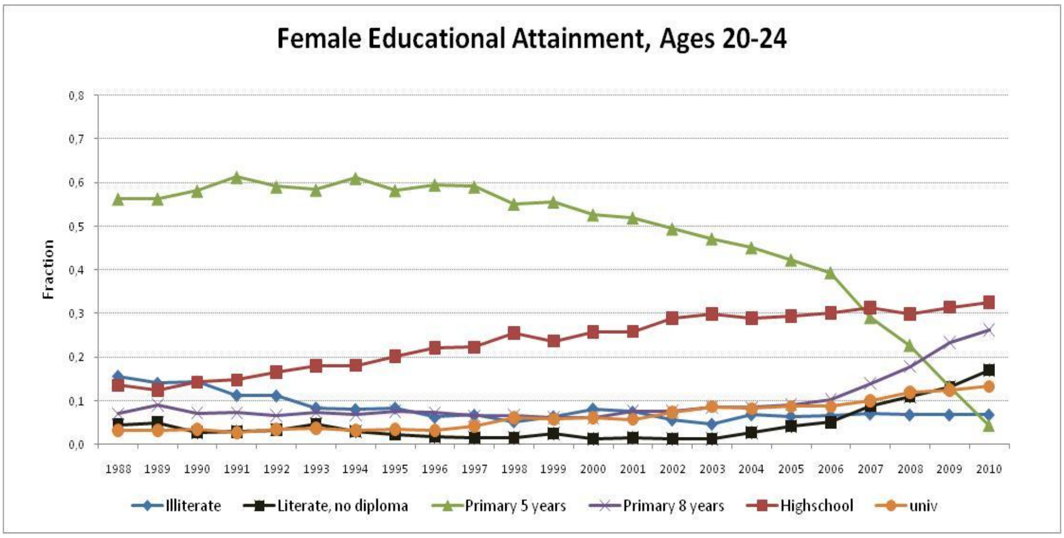


Figure 3.13: Female Educational Attainment, Ages 20-24
Source: HLFS database, TURKSTAT (1988-2010)

Figures 3.14 to 3.16 show the fractions of individuals who are in school by age groups for the period from 1988 to 2010. These fractions are calculated by using the information about the reasons given for not participating in the labor force.[10] We can divide the period from 1988 to 2010 into sub-periods: before and after 2000.[11] Before 2000, the peak point for the 15-19 year-olds is 58.7% in 1998; and after the 2000s,

[10] In HLFS web database, there is not any direct information about the individuals who are currently in school. Note that there are participants who are in school. It is not possible to identify them in the HLFS web data base. So we ignored them. Nevertheless, we can identify them in the micro data: the share of participants who are in school is 1.8%, 2.1% and 2.7% among 15-29 year-olds in 2004, 2005 and 2006.
[11] The HLFS questionnaire was revised in 2000.

peak point is 72.2% in 2010. For males these values are 86.1% in 1994 and 85.3% in 2010. For females, these values are 41.4% in 1999 and 62.1% in 2010. In order to facilitate the comparison of the increase in the fractions, we give the slope of the best fit lines in these figures. Before 2000, the slope of the 15-29 year-olds is 0.57 while it is 2.02 after 2000. This means that before 2000, the fraction of individuals who are in school increases by 0.57 percentage points per year. After 2000, the fraction of individuals who are in school increases by 2.02 percentage points per year. Comparing the slopes of the sub-periods, for all age groups the slopes after 2000 have higher values. Among the age groups, highest slopes belong to the 15-19-year-old males, followed by females. For males, the fraction of individuals who are in school shows a decreasing trend while it has an increasing trend after 2000. The slope of the age group 25-29 does not show any change over time. For 25-29 males who are in school, there is little movement in the slope. No change is observed for females.

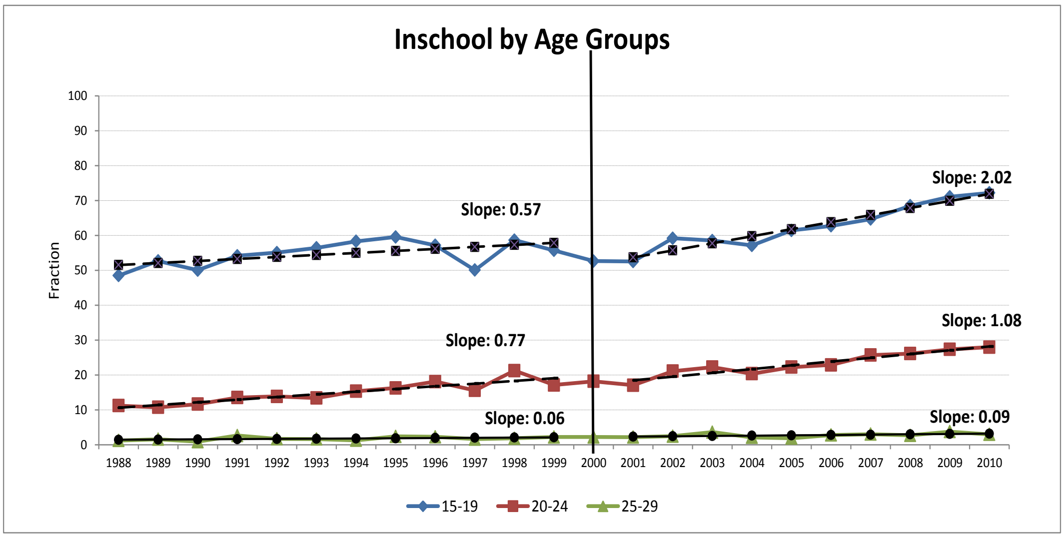


Figure 3.14: Fraction of Individuals, who are in school by Age Groups, All
Source: HLFS database, TURKSTAT (1988-2010)

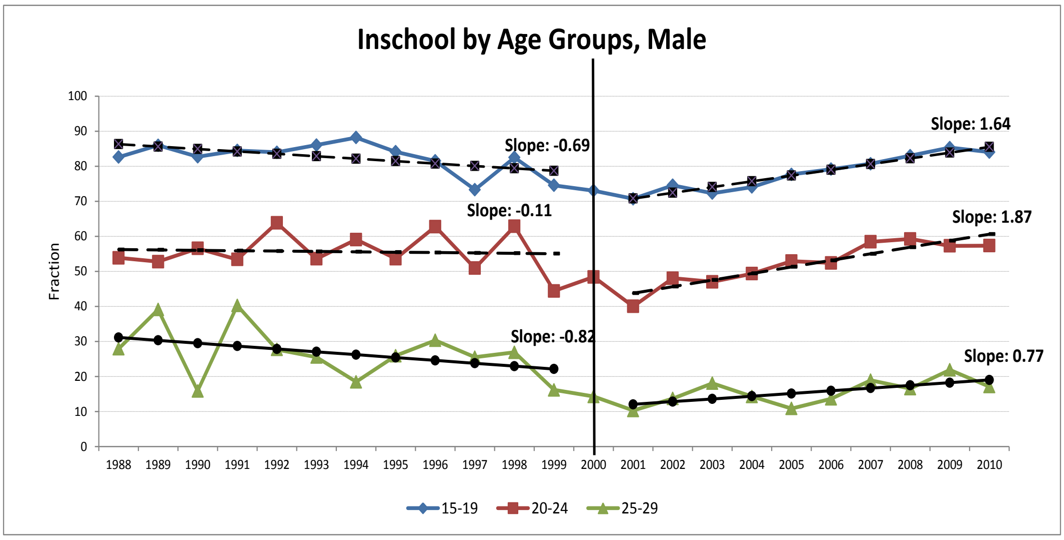


Figure 3.15: Fraction of Individuals who are in school by Age Groups, Males
Source: HLFS database, TURKSTAT (1988-2010)

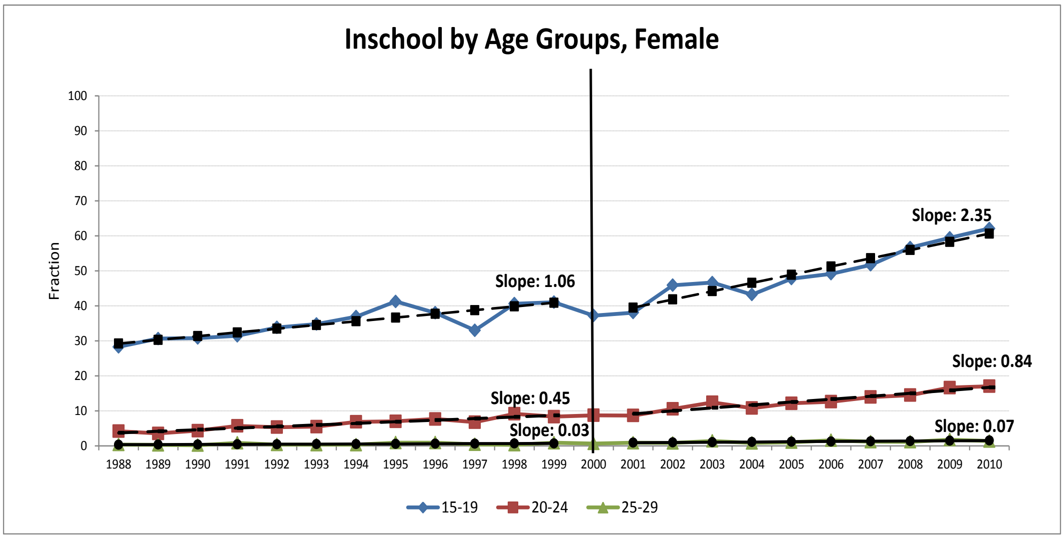


Figure 3.16: Fraction of Individuals who are in school by Age Groups, Females
Source: HLFS database, TURKSTAT (1988-2010)

Until the educational reform of 1997, the compulsory level of schooling was five years of primary schooling. In 1997, the compulsory level of schooling was extended to eight years covering the middle school. During the pre-reform period, the middle school of three years of study followed the compulsory level of five years of primary schooling. Further education could proceed along either at general high schools or at vocational high schools, which typically take three but sometimes four years of study. University education provides two-to six years of training depending on the program of study. The extension of the compulsory schooling to eight years and the establishment of 25 new universities since the early 1990s expanded the educational opportunities greatly. Enrollments increased at all levels and the gender gap in education improved substantially. Adult literacy increased from 90 percent for men and 67 percent for women in 1990 to 95 percent for men and 80 percent for women in 2002. Gross enrollment rates in secondary education increased from 46 percent for boys and 30 percent for girls in 1990 to 76 percent for boys and 52 percent for girls in 2000 and 94 percent for boys and 81 percent for girls in 2007. Gross enrollments at the university level were 26 percent for boys and 19 percent for girls in 2000 and 43 percent for boys and 34 percent for girls in 2007 (Turkish Statistical Institute, 2009)[12]. Here, one can wonder the impact of the increases in the enrollments at all levels impact on the labor market, especially comparing the years 1990s and 2000s. This impact may be due to the change in the composition of the labor market, the change in the productivity of individuals etc…

By using Table 3.2, we examine the ratio of new comers and graduates by education. After the increase in compulsory education, the ratio of new comers increased and gender inequality decreased (Tunalı et al, 2003). The ratio of females was 40.7% in 2000 while it was 46.9% among the eight-year primary school graduates in 2009 (Table 3.2). In addition to this, the ratio of females among the new comers was 47% in 2001 while it was 48.5% in 2009. After graduating from a primary school, students continuing with their education have two options: they can either attend general secondary education or vocational and technical secondary education. More than 90% of primary school graduates continued on to secondary education in 2001, this figure decreased to 84% in 2010. Among new comers, 33.7% preferred vocational and technical secondary schools in 2001. This increase is probably due to the certain expectations formed among the society concerning a solution to the "coefficient factor problem" in the Student Selection and Placement Examination, before the General Elections after AKP acceded to power. In addition, this proportion increased to 46.8% in 2010. Among those graduating in 2000, the ratio of vocational and technical secondary school graduates was 44.8%. This ratio decreased to 33.2% in 2009.

[12] The extension of compulsory schooling to eight years and the establishment of 75 new universities during the period 1982 to 2008 expanded the educational opportunities greatly (Arap, 2009).

Table 3.2: New comers and Graduates by Education Level

Education Level	New Comers 2000-2001			Graduates 1999-2000			New Comers 2009-2010			Graduates 2008-2009		
	All	**Male**	**Female**	**All**	**Male**	**Female**	**All**	**Male**	**Female**	**All**	**Male**	**Female**
Primary (8 Years)	1316194	697930	618264	820063	486421	333642	1310760	674606	636154	1180162	627177	552985
		(53.0%)	(47.0%)		(59.3%)	(40.7%)		(51.5%)	(48.5%)		(53.1%)	(46.9%)
Secondary (Total)	757593	448251	309342	498241	280278	217963	999039	538531	460508	548894	264988	283906
		(59.1%)	(49.8%)		(56.3%)	(43.7%)		(53.9%)	(46.1%)		(48.3%)	(51.7%)
General Secondary (ratio)	502424	281643	220781	274963	146703	128260	531985	272552	259433	366444	169351	197093
	[66.3%]	(56.1%)	(43.1%)	[55.2%]	(53.4%)	(46.6%)	[53.2%]	(51.2%)	(48.8%)	[66.8%]	(46.2%)	(53.8%)
Vocational and Technical Secondary (ratio)	255169	166608	88561	223278	133575	89703	467054	265979	201075	182450	95637	86813
	[33.7%]	(65.3%)	(34.7%)	[44.8%]	(59.8%)	(40.2%)	[46.8%]	(56.9%)	(43.1%)	[33.2%]	(52.4%)	(47.6%)

Source: National Education Statistics, Formal Education 2009-2010

Figure 3.17 is drawn by using the data from the National Education Statistics. Note that the number of the students given for each year refers to the relevant school year. For example, the number of the students shown in year 2000 refers to the 2000-2001 school year. The vertical axis on the left shows the number of students in secondary schools while the one on the right shows the share of students in vocational and technical secondary schools. The lines on top show the shares of students in vocational and technical schools during the period from 2000 to 2010. The most striking finding is that while the share of students in vocational and technical schools shows a decreasing trend until 2003, it shows an increasing trend after 2003. This is true not only for males but also for females. On average, while this share was 37% in 2000, it decreased to 32.6% in 2002. It started to increase after 2002. It was 34.8% in 2003 and 42.9% in 2009. The decrease during the period from 2000 to 2002 is probably due to the regulation issued by the Council of Higher Education (COHE) that limited the university choices of the students who graduated from vocational and technical schools (Tunalı et al. 2003). The increase in compulsory education has also affected this decrease. There were 68,000 students in *imam hatip* high schools in the 1996-1997 school year. Their share in the overall student population was 27.5%. The number of students in these schools decreased to 18,000 in the 2000-2001 school year and their share to 7%. After 2002, there was an increase in the share of vocational and technical high schools, which was mostly due to the increase in the share of *imam hatip* high school students. The increase during the period from 2003 to 2010 was probably due to the fact that AKP acceded to power and therefore, there was an expectation that the disadvantaged position of *imam hatip* schools in the Student Selection and Placement Examination would be eliminated. The share of vocational and technical schools among male students is higher than the share among female students. While this ratio for males is between 35% and 44.9%, it is between 29% and 40.5% for females. The bars in Figure 3.17 give the number of students for the same period. For all the years under consideration, the numbers of male students are higher than the numbers of female students.

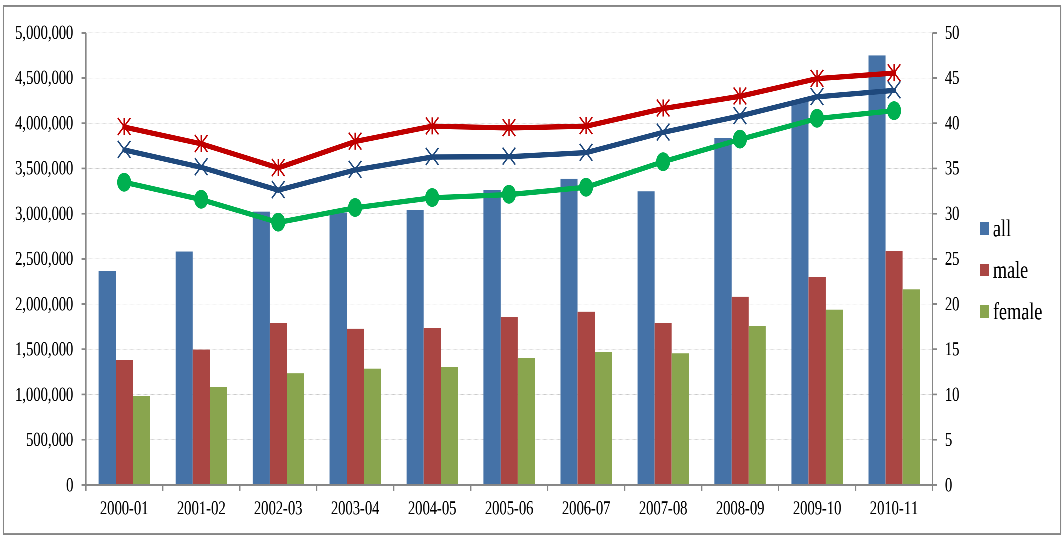


Figure 3.17: Number of Students in Secondary Schools and the Share of Students in the Vocational and Technical Secondary Schools
Source: National Education Statistics, Formal Education 2000-2010

Figure 3.18 represents the number of applicants to the Student Selection and Placement Examination by school type and the share of *imam hatip* high school applicants among all applicants and among the vocational and technical secondary school graduate applicants. The axis on the left shows the number of applicants while the axis on the right the shares. The share of *imam hatip* high school applicants increased slightly during the period from 2007 to 2010. It was 2.6% in 2007. It increased to 4% in 2010. The share of *imam hatip* high school applicants among vocational and technical secondary school graduate applicants was 11.1% in 2007. It increased to 14.5% in 2008. It is around 14% after 2008.

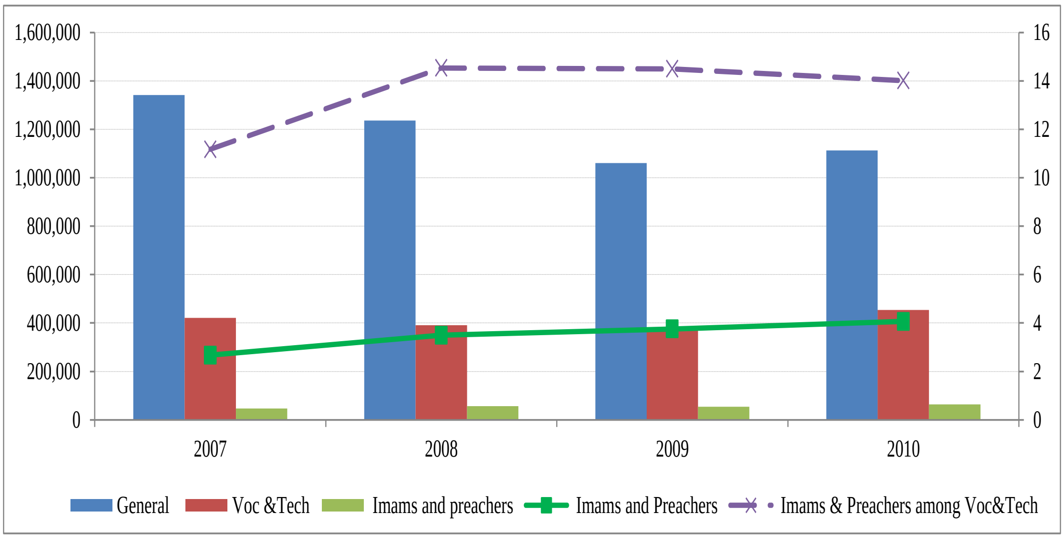


Figure 3.18: Number of the Applicants for the Student Selection and Placement Examination by School Type
Source: Education database, TURKSTAT (2007-2010)

To sum up, there are important findings in this section. By using Table 3.1 from Ilhan and Avşar (2009) paper, we examined the AYS of 15-24 year-old individuals before and after the increase in compulsory education. We found that there is an increase in AYS after the increase in compulsory education. This is true not only in urban areas but also in rural areas. For the overall population and the labor force the increase in rural areas is higher than the increase in urban areas, therefore the urban-rural gap has decreased. On the other hand, for the inactives, the urban-rural gap has increased. In addition to that, the gender gap in urban areas for the 15-24 year-old individuals and the inactives has decreased. In rural areas, the gender gap for 15-24 individuals has increased while it decreased for inactives. In urban areas, the gender gap for labor force participants in 1988 and 2006 have negative values, which means that the AYS of females are higher than the AYS of males. This is true not only in 1988 but also in 2006 but the magnitude is higher in 2006 (it was –1.11 in 1988 while it was -1.51 in 2006). From this finding, it can be deduced that females are likely to benefit from the increase in the compulsory education.

The second finding comes from the figures about the educational attainments of 15-19 and 20-24 year-old individuals. For 15-19 year-old individuals, the fraction of high school graduates has an increasing trend until 2008 and the slope during the period from 2000 to 2008 is steeper than the slope during the period from 1988 to 2000. In addition to that, the slope is steeper for females than for males during the period from 2000 to 2008. The third finding relates to the increase in the fraction of females who are in school. There is a remarkable increase for women.

From the second and third findings, it can also be inferred that females have benefited more than males from the increase in compulsory education. Note that we have also found a negative outcome related to the increase in compulsory education. There was an increase in the number of drop-outs after 2000. The fifth finding relates to the share of new comers in secondary schools. Among primary eight year graduates, the proportion continuing on to high school education decreased from 92% in 2001 to 84% in 2010. This means that in 2010 there were fewer individuals who continued on to high school after compulsory education than in 2001.

The sixth finding is that although there was a decrease in the share of vocational and technological high school graduates during the period from 2000 to 2002, after 2002 it started to increase. The last finding is about the increase in the share of imam hatip high school graduates applying to the Student Placement Exam. These findings have direct and indirect implications for the transition from school to work. For example, as compulsory education increases, the time spent in school lengthens, therefore the transition from school to work lengthens as well. Nevertheless, compare to the European countries, Turkey is far behind the European countries. Figure 3.19 shows the ratio of individuals who are in school among 15-24 year-olds in 2010. Turkey is shown by the black bar. Talking with numbers, in Euro27, among 15-24 year-old individuals around %87 of them are in school while it is only 59% in Turkey. From this point of view, one can say that Turkey has a long way to go. In addition to that, as years of schooling increases, one expects that human capital increases, which has also effects on the transition from school to work. Although vocational high school education is expected to help the graduates during their transition from school to work, a significant number of them prefer to continue on to higher education (Tunalı, 2003). This is valid especially, after AKP acceded to power. Briefly then, labor market composition is probably affected by the changes in the education system and thus these changes lead to variations among individuals whose year of separation from school is different. These changes in the labor market can be examined by comparing the transitions from school to work during the years 1990s and 2000s.

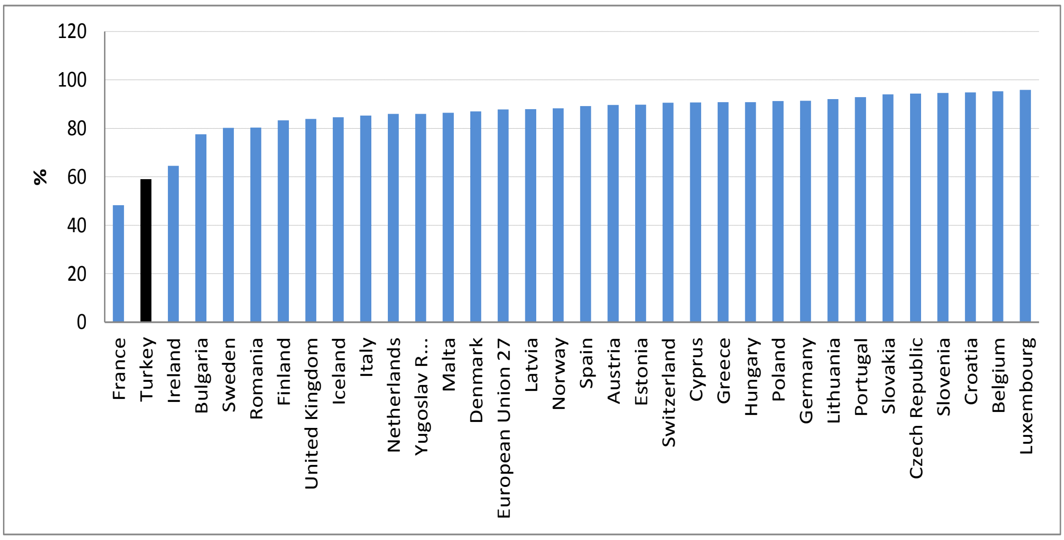


Figure 3.19: Ratio of Individuals who are in School by Country, 15-24 year-olds, 2010

Source: http://appsso.eurostat.ec.europa.eu/nui/setupModifyTableLayout.do

3.4.2 Compulsory Military Service

In Turkey, all males must enlist and do military service when they reach age 19, unless they are in school. Therefore, compulsory military service (CMS) coincides with the period of transition from school to work. CMS may alter the course of the transition from school to work. In this section, we examine how timing of CMS differs according to educational background of an individual.

In Turkey, there are three phases of military service: Call, Active Duty and Reserve. During the Call Phase, individuals go through health inspections to determine their suitability for deployment. A small fraction is deemed unsuitable due to health reasons. In the Active Duty Phase, military service is performed in military schools, battalions or military organizations. The last phase is the Reserve Phase. The Reserve Phase ends when a man reaches 41 years of age. As mentioned in the introduction chapter, enlisted males are not counted in the HLFS because the sample frame of HLFS targets the non-institutional population. This is another reason for us to focus on CMS.

The service category and the duration for enlisted males are determined according to the education of the individual. For example, university graduates may serve either 12 months as conscripted reserve officers at the rank of a third lieutenant or 6 months as short-term conscripts with no ranks. Conscripted reserve officers mainly serve as backup for manning shortages in the regular officer positions. Without a university diploma, conscripts are subject to 15-month service[13]. Following a 3-month basic and branch training recruits are distributed among the troops. Active duty service periods were revised in July 2003. Before 2003, CMS was 18 months for long-term conscripts (who have less than a university education) and 8 months for short-term conscripts (who have a university degree). In addition to that for the remaining candidates with a four-year university degree (i.e., conscripted reserve officers), CMS was 18 months.

With the shortening of the active duty in July 2003, CMS decreased from 18 months to 12 months. For foreign residents (of at least three years have to work there), there is another option: Military Service in Exchange for Foreign Currency Service[14]. Those who want to exercise this right pay 5,112 Euros and complete 21 days of basic military training before they are 38 years old. In 1999, Paid Service was implemented to compensate for financial losses from the Gölcük, Kocaeli earthquake of August 17, 1999.[15] It targeted males who were born before January 1, 1973 and who had not yet started doing their compulsory military service.

In our data sets, we do not have information about the length of military service the enlisted male did. However, the retrospective question about the previous year's labor market situation allows us to identify those who were in the military. In the following chapters, we rely on this question and the individual's education to tease out the effects of compulsory military service on the transitions from school to work. In particular, we examine whether the effect of CMS for someone with a lower educational attainment differs from another with higher education since employer are more likely to hire males who complete their CMS. However, one should not forget that from the supply side of the labor market, reservation wages of individuals show variations among different education levels. Therefore during the transitions from military to work is probably affected by these factor. This is crucial since in Turkey there are continuing debates about standardizing the duration of CMS to nine months

[13] Two years associate degrees are included.
[14] In Turkish 'Dövizle Askerlik'
[15] In Turkish 'Bedelli Askerlik'

so that the duration will be same for all education levels, creating a professional army and disallowing shorter paid military service. We also consider the revisions on the length of CMS because it has potential effects on obtaining first permanent job after leaving school. We have information about the year in which the individual seperates from school. The years of separation are between 1985 and 2009. We have to take into account the changes done to CMS in 2003 during interpreting the impacts of the years of separation.

Since February 2000, enlisted males with high school education (except for vocational high school graduates) and less, have been receiving various types of vocational training.[16] Table 3.3 presents the number of recruits who received vocational training offered by the armed forces. First column shows the number of courses, while second column shows the number of recruits who received these courses. The third column shows the number of successful recruits. Note that these successful recruits received certificates. As of 2000, there are 608,175 recruits who received these trainings and 78% of them (475,958) have been successful and therefore, received certificates. We hypothesize that males who have received vocational training will have a smoother transition to employment because we expect these training programs to help males improve their chances of finding a job requiring skills.

[16] Note that, we do not have any information about how the recruits who receive these trainings are selected. Tailoring, plastering, paint and white washing, plumber, carpentry, coiffeur, barber, cookery, computer, typewriter, computerized accounting are some examples of types of vocational trainings.

Table 3.3: Number of Recruits who received Vocational Training Courses February 8, 2000-March 31, 2007

Armed Forces	Number of Courses	Number of Recruits who receive these trainings	Number of Succesful Recruits	Fraction of the Succesful Recruits (%)
Land Forces Command	17924	420702	307990	73
Naval Forces Command	842	19448	14167	73
Air Forces Command	943	36484	32017	88
General Command of Gendarmerie	8626	130407	120700	93
Coast Guard Command	299	1134	1084	96
TOTAL	**28634**	**608175**	**475958**	**78**

Source:http://www.tsk.tr/HABERLER_ve_OLAYLAR/8_Toplumsal_Gelisime_Destek_Faaliyetleri/konular/er_erbas_kurs.htm

From the point of the human capital theory, human capital depreciation may occur during CMS since individuals who are doing their CMS are not in the labor market. Nevertheless, human capital accumulation may also occur through CMS. In addition to that, the reservation wages of individuals who have completed their CMS is likely to be higher than those who yet to do their CMS. From the perspective of labor demand, there will be more job offers to those who have completed their CMS and the wage offers are likely to be higher. Therefore, the transition from school to work is affected by CMS. The question is which effect dominates the other.

3.4.3 Employed

Industrialization generates jobs in manufacturing and services and this phenomenon absorbs the surplus labor in agriculture. In Turkey the growth in the non-agricultural sector has not been fast enough to absorb the agricultural surplus. In 1988, there were 17.8 million workers in Turkey, 26% of these were 15-24 years old and 27% were 25-34 years old. In 2009, there were 21.2 million workers. The share of 15-24 year-olds decreased to 15.6% while the share for 25-34 year-olds increased to 31.2%. The decrease in the share of 15-24 year-olds is probably due to the increase in the educational attainment of this age group. Comparing the working age population growth in the 1990s and 2000s, working age population increased at a rate of 1.88% per year (Ercan, 2007). However, the employment growth rate was 2.1% per annum during the 1990s while it was -0.2% per annum during the 2000s. During the 1990s, broken down by age groups, the employment growth rate was 0.9% per annum for

15-24 year-old individuals, while it was 3.5% for 25-34 year-olds. During the 2000s, these values are -3.2% per annum and 0.1% per annum. From this point of view, one can say that, the job creation is not enough for those young individuals. In addition, comparing the 1990s and 2000s, the problem is more remarkable.

Figures 3.20-3.25 are used to illustrate the sectoral composition of employment in Turkey by using the HLFS database for the years 1988-2009. In other words, the shares of the sectors in total employment are shown in these figures. Figure 3.20 displays the sectoral composition of 15-24 year-old workers, while Figure 3.21 is for 25-34 year-olds. Figures 3.22 and 3.23 are for females while Figures 3.24 and 3.25 are for males. The service sector is represented by the line with an asterisk marker while the line with a diamond marker is for the agricultural sector. The line with a square marker is for the manufacturing sector and the line with a triangle is for the construction sector.

Figures 3.26-3.33 show the number of workers in each sector by gender in Turkey. HLFS database for the years 1988-2009 is used to draw these figures as well. Figures 3.26, 3.28, 3.30 and 3.32 are for 15-24 year-old workers, while Figures 3.27, 3.29, 3.31 and 3.33 are for 25-34 year-olds. The line with a triangle marker represents the overall 15-24 year-old workers while the line with a square marker represents females and the line with a diamond is for males.

In 1988, 54% of the 15-24 year-old employed individuals were in the agricultural sector (Figure 3.26). However, the share of agriculture among 15-24 year-olds decreased over time, especially after 2000. The decrease in the agricultural sector continued until 2007. In 2007, the share of the agricultural sector for this age group was 20% but it went up slightly to 24% in 2009. In terms of employment levels; in 1988, the total number of 15-24 year olds employed in agriculture was 2.5 million. It decreased to 704 thousands in 2000 but went up to 743 thousands in 2009 (Figure 3.26). In 1988, the share of agricultural employment among 25-34-year-olds was 32% (Figure 3.21). This value decreased to 13% in 2007. In 2008 and 2009, it was 14%. In recent years, the increase in the share of agriculture sector in the employment of 25-34 year-olds is lower than that among the15-24 year-olds.

Construction sector is an important sector for unskilled labor and thus, it is one of the sectors which can absorb labor surplus from agriculture. The share of employment in the construction sector was around 6% in 1988 and this is true for the two age groups. It does not change too much over time. In 1988, it employed 5% of the 15-24-year-olds and 7% of the 25-34-year-olds (Figure 3.20 and Figure 3.21). In 2009, this figure increased to 6% for both groups. Nevertheless, turning to employment levels in construction sector, one can see that there are increases and decreases in the total number of individuals who are employed in construction (3.30). In 1988, total number of 15-24 year-old individuals who are employed in construction sector is 256 thousands and it decreased to 121 thousands in 2002. After 2002, there was an increasing trend and it increased to 197 thousands in 2008. It decreased to 174 thousands in 2009. For the case of 25-34 year-olds, one can see the same patterns as 15-24 year-olds but the decrease after 2002 was more slightly than the 15-24 year-olds. These changes in the employment levels probably affect the transitions in the labor market for lower educated males.

Looking at the manufacturing shares of each age group, the trend is not clear until 2000. After 2000, there is an increasing trend. This is probably related to the change in the trade regime and the increase in the growth. Nevertheless, this growth may not have an influence for lower educated individuals. For 15-24 year-olds, in 1988, it was 17% whereas it increased to 27% in 2007 (Figure 3.20). After 2007, it started to decrease. It had the same values in 2009 as in 2004: 24%. The same pattern can be seen for the case of 25-34 year-old individuals. Turning to the employment levels in manufacturing for 25-34 year-olds, in 1988, it was 951 thousands in 1988 and it increased to 1.6 million in 2009 (Figure 3.28). After 2000, the slope of the l employment level is steeper. Especially, for the case of females, it is more remarkable. Note that, for the case of 15-24 year-olds, after 2000, level of employment in manufacturing decreases while before it has an increasing trend (Figure 3.29). The absolute decrease after 2000 is probably related to the increase in the compulsory education. From the demand side, due to the change in the trade regime more educated individuals are needed. Therefore, this demand probably affects the vocational high school graduates and the university graduates.

There are noticeable differences between males and females with respect to sectoral shares of employment. The foremost observable difference is that the share of agriculture in the employment of females is higher than males (Figure 3.22 and Figure 3.24). The share of agriculture among 15-24-year-old females was 77% in 1988 and 53% in 2000 (Figure 3.22). From 1988 to 2000, it had a slightly decreasing trend. The decrease was higher from 2000 to 2007. Each year, the share of agricultural employment of this age group decreased by 2 percentage points from 1988 to 2000 and by 3 percentage points from 2000 to 2007. In 2007 and 2008, the share of agriculture was 32%. It increased slightly in 2009 to 33%. The share of agricultural employment was lower for 25-34-year-olds in 1988 than for 15-24 year-olds. Among the former the share of agriculture was 64% in 1988 while it decreased to 47% in 2000 and continued decreasing until 2007 (Figure 3.23). It was 28% in 2008. In 2008 and 2009, it was 28% and 26%, respectively.

Figures 3.24 and Figure 3.25 display the sectoral composition of male employment in 1988-2009. For the 15-25 year-old males, the share of agricultural sector was 40% in 1988 (Figure 3.24). It slowly decreased to 30% from 1998 to 2000. After 2000, it decreased faster, attaining a value of 14% in 2007. It started increasing after 2007, reaching 17% in 2009. The share of agricultural sector is lower among 25-34-year-olds than 15-24-year-olds. The employment level in agriculture has a decreasing trend after 1992. Note that, this is more remarkable for males than females. After 2000, the slope became steeper which is valid not only for females but also males. This shows that after 2000, young individuals are more likely to search jobs in non-agricultural sector. For 15-24 year-old males, in 1988, the level of employment is around 1.1 million while it decreased to 334 thousands in 2007. It increased to 368 thousands in 2009.

For the case of 15-24 year-old females, in 1988, it was around 1.4 million and it decreased to 370 thousands in 2007. It increased to 375 thousands. In other words, starting from 2007, the decrease in the level of employment in agriculture stopped. The same pattern can be seen for the case of 25-34 year-old males and females. However, the level of decreases in the employment level in the agricultural sector for 25-34 year-old individuals was not as high as the decreases for the 15-24 year-olds.

Due to the these findings, one can be curious about the effect of being in rural areas on the transitions fro school to work since in rural areas agricultural sector is dominant and there are less job opportunities.

The share of the service sector in 1988 was 11% for 15-24 year-old females while it was 43% in 2007 (Figure 3.22). Note that its slope is steeper after 2004 than before 2004. However, its rate of increase slows down from 2007 to 2009. Over this period, tt only increases by 2 percentage points, becoming 45% in 2009. For the 25-34 year-olds, the share of the service sector was 28% in 1988. It increases at a slower rate until 2004 as in the case of the 15-24 year-olds (Figure 3.23). It was 41% in 2004. After 2004, over the next three years it increased 13% reaching 54% in 2007. Its rate of increase slows down from 2007 to 2009, increasing only by 2 percentage points. It attains a value of 56% in 2009. For the case of males, until 1998 (the year in which the share of the service sector was 31% among the 15-24-year-olds), the share of the service sector was less than that of the agricultural sector (Figure 3.24). After 1998, the share of the former surpasses the latter for this age group as a result of the decreasing trend in agriculture and an increasing trend in services. The share of services increases to 34% in 1998 and to 51% in 2009. In the case of 25-34-year-olds, the share of services was 47% in 1988 (Figure 3.25). Comparing the age groups 15-24 and 25-34, the increase in the share of services is higher for 15-24-year-olds as compared to 25-34-year-olds.

The share of the manufacturing sector in the employment of 15-24 year-old females was 11% in 1988 (Figure 3.22). It registers a modest increase from 1988 to 2007, attaining a value of 25% in 2007. Afterwards, it starts to decrease becoming 21% in 2009. For the 25-34 year-olds, it increases from 10% to 18% from 1988 to 2007. In 2008 and 2009, it attains the same value as in 2007 (Figure 3.23). For 15-24 year-old males, the share of the manufacturing sector was 21% in 1988 and it demonstrates an increasing trend from 1988 to 2007, attaining a value of 30% in 2007 (Figure 3.24). However, it decreases to 25% in 2009. The share of manufacturing was 23% for 25-34 year-old males in 1988 (Figure 3.25). From 1998 to 2007, it increases by only 4 percentage point becoming 27%. It remains at nearly the same value thereafter. In addition to that at the beginning of the period under study, the share of the manufacturing sector was higher among 25-34 year-old males as compared to 15-24 year-old males. However, the slope of the share of manufacturing sector for the age group 25-34 was flatter (Figure 3.25). In 1988, it was 20% while it increased to 26% in 2008 but decreased to 24% in 2009.

In the case of 15-24 year-old males, the share of the service sector is smaller than the share of the agricultural sector while it has the highest value for 25-34 year-olds. Nevertheless, due to the fact that the share of the agricultural sector for 15-24-year-olds has a decreasing trend while the share of the service sector has an increasing trend, in 1998 the orders are reversed. The share of the service sector attains the highest value among the economic sectors. In 1988, the service sector share was 23% while it was 38% in 2003. After 2003, it registers a rapid increase, reaching47% in four years. However, it remains at nearly the same value after 2007.

The share of construction among 15-24 and 25-34 year-old males are nearly the same. Its share is between 4% and 9% among 15-24 year-olds. The highest value (9%) was observed in 1988 and lowest value in 2003. For the case of 25-34 year-olds, the highest value was 9% in 1998 and lowest value 6% in 2004.

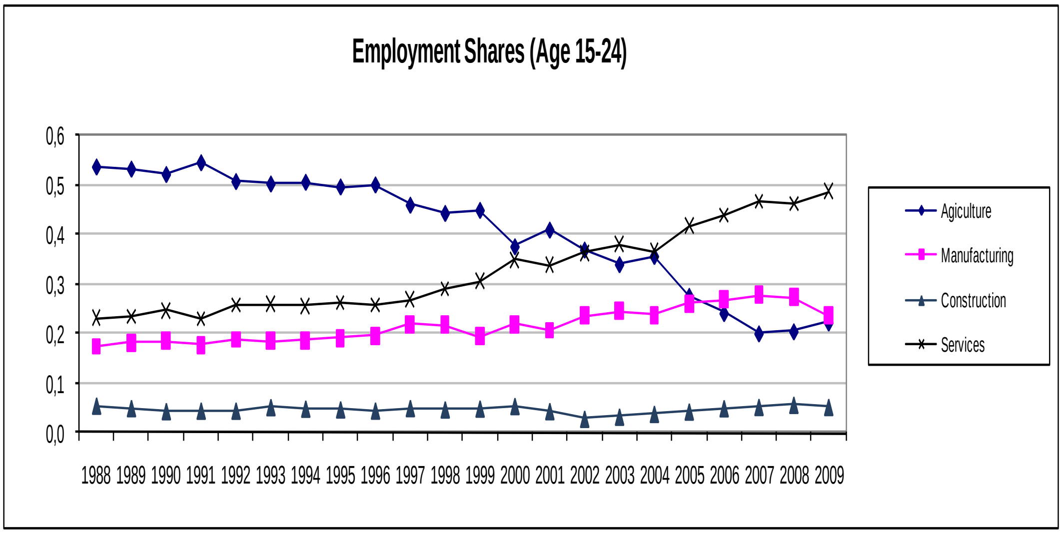


Figure 3.20: Sectoral Shares of the Employment for 15 to 24 Year-Old Working Individuals

Source: HLFS database, TURKSTAT (1988-2009)

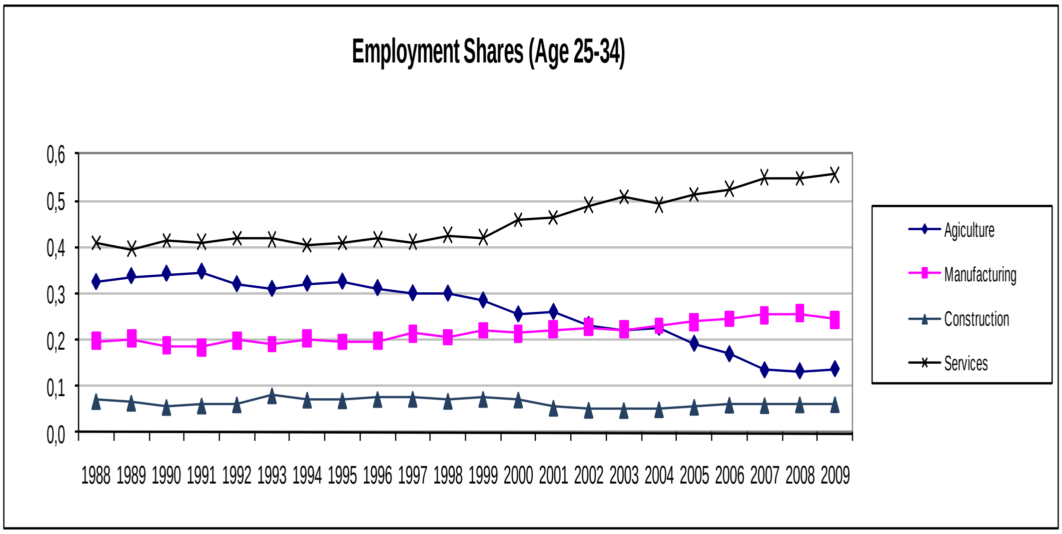


Figure 3.21: Sectoral Shares of the Employment for 25 to 34 Year-Old Working Individuals

Source: HLFS database, TURKSTAT (1988-2009)

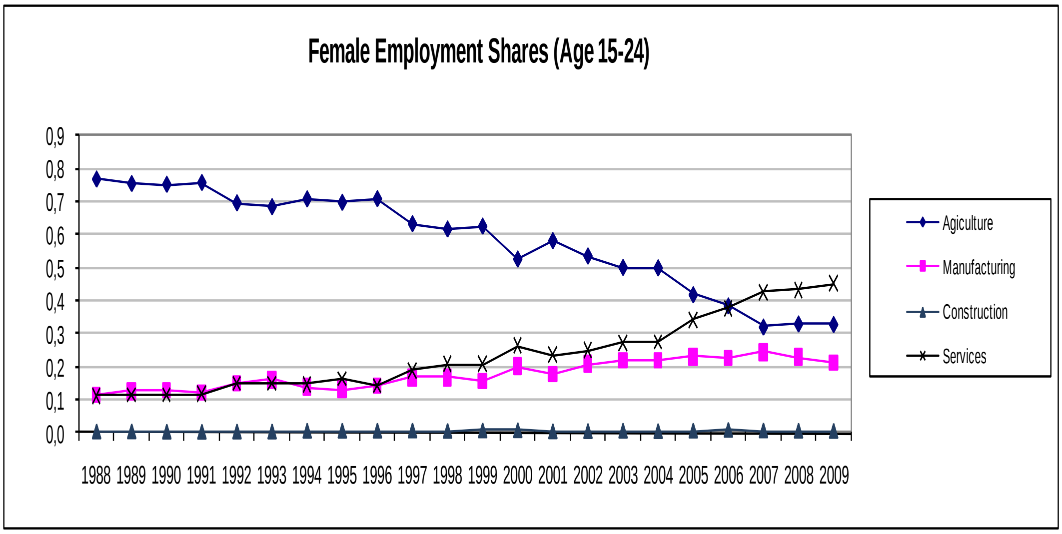


Figure 3.22: Sectoral Shares of the Employment for 15 to 24 Year-Old Working Females

Source: HLFS database, TURKSTAT (1988-2009)

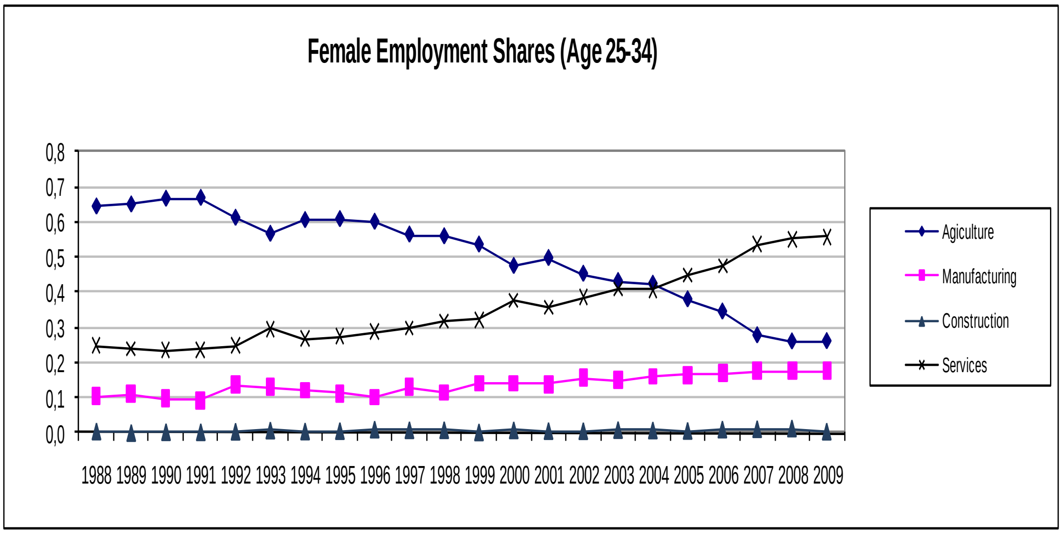


Figure 3.23: Sectoral Shares of the Employment for 25 to 34 Year-Old Working Females

Source: HLFS database, TURKSTAT (1988-2009)

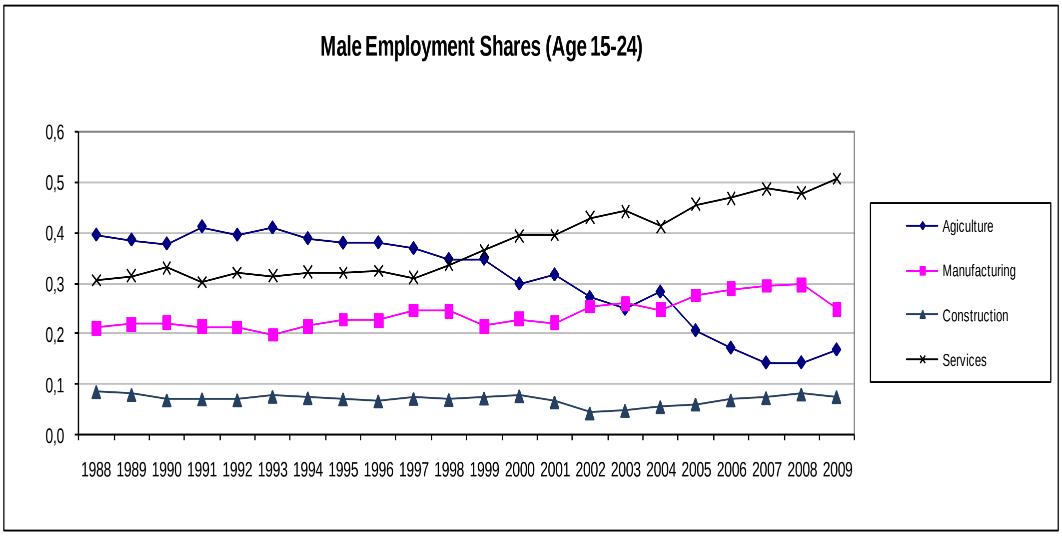


Figure 3.24: Sectoral Shares of the Employment for 15 to 24 Year-Old Working Males

Source: HLFS database, TURKSTAT (1988-2009)

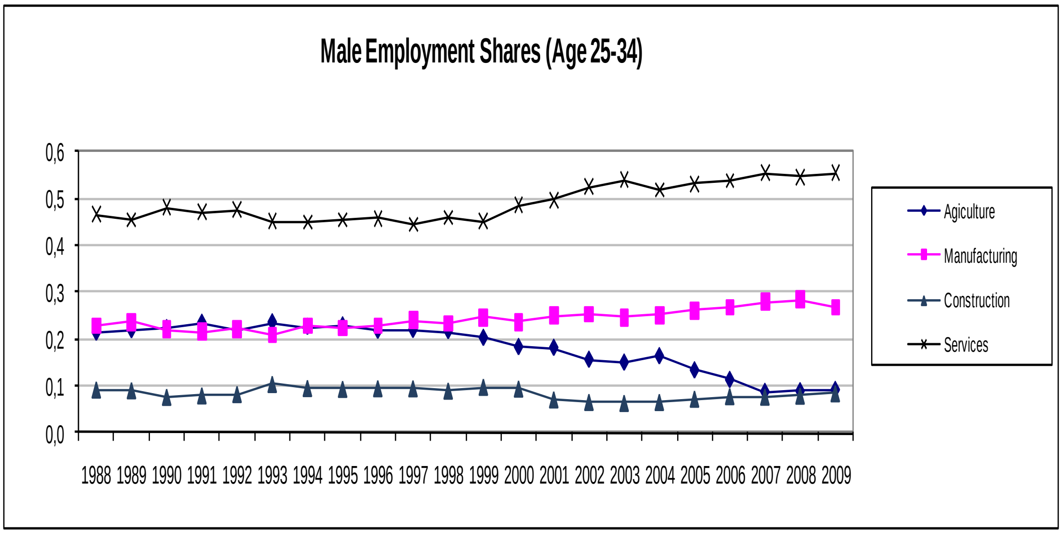


Figure 3.25: Sectoral Shares of the Employment for 25 to 34 Year-Old Working Males

Source: HLFS database, TURKSTAT (1988-2009)

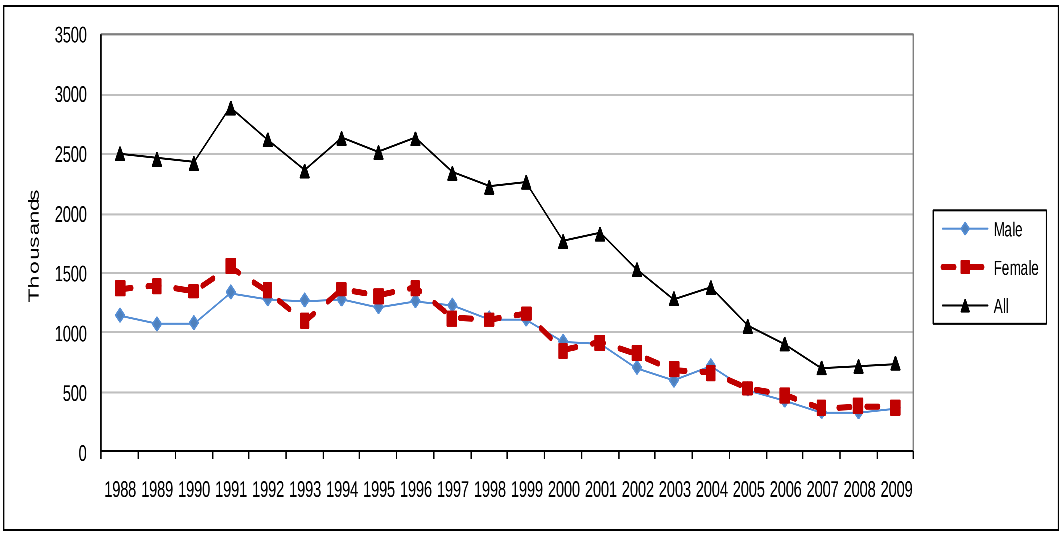


Figure 3.26: Entry to agricultural employment (ages 15-24) by gender, 1988 to 2009

Source: HLFS database, TURKSTAT (1988-2009)

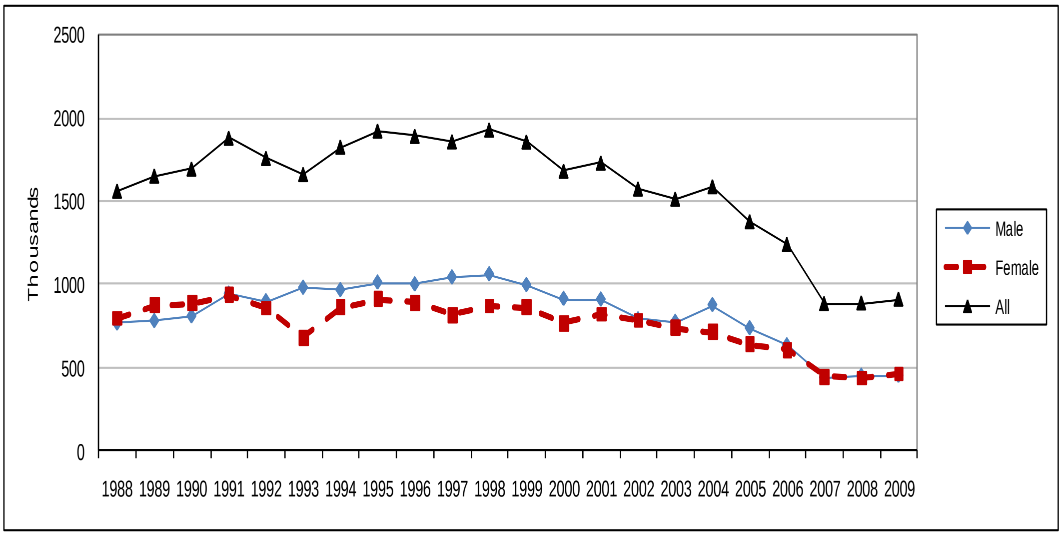


Figure 3.27: Early career agricultural employment (ages 25-34) by gender, 1988 to 2009

Source: HLFS database, TURKSTAT (1988-2009)

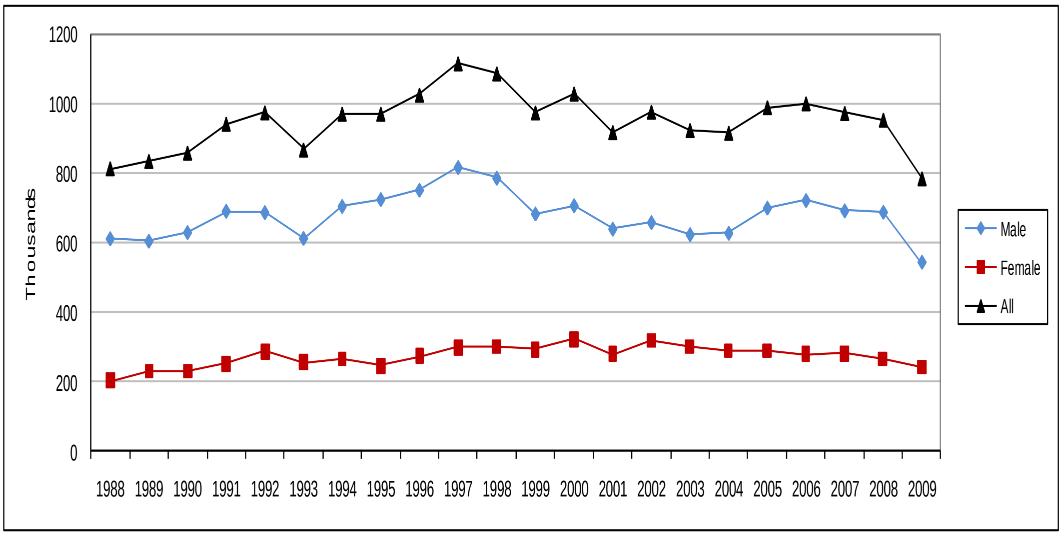


Figure 3.28: Entry to employment (ages 15-24) by sector and gender, 1988 to 2009 Manufacturing

Source: HLFS database, TURKSTAT (1988-2009)

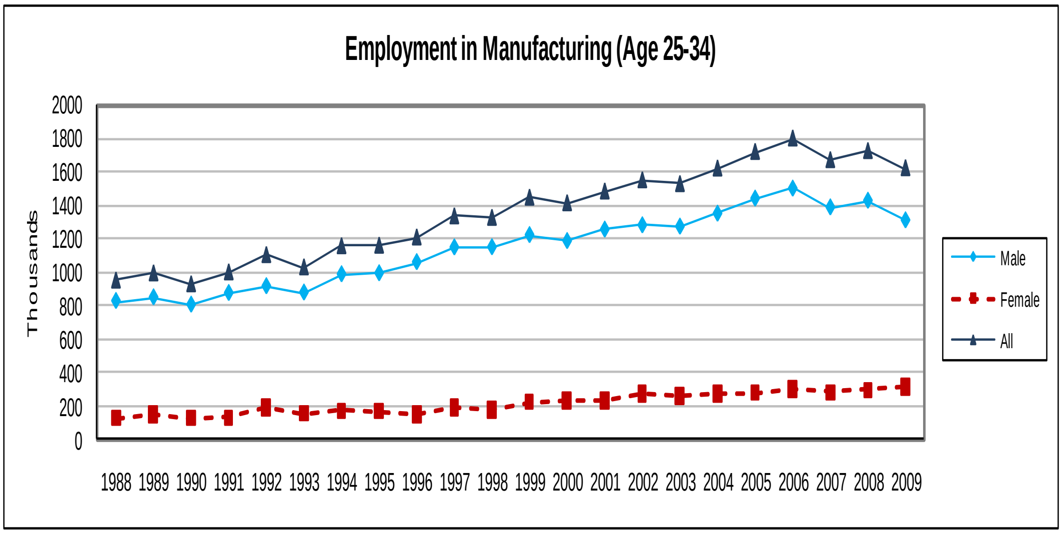


Figure 3.29: Early career employment (ages 25-34) by gender, 1988 to 2009 Manufacturing
Source: HLFS database, TURKSTAT (1988-2009)

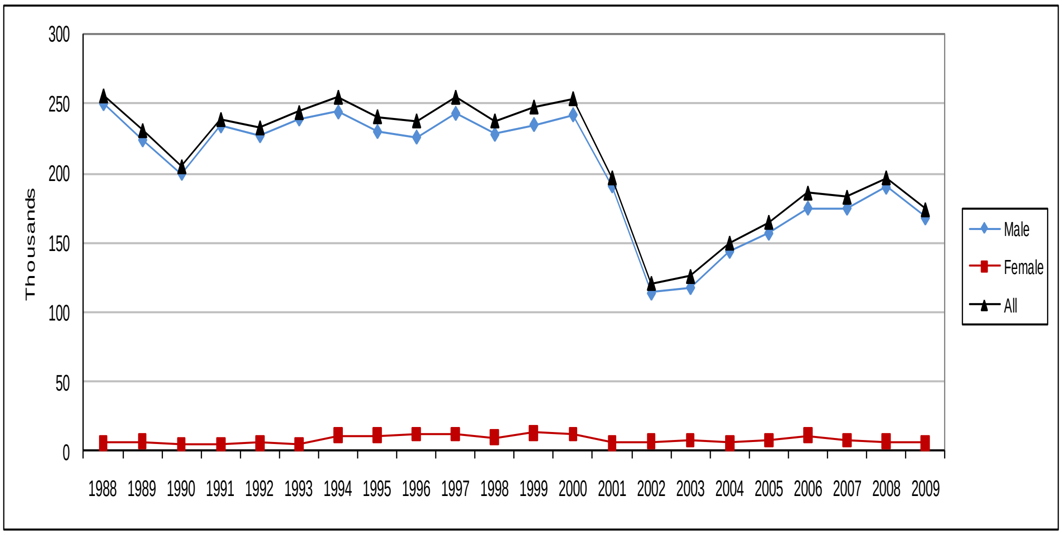


Figure 3.30: Entry to employment (ages 15-24) by sector and gender, 1988 to 2009 Construction
Source: HLFS database, TURKSTAT (1988-2009)

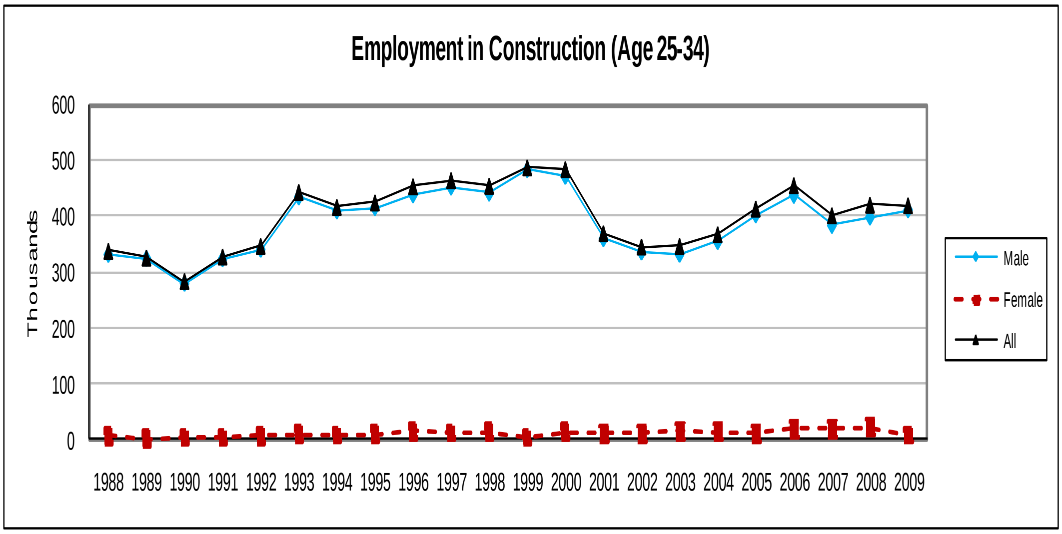


Figure 3.31: Early career employment (ages 25-34) by gender, 1988 to 2009
Source: HLFS database, TURKSTAT (1988-2009)

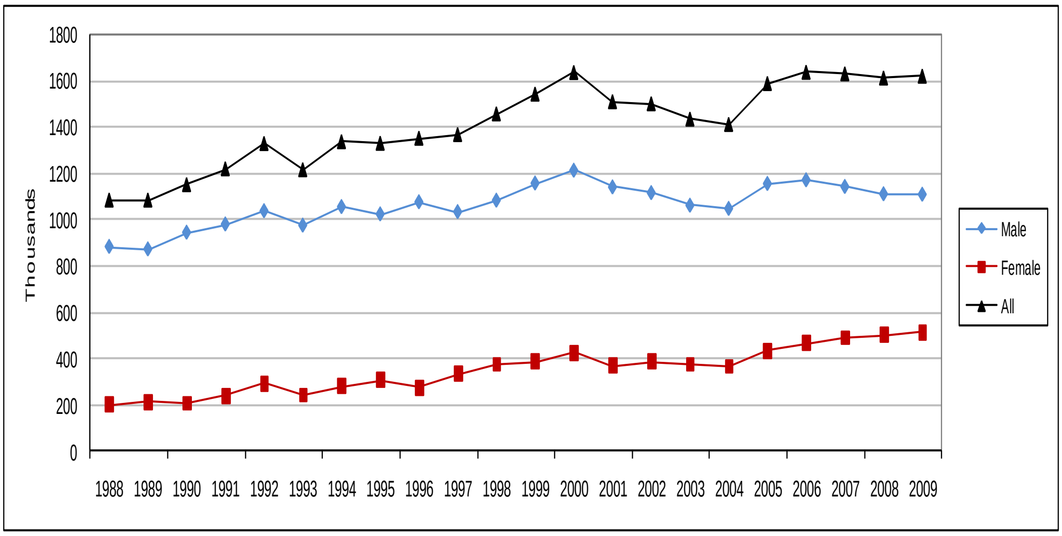


Figure 3.32: Entry to employment (ages 15-24) by sector and gender, 1988 to 2009 Services
Source: HLFS database, TURKSTAT (1988-2009)

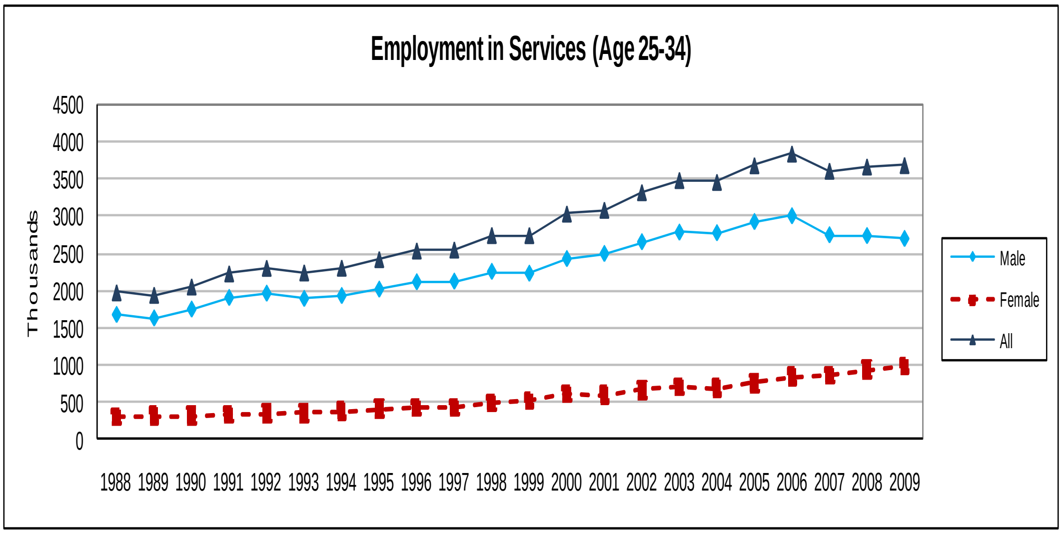


Figure 3.33: Early career employment (ages 25-34) by gender, 1988 to 2009, Services

Source: HLFS database, TURKSTAT (1988-2009)

Briefly then, the urban labor market starts to lose its attractiveness during the 1990s and it losses it completely after 2000 which is especially valid for lower educated individuals. After the second quarter of 2008, the Turkish economy enters a recession and this mainly affects the manufacturing and construction sectors negatively while the growth in service sector employment slows down. Furthermore, the 2008-2009 global financial crisis also puts a pressure on wages and operating revenues. Younger individuals also get negatively affected from these developments. The decrease in the manufacturing employment for the age group 15-24 is sharper than the one for the age group 25-34. In addition to these observations, the same pattern for young individuals can be observed for the service sector as well. The rate of increase in the share of service sector employment slows down. In the case of the agricultural sector, similar to the overall trends, younger individuals return back to the agricultural sector.

After 1997, the number of 15-24 employed males starts to decreases and this is true for each one of the sectors considered. On the other hand, the number of employed females registers a modest increase after 1990. To sum up, after the ARIP implication, not only males but also females get affected negatively. The labor market cannot absorb the labor surplus from agriculture. In addition to that, there is a decrease in the construction sector for these age groups. The dip point is in 2002.

After 2002, there is an increase in the construction sector but it cannot reach the values attained before 2000. Here there is a question come to mind: how these changes affect the new graduates, especially for the lower educated individuals. In addition, since males are more likely to search job in non-agricultural sector, especially males face more difficulties than females in rural areas.

One of the important stylized facts about employment in Turkey is the decline in unpaid family work and increase in wage work (Dayıoğlu and Kırdar, 2010). Dayıoğlu and Kırdar (2010) found that in urban areas, wage employment has been the major form of employment for males and females. They also note that in urban areas males and females are affected in an opposite way from the economic crises in 1994 and 1999. While significant declines in wage employment among females occurred in 1994 and 1999, the proportion of men employed as wage earners slightly increased. However, in the 2001 crisis a decline in the proportion of females employed as wage earners did not happen although the recession in 2001 was deeper as compared to 1994 and 1999. These findings relate to the population aged 15 and above. In order to examine the effect of the structural change implemented in 2001, the new Labor Law that was adopted in May 2002 and the crisis on young individuals in the labor market, we draw figures illustrating the share of males and females working for wages and salaries.

The 1988-2009 HLFS database of TURKSTAT is used in drawing Figures 15 through 17. In these figures, the shares of wage workers among 15-24 and 25-34 year-old employed individuals by gender are shown. 15-24-year-old females are shown by a line with a square marker while 25-34 year-olds are given with a diamond marker. The triangle marker is for 15-24 year-old males, while the asterisk is for 25-34 year-old males.

Figure 3.34 displays the share of wage workers without urban-rural separation. There are three noticeable points about this figure. One, the share of wage earners in the two age groups is higher for males than females. Two, there is an increasing trend for wage work until 2007. Three, the gap between males and females narrows over time. In 1988, the share of wage workers among 15-24-year-old employed females was 24%. This figure increased to 68% in 2007 and remained at similar values thereafter.

The share of wage workers among 25-34-year-old employed females is higher than among 15-24-year-olds. In 1988, the difference between the two groups was 9 percentage points. The share of wage workers among 25-34 year-old employed females has an increasing trend until 2007. However its slope is not as steep as the slope of 15-24 year-olds. Thus, the share of wage worker among 15-24 year-olds becomes higher than the share among 25-34 year-olds after 2005. In the case of 15-24-year-old males, the share of wage workers was 49% in 1988. It slowly increased to 75% in 2008 and then decreased to 72% in 2009. The share of wage workers among 25-34 year-old males was 59% in 1988. It increased to 74% in 2008 and 2009.

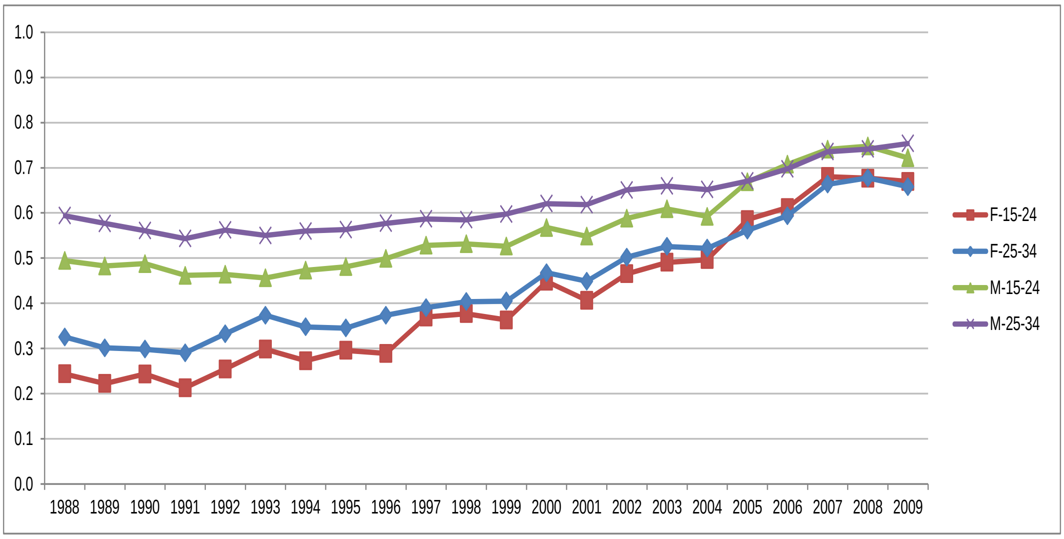


Figure 3.34: Share of Wage Workers, Turkey
Source: HLFS database, TURKSTAT (1988-2009)

Figure 3.35 displays the share of wage workers among the employed in urban areas. The share of wage workers is higher among the employed females than employed males. In 1988, this figure was 80% among 15-24 year-old females, but increased to 94% in 2007. From 2007 to 2009, it decreased 3 percentage points and became 91% in 2009. In the case of 25-34 year-old females, it was 78% in 1988. It increased to 88% in 2007 and then it decreased by 2 percentage points from 2007 to 2009. As previously noted, the share of wage workers among males is lower than for females. In 1988, the share of wage workers among men was 75% but it increased to 86% in 2007. From 2007 to 2009, it decreased by 2 percentage points. The share of wage workers among 25-34 year-old employed males was 72% in 1988. It increased from 1988 to 2009. In 2007, its share was 80%. It further increases to 82% in 2009.

In urban areas, the share of wage workers is higher among younger (15-24 year-olds) than older (25-34 year-olds) individuals. The difference between the two age groups among men was in the range 3-5 percentage points during the period 1988-2009. When individuals are younger, they are more likely to be wage workers, and less likely to be self-employed since they lack experience, as well as a start-up capital. On the other hand in rural areas the opposite is true: 15-24 year old workers are less likely to be wage workers than 25-34 year-olds. This is not suprising since unpaid family workers are in the non-wage worker category. The gap is higher for males than females. After 2000, this gap becomes narrower but after 2008, it tends to widen.

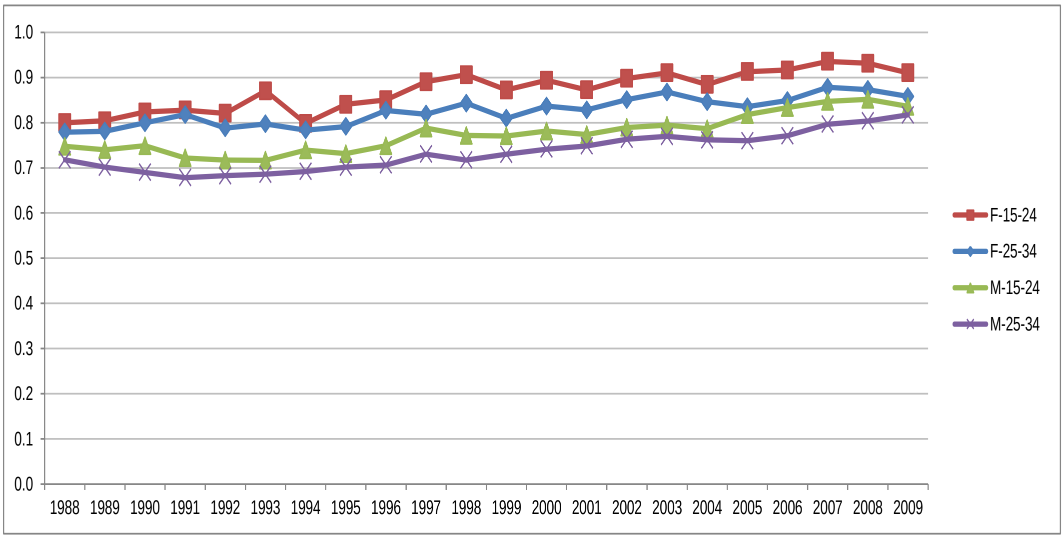


Figure 3.35: Share of Wage Workers, Urban Turkey
Source: HLFS database, TURKSTAT (1988-2009)

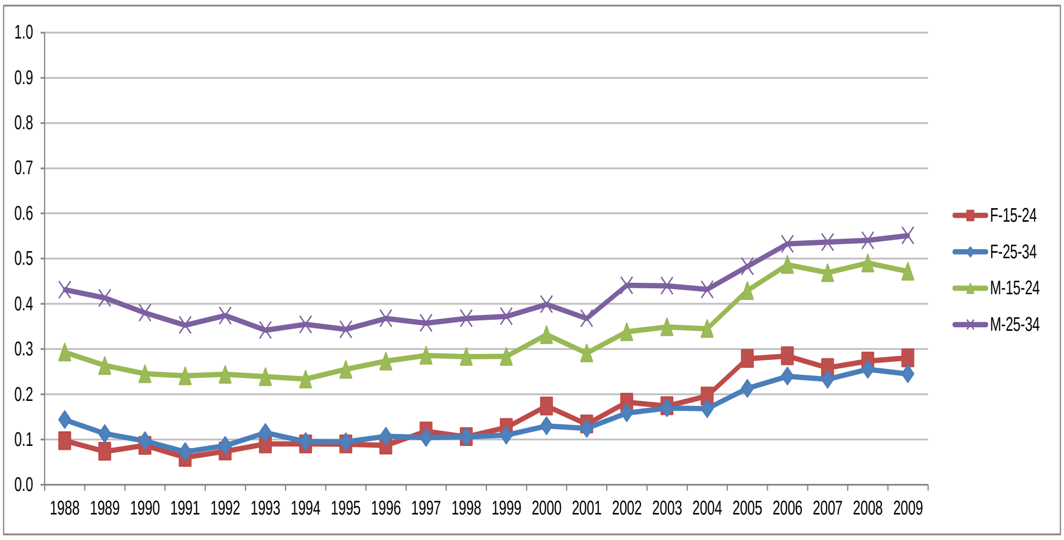


Figure 3.36: Share of Wage Workers, Rural, Turkey
Source: HLFS database, TURKSTAT (1988-2009)

In rural areas, the share of wage workers is higher for males than females while it is just the opposite in urban areas. This is expected since rural females are more likely to employ as unpaid family workers as compare to rural males. In addition to that, the share of wage workers among 15-24 year-olds has lower values than among 25-34 year-olds. The share of wage workers among 25-34 year-olds decreases from 43% in 1988 to 35% in 1992. In 1993, it increases to 37%. In 1994, it decreases to 34%. Until 2000, it stays around 36%. After 2000, it has an increasing trend and it is 54% in 2007. In the case of males, the pattern observed for 15-24 year-olds is similar to that of 25-34 year-olds. However, the share of wage workers among 15-24 year-olds (at 29%) is lower than the share among 25-34 year-olds in 1988. In 2006 and 2008, it reaches its highest value: 49%. In the case of rural women, the share of wage workers in the age group 15-24 is lower than the share in the age group 25-34. This is true until 1998. It attains higher values as compared to 25-34-year-olds. In 1988, among 15-24 year-old employed females, 10% is a wage worker. It increases to 28% in 2005. It decreases by 1 percentage point in 2007. Again, it increases to 28% in 2009. In addition to that, among 25-34 year-olds, it is 14% in 1988 and it reaches its highest value (26%) in 2008.

There are four important points that can be deduced from the analysis in this section. The first one is about the decrease in the share of agricultural employment during the period 1988 to 2006. This change has mainly affected 15-24 year-olds. The share of agricultural employment for among 15-24 year-olds decreased 34 percentage points during the period 2000 to 2007 while it decreased by 19 percentage points among 25-34 year-olds. Therefore, the decrease among 15-24 year-olds is higher than the decrease among 25-34 year-olds. In addition, males are more likely to be affected than females by this change in the agricultural sector. From this point of view, it is not surprising males' transitions from school to work are more difficult than females in rural areas.

The second point to note is about the share of wage workers among these individuals. After 2000, the share of wage workers among the youth had an increasing trend in both urban and rural areas, but it is more visible in rural areas especially among males. From these two findings, one can deduce that not only the sectoral composition but also the employment status have changed for young individuals. This is in line with the decline in the agricultural employment associated with the hastened pace of transformation during the ARIP period. This may also affect the duration of obtaining the first permanent job and the duration of obtaining the first permanent paid job after separation from school. Nonetheless, there occurred an increase in the share of agricultural employment after 2006 and in addition to that the share of wage workers decreased or stayed the same for the age group 15-24 and 25-34.

There may be two reasons for the increase in the share of the agricultural sector in employment: an increase in agricultural income and an increase in non-agricultural unemployment due to the economic crisis. Thus, the new comers may be more eager to be employed in the agricultural sector, especially those whose families are engaged in agriculture after 2006. One can deduce from the preference of the new comers that their duration of obtaining the first permanent paid job is probably shorter than those who prefer a job in the non-agricultural sector. In addition, in urban areas, females are more likely to be wage workers than males. This may be also related to CMS, again. Because in these ages as previously mentioned before, employers prefer the males who complete their CMS. In addition, this may be also related to patriarchal attitudes reinforced by religious belief. Due to the fact that, being self-employed in urban areas are needed capital, self-confidence etc…males are more likely to be self-employed than females.

The third observation to note is about the share of employment in the construction sector during the period that the share of agricultural sector decreases and therefore, the labor surplus from agriculture cannot be absorbed by the construction sector. This is true not only for young individuals but also for the overall population (İlkkaracan and Tunalı, 2009). Nevertheless, the service sector might be absorbing some of the labor surplus from agriculture since its share among the youth has an increasing trend after 2000.

The last point to note is about the manufacturing sector. The increase in the share of manufacturing sector for 15-24 year-old workers is higher than for 25-34 year-old workers during the period 2000-2006. It is 14 points for females and 9 points for males. On the other hand, for 25-34 year-old males, the increase in the share of manufacturing sector is only 4 points. For female new comers, the manufacturing sector is more in the forefront than for males.

3.4.4 Unemployed

As examining the sectoral shares of employment for young individuals in the previous sections, it can be said that the composition of the employment changed during the period 1988-2009. As the share of agricultural sector decreased, the share of service sector increased. In addition, the share of manufacturing sector showed an increasing trend especially after 2000. Turning to the employment levels in these sectors, for the case of males, the employment level showed higher decreases in the agricultural sector compare to the employment level for females in this sector. In other sectors such as service and manufacturing, the employment levels are increasing during the same period. The question comes to mind here ‘Are these increases in the service sector and manufacturing sector enough to compensate the decreases in the employment level’ If not, then the increases in unemployment rate of young individuals would not be surprising. Therefore, we examine the unemployment rate of young individuals during this period.

As previously mentioned, the average increase in working age population (1.9%) is higher than the average increase in employment during the last twenty years. Another important, the question is whether the average increase in unemployment is higher or not. It was 1.5% per annum during the 1990s while it was 14.6% during the following decade. During the 1990s, if we break down into age groups, the unemployment growth rate was for 0.1% per annum for 15-24 year-olds while it was 4.5% for 25-34 year-olds. These values were 6.6% per annum and 18.8% per annum during the 2000s. It can be said that job creation was not enough to match this influx of young individuals. This is more noticeable during the 2000s compare to the 1990s. Comparing the age groups 15-24 and 25-34 year-olds, the problem of jobless young individuals are more remarkable for 15-24 year-olds. Now, we focus on the youth unemployment in detail.

3.4.4.1 Unemployment rates

We begin with focusing on the unemployment rate by comparing the youth unemployment in Turkey and Europe. In Figure 3.37 shows the unemployment rates by country. Turkey is shown by the black bar. In 2010, the youth (15-24 year-olds) unemployment rate in Turkey (21%) is higher comparing with Germany (9.7%), Austria (8.8%), Denmark (13.8%), Netherlands (8.7%), Norway (9.3%) and Switzerland (7.2), it is lower than most of the European members (for examples: Greece (32.9), Spain (41.6%), Sweeden (25.2%), Italy (27.9%)). Comparing the youth unemployment in Turkey with the youth unemployment in total OECD (16.7), USA (18.4%), it is higher in Turkey[17]. From these comparisons, one can say that Turkey is not the worse. Nevertheless, Turkey has a growing young population therefore, as it is mentioned in the previous chapters; Turkey has a demographic gift especially to design a sustainable pension scheme. Thus, jobless youth will endanger not only the pension scheme of Turkey but also other economic indicators of Turkey.

[17] Source: Labour market statistics: Labour force statistics by sex and age: indicators, OECD Employment and Labour Market Statistics (database)

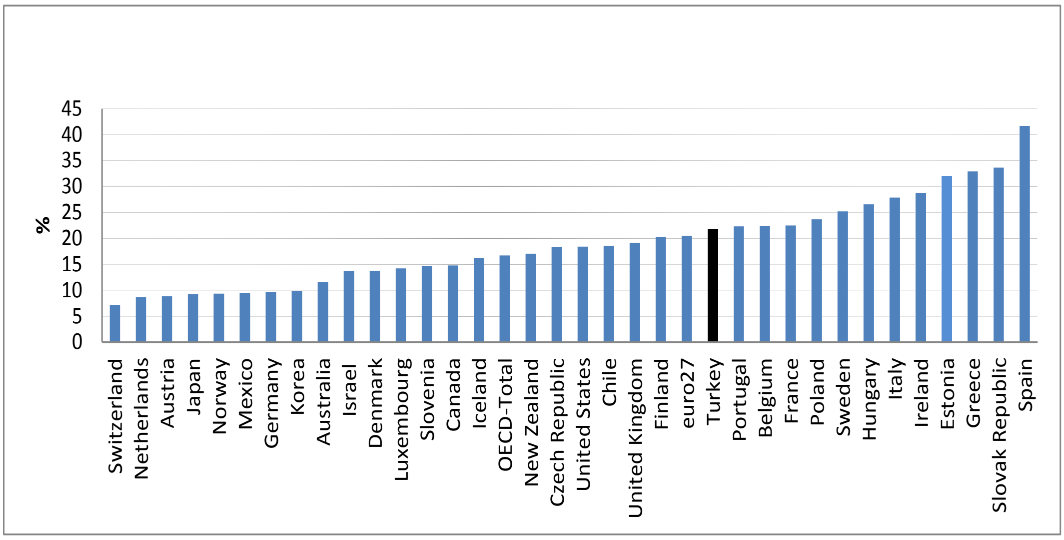


Figure 3.37: Unemployment Rates by Country, 15-24 year-olds, 2010
Source: Labour market statistics: Labour force statistics by sex and age: indicators, OECD Employment and Labour Market Statistics (database)

In what follows, we rely on the unemployment estimates from TURKSTAT's HLFS 1988-2009 database. The change in unemployment rates from 1988 to 2009 by age groups is shown in Figures 3.38 and 3.39. In Figures 3.39 through 3.43, the line with a diamond marker shows the unemployment rate for 15-24 year-olds while the one with a square marker is for 25-34 year-olds. The line with a triangle marker shows the average unemployment rate for the population (individuals older than 15). Figures 3.40 through 3.43 represent the unemployment rates for 15-24 year-olds and 25-29 year-olds by gender and location (i.e. urban and rural areas). The data source of these figures is the HLFS 1988-2009 database of TURKSTAT. Especially after 2000, with the implementation of ARIP and cuts in agriculture subsidies there is more pressure on males to seek jobs outside agriculture and this leads to an increase in the rural unemployment rate of males.

Two similarities can be detected among Figures 3.39-3.43. The first one is that the unemployment rates of 15-24 year-olds are higher than the overall unemployment rates and the unemployment rates of 25-34 over the 1988-2009 periods. The second one is that the unemployment rates of 25-34 year-olds have nearly the same values as the overall unemployment rates. We start with Figure 3.38 where we keep track of the changes in the unemployment rates of males. In 1988, the unemployment rate of males was 17%. It decreased to 13% in 2000. After 2000, an increasing trend was seen again. It increased to 20% in 2003. From 2003 to 2006, the unemployment rate of males declined. It decreased to 18% in 2006. After 2006, it had an increasing trend. At the end of the period, in 2009, the unemployment rate of males was 25%. In 1988, the unemployment rate of 25-34 year-old males was 4.8% while the overall unemployment rate of males was 7.5%. In 2009, the unemployment of 25-34 year-old males was 14.5% while the overall unemployment rate of males was 13.9%.

In 1988, the overall unemployment rate of females was 10.9% while it was 14.3% in 2009 (Figure 3.38). There are more fluctuations in the overall unemployment rate of females than in the overall unemployment rates of males. This is especially true from 1988 to 2000. In 1988, the unemployment rate of 15-24 year-old females was 17.9% while the overall unemployment rate of females and that of 25-34 year-old females were 10.6%. In 2009, it was 25.1% for 15-24 year-old females while it was 16.8% for 25-34 year-olds (Figure 3.38). In addition to that, the gap between the unemployment rate of 15-24 year-old females and the overall unemployment of females was smaller than the gap between the unemployment rate of 15-24 year-old males and the overall unemployment of males or 25-34 year-old males, especially at the beginning of the examined period. Nevertheless, this gap gets bigger over time. The gap between the unemployment of 15-24 year-old and the overall females was around 7.3% in 1988 while it was 8.3% in 2009.

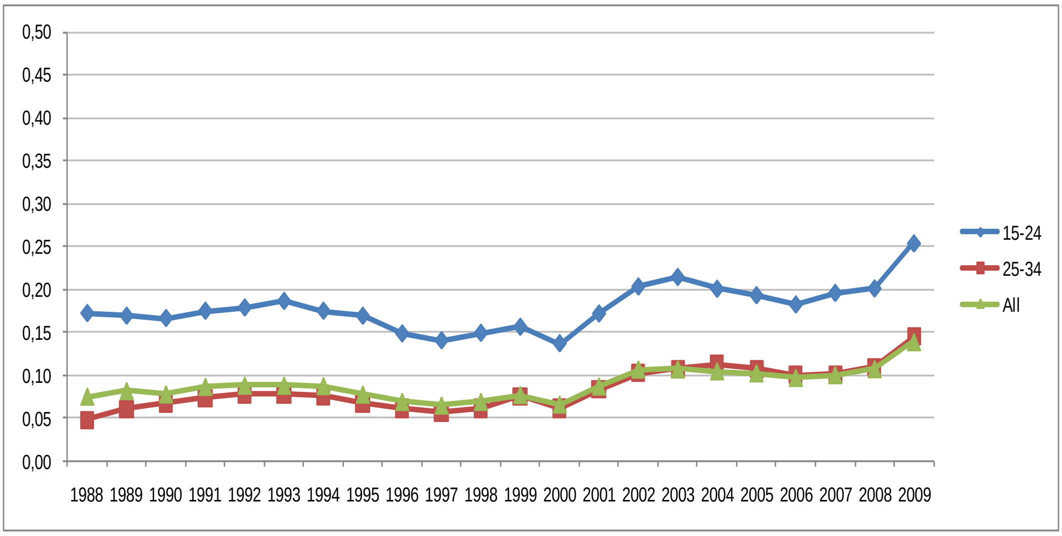


Figure 3.38: Unemployment Rate of Males, Turkey, 1988-2009
Source: HLFS database, TURKSTAT (1988-2009)

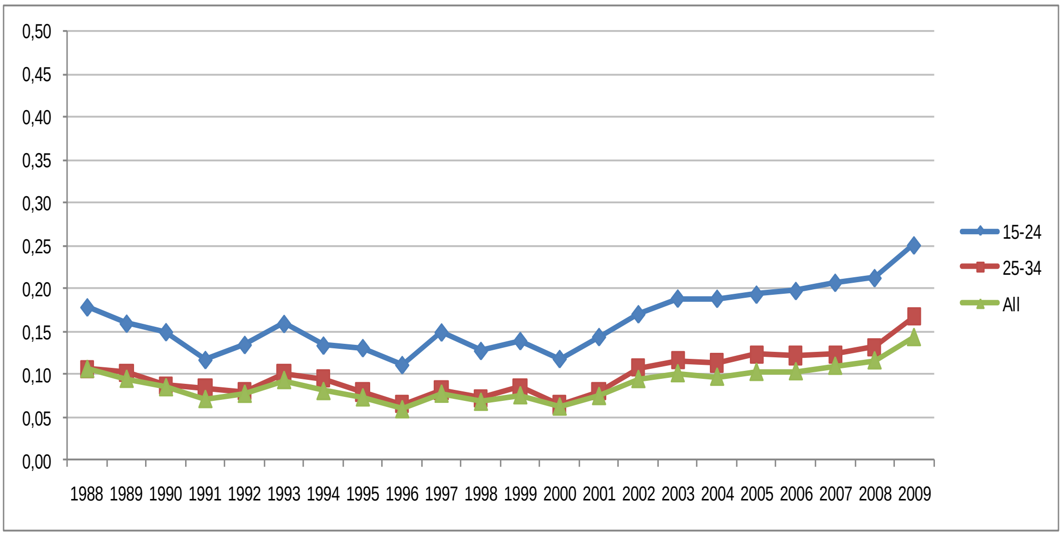


Figure 3.39: Unemployment Rate of Females, Turkey, 1988-2009
Source: HLFS database, TURKSTAT (1988-2009)

In Figures 3.40 through 3.43, we show the unemployment rates by location and gender. In general, the unemployment rates in urban areas are higher than in rural areas. This has probably links with the agricultural sector in rural areas. In addition, in urban areas, there is a rapid decrease in the unemployment rate of females over the 1988-2000 period (Figure 3.42). This may be related to the fact that females more educated over time and therefore they are more likely to attach to labor market and as they are more educated, their choices are more than before. The unemployment rate of urban females decreased from 28% in 1988 to 13% in 2000.

Note that, the lowest unemployment rate belongs to year 2000. From this point of view, year 2000 is a good year. The same pattern can be seen for the age group 15-24 and 25-34. In 1988, the unemployment rate of 15-24 year-old urban females was 41% while it was 23% for 25-34 year-olds. These values decreased to 13% and 10% in 2000, respectively. Notwithstanding this development, unemployment rates showed increasing trends after 2000. The unemployment rate was 19% for 15-24 year-old females and 18% for 25-34 year-olds in 2004. After 2004, these values started to decrease: the unemployment rate of 15-24 year-old females decreased to 26% and it decreased to 16% for 25-34 year-olds in 2006. The unemployment rates had an increasing trend after 2006. In rural areas, one can say that the unemployment rate did not have a trend but fluctuated between 8% and 4% over the 1988-2000 period. However, it had an increasing trend between 2000 and 2009. Between 1988 and 2000, the overall unemployment rates in urban areas remained fairly stable for males. However, after the 2001 crisis, it entered into an increasing trend until 2004.

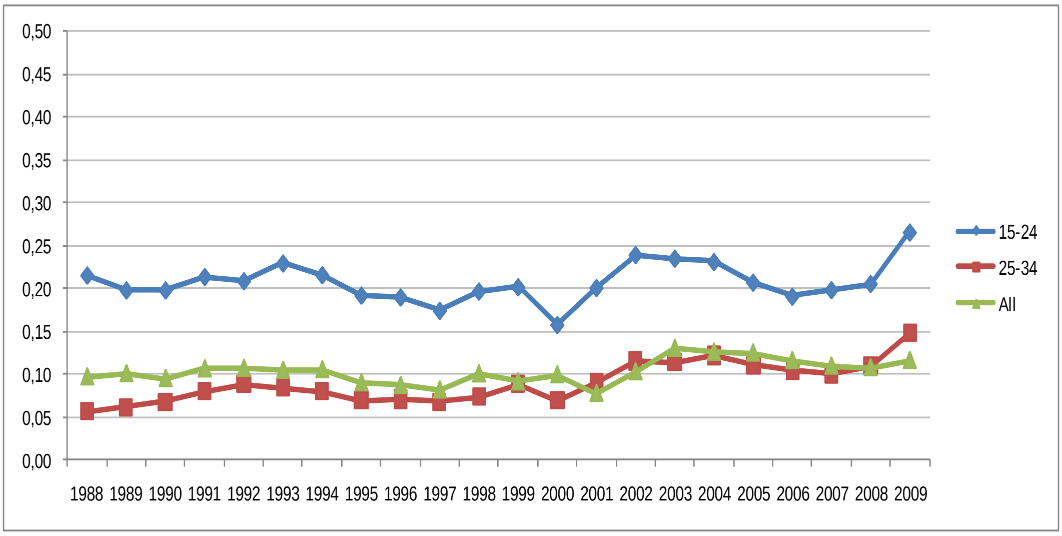


Figure 3.40: Unemployment Rate of Males, Urban, 1988-2009
Source: HLFS database, TURKSTAT (1988-2009)

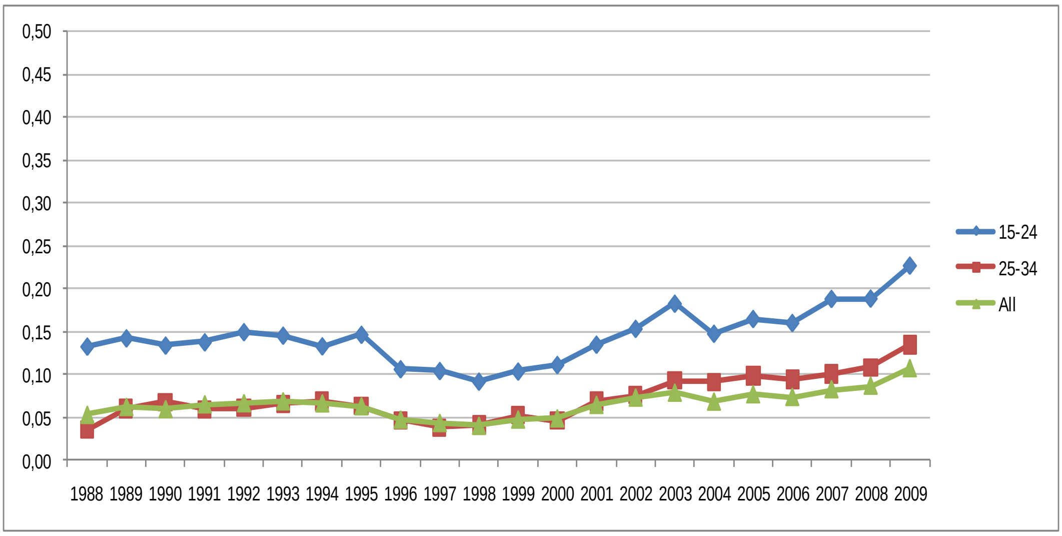


Figure 3.41: Unemployment Rate of Males, Rural, 1988-2009
Source: HLFS database, TURKSTAT (1988-2009)

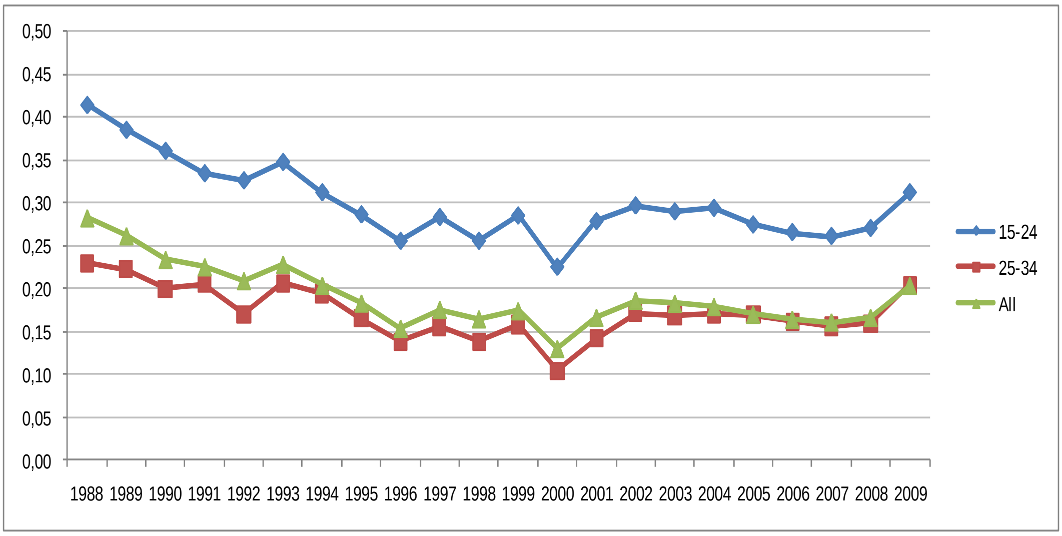


Figure 3.42: Unemployment Rate of Females, Urban, 1988-2009
Source: HLFS database, TURKSTAT (1988-2009)

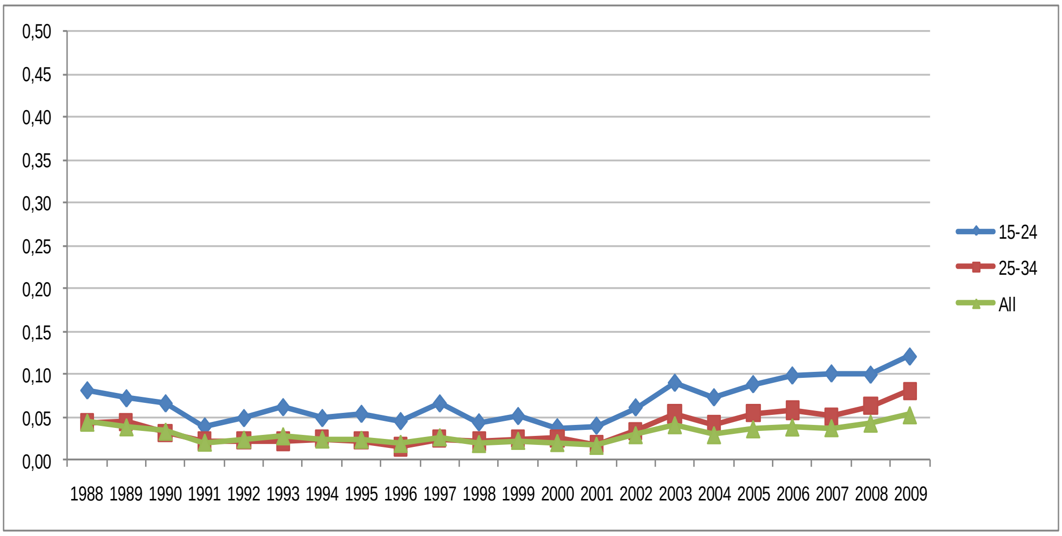


Figure 3.43: Unemployment Rate of Females, Rural, 1988-2009
Source: HLFS database, TURKSTAT (1988-2009)

The trends in rural areas are shown in Figures 3.41 and 3.43. During the period 1988-2000, unemployment rates were considerably lower in rural areas than in urban areas. This is probably due to higher work opportunities in the agricultural sector in rural areas. There is a dip in 2000. This is probably due to the good economic conditions in 2000. Nevertheless, after 2000, young individuals may start searching work outside agriculture. This is valid especially for young males since females are economically active in family owned farms while young males may prefer having jobs outside agriculture to supplement income from farming. At the end of the time period under examination, 15-19 year-old rural males have the highest unemployment rates - above 20% - higher than the unemployment rates of 25-34-year-olds and the overall rate. These rates are higher than the unemployment rates of females.

To conclude, after 2000 the overall and youth unemployment rate started rising. The implementation of ARIP in 2000 and the economic crisis in 2001 caused an increase in the unemployment rate. In February 2001, Turkey experienced the worst economic and financial crisis in the history of the Republic. Gross Domestic Product declined by about 10%. Unemployment rate increased from 6.6% in 2000 to 8.3% 2001. Economy recovered in 2002. Since then until 2008, the economy grew at an average annual rate of 7.5%. The annual inflation rate declined from 68.5% in 2001 to 8.2% in 2005. In spite of the high growth rates after the 2001 crisis, unemployment rate remained in double digits. This emerges as a sign for concern. One of the possible reason for this may be "jobless growth" or as Öz (2010) states, this may be due to the fact that Turkey reaches a certain level of technology, but it was not compatible with the labor supply. There is a sign of Öz's (2010) reasoning since not only the shares of manufacturing and service sector increase after 2000 but also the employment levels in these sectors increase. The numbers unemployed stood at 2.8 million people in the first quarter of 2005 with an unemployment rate of 11.7%. The unemployment rate of the youth was much higher at 22.2% for men and 21.2% for women in 2005. In 2009, it is around 25%. In the following chapters, we also attempt to examine how these years affect the duration of obtaining the first permanent job and the duration of obtaining the first permanent paid job.

The HLFS provides information on the reasons for unemployment as declared by job seekers. The unemployed can be divided into three groups: individuals who have lost their jobs, individuals who have quit their jobs and individuals who are first time job seekers (or newcomers)[18]. We draw Figures 3.44-3.47 for 15-34 year-old males and females who are searching for jobs. In these figures, we keep track of the shares of these three categories of individuals as well as the shares of those who have just

[18]Lost job: (i) worked temporarily, (ii) was dismissed, (iii) business got liquidated, or went bankrupt. Quit the job: (i) due to insufficient income, (ii) due to unsatisfying working conditions, (iii) retired, and (iv) other. First time job seeker (or newcomer): (i) just graduated, (ii) just completed his military service, and (iii) other.

graduated from school or completed military service among the newcomers over the 1991-2008 period. Bars represent the shares of these three categories while lines show the shares of new graduates and those who have completed military service among the newcomers.

Crises effects are clearly present after 1998, 2001 and 2008. After 1998, there is an increase in the unemployment rate in urban areas. The 1997 crisis does not seem to influce the unemployment rate in rural areas. After 2000, the shares of those who lose their jobs do not fall below 40%. The highest value for 15-34 urban males is 50% in 2003. The same pattern can be seen in rural areas for males. Especially after 2001, the share of those who lose their jobs increases dramatically. This sharp increase after 2001 reflects the combined effect of Agricultural Reform Implementation Project (ARIP) and the economic crisis in 2001. The share of those who lose their jobs attains the highest value in 2003. Thus in rural areas, the increase in the share those who lost their jobs is remarkable. For females, the increase in the share of those who lost their jobs in rural areas is higher than the increase for males. For males the share of those who lost their jobs was 56% in 2002 and it increased to 64% while for females it was 27% and it increased to 60%.

After 2000, while the share of quitters among females increased, the share of newcomers dropped dramatically. As primary breadwinners, men are much more likely to be involved in the labor market, and consequently have a smaller share of newcomers among the unemployed. However, the share of those who just graduated among the newcomers is higher for males. This must be because young men are expected to join the labor force as soon as they become available. Young women, on the other hand, may not feel the same pressure. The drop in 2001 in the share of females who just graduated among newcomers suggests that some women who never worked before entered the labor force as “added workers” at the time of the crisis. This is more observable in rural areas. In addition to this, there is an increase in the shares of new graduates among new comers after 2000. This increasing pattern continues until 2003. The increase in 2001 and 2002 in the share of new graduates among male new comers suggests that new graduates are less likely to find jobs among new comers and/or there are fewer men who never worked before in the labor force. These non-participant males may be preparing for university exam, may be getting ready to do their compulsory military service and may be discouraged workers. As the economy recovers, these non-participants participate in the labor force. In other words, men who never worked before appear to have entered the labor force and therefore, the new graduates have a smaller share among the new comers.

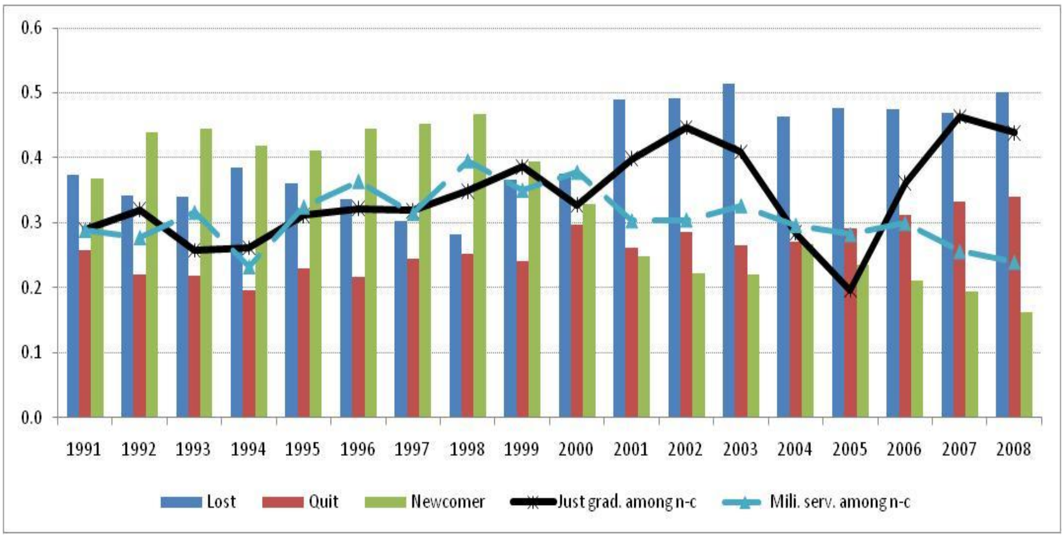


Figure 3.44: Reasons for Unemployment in Urban Areas, Males, 15-34, Turkey
Source: HLFS database, TURKSTAT (1988-2008)

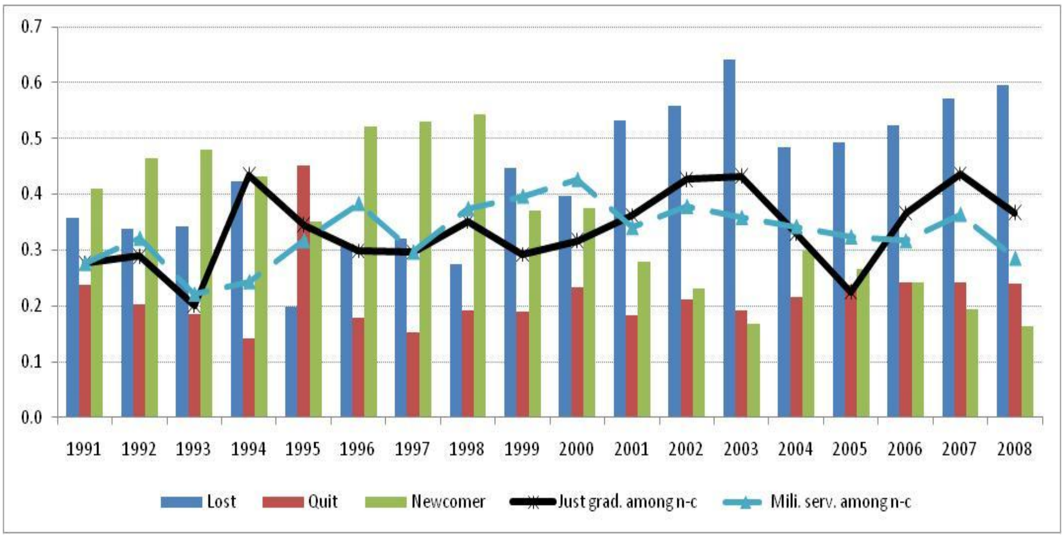


Figure 3.45: Reasons for Unemployment in Rural Areas, Males, 15-34, Turkey
Source: HLFS database, TURKSTAT (1988-2008)

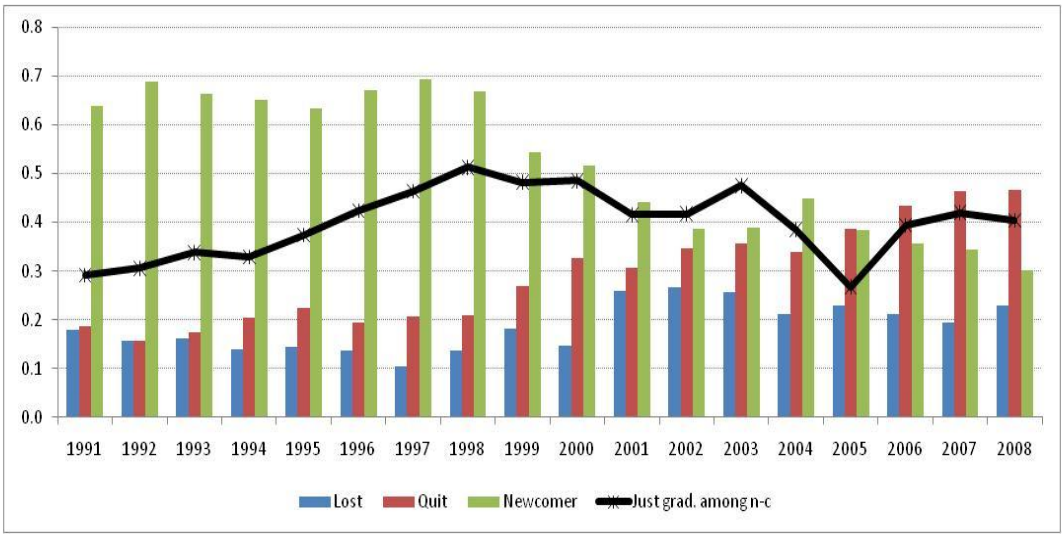


Figure 3.46: Reasons for Unemployment in Urban Areas, Females, 15-34, Turkey
Source: HLFS database, TURKSTAT (1988-2008)

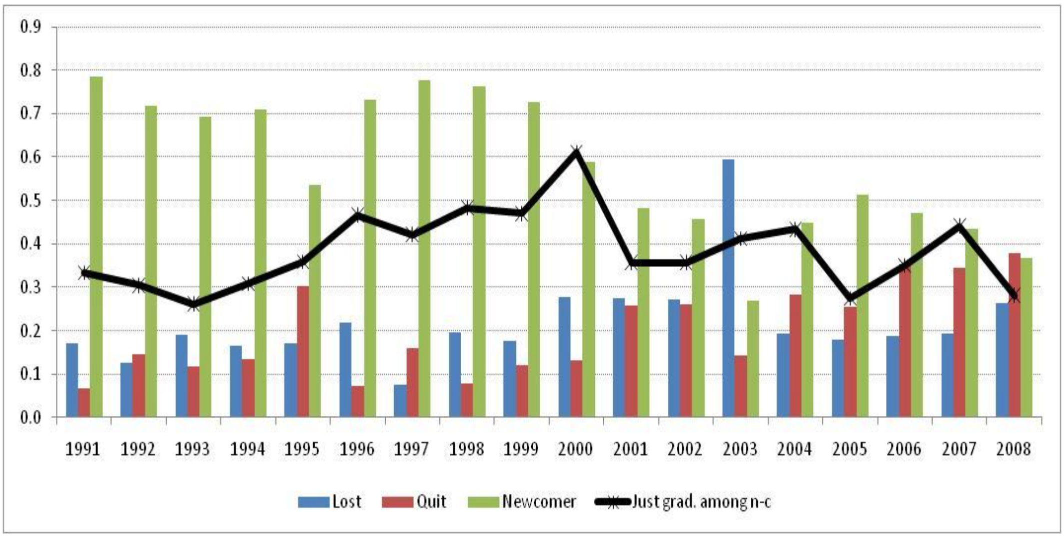


Figure 3.47: Reasons for Unemployment in Rural Areas, Females, 15-34, Turkey
Source: HLFS database, TURKSTAT (1988-2008)

3.4.4.2 Unemployment duration

HLFS provides limited information on unemployment spells. Incomplete spell data are collected from those who were unemployed at the time of the survey. No information is collected from employed individuals some of whom may have recently completed an unemployment spell. This results in what is known as "length biased sampling." Since those who are currently unemployed are more likely to have longer spells of unemployment, the picture that emerges from available duration data is likely to be worse than the true picture. On the web page of TURKSTAT, the duration data are reported in the following sub-groups in months: 1-2, 3-5, 6-8, 9-11, 12-23, 24-35, and 36+. The averages are computed under the assumption that the mean duration in each sub-group is equal to its midpoint. We calculate the duration of unemployment spells for 15-24 year-old individuals.[19] In Figure 3.46, there are five lines. These are shown in blue, red, purple, green and black. These color-coded lines represent the duration of unemployment of new graduates, individuals who have lost their jobs, individuals who have quit their jobs and individuals who have completed their compulsory military service, respectively. The gross national product growth rate of Turkey is shown by the black line.[20]

Figures 3.48 and 3.49 present weighted average of unemployment duration from 1991 to 2008 for men and women. The GNP growth rate is for 1991 through 2007. For all categories of the unemployed, the duration of unemployment of males has been on a declining trend since 1996. This declining trend continues until 2000. Note that, in 1994 crisis year, for the case of males, the duration of unemployment increased to 14 months and in 1995 it decreased to 12 months. One of the possible reason fro the increase in 1994 could be the decrease in the job rates during the crisis year. The other reason may be related to the CMS; males may prefer completing their CMSs after separation from school since 1994 is a crisis year. For the case of females, in 1994, the duration of unemployment decreased to 15 month while it was higher before. After 2000, the duration of unemployment starts to increase. This increase continues until 2005 and then the duration of unemployment starts to

[19] On the web page of Turkstat, duration data are reported for 15-24 year-olds and 15 and older individuals, thus we cannot separate out 15-34 year-olds.
[20] GNP growth rate is one of the measures of economic performance.

increase. This may be due to the fact that after the crisis year 2001, new graduates have spent more time to find a job. Especially for new graduates (blue line), the duration of unemployment that was around 9 months in 2001 increased to 14 months in 2005. The duration of unemployment for males who have completed their compulsory military service is lower than the duration of new graduates.

Figure 3.49 reveals that females have longer unemployment spells compared to males. A possible reason could be that they have higher reservation wages relative to the offered market wages. Similar to our findings for men, the duration of unemployment for new female graduates is higher as compared to other categories.

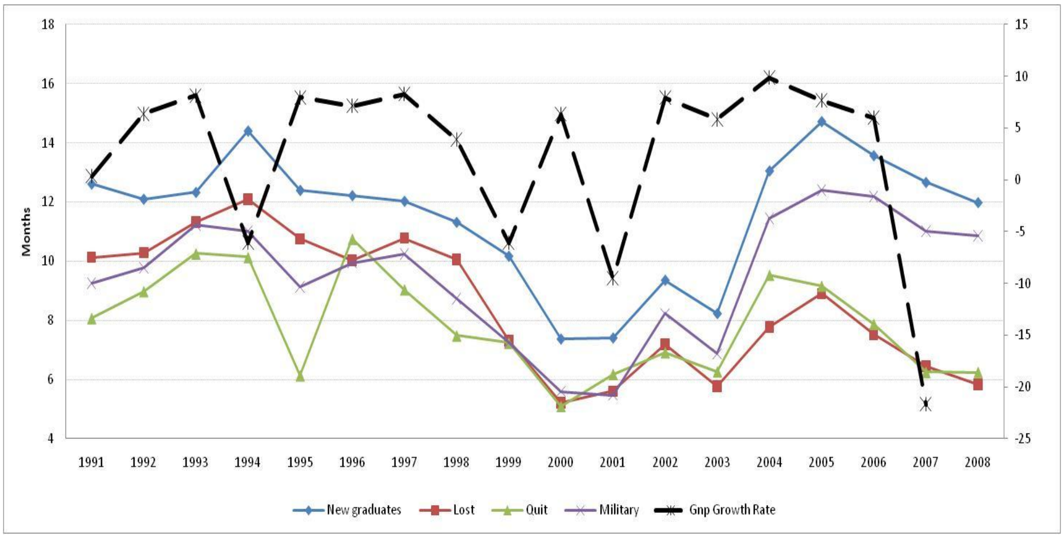


Figure 3.48: Weighted Average Duration of Unemployment of Males, 15-24, Turkey
Source: HLFS database, TURKSTAT (1991-2008) and TCMB database (1991-2007)

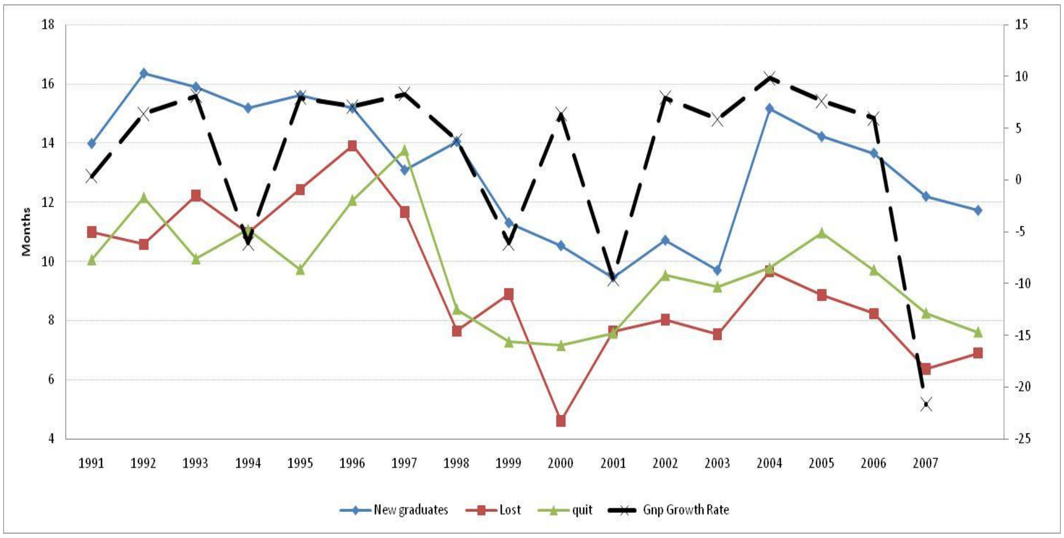


Figure 3.49: Weighted Average Duration of Unemployment of Females, 15-24, Turkey

Source: HLFS database, TURKSTAT (1991-2008) and TCMB database (1991-2007

3.4.5 Inactive

As previously mentioned, young cohorts in Turkey are spending more time in school, especially following the change in the compulsory education law in 1997. From this perspective, it can be said that young cohorts are less likely to attach to labor market. In other words, they are more likely to be in school. However, there are individuals who are neither in the labor force nor in school: inactive individuals. In this section, the question may be that as the ratio of youth who are in school is increasing and thus labor market attachment decreases, what happens to inactivity ratio of youth in Turkey. Figure 3.50 shows the individuals who are not in the labor force and who are not in school among 15-24 year-olds. Turkey is shown by the black bar. In 2010, for the case of young individuals who are not in school and not in labor force, comparing with EU27 (57%), the ratio of those young individuals is a little higher in Turkey (62.6%). Comparing the ratio in Germany (48.7%), Austria (41.2%), Denmark (32.6%), Switzerland (32.1), Spain (57.3%), it is higher in Turkey. Looking at this ratio, Turkey is not the worst country. However, the share of young individuals who are in school among the ones who are not not in the labor force is very low in Turkey. It is only 58.9% while it is 87.8% in EU27[21].

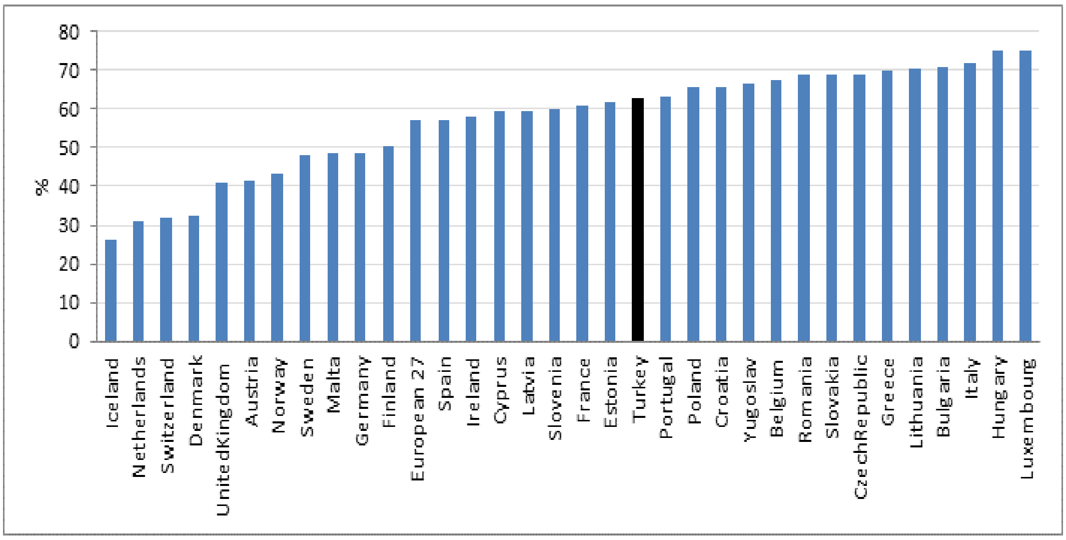


Figure 3.50: Fraction of individuals who are Inactive and in School by Country, 15-24 year-olds, 2010

Source: http://appsso.eurostat.ec.europa.eu/nui/setupModifyTableLayout.do

From this point of view, one can say that this 'inactivity' is a very remarkable phenomenon in Turkey since the fraction of individuals who are in school among the ones who are not in labor force is very low compare European countries. In particular, females are more likely to be inactive since most of them report household responsibilities as their major activity. Many of the inactive males go through periods of joblessness upon leaving school, sometimes leaving the labor force for a period of time as discouraged workers. They may be in the process of acquiring skills valued in the labor market as well. After separation from formal schooling, individuals may nevertheless attend private tutoring centers to prepare for the university entrance exam. In addition to those attending various training activities inactive individuals may include discouraged workers, seasonally employed, retired individuals, those who are disabled or ill or who cannot or do not wish to participate in the labor market for personal or family reasons, landowners, and individuals occupied with house work. In the case of males they may be waiting to do their military service. To conclude, for the purposes of this study inactive individuals include those who are neither in the labor force nor in school.

[21] Source: http://appsso.eurostat.ec.europa.eu/nui/setupModifyTableLayout.do

The age-inactivity profiles of males and females are given in Figures 3.51 and 3.52. Figure 3.51 represents the year 2009 while Figure 3.52 shows the year 2004. The y-axis represents the inactivity ratio while the x-axis the age groups. The age-inactivity profile of males is represented by the line with the diamond marker while the line with the square marker is for females. The line with the triangle marker shows the age-inactivity profile of the total of males and females. In 2009, the age-inactivity profile of females is hump-shaped: the inactivity ratio is low for 15-19-year-olds but increases at ages 20-24 and 25-29, declining thereon. The inactivity ratio of females is highest at ages 20-24 and 25-29. This is probably links with the marriage and the increase in reservation wages of females due to the increase in the home production. For males, the hump-shape is reversed. The inactivity ratio of males at younger ages is lower and the lowest value belongs to the age group 35-39 in 2009 while the reversed hump-shape strengthens in 2004. One of the possible reasons for this could be the breadwinner characteristics of males. In addition to that, after age 40-44 the inactive ratio starts to increase in 2009 while it starts to increase after age 35-39 in 2004.

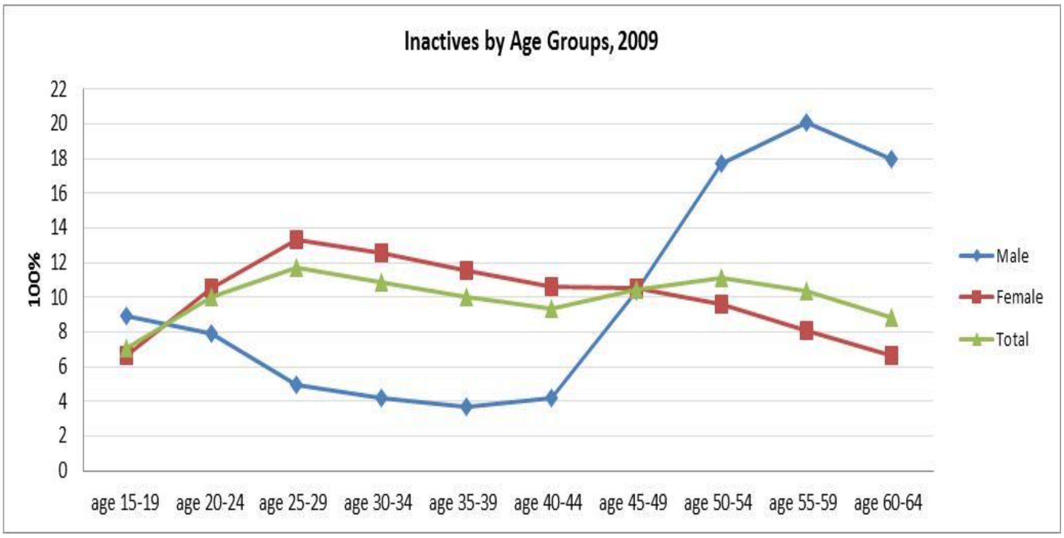


Figure 3.51: Inactivity Ratios by Age Groups in 2009
Source: HLFS database, TURKSTAT (1988-2009)

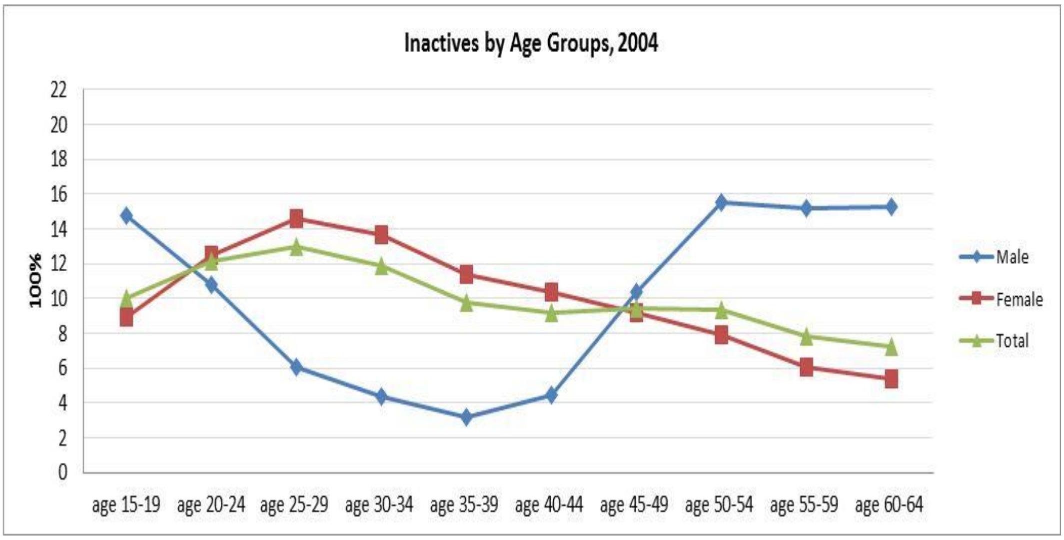


Figure 3.52: Inactivity Ratios by Age Groups in 2004
Source: HLFS database, TURKSTAT (1988-2009)

If one looks at the inactivity ratios more closely, the picture is quite different for females than males. It can be seen that inactivity increases as females age while the reverse happens for males. Female inactivity ratio increases as they get married, have children and they exit the labor force as discussed earlier. Comparing the figures for the years 2009 and 2004, the peak point of the inactive female ratio in 2009 is lower than the one in 2004. In order to be more precise, we create Table 3.4 which shows the inactive ratios by age groups for the years 2004 to 2009. Note that, for females not only the peak point but also all the values in 2009 are lower than the one in 2004. Especially for 15-19 and 20-24 year-old females, the inactive ratio is nearly 2 points lower in 2009 than in 2004 (Table 3.4)[22]. This finding is consistent with the observed improvements in educational outcomes and demographic changes such as delayed marriage and reduced fertility and increased in the female labor force participation, especially for younger generations. In addition to that, the female inactive ratios decline as they reach their 30s. They probably return to labor market. From these figures, one can also deduce that male inactive ratios decline as they reach their 20s. They may be preparing for the university exam after high school. As mentioned

[22] In the Appendix B.1, we also create a table for young individuals. Table 2 shows the inactive ratios of males and females during the period 1988-2009. The inactive ratios of females are higher than the inactive ratios of males in all years. In comparison to 15-19 year-old females, the inactive ratios of 20-24 and 25-29 year-old females are higher than the inactive ratios of 15-19 year-old females.

before, they may also decide to do their military service and therefore, appear in the inactive category.

Table 3.4: Inactive Ratios by Age Groups, 2004-2009

	Age Groups									
Years	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**	**50-54**	**55-59**	**60-64**
	Male									
2004	14.77	10.77	6.09	4.34	3.18	4.45	10.37	15.56	15.16	15.30
2005	13.89	10.61	5.75	4.42	3.58	4.14	9.81	15.89	15.89	16.00
2006	12.06	10.04	6.51	4.68	4.30	4.52	9.94	15.99	16.55	15.41
2007	10.50	8.38	5.63	3.92	3.95	4.30	10.80	17.17	18.86	16.49
2008	10.36	7.96	5.43	3.98	3.68	4.17	11.02	17.07	19.39	16.93
2009	8.92	7.93	5.00	4.17	3.67	4.17	10.38	17.73	20.08	17.95
	Female									
2004	8.95	12.45	14.58	13.67	11.35	10.33	9.22	7.90	6.11	5.42
2005	8.54	12.26	14.33	13.86	11.53	10.25	9.27	8.06	6.40	5.51
2006	8.02	11.95	14.03	13.86	11.63	10.34	9.57	8.36	6.67	5.57
2007	7.70	11.27	13.76	12.48	11.51	10.52	10.24	8.97	7.42	6.12
2008	7.11	10.91	13.74	12.52	11.50	10.65	10.27	9.23	7.70	6.37
2009	6.63	10.52	13.30	12.54	11.59	10.59	10.53	9.59	8.07	6.64
	Total									
2004	10.04	12.14	12.98	11.92	9.82	9.23	9.44	9.34	7.81	7.28
2005	9.53	11.96	12.74	12.10	10.05	9.11	9.37	9.52	8.16	7.46
2006	8.80	11.58	12.59	12.10	10.22	9.22	9.64	9.83	8.56	7.46
2007	8.24	10.42	11.85	10.52	9.77	9.06	10.06	10.26	9.36	7.90
2008	7.74	10.00	11.74	10.51	9.66	9.09	10.07	10.39	9.63	8.14
2009	7.08	10.02	11.69	10.91	10.05	9.34	10.50	11.17	10.40	8.84

Figures 3.53-3.55 illustrate the labor market states of men and women during the period 1988 to 2009 while Figures 3.56-3.58 is for females. The y-axis shows the fraction of individuals in different labor market states. The line with the square marker shows the employment ratio while the line with the triangle marker is for the ratio of individuals who are in school. The inactive ratio is shown by the line with the asterisk marker while the line with the diamond marker is for the unemployment ratio. The inactive ratio of 15-19 year-old males (the line with asterisks) is nearly the same during the period from 1988 to 1994. The same pattern can be seen for the 20-24 year-old males. The inactive ratio of females is higher than males for all age groups during the same period under examination. One of the possible reasons for this could be CMS. For males, this is an additional activity during their transitions from school to work. In addition to that, the inactive ratio of 15-19 year-old females is higher than the inactive ratio of 20-24 and 25-29 year-old females. The other labor market state for these young individuals is being in school. As mentioned in previous sections, time spent in school is lengthened over time. The ratio of individuals who are in school has an increasing trend, especially for 15-19 year-olds after 2000. In addition to that, for females the slope is higher than males. On the other hand, the employment ratio for 15-19 year-old males and females shows decreasing trends. The decreasing trends are valid for 20-24 year-old and 25-29 year-old males, as well. After 2003, it has a decreasing trend.

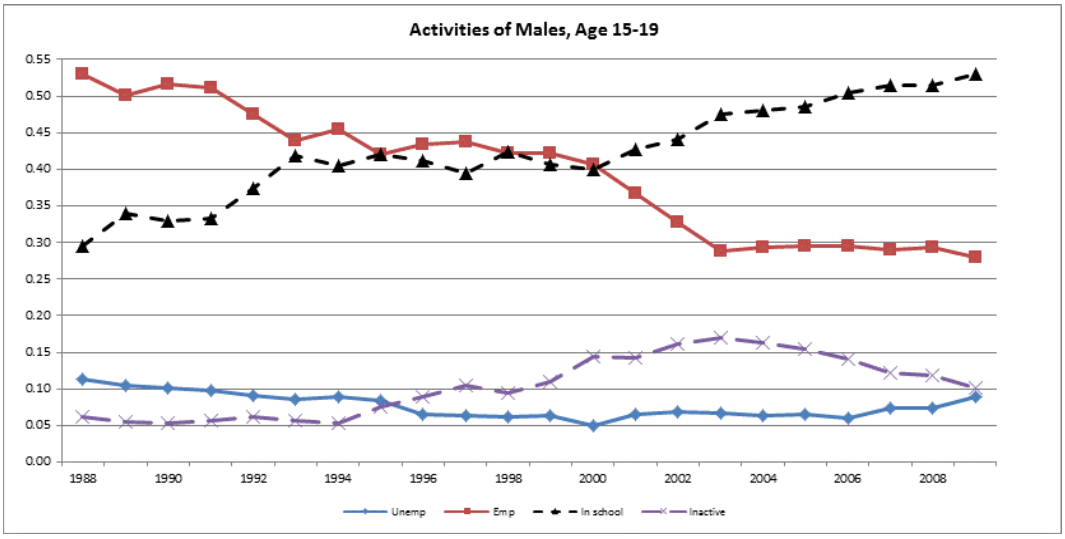


Figure 3.53: Labor Market Activities of 15-19 Year-Old Males, 1988-2009
Source: HLFS database, TURKSTAT (1988-2009)

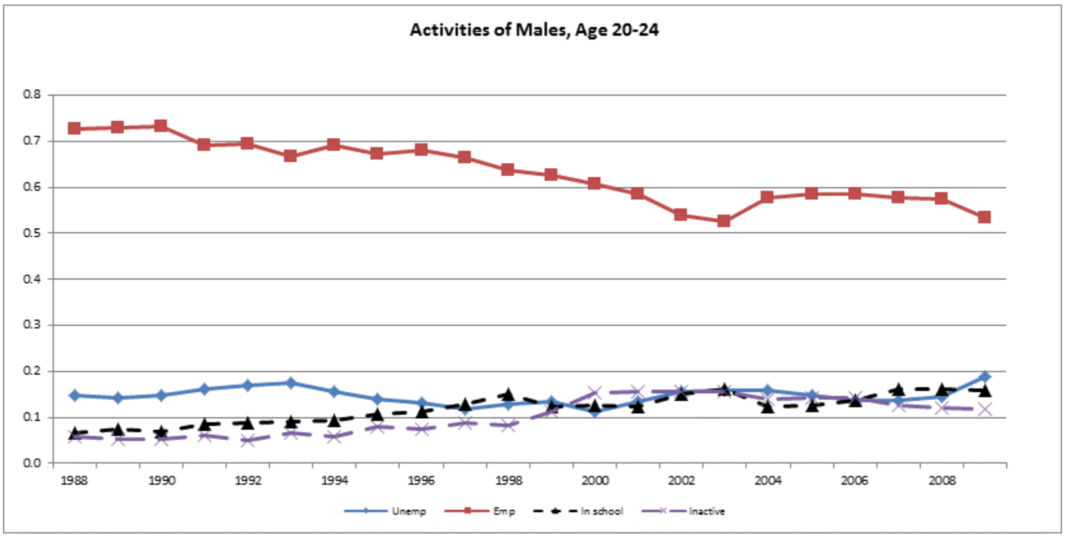


Figure 3.54: Labor Market Activities of 20-24 Year-Old Males, 1988-2009
Source: HLFS database, TURKSTAT (1988-2009)

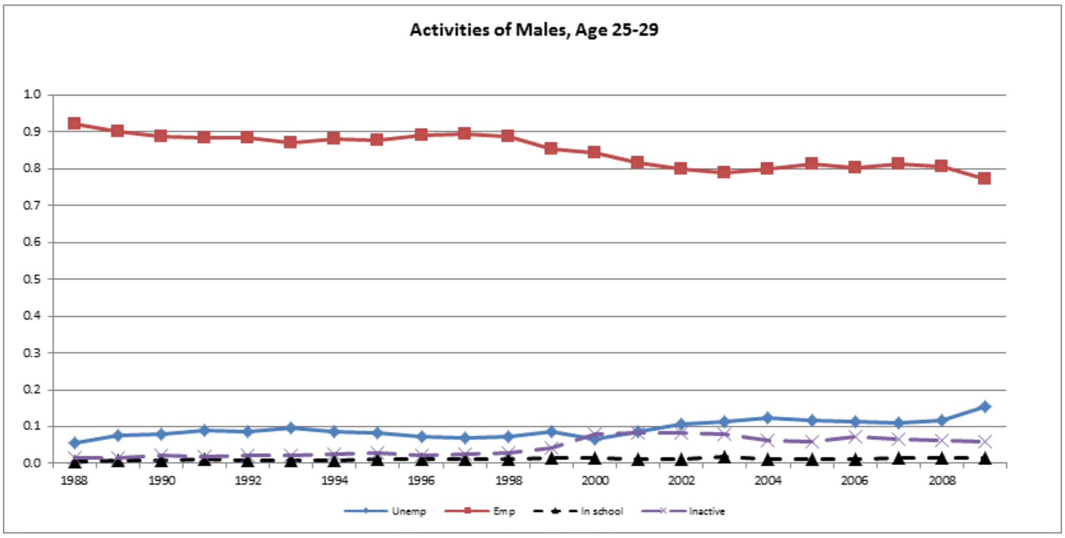


Figure 3.55: Labor Market Activities of 25-29 Year-Old Males, 1988-2009
Source: HLFS database, TURKSTAT (1988-2009)

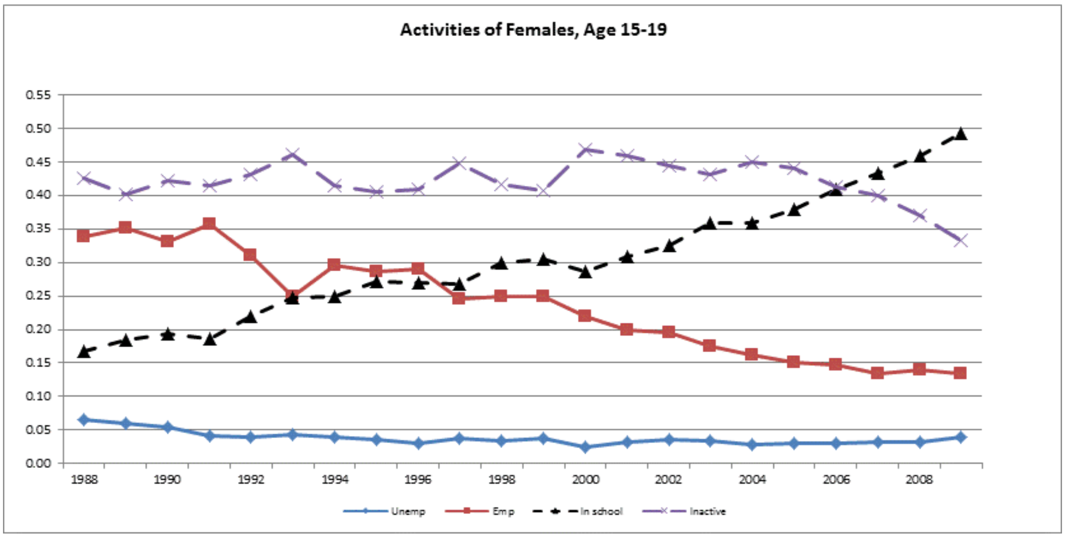


Figure 3.56: Labor Market Activities of 15-19 Year-Old Females, 1988-2009
Source: HLFS database, TURKSTAT (1988-2009)

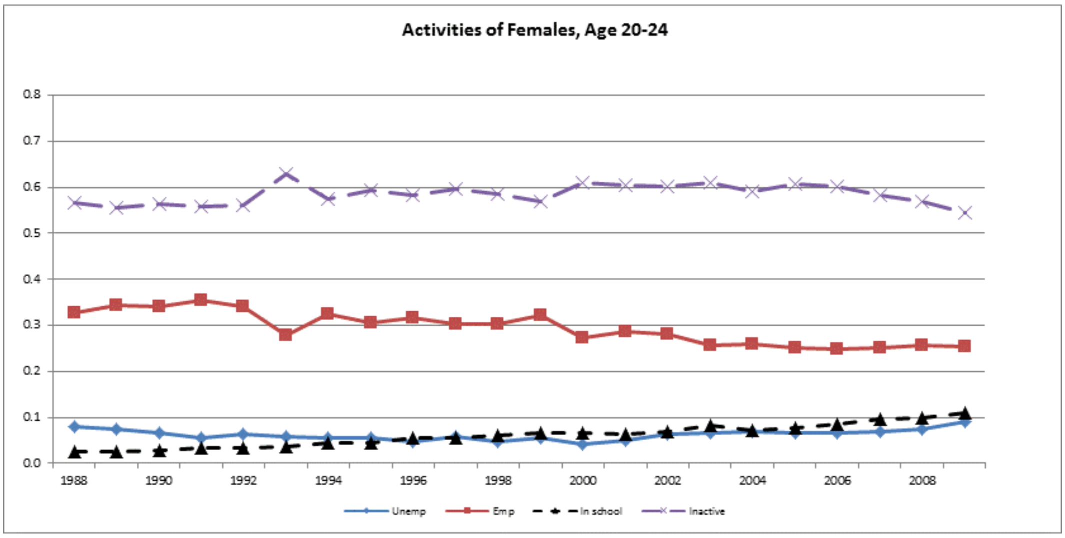


Figure 3.57: Labor Market Activities of 20-24 Year-Old Females, 1988-2009
Source: HLFS database, TURKSTAT (1988-2009)

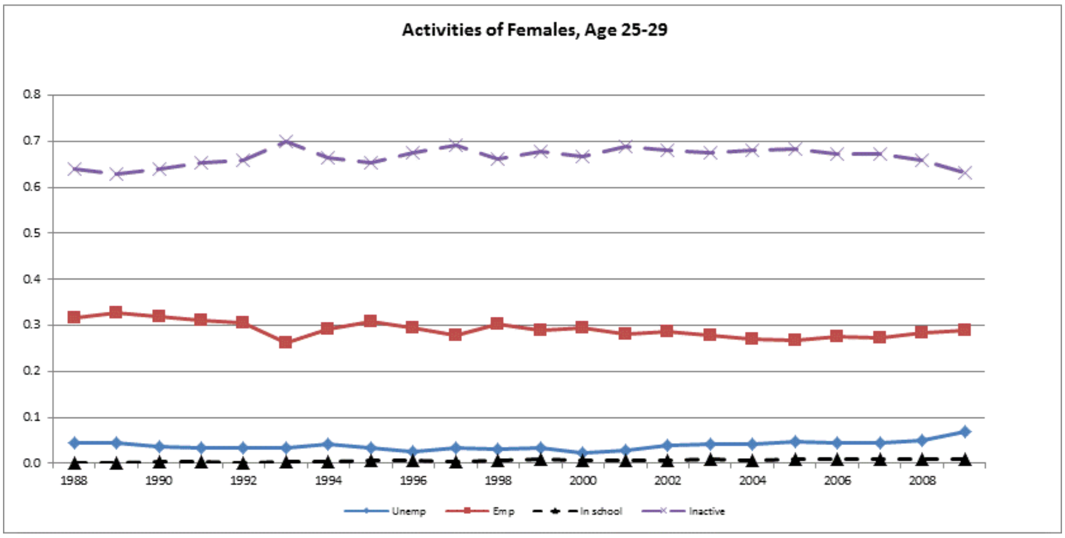


Figure 3.58: Labor Market Activities of 25-29 Year-Old Females, 1988-2009
Source: HLFS database, TURKSTAT (1988-2009)

3.4.6 Labor Market Activities by Birth Cohorts and Decomposition into Year, Age and Cohort Effects

3.4.6.1 Labor Market Activities by Birth Cohorts

Up to this point, we examined the labor market states only over time. Note that, analyses of labor market states by using cross section data includes three effects: age effects, year effects and cohort effects. In order to see the effects of age, cohort and year respectively, panel data is needed nevertheless panel data are not available. Even when there is no panel data, it is possible to construct a synthetic panel using a series of cross-section data (Deaton, 1997). We used 1989, 1994, 1999, 2004, 2009 cross section data together and therefore we are able to follow cohorts of individuals over time, where cohorts are defined by date of birth. Although in these surveys, the same people are not followed over time, we can nevertheless learn about the changing behavior by examining the average labor market activities of individuals in the same cohort over time. The idea is that they would share similar educational opportunities, marriage and schooling than individuals of different cohorts. For example, we would expect women aged 15-19 from 1985-1989 and 1990-1994 birth cohorts to have the lowest labor force participation ratios in 2009, since these cohorts have been affected from the extension of compulsory schooling from 5 to 8 years in 1997.

The cohort definitions are given below:

$$t = a_{ct} + c \tag{3.1}$$

Where c represents the cohort and t represents the year of the survey and a_{ct} represents the age of c at t[23].

More precisely, individuals from the 1970-74 birth cohorts are 15 to 19 years old in the 1989 data, 20 to 24 years old in the 1994 data, 25 to 29 years old in the 1999 data, and 30 to 34 years old in the 2004 data. Using different cross-sections we first create Table 3.5.a which shows male employment ratios for urban areas, and then by using Table 3.5.a we create Table 3.5.b which shows the male employment ratios by cohorts in urban areas. This is repeated for each labor market activity by gender and location. In Table 3.5.b, the first column is for years while the other columns are for age groups. We color the cells which we use to construct Table 3.5.b. We use different colors for different cohorts. For example, we use yellow for 1970-74 birth cohorts.

[23] For example: 1970-74 cohorts is 15-19 years- old in 1989
20-24 years-old in 1994
25-29 years-old in 1999
30-34 years-old in 2004
35-39 years old in 2009

Table 3.5 a.: Male Employment-Population Ratio, Urban TURKEY

Years	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	Total
1988	43.8	66.0	91.6	94.5	95.7	91.4	78.7	65.5	48.7	33.5	16.0	70.6
1989	42.0	67.9	89.2	94.4	93.6	90.3	78.7	62.7	44.8	31.9	16.3	69.1
1990	44.6	68.1	88.9	93.9	94.8	91.3	82.2	60.2	44.8	29.1	15.1	69.5
1991	41.5	62.7	86.8	93.0	93.1	89.4	79.7	61.6	43.3	30.8	15.6	68.8
1992	38.1	64.0	87.7	91.6	92.3	88.9	79.3	63.4	47.1	33.3	16.7	68.6
1993	33.3	61.1	86.1	92.5	93.8	89.2	79.6	60.3	46.1	31.7	14.8	67.3
1994	**35.4**	62.3	87.5	92.2	93.2	88.5	77.5	60.8	46.8	30.2	14.2	67.4
1995	32.4	61.4	87.7	93.1	93.9	90.3	78.2	64.2	45.9	32.0	15.9	67.4
1996	33.6	60.1	88.1	93.2	93.8	90.8	74.2	58.9	43.6	31.5	14.4	66.9
1997	34.4	58.5	87.7	92.7	94.4	90.0	77.0	58.6	41.2	29.6	14.2	67.0
1998	32.6	56.4	87.2	92.2	93.1	89.1	77.5	58.0	41.5	32.7	14.5	66.1
1999	32.3	**55.6**	84.1	90.5	91.4	88.1	73.9	57.9	41.3	28.5	15.1	65.0
2000	32.5	54.7	83.9	90.7	91.0	89.0	75.2	55.6	40.0	26.5	13.5	65.4
2001	29.1	53.5	82.1	88.3	88.2	85.6	72.9	52.2	38.5	23.0	11.4	63.3
2002	26.1	49.6	80.1	86.4	86.8	82.9	69.4	50.0	36.4	23.1	10.9	60.7
2003	24.2	49.0	79.5	86.7	86.9	84.5	68.9	50.4	33.8	19.7	9.0	60.3
2004	23.9	53.8	**80.1**	86.9	88.0	85.6	70.6	51.0	38.1	23.2	10.8	62.0
2005	26.6	56.7	82.0	87.0	88.5	86.1	72.6	52.5	38.1	23.3	11.7	63.2
2006	26.9	56.7	81.0	88.3	87.9	85.9	73.0	52.8	36.3	23.6	10.6	63.0
2007	27.1	56.9	82.4	87.8	88.8	86.8	71.9	51.9	34.0	22.7	9.9	61.8
2008	26.9	56.6	81.6	86.9	88.3	86.1	70.9	52.1	34.3	23.4	9.5	61.5
2009	25.0	51.9	77.8	**84.1**	85.5	83.5	70.5	50.1	34.1	23.6	9.1	59.2

Table 3.5 b.: Male Employment-Population Ratio, Urban TURKEY

Age	1980-84	1975-79	1970-74	1965-69	1960-64	1955-59	1950-54	1945-49	1940-44	1935-39	1930-34	1925-29
15-19	32.3	**35.4**	42.0									
20-24	53.8	**55.6**	62.3	67.9								
25-29	77.8	**80.1**	84.1	87.5	89.2							
30-34		**84.1**	86.9	90.5	92.2	94.4						
35-39			85.5	88.0	91.4	93.2	93.6					
40-44				83.5	85.6	88.1	88.5	90.3				
45-49					70.5	70.6	73.9	77.5	78.7			
50-54						50.1	51.0	57.9	60.8	62.7		
55-59							34.1	38.1	41.3	46.8	44.8	
60-64								23.6	23.2	28.5	30.2	31.9
65+									9.1	10.8	15.1	14.2

Source: HLFS database, TURKSTAT (1988, 2009)

We draw figures that depict males' labor market activity profiles by birth cohorts (Figures 3.59-3.68). Figures 3.59 and 3.64 illustrate the ratio of males and females who are in school, respectively while the labor force participation ratios are presented in the Figures 3.60 and 3.65. Figures 3.61-3.67 and Figure 3.62-3.67 show employment and unemployment ratios for males and females by age cohorts, respectively. In addition to that Figures 3.63 and 3.68 show the ratios of inactive males and females. There are eight birth cohorts in these figures. The youngest birth cohort is 1990-94. Individuals from the 1990-94 birth cohort are 15-19 years old in 2009. This birth cohort is represented by a blue star in the figures. Light blue line with the square marker represents the 1985-89 birth cohort. Briefly, each line represents different birth cohorts and each label has the same color as the line to which it belongs.

The observed changes would reflect both changing behavior (changing attitudes towards participation, higher levels of schooling, etc…)-cohort effects, as well as changing economic circumstances that affect respective cohorts-time effects. In all age groups, in school ratios are higher for younger cohorts than older ones (Figure 3.59 and 3.64). However, the biggest difference is observed for the youngest age group 15-19. This is probably due to the increase in compulsory education to eight years. In most of the age groups, inactive male ratios are higher for younger cohorts. There are some exceptions for age groups 15-19 and 20-24. Note that, labor market participation is very steep for males and it is steeper for younger cohorts (Figure 3.60). This may be due to the fact that younger cohorts face difficulties in transiting to the labor market or they are more likely to continue education. Labor force participation rate of males tends to be lower for younger than older cohorts (Figure 3.60). Figure 3.61, which depicts employment ratios of males shows that employment ratios of older cohorts tend to be lower for younger than older cohorts. For female labor force participation and employment ratio, we can deduce same patterns as for males: younger cohorts tend to have lower employment and participation rates than older cohorts. For the case of 15-19 year-old males, the unemployment ratios are lower for younger cohorts while for female counterparts, there is not a remarkable pattern. In addition, for 25-24 year-old males, the unemployment ratios are lower for younger cohorts, except for 1985-89 birth cohort.

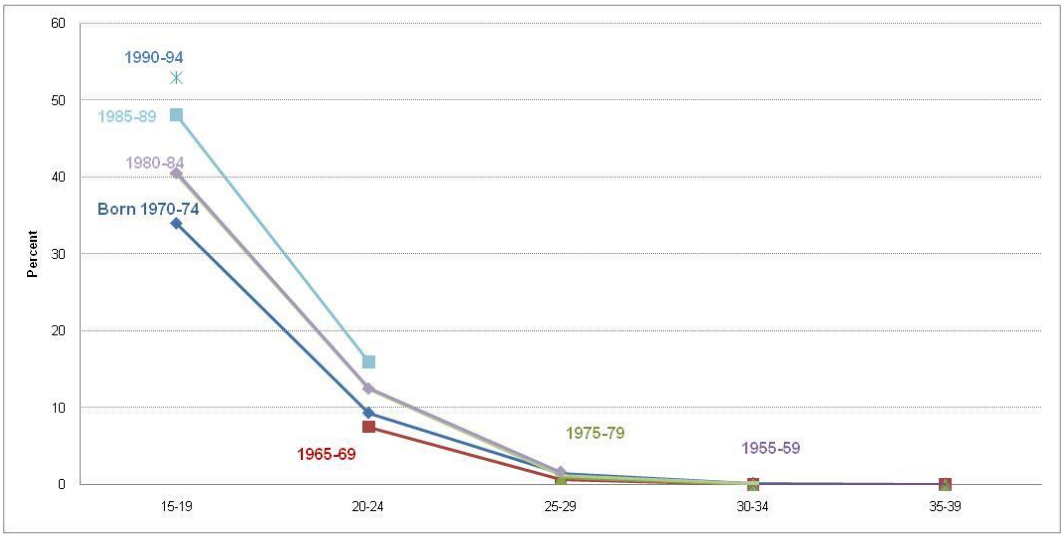


Figure 3.59: Male In school Ratio by Birth Cohorts
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

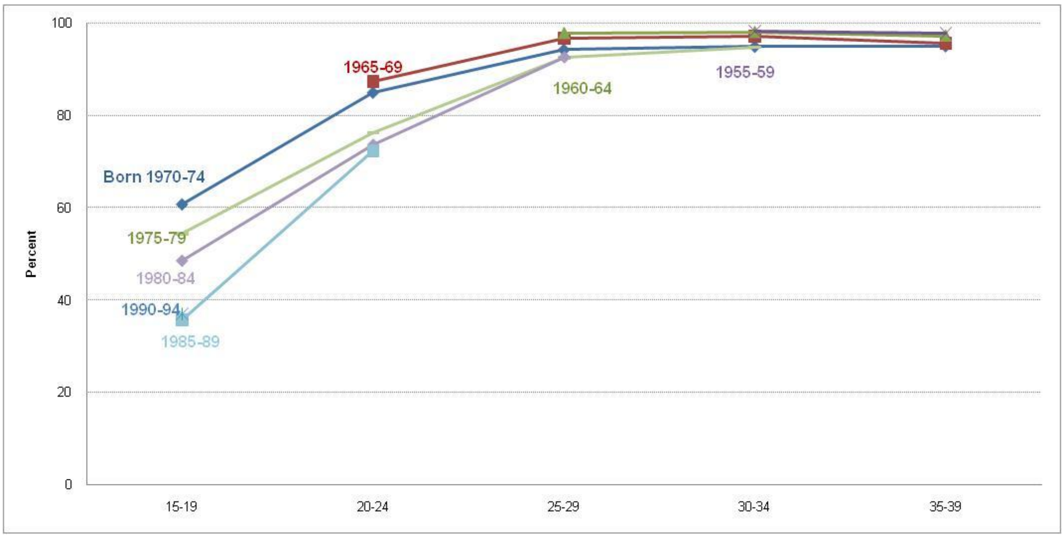


Figure 3.60: Male Labor Force Participation by Birth Cohorts
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

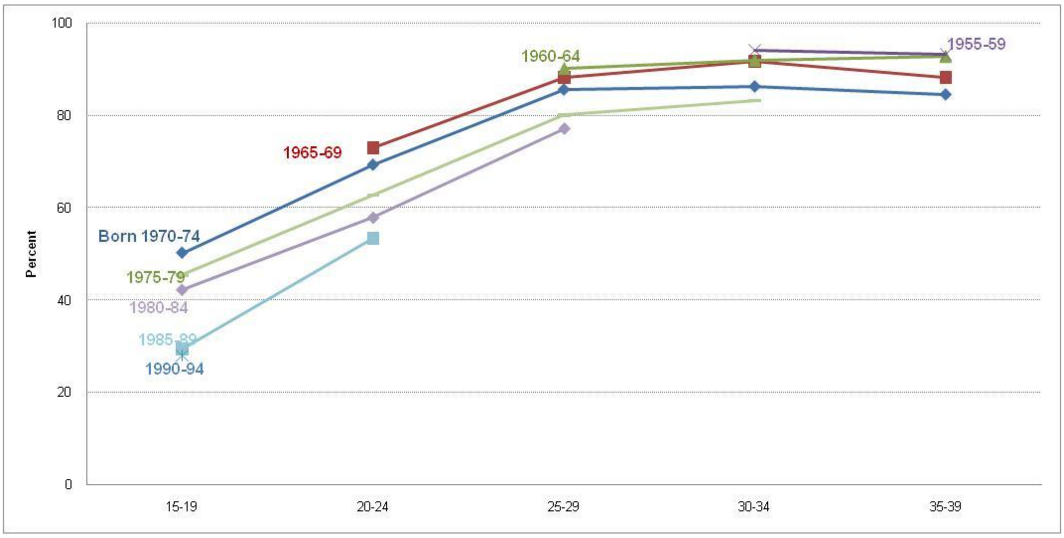


Figure 3.61: Male Employment Ratio by Birth Cohorts
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

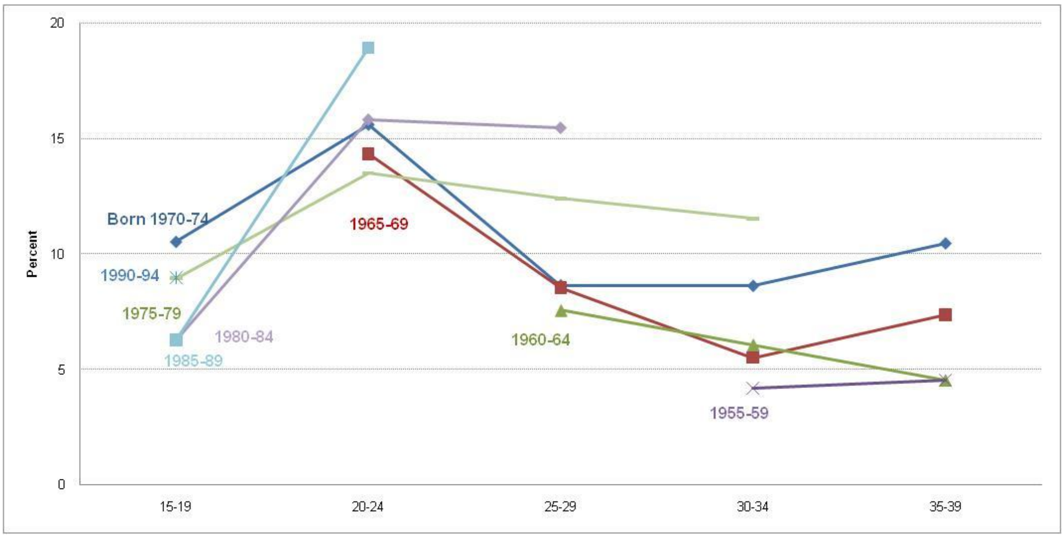


Figure 3.62: Male Unemployment Ratio by Birth Cohorts
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

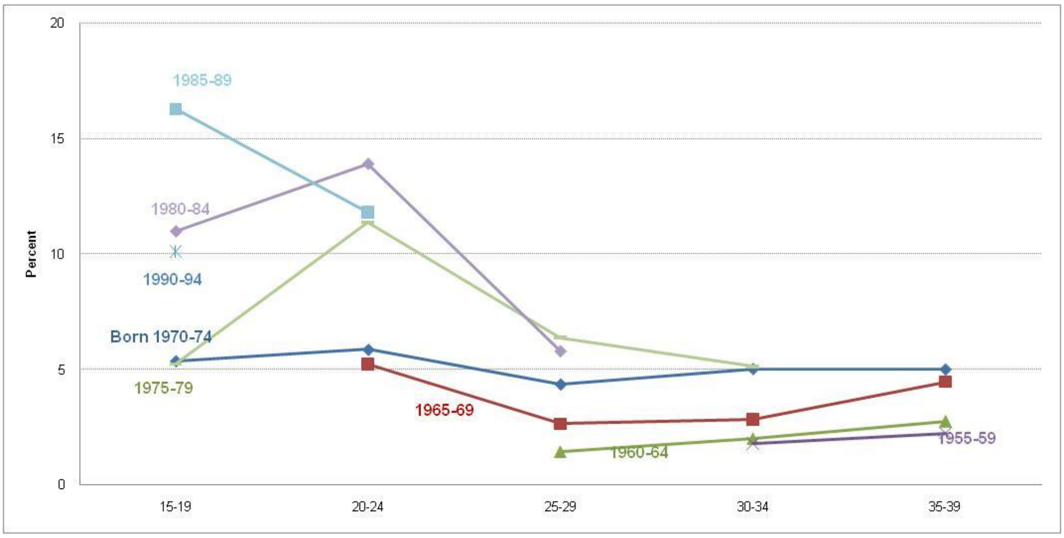


Figure 3.63: Male Inactive Ratio by Birth Cohorts
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

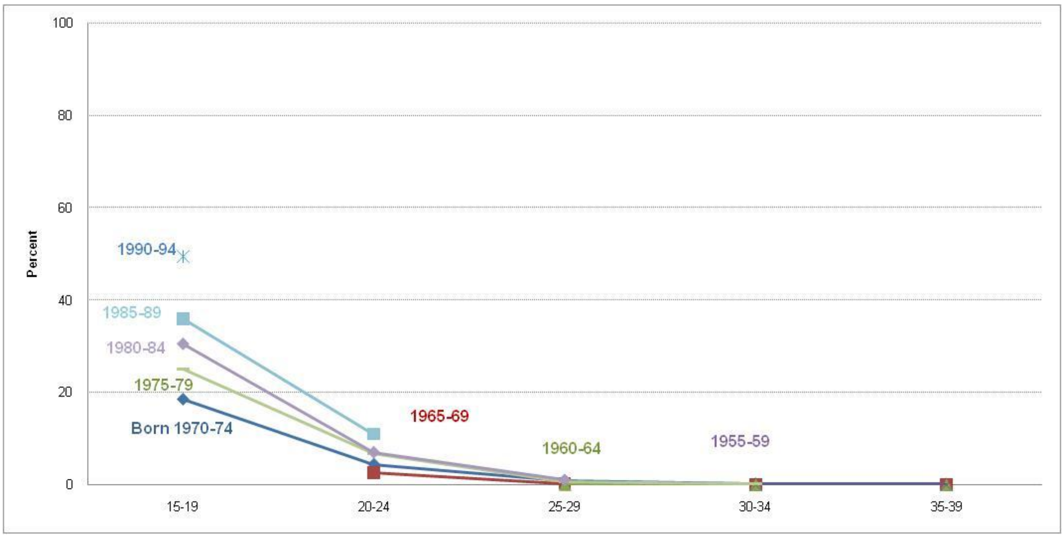


Figure 3.64: Female In school Ratio by Birth Cohorts
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

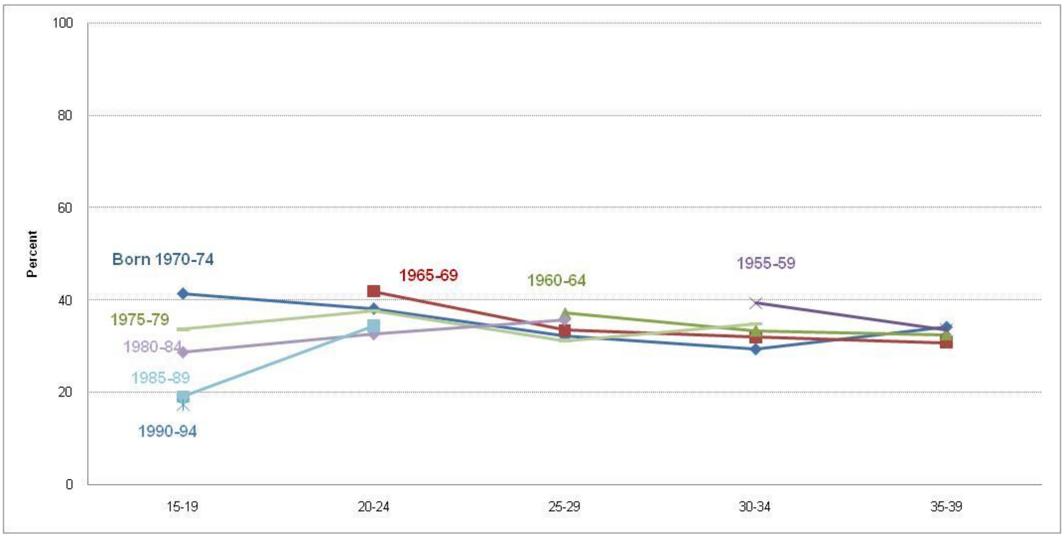


Figure 3.65: Female Labor Force Participation Ratio by Birth Cohorts
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

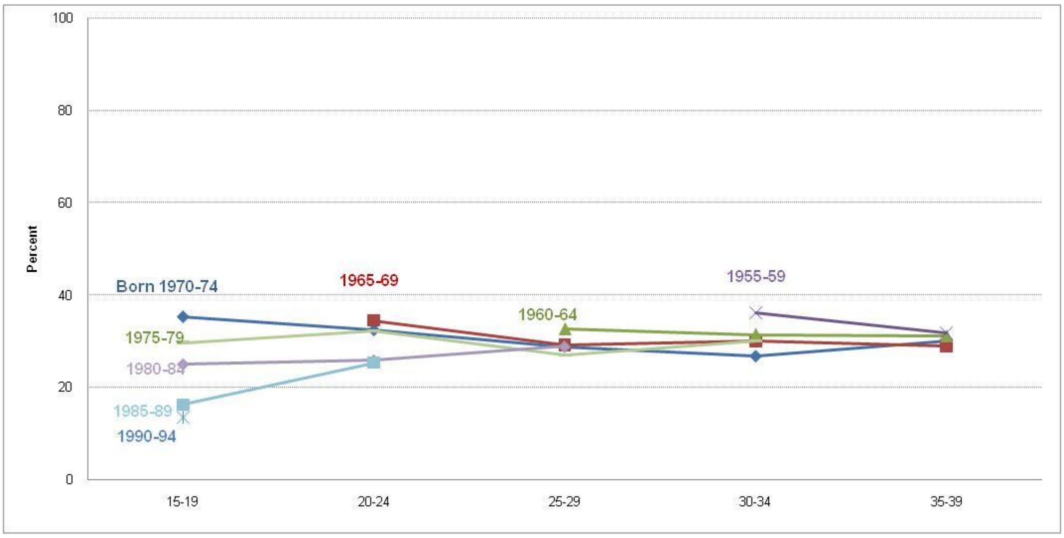


Figure 3.66: Female Employment Ratio by Birth Cohorts
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

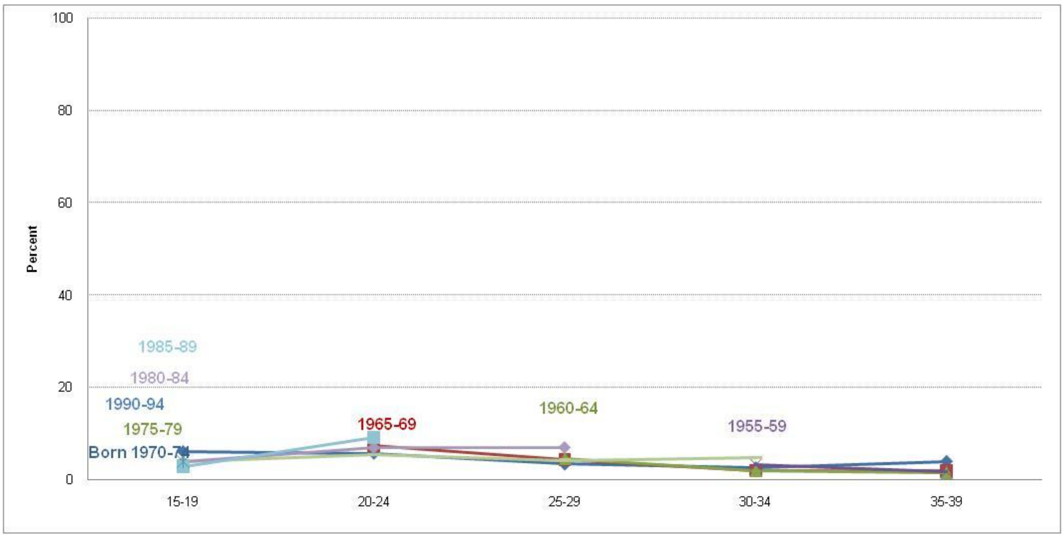


Figure 3.67: Female Unemployment Ratio by Birth Cohorts
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

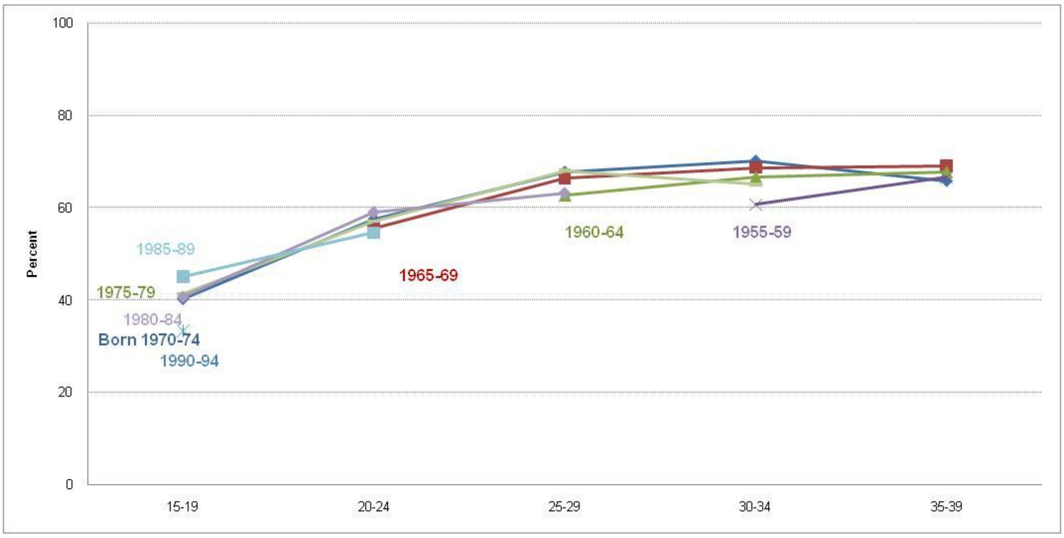


Figure 3.68: Female Inactive Ratio by Birth Cohorts
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

One of the important stylized facts about employment in Turkey is the decline in unpaid family work and increase in wage work (Dayıoğlu and Kırdar, 2010). Dayıoğlu and Kırdar (2010) found that in urban areas, wage employment has been the major form of employment for males and females. They also note that in urban areas males and females are affected oppositely in 1994 and 1999. Significant declines in wage employment among females occurred in 1994 and 1999, but the proportion of men employed as wage earners has slightly increased. However, in the 2001 crisis there is no decline in the proportion of females employed as wage earners although the recession is deeper in 2001 as compared to 1994 and 1999. Since these findings are for the population aged 15 and above, in order to examine the effect of structural change in the economy in 2001, the new Labor Law Act that was adopted in May 2002 and the crisis on young individuals in the labor market, we draw figures for the share of males and females employed for wages and salaries by age cohorts[24].

There are eight birth cohorts in Figures 3.69-3.74 same as in Figures 3.59-3.68. The youngest birth cohort is 1990-94. Individuals from the 1990-94 birth cohort are 15-19 year-old in 2009. This birth cohort is represented by an orange point in the figures. The blue line represents the 1985-89 birth cohort. Briefly, each line represents different birth cohorts and each label has the same color as the line to

[24] The new Labor Law introduced part-time and atypical work. These atypical work arrangements probably facilitate young individuals' entry into the labor market.

which it belongs. For females, we can deduce that the share of younger cohorts who work for wages and salaries tend to be higher than older cohorts. This pattern is more precise in rural areas which represent the agricultural transformation in rural areas. In addition to this, since younger cohorts are better educated, careers in agriculture for younger workers become less attractive (İlkkaracan and Tunalı, 2010). These more educated young individuals are more likely to work in wage employment.

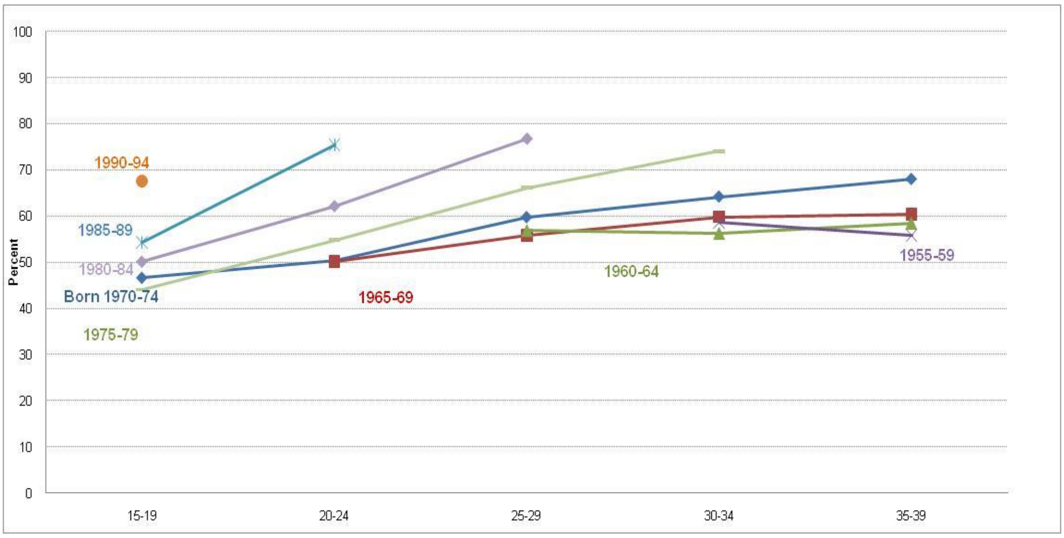


Figure 3.69: Share of Males who Work for Wages and Salaries by Birth Cohorts, 1989-2009, All Turkey
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

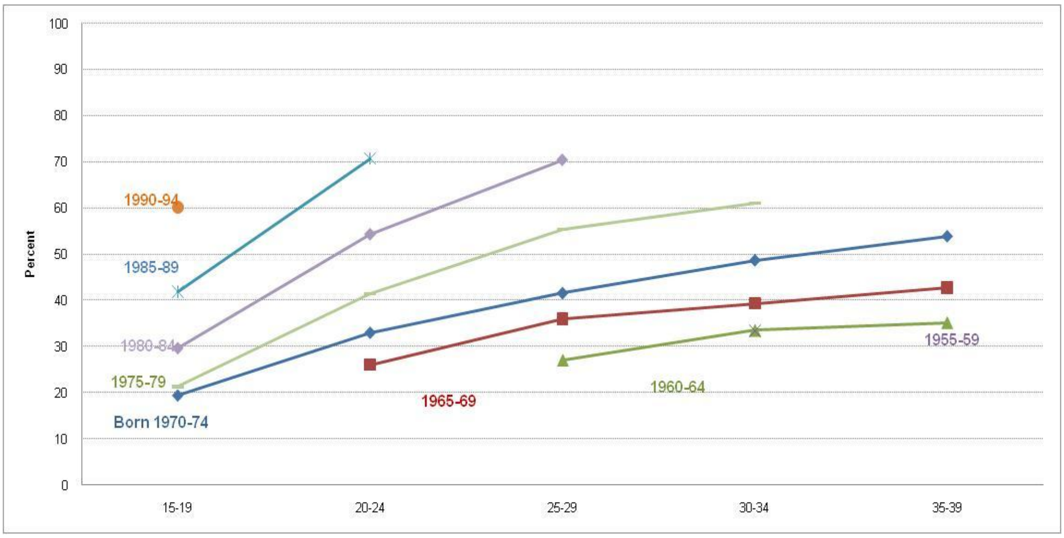


Figure 3.70: Share of Females who Work for Wages and Salaries by Birth Cohorts, 1989-2009, All Turkey
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

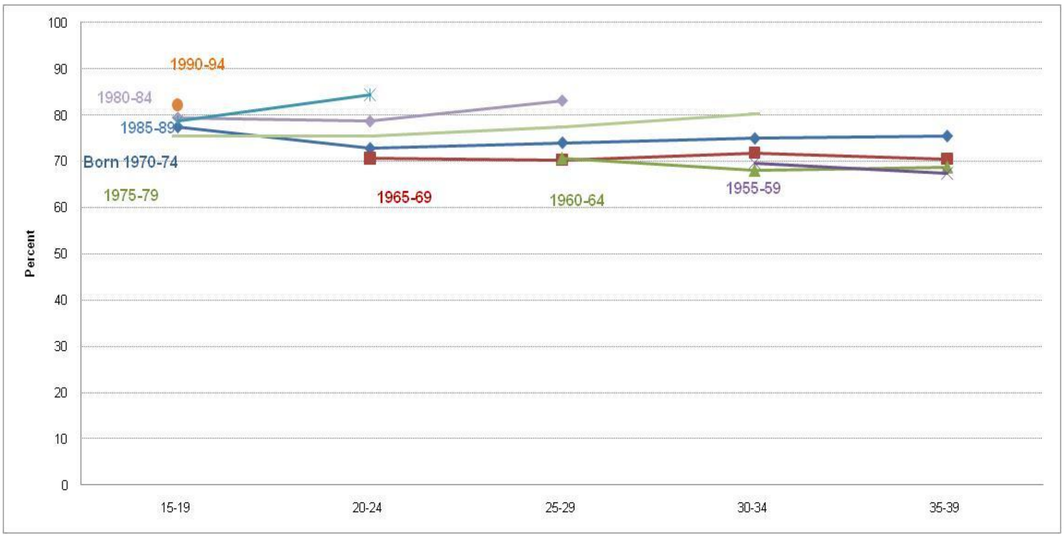


Figure 3.71: Share of Males who Work for Wages and Salaries by Birth Cohorts, 1989-2009, Urban Turkey

Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

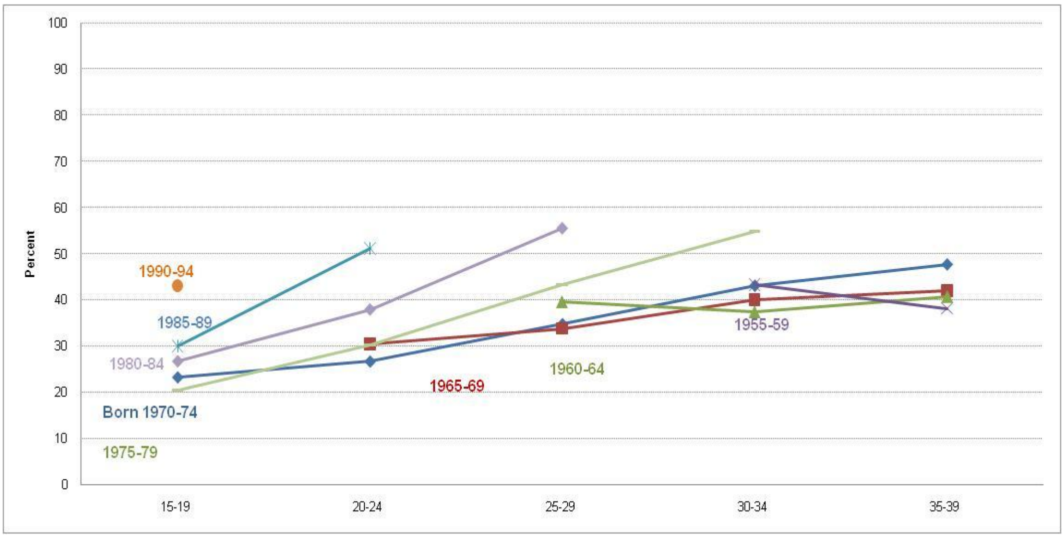


Figure 3.72: Share of Males who Work for Wages and Salaries by Birth Cohorts, 1989-2009 - Rural Turkey

Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

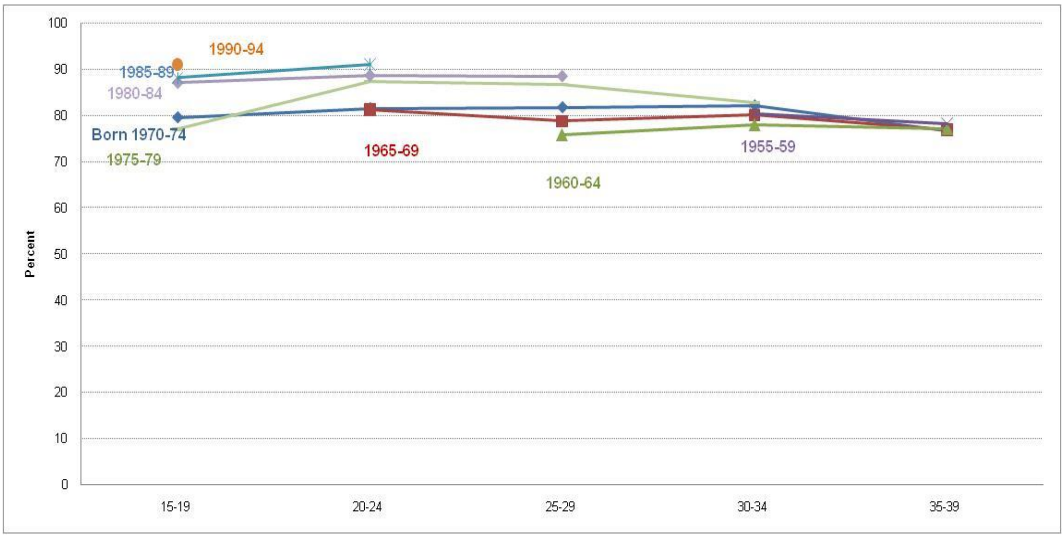


Figure 3.73: Share of Females who Work for Wages and Salaries by Birth Cohorts, 1989-2009, Urban Turkey
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

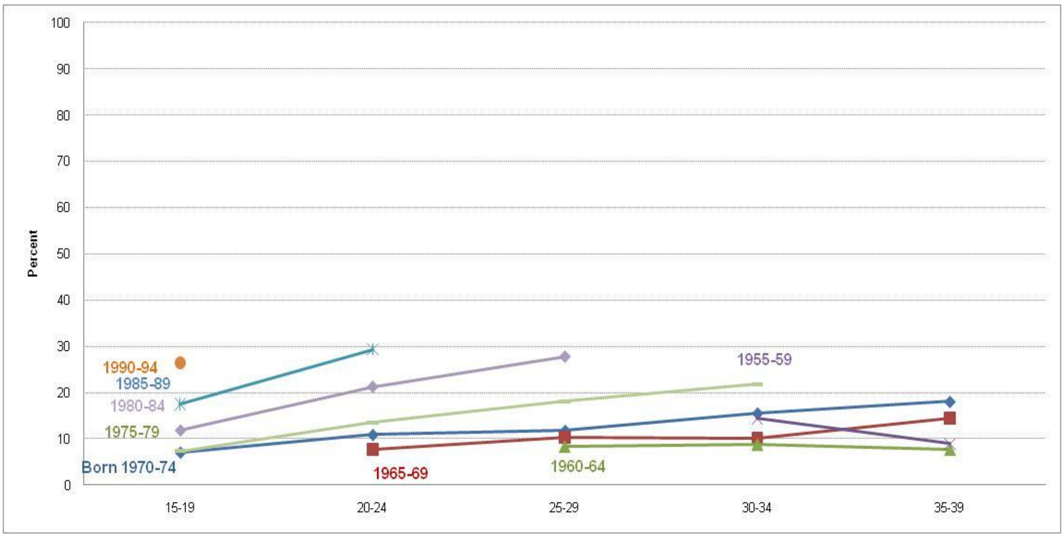


Figure 3.74: Share of Females who Work for Wages and Salaries by Birth Cohorts, 1989-2009 - Rural Turkey
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

From this section, it can be deduced that for younger cohorts the ratios of 15-19 and 20-24 year-old individuals who are in school are higher than the ratios for older cohorts. The opposite is true for the labor force participation ratios since younger individuals continue their education. Nevertheless, the ratio of the inactive for the age groups 25-24 and 29-34 is higher for younger cohorts than for older cohorts. For the case of males, there is another important finding from these figures: the labor force participation and employment ratio is steeper for younger cohorts than the older cohorts. This may be due to the difficulties younger cohorts face during their transition from school to work or the increase in the continuation of education. Note that, if it was due to the difficulties younger cohorts face during the transitions from school to work, the duration of obtaining the first permanent job after separation from school would be longer. However, if it was due to the continuation of education, then we would not expect the increase in the duration. From these figures, one can also deduct that the labor force participation and employment ratios steeper for females than males. This means that females have smoother transitions from school to work. This may be related to compulsory military service (CMS) which employers are more likely to hire males who complete their CMSs. In the following chapters, we focus CMS and its effects on the labor market in detail. In addition to that, for younger cohorts the share of wage work is higher than for older cohorts. On the other hand, from these figures we cannot examine year, cohort and age effect respectively. In order to decompose these effects, we use a regression analysis on the synthetic panel data in the following section.

3.4.6.2 Decomposition by Year, Age and Cohort Effects

As mentioned in the previous section, in order to decompose year, age, cohort effects, we use the synthetic panel data for young individuals (15-34 year-olds). The regression we would like to estimate is as follows:

$$Y_{it} = \beta + \alpha_{it}A_{it} + \gamma_{\mathrm{it}}\mathrm{C}_{\mathrm{it}} + \varphi_{\mathrm{it}}\mathrm{Yr}_{\mathrm{it}} +) \qquad (3.2)$$

Where

Y=Dependent variable that is decomposed; in our case LFP (labor force participation) and employment, inschool and inactivity ratio.

A: Age Dummies

Yr=Year Dummies

C=Cohort Dummies

i=age group

t=year

{i, t} →cohort

The cohort definitions are given below:

$$a_{ct} = t + c \tag{3.3}$$

Where c represents the cohort and t represents the year of the survey and a_{ct} represents the age of c at t.

This implies that the matrices of dummies satisfy:

$$As_a = Ys_y + Cs_c \tag{3.4}$$

Where the s vectors are arithmetic sequences (0,1,2,3….,) of the length given by the number of columns of the matrix that premultiplies them.

Since there is a linear relationship between age, year and cohorts, collinearity problem occurs. The treatment here is based on that given in Deaton and Paxson (1994). Note first that, we replace the parameter vectors:

$$\tilde{\alpha} = \alpha + ks_a \tag{3.5}$$

$$\tilde{\gamma} = \gamma - ks_c \tag{3.6}$$

$$\tilde{\varphi} = \varphi - ks_y \tag{3.7}$$

For any scalar constant k, there will be no change in the predicted value of y in.

$$Y = \beta + A(\tilde{\alpha} - ks_a) + \mathrm{C}(\tilde{\gamma} + ks_c) + y(\tilde{\varphi} + ks_y) + u_{it}) \tag{3.8}$$

Equals to

$$Y = \beta + A\tilde{\alpha} + C\tilde{\gamma} + y\tilde{\varphi} - Aks_a + Cks_c + yks_y + u_{it} \tag{3.9}$$

Then we estimate

$$Y = \beta + A\tilde{\alpha} + \mathrm{C}\tilde{\gamma} + y\tilde{\varphi} + u_{it} \tag{3.10}$$

We do normalization that makes the year effects orthogonal to a time-trend. By normalization, the effects capture cyclical fluctuations or business-cycle effects that average to zero over the long-run (Deaton, 1997).

There are two assumptions in the Deaton method:

1) Year effects are decomposed in a linear time trend and cycling year effects are orthogonalized with respect to linear time trend.

   Say we have five years: 1989, 1994, 1999, 2004, and 2009
   s_y : Vector of arithmetic sequences (0, 1, 2, 3, 4) and y represents rows that shows the number of years.

$$s_y'\varphi = 0 \tag{3.11}$$

Where

$$s_y = \begin{bmatrix} 0 \\ 1 \\ 2 \\ 3 \\ 4 \end{bmatrix} \text{ Respects time trend and} \tag{3.12}$$

φ is a yx1 matrix where y is the number of years. In our case it is 5x1.

$$\varphi = \begin{bmatrix} \varphi_1 \\ \varphi_2 \\ \varphi_3 \\ \varphi_4 \\ \varphi_5 \end{bmatrix} \tag{3.13}$$

Therefore $\begin{bmatrix} 0 & 1 & 2 & 3 & 4 \end{bmatrix} \begin{bmatrix} \varphi_1 \\ \varphi_2 \\ \varphi_3 \\ \varphi_4 \\ \varphi_5 \end{bmatrix}$

$$0\varphi_1 + 1\varphi_2 + 2\varphi_3 + 3\varphi_4 + 4\varphi_5 = 0 \tag{3.14}$$

$$\varphi_2 = -2\varphi_3 - 3\varphi_4 - 4\varphi_5 \tag{3.15}$$

Then we will use second assumption to find ϕ_1

2) Business cycle effects average to zero

$$\underline{i}'\varphi = 0 \tag{3.16}$$

$\underline{i}$ is a 1xy matrix of 1's.

$$\begin{bmatrix} 1 & 1 & 1 & 1 & 1 \end{bmatrix} \begin{bmatrix} \varphi_1 \\ \varphi_2 \\ \varphi_3 \\ \varphi_4 \\ \varphi_5 \end{bmatrix} = \varphi_1 + \varphi_2 + \varphi_3 + \varphi_4 + \varphi_5 = 0 \tag{3.17}$$

$$\varphi_1 + \varphi_2 + \varphi_3 + \varphi_4 + \varphi_5 = 0 \tag{3.18}$$

Thus

$$\varphi_1 = -\varphi_2 - \varphi_3 - \varphi_4 - \varphi_5 \tag{3.19}$$

Since there is a linear relationship between age, year and cohorts, collinearity problem occurs. In order to handle this issue, we do normalization that makes the year effects orthogonal to a time-trend. By normalization, the effects capture cyclical fluctuations or business-cycle effects that average to zero over the long-run (Deaton, 1997).

Figure 3.75 represents decomposition of year, age and cohort effects for males and Figure 3.76 depicts decomposition of year, age and cohort effects for females[25]. Controlling for age and cohort effects, the year effects are displayed in Panel A of both figures[26]. Age effects and cohort effects are in Panels B and C, respectively. We choose 15-19 year-olds as the base group in panel (b) and 1955-59 birth cohorts as the base birth cohorts in panel (c). In each figure, there are three different lines. The blue line which has a square marker, red line which has a square marker and

[25] In Appendix C, we create tables for year, cohort and age effects (Table C.1 and Table C.2).
[26] Sum of the year effects equals to zero.

green line which has an asterisk marker represent the employment, unemployment and in school ratios, respectively.

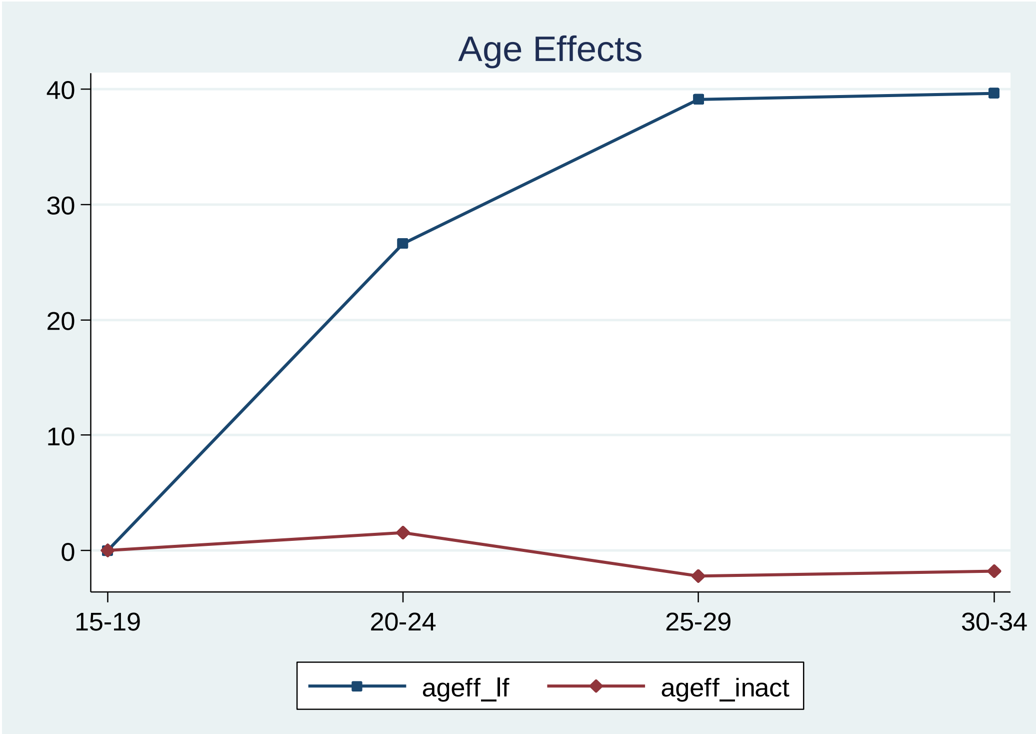
The year effects indicate that labor force participation of males is the highest in 2009 (Figure 3.75-a). This is the same for females (Figure 3.76-a). This year is the crisis year and this increase shows the added-worker effect. Note that, for males, we have a positive year effect in year 1994. This may also be stated as the added worker effect. On the other hand, for females, we have only positive year effect in 2009. Year 1994 has a negative effect. This is in line with the findings for the year effects on the inactivity ratios. For females, year 1994 has a positive effect while for males; year 1994 has a negative effect on the inactivity ratio. In addition, year 1999 has a negative effect on the labor force participation rate for males and females while the ratio of being in school and the ratio of being inactive is affected positively by year 1999. One of the possible reasons for this could be the fact that young individuals are more likely to continue their education during this crisis since the wages probably decrease and thus the opportunity cost of education decreases.

The year effects of employment and unemployment have the highest values in 2009, as well. On the other hand, for in school and inactive, they are the lowest. This is again due to the crisis. Inactives and individuals who are in school enter the labor force. The predicted changes in the labor market activity ratios of different ages, corrected for cohort and time effects are shown in Figure 3.75-b,3.76-b,3.77-b and 3.78-b[27]. The age effects display an increasing profile, which means that men become more likely to participate in the labor market as they age. The participation rate of 20-24 year-old males is roughly 30 percentage points higher than the 15-19 year-old males. For females, it first increases then it starts to decrease. Cohort effects for males and females are illustrated in panel (c)[28]. According to this, younger cohorts are less likely to participate. The labor participation ratio of males from the 1990-94 cohorts is nearly 30 percentage points lower than their counterparts from the 1955-59 cohort. Younger cohorts are less likely to be employed: more than 30 percentage points lower. On the other hand, the unemployment ratio is higher for

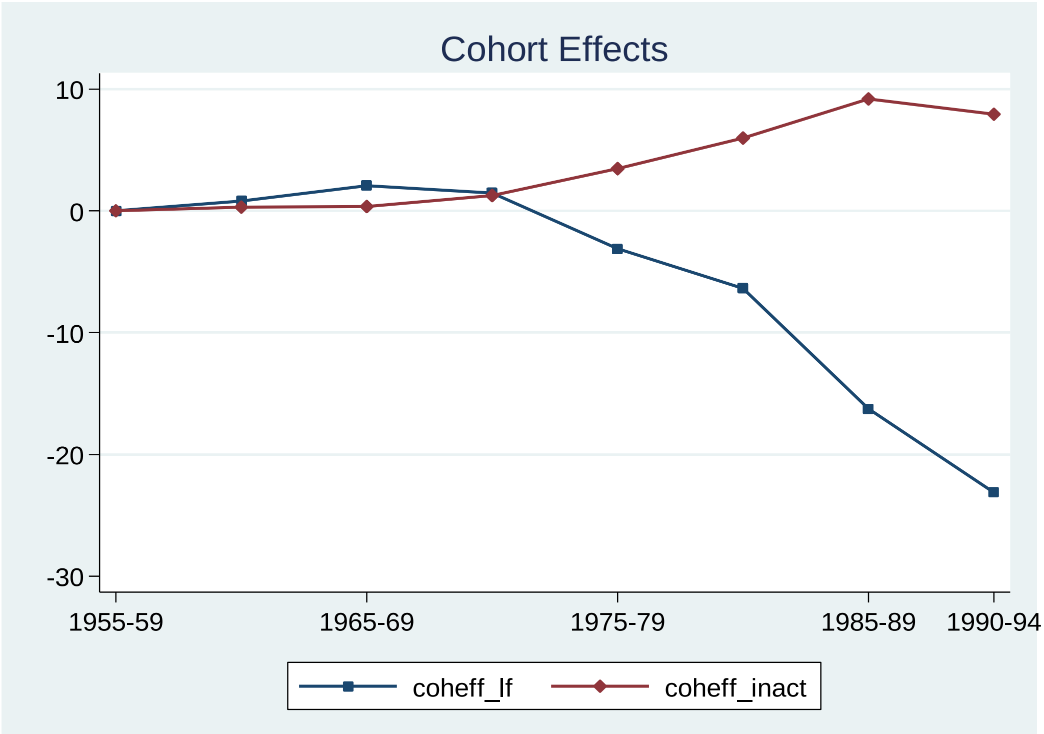
[27] Base category is age group 15-19.
[28] Base category is birth cohort 1955-59

younger cohorts. The same pattern is seen for the inactives. However, younger cohorts are more likely to be in school. Similar to males, younger cohorts of females are less likely to participate in the labor force and to be employed. However, magnitudes are less. As a result of the decomposition of labor market states of young individuals, we find that younger cohorts are more likely to be in school but they are less likely to participate in the labor force and be employed. These findings are consistent with prolonged education, especially after the change in the compulsory education law in 1997. In addition to this, we can say that the younger cohorts face more difficulties during transition to work and prolonged education has an impact on the labor market. These findings have probably links with the duration of obtaining first permanent job after separation from school.

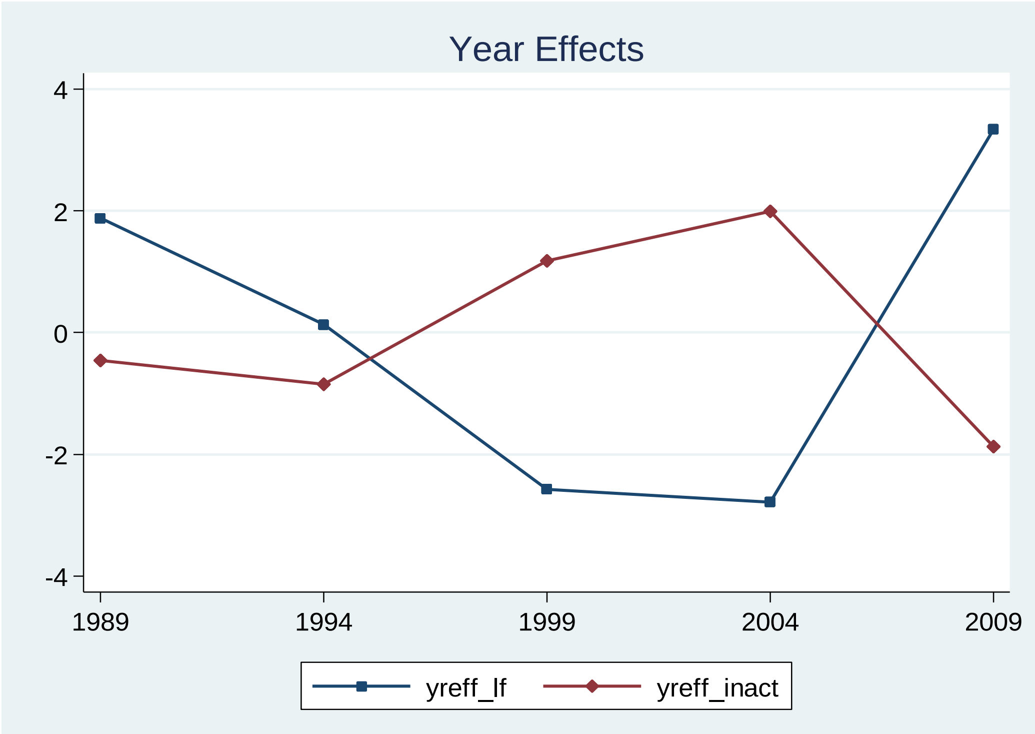
However, one should not forget that the decomposition of labor market ratios into age, year and cohort effects are computed by using HLFS whose sample frame targets only the civilian population. Therefore, our findings are deduced from a selective sample. From this point of view, we focus on HLFS sample frame and we tackle this problem by using other data sources (TDHS 2003 and ABPRS 2007) to arrive at age-specific corrections to the sex ratio. Afterwards, we examine the impacts of the correction in the labor market.


Age Effects
40
30
20
10
0
15-19
20-24
25-29
30-34
ageff_lf
ageff_inact

(a)

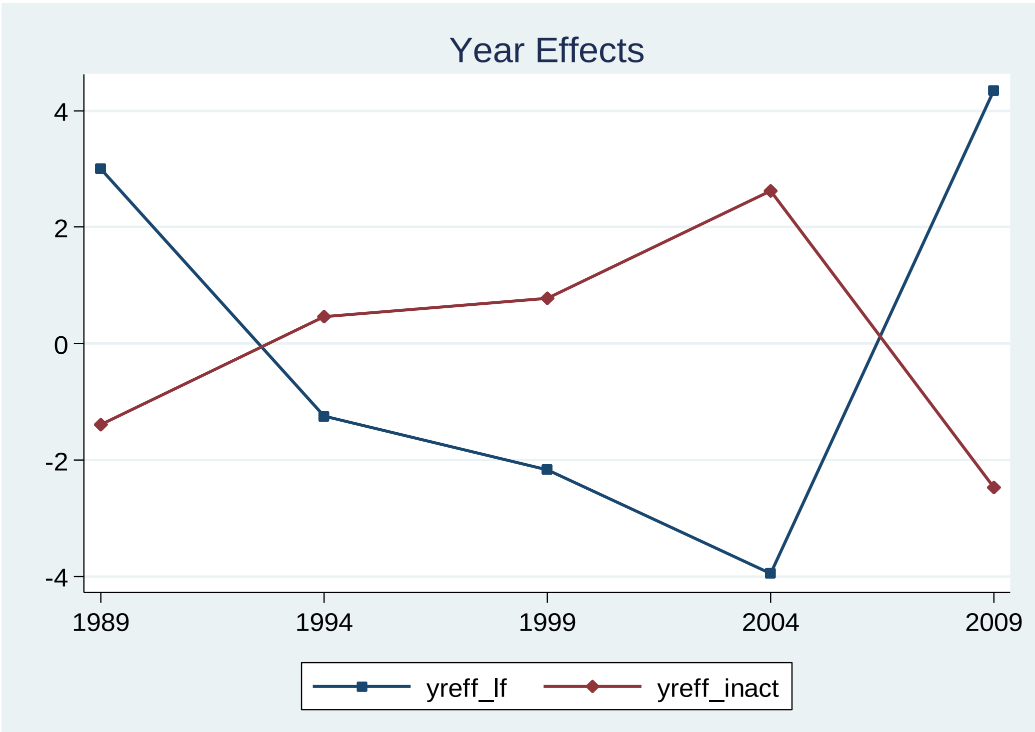

Cohort Effects
10
0
-10
-20
-30
1955-59
1965-69
1975-79
1985-89
1990-94
coheff_lf
coheff_inact

(b)

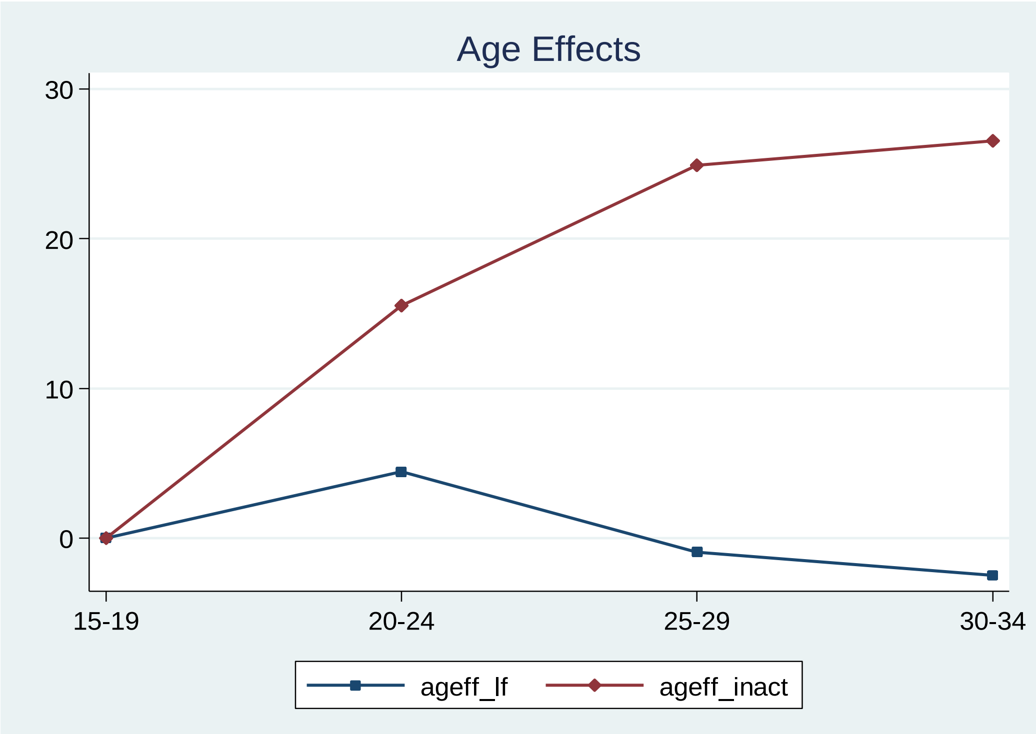


(c)

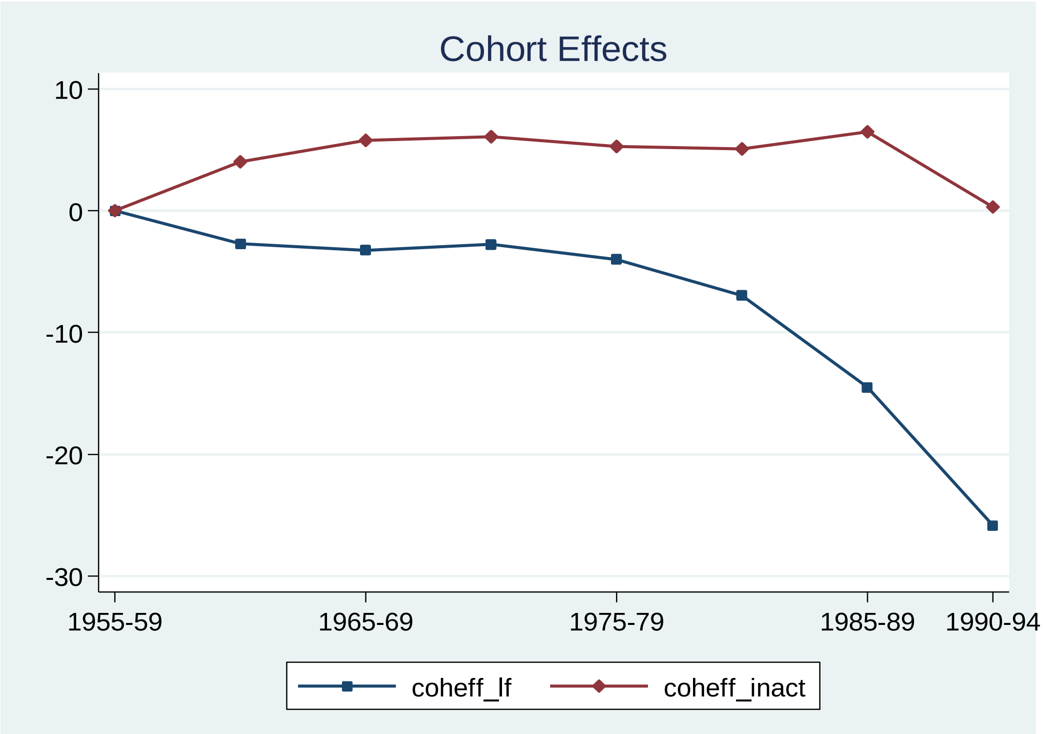
Figure 3.75: Decomposition of Labor Participation Ratio and Inactive Ratio by Year, Age and Cohort Effects for Males
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)



(a)

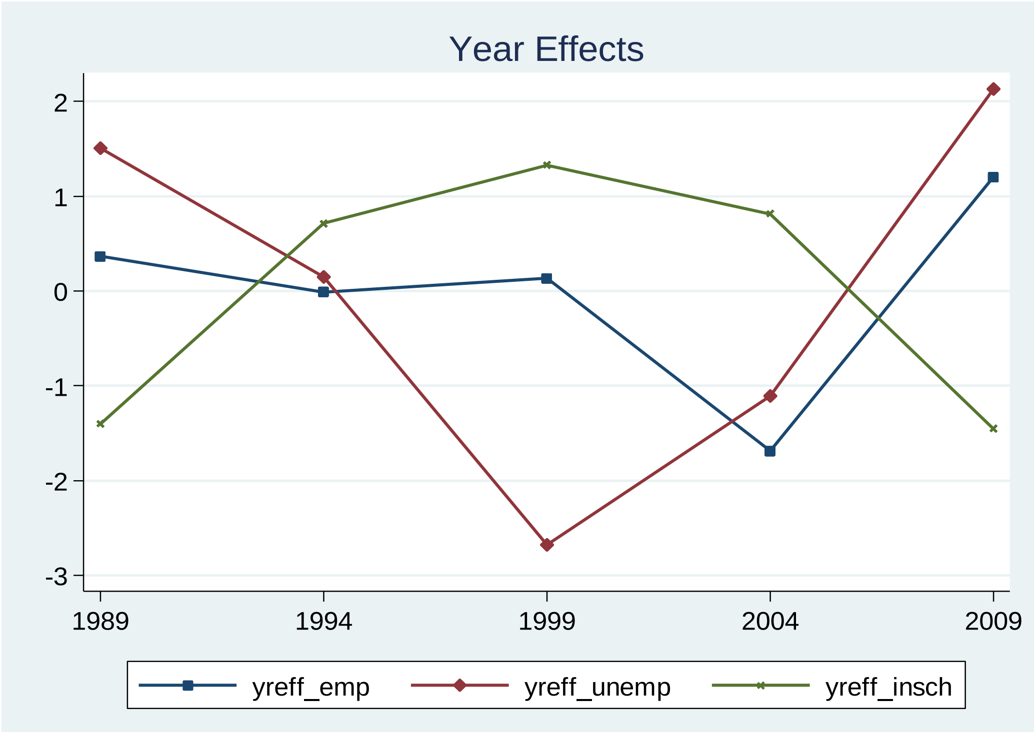


(b)

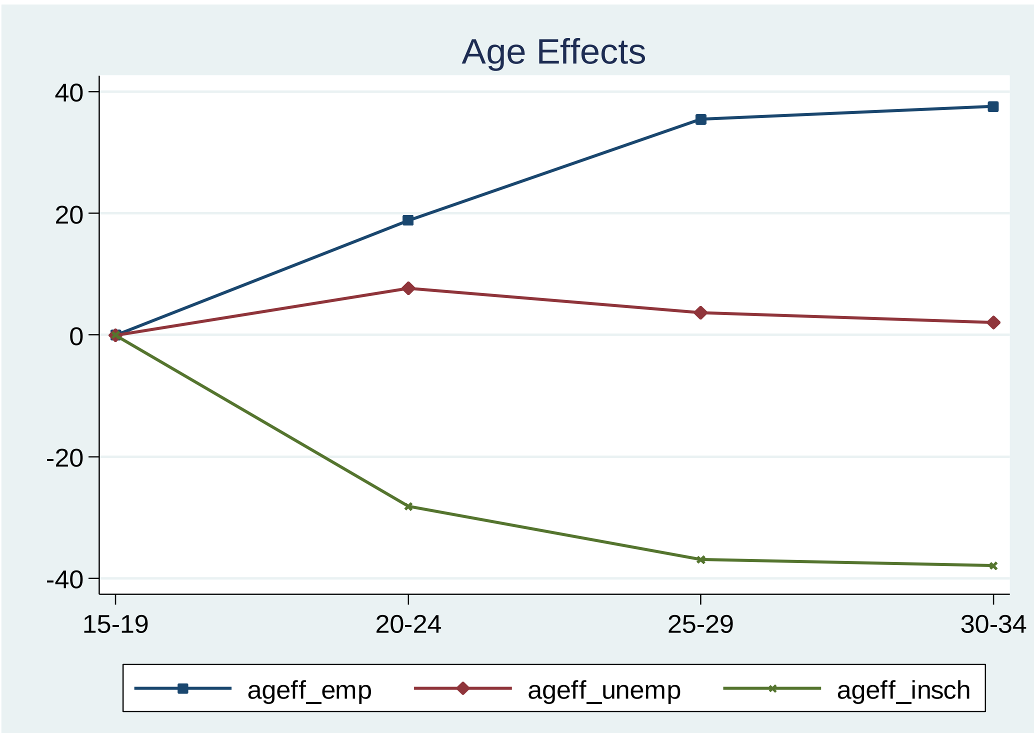


(c)

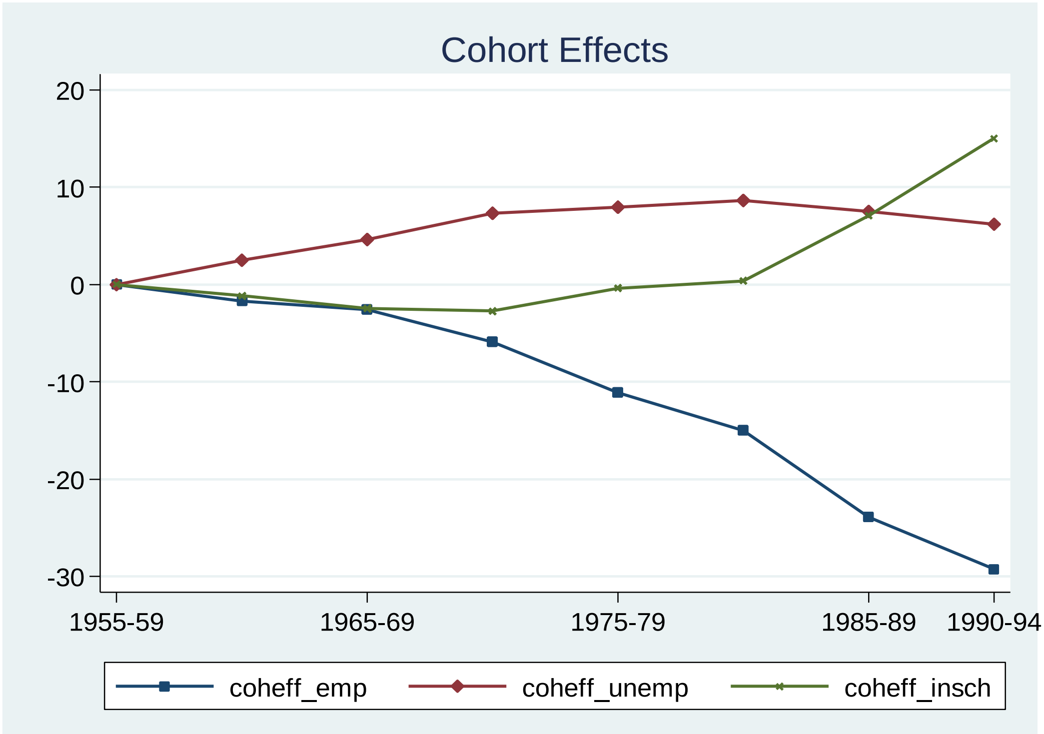
Figure 3.76: Decomposition of Labor Participation Ratio and Inactive Ratio by Year, Age and Cohort Effects for Females
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)


Year Effects
2
1
0
-1
-2
-3
1989
1994
1999
2004
2009
yreff_emp
yreff_unemp
yreff_insch

(a)


Age Effects
40
20
0
-20
-40
15-19
20-24
25-29
30-34
ageff_emp
ageff_unemp
ageff_insch

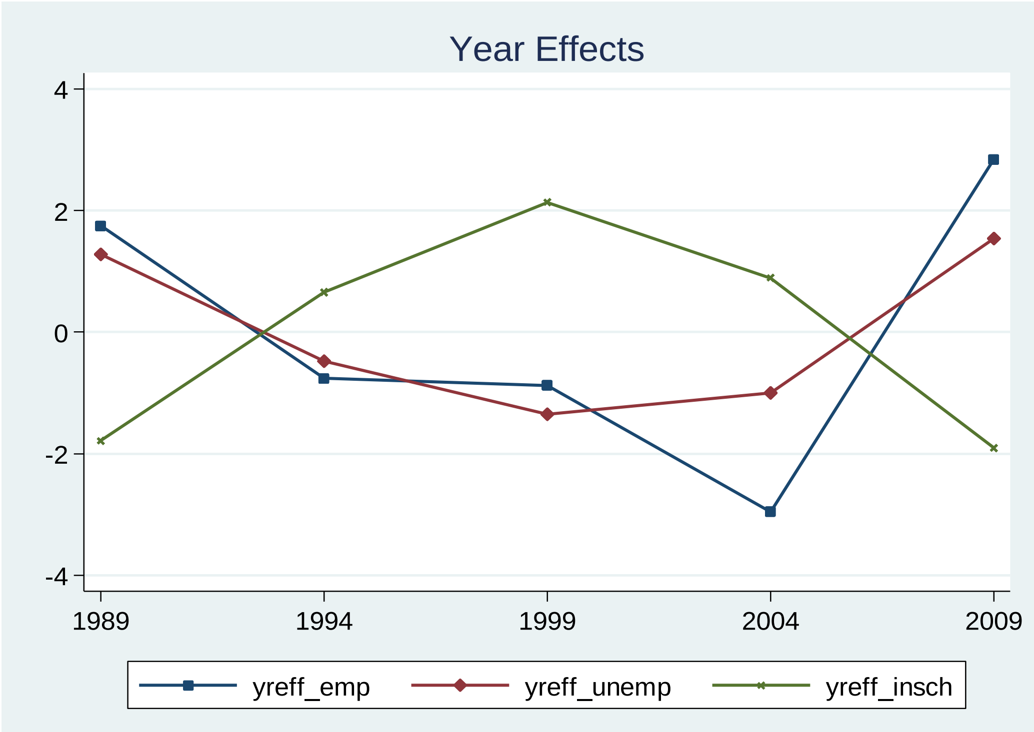
(b)



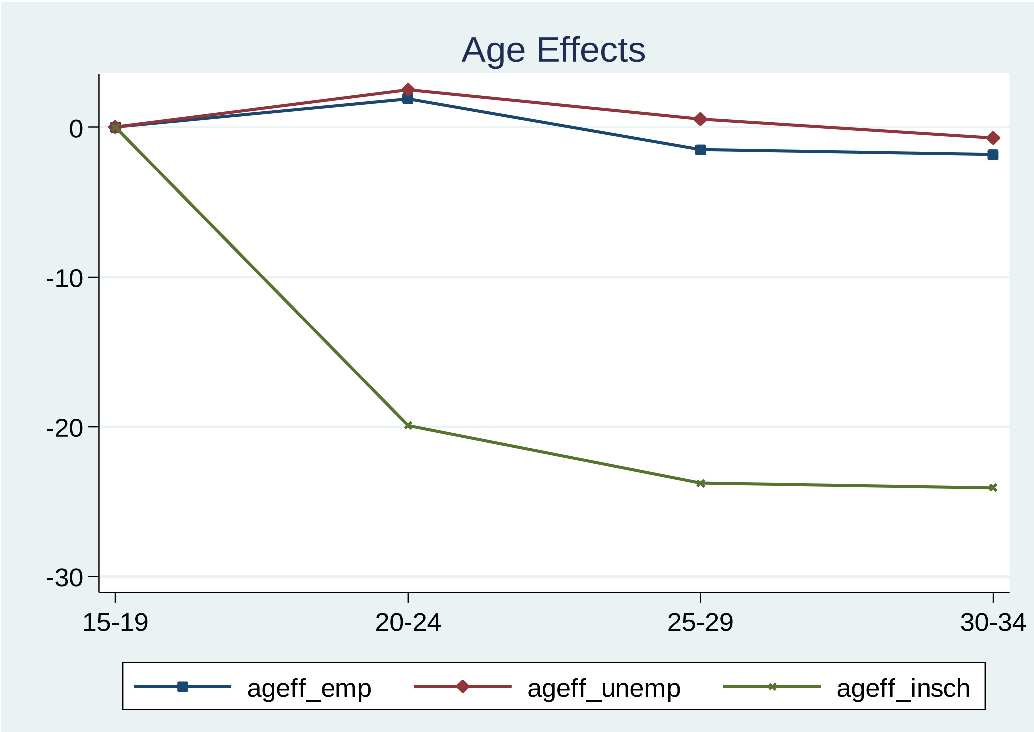
(c)

Figure 3.77: Decomposition of Labor Market States by Year, Age and Cohort Effects for Males

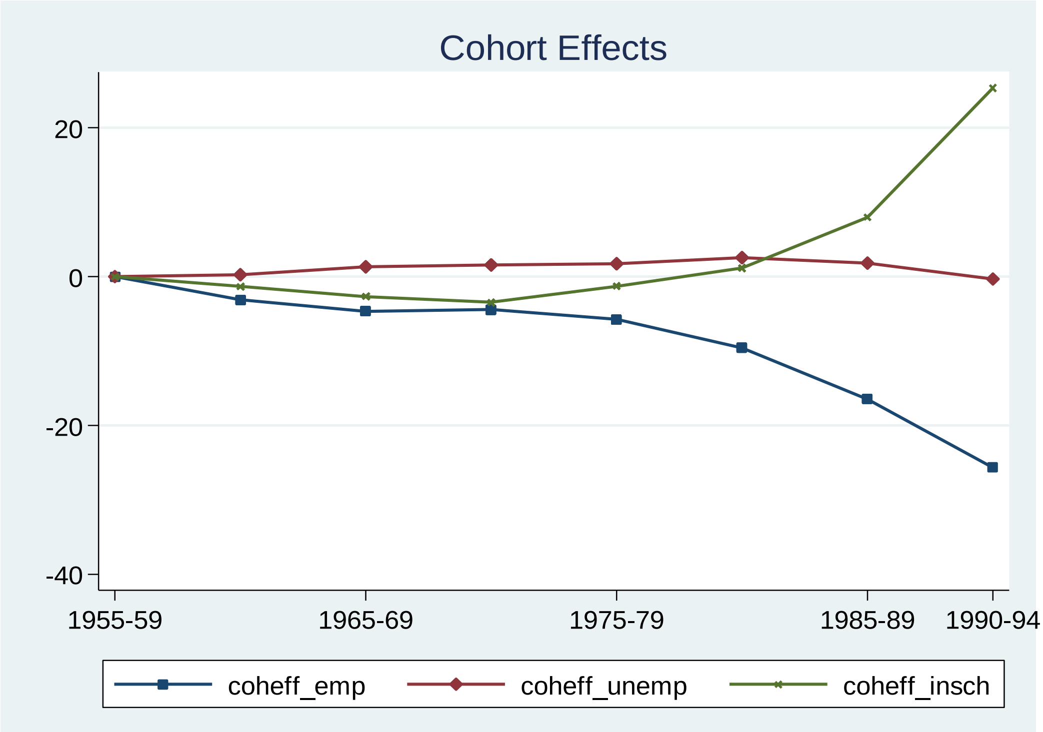
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)


Year Effects
4
2
0
-2
-4
1989
1994
1999
2004
2009
yreff_emp
yreff_unemp
yreff_insch

(a)


Age Effects
0
-10
-20
-30
15-19
20-24
25-29
30-34
ageff_emp
ageff_unemp
ageff_insch

(b)



(c)

Figure 3.78: Decomposition of Labor Market States by Year Year, Age and Cohort Effects for Females
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

Figures 3.79, 3.80 and 3.81 represent decomposition of year, age and cohort effects for the proportion of females and males employed as wage earners, respectively[29]. Figures for females are on the left hand side panels while males are on the right hand side panels. Time effects from the decomposition are presented in Figure 3.79. We choose 15-19 year-olds as the base group in Figure 3.80 and 1955-59 birth cohorts as the base birth cohorts in Figure 3.81. Both males and females have higher propensity to be wage worker in 2009 than in other three years. In other words, in crisis year 2009, the share of young individuals who work for wages and salaries is higher than in 1994, 1999 and 2004. Even when there is no change in the numerator of the fraction; a decrease in the denominator would lead to an increase in the proportion of individuals employed as wage earners. Age effects are illustrated in Figure 3.80. The age effects display monotonically increasing profiles. This is true not only for females but also for males. Nevertheless, age effects are stronger for females.

[29] In Appendix C, Table C.3-C.4 represents the predicted effects of age, cohort and age on the share of male and female wage workers.

Previously, we showed that younger cohorts are less likely to be employed. Here we further show that these younger individuals are more likely to be a wage worker once they are employed. In other words, share of individuals who work wage and salaries is higher for younger cohorts.

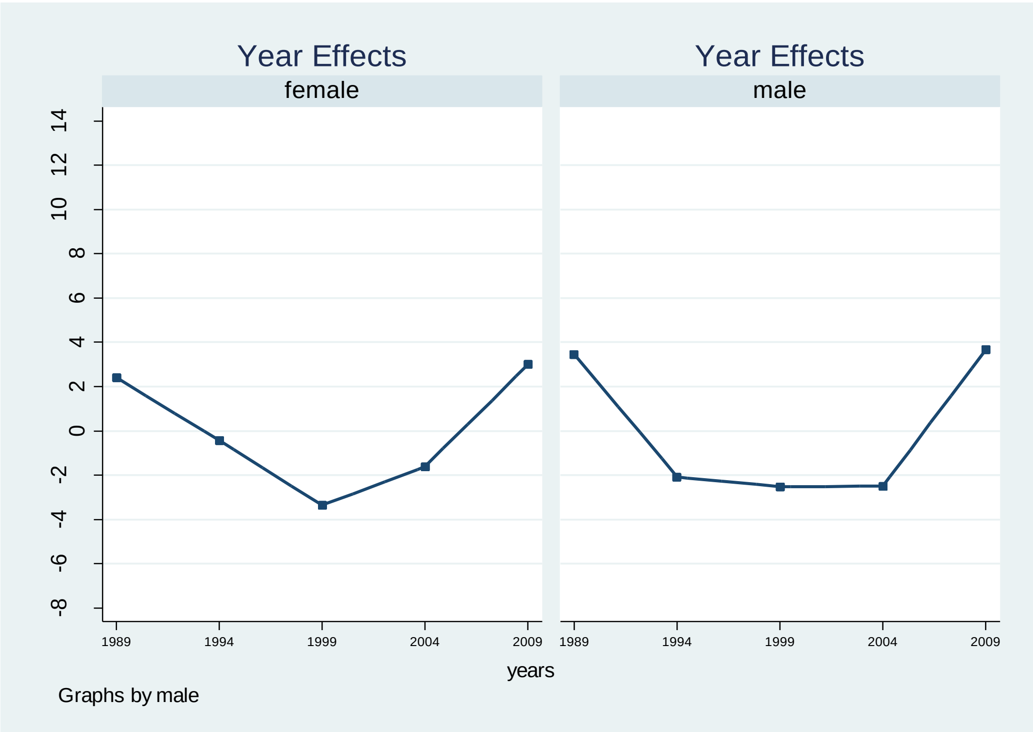


Figure 3.79: Year Effects (in percentage points) on Share Individuals who Work for Wage and Salaries

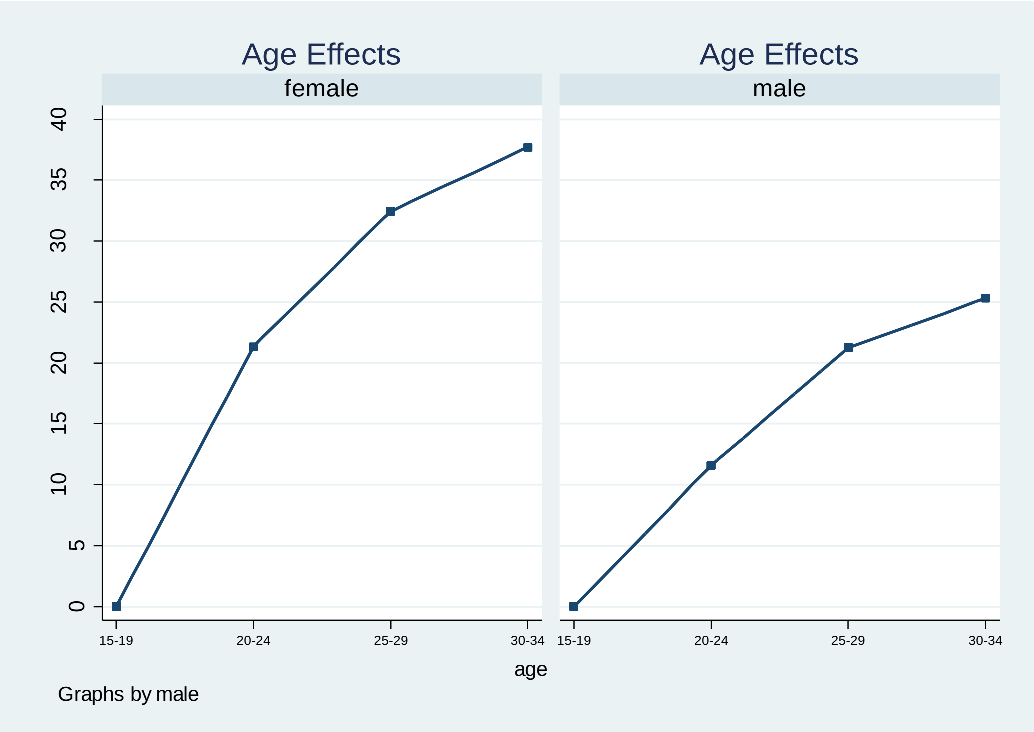


Figure 3.80: Age Effects (in percentage points) on Share Individuals who Work for Wage and Salaries (Baseline Age Group=15-19)

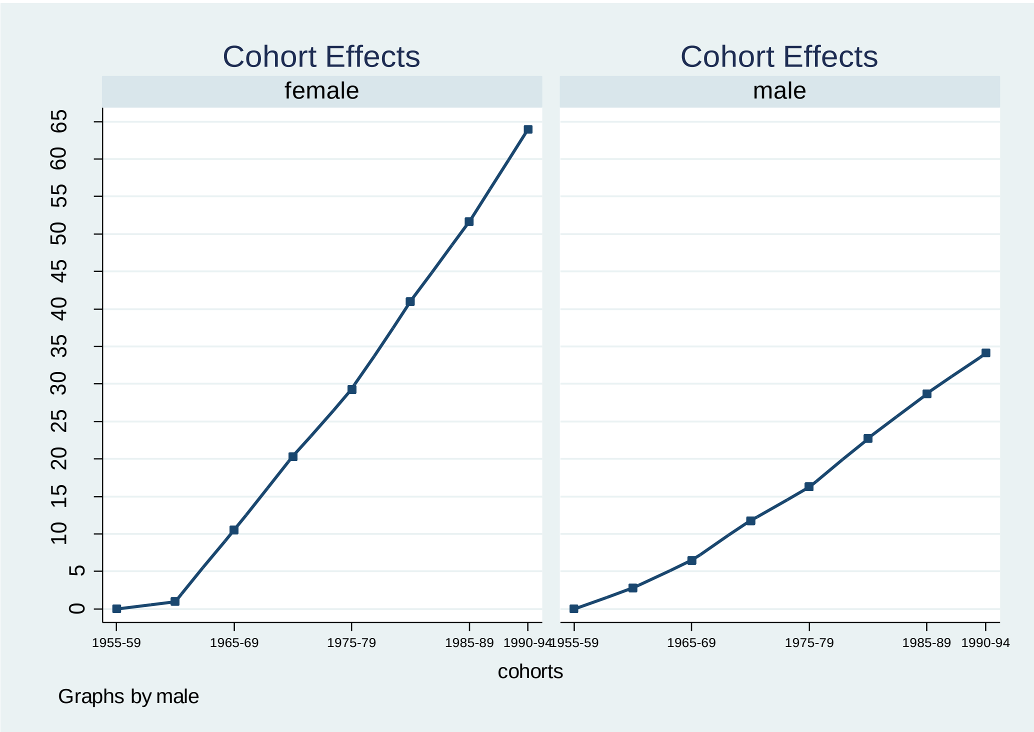


Figure 3.81: Cohort Effects (in percentage points) on Share Individuals who Work for Wage and Salaries (Baseline Cohort=1955-59)

From this point of view, we start summarizing this chapter in other words, situation of youth in the labor market. In Turkey, the ratio of the population under 30 years of age in the total population in 2009 was 52.2%, whereas the ratio of the population over 64 years of age was 14.2%. These figures confirm that there is a young and growing population in Turkey. Turkey has a demographic gift. In 1990, there were 33 million working age individuals. During the 1990s, on average 971 thousand additional individuals per annum in 2000 the stock was reached working age 43 million. During the 2000s, the stock of working age individuals grew by 463 thousand per year (a rate of 1.1 % per annum). It reached 47 million in 2009. However, since fertility is approaching replacement levels (2.15 in 2008), the demographic window of opportunity will close in the near future.

Broken down by age groups, there were 10 million 15-24 year-olds in 1990. This segment grew by 288 thousand per annum, and reached 13 million in 1999 (a rate of 2.8 % per annum). During the 2000s, there was a decrease in the stock of 15-24 year-old population. Each year there were 132 thousand fewer individuals in this age range (-1% per year). The stock decreased to 11 million in 2009. Therefore, it can be said that the impact of the decrease in fertility started to show its face during the 2000s. The effect is stronger on 15-24 year-olds than 25-34 year-olds. In 1990, there were 8 million 25-34 year-olds. Each year there were 334 thousand additional 25-34 year-olds and the stock increased to 11 million in 1999 (a rate of 4.1% per annum). During the 2000s, the average annual increase in the 25-34 year-old population slowed down to 82 thousand (a rate of 0.7% per year).

The pace of employment growth did not match the population growth rates. The number of employed individuals increased from 18.5 million to 22 million between 1990-1999 (390 thousand additional people per annum and a rate of increase of 2.1% per year). It decreased from 21.6 million to 21.2 million from 2000 to 2009 (34 thousand fewer employed individuals per annum and a rate of -0.2% per annum). It was 4.6 million in 1990 and it increased to 5 million in 1999 for 15-24 year-olds (43.6 thousand additional 15-24 year-olds and the employment growth rate was 0.9% per annum). It was 5 million in 1990 and increased to 6.5 million in 1999 for 25-34 year-olds (175 thousand additional 25-34 year-olds per annum and a rate of 3.5% per annum). However, the number of 15-24 year-old employed individuals was 4.7 million in 2000 and it decreased to 3.3 million in 2009 (152 thousand less per annum and a rate of -3.2% per annum). It was around 6.6 million in 2000 and 2009 for 25-34 year-olds. It remained about the same. The increase was 38 thousand from 2000 to 2009 which leads to around 4.2 thousand additional 25-34 year-old employed individuals per annum (a rate of 0.1% per annum).

Turning to unemployment, we see that the stock of unemployed individuals increased during the last twenty years. The number of unemployed individuals increased from 1.6 million to 1.8 million from 1990 to 1999 (24 thousand per annum and a rate of 1.5% per annum). It was 1.5 million in 2000 while it increased to 3.5 million in 2009 (219 thousand per annum and a rate of 14.6% per year). It was around 890 thousand in 1990 and 1999 for 15-24 year-olds (0.4 thousand additional 15-24 year-old unemployed individuals per annum and 0.1% per annum). On the other hand, the change in the number of 25-34 year-old unemployed individuals is more compare to the change in the number of 15-24 year-old unemployed individuals. It was 392 thousand in 1990 while it increased to 552 thousands in 1999 (18 thousand per annum and a rate of 4.5% for 25-34 year-olds). In 2000, it was 705 thousand for 15-24 year-olds while it increased to 1.1 million in 2009 (47 thousand per annum and 6.6% per annum). The number of 25-34 year-old unemployed individuals was 440 thousand in 2000 while it was more than doubled in 2009 (1.2 million).

In the 1990s youth unemployment rates (for 15-24 year-olds) were in the range of 14% to 18%. A decade later, the minimum value of the unemployment rate for this age group was 16% and the maximum value was 25% in 2009. For the case of 25-34 year-olds, values were substantially lower. During the 1990s the unemployment rates were around 6% while during the 2000s, the minimum value was 8% and the highest value was 15% in 2009. It can be said that job creation was not enough to match the influx of the young individuals. This is more noticeable during the 2000s compare to the 1990s. Thus, one can say that Turkey has not yet taken full advantage of the demographic window of opportunity.

CHAPTER 4

DATA AND CORRECTION FOR INSTUTITIONAL POPULATION

The most informative data set for studying the labor market is the HLFS which is carried out by the Turkish Statistical Institute (TURKSTAT). Thus, it seems natural to turn to the HLFS while studying the transition from school to work. In this chapter, we show that the HLFS has some built in shortcomings when the youth (ages 15-29) are the subject. The crucial issue is the fact that males who are doing their compulsory military service are excluded from the sample frames. Since population is not sampled, the denominator used in obtaining various statistics varies by age. While this is not problematic for reporting the usual labor market statistics such as the labor force participation rate, unemployment rate and the like, it is problematic when a complete characterization of the transition that youth go through is claimed. Since males who are doing their military service reside in barracks, they are not part of the civilian population. Consequently, they are not covered in HLFS. In other words, they are missing in the HLFS data. This poses serious challenges for us since males who are of military age (19-40) constituted 36.7% of the male population in 2007[1]. In addition, 4.2% of the males were between 19-29 years of age and therefore, fall within our interest group.[2]

This chapter consists of two sections. Section 4.1 sets the stage by reviewing the relevant effects of HLFS and some alternative data sources; that we employ in this study. Section 4.2 presents the proposed correction for institutional population and transitions across labor market states with and without correction for non-institutional population. In particular, the first sub-section of Section 4.2 discusses the correction based on sex ratios and constructs confidence intervals for male ratios

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[1]Turkish General Staff is announced that the number of enlisted males is 465,368 in 2011.
[2] Note that males who are between 19-29 years old constituted 20.1% of the male population (around 7 million of 70 million) in 2007. In Chapter 5, we use 15-29 year-old individuals while we use 15-34 year-old individuals in Chapter 6 since we are able to examine the duration of obtaining the first permanent job/permanent paid job after separation from school for this age group.

based on the Delta Method. The second sub-section is about school to work transitions with and without corrections for missing males.

4.1 Data

We begin with a brief summary of the main and supplementary data sources used in this Chapter. The main data sources for this chapter are the public data use files for 2004, 2005 and 2006 annual rounds of the HLFS of TURKSTAT.

In order to analyze the time trends of the youth in the labor market, we use the HLFS. From 1988 to 1999, HLFS was conducted biannually (in April and October). Since 2000, data are collected monthly. During the period 1988 to 1994, the sample size was about 12,000 households. In 1994, it was increased to 15,000 households. In 2000, it was increased to 23,000 households per quarter. In 2004, the sample size was expanded to 13,000 households per month so that NUTS2 level estimates on key variables are provided. Note that, in 2000, there are changes not only in the sample size but also in the sampling methodology. Starting with the year 2004, HLFS included retrospective questions. These questions are mainly related to previous year's labor market states. There is another change in the surveys in 2004. The questionnaire is expanded and there are 12 additional questions in the survey. This is done in order to increase the quality of the data and make the data more in line with that of EUROSTAT (Dayıoğlu and Kırdar, 2010).

We use supplementary data sources as well. The first one is Turkey Demographic and Health Survey (TDHS) which is conducted by Hacettepe University Institute of Population Studies in collaboration with the Ministry of Health General Directorate of Mother and Child Health / Family Planning. The 2008 Survey is the ninth survey in this series of surveys carried out by the Institute[3]. In TDHS, there is a question which asks whether there is anybody who usually lives in the household who is temporarily absent[4]. Therefore, we are able to catch the civilian population who belong to these households but who are living temporarily elsewhere and who have

[3] Source : http://www.hips.hacettepe.edu.tr/eng/surveys.shtml
[4] This question is in TDHS's household roster.

not yet established their own households[5]. In 2003 THDS, the sample covers 10,836 households and 8,075 ever married women in the age group of 15-49. There are 47,894 individuals in the sample and 28.4% of them are in the age group 15-29[6]. The other supplementary data source is Address Based Population Registration System (ABPRS) which is an administrative data base for the entire population of Turkey.

As this research is about the 'transition from school to work', we focus on young individuals aged 15-29. Table 4.1 shows the share of age groups in total population by different data sources. We give the relevant break downs by age from our main and auxiliary data sources in Table 4.1. The first three columns are for 2004, 2005 and 2006 HLFS while the fourth one is for 2003 THDS and the last one is for ABPRS 2007. The numbers in parentheses show the percentages. Individuals who are in the 15-29 age groups constitute 26.8% of non-institutional population the full sample in HLFS 2004 while it is 26.4 and 25.9% in 2005 and 2006 HLFS[7]. In 2007 ABPRS, 26.8% of the total population is in the age group 15-29. Our focus group therefore constitutes one fourth of the total population. The fraction of this age group, however, shows variations among different data sources. This is the reason which makes us give more attention to our data.

Table 4.1: Share of Age Groups by Different Data Sources

	HLFS			**TDHS**	**ABPRS**
Age groups	**2004**	**2005**	**2006**	**2003**	2007
0-14 & 30 older	51649160	52720838	53777944	34270	51675812
	73.2	*73.6*	*74.1*	*71.6*	*73.2*
15-29	18906873	18890217	18828033	13624	18910444
	26.8	*26.4*	*25.9*	*28.4*	*26.8*
Total	70556032	71611054	72605978	47894	70586256

Source: HLFS 2004-2005-2006, TDHS 2003, ABPRS 2007

Note: Weights are used and the numbers in parentheses show the percentages. Note that, we are not able to project TDHS to population since the weights are not given in TDHS.

[5] Although we do not know the reason for their absence, we are able to make some guesses about the reasons as we have some demographics. These are discussed in Chapter 3, Section 3.3.

[6] It is reported that the percentage of unregistered children within the first five years of the birth was 16% of all births in TDHS-2003 while this ratio decreases to 6% in TDHS 2008 (TDHS REPORT, 2008).

[7] Weights are given in HLFS to project the population, we use 'iweights' command of stata.

Table 4.2 contains the ratio of males by age groups in the HLFS. The first column of the table shows the ratio of males by age group for HLFS 2004 while the second column is for HLFS 2005 and the last one is for HLFS 2006. The ratios of males are around 50% for most age groups. However, the male ratio for the age group 20-24 decreases to 46%, 45.9% and 45.7% in HLFS 2004, 2005 and 2006, respectively. The source of the difference in the 15-29 age group is the previously mentioned feature of the HLFS: It comprises of the non-institutional population. In other words, it excludes residents of schools, dormitories, kindergartens, rest homes for elderly persons, special hospitals, military barracks and recreation quarters for officers.

Table 4.2: Sex Ratio by Age Groups, HLFS 2004-2006

Age Groups	**Years**		
	2004	**2005**	**2006**
age 0-04	51.0	51.0	51.0
age 5-11	50.7	50.7	50.7
age 12-14	50.3	50.2	50.2
age 15-19	51.4	51.5	51.2
age 20-24	46.0	45.9	45.7
age 25-29	50.8	50.8	50.8
age 30-34	50.7	50.8	50.8
age 35-39	50.2	50.2	50.3
age 40-44	50.4	50.3	50.2
age 45-49	51.0	50.8	50.8
age 50-54	50.5	50.6	50.6
age 55-59	49.5	49.6	49.7
age 60-64	48.4	48.4	48.3
age 65+	45.3	45.3	45.3
Total	49.9	49.9	49.9

Source: HLFS 2004, 2005 and 2006
Note: Weights are used

Figure 4.1 which is drawn by using the values from Table 4.2 helps us detect anomalies visually. For each age group, the first columns are for the year 2004, the second columns show the year 2005 and the last columns show the year 2006. The decrease in the male ratio is more apparent in Figure 4.1. To summarize, by examining the sex ratio obtained from the HLFS by age groups, we understand that the distinction of civilian and non-civilian population leads to variations in the ratio of males in the age window which is relevant to our study. In the following section, we analyze whether these variations are to cause significant variations in the computation of main labor market indicators.

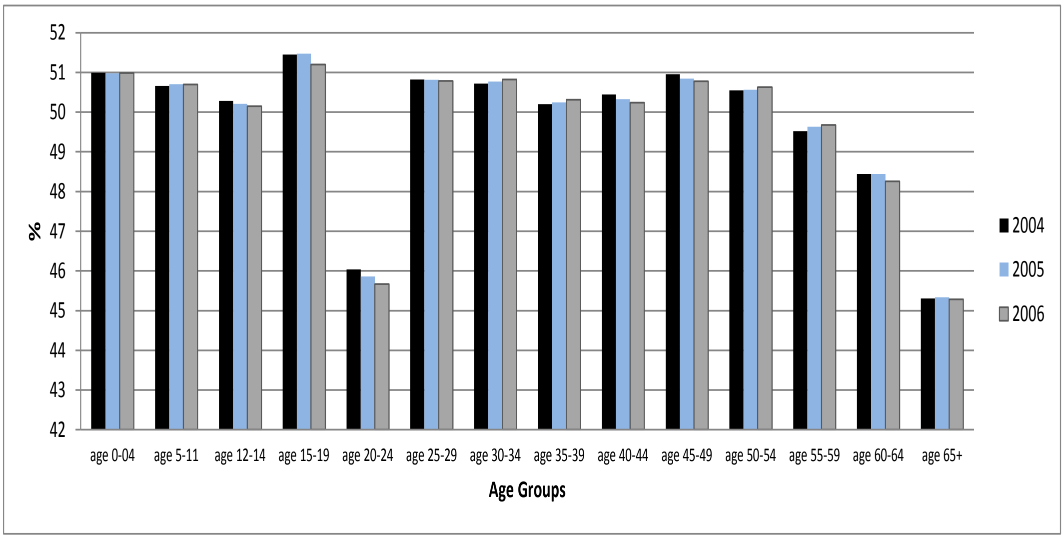


Figure 4.1: Share of Male Ratios by Age Groups
Source: Based on Table 4.2

4.2 Correction for Institutional Population and Transition across Labor Market States

The fact that the HLFS sample frame targets the civilian, non-institutional population makes it impossible for us to study a key stage (namely compulsory military service) in the school-to-work transition of males. We tackle this problem by using other micro data sources to arrive at age-specific corrections to the sex ratio. In this section, we implement the correction and assess the contribution it makes to different labor market indicators.

4.2.1 Correction of Sex Ratios

We begin by broadening over time window and examine the sex ratio (number of male per 100 females) by age groups relevant to our work. The picture that emerges from HLFS 1988-2008 given in Figure 4.2 makes it clear which age group is affected most by the 'missing males' who purported to be doing their CMS. Leaving the actual magnitudes aside, note that the sex ratio at ages 15-19 and 25-29 are close to one another, while that at ages 20-24 is much lower. The lowest value of the sex ratio for the 20-24 age groups is 77 in 1990 and the highest value is 85 in 2004. In any event, what is relevant for this study is the 20-24 year age group (the bottom line in Figure 4.2) because military service does not start before age 19. Furthermore, it becomes more likely for young people to leave their parental home after graduating from high school to continue their education elsewhere, where they may reside in dormitories and therefore, fall out of the scope of HLFS. In other words, they are missing from the HLFS.

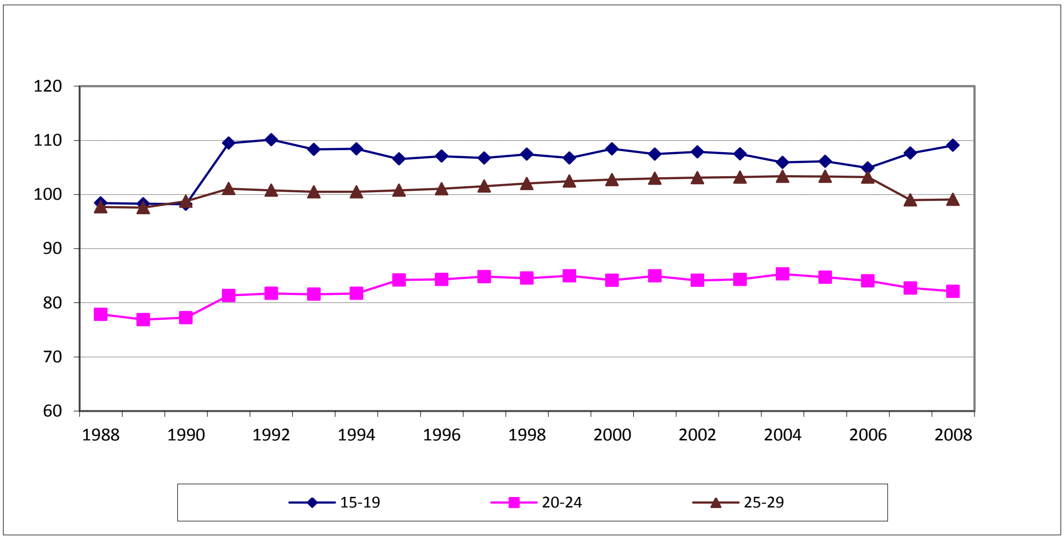


Figure 4.2: Male per 100 Females by Age Groups, 1988-2008
Source: TURKSTAT database HLFS 1988-2008

In Figure 4.2, we observed a decline in male per 100 females in age group 20-24. Therefore, we put together all the information we have and then we draw Figure 4.3. It presents male per 100 females as well the missing male ratio (MMR) for the same period. The lower of the two lines represents the male per 100 females calculated using HLFS. The other line represents male per 100 females calculated using projections. Projections allow us to fill the gaps between the census data, so it is possible to estimate the size of missing males and to calculate the MMR[8]. The vertical axis on the left shows the number of males per 100 females while the one the right shows the gaps between the entire population and civilian population. In other words, it shows the missing male ratio. Expressing the calculated male ratios from

[8] The projections are obtained by running the SPECTRUM program, which uses data from the United Nations (UN).

ABPRS using $\frac{M}{F}$ and the calculated male ratios from HLFS using $\frac{m}{f}$, we can get the 'missing male' ratios (x) by the equation (4.1):

$$\frac{m(1+x)}{f} = \frac{M}{F} \tag{4.1}$$

Where M is the number of the males while F is the number of the females in ABPRS, and m and f refers the number of the males and the females in HLFS. In Figure 4.3, we use the bars to present the missing male ratios that we compute by using the equation (4.1)[9].

From 1988 to 2003, MMR is decreasing during this period and then it starts to increase. The decrease from 1988 to 2003 can be explained by a secular rise in schooling. If an increasing proportion of high school graduates choose to continue with their schooling, they essentially end up postponing CMS. In the age group 20-24, the ratio of university and higher education graduates is showing an increasing trend. In 1988, the ratio of university and higher graduates among 20-24 year-olds was 6%, in 2006 it increased to 17%. For the 25-29 age group, this ratio increased from 6% to 16%.

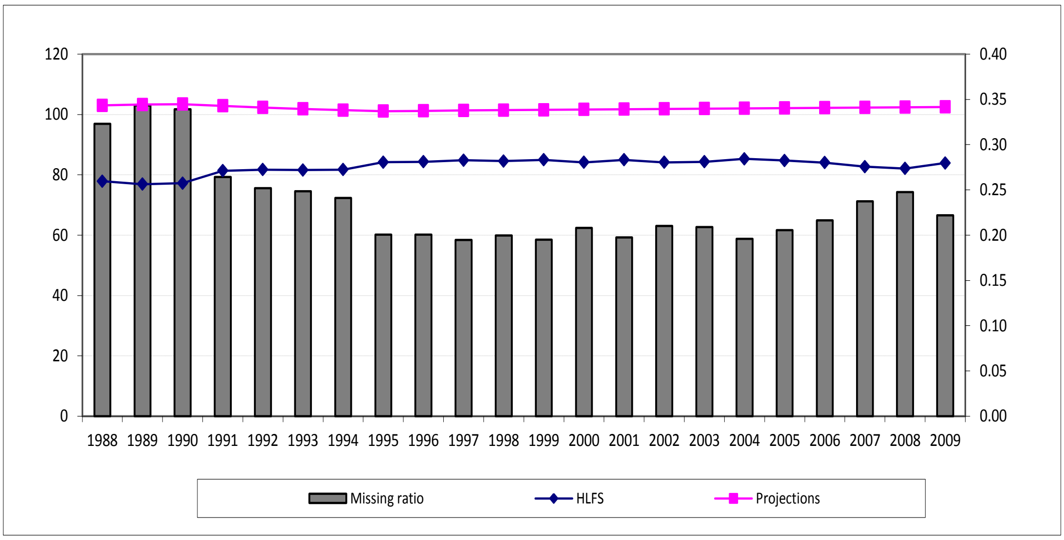


Figure 4.3 : Male per 100 Females-Missing Male Ratio, Age Group 20-24
Source: TURKSTAT HLFS Data Bank and United Nations

[9] Note that all the calculations are shown in Appendix D, Table D.1 by using ABPRS and Table D.2 by using TDHS.

In order to compute the correction factor for the male ratio, we assume that all of the missing males are the ones who are doing their CMS and we compute the ratio of the males who are doing their CMS as in equation (4.2):

$$a = \frac{x}{(1+x)} \tag{4.2}$$

We then compute the missing part of the denominator as y= $\frac{a}{2}$ by taking the fact that the male-female ratio is roughly equal. Our suggestion for the correction factor given in Figure 4.3 is :

$$d = \frac{1}{(1+y)} \tag{4.3}$$

To sum up, in this section we calculate the MMR and the correction factor for the male ratio. On the other hand, we cannot tell at which single age missing males are most significant since HLFS report ages in 5-year intervals. However, we find out a way to further decompose some of the age groups. We exploit the information on age-based weights to break down the youth more finely by age (as 15-17, 18-19, 20, 21-24). In the following section, more explanation about the decomposition of the age groups is given.

4.2.1.1 Decomposition of Age Groups

As seen in the preceding section, age information we have in the HLFS on the youth is available in 5-year intervals. Since many transitions may occur in less than 5-year intervals after leaving school, this can be a huge handicap. However, when we examined the micro data, we discovered that we could decompose some of the age groups further by using the variable ‘factor’ which refers to the sampling weights. According to the information from TURKSTAT, weights are constructed by using age groups, gender and location[10] (26 NUTS-plus urban-rural breakdowns). These age groups are defined as 0-4, 5-11, 12-14, 15-17, 18-20, 21-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64 and 65 years and older. Note that HLFS has 4 ranges up to age 24, while sampling weight have 6. After age 24, there is a complete overlap. To sum up, there are some age categories in our data which can be broken

[10] The information is gathered by an email correspondence.

down further by using the distinct values of 'factor'. For example, an individual who is in the 15-19 age group in our data can be in the age group 15-17 or 18-20, each of which has a separate values of 'factor'. This is the main idea behind our further decomposition of age groups[11].

Briefly then, we use these decomposed age groups and then we construct confidence intervals accordingly. We use these calculated confidence intervals to find out at which age groups the missing males lead to statistically significant results.

4.2.1.2 Confidence Interval Construction for Male-Ratio Based on Delta Method

In this section, one of our objectives is to construct the confidence interval for the male-ratio calculated by using THDS 2003. We start by assuming that the male ratio is correct in THDS since it aims to collect all civilian population. After doing some adjustments which is also explained in this section, we compute 90% confidence interval to take the sampling variation of THDS into consideration and examine at which age groups those HLFS male ratios are not within the confidence interval. Afterwards, we use 2007 ABPRS to calculate the exact male ratio and then test at which age groups, the male ratios calculated by using HLFS significantly differs from the exact male ratios. This can be stated as the second objective of this section.

We calculate the male ratios by using 2003 THDS and 2007 ABPRS. Since we compare the male ratios calculated by using HLFS, TDHS and ABPRS, which belong to different years, we need to make these data compatible with 2004-6 HLFS. We use life tables to take deaths into account and therefore we have to use life tables to make these adjustments.[12]

Since all of the indicators in the life tables are in 5 year-intervals, we have to compute number of individuals who survive to a given age by using the number of individuals who survive to the ages which are multiplies of five (out of 100,000 individuals). In order to that, we use the formulations below. The single ages are shown by 'a' and the ages which are multiples of five are shown by 5n where n refers

[11] See Appendix E for further details.
[12] Life table which is obtained from the Hacettepe Institute of Population Studies shows the probability of surviving any particular year of age.

to number of the ages which are multiples of five until 80 ($n = 1, \dots \dots \dots 15$ and $a = 1,2, \dots \dots \dots 80$). The age groups in the life table are 0, 1, 5, 10, 15, 20, 25, 30, 35….and 80. There are 18 age groups.

In our formulation, $\overset{\circ}{l}_{(a)}$ shows the number of surviving individuals to a single age a out of 100,000 individuals and it is what we want to calculate while $l_{(5n)}$ shows the number of surviving individuals to a given age which is multiplies of five out of 100,000 individuals and it is given in the life tables. We start with 1 year-old individuals that the number of surviving individuals is $\overset{\circ}{l}_{(a)} = l_{(1)}$. For the ages which are between 0<a<5, we calculated the number of surviving individuals by using a linear function which is shown in equation (4.4).

For a=1 $\overset{\circ}{l}_{(a)} = l_{(1)}$ and,

For 0<a<5 then

$$\overset{\circ}{l}_{(a)} = l_{(1)} - \frac{a-1}{4}\left(l_{(1)} - l_{(5)}\right) \quad (4.4)$$

Where $l_{(1)}$ refers the number of surviving individuals to age 1 while $l_{(5)}$ refers the number of surviving individuals to age 5. On the right hand side of the equation (4.1), we first find the difference between the number of surviving individuals to age 5 and the number of surviving individuals to age 1 out of 100,000 individuals $(l_{(1)} - l_{(5)})$. This gives us the total number of deaths between ages 1 to 5 out of 100,000 individuals. Then, we divide it by 4 that is the number of single age between ages 1 to 5 so that we divide the total number of deaths between ages 1 to 5 into equal parts.

We multiply it with $a - 1$ to find the total number of deaths until age a. Afterwards, we subtract the total number of deaths to age a from the number of surviving individuals to age 1. The result is the number of surviving individuals to a single age.

$$\overset{\circ}{l}_{(a)} = l_{(5n)} - \frac{mod_5(a)}{5}\left[l_{(5n)} - l_{(5(n+1))}\right] \quad (4.5)$$

Where

By using $\mathring{l}_{(a)}$ we calculate the proportion of individuals who survive until age 'a';

$$p\mathring{l}_{(a)} = \frac{\mathring{l}_{(a)}}{100} \tag{4.6}$$

Where $p\mathring{l}_{(a)}$ refers the proportion of the individuals who survive until age a

$$M_{TDHS^*,a^*} = M_{TDHS,a} * \frac{p\mathring{l}_{(a)}}{p\mathring{l}_{(a^*)}} \tag{4.7}$$

M_{TDHS^*,a^*} represents the number of males in adjusted TDHS and a^* represents the age in the adjusted TDHS

Where,

$$a^* = a - t(TDHS) - t(HLFS) \tag{4.8}$$

$t(TDHS)$ represents the year of the THDS where $t(HLFS)$ represents the year of the HLFS conducted.

After calculating the adjusted male, we calculate the male ratio:

$$p(TDHS) = \frac{M_{TDHS^*,a^*}}{M_{TDHS^*,a^*} + F_{TDHS^*,a^*}} \tag{4.9}$$

Where $p(TDHS)$ shows the male ratio while M_{TDHS^*,a^*} represents the number of males in adjusted TDHS and F_{TDHS^*,a^*} represents the number of females in adjusted TDHS.

For example, to compare the male ratios, obtained from 2004 HLFS and from 2003 THDS, we add 1 year to 2003 THDS. We take 0-1-2-3 year olds from THDS 2003 for the ones who are 4 year-old and younger in 2004. Afterwards, we calculate standard deviations and then we compute the confidence interval.

Standard deviation of p(TDHS) is :

$$sd = \left[\frac{p(1-p)}{n}\right]^2 \qquad (4.10)$$

By using THDS we compute 90% confidence interval: $CI = p \pm sd * 1.65$.

Afterwards, we look whether male ratios calculated by using 2007 ABPRS, 2004, 2005 and 2006 HLFS are in the confidence interval or not (Figure 4.5 to 4.6). The dotted lines with the asterisk markers show the upper and lower confidence intervals in these figures. The vertical-axis shows the male ratio while the horizontal -axis shows the age groups. The connected dots with the square markers show the male ratios calculated by using TDHS 2003 while the ones with the diamond markers are for the male ratios calculated by using 2007 ABPRS. The male ratios calculated by HLFSs are depicted by the connected dots with the circular markers. There are some important issues that should be mentioned before commenting on these figures. None of the male ratios start with values under 40% and thus, the vertical-axis starts with 40. In analyzing the confidence intervals, it is normal that a wider confidence interval is obtained for age 20 since the sample size of this group is nearly half of the age group 18-19, and one-third of age group 21-24.

As we expect, the male ratio for age groups 20 and 21-24 do not lie within the confidence interval in any of the years under study (see Figures 4.4-4.6). Male ratios for 20-year-olds and 21-24-year-olds calculated by using TDHS are around 50% for all years. Male ratio for age 20, calculated by using 2006 HLFS is 41.2% (Figure 4.4). Since the confidence interval for the year 2006 is between 48% and 53.1%, it is obvious that the value calculated for HLFS is not within this interval. In 2005 and 2004, the same picture can be seen for age group 20 (Figures 4.5 and 4.6). For the age group 21-24, lower confidence intervals are 49.2%, 48.5% and 48.4% whereas upper confidence intervals are 51.8%, 51.2% and 51.1% in the same years. The male ratios obtained from HLFS for this age group are not within the confidence intervals.

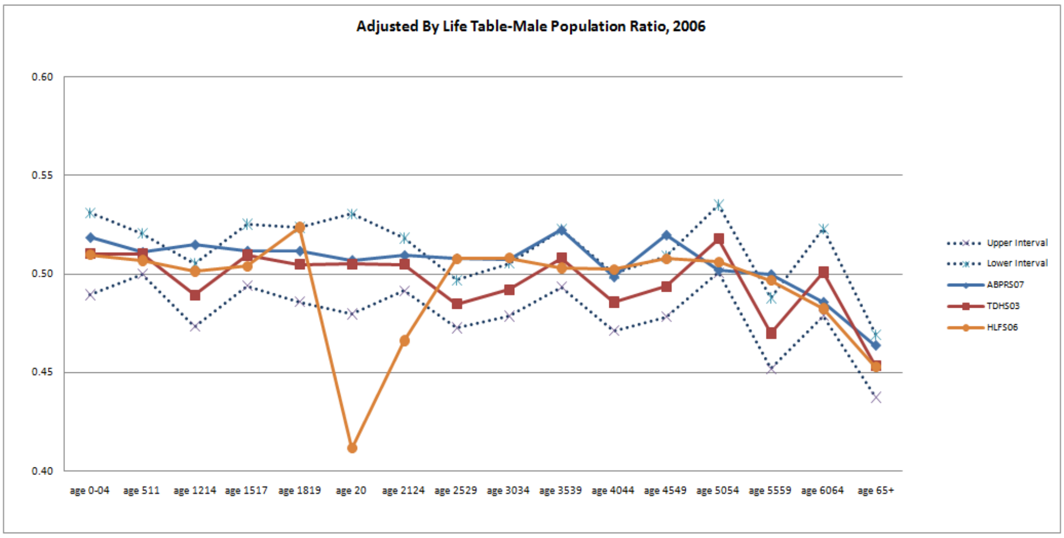


Figure 4.4: Male Population Ratio,2006
Source: HLFS 2006
Note: Weights and life table adjustments are used

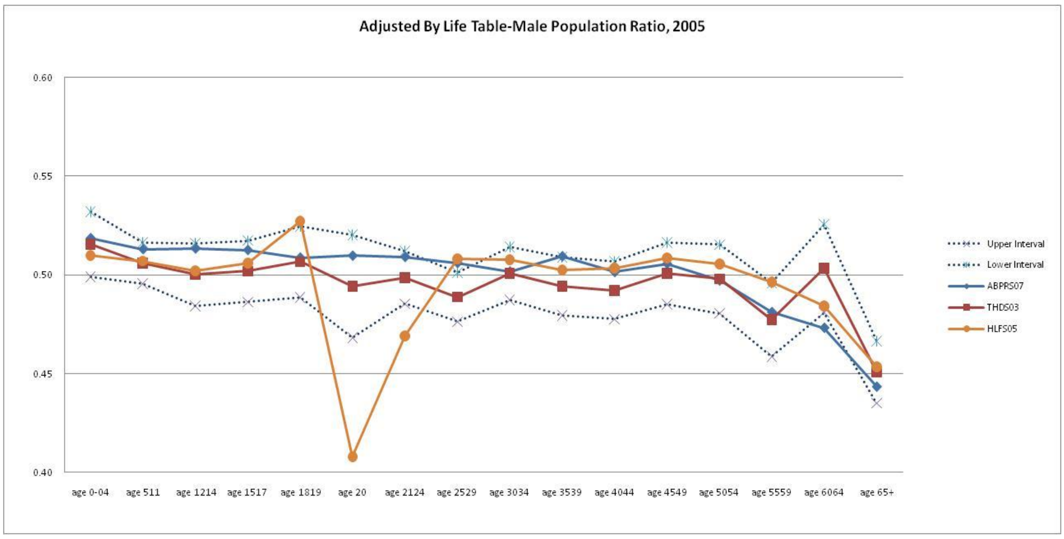


Figure 4.5: Male Population Ratio , 2005
Source: HLFS 2005
Note: Weights and life table adjustments are used

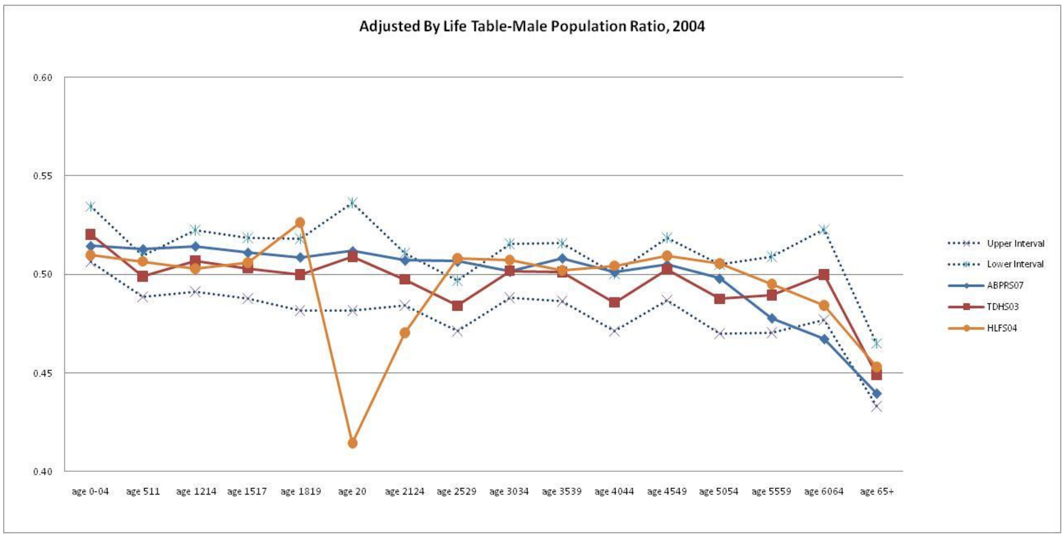


Figure 4.6: Male Population Ratio, 2004
Source: HLFS 2004
Note: Weights and life table adjustments are used

Male ratios for adjacent age groups such as 18-19 and 25-29-year-olds are not within the confidence intervals either (Figure 4.6). Their magnitudes are not as big as for age groups 20 and 21-24. In order to obtain more precise results, we apply the Delta Method.

We apply the Delta Method to calculate standard errors and we use these standard errors to understand at which age groups male ratios calculated by using HLFS significantly differ from the male ratios calculated by using ABPRS.

Missing male ratio (x):

$$\frac{m(1+x)}{f} = \frac{M_{ABPRS^*,a^*}}{F_{ABPRS^*,a^*}} \tag{4.11}$$

M_{ABPRS^*,a^*} is # of males and F_{ABPRS^*,a^*} is # of females for age group a^* in adjusted ABPRS.

m and f is the # is the number of males and females for age group a^* in HLFS.

$$p(TDHS) = \frac{M_{ABPRS^*,a^*}}{M_{ABPRS^*,a^*}+F_{ABPRS^*,a^*}} \tag{4.12}$$

And

$$q(HLFS) = \frac{m}{m+f} \tag{4.13}$$

Our hypothesis is:

$$\mathrm{H}_0 = \log \frac{p(ABPRS)}{q(HLFS)}) = 0 \; and \; H_1 \neq 0 \tag{4.14}$$

As a result of these tests, we find HLFS male ratios for age groups 5-11 and 15-17 in 2004, 18-19 in 2005, 20 for all years, and 21-24 in 2004 and 2005 to be significantly different from ABPRS male ratios (See Appendix F, Table F.1) [13].Therefore, for these age groups we should take missing males into account and make corrections according to these results. In subsequent sections of this chapter, we use the number of missing males - by adding them to the denominator of all the labor market states - in obtaining appropriate labor market ratios for males.

4.2.2 School to Work Transitions before and after Corrections

In this section, we examine the effects of the data correction carried out in the previous section for institutional population on the patterns of transition that emerge from HLFS data. These analyses are mostly based on the slopes which show school leaving and entrance to employment. We compute slopes before and after the corrections. Afterwards, we use figures which help us to detect the effects of the data correction visually. We also make a cursory examination of the labor market activities by birth cohorts before and after data correction and then decompose into age, year and cohort effects on labor market activities. By decomposing into the year effect on labor market activities, we are able to examine the impact of the crises and structural changes on the labor market, as well. These analyses are crucial since policy decisions are determined by taking into account labor market indicators and the impact of the structural changes and the crises on the labor market. Note that, if the calculations of the labor market indicators are wrong, policy implications may be inaccurate, as well. In addition, as we have total population and MMR, we calculate

[13] In Appendix D, Table D.1 shows all of the calculations' results by using 2007 ABPRS as the data source for the exact male ratio and then test whether the calculated male ratios by using HLFS significantly differ from the male ratios calculated by using ABPRS in Appendix F, Table F.1. In Table F.1, we use 2003 TDHS to test whether the calculated male ratios by using HLFS significantly differ from the male ratios calculated by using TDHS which are shown in Appendix D, Table D.2. The last columns of the Table F.1 and Table F.2 include the results of the tests.

the number of males who are missing. Most of these males are doing their military service. This is important since there is no public information about non-civilian population in Turkey.

We begin with a figure which appeared in a World Bank report. Figure 4.7 was used in a World Bank report to describe the recent patterns of the school to work transition in Turkey. Note that this figure records the transition from school to work by single age information which is not available in the standard issue of HLFS. The authors of the World Bank report argued that school to work transition mostly took place between the ages 16 and 25. Note that age 16 corresponds to the completion of 8 years of compulsory schooling for someone who starts school at age 6 - the official age of enrollment in primary school - . Allowing 3-4 years for high school and 4-5 years for higher education, most individuals should complete schooling by ages 21-23.

Inspection reveals that, there are odd patterns in this figure. Although the ratio of individuals in school decreases until age 19, it rises at ages 20 and 21. It might be possible to attribute this to delayed enrollment in higher education. The second odd pattern is the break in the increasing trend displayed by the ratio of employed at ages 20 and at 21. Interestingly the majority of males enlist at these ages. Note that the residual group, inactives, must increase to make up for the dip in the employment ratio. This is hard to explain.

After analyzing male ratios in HLFS, 2007 Address Based Population Registration System (ABPRS) and 2003 Turkey Demographic and Health Survey (TDHS) in detail, we arrive at the conclusion that the abrupt changes in the direction of the trends are probably due to missing males[14]. With the help of our missing males' correction, we are able to offer a clearer picture. Before moving to our figures, we have to calculate the slopes of the labor market states.

[14] Note that the transition from school to work is probably affected by the variation of university entry age and private tutoring to prepare for the university entrance examination. In this study we do not investigate such issues.

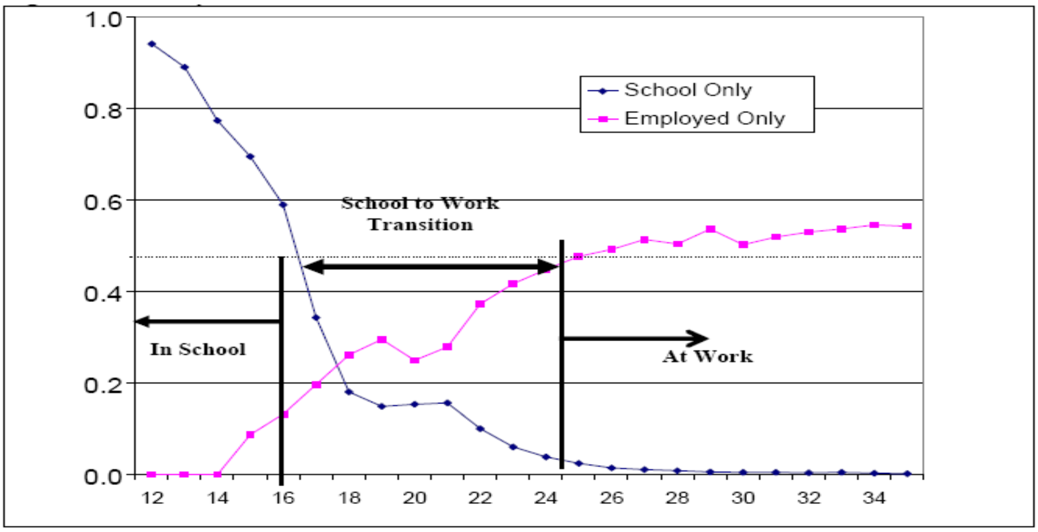


Figure 4.7: Turkey's Transition From School to Work
Source: Investing in Turkey's Next Generation: The School-to-Work Transition and Turkey's Development, World Bank Report, Report No: 44048, TU, 2007 Figure 1.

After calculating MMR and deciding at which age groups a correction is in order (where we change the denominator in computing various labor market states ratios), we calculate the slopes within the age windows 15-19, 20-24, 24-29 and 29-34 and then we draw Turkey's transition from school to work pictures. Note that, we do not have single ages. However, we are able to break the 15-19 interval into two (15-17 and 18-19) and the 20-24 interval into two (20, 21-24) age groups. In order to mark the states, we take the middle point of the age groups, we then connect these points. Thus, for the 15-17 year age group, we use 16; for 18-19 we use 18.5, for 21-24 we use 22.5 etc…We should mention that the slopes which we computed by using these middle points of the age groups are not exact. Letting $i > j$ denote age and $x(i), x(j)$ denote the fraction in a given state, we calculate the slopes via:

$$slope_{ij} = \frac{x(i)-x(j)}{i-j} \tag{4.14}$$

The states we consider are in school, employed, unemployed, inactive. We calculated the slopes separately for the years 2004, 2005 and 2006 before and after the correction for missing males. Since the results are very close, we report the means (rather than the actual yearly values) in Table 4.3-4.5. Table 4.3 and Table 4.4 are for males while the calculations in Table 4.3 are done by using the data before the corrections while the calculations in Table 4.4 are done by using the data after the corrections. The school leaving rate is around 16 out of 100 over the 15-19 age range

(Table 4.3). At this age range many individuals graduate from high school. They may be waiting to get conscripted, they may prepare for the university exam or they may participate in the labor force. The female school leavers in this age range are lower than males. It is 14 out of 100 (Table 4.5). This is probably due to the fact that average educational attainment of females is lower than males; thus timing of school leaving is earlier for them. In this age range, inactivity has the highest positive value. Entrance to inactive state is around 6 out of 100. This is true for not only males (before and after missing males) but also for females. The female entrance to inactive state is higher than males. It is 9 out of 100.

In the 15-19 age range, the school leaving rate does not show too much variation when the slopes are computed by using the missing male corrections. On the other hand, in the age range 18-20 and 20-24, the gap between the slopes before and after the correction is higher. For example, in the age range 18-20, the slope of the individuals who are in school is positive (1.77) when it is computed before the correction but it is negative (-3.49) when it is computed after the correction. The negative slope reflects that there are school leavers while the positive slope reflects the opposite. For this age range, this is logical because when we do not take into account missing males who are probably doing their military service, we focus on males whose education levels are at most high school and some of them are preparing for the university exam following graduation from high school. In other words, many young individuals return back to education after high school graduation[15]. Those individuals who are preparing for university exam are in the inactive category. Nevertheless, they are inactive they are in a selective sample since they are more likely to continue their education. This is true especially for the case of general high school graduates as Tansel and Daoud (2011) state; many students choose general high school with the hope of entering university. Therefore, taking only the civilian population as a denominator, the fraction of those individuals who are in school looks higher than the fraction calculated by using the whole population

[15] Although we do not have any information about whether these individuals are preparing for the university exam, by looking at forward and backward transitions, we are able to examine the transitions from being inactive to being in school in Chapter 5 and from these results, we analyze the probability of transit from being inactive to being in school or the probability of the out flow from being inactive conditional on being in school.

as a denominator. Note that there are many open education programs at the tertiary level which make it easier for high school graduates to return to education after high school graduation.

In the age range 20-22.5, without correction school leaving is around 6 while it is around 3 out of 100 males with correction. Entrance to employment with correction (12 out of 100) is higher than without correction (9 out of 100). On the other hand, leaving inactivity with correction (3 out of 100) is lower than without correction (6 out of 100). From this cursory examination, it can be said that the age range 16.5-18.5 and 18.5-20 are the most critical age ranges since transitions in-out to various activities mostly occur in these two age ranges.

Table 4.3: Mean Slopes of the Labor Market States, Males (without correction)

Age Window	Mid-points	Inactive	Unemployed	Employed	Inschool
15-19	16 - 18.5	6.12	1.95	7.98	-16.05
18-20	18.5 - 20	-0.43	0.30	-1.64	1.77
20-24	20 - 22.5	-6.14	2.47	9.35	-5.69
24-29	22.5-27	-1.34	-0.88	4.15	-1.92
29-34	27-32	-0.26	-0.71	1.20	-0.23

Source: HLFS, 2004-2005-2006

Table 4.4: Mean Slopes of the Labor Market States, Males (with correction)

Age Window	Mid-points	Inactive	Unemployed	Employed	Inschool	Missing (Males)
15-19	16 - 18.5	6.15	1.96	8.04	-15.87	-13.06
18-20	18.5 - 20	-6.50	-1.78	-10.05	-3.49	21.82
20-24	20 - 22.5	-2.99	3.10	11.95	-2.93	-9.14
24-29	22.5-27	-1.07	-0.54	5.51	-1.70	-2.20
29-34	27-32	-0.26	-0.71	1.20	-0.23	0.00

Source: HLFS, 2004-2005-2006

Table 4.5: Mean Slopes of the Labor Market States, Females

Age Window	Mid-points	Inactive	Unemployed	Employed	Inschool
15-19	16 - 18.5	9.16	1.27	3.72	-13.88
18-20	18.5 - 20	-1.01	0.60	1.17	-1.55
20-24	20 - 22.5	0.78	0.51	1.34	-2.14
24-29	22.5-27	1.62	-0.57	0.30	-1.27
29-34	27-32	0.70	-0.32	-0.05	-0.17

Source: HLFS, 2004-2005-2006

Analyzing the slopes calculated before and after the missing male corrections, it is seen that not only school leaving but other labor market states show discrepancies.

Especially, for the military aged males, these discrepancies seem to be larger. Again, we note that without missing male corrections, calculations of labor market indicators will be misleading, leading to potentially inaccurate policy implications.

By using these slopes of we draw figures to see the effects of the data correction visually. In all of the figures, the horizontal-axis shows the age of the individuals while the vertical-axis depicts the ratios of labor market states (Figure 4.8-4.15). The connected dots with triangle markers present the employment ratios while the ones with square markers are for the unemployment ratios. The inactivity ratios are demonstrated by the connected dots with the diamond markers. The connected dots with the circular markers are for the ratios of individuals who are in school. Figure 4.8-4.10 represents transition from school to work in 2004-2006, where the relevant ratios are calculated before the corrections. At age 16, the highest ratio (61%) belongs to individuals who are in school. This ratio drops sharply later until age 18.5, and then rises. We can detect a slower rise in the ratio of employed males and followed by a small decline. Figure 4.11 and 4.13 show the transition from school to work for the same year after the corrections are applied. Evidently, the decrease in the ratio of employed males at age 18.5 is sharp than that seen in Figure 4.8 and there is a continuous decline in the ratio of males in school afterwards.

At age 20, the missing male ratios (the connected dots with asterisk) are around 33% for HLFS 2004-2006 (Figure 4.11-4.13). In 2004, the ratios of males in school (16%, 15% and 18%) calculated by adding the missing males to the denominator are lower than those (24%, 22% and 26%) without the correction. For the same year, the ratios of employed males obtained after applying the correction are lower (27%, 25% and 25%) than those (40%, 37% and 37%) before the corrections. The ratios of inactive males after correction are lower than those without the correction. We may conclude that the picture of the transition obtained directly from the HLFS is misleading.

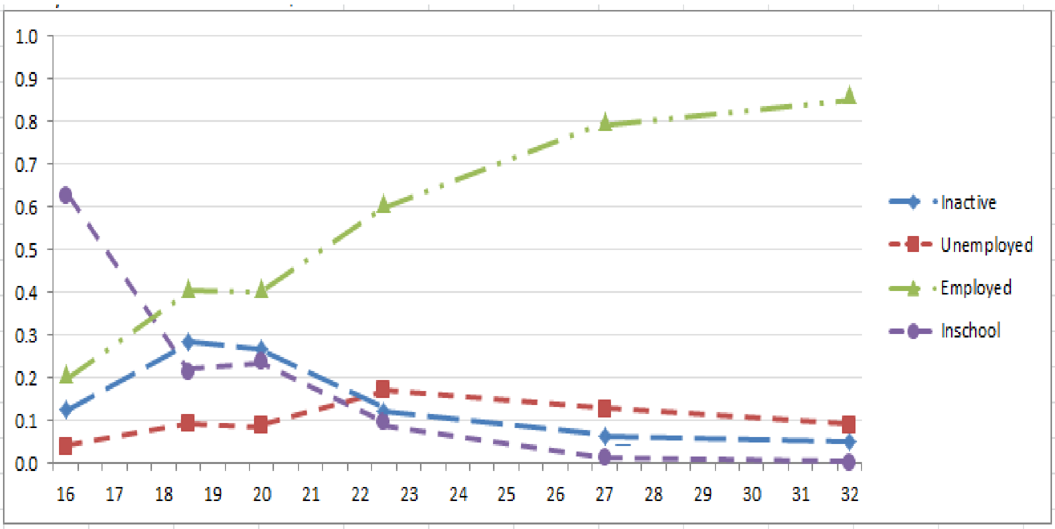


Figure 4.8: Turkey's School to Work Transition, Males, 2004 (Before Correction)
Source: HLFS 2004
Note: Missing Male Corrections are not used

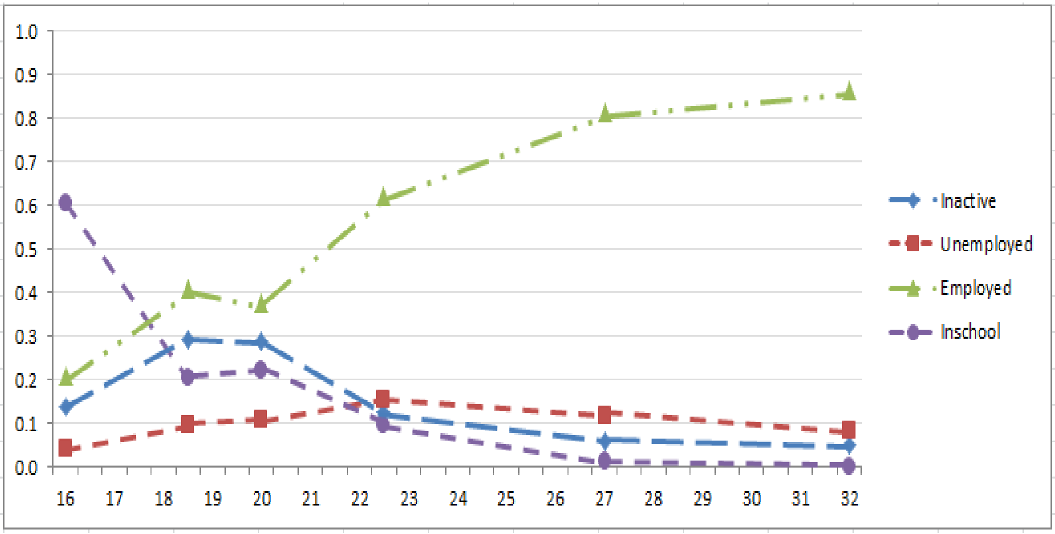


Figure 4.9: Turkey's School to Work Transition, Males, 2005 (Before Corrections)
Source: HLFS 2005
Note: Missing Male Corrections are not used

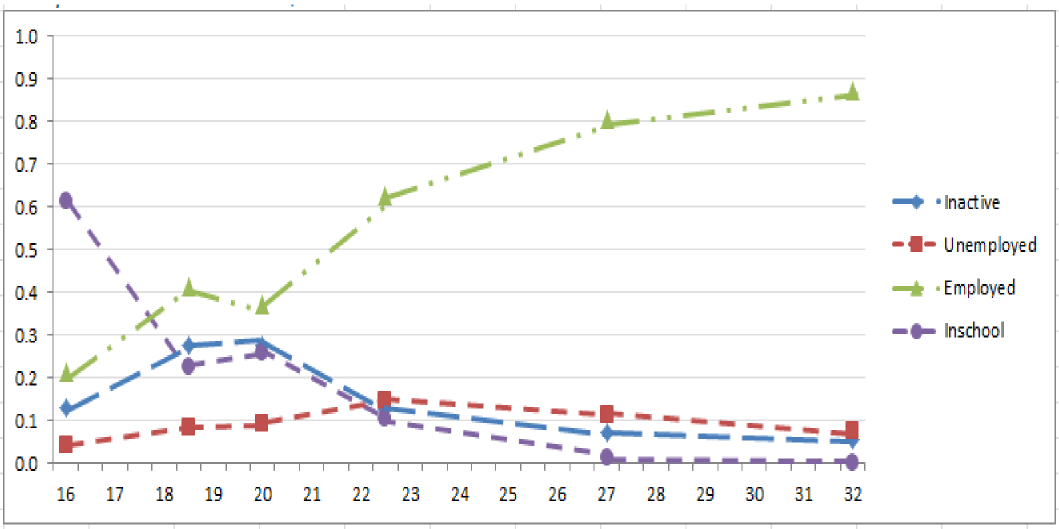


Figure 4.10: Turkey's School to Work Transition, Males, 2006 (Before Corrections)
Source: HLFS 2006
Note: Missing Male Corrections are not used

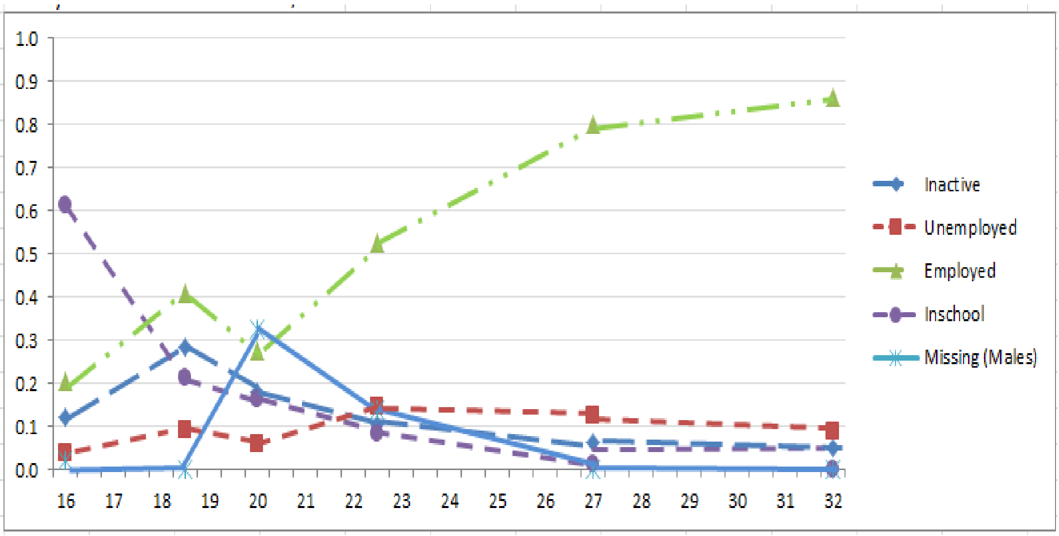


Figure 4.11: Turkey's School to Work Transition, Males 2004 (After Corrections)
Source: HLFS 2004
Note: Missing Male Corrections are used

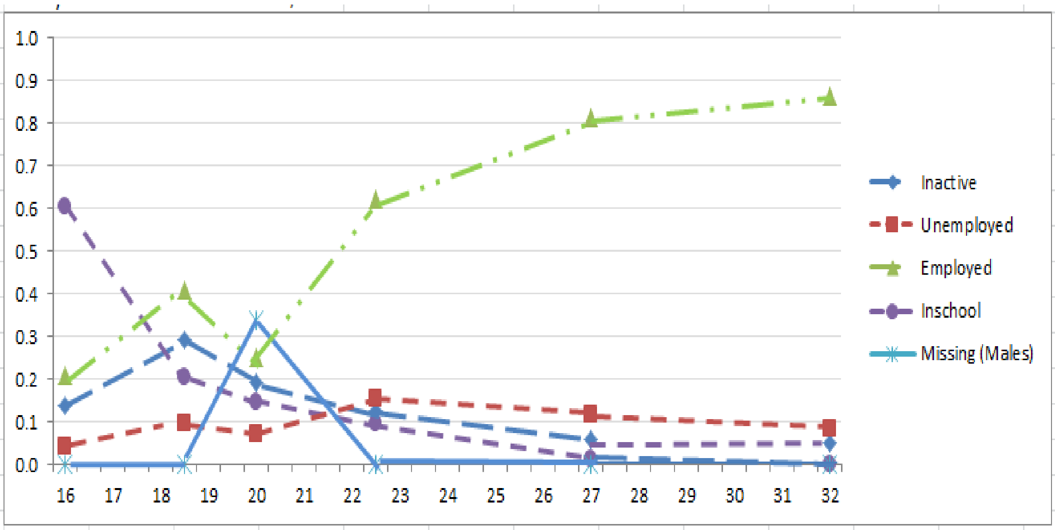


Figure 4.12: Turkey's School to Work Transition, Males, 2005 (After Corrections)
Source: HLFS 2005
Note: Missing Male Corrections are used

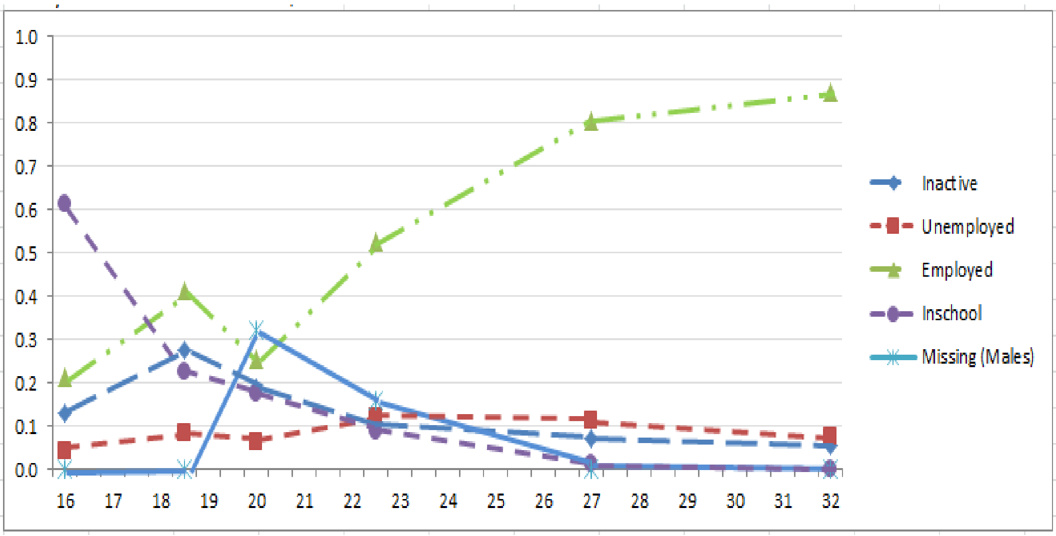


Figure 4.13: Turkey's School to Work Transition, Males, 2006 ((After Corrections)
Source: HLFS 2006
Note: Missing Male Corrections are used

Next, we turn to females, for whom no correction is needed. Note that the decline is schooling is monotonic, as was the case for males after correction. Interestingly, the increase in the employed ratio is also monotonic, unlike that for males. This confirms the fact that employers discriminate against conscription age males. From this perspective, in the following chapter, we question whether being in military a year ago has an effect on being employed.

When we compare school to work transition rates for males and females, two observations stand out: One, the ratios of inactive females are higher than those of males for all age groups and two, the ratios of inactive females are smoother (Figure 4.14-4.16). Note that, at age 20 and age group 21-24, the gap between the ratios of employed males and females is smaller when we take into account missing males in our calculations. It is 17% for 20 year-olds and 35% for 21-24 year-olds without missing males, whereas the gap decreases to 4% and 26% when our calculations include missing males.

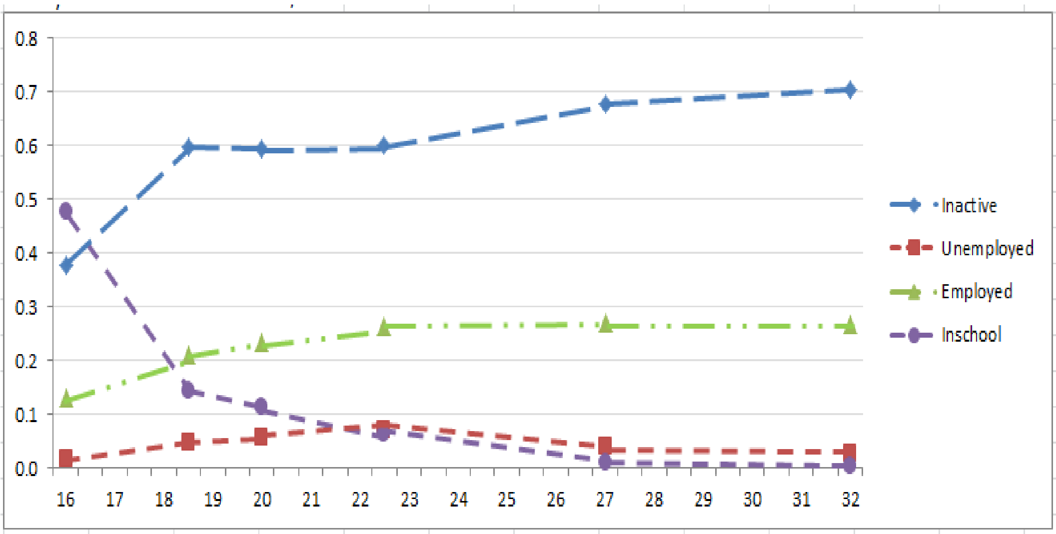


Figure 4.14: Turkey’s School to Work Transition, Females, 2004
Source: HLFS 2004

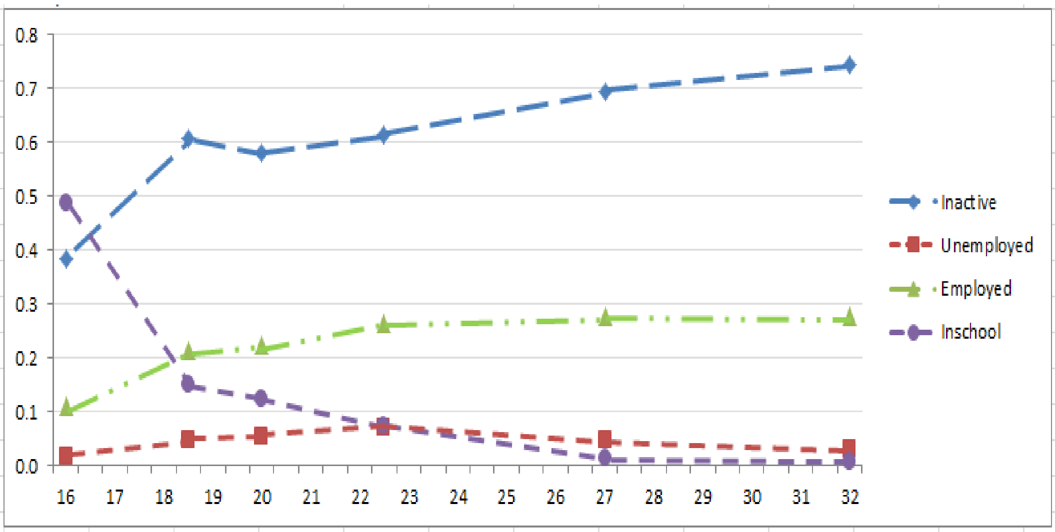


Figure 4.15: Turkey’s School to Work Transition, Females, 2005
Source: HLFS 2005

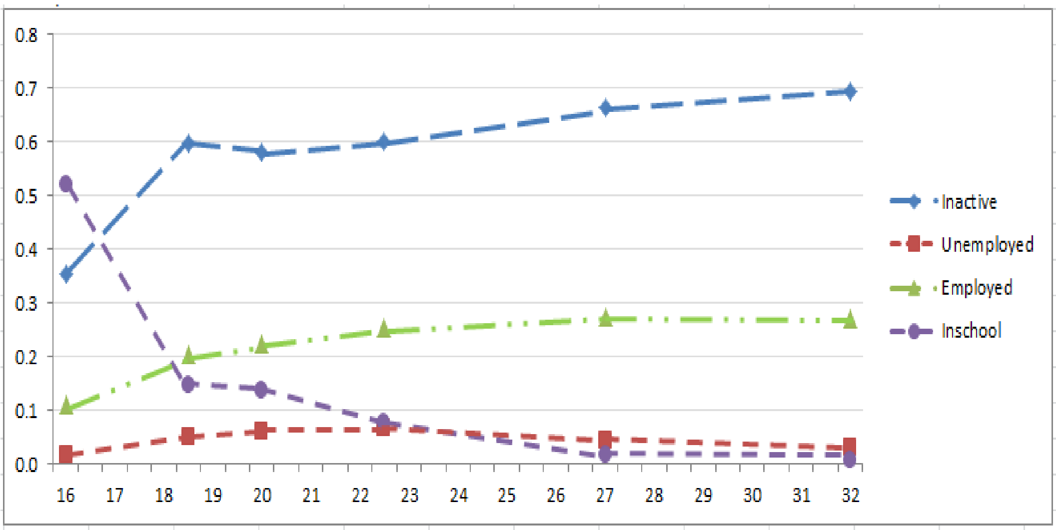


Figure 4.16: Turkey's School to Work Transition, Females, 2006
Source: HLFS 2006

Up to now, we discussed how missing males affect the ratios of the labor market states and their slopes. However, from this point forward, we emphasize the effects of missing males via different perspective. In Chapter 3, the cohort analysis was done without the correction[16]. In this section, we examine whether corrections has a visible effect on cohort analysis of labor market activities[17]. Figure 4.17 is drawn by using data after the corrections. Each line represents different birth cohorts and each label has the same color as the line which it belongs to[18]. The birth cohort 1990-94 is depicted by an asterisk marker which is only one dot. The birth cohort 1985-89 is shown by two connected dots with square markers while three connected dots with diamond markers are for the 1980-84…etc. For the same birth cohorts, as they move from age group 15-19 to 20-24, we see sharp increases in the ratio of employed and labor force participant males. If we draw the same figures by taking missing males into account, the increase in the ratio of employed males becomes smaller. The same pattern can be seen for all birth cohorts. In addition to this, there is a sharp decrease in the ratio of males in school that is calculated without missing males while this decrease is more remarkable in the adjusted data. The same pattern can be seen for all birth cohorts.

[16] Figures which are drawn without adjustments are in Chapter 3.
[17] Note that, we make corrections by using the results from the projections obtained by running the SPECTRUM program, which uses data from the United Nations (UN). We make corrections only for age groups 20-24 at which most males enlisted.
[18] Note that, more information how we construct the cohorts are given in Chapter 3.

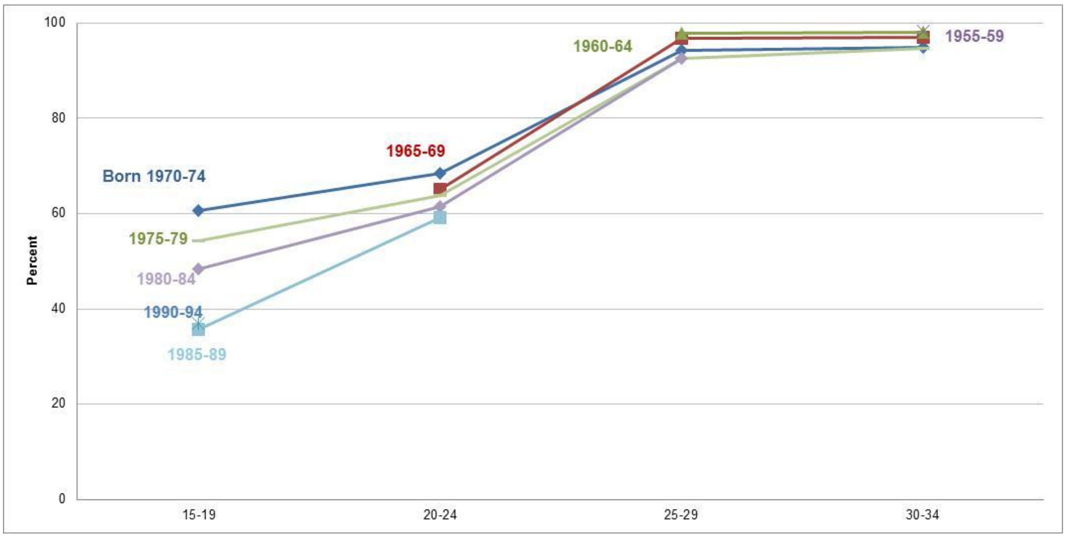


Figure 4.17: Labor Force Participation Ratio by Birth Cohorts-Male
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)
Note: Corrections are done

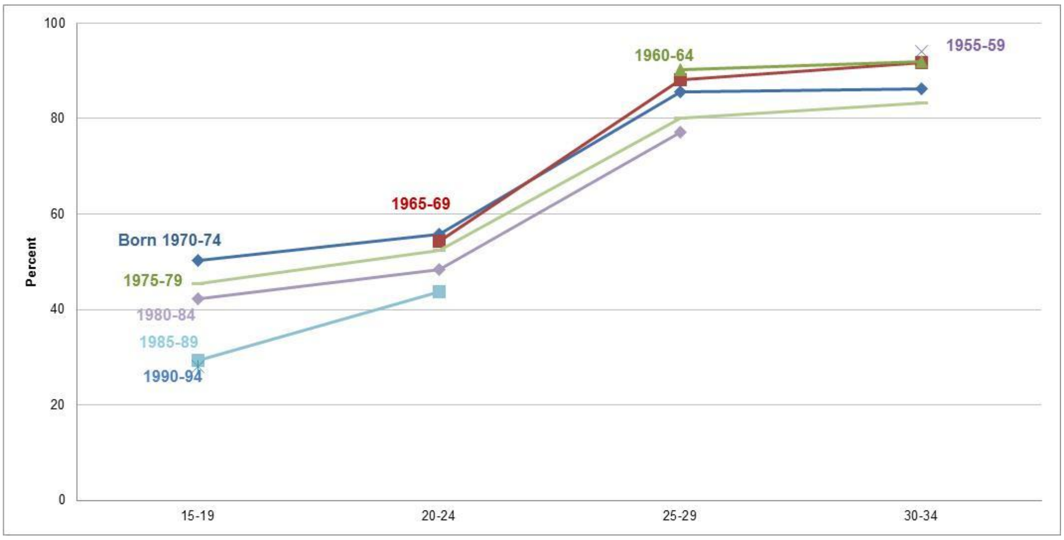


Figure 4.18: Employment Ratio by Birth Cohorts-Male
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)
Note: Corrections are used

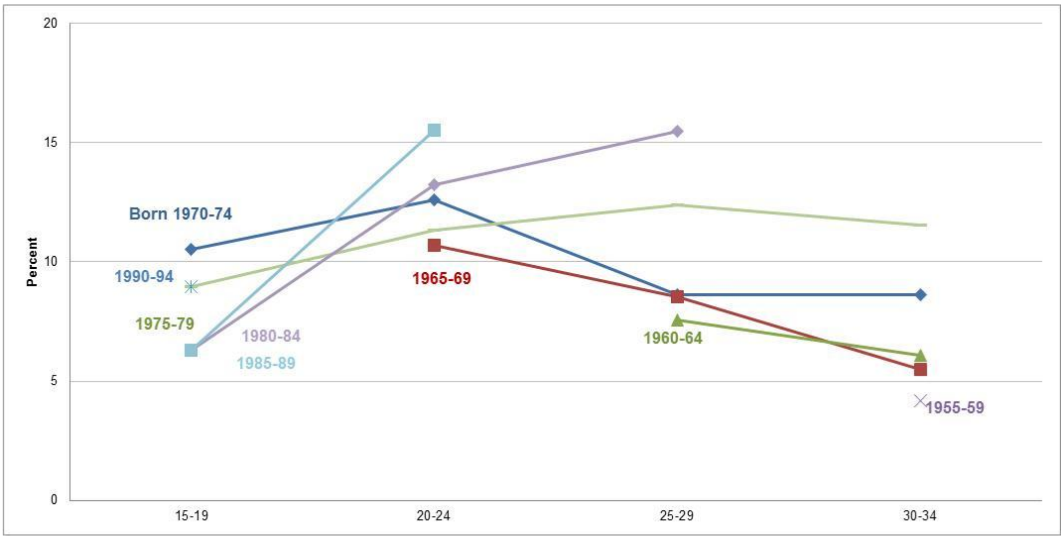


Figure 4.19**:** Unemployment Ratio by Birth Cohorts-Male
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)
Note: Corrections are used

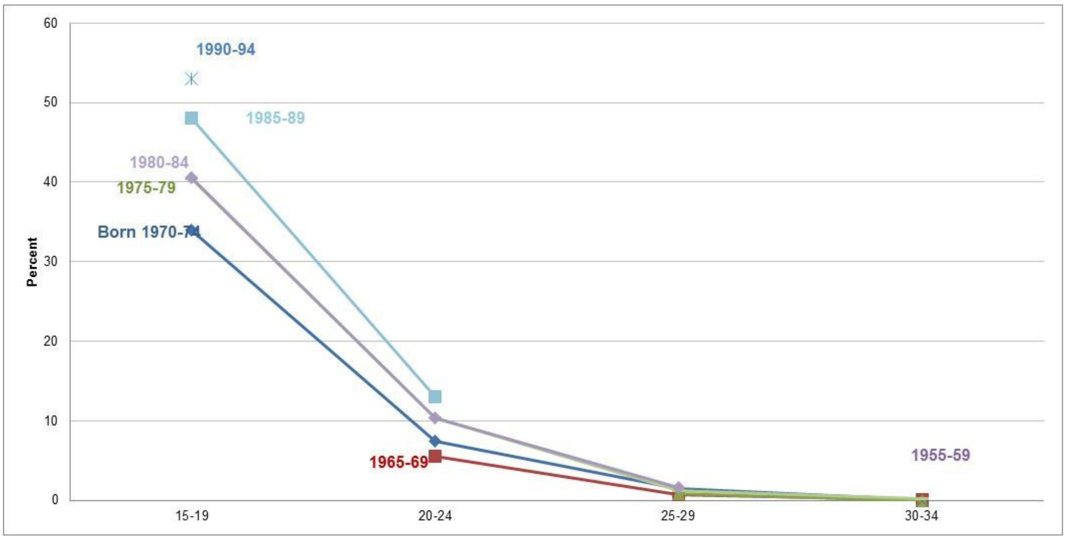


Figure 4.20**:** In School Ratio by Birth Cohorts-Male
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)
Note: Corrections are used

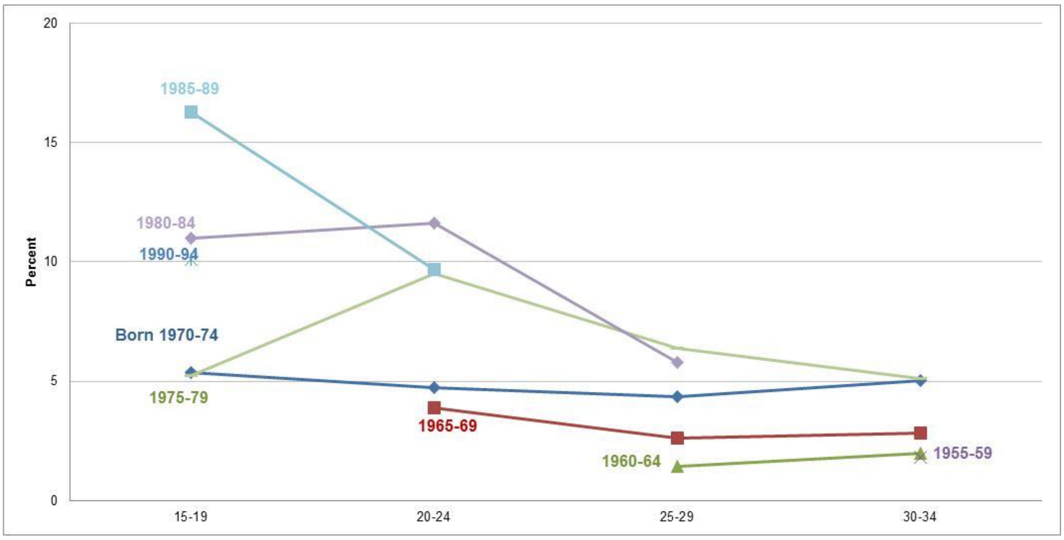
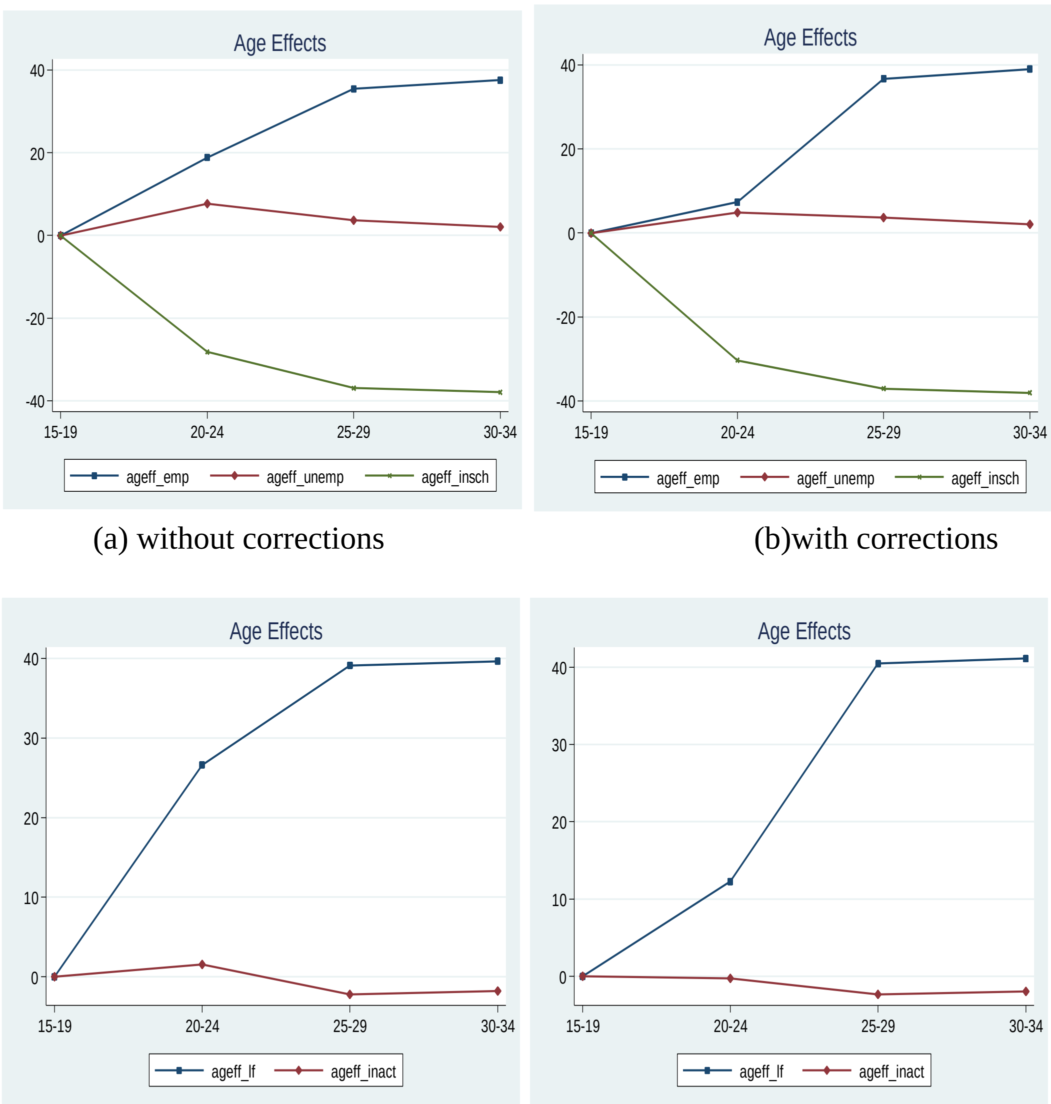


Figure 4.21: Inactive Ratio by Birth Cohorts-Male
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)
Note: Corrections are used

In Figures 22 through 24 we show decompositions of different labor market ratios into year, age and cohort effects. It is seen that they are also affected by the missing male corrections (Figures 22 to 24). In these figures, panel 'a's and 'c's are drawn by using the data without corrections while panel 'b's and 'd's are drawn by using the data with corrections. In Figure 4.22 panel (a), the upper line represents the age effects on employment. The middle line shows the age effect on unemployment and the lower line reflects the age effect on being in school. In Figure 4.22 panel (a), there is nearly 20 percentage point difference between employment ratio of 15-19 and 20-24 year-old males. With corrections, this difference decreases to 7 percentage points. Moreover, in panel (c), there is more than 25 percentage point difference between the labor force participation ratio of 15-19 and 20-24 year-old men. On the other hand, with corrections this difference decreases to 12 percentage points (panel (d)). The year effects on labor market states are seen in Figure 23. The most noticeable difference between the figures drawn using adjusted and unadjusted data is that the year effect on employment changes signs for the year 1989 and 1994. In 1989, the year effect on employment without corrections is 0.37, whereas it is -0.46 with corrections. In 1994, it is negative (-0.01) without corrections while it becomes positive with corrections (0.45). Note that, these years are crises years. Therefore, it can be said that impact of the crises on the labor market change if the missing males are taken into account. The corrections also have effects on cohort effects (Figure

24). For younger cohorts, the corrections lead the cohort effects to have lower magnitudes while for older cohorts the corrections lead the cohort effects to have higher magnitudes (see Appendix G, Table G.1 and Table G.2). Briefly then, one can see that there are discrepancies in calculated effects between adjusted and unadjusted data that cannot be ignored.

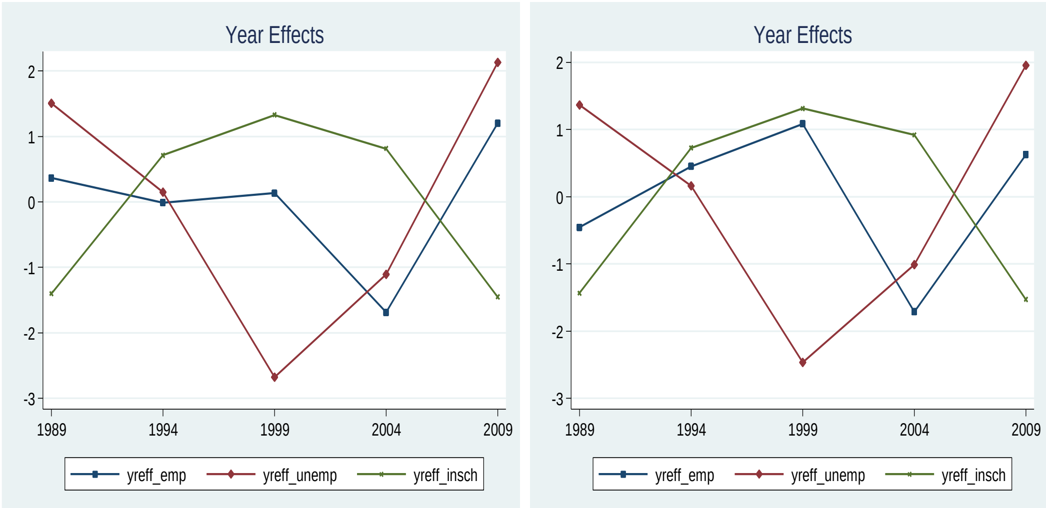


(a) without corrections (b)with corrections

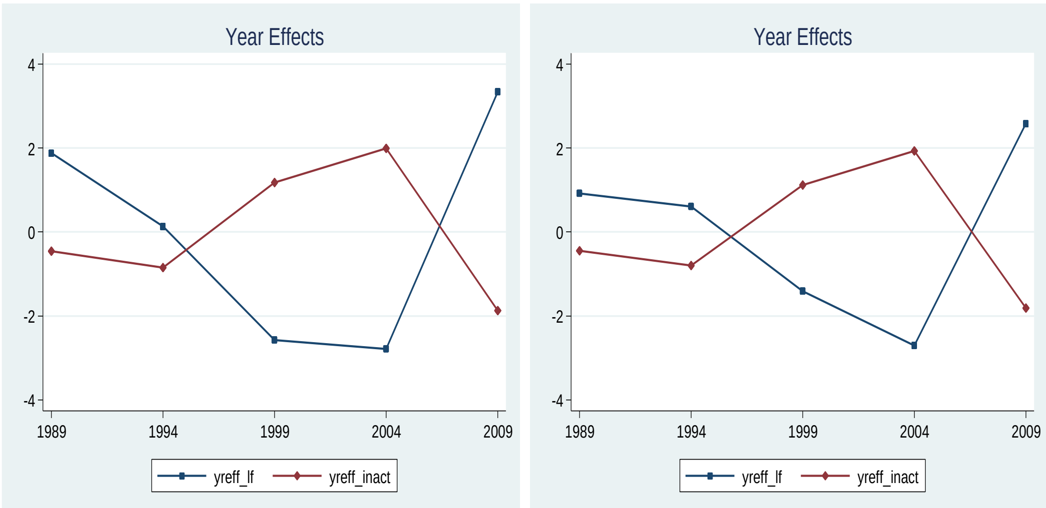
(c) without corrections (d)with corrections

Figure 4.22:Decomposition of Different Labor Market Ratios by Age Effects for Males

Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)



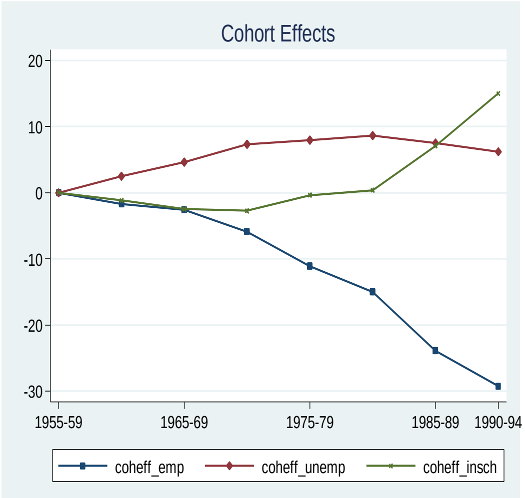
(a) without corrections (b)with corrections



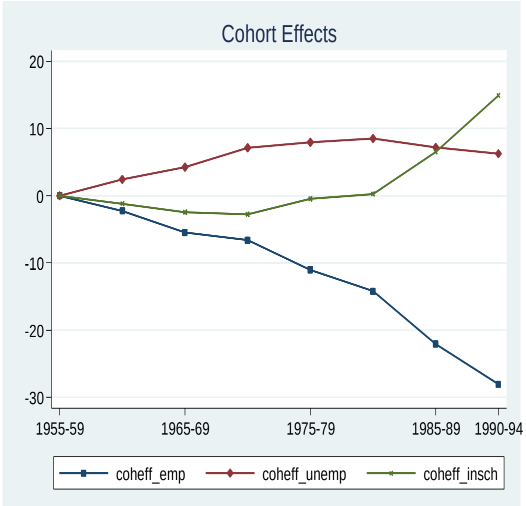
(c) without corrections (d)with corrections

Figure 4.23: Decomposition of Different Labor Market Ratios by Year Effects for Males

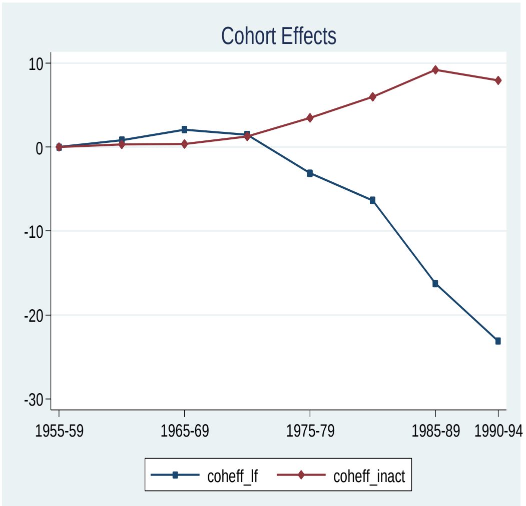
Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)



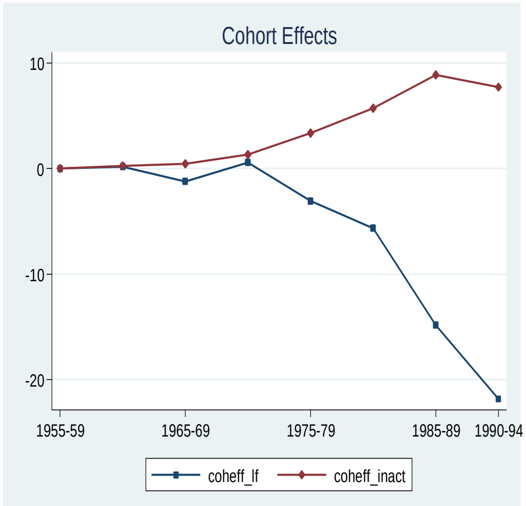
(a) without corrections



(b)with corrections



(c) without corrections



(d)with corrections

Figure 4.24: Decomposition of Different Labor Market Ratios by Cohort Effects for Males

Source: HLFS database, TURKSTAT (1989, 1994, 1999, 2004, 2009)

Using MMR we can get an approximate number of school-leavers or for that matter, the leavers of other labor market states. In Table 4.6, in the first column total population in 2004, 2005 and 2006 are given, which is calculated by using 2007 ABPRS with appropriate life table adjustments. In the second column, MMRs are given. The last column includes the number of the missing males which is calculated by multiplying first column and second column. This number approximately equals to the number of the non-civilian males who are residing in barracks, dormitories etc. In other words, one can say that this number establishes the upper bound for the number of individuals who are doing their military service. Therefore, MMR can be used in order to compute approximate number of the enlisted males for every year.

Table 4.6: The Approximation of the Number of the 'Missing Males'

Age	Year	ABPRS (A)	Missing Male Ratio (B)	Missing Males (C=A*B)
age 20	2004	645,250	0.325	209,473
	2005	636,814	0.337	214,883
	2006	634,254	0.320	202,747
age 2124	2004	2,655,720	0.137	364,252
	2005	2,624,135	0.148	388,242
	2006	2,550,957	0.159	406,200

Source: APBRS 2007

We start summarizing this section by focusing the sample frame of HLFS. Since HLFS sample frame targets only the civilian, non-institutional population, males who do their CMS (Compulsory Military Service) leave and re-enter the sample frame. Therefore, when we examine the sex ratio obtained from HLFS by age groups, we see that there are unexpected changes in the case of age groups. These changes are probably affected by CMS. We use other data sources TDHS 2003 and ABPRS 2007) to tackle this problem. We find age-specific corrections to the sex ratio. To sum up, we find that during the period 1988-2009, the fraction of missing males is not lower than 20% for age group 20-24. After doing some adjustment by using life tables, we compute the confidence interval to make the sampling variation of TDHS 2003 into consideration and determine at which age groups the HLFS male ratios are not within the 95% confidence interval.

However, we do not have single age data since HLFS report ages in 5-year intervals. Therefore, we are not able to examine at what single ages missing males are most significant. A way to further decompose some of the age groups to be found in this thesis. We break down the youth more finely by age (as 15-17, 18-19, 20, 21-24). With the help of this, we find HLFS male ratios for some of the age groups are significantly different from ABPRS male ratios (15-17 in 2004, 18-19 in 2005, 20 in all years, and 21-24 in 2004 and 2005). Afterwards, we calculate labor market indicators by taking missing males into account. First we compute the slopes which show the rates of school leaving and entry to employment. If the missing male correction is done, we deduce that there are school leavers in the age range 18-20. If we do not make corrections, inflows to school occurs. For this age range, this is expected since if we do not take into account missing males, we focus on males whose education levels are at most high school and some of them are preparing for the university exam following graduation from high school. From this perspective, these young individual who are preparing for the university exam return back to education after high school graduation. Note that, those individuals are classified as inactive. They probably prefer not to do CMS. Thus, the sample in our hand is a selective sample. On the other hand, if we make corrections, we include the individuals in the age range 18-20 who also separate from school and do their CMS. Therefore, more school leavers are on the scene.

Decomposing labor market activities into age, year and cohort effects with and without missing male corrections, we observe that the impacts of the crises on the labor market change direction if decomposition is done after correction. The year effect on the employment ratio changes sign for the years 1989 and 1994. The 1989 crisis leads to an increase the employment ratio if decomposition is calculated without corrections while the reverse is observed if corrections are used which means the crisis leads to a decrease in the employment ratio. For the case of the 1994 crisis, the crisis leads to an increase if decomposition is done without correction. It causes a decrease with corrections. To our knowledge, this is the first study that investigates these 'missing males' and suggests a method of correction. What makes the study of special significance is our evaluation of the possible influence of compulsory military service on the school-to-work transition and on the shares of various labor market states' ratios.

CHAPTER 5

IMPACT OF PREVIOUS LABOR MARKET STATES ON CURRENT LABOR MARKET STATES

After the start of the global crisis in 2007, the high youth unemployment rate and the difficulties that younger individuals encountered during their transition from school to work have gained importance since the impact of the crisis on the youth is felt mainly in terms of their labor market situation (Kapsos, 2011). Not only higher unemployment rates but also the fact that younger individuals' wages are lower, and in some cases they face longer transition periods between school and the labor market has attracted the attention of researchers. This attribute of labor market transitions also drives us to examine the youth in the Turkish labor market from a macroeconomic perspective. For example, the high outflows of individuals from unemployment and inactive states to employment show that jobs have been created in either the public or the private sector. More broadly, all the labor market transitions are potentially important since these inflows and outflows may indicate a change in the macro-economic circumstances (i.e., crises, inertia, stagnation, economic boom and the like). In other words, changes in transition rates may teach us something about how slowdowns or booms impact the youth. These changes probably have effects on the entire population; however our objective is to reach a better understanding of the problems that the youth face.

The aim of this chapter is to analyze the labor market transitions in one year time span. In other words, we examine the impacts of the previous labor market states on current labor market states based on a discrete hazard framework. Especially, we focus on the transitions from school to work and the transitions from being in military to other labor market states. In order to this, we start analyzing the forward and backward transition probabilities by residential area (urban/rural). Due to the fact that not only the job opportunities but also the labor market compositions are different by residential areas, we attempt to examine the transition probabilities, respectively. By the help of forward transition probabilities, we are able to observe which of the labor market states are the states that once an individual enters in it, s/he can not leave it or which of the labor market states are states that once an individual enters in it, it is easy to leave it. In addition, one can also see whether there is a difference in the transitions from school to other labor market states between males and females, especially via from being in school to work. Afterwards, backward transition probabilities are computed to examine the labor market states from which the labor market state outflow. We focus on the multinomial logit (MNL) estimation results in order to examine the determinants of the backward transitions of labor market. By the help of the MNL, we are able to test whether having more job opportunities which leads to more job offer rates have a positive effect on the probability of the inflow from being unemployed to being employed in one year time span. Furthermore, we test whether the education level of individuals has an effect on the outflow from unemployment since we rely on the implications of Human Capital and Search Theory as diccussed in Chapter 2. Another question may be asked: whether the effect of education is different between males and females.

Afterwards, we focus the impacts of previous labor market states on the current labor market states using logit models. Our aim is to test whether our findings from the estimation results support the implications of the Human Capital Theory and Search Theory. We test whether males are more likely to be employed or not since reservation wages of females are higher than males. In addition, for higher educated individuals we test whether females are more likely to be employed than their male counterparts since as education level of females increases, the opportunity cost of leisure is higher and therefore their attachment to the labor market is higher than their lower educated counterparts. Due to the dual labor market theorists female are more likely to be prepared to accept secondary wages, among higher educated individuals, females are more likely to accept the job offer. From the demand side of the labor market: the employers do not want to hire individuals who do not complete their military service. Therefore, we also focus the impacts of being in military a year ago on being employed. We test whether males who were in military service a year ago have higher probability of being employed than the ones who were inactive and the ones who were in school. One of the reasons for these phenomena could be the fact that, holding other factors constant, the job offer rates are higher for the ones who were in military than the ones who were inactive and who were in school.

Furthermore, whether among individuals who were in military, the probability of being employed is lower for vocational high school/university graduates than the probability for the ones with lower education levels is tested. For this case, the depreciation of human capital of individuals comes to scene. As education level increases, the depreciation of human capital increases, and therefore the probability of a vocational high school graduate/university graduate who were in military service is lower than the one with lower education. Moreoever, due to the fact that rate of return to schooling is different for females and males, we also hypothesize that the effect of education dummies varies between males and females. We also run a model for estimation determinants of being a wage worker conditional on being employed. We also test the same hypothesis as above. Note that, by using household size as a proxy of family resources, we also test whether having family resources have an effect on being employed[1]. As the Search Theory suggests that having more family resources leads to a decrease in the probability of accepting a job offer since family resources increase, reservation wage of an individual increases.

During our analysis in this Chapter, we use annual data from years 2004-2006 compiled by TURKSTAT. Data include questions on retrospective work history. Using this information, our aim is to identify the factors that determine the probabilities of transition between various labor market states. For the purposes of this research, we use a broad definition of labor market states because we include 'being in school' and 'being in military' to labor market states. Thus, we use four different states to categorize females and five states to categorize males, which are in school, inactive, unemployed, and employed, and in the case of men, in military[2]. Inactive individuals are defined, as those, who are not employed, not unemployed, not in school and not in military service. Instead of pooling these individuals into the 'out of labor force' category, we sort them into three groups as inactive, in school and in military. This way of categorizing potential labor market participants is more informative. Note that being in school category in the previous year comprises of individuals whose answers are 'I were in education/training in the previous year'.

[1] Estimation results are in the Appendix K, Table K.2, Table K.3, Table K.4b and Table K.5b .
[2] For descriptive statistics look at Appendix H, Table H.1.

Therefore, those individuals who were in school may be in formal schools, they may in training or attending private tutoring centers etc[3].

Being in school (in formal schools or in other education institutes -here after we use being in school) is an important decision. According to the Human Capital Theory wage is a function of human capital and the foundation of the human capital theory lies in the fact that individuals make investment in themselves in terms of education with the expectation of future returns (Blaug, 1976). Therefore, in this research considering individuals who are in formal schools and in other education institutes as 'in school' will not be wrong.

5.1 Forward and Backward Transitions of Labor Market States

In this section, we examine the flows into and out of different labor market states in years 2004, 2005 and 2006. In other words, we compute the forward and backward transitions by using the retrospective information in the data. We start with the forward transitions. Let:

y_{it}=the labor market state of individual i in period t, $t = 1,2$;

x_i =the observed characteristics of an individual in the first period

Forward Transitions

We will omit the individual subscript to make the notation simpler. The forward transition probabilities are obtained by using the conditional probability of labor market states in the second period given the observed characteristics and labor market state in first period (equation 5.1):

$$f(y_2|y_1, x) = \frac{f(y_1,y_2|x)}{f(y_1|x)} \tag{5.1}$$

[3] In order to identify individuals who are currently in the 'school' state, we utilize three separate information in the data. We not only include individuals who are currently in formal schools but also the one who said they are not searching for work since they are in school/training and they cannot start working since they are in school/training or taking private courses (in training centers or private tutoring centers etc.) (For more information look at Appendix H, Figure H.1, Table H.2 and Table H.3).

Let j_1 denote the previous labor market state in the first period and j_2 the labor market state in the second period. The forward transition matrix $P^F_{j_2|j_1}$, is the conditional probability of being in state j_2 in the second period, given that the individual occupied state j_1 in the first period. The forward transition probabilities are used to study flows out of a given labor market state, for females we have five labor market states, i.e. $j_1 = 0; 1; 2; 3; 4;$; and for males we have six labor market states, i.e. $j_1 = 0; 1; 2; 3; 4; 5$. For both males and females, '0' refers to being inactive, '1' refers being unemployed, '2' is for being employed, and '3' is for being in school. The state '4' for males is being in military. Note that, we are not able to see the individuals who are in military since they are in non-civilian population, as diccussed earlier in previous chapters. The state '4' for women and state '5' for men is being in the 'Other' category, which represent individuals whose responds to the question 'Last year what was your situation in the labor market at this month?' are 'Other'[4]. The forward transition matrices for females are calculated as:

$$Forward\ Transition\ Matrix = \begin{bmatrix} P^F_{0|0} & P^F_{1|0} & P^F_{2|0} & P^F_{3|0} & P^F_{4|0} \\ P^F_{0|1} & P^F_{1|1} & P^F_{2|1} & P^F_{3|1} & P^F_{4|1} \\ P^F_{0|2} & P^F_{1|2} & P^F_{2|2} & P^F_{3|2} & P^F_{4|2} \\ P^F_{0|3} & P^F_{1|3} & P^F_{2|3} & P^F_{3|3} & P^F_{4|3} \\ P^F_{0|4} & P^F_{1|4} & P^F_{2|4} & P^F_{3|4} & P^F_{4|4} \end{bmatrix}_{5x5} \quad (5.2)$$

The matrix for men is similar to 5.3 except that it has an additional column and a row for the military state.

[4] Note that, the share of category 'other' is not higher than 1.5% among the entire 15-29 year-old individuals. Therefore, we did not give too much importance to them. We first thought of lumping the categories 'other' with 'inactive' and we analyzed whether the patterns of the individuals who are in the 'other' category and the ones who are in the 'inactive category' are same or not. We understood that they were different therefore we decided not to lump them. For more information look at Appendix I.

Table 5.1 : Forward Transition Matrix for Women

	Inactive y_2=0	Unemployed y_2=1	Employed y_2=2	School y_2=3	Other y_2=4	Row Sum
Inactive y_1=0	$\frac{f(y_1 = 0, y_1 = 0 \vert x)}{f_1(0)}$	$\frac{f(y_1 = 0, y_2 = 1 \vert x)}{f_1(0)}$	$\frac{f(y_1 = 0, y_2 = 2 \vert x)}{f_1(0)}$	$\frac{f(y_1 = 0, y_2 = 3 \vert x)}{f_1(0)}$	$\frac{f(y_1 = 0, y_2 = 4 \vert x)}{f_1(0)}$	1
Unemployed y_1=1	$\frac{f(y_1 = 1, y_1 = 0 \vert x)}{f_1(1)}$	$\frac{f(y_1 = 1, y_2 = 1 \vert x)}{f_1(1)}$	$\frac{f(y_1 = 1, y_2 = 2 \vert x)}{f_1(1)}$	$\frac{f(y_1 = 1, y_2 = 3 \vert x)}{f_1(1)}$	$\frac{f(y_1 = 1, y_2 = 4 \vert x)}{f_1(1)}$	1
Employed y_1=2	$\frac{f(y_1 = 2, y_1 = 0 \vert x)}{f_1(2)}$	$\frac{f(y_1 = 2, y_2 = 1 \vert x)}{f_1(2)}$	$\frac{f(y_1 = 2, y_2 = 2 \vert x)}{f_1(2)}$	$\frac{f(y_1 = 2, y_2 = 3 \vert x)}{f_1(2)}$	$\frac{f(y_1 = 2, y_2 = 4 \vert x)}{f_1(2)}$	1
School y_1=3	$\frac{f(y_1 = 3, y_1 = 0 \vert x)}{f_1(3)}$	$\frac{f(y_1 = 3, y_2 = 1 \vert x)}{f_1(3)}$	$\frac{f(y_1 = 3, y_2 = 2 \vert x)}{f_1(3)}$	$\frac{f(y_1 = 3, y_2 = 3 \vert x)}{f_1(3)}$	$\frac{f(y_1 = 3, y_2 = 4 \vert x)}{f_1(3)}$	1
Other y_1=4	$\frac{f(y_1 = 4, y_1 = 0 \vert x)}{f_1(4)}$	$\frac{f(y_1 = 4, y_2 = 1 \vert x)}{f_1(4)}$	$\frac{f(y_1 = 4, y_2 = 2 \vert x)}{f_1(4)}$	$\frac{f(y_1 = 4, y_2 = 3 \vert x)}{f_1(4)}$	$\frac{f(y_1 = 4, y_2 = 4 \vert x)}{f_1(4)}$	1

Note: y_2=4 can not be seen.

Table 5.1 gives the forward transition probabilities for females. We are able to compute only the conditional probabilities. We compute the conditional probability as:

$$f^*(y_2|y_1, x) = \frac{f(y_1, y_2|x)}{f_1^*(y_1|x)} \tag{5.3}$$

Where $f_1^*(y_1|x) = \sum_{y_1} f(y_0, y_1|x)$ and $y_1 = 0; 1; 2; 3.$

In other words, although we are able to see the labor market states such as being inactive, unemployed, employed, in school, in military and other in the first period, we can not see individuals whose labor market states are being in ‘other’ because we do not have any information about the reason why those individuals’ answer is other to the question ‘what is your situation in the labor market a year ago’. Therefore, we can not categorize the individuals whose labor market states are ‘Other’ in the second period. Therefore, probabilities in each row do not sum up to ‘1’. From this point of view, we are not able to compute the forward transition probabilities for the whole matrix. What we have is the forward transition matrix without the fifth column. In the case of males, we have a 6x6 matrix and we have neither the fifth column (the column for the ‘other’ category) nor the sixth column (the column for being in military). In other words, we examine the forward transitions for the submatrices.

Therefore, during the interpretation of our forward transition probabilites, one must not forget that these probabilites are for individuals excluding the ones in the 'other' category and in military in the second period. By using the equation 5.3, we compute the forward transition probabilities for HLFS 2004, 2005 and 2006[5]. After calculations of each year transitions, we report the means obtained by averaging them. (Each year transitions are in Appendix J, Table J.1-J.3).

Forward Transitions:

Transitions to Employment: We begin our examination by studying the means of the forward transition probabilities (Table 5.3). We draw Figure 5.1 to visualize the forward transitions from school to work. The horizontal axis shows the age groups while the vertical axis depicts the fraction of the labor market states. Conditional on being in school in the previous year, one year later 5.6% of 15-19 year-old rural females (the connected dots with diamond markers) move to being employed. For the case of 20-24 year-old rural females, 14.9% of them transit from being in school to being employed while 13.4% of 25-29 year-old rural females move to being employed. Among 15-19 year-old rural males (the connected dots with square markers), 9.3% of them move from school to work. These values are 15.3% and 21.7% for 20-24 and 25-29-year-old rural males, respectively. In urban areas, the corresponding rates are 3%, 10.9% and 14.3% for 15-19, 20-24 and 25-29 year-old females (the connected dots with triangle markers). For urban males (the connected dots with cross markers), these values are 7.1%, 11.1% and 18.4%, respectively. In order to make comparisons among the transitions for different age groups we need normalization.[6] We first compute the relative size of the risk set which comprise only of individuals who are out of school within their age group (Table 5.2). The first three columns of Table 5.2 show the relative sizes of the risk sets while the second three columns depict the fraction of those who have completed their school and are employed. Afterwards, by using the relative sizes of these risk sets, we calculate the fraction of the employed individuals among those who complete school and which

[5] Number of individuals for each cell in the matrices are shown in Appendix I, Table I.3.
[6] Note that, we normalize the transition rates from school to employment and we also do the same normalization for the transition rates from school to being inactive since we are mostly interested in the transitions after seperation from school.

also shows the rate of the individuals who move to being employed conditional on being in school in the previous year. The relative sizes of the risk sets are not bigger than 20% for 15-19 year-old rural and urban females. In other words, the risk sets of the 15-19 year-old individuals who are exposed to the risk of being employed are smaller than the risk sets of older age groups. More than one third of the 20-24 year-old females are in the risk set. In urban areas, lower than the 40% of the urban females are in the risk set. Comparing the urban and rural areas, the continuation of education among females is a more common phenomenon in urban areas than in rural areas since the risk sets of urban females are higher than the risk sets in rural araes. The relative size of the risk set for 20-24 year-old urban males is smaller than their female counterparts. This is probably due to the fact that males are more likely to continue their education. In addition one should not forget that: in this age group, there are males who are doing their CMS, so the relative size of the risk set of this age group is probably affected by these individuals who are doing their CMS. Comparing rural 20-24 year-old males and females, there is no difference (39.9 for rural females, 40.2% for rural males). In addition, for the 25-29 year-old individuals, the relative size of the risk sets get closer except for the 25-29 year-old rural males.

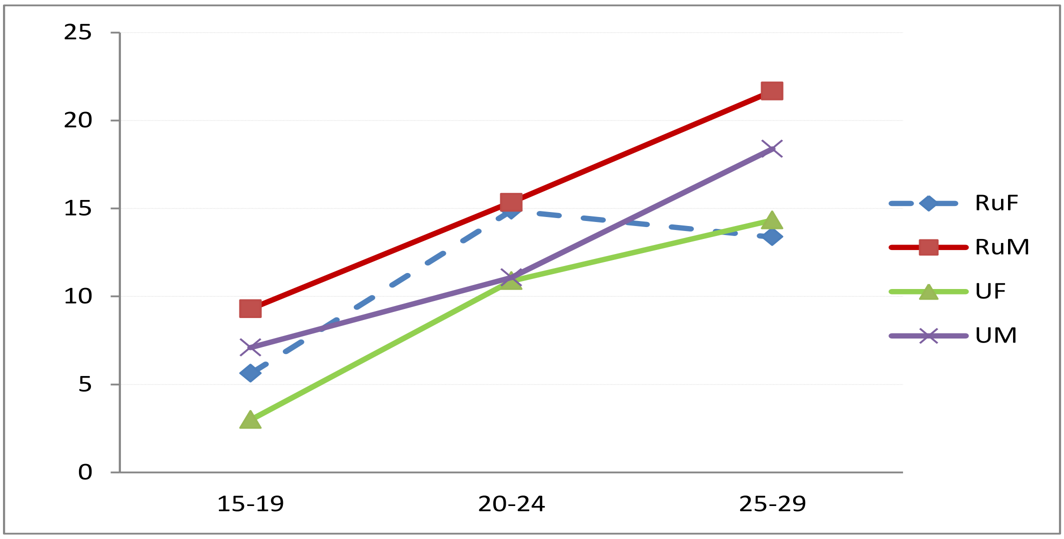


Figure 5.1: Mean Transition from School to Employment

Source: HLFS 2004, 2005 and 2006

Note: Weights are used

Table 5.2: Normalization of the Forward Transitions from School to Work

	Relative Size of the Risk Set			Fraction of those who Complete School and Employed			Fraction of those who Complete School and Inactive		
	15-19	20-24	25-29	15-19	20-24	25-29	15-19	20-24	25-29
RuF	17.9	39.9	53.8	31.4	37.3	24.9	57.4	28.1	33.4
RuM	20.4	40.2	61.2	45.7	38.2	35.4	39.4	30.2	31.1
UF	12.9	30.0	47.0	23.2	36.2	30.5	60.2	21.2	28.5
UM	15.5	25.1	44.4	45.7	44.0	41.4	36.6	24.5	28.0

Source: HLFS 2004, 2005 and 2006
Note: Weights are used

Conditional on being in the risk set, about 45% of the 15-19 year-old urban males (diamond marker) move to being employed (Figure 5.2). A smaller fraction of urban females transit to being employed (only 23.2% of 15-19 year-old urban females do so). This is higher for rural females than urban females. Around 31.4% of the 15-19 year-old rural females (triangle marker) move to being employed. As the 15-19 year-old urban females get older and they are in the 20-24 year-old age group, 36.2% of them move to being employed. For the case of rural males, the transition rate does not show any difference. In urban areas, the transition rates of males do not show too much variations as they get older.

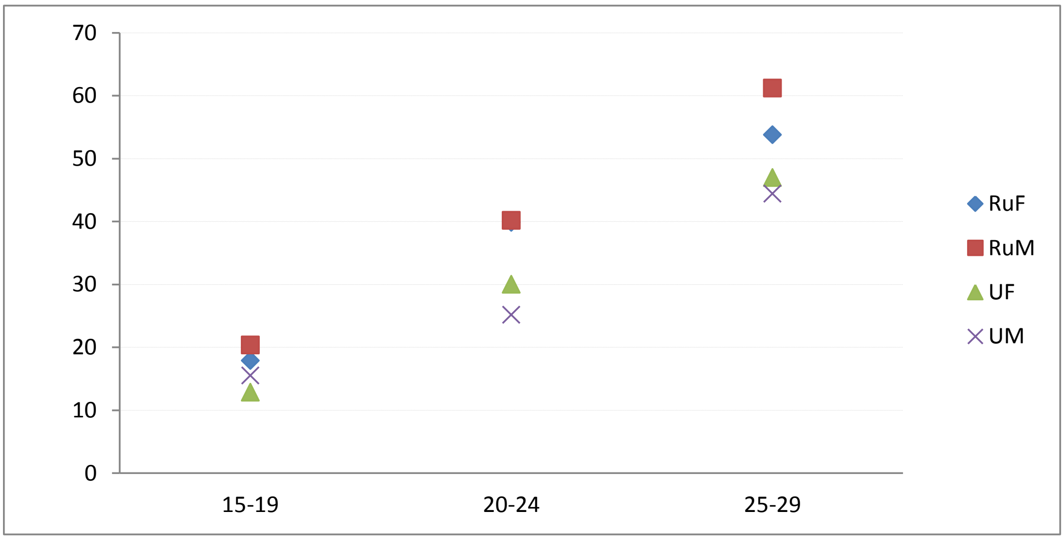


Figure 5.2: Relative Size of the Risk Set
Source: HLFS 2004, 2005 and 2006
Note: Weights are used

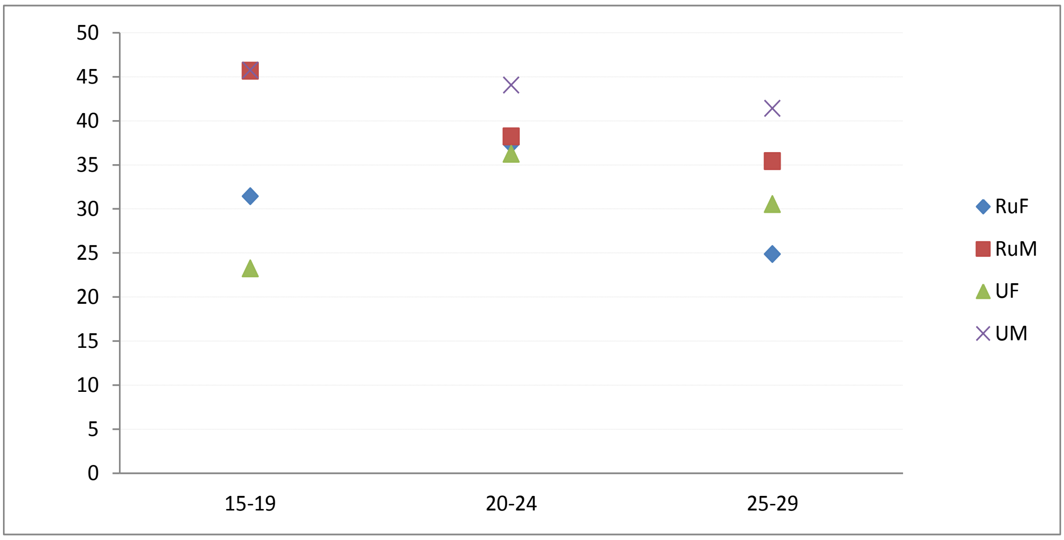


Figure 5.3: Fraction of those who complete school and work
Source: HLFS 2004, 2005 and 2006
Note: Weights are used

Conditional on being in the military state a year ago, half of the young males are employed a year later. It shows variations by age groups and location. The highest values are for age group 20-24 which is the age group that most of the enlisting occurs. In rural areas, half of the individuals who did their military service a year ago are employed while more than half of urban men (55%) who were in the military a year ago are employed a year later. As it is mentioned in Chapter 2, the duration of finding a job for an individual is related not only to the reservation wage of an individual but also to the job offer rate. Therefore, taking the reservation wage of an individual constant, having a higher job offer rate increases the probability of finding a job. From this point of view, since the job offer rates are expected to be higher after completing CMS, finding high transition rates from military to employment confirms the relationship between the job offer rates and CMS.

Transitions to Inactivity: In rural areas, the school to inactivity transition rates are not lower than 8%. For 15-19 year-old males, 8 of every 100 young individuals who were in school a year ago are inactive. Out of every 100 individuals, 12 of 20-24 year-old rural males who were in school are inactive a year later. This value increases to 19 for 25-29-year-old rural males. For females, the transition rate from school to inactivity increases as they get older (for 20-24 year olds, it is 11% where it increases to 18.8% for 25-29-year-olds). In urban areas, these values are lower than the values in rural areas and between 5%-10%. In urban areas, the transition rate from school to inactivity for 15-19-year-old females is around 8% while it decreases to 6% for 20-24 year-olds and then increases to 13% for 25-29 year-olds. The transition rate from school to inactivity for males does not show a noticeable change as individuals get older. It is 5.7% for 15-19-year-old urban males, while it is 6.2% and 12.4% for 20-24 and 25-29-year-old urban males, respectively. Again we need to normalize the transition rates in order to give more precise results. Conditional on being in the risk set, the probability of moving to being inactive is higher for the case of 15-19 year-old individuals than for the case of older individuals. This is true especially for females. Comparing the urban and rural areas, the transition rates from school to being inactive are nearly same (57% in rural areas where 60% in urban areas). The transition rate from school to being inactive decreases when individuals belong to 20-24 year-old age group. Note that, for 15-19 year-olds, the transition from school to work is more likely to be from being in the formal schools to work than from being in non-formal schools (such as private tutoring centers, training centers etc…) to work[7]. Since the graduation age is around 15 for individuals who have primary (8-year) education, which is the compulsory education since 1997, the decrease in the transition rate from school to work does not surprise us. Females who continue their education after turning 19 are likely to attend higher education programs and higher educated females are less likely to be inactive. On the other hand, for the case of 25-29 year-old females, the transition rate from school to being inactive increases from 28% (20-24 year-olds) to 33% (25-29 year-olds) in rural areas. In urban areas, the transition rate from school to being inactive increases from 21% (20-24 year-olds) to 28% (25-29 year-olds). After getting married, females are more likely to devote their time to the household sector than the time to the market sector. This allocation within the household also depends on the comparative advantage of producing output in the household sector (Becker, 1965). However, reservation wages of females have effects on the participation decision, as well. Since the reservation wages of married females are higher than their unmarried

[7] As previously mentioned: In order to identify individuals who are currently in the 'school' state, we utilize three separate information in the data. We not only include individuals who are currently in formal schools but also the one who said they are not searching for work since they are in school/training and they cannot start working since they are in school/training or taking private courses (in training centers or private tutoring centers etc.)

counterparts, married females are more likely to be inactive and they are more likely to devote their time to home production.

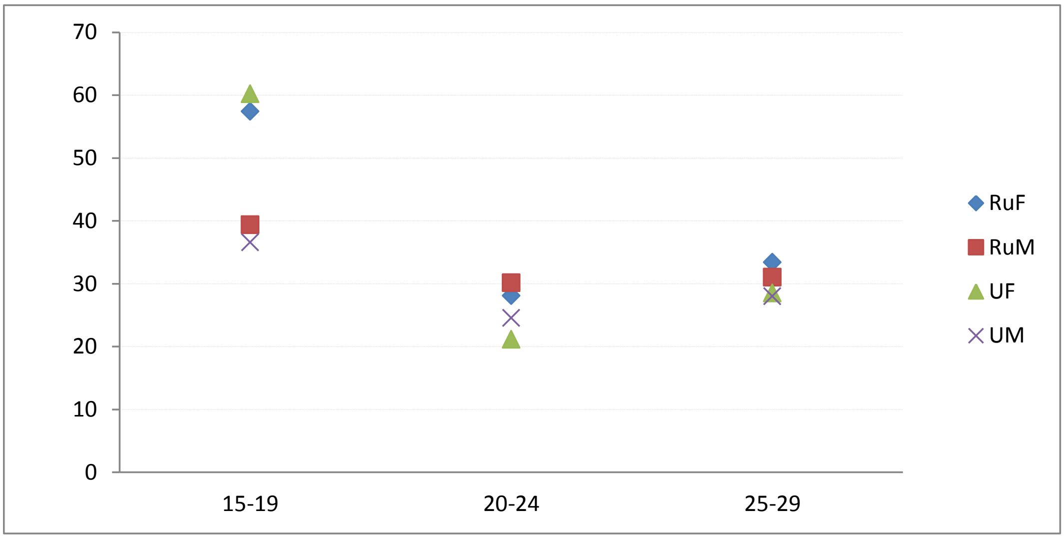


Figure 5.4: Fraction of those who complete school and are inactive
Source: HLFS 2004, 2005 and 2006
Note: Weights are used

We also encounter that inactivity is high among 20-24 year-old males who were in the military a year ago: 20% of them are inactive while this ratio decreases to 12.8% in urban areas. Having a higher transition rate from military to being inactive in rural areas can be explained by limited job opportunities in the non-agricultural sector. Young individuals want to find jobs in the non-agricultural sector as they are more educated than their older counterparts. In the following sections, we are going to test whether being in urban areas has an effect on the inflow rates from being inactive to being employed by using multinomial logit and we also test whether being in urban areas has an effect on being employed conditional on being in the risk set.

Again due to limited job opportunities in rural areas, having higher transition rates from unemployment to inactivity in rural than urban areas for men is not suprising. This is true for all age groups. In rural areas, the transition from unemployment to inactivity among males is higher for 15-19 and 20-24 year-olds. Comparing males and females, for 25-29 year-olds, the transition from unemployment to inactivity is higher for females. This is expected since marriage occurrs in this age range and therefore it is more likely for an unemployed female to change her labor market state to being inactive. The unemployment to inactivity transition rate is 31.7% for 15-19 year-old rural females while it is 40.6% for males and 23.5% for 20-24 year-old rural females while it is 28.5% for males. For 25-29 year-old rural males, the transition rate from unemployment to inactivity decreases from 28.5% to 21.3%. This is probably related to breadwinner characteristics of the males. As they get married, they become the breadwinner of the household. In other words, they become the primary workers of the households. As it is mentioned previously, in urban areas the transition rate from unemployment to inactivity is lower than the transitions in rural areas. For 15-19 year-old urban females, it is 17.3% while it is 22.4% for males. For 20-24 year-old urban females, it decreases to 11.1% while it decreases to 14.4% for males.

The school to inactivity transition rate of the 20-24 age group is higher for males than females. This is probably due to CMS: the school leavers may look inactive since they are waiting to be conscripted and therefore, they do not choose to participate in the labor force. There may be another reason for this; employers do not want to hire young men who have not yet done their compulsory military service.

Transitions to Unemployment: Conditional on being employed, the transition rate to unemployment in rural areas is lower than that in urban areas. This reflects well known features of rural employment. Agricultural employment is the dominant form and is overwhelmingly in the form of self-employment and unpaid family work. Our findings are parallel with the results of Taşçı and Tansel (2005). They find that individuals who live in urban areas are more likely to lose their jobs compared to those who live in rural areas. They also find that agricultural workers are less likely to transit from employment to unemployment. This is also parallel with our findings. In addition to that, in urban areas as individuals get older, the transition rate from employment to unemployment goes down, which we cannot say the same thing for rural areas. As young individuals get older, they are more likely to be risk-averse and also the turn-over rate is lower for older individuals[8]. This may be related to the decrease in the wealth during the search process due to the search costs and a shorter life expectancy. Note that risk aversion may be influenced by marital status as well

[8] Note that this may be not only voluntary but also involuntary turn-over.

(Franz,199: page 15). From this point of view, individuals who are the breadwinner for the household may be more risk averse than single ones. In addition to that, there is a common unwritten rule that last hired is first fired since they are less experienced. These findings do not conflict with the finding that employment to unemployment transitions are lower for older individuals.

Table 5.3: Means of Forward Transitions

RURAL		Age 15-19 state (t)					Age 20-24 state (t)					Age 25-29 state (t)				
state (t-1)		**Inactive**	**Unemp**	**Emp**	**School**	***Total***	**Inactive**	**Unemp**	**Emp**	**School**	***Total***	**Inactive**	**Unemp**	**Emp**	**School**	***Total***
Other	female	72.2	1.3	6.7	19.8	***100.0***	75.9	7.2	8.8	8.1	***100.0***	80.1	6.6	11.7	1.7	***100.0***
	male	72.8	5.7	7.3	14.2	***100.0***	72.5	7.7	10.5	9.4	***100.0***	66.7	11.9	20.1	1.3	***100.0***
Inactive	female	91.2	1.2	4.0	3.7	***100.0***	93.6	2.0	2.9	1.5	***100.0***	95.2	1.6	2.6	0.7	***100.0***
	male	90.9	1.5	4.4	3.3	***100.0***	91.8	1.9	5.4	0.9	***100.0***	94.1	2.3	3.6	0.0	***100.0***
Unemp	female	31.7	36.5	30.1	1.8	***100.0***	23.5	48.0	27.4	1.1	***100.0***	32.1	44.5	22.8	0.5	***100.0***
	male	40.6	29.8	27.6	2.0	***100.0***	28.5	38.5	31.5	1.5	***100.0***	21.3	44.8	33.7	0.2	***100.0***
Emp	female	4.5	1.0	94.1	0.3	***100.0***	5.1	1.3	93.4	0.2	***100.0***	4.7	0.8	94.4	0.1	***100.0***
	male	4.4	2.7	92.4	0.5	***100.0***	4.2	3.2	92.2	0.3	***100.0***	2.4	3.1	94.6	0.0	***100.0***
School	female	10.3	2.0	5.6	82.1	***100.0***	11.2	13.8	14.9	60.1	***100.0***	18.0	22.4	13.4	46.2	***100.0***
	male	8.0	3.1	9.3	79.6	***100.0***	12.1	12.7	15.3	59.8	***100.0***	19.0	20.5	21.7	38.8	***100.0***
Military	female	n.a	n.a	n.a	n.a	***n.a***	n.a	n.a	n.a	n.a	***n.a***	n.a	n.a	n.a	n.a	***n.a***
	male	47.3	6.6	46.1	0.0	***100.0***	20.0	30.2	49.4	0.5	***100.0***	13.6	35.3	49.1	2.1	***100.0***
URBAN																
state (t-1)		**Inactive**	**Unemp**	**Emp**	**School**	***Total***	**Inactive**	**Unemp**	**Emp**	**School**	***Total***	**Inactive**	**Unemp**	**Emp**	**School**	***Total***
Other	female	57.5	4.6	5.4	32.5	***100.0***	55.8	12.0	9.8	22.5	***100.0***	62.4	22.9	10.9	3.8	***100.0***
	male	59.7	6.0	8.3	26.0	***100.0***	58.3	13.0	11.0	17.7	***100.0***	49.5	28.8	19.3	2.4	***100.0***
Inactive	female	88.0	2.2	3.9	5.9	***100.0***	91.9	2.8	2.9	2.5	***100.0***	94.1	2.2	2.5	1.2	***100.0***
	male	89.9	1.9	3.8	4.4	***100.0***	90.0	3.3	3.4	3.3	***100.0***	86.1	4.5	8.3	1.2	***100.0***
Unemp	female	17.3	37.3	43.2	2.2	***100.0***	11.1	48.1	38.9	1.8	***100.0***	11.8	51.8	34.9	1.5	***100.0***
	male	22.4	35.1	40.2	2.3	***100.0***	14.4	40.6	43.5	1.5	***100.0***	8.7	46.0	45.0	0.3	***100.0***
Emp	female	10.2	8.4	79.5	1.8	***100.0***	9.2	8.0	81.5	1.3	***100.0***	7.0	4.8	87.6	0.6	***100.0***
	male	3.5	7.0	88.4	1.2	***100.0***	2.4	6.1	90.9	0.6	***100.0***	1.1	5.0	93.8	0.1	***100.0***
School	female	7.7	2.1	3.0	87.1	***100.0***	6.3	12.8	10.9	70.0	***100.0***	13.4	19.2	14.3	53.0	***100.0***
	male	5.7	2.7	7.1	84.5	***100.0***	6.2	7.9	11.1	74.9	***100.0***	12.4	13.6	18.4	55.6	***100.0***
Military	female	n.a	n.a	n.a	n.a	***n.a***	n.a	n.a	n.a	n.a	***n.a***	n.a	n.a	n.a	n.a	***n.a***
	male	28.3	4.6	51.5	15.6	***100.0***	11.8	32.7	55.0	0.6	***100.0***	9.3	37.8	51.6	1.3	***100.0***

Source: 2004, 2005, 2006 HLFS
Note: Weights are used

Backward Transitions:

Up to this point, we focused on forward transitions. From this point on, we examine backward transitions thereby analyze the labor market states from which the employed out flow. We are able to calculate backward transition probabilities using retrospective information. The backward transition probilities are computed by using conditional probability of labor market states in the first period given the observed characteristics and labor market state in the second period (equation 5.2):

$$f(y_1|y_2, x) = \frac{f(y_1, y_2|x)}{f(y_2|x)} \tag{5.4}$$

The backward transition matrix $P^B_{j_1|j_2}$, is the conditional probability of being in labor market state j_1 in the first period given that individual is in labor market state j_2 in the second period. The rule is that probabilites in each column sum up to ‘1’. Since we know the individuals’ previous labor market states this condition is satisfied. The backward transition matrix is calculated as:

$$Backward\ Transition\ Matrix = \begin{bmatrix} P^B_{0|0} & P^B_{0|1} & P^B_{0|2} & P^B_{0|3} & P^B_{0|4} \\ P^B_{1|0} & P^B_{1|1} & P^B_{1|2} & P^B_{1|3} & P^B_{1|4} \\ P^B_{2|0} & P^B_{2|1} & P^B_{2|2} & P^B_{2|3} & P^B_{2|4} \\ P^B_{3|0} & P^B_{3|1} & P^B_{3|2} & P^B_{3|3} & P^B_{3|4} \\ P^B_{4|0} & P^B_{4|1} & P^B_{4|2} & P^B_{4|3} & P^B_{4|4} \end{bmatrix}_{5x5} \tag{5.5}$$

Table 5.4: Backward Transition Matrix for females

	Inactive y_2=0	Unemployed y_2=1	Employed y_2=2	School y_2=3	Other y_2=4
Inactive y_1=0	$\frac{f(y_1=0, y_1=0\|x)}{f_2(0)}$	$\frac{f(y_1=0, y_2=1\|x)}{f_2(0)}$	$\frac{f(y_1=0, y_2=2\|x)}{f_2(0)}$	$\frac{f(y_1=0, y_2=3\|x)}{f_2(0)}$	$\frac{f(y_1=0, y_2=4\|x)}{f_2(0)}$
Unemployed y_1=1	$\frac{f(y_1=1, y_2=0\|x)}{f_2(1)}$	$\frac{f(y_1=1, y_2=1\|x)}{f_2(1)}$	$\frac{f(y_1=1, y_2=2\|x)}{f_2(1)}$	$\frac{f(y_1=1, y_2=3\|x)}{f_2(1)}$	$\frac{f(y_1=1, y_2=4\|x)}{f_2(1)}$
Employed y_1=2	$\frac{f(y_1=2, y_2=0\|x)}{f_2(2)}$	$\frac{f(y_1=2, y_2=1\|x)}{f_2(2)}$	$\frac{f(y_1=2, y_2=2\|x)}{f_2(2)}$	$\frac{f(y_1=2, y_2=3\|x)}{f_2(2)}$	$\frac{f(y_1=2, y_2=4\|x)}{f_2(2)}$
School y_1=3	$\frac{f(y_1=3, y_2=0\|x)}{f_2(3)}$	$\frac{f(y_1=3, y_2=1\|x)}{f_2(3)}$	$\frac{f(y_1=3, y_2=2\|x)}{f_2(3)}$	$\frac{f(y_1=3, y_2=3\|x)}{f_2(3)}$	$\frac{f(y_1=3, y_2=4\|x)}{f_2(3)}$
Other y_1=4	$\frac{f(y_1=4, y_2=0\|x)}{f_2(4)}$	$\frac{f(y_1=4, y_2=1\|x)}{f_2(4)}$	$\frac{f(y_1=4, y_2=2\|x)}{f_2(4)}$	$\frac{f(y_1=4, y_2=3\|x)}{f_2(4)}$	$\frac{f(y_1=4, y_2=4\|x)}{f_2(4)}$
Column sum	1	1	1	1	1

By using the equation 5.5, we compute the backward transition probabilities for HLFS 2004, 2005 and 2006[9]. After the calculation of each year transitions, we report the means obtained by averaging them (Appendix J, Table J.4-J.6). Table 5.5 depicts the means of the backward transition probabilities.

Transitions from School: Conditional on being inactive in the second period, 26.2% of 15-19 year-old rural males were in school in the first period while this figure is 36.4% for 15-19 year-old urban males (Table 5.5). For the case of older males in rural areas, these values decrease to 6.2% and 2% for 20-24 and 25-29 year-olds. In urban areas, 14.4% of 20-24 year-old inactive males were in school in the previous year while this value decreases to 7.5% for the 25-29 year-old males. Comparing males and females the inflow rates from school to being inactive is higher for males than females.

The inflow rate from school to being employed is higher for 15-19 year-olds than for the other age groups. Comparing the rural and urban areas for 15-19 year-olds, the inflow rate from school is lower in rural areas than in urban areas, especially, for females. The inflow rate from school for 15-19 year-old rural females is 8% while it is 17.9% for urban females. This reflects the fact that in rural areas the labor market entry is earlier. Since the school attendance beyond primary (8-year) school in rural areas is less likely to happen, 15-19 year-olds are more likely to entry the labor market in rural areas. In addition, conditional on being unemployed in the second period, the inflow rate from school is lower for urban males than for urban females. The gap is higher for 20-24 year-olds.

Transitions from Military: For the case of 20-24 year-old males, the inflow rate from military to being unemployed is higher than the inflow rate from school. This is true not only in urban areas but also in rural areas. In urban areas, the inflow rate from military is 26.3% while it is 29.6% in rural areas (The inflow rate from school is 12.1% in urban areas while it is 8.2% in rural area). Conditional on being employed, the same pattern can be seen. The inflow rates from military to being employed are higher than the inflow rates from school therefore one can say that

[9] For males, backward transition probabilities matrix is 6x5 matrix since we have being in military as a previous labor market while we do not have being in military as a current state.

individuals who are observed to be in the labor market in the second period are more likely to come from the military state in the first period.

Transitions from Inactive: The inflow rate from being inactive to being in school has the second highest value after the inflow rate from school. This is true not only for females but also males. In rural areas, 21% of the 20-24-year-old females who are in school were inactive a year ago, while 53.8% of the 25-29 year-olds who are in school were inactive. In urban areas, these values are a little bit lower: 11.2% and 38.5%. For the case of males, these values are not higher than 0.1%. This is expected since continuation in formal education is higher for males than females. Thus conditional on being in school, the inflow rate from being in school captures most of the individuals.

Transitions from Employed: For all age groups, the inflow rates from employment to being unemployed are higher in urban areas than in rural areas. This is true not only for males but also females. For females, in rural areas, the inflow rates from employment are not higher than 12% which is valid for all age groups. On the other hand, for their male counterparts, the inflow rates from employment are around 14% in the age group 15-19 and 20-24 while it increases to 23.4% for 25-29 year-olds. In urban areas, for females the inflow rates from employment do not show too much variation among age groups. For the age groups 15-19 and 20-24, the inflow rates from employment are around 18% while it is 19.6% for 25-29 year-olds. Nevertheless, for urban males, the inflow rate from employment first decreases and then it increases as they get older. It is 20.6% when they are 15-19 year-old, it decreases to 17.3% as they belong to the age group 20-24 and it increases to 30.7% when they are 25-29 year-old.

For males, the inflow rate from employment to being inactive draws our attention. Especially for 25-29 year-olds, higher than 17% of inactive males originate from the employed group. (In urban areas 17.3% while it is 18.9% in rural areas). For the case of females, the inflow rates from employment to being inactive do not get values higher than 3% (for all of the age groups and both in urban and rural areas). We can deduce from these findings that inactive males consititute a more heterogenous group than inactive females.

Transitions from Unemployment: Conditional on being employed, transition rates from unemployment decrease as males get older. This is consistent with the main breadwinner status of males in Turkey. As we mentioned in Chapter 3, male mean age at first marriage is higher than 25 in 2000s. Evidently, young males who reach the age of marriage are more willing to remain attached to the labor market. This phenomenon is in parallel to what we previously found out from forward transitions: conditional on being in school, the transition rate from school to being inactive decreases as individuals get older.

In addition to that, the fraction of male inactive individuals who were unemployed a year ago is remarkably high. In rural areas, the fractions are not lower than 31.8%, 27.8% and 33.7% for 15-19, 20-24 and 25-29-year-olds. In urban areas, the inflow rates from unemployed are not as high as in rural areas (21.7%, 21.7% and 27.4%).

Permanent States:

In Markov Chain Terminology, if the transition probability of the 'own' state equals to 1, this state is an 'absorbing/permanent' state. Once you enter in it, you cannot leave it. The diagonal elements (shaded ones) of the matrices should be examined with respect to this. If the value in the diagonal element is bigger than 50% than the state is 'absorbing' while if it is smaller than 50% then we call this state as a 'transiant' state, more likely to leave it than stay.

Permanence of Inactivity: We begin our examination by studying the permanence of inactivity. It is high not only in rural areas where choices are scarce but also in urban areas. The permanence of inactivity is high for all age groups (Table 5.3-Highlighted cells). This shows that inactivity is an absorbing state. This means that once a person is inactive, changing states is rare. However, it is higher in rural areas than in urban areas. In addition to that, the permanence of inactivity increases with age. There is one exception: conditional on being inactive, around 90% of 15-19 year-old urban males remains inactive. This value is same for 20-24 year-old urban males. On the other hand, it decreases to 86.1% for 25-29 year-old urban males. This may reflect the change in military service status. For females, inactive state is the highest absorbing state. This is true for not only in rural areas but also in urban areas. For the case of 25-29 year-old urban males, the employment state has the highest value.

Permanence of Unemployment: Conditional on being unemployed in the previous year, 29.8% of the 15-19 year-old rural males remain unemployed. This rate increases to 38.5% for 20-24 year-old males and to 44.8 % for 25-29 year-old males. In urban areas, the same pattern can be seen for males and females. On the other hand, the transition rate from unemployment to unemployment of rural females first increases from 36.5% to 48% and then decreases to 44.5%. Note that, since these rates are smaller than 50%, being unemployment cannot be called an ‘absorbing’ state.

The permanence of unemployment is lower in rural areas than in urban areas. This is attributable to the age selectivity of agricultural employment and of non-agricultural employment generation. There was a sharp decline in agricultural employment after 2000 which may due to the implementation of the Agricultural Reform and Implementation Project (ARIP) in 2000. This may exacerbate the labor absorption problem triggered by agricultural transformation. Since younger generations are better educated, they are more likely to search non-agricultural jobs (İlkkaracan and Tunalı, 2010). The permanent unemployment of rural youth increases as they get older. In other words, the stickiness of unemployment increases with age.

Permanence of Employment: Employment is the state with the hightest permanence rate. Nevertheless, in urban areas for females the permanence of employment is not as high as for males. For the case of 15-19 year-old females, the permanence of employment is 79.5% in urban areas while it increases to 81.5% and to 87.6 for 25-29 year-old urban females.

Permanence of being in School: Conditional on being in school in the previous year, 82.1% of 15-19 year-old rural females remains in school while it is 79.6% for males. This picture is quite similar for urban females. These values are 87.1% for females, 84.5% for males. Therefore, being in school is an absorbing state for 15-19 year-olds. This can be said for 20-24 year-olds in urban areas while for their counterparts in rural areas being in school can be seen as a ‘transiant’ state. 70% of

20-24 year-old urban females remain in school. The case is 74.9% for 20-24 year-old urban males. In rural areas, the permanence of being in school is around 60% for 20-24 year-old males and females. Note that, in rural areas, staying in school for 15-19 year-old females is higher than their male counterparts. In rural areas, once a girl continues her education after the compulsory education, staying in school state is more likely to occur since she belongs to a selective sample.

Now, we summarize the findings from the forward and backward transitions. We observe that the continuation of education in urban areas is higher than in rural areas and this leads to a smaller fraction of individuals who are out of school in urban areas than in rural areas. This can be attributable to the fact that the rate of return to schooling in urban areas is higher than the one in rural areas as it is stated in Tansel (2002). In addition, we also find that males are more likely to continue higher education than females. Holding all else constant, the reason why school attendance higher for males could be the patriarchy in the family. In addition, sibship size, birth order and sex composition of siblings have also effects on school attendance and their effects varies according to household income (Dayıoğlu et al. 2009). The other reason is related to CMS again. Most of the males who do not continue their education are in the military; therefore, the ones who are left in the sample do not represent all of the males. As previously mentioned proper accounting for the missing males alters the transition rates, especially for the age group 20-24.

From the forward transition probabilities, we deduce that conditional on being in the military a year ago, half of the males are employed a year later. The highest values are for the age group 20-24 which is the age group for which most of the enlisting occurs. This is in line with the fact that there are more school leavers in the age range 18-20 found by using missing male corrections. This also shows the importance of the military state during transitions from school to work. Therefore, we attempt to examine the impact of military on being employment in the following section

Furthermore, looking at the transition rates from school to being inactive, it is higher in rural areas than in urban areas. As individuals get older (from 15-19 year-old to 20-24 year-old), the transition rates from school to inactive reduces. This is more noticeable for females than for males. Note that more educated females are less likely to be inactive. Nevertheless as they are in the age group 25-29, the transition rate from school to being inactive increases. This is probably related to marriage of females. Since they get married, they are less likely to remain attached to the labor market.

We observe that permanence of inactivity is not only high in rural areas (higher than 90%) where choices are scarce, but also in urban areas (higher than 85%). In other words, for inactive individuals, changing the labor market state is rare. This is more obvious for males. Since younger individuals are better educated, they more likely to search jobs in non-agricultural sectors. In rural areas, having being in inactive state as a permanent state in rural areas is not surprising because obtaining a job in non-agricultural job in rural areas is more difficult. This is due to the fact that job opportunities are fewer in rural areas. Young rural males probably do not search jobs as they know the scarcity of non-agricultural jobs in rural areas. For all of the age groups, the transition rates from being unemployed to being unemployed are lower than 50%. On the other hand, the state-dependence of unemployment increases with age. Looking at the employment state, we examine that the permanence of employment is as high as the permanence of inactivity. For urban females, the permanence of employment is not as high as males because they are more likely to leave the labor market because of marriage, child bearing etc… One of the remarkable finding is about the permanence of being in school: in rural areas, staying in school for 15-19 year-old females is higher than their male counterparts. One possible reason for this could be the fact that in rural areas, once a girl continues her education after compulsory education, staying in school is more likely to be occurring since she belongs to a selective sample.

By looking at forward transition probabilities, one can deduce that the permanence of employment is high. However, with the help of backward transition probabilities one can study the rates of inflow to employment from other labor market states. We mostly focus on inflows from being in school to being employed and the inflows from being in the military to being employed. The inflow rate from school to being employed is higher for 15-19 year-olds than for the other age groups. Comparing rural and urban areas for 15-19 year-olds, the inflow rate from school is lower in rural areas than in urban areas, especially, for females. This reflects the fact that in rural areas labor market entry is earlier. Since school attendance beyond primary (8-year) school in rural areas is less likely to happen, 15-19 year-olds are more likely to enter the labor market in rural areas. The inflow rates from military to employment are higher than the inflow rates from school therefore one can say that employed individuals are more likely to move from the military state as compared to the schooling state. (Higher than 10% of 20-24 year-old employed males inflow from being in the military while only 2.2% of rural and 4.7% of urban 20-24 year-old employed males inflow from being in school).

Table 5.5: Means of backward transitions

RURAL

state (t-1)		Age 15-19 state (t) Inactive	Unemp	Emp	School	Total	Age 20-24 state (t) Inactive	Unemp	Emp	School	Total	Age 25-29 state (t) Inactive	Unemp	Emp	School	Total
Other	female	2.5	1.5	0.4	1.2	1.6	1.5	2.2	0.3	2.4	1.2	1.0	2.6	0.3	1.6	0.8
	male	21.5	5.3	1.1	1.5	4.5	20.7	2.8	0.8	7.3	4.9	20.4	3.4	0.7	8.2	2.9
Inactive	female	87.2	26.6	8.3	5.2	43.5	93.4	29.4	5.2	21.0	58.4	95.3	44.4	4.8	53.8	62.8
	male	11.0	0.2	0.2	0.1	1.8	16.0	0.4	0.2	0.5	3.0	23.2	0.6	0.1	0.0	2.4
Unemp	female	1.3	28.4	1.8	0.0	1.6	1.3	40.4	2.7	1.0	3.3	0.9	34.8	1.2	1.2	1.8
	male	31.8	52.2	8.5	0.4	10.9	27.8	46.5	8.3	4.0	16.5	33.7	66.5	6.5	6.2	15.2
Emp	female	2.1	10.5	80.9	0.3	20.0	2.8	10.6	89.5	1.8	32.1	2.5	12.2	93.5	4.0	34.0
	male	9.2	13.7	75.0	0.4	29.3	13.4	12.7	77.7	2.6	53.2	18.9	23.4	91.7	2.9	77.3
School	female	6.8	33.0	8.6	93.3	33.3	0.9	17.4	2.2	73.8	5.0	0.2	6.0	0.2	39.4	0.6
	male	26.2	28.4	15.0	97.6	53.3	6.2	8.2	2.2	84.5	8.9	2.0	2.0	0.3	78.8	1.0
Military	female	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
	male	0.4	0.2	0.2	0.0	0.2	15.8	29.6	10.8	1.1	13.6	1.8	4.0	0.8	3.9	1.2
Total	female	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
	male	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***

URBAN

state (t-1)		Inactive	Unemp	Emp	School	Total	Inactive	Unemp	Emp	School	Total	Inactive	Unemp	Emp	School	Total
Other	female	3.4	3.0	0.8	1.4	2.1	1.4	2.0	0.7	2.4	1.4	0.5	2.3	0.3	0.9	0.6
	male	22.3	3.1	1.0	1.6	3.5	20.2	2.9	0.7	3.2	3.5	14.8	3.2	0.4	1.9	1.4
Inactive	female	82.0	20.9	14.1	3.7	32.2	92.9	19.7	8.1	11.2	58.7	96.0	28.8	7.5	38.5	70.4
	male	11.4	0.4	0.3	0.1	1.2	19.0	0.5	0.1	0.4	2.1	28.5	0.6	0.2	1.0	1.6
Unemp	female	1.2	25.2	11.1	0.1	2.5	1.2	36.9	11.8	0.9	6.3	0.8	42.3	6.7	3.2	4.5
	male	21.7	47.6	13.4	0.3	8.7	21.7	40.9	12.1	1.2	15.4	27.4	55.7	8.4	2.1	15.1
Emp	female	2.1	17.8	56.1	0.3	7.0	2.9	17.7	71.4	1.8	18.2	2.3	19.6	84.3	6.9	22.6
	male	7.8	20.6	66.0	0.5	19.4	10.4	17.3	70.3	1.3	43.1	17.3	30.7	89.1	5.0	76.9
School	female	11.4	33.0	17.9	94.5	56.2	1.7	23.6	8.0	83.7	15.4	0.4	7.0	1.2	50.5	2.0
	male	36.4	28.1	19.2	97.5	67.1	14.4	12.1	4.7	93.6	23.6	7.5	3.1	0.6	88.4	2.9
Military	female	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
	male	0.4	0.1	0.1	0.0	0.1	14.4	26.3	12.2	0.4	12.4	4.5	6.7	1.4	1.5	2.2

Table 5.5: Continued

Total	female	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
	male	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***

Source: 2004, 2005, 2006 HLFS
Note: Weights are used

5.2 Multinomial Logit Estimates

We use micro data from HLFS for three years 2004, 2005 and 2006. We estimate six multinomial logit models (MNL). The models are estimated by age groups and gender, respectively. The information for each individual consists of the following[10]:

- Labor market states: (0=Inactive, 1=Unemployed, 2= Employed, 3=In school, 4=In military (for the case of males))
- Regressors: Age (Age 15-17, Age 18-19 in the model for age group 15-19 and Age 21-24 in the model for age group 20-24), Location (urban, rural), education (less than high school, vocational high school or university/higher university graduate in the model for age group 15-19), education (less than high school, high school, vocational high school, university or higher university graduate in the model for age group 20-24), year dummies (year2004, year2005 and year2006)

Underlined categories denote the reference groups. We assume that the probability of choosing labor market state j is given by:

$$\Pr(Y_i = j) = \frac{e^{\beta_{-j}^{\underline{x}_j}}}{\sum_{k=1}^{4} e^{\beta_{-k}^{\underline{x}_j}}} \tag{5.6}$$

Where j=0,1,2,3 (and 4 for the case of males)

The model in (5.6) is a multinomial logit model (Nerlove and Press, 1973). The estimated equations yield a set of probabilities for the four choices for a decision maker with characteristics x_i. Note that three of the four set of parameters (four of the five set of parameters in the case of males) can be identified (Greene, 2003). In our case, we estimate a set of parameters conditional on each destination state since we estimate for the backward transitions. We use normalization for our case is $\beta_{j'} = 2$ where j'=2 (being employed) denotes the conditioning state. By doing this, we are able to compare each outcome with the base group of individuals who stay in

[10] We do not include marital status and householdsize since including these variables in the model may cause endogeneity problem. In addition, we lump illiterates, literate without a diploma, primary (5-year) school and primary (8-year) school graduates since cell sizes are small in these categories therefore, if we run the MNL including all of the education level dummies, standard errors become huge. One can see the number of observations which we use during running our models in Appendix K,

being employed between period t and $t+1$. The probabilities conditional on occupying state j' is:

$$\Pr\left(Y_i = j' \mid \underline{x}_i\right) = \frac{1}{1+\sum_{k=1}^{3} e^{\beta_{-k}^{\underline{x}_j}}} \tag{5.7}$$

Using the MNL model, we can answer the question whether a particular group of people is relatively more likely to inflow from a particular previously occupied state. Age and education variables inform us how human capital affects the individuals and their labor market states. Region of residence capture differences in job opportunities such as higher diversity of jobs found in urban areas. We also control for the year effects to capture the macroeconomic factors.

Before moving the estimation results of MNL, we summarize our hypothesizess in this section. Note that, we repeat these hypothesizes by gender and age groups. In this section, we have three main hypotheses. Firstly, we hypothesize that the probability of the inflow from other labor market states to being employed is lower than the probability of the inflow from being employed since from the forward transitions, we find that employment is an absorbing state. In addition, we also deduct from the backward transition probabilities that the inflow from being employed to being employed is higher than the inflows from the other labor market states to being employed. Secondly, we hypothesize that the probability of the inflow from being unemployed to being employed for urban individuals is higher than rural individuals due to the fact that there are more job opportunities in urban areas which leads the increase in the job offer rate. We hypothesize that, the probability of the inflow from being unemployed to being employed for higher educated individuals is higher than lower educated individuals due to their more effective mobility to search for a job, higher opportunity costs of unemployment, it is assumed that highly educated individuals will have more job opportunities and thus higher educated individuals are more likely to obtain a job. Nevertheless, one should not forget that a negative effect may be occur due to a higher reservation wage for higher educated individuals.

5.3 Determinants of Labor Market Backward Transition Probabilities

This section is devoted to the examination of the determinants of transition rates using micro data. We use pooled data over the period 2004-2006. We begin by analyzing the model for males than we discuss the one for females. Before discussing the multinomial logit results on labor flows into employment for males, we create a table for the definitions of the explanatory variables (Table 5.6)[11] .

Table 5.6 :Definitions of the Explanatory Variables

Variable	Abbreviation	Definition
Personal Characteristics		
Age 15-17	A1517	=1 if 15-17 year-old ; =0 if 18-19 year-old (For Age Group 15-19)
Age 20	A20	=1 if 20 year-old ; =0 if 21-24 year-old (For Age Group 20-24)
Less than High School Graduate	LESSHG	=1 if less than high school graduate ; =0 if else
High School graduate	HGSCH	=1 if general high school graduate ; =0 if else
Vocational High school graduate	VOCHG	=1 if vocational high school graduate ; =0 if else
University or Vocational High school Graduate	VOCUNI	=1 if vocational high school or university graduate ; =0 if else
University Graduate	UNIVERsity	=1 if university graduate ; =0 if else
Previous Labor Market States		
Being inactive	INACT	=1 if being inactive in previous year ; =0 if else
Being in school	SCH	=1 if being employed in prevous year ; =0 if else
Being unemployed	UNEMP	=1 if being unemployed in prevous year ; =0 if else
Being employed	EMP	=1 if being in school in prevous year ; =0 if else
Being in military service	MIL	=1 if being in military service in prevous year ; =0 if else
Being in military service with vocational and university education	MILVOCUNI	=1 if being in military service with vocational and university education in previous year; =0 if else
Residential Area		
Urban	URB	=1 if residing in urban areas ; =0 if else
Rural	RUR	=1 if residing in rural areas ; =0 if else

[11] We also run a model by adding 'householdsize' variable. We put the estimation results in the Appendix K, Table K.4b and Table K5b. We use this variable as a proxy of family resources. Note that we do not compute marginal effects of these models since we mostly rely on the models without householdsize since including household size variable in the model may cause endogeneity problem.

Table 5.6 Continued

Period Dummies		
Year 2004	Yr2004	
Year 2005	Yr2005	
Year 2006	Yr2006	

In Table 5.7.a and Table 5.8.a, the parameter estimates from MNL of previous labor market states are shown. Table 5.7 shows the model results for males while 5.8 shows the results for females. In the tables, first four columns show the estimated coefficients for 15-19 year-olds while the second four columns are for 20-24 year-olds. The last four columns show the ones for 25-29 year-olds. The reference categories are 18-19 year-olds for the model of the 15-19 year-olds, age 20 for the model of the 20-24 year-olds; illiterates; and being employed in the previous year. In all of the models, all of the intercepts have significant and negative signs. Conditional on being employed in the second period, being employed in the first period is the reference category therefore having a negative intercept means that the probability of the inflow from other labor market states is less likely to happen. Note that, finding the negative intercepts confirms our findings in the previous section (conditional on being employed, the inflow from other labor market states is lower than the inflow from employment). In addition, in the tables the non-gray colored coefficients reflect statistical significance at the 95% confidence interval. In addition, in Table 5.7.b and Table 5.8.b the marginal effects of the variables from MNL model are shown[12]. Note that, the marginal effect of a dummy variable is calculated as the discrete change in y as the dummy variable changes '0' to '1'[13]. Same as Table 5.7.a, the first four columns show the marginal effects of the coefficients for 15-19 year-

[12] Note that, before moving to interpretations of the tables, we give a brief explanation of the marginal effects calculations. The partial change in $\Pr(Y_i = j|\, X)$ for a particular variable X_k is (marginal effect):

$$\frac{\partial \Pr(Y_i=j)}{\partial X_i} = \Pr(Y_i = j|\, X)\left[\beta_{jk}^{*} - \sum_{j=1}^{J} \beta_{jk}^{*} * (\Pr(Y_i = j|\, X))\right]$$

As it is seen above, the marginal effect changes according to the probability itself, the value of the coefficient estimate, the sums of the other coefficients for that covariate. In addition, the $\left[\beta_{jk}^{*} - \sum_{j=1}^{J} \beta_{jk}^{*} * (\Pr(Y_i = j|\, X))\right]$ term signs the marginal effect, which means that ther marginal effect may be or may not have the same sign as the coefficient estimate itself.

[13] Marginal effects (dy/dx) are calculated by 'mfx' command in Stata.

olds' model while the second four columns are for 20-24 year-olds' model. The last four columns depicts the marginal effects of the coefficients for 25-29 year-olds' model.

Age 15-19:

Males:We choose 18-19 year-old males as a reference category in MNL regression (Table 5.7). The inflows from being in school to being employed are significantly higher for 15-17 year-old males than 18-19 year-old males. The estimated coefficient of 'A15-17' (age 15-17 year-olds) has a statistically positive effect on the inflow from being unemployed to being employed, as well. The probability of the inflow from being in school to being employed for a 15-17 year-old male is 21% higher than a 18-19 year-old male (Table 5.7.a). This is logical since if a male does not continue his education, he has to do his military service therefore for a 18-19 year-old male he has to complete his military service after separation from school since he is in the military age. Nevertheless, for the case of the inflow from unemployment, being 15-17 year-old decreases the probability (0.01%).

Turning to the results for education levels having a base category as individuals who have less than high school education level, we observe that having a vocational high school/university degree causes a very strong significant increase in the likelihood of the inflow from being in school to being employed (they have a 38% higher probability)[14]. Note that, having a general high school degree has a positive effect on the likelihood of the inflow from being in school (the value of the probability for high school graduates is 35% higher). Compared to vocational high school graduates/university graduates and high school graduates, the probability of the inflow from being in school is statistically same. For the case of the unemployed category, the probabilities for the individuals who are higher educated have lower probabilities than the ones who are with less than high school education level (High school graduates and vocational high school/university graduates have a 2% lower probability). This has probably links with the fact that higher educated individuals have higher reservation wages.

[14] Note that, for the 15-19 year-old individuals, the number of individuals who have university graduates is very low, therefore we lump vocational high school graduates and university graduates.

Location captures the differences not only in the labor market opportunities but also in the household structure. The positive coefficient implies that being in urban areas increases the likelihood of the inflow from being in school to employment (Individuals in urban areas have a 5% higher probability than the ones in rural areas). In addition, being in urban areas also has a positive effect on the probability of a currently employed individual to inflow from unemployment (a 6% higher probability). For the case of year dummies, year 2006 has a significant positive effect on the likelihood of all the categories except for being in military category. Year 2005 has a significant positive effect on the likelihood of the inflow from unemployment.

Females: The first four columns in Table 5.8.a show the estimated coefficients of MNL results of 15-19 year-old females while the first four columns in Table 5.8.b show the marginal effects. The inflows from being in school to being employed are significantly higher for 15-17 year-old females than 18-19 year-old females (a 1% higher probability). The estimated coefficient of ‘A1517’ has a significantly positive effect on the inflow from being inactive, as well (a 1% higher probability). On the other hand, the estimated coefficient of ‘A1517’ is not statistically significant for the being unemployed category which is different from males.

Turning to the results for education levels, we observe that conditional on being employed in the second period, same results as the 15-19 year-old males, two of the education dummies increase the inflows from being in school category. Note that, for the case of the inflow from inactivity, the probabilities are higher for higher educated individuals than those with less than high school education level (a 1% higher probabilities for high school graduates while a 4% higher probabilities for vocational high school/university graduates). In addition, for the higher educated unemployed females, the probability of inflow from being unemployed is higher than the lower educated ones.

For 15-19 year-old females, the positive coefficient implies that being in urban areas increases the likelihood of the inflow from being in school to being employed. In addition, being in urban areas also has a positive effect on the probability of a currently employed individual to inflow from being unemployed and being inactive, as well. Being urban areas has a 7% higher probability of inflow from being inactive while it has a 9% higher probability of inflow from being unemployed. For the case of year dummies, yr2006 has a significant positive effect on the likelihood of the inflow from being inactive and being in school. Yr2005 has a significant positive effect on the likelihood of out flow from being inactive.

Age 20-24

Males: The second four columns in the Table 5.7.a shows the estimated coefficients of MNL model of 20-24 year-old males while the marginal effects are shown in Table 5.7.b. Conditional on being employed, the inflow from being in school is significantly higher for 20 year-old males than 21-24 year-old males. A 20 year-old male has a 2% higher probability of the inflow from being in school than a 21-24 year-old male. In addition, the estimated coefficient of 'A20'(20 year-olds) has a statistically negative effects on the inflow from being military. It leads to the fact that a 20 year-old male has a 9% lower probability of the inflow from being military to being employed. On the other hand, the estimated coefficients of 'A20' are not statististically significant for the being unemployed and being inactive category. One must not forget that males who are currently in military are not counted in the HLFS and this causes misleading results during the calculation of labor market indicators. Especially in the age group 20-24, these biases are statistically significant (Chapter 4). 20 year-old males whose education levels are lower than university are doing their military service. Therefore, most of the males who inflow from being military are in the age group 21-24.

Turning to the results for education levels, we observe that conditional on being employed in the second period, the coefficient of high school graduates has statistically significant negative effect on the inflow from being military category. For the vocational high school graduates, the coefficient has a positive effect on the inflow from being military category. For the case of the being in school category, all of the education coefficients have statistically significant positive effects on the likelihood of the inflow from being in school to being employed. Note that, vocational high school graduates and university graduates are statistically different from each other. For the case of the inflows from being unemployment, all of the education level coefficients are positive nevertheless, looking at marginal effects, one can see that university graduates have a 2% lower probability of the inflows from unemployment to employment while high school graduates and vocational high school graduates have 9% higher probabilities. Having a lower probability of the inflow from being unemployed for university graduate males is probably due to the effect of CMS.

The positive coefficient implies that being in urban areas increases the likelihood of the inflow from being in school. In addition, being in urban areas also has a positive effect on the probability of a currently employed individual to inflow from being unemployed, being in school and in military, as well. Nevertheless, being in urban areas does not have a statistically significant effect on the likelihood of inflow from inactive category. For the case of year dummies, year 2005 has a significant positive effect on the likelihood of all the categories. Year 2006 has a significant positive effect on the likelihood of out flow from inactive, school and military. Computing marginal effects, it can be seen that living in urban areas has 4%, 0.3%, and 2% probabilities of the inflow from being unemployed, being in school and being military, respectively.

Females: The second four columns in the Table 5.8.a show the MNL results of 20-24 year-old females while the marginal effects are shown in Table 5.8.b. Conditional on being employed, the inflows from school are significantly higher for 20 year-old females than 21-24 year-old females (a 2% higher probability). In addition, the estimated coefficient of ‘A20’ is positive and statistically significant for the inflows from unemployment, as well which leads to 2% increase in the probability. On the other hand, the estimated coefficient of ‘A20’ is not statististically significant for the inactive category.

Turning to the results for education levels having, we observe that conditional on being employed in the second period, for the case of the being in school category, all of the education coefficients have statistically significant positive effects on the likelihood of the inflow from being in school. Note that, vocational high school graduates and university graduates are statistically different from eachother. The university graduates have a 46% higher probability of the inflow from being in school. For the case of the inflows from being unemployment, all of the education level coefficients have positive effects on the inflows which means that having a higher education leads to the increase in the inflow from being unemployment. Same as the inflows from being in school, vocational high school graduates and university graduates are statistically different from eachother. Nevertheless, university graduates do not make a big difference for the case of the inflow from being unemployed as it does for the case of the inflow from being in school. The university graduates have a 4% higher probability of the inflow from being unemployed.

The positive coefficient implies that being in urban areas increases the likelihood of the inflow from school to employment. In addition, being in urban areas also has a positive effect on the probability of a currently employed individual to inflows from unemployment, inactivity and school, as well. From the marginal effects of being in urban areas, one can deduct that individuals in urban areas, have a 5% higher probability of the inflow from being inactive while they have a 7% higher probability of the inflow from being unemployed than the ones in rural areas. For the case of year dummies, yr2006 has a significant positive effect on the likelihood of inflow from being inactive. Yr2005 has a significant positive effect on the likelihood of inflow from being inactive on the other hand, it has a negative significant effect on the likelihood of inflow from being in school.

Age 25-29

Males: For 25-29 year-old males, we observe that conditional on being employed in the second period, none of the estimated education coefficients for inflows from inactive category are statistically significant which means that none of education level does not have any effect on the inflow from being inactive. For the case of the military category, higher educated individuals have higher probability to inflow from being military compare to individuals who have less than high school education level (High school graduates have a 2% higher probability and vocational high school graduates have a 1% higher probability while university graduates have a 8% higher probability). For the case of the inflow from being in school, the same pattern as the category for being military is detected. Nevertheless, the increases in the probabilities from being less than high school graduates to being university are not as high as the increase observed for the case of the inflow from being military. It is 5%.

The positive coefficient implies that being in urban areas increases the likelihood of the inflow from unemployment to employment. For the other categories, being in urban areas does not have a statistically significant effect on the likelihoods. For the case of year dummies, yr2005 has a significant positive effect on the likelihood of inflow from unemployment.

Females: For 25-29 year-old females, we observe that conditional on being employed in the second period, all of the estimated education level coefficients for inflows from inactive category are statistically significant and they have negative effects on the inflows from being inactive which is different from males. The university graduate females have a 8% lower probability of the inflow from being inactive. For the case of the being in school category, higher educated individuals have higher probability to inflow from being school compare to individuals who have less than high school education level. In addition, for university graduates, the probability of inflow from being in school is higher than the vocational high school graduates. None of the education level coefficients except university graduates, have significant effects on the inflow from being unemployed. The university graduate females have a 1% higher probability of the inflow from being unemployed.

The positive urban coefficient implies that being in urban areas increases the likelihood of the inflow from being inactive to being employed. It leads to a 6% increase in the probability. In addition, being in urban areas also has a positive effect on the probability of a currently employed individual to inflow from unemployment, as well (females living in urban areas have a 5% higher probabilty than their counterparts in rural areas). Nevertheless, being in urban areas does not have a statistically significant effect on the likelihood of inflow from being in school category. For the case of year dummies, year 2005 and year 2006 have significant positive effects on the likelihood of out flow from inactive.

Table 5.7.a: Parameter Estimates from Multinomial Logit Model of Previous Labor Market States, Males

Male	15-19				20-24				25-29			
	Base EMP (t-1)				Base EMP (t-1)				Base EMP (t-1)			
EMP(t)	**INACT(t-1)**	**UNEMP (t-1)**	**INSCH(t-1)**	**MIL (t-1)**	**INACT(t-1)**	**UNEMP (t-1)**	**INSCH(t-1)**	**MIL (t-1)**	**INACT(t-1)**	**UNEMP (t-1)**	**INSCH(t-1)**	**MIL (t-1)**
Personal Characteristics												
A1517	0.622	0.200***	1.778***	-0.699								
	(0.387)	(0.051)	(0.054)	(0.456)								
A20					0.484	0.108*	1.387***	-1.297***				
					(0.415)	(0.062)	(0.091)	(0.104)				
HGSCH	-0.875	0.314***	2.006***	-0.335	-0.213	0.184***	3.063***	-0.165***	-0.572	-0.106**	1.913***	1.728***
	(1.035)	(0.080)	(0.065)	(0.751)	(0.420)	(0.052)	(0.185)	(0.055)	(0.413)	(0.050)	(0.382)	(0.183)
VOCHG					-0.764	0.283***	3.093***	0.275***	-0.269	-0.203***	1.054**	1.354***
					(0.532)	(0.051)	(0.187)	(0.048)	(0.373)	(0.053)	(0.460)	(0.199)
VOCUNI	0.489	0.429***	2.140***	0.335								
	(0.640)	(0.085)	(0.071)	(0.633)								
UNIV					-1.024	0.484***	5.385***	-0.114	-0.299	-0.115**	4.290***	3.302***
					(1.019)	(0.073)	(0.181)	(0.084)	(0.415)	(0.056)	(0.327)	(0.159)
Period Dummies												
Yr2005	0.503	0.275***	0.155***	-0.550	1.338***	0.163***	0.214**	0.115**	0.504*	0.154***	0.069	-0.089
	(0.571)	(0.059)	(0.054)	(0.509)	(0.466)	(0.046)	(0.086)	(0.046)	(0.304)	(0.044)	(0.172)	(0.114)
Yr2006	1.367***	0.287***	0.341***	-0.084	1.262***	-0.041	0.227***	0.181***	-0.287	0.053	0.075	-0.067
	(0.507)	(0.060)	(0.053)	(0.452)	(0.472)	(0.048)	(0.085)	(0.046)	(0.361)	(0.045)	(0.171)	(0.112)
Residential Area												
URB	0.210	0.721***	0.522***	-0.085	-0.296	0.516***	0.507***	0.251***	0.252	0.301***	0.268	0.174
	(0.371)	(0.052)	(0.045)	(0.396)	(0.307)	(0.045)	(0.089)	(0.041)	(0.301)	(0.043)	(0.194)	(0.122)
Constant	-7.216***	-2.621***	-3.459***	-5.734***	-6.877***	-2.427***	-6.674***	-2.035***	-6.615***	-2.673***	-7.886***	-6.172***
	(0.555)	(0.063)	(0.068)	(0.396)	(0.451)	(0.049)	(0.192)	(0.045)	(0.335)	(0.047)	(0.361)	(0.181)
Observations	*18117*	*18117*	*18117*	*18117*	*28648*	*28648*	*28648*	*28648*	*43294*	*43294*	*43294*	*43294*
Log-Likelihood w/o covariates	*-14819*	*-14819*	*-14819*	*-14819*	*-24625*	*-24625*	*-24625*	*-24625*	*-16439*	*-16439*	*-16439*	*-16439*
Log Lik	*-13550*	*-13550*	*-13550*	*-13550*	*-22882*	*-22882*	*-22882*	*-22882*	*-15734*	*-15734*	*-15734*	*-15734*
LR test: Incremental Chi-sq(d.f)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Reference : Age 18-19, Less than High school, Yr2004, Rural				Reference : Age 21-24, Less than High school,Yr2004, Rural				Reference : Less than High school,Yr2004, Rural			

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 5.7.b Marginal Effects of Parameter Estimates from Multinomial Logit Model of Previous Labor Market States, Males

Male	**15-19**					**20-24**					**25-29**				
	dy/dx					**dy/dx**					**dy/dx**				
EMP(t)	**EMP (t-1)**	**INACT(t-1)**	**UNEMP (t-1)**	**INSCH(t-1)**	**MIL (t-1)**	**EMP (t-1)**	**INACT(t-1)**	**UNEMP (t-1)**	**INSCH(t-1)**	**MIL (t-1)**	**EMP (t-1)**	**INACT(t-1)**	**UNEMP (t-1)**	**INSCH(t-1)**	**MIL (t-1)**
A1517	-0.2060	0.0005	-0.0103	0.2171	-0.0013										
A20						0.0486	0.0008	0.0204	0.0220	-0.0919					
HGSCH	-0.3284	-0.0013	-0.0255	0.3561	-0.0008	-0.0691	-0.0003	0.0103	0.0864	-0.0272	-0.0136	-0.0006	-0.0092	0.0053	0.0182
VOCHG						-0.1116	-0.0009	0.0148	0.0835	0.0141	0.0008	-0.0003	-0.0149	0.0020	0.0124
VOCUNI	-0.3652	-0.0002	-0.0230	0.3888	-0.0004										
UNIV						-0.4150	-0.0011	-0.0279	0.5131	-0.0692	-0.1066	-0.0005	-0.0170	0.0456	0.0786
Period Dummies															
Yr2005	-0.0407	0.0007	0.0272	0.0135	-0.0007	-0.0274	0.0021	0.0146	0.0014	0.0092	-0.0117	0.0007	0.0114	0.0001	-0.0005
Yr2006	-0.0626	0.0025	0.0248	0.0356	-0.0002	-0.0158	0.0020	-0.0069	0.0017	0.0190	-0.0033	-0.0004	0.0039	0.0001	-0.0004
Residential Area															
URB	0.1123	0.0001	0.0648	0.0478	0.0003	-0.0663	-0.0005	0.0453	0.0031	0.0185	-0.0219	0.0003	0.0206	0.0003	0.0008

Table 5.8.a : Parameter Estimates from Multinomial Logit Model of Previous Labor Market States, Females

Female	**15-19**			**20-24**			**25-29**		
	Base EMP (t-1)			**Base EMP (t-1)**			**Base EMP (t-1)**		
EMP(t)	**INACT (t-1)**	**UNEMP(t-1)**	**INSCH(t-1)**	**INACT (t-1)**	**UNEMP(t-1)**	**INSCH(t-1)**	**INACT (t-1)**	**UNEMPt-1)**	**INSCH(t-1)**
Personal Characteristics									
A1517	0.414***	0.127	1.906***						
	(0.075)	(0.101)	(0.093)						
A20				0.105	0.353***	1.110***			
				(0.080)	(0.083)	(0.115)			
HGSCH	0.515***	0.927***	2.547***	-0.043	0.890***	3.093***	-0.649***	0.219*	2.517***
	(0.119)	(0.133)	(0.107)	(0.089)	(0.089)	(0.232)	(0.099)	(0.125)	(0.680)
VOCHG				-0.197**	0.564***	2.556***	-0.802***	0.116	2.296***
				(0.095)	(0.097)	(0.246)	(0.113)	(0.137)	(0.719)
VOCUNI	0.297**	1.354***	2.830***						
	(0.147)	(0.132)	(0.119)						
UNIV				-0.842***	1.267***	5.115***	-1.907***	0.229**	4.266***
				(0.128)	(0.089)	(0.224)	(0.113)	(0.101)	(0.604)
Period Dummies									
Yr2005	0.469***	0.100	0.204**	0.496***	0.010	-0.234**	0.332***	0.057	-0.094
	(0.092)	(0.106)	(0.091)	(0.083)	(0.077)	(0.099)	(0.084)	(0.100)	(0.228)
Yr2006	0.725***	-0.095	0.450***	0.561***	-0.053	-0.123	0.345***	0.090	0.112
	(0.089)	(0.111)	(0.087)	(0.083)	(0.078)	(0.096)	(0.083)	(0.098)	(0.214)
Residential Area									
URB	0.999***	1.838***	0.960***	0.933***	1.339***	0.367***	1.226***	1.646***	0.019
	(0.071)	(0.105)	(0.073)	(0.074)	(0.090)	(0.105)	(0.078)	(0.134)	(0.265)
Constant	-3.096***	-3.802***	-4.294***	-3.252***	-3.834***	-6.163***	-3.113***	-4.420***	-7.763***
	(0.092)	(0.122)	(0.114)	(0.083)	(0.095)	(0.226)	(0.082)	(0.132)	(0.598)
Observations	*9,591*	*9,591*	*9,591*	*15,116*	*15,116*	*15,116*	*15,565*	*15,565*	*15,565*
Log-Likelihood w/o covariates	*-8,549*	*-8,549*	*-8,549*	*-11,037*	*-11,037*	*-11,037*	*-7,355*	*-7,355*	*-7,355*
Log Lik	*-7,493*	*-7,493*	*-7,493*	*-9,570*	*-9,570*	*-9,570*	*-6,840*	*-6,840*	*-6,840*
LR test: Incremental Chi-sq(d.f)	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Reference: Age 18-19, Less than High School, Yr2004, Rural			Age 21-24, Less than High School, Yr2004, Rural			Less than High School, Yr2004, Rural		

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 5.8.b :Marginal Effects of Parameter Estimates from Multinomial Logit Model of Previous Labor Market States, Females

Female	**15-19**				**20-24**				**25-29**			
	dy/dx				**dy/dx**				**dy/dx**			
EMP(t)	**EMP (t-1)**	**INACT(t-1)**	**UNEMP (t-1)**	**INSCH(t-1)**	**EMP (t-1)**	**INACT(t-1)**	**UNEMP (t-1)**	**INSCH(t-1)**	**EMP (t-1)**	**INACT(t-1)**	**UNEMP (t-1)**	**INSCH(t-1)**
A1517	-0.1640	0.0193	-0.0044	0.1491								
A20					-0.0437	0.0037	0.0209	0.0192				
HGSCH	-0.3653	-0.0095	0.0164	0.3584	-0.1685	-0.0160	0.0534	0.1312	0.0019	-0.0282	0.0083	0.0179
VOCHG					-0.1040	-0.0198	0.0320	0.0918	0.0121	-0.0323	0.0047	0.0154
VOCUNI	-0.4251	-0.0387	0.0349	0.4289								
UNIV					-0.4338	-0.0624	0.0397	0.4565	0.0191	-0.0752	0.0090	0.0472
Period Dummies												
Yr2005	-0.0552	0.0436	0.0013	0.0103	-0.0297	0.0345	-0.0016	-0.0032	-0.0190	0.0180	0.0012	-0.0002
Yr2006	-0.0872	0.0698	-0.0097	0.0271	-0.0321	0.0397	-0.0056	-0.0020	-0.0211	0.0185	0.0023	0.0002
Residential Area												
URB	-0.2181	0.0752	0.0900	0.0530	-0.1265	0.0517	0.0722	0.0026	-0.1041	0.0557	0.0486	-0.0002
PROB												

In order to determine the factors of the inflows to employment from other labor market states, we apply multinomial logit model with employment as the reference category. From the MNL results, one can deduce that since most of the intercepts have negative signs, conditional on being employed the probability of the inflow from other labor market states (being in school, being in military, being inactive, being unemployed) is lower than the inflow from being employed. This confirms one of our findings from the forward transition probabilities: the permanence of employment.

Although being in urban areas does not have any effect on the probability of the out flow from inactivity for 15-19 year-old males, it has a positive effect on the probability of the inflow from unemployment. The same pattern can be seen for the other age groups. Therefore, one can say that for males searching helps in finding a job if there are job opportunities. On the other hand, for females, the positive significant effects of being in the urban areas are seen not only on the likelihood of the inflow from inactivity but also on the likelihood of the inflow from unemployment. This reflect that having more opportunities in the labor market does not have any effect on inactive males while having more opportunities in the labor market has significant positive effects on unemployed males to be employed. For the case of females, having more opportunities in the labor market has positive effects not only on the inactive females but also on unemployed females. This is consistent with the findings from the backward transition probabilities in the previous section: We find out that conditional on being employed, the transition rate from inactivity is higher in urban areas than in rural areas. The effects of being urban do not show too much variation among different labor market states and between males and females. For 20-24 year-olds, females in urban areas have a 5% higher inflow probability from being inactive to being employed while females in urban areas have a 7% higher inflow probability from being unemployed to being employed than these in rural areas.

In 15-19 year-old and 20-24 year-old models, being in urban areas has a positive effect on the inflow from school for males and females. Conditional on being employed, having more opportunities in the labor market leads an increase in the inflow from school. 15-19 year-olds living in urban individuals have a 5% higher inflow probability from being in school to being employed than their counterparts living in rural areas. The effect of being in urban areas on the inflow from being in school to being employed decreases as individuals get older. 20-24 year-old males in urban areas have a 2% higher inflow probability from being in school to being employed. In the model for 25-29 year-olds, for males, being in urban areas loses its significance on the other hand, for females, being in urban areas keeps its significance.

Turning to the educational level coefficients, conditional on being employed, for 15-19 year-old individuals, higher educated individuals are more likely to inflow from unemployment while for females high school graduates, vocational high school graduates and university graduates are more likely to inflow from unemployment. This is valid not only for males but also females. In addition, for the case of 20-24 year-olds, the same pattern is deducted, as well. On the other hand, for the case of 25-29 year-olds, higher educated individuals are less likely to inflow from being unemployed than the individuals with less than high school education level. This may be due to the fact that having a higher reservation wage of a higher educated male. In addition, for 20-24 year-old males, high school graduates are less likely to inflow from being military while vocational high school graduates are more likely to inflow from being military.

We also find out that family resources have a positive effect on the inflow from being in school to being employed for 15-19 and 20-24 year-old males while it has no impact on 25-29 year-old males. However, we see the impact of the family resources on the inflow from being military to being employed for this age group. It leads to an increase in the probability of inflow from being in military to being employed. Looking at 25-29 year-old females, having more family resources have a positive effect on the inflow from being unemployed to being employed for this age group. This is also valid for the inflow from being in school to being employed. From these findings, we deduce that the impact of family resources varies among the age groups. In addition, it also changes according to inflows from different labor market states.

5.4. Impacts of CMS and Previous Labor Markets States on Current Labor Market State

We use micro data from HLFS for three years 2004, 2005 and 2006. The models are estimated by age groups and gender, respectively (unrestricted model). Afterwards, we run models by pooling males and females (restricted model). The information for each individual consists of the following which underlined categories denote the reference groups[15]:

- ***Dependent Variable*:** being employed or not conditional on being in risk set

For unrestricted model:

- Regressors:
  - Females: Age dummies (age 15-17 , age 18-19 for age group 15-19 year-olds, age 20, age 21-24 for age group 20-24), Location (urban, rural), education (illiterate, literate without a diploma, primary5, primary8, high school, vocational high school, university or higher university graduate), year dummies (year2004, year2005 and year2006), (inactive, unemployed, employed, being in school)
  - Males: Age dummies (age 15-17 , age 18-19 for age group 15-19 year-olds, age 20, age 21-24 for age group 20-24), Location (urban, rural), education (illiterate, literate without a diploma, primary5, primary8, high school, vocational high school, university or higher university graduate), year dummies (year2004, year2005 and year2006), previous labor market states (inactive, unemployed, employed, being in school and being in military), vocational high school and being military interaction

For restricted model:

- Regressors: Age dummies (age 15-17 , age 18-19 for age group 15-19 year-olds, age 20, age 21-24 for age group 20-24), Location (urban, rural),

[15] Note that, we also estimate logit models by adding being in school in previous year and education level interactions to be able to examine the exact effect of continuing training/taking courses after graduating school. Since the observations in the cells are very small, estimation cannot be achieved or those added variables are omitted and there is a report 'predicts failure perfectly'. Therefore, we return back the model that we exclude the individuals who are in school or courses or training which means we only include the individuals who are in the risk set. In other words, our risk set comprises the inactive, unemployed and employed individuals.

education (illiterate, literate without a diploma, primary5, primary8, high school, vocational high school, university or higher university graduate), year dummies (year2004, year2005 and year2006), previous labor market states (inactive, unemployed, employed, being in school and being in military), vocational high school and being military interaction

- ***Dependent Variable:*** being a wage worker or not conditional on being employed

For unrestricted model:

- Regressors:
  - Females: Age dummies (age 15-17 , age 18-19 for age group 15-19 year-olds, age 20, age 21-24 for age group 20-24), Location (urban, rural), education (illiterate, literate without a diploma, primary5, primary8, high school, vocational high school, university or higher university graduate), year dummies (year2004, year2005 and year2006), previous labor market states (inactive, unemployed, being a wage worker, being a non-wage worker, being in school)
  - Males: Age dummies (age 15-17 , age 18-19 for age group 15-19 year-olds, age 20, age 21-24 for age group 20-24), Location (urban, rural), education (illiterate, literate without a diploma, primary5, primary8, high school, vocational high school, university or higher university graduate), year dummies (year2004, year2005 and year2006), previous labor market states (inactive, unemployed, being a wage worker, being a non-wage worker, being in school and being in military), vocational high school and being military interaction

For restricted model:

  - Regressors: Age dummies (age 15-17 , age 18-19 for age group 15-19 year-olds, age 20, age 21-24 for age group 20-24), Location (urban, rural), education (illiterate, literate without a diploma, primary5, primary8, high school, vocational high school, university or higher university graduate), year dummies (year2004, year2005 and year2006), previous labor market states (inactive, unemployed, being a wage worker, being a non-wage worker, being in school and being in military), vocational high school and being military interaction

Table 5.9 : Definitions of the Explanatory Variables

Variable	Abbreviation	Definition
Personal Characteristics		
Age 15-17	A1517	=1 if 15-17 year-old ; =0 if 18-19 year-old (For Age Group 15-19)
Age 20	A20	=1 if 20 year-old ; =0 if 21-24 year-old (For Age Group 20-24)
Illiterate	ILL	=1 if illiterate ; =0 if else
Literate without a diploma	LIT	=1 if literate without a diploma ; =0 if else
Primary 5 year graduate	PRI5	=1 if primary (5-year) graduate ; =0 if else
Primary 8 year graduate	PRI8	=1 if primary (8-year) graduate ; =0 if else
High School graduate	HGSCH	=1 if general high school graduate ; =0 if else
Vocational High school graduate	VOCHG	=1 if vocational high school graduate ; =0 if else
University Graduate	UNIV	=1 if university graduate ; =0 if else
Previous Labor Market States		
Being inactive	INACT	=1 if being inactive in previous year ; =0 if else
Being in school	SCH	=1 if being in school/training in previous year ; =0 if else
Being unemployed	UNEMP	=1 if being unemployed in previous year ; =0 if else
Being employed	EMP	=1 if being in school in previous year ; =0 if else
Being in military service	MIL	=1 if being in military service in previous year ; =0 if else
Being in military service with vocational and university education	MILVOCUNI	=1 if being in military service with vocational and university education in previous year; =0 if else
Being a wage worker	WW	=1 if being a wage worker in previous year ; =0 if else
Being a non-wage worker	NWW	=1 if being a non-wage worker in previous year ; =0 if else
Residential Area		
Urban	URB	=1 if residing in urban areas ; =0 if else
Rural	RUR	=1 if residing in rural areas ; =0 if else
Period Dummies		
Year 2004	Yr2004	
Year 2005	Yr2005	
Year 2006	Yr2006	

For the case of the unrestricted model, we estimate the model for males and females separately[16] (In Appendix K, Table K.4a). Afterwards, we run a model for the pooled sample. Our restriction is the fact that male interaction with the coefficients are equal

[16] We also estimate models by adding household size variable (Appendix K, Table K.4b). We use this variable as a proxy of family resources. Note that we do not compute marginal effects of these models since we mostly rely on the models without householdsize since including household size variable in the model may cause endogeneity problem.

to zero. We have a male dummy so that we assume that likelihood of being employed is only affected by the intercept. By loglikelihood ratio test, we test whether restrictions are valid or not. This is a joint test. The restriction is accepted but it is muted. We also test the individual tests. In order to do this, we run the model with interaction dummies and then we test each of the slope*male interaction is equal to zero (In Appendix K, Table K.5). We repeat the same thing for being a wage workers models. Again, we see the same pattern that we use the unrestricted model.

5.4.1 Employment

Table 5.10 depicts the estimated coefficients which is normalized by the coefficient of 'SCH' being in school a year ago (highlighted italic row)[17]. The first third columns show the estimated coefficients from logit models of being employed for females while the second third columns are for males. Our sample consists of only individuals who are in the risk set, as mentioned in the previous sections. Before moving the estimation results of logit models, we summarize our hypothesises in this section. Note that, we repeat these hypothesises by gender and age groups. We hypothesize that conditional on being in the risk set, the vocational high school graduates and the university graduates are more likely to be employed since they are more educated individuals they have higher job offer rates than the less educated individuals. Furthermore, we hypothesize that conditional on being in the risk set, the vocational high school graduates and the university graduates females are more likely to be employed than their male counterparts due to the fact that employers are more likely to hire males who complete their CMS. We also test whether males who were at military service have a higher probability than the inactives or those in school since the offer rates are more likely to be higher for the ones who complete their CMS. Furthermore, the presence of CMS enables us to test the human capital accumulation and depreciation effects. As education level increases, the depreciation

[17] Not that, normalized coefficients are computed to compare the marginal effects of the coefficients. During the calculations of the ratio of the marginal effects of the coefficients since the marginal effects of the coefficients are computed at all Xs equal to 0 (all of the coefficients are binary variables), the value of the probabilities are cancelled out and only the coefficients are left. Therefore, in order to compare the marginal effects of the coefficients , the coefficient which is used for making normalization shows can be helpful. For example: Let's say we use β_1 for normalization, if we compute $\beta_2$equals to $2\beta_1$ than in order to compute for marginal effects for x_2 and x_1, just knowing β_1 will be enough. In addition, the non- gray coefficients are significant.

of human capital increases. This is valid especially for the ones involved in occupations which are requiring specialization. Therefore the probability of a vocational high school graduate/university graduate in finding a work who were in military service is lower than the one with lower education.

Table 5.10: The Normalized Estimated Coefficients from Logit Models of Being Employed

	UNRESTRICTED						**RESTRICTED**		
	Females			**Males**			**Pooled**		
	A15-19	**A20-24**	**A25-29**	**A15-19**	**A20-24**	**A25-29**	**A15-19**	**A20-24**	**A25-29**
Personal Characteristics									
Male							0.194	0.179	0.338
A1517	-0.0005			0.110			0.053		
A20		0.022			-0.307			-0.080	
LIT	0.060	0.040	0.035	0.024	0.090	0.054	0.030	0.035	0.016
PRI5	0.144	0.097	0.176	0.115	0.275	0.624	0.109	0.123	0.170
PRI8	0.351	0.149	0.149	0.292	0.226	0.694	0.273	0.126	0.184
HGSCH	-0.008	0.221	0.236	-0.108	0.126	0.692	-0.060	0.119	0.210
VOCHG	0.224	0.223	0.305	0.176	0.379	1.039	0.174	0.217	0.313
UNIV	0.458	0.410	0.561	-0.072	0.259	1.148	0.181	0.269	0.468
Previous Labor Market States									
MILVOCUNI				0.036	-0.156	-0.175	0.055	-0.112	-0.139
MIL				1.197	1.295	1.901	1.200	1.243	1.322
UNEMP	1.293	1.119	1.204	0.723	0.915	1.410	0.890	1.022	1.171
SCH	***1.000***	***1.000***	***1.000***	***1.000***	***1.000***	***1.000***	***1.000***	***1.000***	***1.000***
Exact Coeff of SCH	*2.190*	*2.431*	*2.203*	*1.981*	*1.466*	*0.647*	*2.356*	*2.412*	*2.007*
EMP	2.414	2.176	2.592	2.251	2.873	6.311	2.154	2.175	2.757
Period Dummies									
Yr2005	0.078	0.049	0.023	0.108	0.136	0.337	0.081	0.069	0.077
Yr2006	0.143	0.055	0.022	0.146	0.129	0.176	0.123	0.068	0.041
Residential Area									
URB	-0.198	-0.231	-0.269	0.031	0.105	0.110	-0.059	-0.047	-0.100

Table 5.10 Continued

Constant	-1.598	-1.436	-1.656	-1.360	-1.571	-2.961	-1.504	-1.497	-1.865
Observations	*39,431*	*56,991*	*58,647*	*29,098*	*41,720*	*52,451*	*68,529*	*98,711*	*111,098*
Log-Likelihood w/o covariates	*-21960*	*-33043*	*-33975*	*-19179*	*-25772*	*-23977*	*-46345*	*-67849*	*-76780*
Log-Likelihood	*-10209*	*-13760*	*-10972*	*-13162*	*-18599*	*-16235*	*-23603*	*-32673*	*-27475*
LR test: Incremental Chi-sq(d.f)	*23504*	*38566*	*46006*	*12034*	*14346*	*15485*	*45484*	*70353*	*98611*

Source: The Logit Model Estimation Results in Appendix K, Table K.2.
Note: (Employed= 1 if an individual is employed, =0 else; we only include the individuals who are in the risk set)
Reference for 15-19 year-old females: age 18-19, illiterates, inactive, yr2004, rural
Reference for 20-24 year-old females: age 20, illiterates, inactive, yr2004, rural
Reference for 25-29 year-old females:illiterates, inactive, yr2004, rural
Reference for 15-19 year-old males: age 18-19, illiterates, inactive, yr2004, rural
Reference for 20-24 year-old males: age 20, illiterates, inactive, yr2004, rural
Reference for 25-29 year-old males:illiterates, inactive, yr2004, rural
2

Effect of Education Levels on Males and Females

Age 15-19: For the case of 15-19 year-old females, as education level increases, the likelihood of being employed increases. There is one exception. Having a high school education does not have a significant effect[18]. Having a primary (5-year) school level education is not statistically significantly different from primary (8-year) school graduates. In addition comparing vocational high school graduates and primary (8-year) school graduates, they have statistically different effects on the probability of being employed. Comparing the vocational high school graduates and university graduates, the coefficient of the university graduate females is higher than the coefficient of the vocational high school graduate females.

For the case of 15-19 year-old males, we have only three education levels which are positive effects on the probability: 'PRI5', 'PRI8' and 'VOCHG'. They are statistically different from each other. Same as females, the coefficient of high school graduates has no effect on being employed in this age group. The coefficients of the other educational levels have no significant effects on the likelihood of being employed. For males, being in the age group 15-17 has a significantly positive effect on the probability of being employed. This is probably due to the fact that 18-19 years-old individuals who graduate from high school are likely to prepare for university examination and may go to private tutoring centers. Therefore, they do not prefer participating in the labor force.[19] This is in line with the insignificant coefficient of the 'HGSCH'. The 18-19 year-old males with high school graduates have have four options: participate in labor force, continue their education (preparing university exam), wait for time to go to CMS and go to CMS. On the other hand, for their female counterparts, age 15-17 has no statistically significant effect on being employed since females do not have options same as males.

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[18] Note that, there are no individuals who graduate from university among 15-17 year-olds. Among 18-19 year-old individuals, 0.5% are university graduates. Those individuals whose highest level of education is university probably graduate from 2-years college. One can ask here, although we lump individuals who are less than high school graduates during estimation the MNL model, why we do not lump here. During running MNL models for estimation the probability of the backward transitions, there are four (five for males) previous labor market states and therefore number of observations in each previous labor market states gets smaller: some of them becomes zero.

[19] We find out that around 63% of 18-19 years-old take private tutoring while this amount decrease to %53 when we move to 15-17 years-old. In addition to this, around % 53 of 15-19 take private tutoring due to social and other reasons while % 47 of them take due to job related. Therefore, they may prepare not only to labor market both also university exam.

Age 20-24: For the case of 20-24 year-old females, all of the educational level coefficients have statistically positive effects on the probability of being employed. There is a jump for 'HGSCH'. In addition, having a university education increases the likelihood of being employed. Note that, the effects of the high school graduates and vocational high school graduates are statistically same while the effects of the vocational high school graduates and university graduates are not statistically same.

For males, the effects of the vocational high school graduates are statistically different from the effects of the university graduates. For the age group 20-24, the results indicate that being in the age group 20 has significantly negative effect on entering employment relative to being in the age group 21-24. This result has also links with CMS. The 20 year-old males have to do their CMS if they do not continue their education. Therefore, those males may be in military or they may be preparing for the university exam. To sum, the ones who are not in military constitute a selective sample that they are less likely to be in the labor market than the 21-24 year-old ones. Here, we see the effects of CMS, as well.

Age 25-29: For the case of 25-29 year-old females, all of the education level coefficients (except for literates) have statistically positive effects on the probability of being employed. Note that the effects of high school graduates and vocational high school graduates are not statistically different. The effects of the vocational high school graduates and university graduates are statistically different. The likelihood of being employed is statistically the same for the primary (8-year) school graduates and the high school graduates. For the case of males, the effects of the vocational high school graduates and university graduates are statisitically different.

In order to compare the effects of the coefficients of the education level for males and females, we run a model with the interaction male dummy and all variables (Appendix K, Table K.5). In this model, we examine that 'UNIV_male (university and male dummy interaction)' has a statistically negative effect on the probability of being employed. This means that a woman with university education is more likely to be employed than a man with university education holding other variables constant. In addition, we also find out that the coefficient 'HGSCH_male' has a negative effect on the probability of being employed.

Effect of Residential Areas

For all age groups, we find that females residing in urban areas are less likely to enter employment relative to females residing in rural areas while this is just the opposite for 20-24 and 25-29 year-old males: males residing in urban areas are more likely to enter employment. Note that, these results are parallel with the agricultural sector opportunities in rural areas and these are more appropriate for females. In addition, this is also related to the fact that males are willing to are willing to find jobs in non-agricultural sector.

Effect of CMS on Males and Effect of Other Labor Market States on Males and Females

In previous chapters, we argued that military service obligations of males had to be taken into account in examining school to work transitions. In particular we pointed out that males left out of the sample frame of Household Labor Force Survey (HLFS) imported biases in the computation of main labor market indicators. In this chapter, we go a step further. We analyze the effects of compulsory military service (CMS) as one of the determinants of the labor market states as much as the data allow us to do.

By including military service as a state, we can test whether males in this state are more likely to be employment than inactives or those in school. A second reason for distinguishing military service as a state is its potential contribution to the individuals' credentials. Since February 2000, enlisted males with high school education (except for vocational high school graduates) and less, have been receiving various types of vocational training. We hypothesize that males who receive vocational training will have a smoother transition to employment because we expect these training programs to help males improve their chances of finding a job requiring particular skills. This phenomenon may have links with the higher reservation wages of higher educated males than less educated ones which leads to decrease the probability of being employed.

Age 15-19: For females, turning to the other labor market states on the probability of being employed, being unemployed and employed in the previous year have positive effects on being employed relative to being inactive in the previous year. The effects of being unemployed and being in school in the previous year are statistically different. In addition the effects of being in school and being employed are statistically different, as well. For males, being unemployed and employed in the previous year have positive effects on being employed relative to being inactive in the previous year. The effect of being in the military in the previous year is statistically significant and positive. The effects of being in military and being in school are statistically same.

Age 20-24: For 20-24 year-old females, being unemployed and employed in the previous year have positive effects on being employed relative to being inactive in the previous year. In addition, the effects are statistically different from the effects of being in school. For the case of 20-24 year-old males, same pattern are deducted for being unemployed and employed in the previous year. Same as females, the effects are statistically different from the effects of being in school. The effect of being in military also statistically positive significant and the effects are statistically different from the effects of being in school.

Age 25-29: For 25-29 year-old females and males, being unemployed and employed in the previous year have positive effects on being employed relative to being inactive in the previous year. In addition, the effects are statistically different from the effects of being in school. Again, for the case of males being in military service in the previous year has a positive effect on the probability of being employed.

The critical questions of this section are ‘Do males who were in military a year ago have higher likelihood of being employed than inactives or those in school?’ and ‘Do enlisted males with high school education (except for vocational high school graduates) and less have a higher probability of being employed?’. We find that males who were in the military a year ago have higher probability of being employed than inactives or those in school. These answers are crucial for young males during their transition from school to work. These findings might be helpful for policy makers in their decisions on CMS rules and military age.

However, one should not forget that military service provides a unique educational opportunity, especially to youth in the rural areas which had relatively closed societies in the building phase of the Republic (Bora et al. 2004 from Alanç, 2007). In other words, the main reason for using the Armed Forces to accomplish missions that are not within the principal duties of the Armed Forces is the endeavor to fill the gaps in the education of citizens (Alanç, 2007). In addition to this, since February 2000, enlisted males with high school education (except for vocational high school graduates) and less, have been receiving various vocations. Our findings confirms indirectly that for less educated individuals compulsory military service leads to human capital accumulation by providing training opportunities (self-discipline, communicative skills, problem solving techniques and vocational trainings given by TAF). In addition, the lower educated individuals have more human capital after CMS. With respect to demand side economics, employers probably try to avoid severance payment and as a result of this, employers may prefer to hire males who have completed their military service. From these point of views, the market wages for those males are probably higher. As a result of this, the probability of accepting the wage offer is higher.

5.4.2 Wage Worker

We also run a model for being a wage worker conditional on being employed[20] (In Appendix K, Table K.6a). Same as in the previous section, we use normalization which can be used in order to calculate the marginal effects. Table 5.11 depicts the normalized estimated coefficients of logit models. The dependent variable is being a wage worker conditional on being employed. Before moving the estimation results of logit models, we summarize our hypothesises in this section. Note that, we repeat these hypothesises by gender and age groups. We hypothesize that conditional on being employed, female vocational high school graduates and university graduates are more likely to be wage workers than their male counterparts since CMS is on the scene for young males, again. We hypothesize that conditional on being employed, individuals who were in school in the previous year are more likely to be wage workers than the ones who were inactive since being inactive will be more likely to

[20] We also estimate models by adding household size variable (Appendix K, Table K.6b). We use this variable as a proxy of family resources. Note that we do not compute marginal effects of these models since we mostly rely on the models without householdsize since including household size variable in the model may cause endogeneity problem.

be a negative signal for employers and in addition, the inactive individuals are more likely to give more value to leisure or home production. We hypothesize that males who were in military have a higher probability of being a wage worker than those who were inactive. The reasoning could be the fact that the employers are more likely to hire individuals who complete their CMS. We also test whether the effects of education differ between males and females due to the fact that their rate of return of education is different and they are more likely to be prepared to accept the lower job offers.

Effect of Education Levels on Males and Females

Age 15-19: For the case of 15-19 year-old females, the coefficients of 'LIT' and 'VOCHG' have significant effects on being a wage worker. 'LIT' has a negative effect on being a wage worker relative to being illiterate while having a vocational high school degree has a positive effect on being a wage worker. For the case of 15-19 year-old males, primary (8-year) school graduates, vocational high school graduates are more likely to be wage workers relative to illiterates. Their effects are statistically the same.

Age 20-24 :For the case of 20-24 year-old females, the coefficients of 'HIGSCH', 'VOCHG' and 'UNIV' have statistically positive effects on the likelihood of being a wage worker. The coefficients of 'HIGSCH' and 'VOCHG' are statistically the same while the effects of 'HIGSCH' and 'UNIV' are stastically different. For the case of 20-24 year-old males, none of the education level variables are significant.

Age 25-29: For the case of 25-29 year-old females, same pattern as 20-24 year-old females are seen. For the case of 25-29 year-old males, none of the education level variables are significant.

Residential Areas:

Conditional on being employed, for all of the age groups, urban females are more likely to be wage workers than rural females. This is also true for their male counterparts. This is expected since in urban areas the share of wage workers is higher than the share in rural areas (Chapter 3, Section 3.4.3). In addition, comparing the effect of being in urban areas among the age groups, the effect for the 15-19 year-old individuals are higher than the effect for the 20-24 year-olds. This is true for not only females but also males. For females, the effects are higher. In urban areas, the share of wage workers is higher for the 15-24 year-olds than for the 25-34 year-olds. In rural areas, the opposite is true: 15-24 year old workers are less likely to be wage worker than the ones who are in 25-34 year-old workers (Chapter 3, Section 3.4.3).

Effect of CMS on Males and Effect Other Labor Market States on Males and Females

Turning to CMS on probability of being a wage worker, it has a positive effect on being a wage worker. For the case of 20-24 year-old males, those who were in the military in the previous year has no effect on being a wage worker. In the model for 25-29 year-old males, the ones who were in military the previous year are more likely to be wage workers. Nevertheless, being an enlisted male with high school education (except for vocational high school graduates) and less does not have an effect on the probability of being a wage worker.

Age 15-19: For 15-19 year-old females, turning to other labor market states on probability of being a wage worker conditional on being employed, being a non-wage worker in the previous year has a negative effect on being a wage worker relative to being inactive in the previous year. Looking at the estimation results of the logit model with male interaction dummies, conditional on being employed, females who were non-wage workers are less likely to be a wage worker than the males who were non-wage workers (Appendix K, Table K.7). In addition, the effect of being in school has a negative effect on being a wage worker. On the other hand, the effect of being unemployed has a positive effect. For 15-19 year-old males, being unemployed in the previous year has s strong positive effect on being a wage worker relative to being inactive in the previous year. Same as females, being a non-wage worker in the previous year has a negative effect on being a wage worker.

Age 20-24: For 20-24 year-old females, being a non-wage worker in the previous year has a negative effect on being a wage worker relative to being inactive in the previous year. Same as the age group 15-19, conditional on being employed, the females who were non-wage workers are less likely to be a wage worker than the males who were non-wage workers (Appendix K, Table K.5). In addition, the effect of being in school has no significant effect on being a wage worker. On the other hand, the effect of being unemployed has a positive effect. For males, being unemployed in the previous year has s strong positive effect on being a wage worker relative to being inactive in the previous year.

Age 25-29: For 25-29 year-old females, turning to other labor market states on probability of being a wage worker, being a non-wage worker in the previous year has a negative effect on being a wage worker relative to being inactive in the previous year. Looking at the estimation results of the logit model with male interaction dummies, conditional on being employed, the females who were non-wage workers are less likely to be a wage worker than the males who were non-wage workers (Appendix K, Table K.7). This is in line with one of the implications of the dual labor market theory: females are less likely to transit from secondary sector to primary sector. In addition, the effect of being in school has no significant effect on being a wage worker. On the other hand, the effect of being unemployed has a positive effect. For males, being unemployed and employed in the previous year have strong positive effects on being a wage worker relative to being inactive in the previous year. In addition, being in school has a positive effect on being a wage worker conditional on being employed. Looking at the estimation results of the logit model with male interaction dummies, we find that, conditional on being employed, the 25-29 year-old females who were wage workers are more likely to be a wage worker than the males who were wage workers (Appendix K, Table K.7).

Effect of Residential Areas

In all of the age groups, being urban areas has positive effects on being a wage worker. This is true for males and females. Having a positive effect of being in urban areas on being a wage worker does not surprise us since there are more opportunities in urban areas via wage workers.

Table 5.11: The Normalized Estimated Coefficients of Logit Models of Being a wage worker conditional on being employed

	UNRESTRICTED						RESTRICTED		
	Females			Males			Pooled		
	A15-19	A20-24	A25-29	A15-19	A20-24	A25-29	A15-19	A20-24	A25-29
Personal Characteristics									
Male							-2.035	-1.811	-0.330
A1517	-0.551			-0.075			-0.724		
A20		0.510			-0.094			-0.156	
LIT	-0.923	-0.183	1.835	0.197	-0.580	-0.535	-0.886	-0.604	-0.010
PRI5	-0.387	-0.357	0.482	0.487	-0.334	-0.021	0.518	0.055	0.298
PRI8	0.104	0.966	0.453	0.614	-0.385	-0.078	1.408	0.313	0.326
HGSCH	0.401	2.738	1.720	0.145	-0.523	-0.222	0.127	0.305	0.316
VOCHG	1.304	4.125	1.888	0.736	0.015	0.152	2.667	2.320	0.650
UNIV	1.055	4.392	2.555	0.167	-0.035	0.341	1.351	0.662	0.931
Previous Labor Market States									
MILVOCUNI					-0.652	-0.342		-1.567	-0.793
MIL				8.418	0.801	1.531	8.395	1.033	1.644
UNEMP	3.462	6.335	3.655	7.224	3.892	2.535	7.140	4.960	3.410
SCH	***-1.000***	***1.000***	***1.000***	***1.000***	***1.000***	***1.000***	***-1.000***	***1.000***	***1.000***
Exact Coeff of SCH	*-0.690*	*0.263*	*0.510*	*0.263*	*0.342*	*0.593*	*-0.228*	*0.275*	*0.405*
WW	4.841	13.236	8.155	13.612	9.316	5.836	14.259	11.756	8.333
NWW	-8.370	-23.190	-11.559	-16.532	-12.705	-6.531	-22.118	-17.564	-10.788
Period Dummies									
Yr2005	-0.141	-0.114	0.048	-0.044	0.031	-0.155	-0.263	0.015	-0.314
Yr2006	0.016	-0.163	0.191	0.155*	-0.010	0.069	0.500	-0.127	0.225
Residential Area									
URB	3.503	1.242	1.195	1.427	1.020	0.680	7.526	4.047	2.128

Table 5.11 Continued

Constant	0.736	0.293	-0.444	-0.849	0.432	-0.029	0.921	1.622	-0.180

Source: The Logit Model Estimation Results in Appendix K, Table K.5.
Reference for 15-19 year-old females: age 18-19, illiterates, inactive, yr2004, rural
Reference for 20-24 year-old females: age 20, illiterates, inactive, yr2004, rural
Reference for 25-29 year-old females:illiterates, inactive, yr2004, rural
Reference for 15-19 year-old males: age 18-19, illiterates, inactive, yr2004, rural
Reference for 20-24 year-old males: age 20, illiterates, inactive, yr2004, rural
Reference for 25-29 year-old males:illiterates, inactive, yr2004, rural

Before moving on to the next Chapter, we summarize the findings from the logit models. One of the main findings from the logit estimates is gender difference in the likelihood of being employed. Males are more likely to be employed than females. This gender difference can be attributed to the influence of reservation wage and the fact that females might confine search to particular jobs. In other words, this supports the implications of the search theory: that is, as home production orientation increases, the reservation wage increases. Another explanation for this can be the fact that women have comparative advantage in home production while men have comparative advantage in wage work.

The other important finding is related to the impact of education on being employed. Controlling education by using male-education interaction dummies, we find that the impact of education is higher for females than for males. A possible reason for this could be the fact that the rate of return to schooling for females is higher than males. Among vocational high school and university graduates, females are more likely to be employed than their male counterparts. This has probably links with the presence of CMS. For females, during the transitions from school to work, there is no career interruption like CMS. Therefore, females' transitions from school to work may be smoother than males.

From the demand side of the labor market, employers do not want to hire individuals who have not completed their military service. In other words, the ones who do not complete their CMS will probably have fewer job opportunities. Therefore, the arrival rate of job offers will be different for those who complete their CMS. Turning to the supply side, this fact is likely to influence behavior of young males and hence observed patterns. We can deduce this influence by using retrospective information. We find that males who were in military service a year ago have a higher probability of being employed than the ones who were inactive and the ones who were in school. The effect of being in military a year ago on being employed is 1.3 times higher than the effect of being in school a year ago for 20-24 year-old males.

For 25-29 year-old males, the effect of being in military is 2 times higher than the effect of being in school a year ago. Furthermore, presence of CMS enables us to test the human capital accumulation and depreciation effect. As diccussed earlier, as education level increases, the depreciation of human capital increases and this phenomenon is valid especially for those whose occupations required specialization.Therefore the probability of a vocational high school graduate/university graduate to obtain work who were in military service is lower than those with lower education.

The distribution of employment status of young individuals by gender and by residential area is not the same. In urban areas, the share of wage workers among females is higher than males while the reverse is true in rural areas. However, during the period 1998-2009, the share of wage workers displayed an increasing trend and the increase among females was higher. Therefore, the gender gap is closing. This is more obvious in urban areas. Thus, we also run a model to estimate the ffects of determinants of being a wage worker conditional on being employed. This is one of the focus points of Chapter 5.

We find that the probability of being a wage worker is higher for males who were non-wage workers in the previous year than females who were non-wage workers in the previous year. This has probably links with the implications of the dual labor market theory: females are less likely to transit from secondary sector to the primary sector as compared to males. Furthermore, we also deduce from the estimation results that the effect of education differs between males and females on being a wage worker: the impact of education is higher for females than males.

The last finding is about the impact of householdsize on being employed. We run an additional model by including householdsize in the models. We use this variable as a proxy for family resources. For males, having more family resources leads to a decrease in the probability of being employed. This is valid for all age groups. However, for 20-24 and 25-29 year-old females, having more family resources leads to an increase in the probability of being employed. When we look at the model for being a wage worker, having more family resources decreases the probability of being a wage worker conditional on being employed. This is true not only for males but also females.

CHAPTER 6

FIRST PERMANENT JOB AFTER SEPERATION FROM SCHOOL

Young cohorts in Turkey are spending more time in school, especially following the change in the compulsory education law in 1997. In addition, in 2010, the youth (15-24 year-olds) unemployment rate in Turkey (21%) is higher comparing with Germany (9.7%), Austria (8.8%), Denmark (13.8%), Netherlands (8.7%), Norway (9.3%) and Switzerland (7.2), it is lower than most of the European members (for examples: Greece (32.9), Spain (41.6%), Sweden (25.2%), Italy (27.9%)). Comparing the youth unemployment in Turkey with the youth unemployment in total OECD (16.7), USA (18.4%), it is higher in Turkey[1]. In 2010, for the case of young individuals who are not in school and not in labor force, comparing with EU27 (57%), the ratio of those young individuals is a little higher in Turkey (62.6%). Comparing the ratio in Germany (48.7%), Austria (41.2%), Denmark (32.6%), Switzerland (32.1), Spain (57.3%), it is higher in Turkey. However, share of young individuals who are in school among the ones who are not in school and not labor force is very low in Turkey. It is only 58.9% while it is 87.8% in Euro27[2]. From these comparisons, one can say that Turkey is one of the worse among the European countries, especially looking at the share of individuals who are in school.

Turkey has a growing young population therefore, as it is mentioned in the previous chapters; Turkey has a demographic gift especially to design a sustainable pension scheme. From this point of view, today’s jobless young individuals will endanger the future of social systems. Thus, it is important to provide the opportunity for younger individuals to have a successful transition from school to work. If successful entry into labor market after graduation is taken as evidence of success of the education system, then difficulties in finding a job soon after graduation can be thought of as a signal of problems. Prolonged transition may serve as a negative signal, attach

[1] Source: Labour market statistics: Labour force statistics by sex and age: indicators, OECD Employment and Labour Market Statistics (database)
[2] Source: http://appsso.eurostat.ec.europa.eu/nui/setupModifyTableLayout.do

stigma to the searcher and adversely affect future career prospects. In addition to this, long periods of unemployment lead to discouraged workers, scarring effects, social alienation and societal problems (El-Hamidi and Wahba, 2005).

The fact that unemployment is a function of not only the number of unemployed but also the length of unemployment should be kept in mind during the analysis of unemployment. For example, a country may have low incidence of unemployment but a long duration while the other may have high incidence of unemployment but short duration. Therefore, policies to deal with unemployment would be different in each case. Therefore, it is important to study both transition to first job and duration after permanent separation from school in order to fully understand the nature of youth unemployment.

In this chapter, we mostly focus on the likelihood of obtaining the first permanent job, the time it takes to find the first permanent job and the first permanent paid job to shed light on the recent evolution of the transition from school to work[3]. We use the modular survey administered together with the Household Labor Force Survey in the second quarter of 2009 which targeted 15-34 year-old individuals. Therefore, it is possible to study a 20-year time span during which many changes took place in the Turkish economy.

We apply logit models for examining the incidence of the probability of having ever worked, obtaining the first permanent job and obtaining the first permanent paid job after separation from school. As explanatory variables we use dummies for years of separation from school and age, gender and urban dummies. We choose separation year 2000 as the base year therefore we are able to analyze the effect the structural change in the economy and the crises on the transition from school to work. The main reason for taking 2000 as the base was the distinction between policy in the 1990s and 2000s. The comparison is done with a good year since the employment rate for the entire population took the highest value in the year 2000 after 1991. Furthermore, one should not forget that during the 1990s, there are coalition

[3] Permanent job: Job which is equal to 3 months or longer.

governments and political economy and these probably affect the transition from school to first permanent job.

Since year 2000 can be stated as a good year with respect to macro-economic conditions, we are able to compare all of the individuals whose YSFSs are other than 2000 and the ones whose YSFSs are 2000. In addition to this, we analyze how the transition from school to work differs across permanent years of separation from school. We find out that the effects of YSFSs that coincide with the crises years on obtaining the first permanent job and obtaining the first permanent paid job are significant. Some of the YSFSs have negative effects on the probability of obtaining the first permanent job and obtaining the first permanent paid job while some of them have positive effects. In addition to this, the changes in the trade regime (in 1996 and 2001) have also significant effects on the probabilities. Moreover, the recent YSFSs have negative effects on the probabilities since the elapsed time after separation from school is short[4]. Note that, we examine that the effects of YSFSs differ among the education levels. Although we cannot see any significant effect of YSFSs on the probabilities among the lower education level, the significant effect of YSFSs are on the scene for vocational high school graduates.

In order to analyze the determinants of duration of obtaining the first permanent job, we use the Cox Proportional Hazard (PH) Model which allows us to draw inferences about the effects of explanatory variables without any knowledge of the functional form of the baseline hazard. We use months since permanent separation from school as the dependent variable in a hazard model where the transition to the first jobs the event of interest. We use dummies for year of separation from school. We also study the shape of the baseline hazard non-parametrically by strata to shed light on the transition patterns. We examine that the cumulative baseline hazards show variations among education levels. For vocational high school graduates, the hazard rates of obtaining the first permanent paid jobs are higher than for the university graduates. In addition, we find out that the hazard rate also changes over time. Especially for the

[4] In this research, if the year in question is equal to or greater than the year obtained when the time span considered is subtracted from 2009, we call that YSFS a'recent' year. For example: If we use a 36-month time span, 2006 and years following that are called recent years (2009-36 months (3years)=2006).

university graduates, this change is remarkable. Having the breadwinner characteristics leads males to shorten the duration of obtaining first permanent job. Nevertheless, we find out that the effect of being male decreases over time.

Other influences we are able to investigate are gender and parental education. Using parental education, we try to tease out the influences of unobservable (i.e family resources, family specific human capital and school quality, emotional support, social networks or cultural capital etc…) that typically undermine transition studies. We use mother's education as a proxy for quality of education while father's education as a proxy for family resources. We find that mother's education has a positive impact on the hazard rate. On the other hand, we do not find any significant effect of the father education on the hazard rate.

We begin our investigation in the next section with the examination of the modular survey administered together with the Household Labor Survey (HLFS) in the second quarter of 2009 and then we analyze the likelihood of obtaining the first permanent job and obtaining the first permanent paid job. Afterwards, we scrutinize the time it takes to find the first permanent job/obtaining the first permanent paid job (of three months or longer). In that section, we give the descriptive statistics of the data and then give a brief explanation about the methodology we use. We then move to our descriptive findings using non-parametric methods. We end that section with semi-parametric estimation results.

6.1 2009 Modular HLFS

In this section, we provide detailed information on the data set used in this chapter. We use the modular survey administered together with the Household Labor Force Survey in the second quarter of 2009 which targeted 15-34 year-old individuals. In this survey, there are questions on the first permanent job held by the individual following permanent separation from school. Therefore, it is possible to study transition behavior over a 20-year time span during which many changes took place in the Turkish economy.

In the Household Labor Force Surveys the reference period for most labor market questions is the week preceding the survey. Different from the regular survey application, in this modular survey, individuals are asked about the timing of their first permanent job following permanent separation from school. In other words, there are retrospective questions on previous labor market states of individuals. We can use these retrospective questions to see whether the person has changed his/her labor market state following permanent separation from school. For example, the individual may currently be either unemployed or out-of-the labor force though he/she might have held a permanent job after separation from school. He/she might still be in the labor market but he/she might be currently working in a job different from his/her first permanent job. Note that if the person is still holding the same job (i.e. his/her first permanent job), this information can be gathered from the main HLFS questions. The labor market situation of individuals who never obtained a permanent job after separation from school can also be gathered from the main HLFS questions. Hence, in understanding the transition from school to first permanent job, we employ the main part of the HLFS as well as the modular survey.

In the modular survey, there are detailed questions about the first permanent job held after separation from school. These questions include: the year and the month in which the individual started his/her first permanent job; the way in which he/she found this job; occupation held; status in employment (wage worker vs. non-wage worker); part-time-full time status, duration of the job, the labor market state in between the period of obtaining first permanent job and separation from school; reasons for not searching a job if did not hold a job right after school and the like. In addition to that, there are detailed questions about separation from school: year and month of separation from school, labor market situation after separation from school, reasons for not continuing education and the like. These questions are employed in the analyses contained in this chapter. However, we have neither information about the start year of the education nor information whether individuals repeat the class in the data. Therefore, during the descriptive statistics, we construct the variable ‘timing of separating from school’ by using the information about the highest education level, age and years of separation from school. In Section 6.2 we look at whether the individual has ever worked and whether he/she held a permanent job/ permanent paid job after separation from school. In Section 6.3, we look at the time it took the individual to obtain the first permanent job and the first permanent paid job. In other words, the second part of Chapter 6 makes use of the modular part of HLFS in constructing an indicator showing the elapsed time between separation from school and the first job.

Beside the questions about first permanent job after separation from school, this survey also provides information about parents' education level. Until this modular survey, this information is not directly questioned; one could only indirectly generate this information by using each household's information and individuals' characteristics in that household. The direct information is likely to be more accurate. In the empirical analyses we make use of mother's and father's education levels.

After giving detailed information about the data set, now we turn to our sample. In this modular survey, there are 39,243 individuals. We restrict the sample to 29,911 individuals who are not continuing their education since we are interested in understanding the first job held after separation from school. We exclude individuals with disabilities (694 cases-these are individuals who self-declared themselves to have disabilities that preclude them from searching or holding a job) from our sample. In addition to this, literate individuals without a diploma (4192) are also excluded from our sample since they are not asked whether they got a permanent job after permanent separation from school. After these exclusions we are left with 25,401 individual cases in our operational sample. Of these, 19,457 (76.6 %) individuals are found to have ever worked and 87% of these have had a successful transition to a permanent job, while the rest (13%) had never held a permanent job. In addition, among the individuals who obtain their first permanent jobs, most of them obtain their first permanent paid jobs in other words, they are wage workers in their first permanent jobs (Figure 6.1)

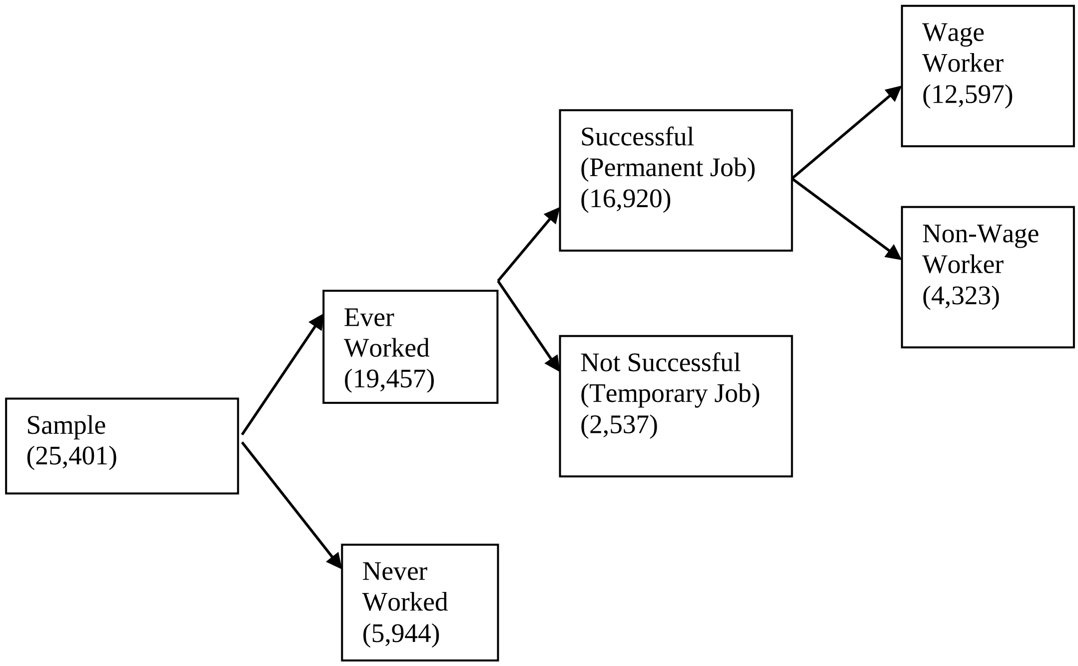


Figure 6.1: Number of Observations in the Sample
Source: 2009 Modular HLFS

6.2 Likelihood of Obtaining the First Permanent Job

In this section, we mainly focus on analyzing the determinants of having ever worked, obtaining first permanent job and obtaining first permanent paid job after separation from school. Note that, the effects of YSFS (years of separation from school) on the duration of obtaining the first permanent job should be examined to have a better understanding of the effect of YSFSs on the probability of getting the first permanent job. At this point, one can ask what the benefit of doing the logit analysis is if the duration analysis makes uses of more information. Applying a logit analysis is a good exercise to basically understand whether the impacts of YSFSs differ between the probability of having ever worked and obtaining the first permanent job given that the month and year information is only available for first permanent job. Since the parameters have same signs and their magnitudes are nearly the same, we may claim that the results of duration analyses of obtaining a job after separation from school would be more or less the same as the one for obtaining the first permanent job if we had more detailed information. This is expected since most of the ever worked individuals have had a successful transition to a permanent job: 87% of individuals who are found to have ever worked (19,457) have had a successful transition to a permanent job, while the rest (13%) had never held a permanent job.

In addition, the reason for analyzing the determinants of obtaining the first permanent paid job is to examine whether our results confirm the implications of Human Capital and Search Theory so that we are able to link our findings with the reservation wages of the individuals and the factors that affect the wages of the individuals. Moreover, we also analyze whether the factors which have effects on having ever worked, obtaining first permanent job and obtaining first permanent paid job show variations. As mentioned before, by choosing 2000 as the base year, we test whether the structural changes in the economy and crises have any impact on having ever worked, obtaining the first permanent job and obtaining first permanent paid job relative to this base year[5]. There are two sub-sections in this part. The first sub-section includes the methodology and descriptive statistics and the second sub-section covers the results of the logit regressions.

In interpreting the year effects, there are many structural changes that have to be kept in mind. One of them is compulsory education reform of 1997 which increased compulsory education from five to eight years. There is another change in the education system 1998. The Council of Higher Education (COHE) put a limit on the university choices of students who graduate from vocational and technical schools (Tunalı, 2003). In 2002 a law was implemented that provided vocational high school graduates with a right to be directly transferred to the vocational higher schools of universities (Sönmez, 2008). In addition to these changes, as it is discussed in Chapter 3, certain expectations formed among the society concerning a solution to the "coefficient factor problem" in the Student Selection and Placement Examination, after AKP acceded to power. Therefore, these changes may also have effects on youth in the labor market, especially via vocational high school graduates. There are other changes related to the economy. In 2000, the Agricultural Reform Implementation Project (ARIP) was launched aiming at reducing subsidies, substituting a support system for agricultural producers to increase the productivity

[5] One should not forget that the employment rate in 2000 is one of the highest values during the period 1988-2010 (Chapter 3). Therefore, being not different from the individuals whose YSFSs are 2000 should not be interpreted as an undesirable situation.

and responsive to real comparative advantage (World Bank, 2001). The changes in the trade regime of the country may also have effects on the labor market situation of the young individuals. In January 1996, there was an important change in the trade regime of Turkey: The Custom Union came into force and therefore a free trade area was established between Turkey and the European Union. In 2001, Free Trade Agreements (FTAs) were signed with the European Free Trade Association Countries, Israel, and the Central and Eastern European (CEE) countries. In addition, another influential development was the 2008/2009 global economic crisis, which starts to show its impacts on the labor market in 2008. Note that, one should not forget the following point during the analysis concerning the effects of YSFSs on having ever worked, obtaining first permanent job and obtaining first permanent paid job: Having had only a short period of time after separation from school leads the recent YSFSs to significantly differ from the base YSFS 2000.

As the Search Theory implies obtaining a job is related to the job arrival rate and also the non-labor income; and obtaining first permanent paid job is also affected by these two factors. First of all, it is a well-known fact that aggregate demand conditions could influence both the overall offer wage distribution and the arrival rate of job offers. Therefore, bad economic conditions may have a negative effect on obtaining the first permanent paid job. On the other hand, bad economic conditions lead to a decrease in parental resources that would have been otherwise available (Alba-Ramirez et al. 2010). Therefore, they cannot support their children as much as they did before. This leads non-labor income of young individuals to decrease and consequently, the reservation wage of an individual decreases and then they accept an offer which they would not accept in the normal economic conditions. Therefore, search theory is not able to provide a precise prediction on the sign of the relationship between the bad economic conditions and obtaining a job (as discussed earlier in chapter 2). Of course, one can interpret the effects of YSFSs via human capital theory. As the human capital theory implies, wage is a function of human capital and the rate of returns to human capital, market wages would be different according to education levels. From this point of view, individuals with different levels of education are probably affected differently from the economic conditions and the gap among the education levels differs accordingly.

There may be another reason for YSFSs which coincide with the crisis to differ from the base YSFS 2000. This is related to the opportunity cost of attending school and the ability to finance education. The opportunity cost of attending school decreases during the periods of bad economic conditions. From this point of view, schooling is countercyclical (Betts and McFarland 1995; Sakellaris and Spilimbergo 2000; Dellas and Sekellaris 2003; Kahn, 2010). This leads to continuation of education. Bad economic conditions lead the parental resources, which would have been otherwise available, to decrease (Alba-Ramirez et al. 2010). Therefore, many families probably find it difficult to keep their children in school and this causes the dropout rates to increase in the crises years. To sum, the direction and size of the cyclical component to enrollment are influenced by two counteracting factors: the opportunity cost and the availability of funds. To sum up, from the human capital perspective, the labor market composition changes according to business cycle.

6.2.1 Methodology and Descriptive Statistics

Our sample consists of 15-34 year-olds[6]. In other words, we consider individuals who were born between 1975-1994. The earliest year of separation from school observed in the data set is 1985 (See Appendix L, Table L.1). Note that separation from school may be later than the graduation year of the highest education level since there are individuals who repeat a class, individuals who drop out from school or there are some individuals who return back to education and therefore their YSFSs are later than their counterparts in the same birth cohorts[7]. We generate the variables 'Before', 'On-time' and 'After' by using the information YSFSs and the age groups. Being in the 'Before' category implies that this individual's YSFS is before the required year for his highest education level[8]. Being in the 'After' category implies that this individual's YSFS is after the required year for his highest education level (he may start another education level but he may drop-out, he may start education late or he may spend more time completing a given level)[9].

[6] We have age categories in 5- year intervals.
[7] For more information see Appendix L, Table L.2
[8] This individual probably starts the education earlier than the regular age.
[9] For more information about how we construct the 'Before', 'Ontime' and 'After' variables, look at Appendix L, Table L.2.

In Table 6.1, timing of YSFS by highest education level of 15-34 year-olds is shown. The highlighted italic rows depict the number of observations in each education level. Among primary (5-year) school graduates, 39.8% of them have later YSFSs. These values are lower for the case of primary (8-year) school graduates (11.4%), high school graduates (14.1%) and vocational high school graduates (12.4%).

Comparing males and females, the share of males and females who are in 'Later' category are statistically the same. Turning to different education levels for the entire group, the share of 'Later' among university graduates is statistically different from the share of 'Later' among vocational high school graduates. The share of 'Later' among university graduates is 24.7% while the share of 'Later' among primary (5-year) school graduates is 39.8%. They are statistically different from each other. One can deduce from this table that the share of individuals who do not separate from school on time is not negligible. Therefore, although we control age and education in the models, it is expected that the YSFSs have effects on having ever worked and obtaining a permanent job after separation from school.

Table 6.1 Timing of YSFS by Last Education Level of 15-34 Year-olds

	Pri5	**Pri8**	**HGSCH**	**VOCHG**	**UNI**	**Total**
			MALE			
Before	0.017	0.020	0.124	0.078	0.003	0.043
OnTime	0.586	0.859	0.720	0.793	0.632	0.720
Later	0.397	0.121	0.156	0.129	0.364	0.237
Total	***1.00***	***1.00***	***1.00***	***1.00***	***1.00***	***1.00***
	3489	***3372***	***2033***	***1881***	***1608***	***12383***
			FEMALE			
Before	0.015	0.028	0.155	0.107	0.004	0.045
OnTime	0.586	0.866	0.722	0.777	0.699	0.700
Later	0.399	0.105	0.123	0.116	0.297	0.255
Total	***1.00***	***1.00***	***1.00***	***1.00***	***1.00***	***1.00***
	5437	***2898***	***1786***	***1272***	***1625***	***13018***
			TOTAL			
Before	0.016	0.024	0.139	0.089	0.004	0.044
OnTime	0.586	0.863	0.721	0.787	0.666	0.710

Table 6.1 Continued

Later	0.398	0.114	0.141	0.124	0.330	0.247
Total	***1.000***	***1.000***	***1.000***	***1.000***	***1.000***	***1.000***
	8926	***6270***	***3819***	***3153***	***3233***	***25401***

Source: 2009 Modular HLFS

In order to examine the determinants of having ever worked, obtaining the first permanent job and obtaining the first permanent paid job after separation from school, we use logit models. Our explanatory variables are given in Table 6.2.

Table 6.2 : Definitions of Explanatory Variables

Variable	Abbreviation	Definition
Personal Characteristics		
Male	Male	=1 if male; =0 if else
Urban	URB	=1 if residing in urban areas ; =0 if else
Age 15-19	A1519	=1 if 15-19 year-old ; =0 if else
Age 20-24	A2024	=1 if20-24 year-old ; =0 if else
Age 25-29	A2529	=1 if 25-29 year-old ; =0 if else
Age 30-34	A3034	=1 if 30-34 year-old ; =0 if else
Primary 5 year graduate	PRI5	=1 if primary (5-year) graduate ; =0 if else
Primary 8 year graduate	PRI8	=1 if primary (8-year) graduate ; =0 if else
High School graduate	HGSCH	=1 if general high school graduate ; =0 if else
Vocational High school graduate	VOCHG	=1 if vocational high school graduate ; =0 if else
University Graduates	UNI	=1 if university graduate ; =0 if else
Year of Separation from School		
Year 1985	Yr1985	
Year 1986	Yr1986	
Year 1987	Yr1987	
...	....	
Year 2008_9	Yr2008_9	

The information for each individual consists of the following[10]:

- ***Dependent Variable*:** having ever worked
- Regressors:
  - Gender Dummies (male, female), Age dummies (age 15-19 , age 20-24, age 25-29, age 30-34), YSFSs (yr1986, yr1987, yr1988, …,yr2000,

[10] Note that underlined variables show the reference categories.

yr2001,…yr2008_9), Education (primary (5-year) school, primary (8-year) school, high school, vocational high school, university)

- ***Dependent Variable*****:** obtaining the first permanent job
- Regressors:
  - Gender Dummies (male, female), Age dummies (age 15-19 , age 20-24, age 25-29, age 30-34), YSFSs (yr1986, yr1987, yr1988, …,yr2000, yr2001,…yr2008_9), Education (primary (5-year) school, primary (8-year) school, high school, vocational high school, university)
- ***Dependent Variable*****:** obtaining the first permanent paid job
- Regressors:
  - Gender Dummies (male, female), Age dummies (age 15-19 , age 20-24, age 25-29, age 30-34), YSFSs (yr1986, yr1987, yr1988, …,yr2000, yr2001,…yr2008_9), Education (primary (5-year) school, primary (8-year) school, high school, vocational high school, university)

Before moving the estimation results of the logit models, we summarize our hypothesizes in this section. We hypothesize that the individuals who have recent YSFSs are less likely to obtain the first permanent job after separation from school since the elapsed time after separation from school is short and there is a crisis in 2008. We hypothesize that the probability of obtaining the first permanent job for individuals who have YSFSs that coincide with structural change or crises years and YSFSs that ensue structural changes and crises years, are statistically different from those whose YSFSs are 2000. (Due to the structural changes/crises, there are changes in the wage arrival rates, in non-labor incomes of the individuals (which lead changes in reservation wages), schooling decisions etc.) We also test whether the impact of YSFSs change among education levels (Due to the change in education system in 1998 that limits the university choices of the students who graduate from vocational and technical schools). In addition, we test whether there is a gender difference in obtaining first permanent job (Due to the breadwinner characteristics of the males in the household). The last question is related to impacts of residential areas on the transitions from school to first permanent job. We hypothesize that individuals residing in rural areas have a higher likelihood of first permanent job than those residing in urban areas. (Due to the ease of finding jobs in agricultural jobs in rural areas).

6.2.2 Results

Ever Worked

We begin analyzing the determinants of having ever worked after separation from school. Table 6.3 depicts the normalized estimated coefficients of the logit models of having ever worked[11]. In each model, the estimated coefficients, which are normalized by the coefficient of 'YSFS 2008_9', are highlighted. In addition, the nonlight gray coefficients are significant. In the first column of Table 6.3, we pool all the education levels and use dummies for each educational level as independent variables. The educational base category for the pooled sample is primary (5-year) school graduates. The other base categories for dichotomous variables are: Female for gender, age 15-19 for age, rural for location and year 2000 for year of separation from school. The second column of Table 6.3 gives the results for a sub-sample of primary (5-year) school graduates, the third column for primary (8-year) school graduates, the fourth column is for vocational high school graduates, the fifth column for high school graduates and the sixth column for university graduates. At the bottom of the table, the incremental Likelihood Ratio test is used to test whether added variables are jointly statistically significant. From the Likelihood Ratio test results, we conclude that for all of the models, adding the variables are jointly statistically significant. Pseudo R-squared tests are given to see for which dependent variable (i.e. probability of having ever worked or having obtained the first permanent job) the variation is explained better. We start the interpretation of the impacts of YSFS on obtaining the first permanent job. We also use figures to render regression results more comprehensible.

[11] In order to see exact estimated results look at the Appendix M, Table M.1

Table 6.3: The Normalized Estimated Coefficients of Logit Models of Having Ever Worked

	ALL	PRI5	PRI8	VOCHGH	HGSCH	UNI
MALE	1.604	28.702	2.423	2.623	1.187	0.268
URB	-0.354	-4.162	-0.547	0.016	-0.194	0.070
A2024	0.172	1.854	0.194	0.225	0.475	0.412
A2529	0.372	0.894	0.738	0.766	0.708	0.571
A3034	0.575		0.900	0.683	1.253	0.980
PRI8	0.183					
HGHSCH	0.082					
VOCHG	0.652					
UNI	1.234					
1985	-0.248	1.399				
1986	-0.325	0.201				
1987	-0.241	1.061				
1988	-0.178	1.505	-0.193			
1989	-0.336	0.174	-0.723			
1990	-0.285	0.467	-0.685			
1991	-0.169	0.458	-0.909	0.167	-0.174	
1992	-0.121	-1.030	-0.240	2.134	0.162	
1993	-0.079	0.009	-0.265	0.018	-0.481	
1994	-0.197	-1.384	-0.456	0.309	-0.591	
1995	-0.087	-0.874	-0.239	0.854	-0.523	-0.655
1996	-0.067	-1.253	-0.526	0.022	-0.251	-0.291
1997	0.015	-1.833	-0.374	0.210	0.042	-0.284
1998	-0.060	-3.298	-0.240	0.294	-0.140	0.338
1999	0.008	-5.242	0.315	0.273	0.015	-0.177
Base Year-2000	base	base	base	base	base	Base
2001	-0.034	-4.869	-0.030	0.559	-0.056	-0.264
2002	0.010		0.101	0.209	0.044	-0.241
2003	-0.178	-0.324	-0.285	-0.284	-0.106	0.129
2004	-0.102	1.025	-0.099	0.630	-0.294	-0.200
2005	-0.165	-6.303	-0.230	0.058	-0.217	-0.171
2006	-0.202		-0.202	0.696	-0.396	-0.367
2007	-0.568	0.256	-0.665	-0.128	-0.644	-0.542
2008_9	***-1.000***	***-1.000***	***-1.000***	***-1.000***	***-1.000***	***-1.000***
Exact Coeff of 2008_9	***-1.665***	*-0.198*	***-1.137***	***-0.917***	***-1.559***	***-2.077***
Constant	0.129	3.111	0.412	0.463	0.017	0.830
Observations	25,401	8,919	6,270	3,153	3,819	3,223
Log-Likelihood w/o covariates	-13820	-5343	-3623	-1186	-2258	-945
Log-Likelihood	-10321	-3718	-2672	-952	-1755	-797
LR test: Incremental Chi-sq(d.f)	6997	3245	1901	467	1005	295
Pseudo R-sq	0.2532					

Source: Regression results in the Appendix M, Table M.1

Note: For the case of Primary (5-year) school graduates and university graduates, although we use the same number of observations in the logit models of having ever worked and obtaining a first permanent job, in regression results, we have different number of observations since there are some observations that are dropped due to 'predicts success perfectly'. This is due to the fact that there are small numbers in these cells and there is not variation. The difference for the case of primary (5-year) school graduates is 4 observations while it is 8 observations for university graduates.
Reference for 'all' model: female, rural, age 15-19, primary (5-year) school graduates, yr2000
Reference for each education level models: female, rural, age 15-19, yr2000

Years of Separation from School (YSFS)

In Figures 6.1 through Figure 6.5, we show the estimated YSFS coefficients of logit models of having ever worked. On the horizontal axis, YSFSs are shown, while the vertical axis shows the estimated YSFS coefficients. Dark gray bars reflect the significant coefficients at the 5% level, while the others are statistically insignificant coefficients.

Primary (5-year) school and Primary (8-year) school:

For primary (5-year) school graduates, except for the year 1999, none of the coefficients of the YSFS variables are statistically different from the base year 2000 at 5% level (Figure 6.2 and Figure 6.3). YSFS 1999 has a negative effect on having ever worked. This result has probably links with the increase in compulsory education. One of the reasons could be the fact that they continue their education. The other possible reason may be related to crises 1999 and the earthquake. For primary (8-year) school graduates, 1991, 2007 and 2008-9 have statistically negative effects on having ever worked relative to year 2000[12]. In comparison to the effects of YSFS 2007 and 2008-9, YSFS 2008-9 is statistically higher. There are different ways of explaining the direction of the effects of YSFSs. One of the reasons may be having had only a short period of time after separation from school and thus, individuals may have difficulties during the transition from school to work. The other is the 2008/2009 global economic crisis, which starts to show its impacts on the labor market in 2008. Yet another reason can be negative selection. After 2004, less selective individuals graduate from primary (8-year) school and there are more

[12] Note that for primary (8-year) school graduates, horizontal axis (years) starts with 1988 because in our data set there are no primary (8-year) school graduates before 1998 (Appendix L, Table L.1).

individuals whose abilities are less valued in the labor market and these individuals are less likely to be successful in the labor market[13].

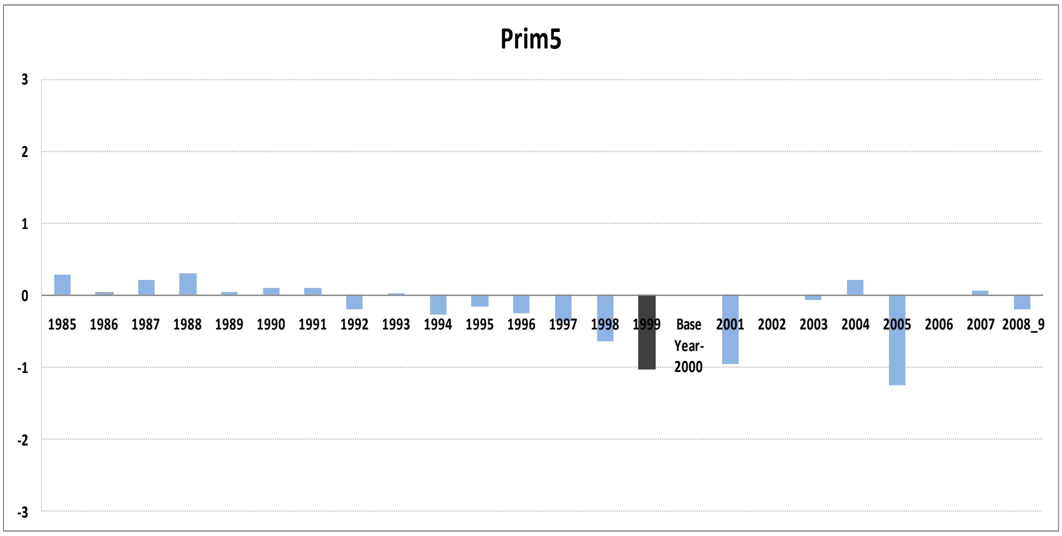


Figure 6.2: Estimated Coefficients for Year of Separation from School, Primary 5 Graduates

Source: Regression Results from Appendix M, Table M.1

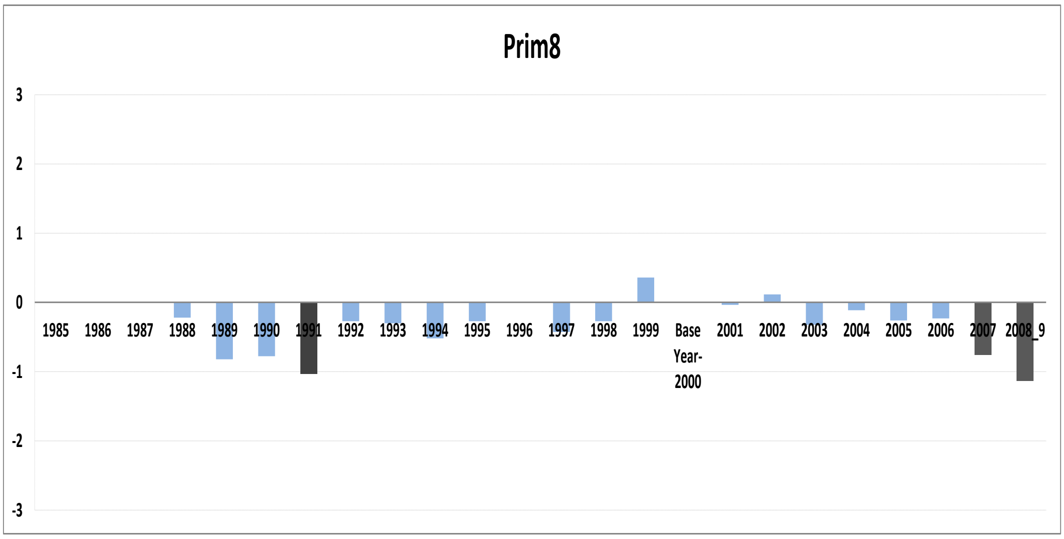


Figure 6.3: Estimated Coefficients for Year of Separation from School, Primary 8 Graduates

Source: Regression Results from Appendix M, Table M.1

[13] The first graduates from compulsory 8 year education are observed in 2004.

High School and Vocational High School

For high school graduates, YSFS 1994, 1995, 2006, 2007 and 2008-9 have negative effects on having ever worked (Figure 6.4). As Tansel and Daoud (2011) state, many students choose general high school with the hope of entering university; they prefer preparing for university entrance examination, after separation from high school, to working. Thus, they do not enter the labor market upon graduation from high school. As a result of this, the number of the significant years counted backwards from 2009 is three for high school graduates. On the other hand, this number is one for vocational high school graduates (Figure 6.5). In the vocational high school model, the probability of having ever worked is higher for individuals whose YSFSs is 1992 relative to their counterparts whose YSFS is 2000. For the case of high school graduates, the effects of YSFS 2007 and YSFS 2008_9 are statistically different. In addition, YSFS 2006 and YSFSs 2007 are statistically different, as well.

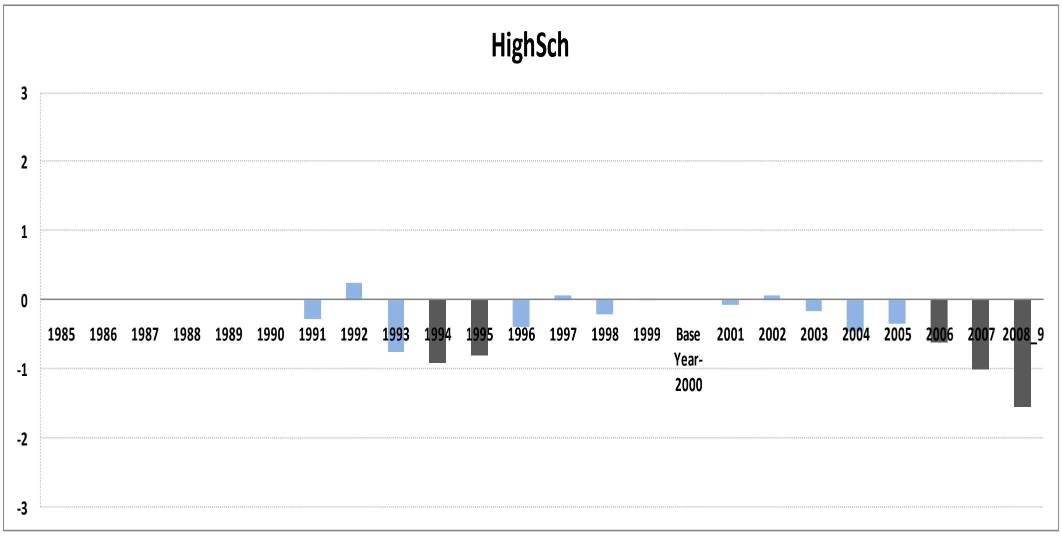


Figure 6.4 Estimated Year of Separation from School Coefficients, High School Graduates
Source: Regression Results from Appendix M, Table M.1

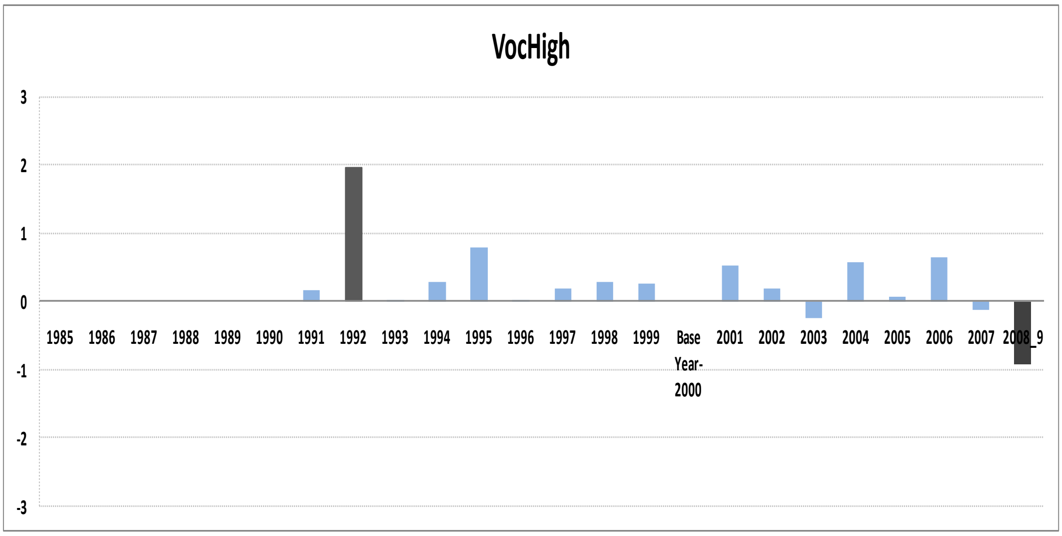


Figure 6.5 Estimated Coefficients for Year of Separation from School, Vocational High School Graduates
Source: Regression Results from Appendix M, Table M.1

University: YSFSs 2007 and 2008-9 have negative effects on having ever worked and the effects of YSFSs 2007 and YSFSs 2008_9 are statistically different (Figure 6.6). The effect of YSFS 2008_9 is higher than the effect of YSFS 2007. Two reasons may help us to explain this situation: First one is the fact that same as the other education level models the elapsed time after separation from school is shorter for those whose YSFSs are 2008-9 and 2007. The other one is the effect of the 2008 crisis on the labor market. Moreover, there is no statistically significant difference between those whose YSFSs are 2000 and after 2000 (except 2007 and 2008_9). This means nothing changes for university graduates. Note that, the employment rates for the entire population and for younger individuals have the highest values in year 2000 (as discussed earlier in Section 3.4.3). This year can be interpreted as a good year. Thus, being not different from the individuals whose YSFSs are 2000 should not be interpreted as an undesirable situation.

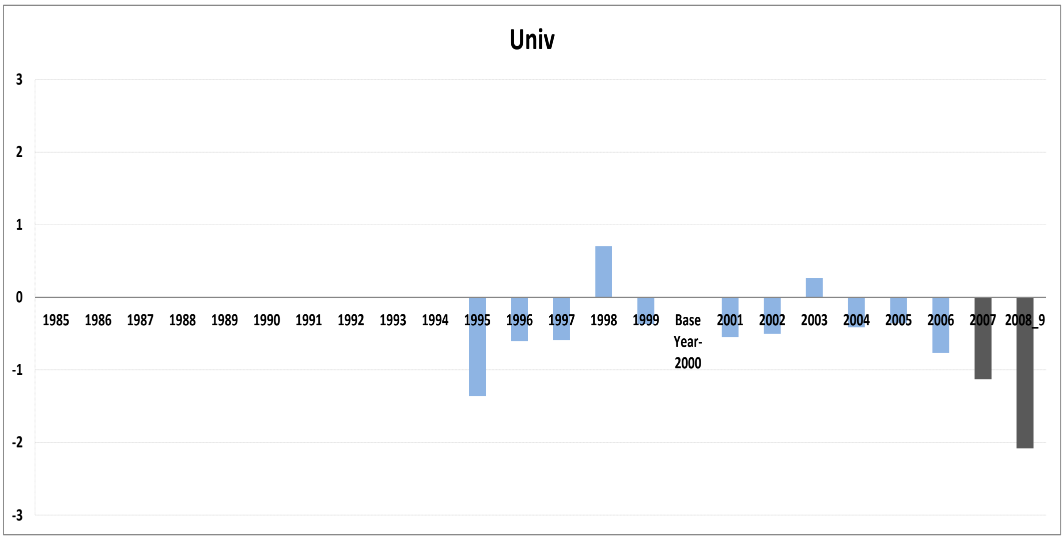


Figure 6.6 Estimated Coefficients for Year of Separation from School, University Graduates

Source: Regression Results from Appendix M, Table M.1

Gender

From the estimation results, we also find that the probability of having ever worked for males is higher than for females (Appendix M, Table M.1). From the supply side, this is probably due to males' breadwinner characteristics. From the demand side it may reflect the discrimination against women. However, the effect of being male is stronger in lower levels of education as compared to higher level of education. This reflects the fact that as education level increases, being male does not bring a priority in the labor market. Assuming that the job arrival rate is constant, less educated males may be less selective than their female counterparts, or discrimination against women is stronger for lower educated women nevertheless as education level increases, their attitudes become more alike.

Residential Area

The 'urban' variable refers to the place of the current residence of the individual. We do not have any information about the location where an individual got his/her first permanent job. For university graduates and vocational high school graduates, living in an urban area has no effect on having ever worked. On the other hand, for lower education levels living in an urban area have a negative effect on having ever worked

(Appendix M,Table M.1 - fourth and sixth column). From Figures in Section 3.4.3- that show the composition of employment by education for the entire population, it can be deduced that in rural areas the shares of vocational high school and university graduates have the two lowest values for employed males and females, respectively. This pattern is more or less the same for the age group 15-34 although the share of vocational high school and university graduates is on the rise. To conclude, individuals with lower education levels are more likely to be employed in rural areas. Our findings about the primary (5-year) school and primary (8-year) school graduates confirm this phenomenon. We examine that for the primary (5-year) school and primary (8-year) school graduates the probability of having ever worked in urban areas is lower than in rural areas. This also confirms that there are not enough job opportunities in urban areas for less educated labor surplus which flows to urban non-agricultural employment (İlkkaracan and Tunalı, 2010).

Age

The age effects for 25-29 year-olds and 30-34 year-olds have the same sign (positive) for primary (8-year) school graduates, high school graduates and university graduates models. In addition, among high school graduates, being in the age group 20-24 has a positive effect on having ever worked. However, in the primary (5-year) school graduate model, all of the age dummies are insignificant[14] (Appendix M, Table M.1,). In addition to this, at the vocational high school level, the effects of age dummies are insignificant.

<u>Obtaining the First Permanent Job:</u>

After analyzing the determinants of having ever worked after separation from school, we move onto the examination of the determinants of obtaining a permanent job after separation from school. As noted earlier first permanent job refers to job which is equal to 3 months or longer[15]. Table 6.4 depicts the normalized estimated coefficients of logit models of obtaining the first permanent job. The estimated coefficients which

[14] Note that for primary (5-year) school graduate model, since there is no 15-19 year-old primary (5-year) school graduates due to the compulsory education is 8 years for this age group, 30-34 year –old age dummy is dropped and therefore base category returns to be 30-34 year-olds.
[15] It includes all type of jobs: paid jobs and unpaid jobs.

are normalized by the coefficient of ‘YSFS 2008_9’ are highlighted. In addition, the nonlight gray coefficients are statistically significant. In the tables, the first column shows the normalized estimated coefficients for the entire sample, while the second column is for primary (5-year) school graduates. The third column depicts the primary (8-year) school graduates and the last three columns are for vocational high school graduates, high school graduates and university graduates, respectively. As it is mentioned previously, the reference category which is absorbed into the intercept is age 15-19 (for all of the models), primary (5-year) school graduates for the pooled model, and YSFS 2000.

At the bottom of the table, incremental Likelihood Ratio test is used to test whether added variables are jointly statistically significant. Pseudo R-squared tests are given to see for which dependent variable (i.e. probability of having ever worked or having obtained the first permanent job) the variation is explained better. The coefficients on the explanatory variables have the same sign (See Appendix M, Table M.1 and M.2). In addition to this, the explanatory power of the models calculated by Pseudo R-squared are nearly the same. In the following section, we only study the time it takes to obtain the first permanent job. As previously mentioned, data on the time it takes to obtain any job following separation from school is lacking.

Table 6.4: The Normalized Estimated Coefficients of Logit Models of Obtaining the First Permanent Job

	ALL	PRI5	PRI8	VOCHGH	HGSCH	UNI
MALE	1.304	1.620	2.041	2.027	1.194	0.310
URB	-0.265	-0.366	-0.398	-0.173	-0.177	0.102
A2024	0.074	0.034	0.151	0.062	0.515	0.427
A2529	0.306	0.001	0.593	0.547	0.915	0.600
A3034	0.551		0.781	0.632	1.290	1.026
PRI8	0.205					
HGHSCH	0.166					
VOCHG	0.625					
UNI	1.242					
1985	-0.170	0.021				
1986	-0.142	-0.006				
1987	-0.184	-0.043				
1988	-0.066	0.064	0.250			
1989	-0.220	-0.086	-0.135			
1990	-0.174	-0.061	-0.102			
1991	-0.112	-0.101	-0.346	0.298	0.496	
1992	-0.011	-0.163	0.207	1.830	0.232	
1993	0.051	-0.020	0.056	0.433	-0.170	
1994	-0.033	-0.136	0.107	0.586	-0.286	-1.121
1995	0.043	-0.128	0.132	1.045	-0.199	-0.489
1996	0.042	-0.154	-0.214	0.578	-0.093	-0.246
1997	0.133	-0.202	-0.030	0.809	0.137	-0.400
1998	0.136	-0.182	0.192	0.607	-0.057	0.217
1999	0.082	-0.412	0.363	0.436	0.010	-0.250
Base Year-2000	base	base	base	base	base	base
2001	0.090	-1.285	0.091	0.925	0.122	-0.101
2002	0.001	0.000	-0.016	0.614	0.150	-0.323
2003	-0.004	0.243	0.006	0.187	0.071	0.038
2004	-0.006	0.457	0.086	0.642	-0.168	-0.111
2005	-0.135	-0.742	-0.052	0.222	-0.333	-0.141
2006	-0.257	-0.159	-0.142	0.262	-0.501	-0.367
2007	-0.571	-0.267	-0.644	-0.319	-0.730	-0.418
2008_9	***-1.000***	***-1.000***	***-1.000***	***-1.000***	***-1.000***	***-1.000***
Exact coeff of 2008_9	-1.560	-1.715	-1.034	-0.839	-1.271	-1.962
Constant	-0.299	0.105	-0.313	0.031	-0.465	0.425
Observations	25,401	8,923	6,270	3,153	3,819	3,231
Log-Likelihood w/o covariates	-16178	-5987	-4160	-1622	-2527	-1370
Log-Likelihood	-12772	-4611	-3312	-1376	-2031	-1153
LR test: Incremental Chi-sq(d.f)	6812	2748	1697	491.8	993.4	433
Pseudo R-sq	0.2105					

Source: Regression results in the Appendix M, Table M.2

Note: For the case of Primary (5-year) school graduates and university graduates, although we use the same number of observations in the logit models of having ever worked and obtaining a first permanent job, in regression results, we have different number of observations since there are some observations that are dropped due to 'predicts success perfectly'. This is due to the fact that there are small numbers in these cells and there is not variation. The difference for the case of primary (5-year) school graduates is 4 observations while it is 8 observations for university graduates.
Reference for 'all' model: female, rural, age 15-19, primary (5-year) school graduates, yr2000
Reference for each education level models: female, rural, age 15-19, yr2000

Years of Separation from School (YSFS):

In Figures 6.7 through Figure 6.11, we show the estimated YSFS coefficients of logit models of obtaining the first permanent paid job. On the horizontal axis, YSFSs are shown while the vertical axis shows the estimated YSFS coefficients. Dark gray bars reflect the significant coefficients at the 5% level, while the others are statistically insignificant coefficients. Figure 6.7 presents the estimated year of separation coefficients for primary (5 year) school graduates, while Figure 6.8 is for primary (8 year) school graduates. Figures 6.9 to Figure 6.11 are for high school, vocational high school and university graduates, respectively.

Primary 5 and Primary 8: For the primary (5-year) school model, none of the coefficients of the YSFS variables are statistically different from the base year 2000 at 5% level (Figure 6.7 and Figure 6.8). For primary (8-year) school graduates, 2007 and 2008-9 have statistically negative effects while year 1999 has a statistically positive effect on obtaining the first permanent job relative to year 2000[16]. The effects of YSFSs 2007 and 2008_9 are statistically different. In comparison to the effects of YSFS 2007, YSFS 2008-9 is stronger. From these findings, one can say that for obtaining the first permanent paid job, the factors which have effects on having ever worked among primary (5-year) school and primary (8-year) school graduates are on the scene, as well: The 2008-9 global economic crisis and having had a short period of time after separation from school seem to negatively affect the employment prospects of these two groups of young people.

[16] Note that for primary8 year graduates, horizontal axis (years) starts with 1988 because in our data set there are no 8 year primary graduates before 1998 (Appendix L, Table L.1).

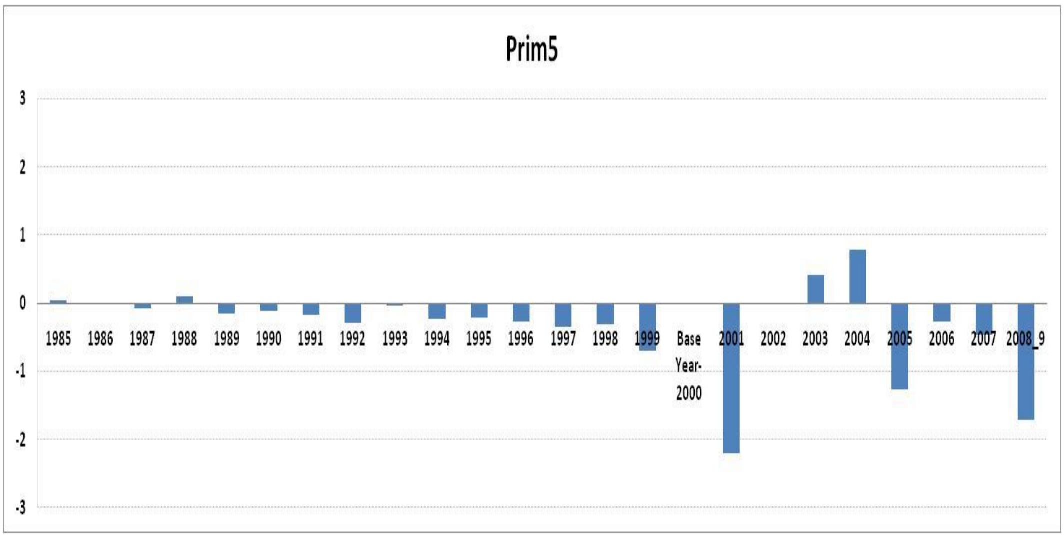


Figure 6.7: Estimated Coefficients for Year of Separation from School, Primary 5 Graduates

Source: Regression Results from Appendix M, Table M.2

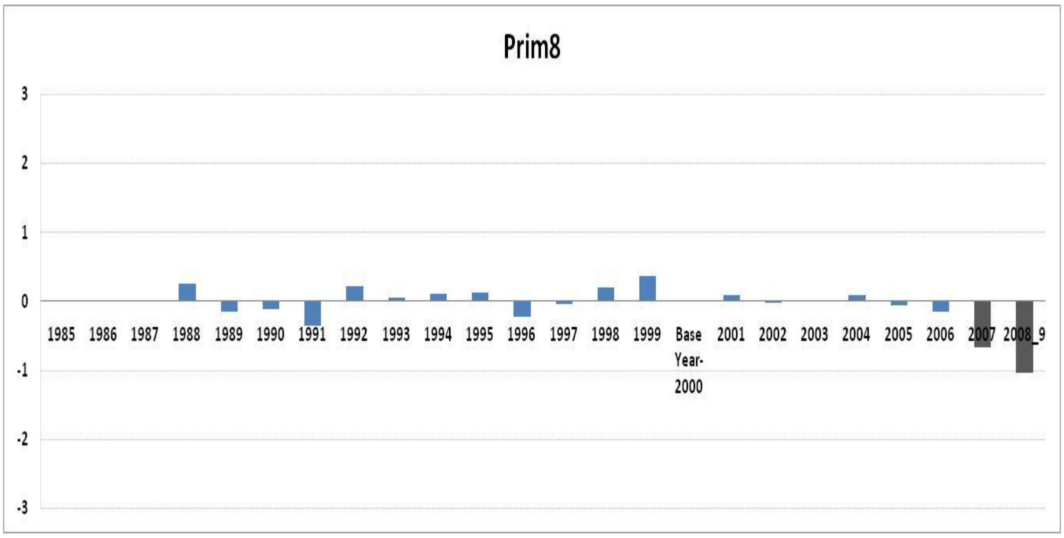


Figure 6.8: Estimated Coefficients for Year of Separation from School, Primary 8 Graduates

Source: Regression Results from Appendix M,Table M.2

High School and Vocational High School: For high school graduates, YSFS 2006, 2007 and 2008-9 have negative effects on obtaining the first permanent job (Figure 6.9). Note that the effects of YSFSs 2006 and YSFSs 2007 are statistically the same, while YSFSs 2007 and 2008_9 are statistically different. The number of the significant years counted backwards from 2009 is three for high school graduates while this number is one for vocational high school graduates. We do not repeat the reasons that may cause the variations among the vocational high school graduates and high school graduates. Shortly, one can say that high school graduates are more likely to prepare for the university exam while vocational high school graduates are more likely to enter the labor market. Therefore, after separation from school, the probability of obtaining the first permanent job is higher for vocational high school graduates. In the vocational high school model, the probability of obtaining a permanent job is higher for individuals whose YSFSs are 1992, 1995, 1997 and 1998 relative to their counterparts whose YSFS is 2000 (Figure 6.9). The effects of YSFSs 1992 and 1995 and 1992 and 1997 are statistically the same. In addition to this, although year 2001 is a crisis year, those whose YSFS is 2001 are more likely to obtain a permanent job than those whose YSFS is 2000. (Note that the effects of 2001 and 1992 are statistically the same.) As a result of trade liberalization in Turkey, Meschi et al. (2008) found out that there is an increase in the demand for skilled labor in the manufacturing sector. In this regard, the positive effects of YSFSs 1997, 1998, 2001 and 2002 on obtaining a permanent job for vocational high school graduates are not surprising since those YSFSs are the ensuing years when changes in the trade regime of Turkey occurred in January 1996 and in 2001.

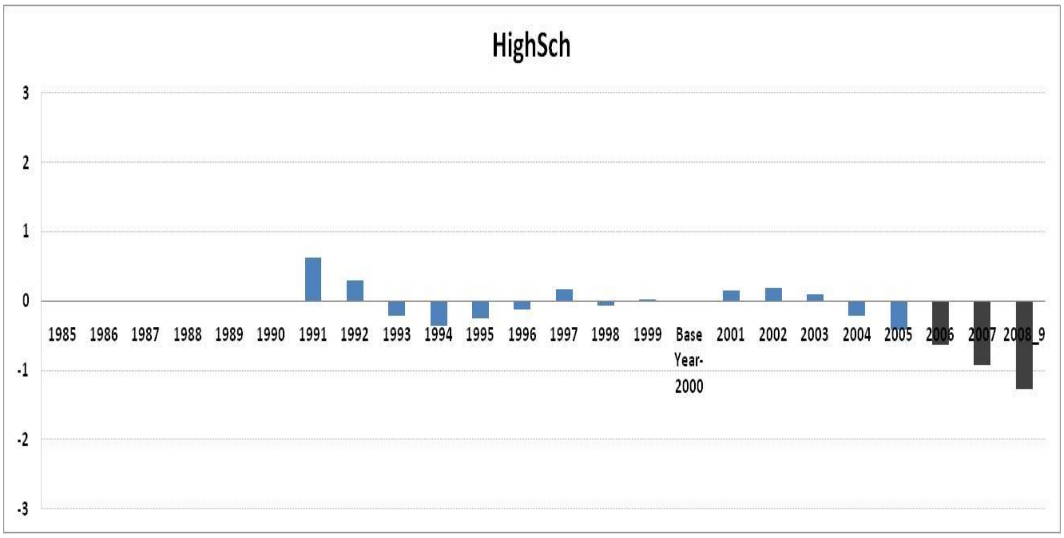


Figure 6.9: Estimated Coefficients for Year of Separation from School, High School Graduates
Source: Regression Results from Appendix M,Table M.2

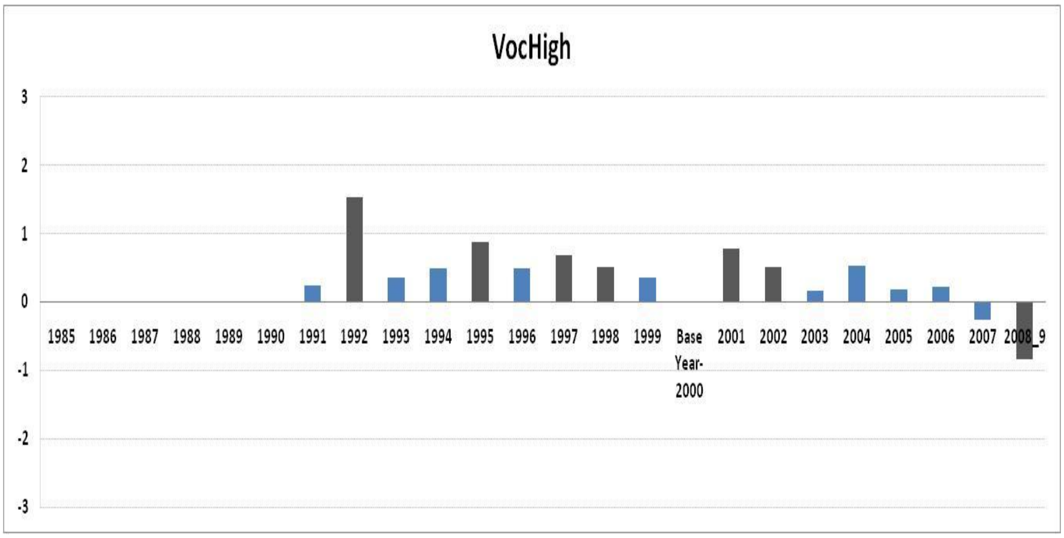


Figure 6.10: Estimated Coefficients for Year of Separation from School, Vocational High School Graduates
Source: Regression Results from Appendix M,Table M.2

University:

Year 1994 has a statistically negative effect on obtaining a first permanent job among university graduates (Figure 6.11). The ones whose YSFSs are 2007 and 2008-9 are less likely to be successful in obtaining a permanent job compared to those whose YSFSs are 2000. The effects of YSFSs 2007 and 2008_9 are statistically different. In addition, comparing the effects of 1994 and YSFSs 2007, we cannot find a statistically significant difference. The same result is found for the case of YSFSs 1994 and 2008_9. Two explanations may be offered to explain the situation that having recent YSFSs has a negative effect on obtaining a first permanent job: First one is that, same as the other education level models, the elapsed time after separation from school is shorter for those whose YSFSs are 2008-9 and 2007. The other explanation is the effect of the 2008 crisis on the labor market. Moreover, there is no statistically significant difference between those whose YSFSs are 2000 and after 2000 (except 2007 and 2008_9). This means nothing changes for university graduates over time. Note that, among university graduates, although the crisis year 1994 affects the probability of obtaining the first permanent paid job, it does not have any significant effect on having ever worked.

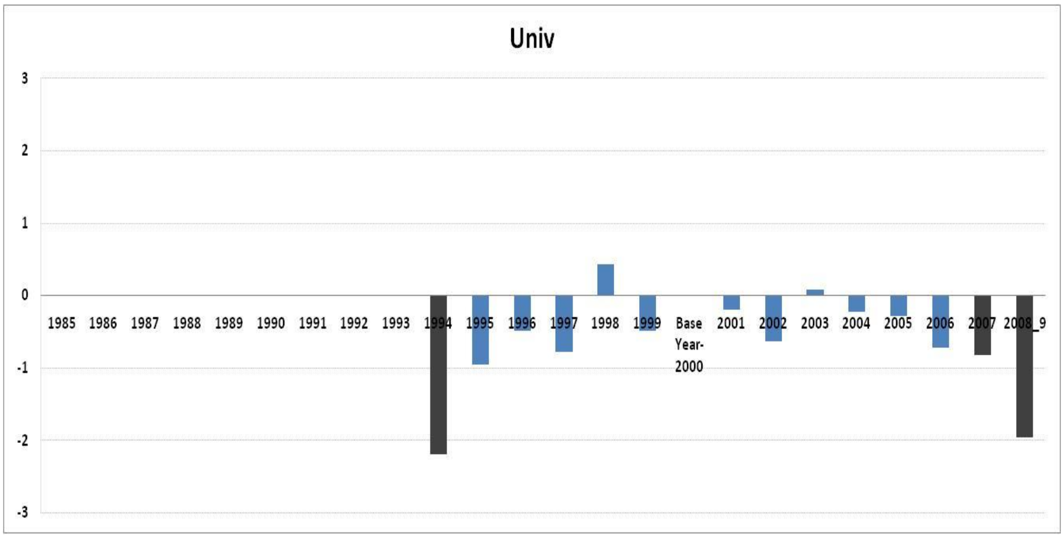


Figure 6.11: Estimated Coefficients for Year of Separation from School, University Graduates
Source: Regression Results from Appendix M,Table M.2

Males:

From the estimation results, we also find that the probability of obtaining a first permanent job for males is higher than for females (Table 6.4). From the supply side, this is probably due to men's breadwinner characteristics. From the demand side it may reflect discrimination against women. However, the effect of being male is stronger in lower levels of education as compared to higher level of education. This reflects the fact that as education increase, being male in the labor market does not bring an advantage. Assuming that the job arrival rate is constant, less educated males may be less selective than their female counterparts, nevertheless as education level increases, their attitudes become more alike.

Residential area:

As mentioned before, the 'urban' variable refers to the place of the current residence of the individual. In other words, we do not have any information about the location where an individual got his first permanent job. For university graduates and vocational high school graduates, currently living in an urban area has no effect on obtaining a first permanent job. On the other hand, for lower education levels living in an urban area have a negative effect on obtaining a first permanent job (Appendix M, Table M.2- fourth and sixth column).

Age:

The age effect has the same sign (positive) in all the models but in 5 year primary level model age dummies become insignificant (only being 20-24 year-old has a positive effect on obtaining a first permanent job relative to being 15-19 year-old or 30-34 year-old[17]) (Appendix M, Table M.2). In addition to this, at the vocational high school level, the effects of age dummies are insignificant.

Obtaining the First Permanent Paid Job:

After analyzing the determinants of obtaining the first permanent job after separation from school, we move to examine the determinants of obtaining first permanent paid job after separation from school. Table 6.5 presents the normalized estimated coefficients of logit models of obtaining a permanent paid job[18]. The estimated coefficients which are normalized by the coefficient of 'YSFS 2008_9' are highlighted. In addition, the light gray coefficients are insignificant. In the tables, the first column shows the normalized estimated coefficients for the entire sample while the second column is for primary (5-year) school graduates[19]. The third column depicts the primary (8-year) school graduates and the last three columns are for vocational high school graduates, high school graduates and university graduates, respectively. The reference categories which are absorbed into the intercept is age 15-19 (for all of the models), primary (5-year) school graduates for the pooled model, and YSFS 2000.

At the bottom of the table, incremental Likelihood Ratio test is used to test whether added variables are jointly statistically significant. We begin with of the impacts of YSFS on obtaining the first permanent paid job.

[17] Note that for primary 5 year model, since there is no 15-19 year-old primary 5 year graduates due to the compulsory education is 8 years for this age group, 30-34 year –old age dummy is dropped and therefore base category returns to be 30-34 year-olds.
[18] The exact coefficients are in Appendix M, Table M.3
[19] We do not report the results of primary (5 year) school graduates since YSFS 2008_9 is dropped.

Table 6.5: The Normalized Estimated Coefficients of Logit Models of Obtaining the First Permanent Paid Job

	ALL	PRI5	PRI8	VOCHG	HGHSCH	UNI
MALE	1.346		2.415	2.120	0.787	-0.037
URB	0.786		1.436	1.427	0.615	0.299
A2024	0.259		0.487	0.417	0.614	0.671
A2529	0.541		0.870	1.183	0.915	0.954
A3034	0.665		0.915	1.133	1.161	1.338
PRI8	0.346					
HGHSCH	0.411					
VOCHG	1.085					
UNI	1.815					
1985	-0.727					
1986	-0.196					
1987	-0.293					
1988	-0.239		-1.559			
1989	-0.293		-0.325			
1990	-0.155		0.011			
1991	-0.084		-0.203	0.441	0.965	
1992	-0.069		0.259	2.566	-0.261	
1993	-0.001		0.179	0.643	-0.405	
1994	-0.071		-0.235	0.949	-0.118	-1.243
1995	0.066		0.246	1.412	-0.310	-0.891
1996	0.029		0.129	0.824	-0.164	-0.461
1997	0.094		0.017	1.164	-0.051	-0.188
1998	0.028		0.001	0.443	0.037	0.067
1999	0.091		0.222	0.366	0.142	0.249
Base Year-2000						
2001	0.062		-0.100	1.173	0.182	0.022
2002	0.097		-0.043	0.660	0.333	0.058
2003	0.066		-0.192	0.542	0.144	0.452
2004	0.139		0.244	1.494	-0.147	0.191
2005	-0.028		-0.096	0.976	-0.290	0.309
2006	-0.089		0.107	0.877	-0.466	-0.015
2007	-0.453		-0.503	-0.518	-0.627	-0.181
2008_9	***-1.000***	***Dropped***	***-1.000***	***-1.000***	***-1.000***	***-1.000***
Exact Coeff of 2008_9	*-1.069*		*-0.698*	*-0.415*	*-1.018*	*-1.094*
Constant	-2.064		-3.067	-1.870	-1.442	0.130
Observations	25,401	8,917	6,270	3,153	3,819	3,231
Log-Likelihood w/o covariates	-17606	-5882	-4282	-1955	-2647	-1671
Log-Likelihood	-14419	-4702	-3570	-1831	-2378	-1541
LR test: Incremental Chi-sq(d.f)	6373	2349	1423	248.4	538.6	258.4

Source: Regression results in the Appendix M, Table M.3

Note: For Primary (5-year) school graduates, Although we use the same number of observations in the logit models of having ever worked and obtaining first permanent paid job, in regression results, we have different number of observations since there are some observations that are dropped due to 'predicts success perfectly'.

Reference for 'all' model: female, rural, age 15-19, primary (5-year) school graduates, yr2000
Reference for each education level models: female, rural, age 15-19, yr2000

Years of Separation from School (YSFS):

In Figures 6.12 through Figure 6.15, we show the estimated YSFS coefficients of logit models of having ever worked. On the horizontal axis, YSFSs are shown while the vertical axis shows the estimated YSFS coefficients. Dark gray bars reflect the significant coefficients at the 5% level. Others are statistically insignificant coefficients. Figure 6.12 presents the estimated year of separation coefficients for primary (8 year) school graduates. Figures 6.13-6.15 are for high school, vocational high school and university graduates, respectively.

Primary 8: For primary (8-year) school graduates, only 2008-9 has statistically negative effects on obtaining the first permanent paid job. Again, having had only a short period of time after separation from school, 2008/2009 global economic crisis and negative selection can be reasons for the significant negative effect of YSFS 2008-9 on obtaining the first permanent paid job.

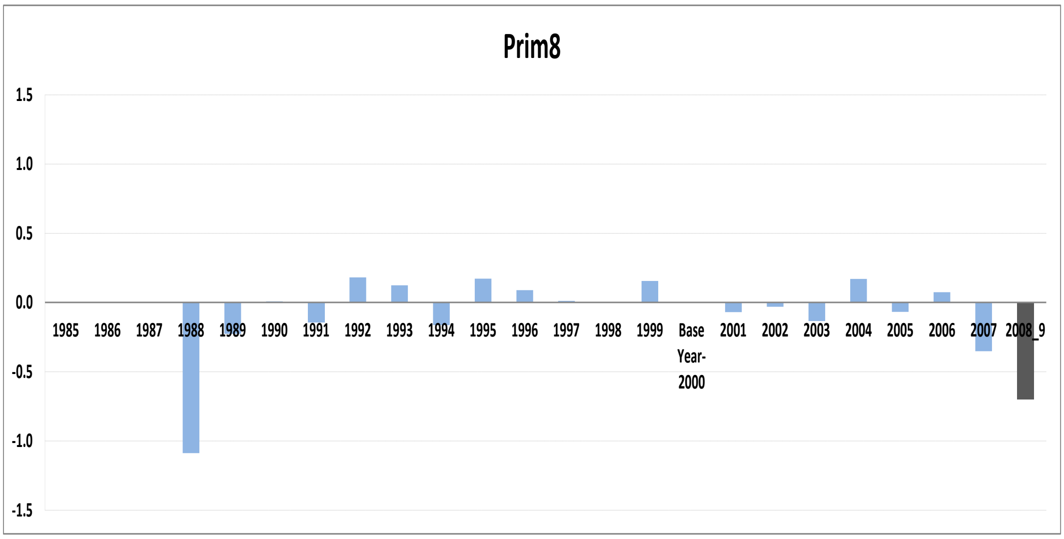


Figure 6.12: Estimated Coefficients for Year of Separation from School, Primary 8 Graduates
Source: Regression Results from Appendix M,Table M.3

High School and Vocational High School: For high school graduates, YSFS 2006, 2007 and 2008-9 have negative effects on obtaining the first permanent paid job

(Figure 6.13). Note that the effects of YSFSs 2006 and YSFSs 2007 are statistically same while YSFSs 2007 and 2008_9 are statistically different. As it is found in the models for having ever worked and obtaining the first permanent job, the number of the significant years counted backwards from 2009 is higher for high school graduates than for vocational high school graduates. Therefore, we are able to conclude that vocational high school graduates are more likely to obtain their first permanent paid job after separation from school (obtaining the first permanent job as a wage worker or not does not matter). In addition, this phenomenon has probably links with the different preferences of high school graduates and vocational high school graduates after separation from school.

In the vocational high school model, the probability of obtaining first permanent paid job is higher for individuals whose YSFSs are 1992, 1997, 2001 and 2004 relative to their counterparts whose YSFS is 2000 (Figure 6.14). The effects of YSFSs 1992 and 1997 are statistically the same. The same result is found for YSFSs 1992 and 2001 and YSFSs 2001 and 2004. In addition to this, although the year 2001 is the crisis year, those whose YSFS is 2001 are more likely to be successful than the ones whose YSFS is 2000 (note that the effects of 2001 and 1992 are statistically the same, as well). As a result of the trade liberalization in Turkey, same influences as in obtaining the first permanent paid job are observed are examined here: the increase in the demand for skilled labor due to the changes in trade regime leads the increase in obtaining the first permanent paid job.

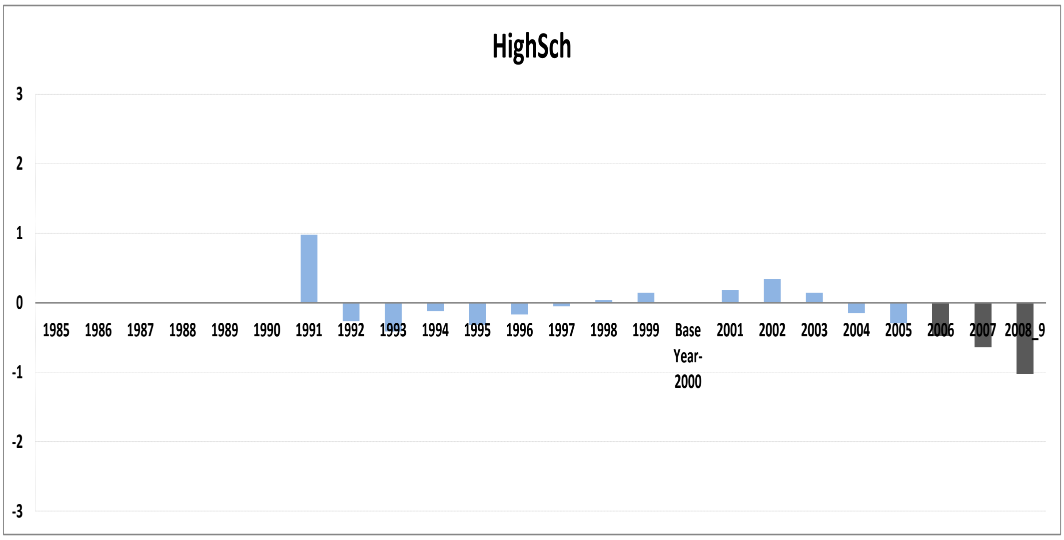


Figure 6.13: Estimated Coefficients for Year of Separation from School, High School Graduates

Source: Regression Results from Appendix M,Table M.3

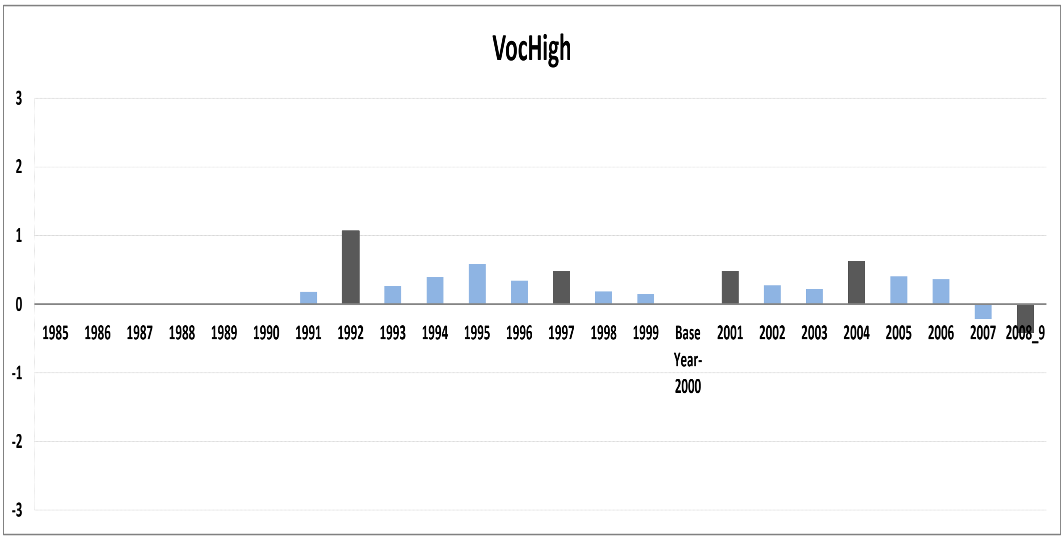


Figure 6.14: Estimated Year of Separation from School Coefficients, Vocational High School Graduates

Source: Regression Results from Appendix M,Table M.3

University:

Year 1995 has a statistically negative effect on obtaining first permanent paid job among university graduates (Figure 6.15). Individuals whose YSFS is 2008-9 are less likely to be successful compared to those whose YSFS is 2000. In addition, comparing the effects of 1995 and YSFSs 2008_9, we donot find a statistically significant difference.

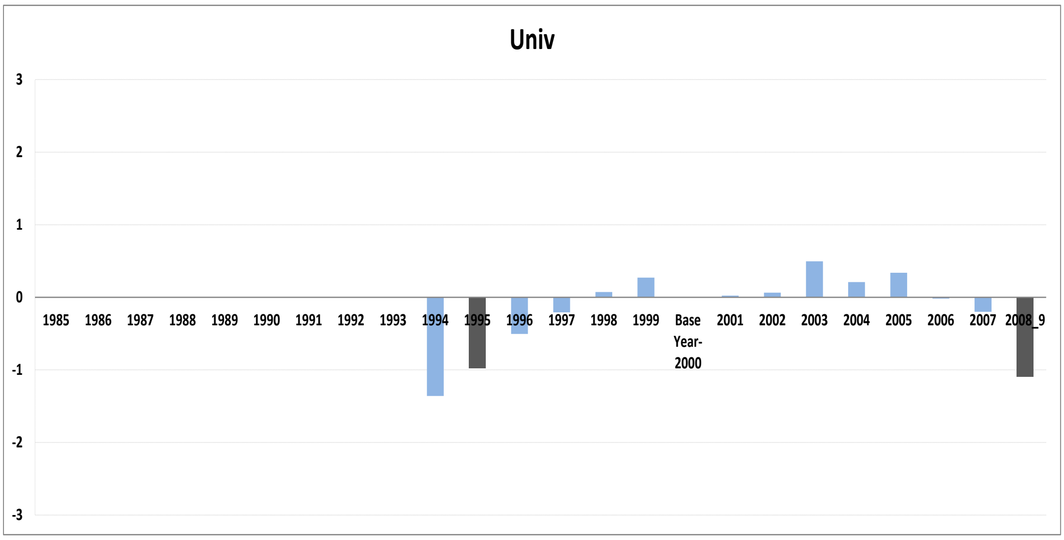


Figure 6.15: Estimated Year of Separation from School Coefficients, University Graduates
Source: Regression Results from Appendix M,Table M.3

Males:

From the estimation results, we also find that the probability of obtaining first permanent paid job for males is higher than for females, same as the estimation results of obtaining the first permanent job (Table 6.5). Same reasoning as previously mentioned in the obtaining the first permanent job is valid for this case, as well.

Residential area:

As mentioned before, the 'urban' variable refers to the place of the current residence of the individual. In other words, we do not have any information about the location that an individual got his first permanent job. For all of the education level models, we find that being currently in urban areas increases the probability of obtaining first permanent paid job. This is expected since in urban areas there are more paid job opportunities (Appendix M, Table M.3- fourth and sixth column,).

Age:

Among university graduates, only being in the age group 30-34 has a significant effect on obtaining first permanent paid job. For the case of vocational high school graduates, none of the age groups have significant effects. For the case of high school graduates and primary (8-year) school graduates, being in the older age groups increases the probability of obtaining the first permanent paid job. This is true for all age groups (20-24, 25-29 and 30-34). Nevertheless, although the effects of age group 20-24, 25-29 and 30-34 are not statistically different from each other among primary (8-year) school graduates, the effects of age groups 20-24 and 25-29 are statistically different while the effects of 25-29 and 30-34 are not among high school graduates.

There are many findings that lead to further questions for which we find the answers in the following section. One of the crucial findings we obtain from this section is that controlling for the age groups if the elapsed time after separation from school is shorter, YSFSs have negative impacts on having ever worked/obtaining the first permanent job/obtaining the first permanent paid job. Moreover, the number of the significant years counted backwards from 2009 changes according to the education level. For university graduates, YSFS 2007 and 2008-9 have a negative impact on obtaining the first permanent job, while for vocational high school graduates; this is valid only for YSFSs 2008-9. Note that, the effects are different from each other and the effect of the recent YSFS is higher than the other years. We also take the number of the significant years backwards from 2009 into account during the duration analysis in the next section and during artificially censoring the data to minimize the impact of noisy of the information about the duration of obtaining the first permanent/obtaining the first permanent paid job after separation from school.

The vocational high school graduates, whose YSFSs are 2001 and 2002, are more likely to obtain the first permanent job than those with YSFS 2000. In addition, YSFSs 2001 has a significant positive effect on obtaining the first permanent paid job. This has probably links with the change in the education system in 1998 as discussed earlier. Setting limits on the university choices of the students who graduate from vocational and technical schools have probably effects on the individuals who are at the decision stage of choosing the type of their high school. Individuals who were thinking of going to vocational high school and then continuing with their university education may change their mind and choose general high schools. From this point of view, individuals who choose vocational high schools after 1998, are more work oriented. Thus after separating from school they are more likely to enter the labor market. Having positive effects on obtaining the first permanent job for individuals whose YSFSs are 2001 and 2002 confirm this phenomenon since graduations after 1998 occurred starting from 2001. For the case of primary (8-year) school graduates, having a negative effect for YSFSs 2007 and 2008_9 may have also links with the increase in the compulsory education. There may be negative selection due to the fact that less selective individuals graduates of primary (8-year) schools.

For the case of university graduates, the crisis year 1994 has a negative effect on obtaining first permanent job while YSFS 1995 has a negative effect on obtaining the first permanent paid job. Comparing the impact of these with being a new graduate (YSFSs 2008_9), the impact of the crisis is the same as being a new graduate. This confirms the presence of the relationship between the wage offer rates and macro-economic conditions. The last finding concerns the changes in the trade regime of Turkey. The impacts of trade liberalization in 1996 and 2001 are mainly seen among vocational high school graduates since YSFSs which are following the changes in the trade regime have significantly positive effects on vocational high school graduates while none of these YSFSs have any significant effects on the other education groups. In absolute values, the impact of these structural changes is same as the impact of being a new graduate.

Our findings also support the hypothesis that males are more likely to have ever worked /obtaining a first permanent job after separation from school. This is expected since males are the main breadwinners; in other words, they are much more likely than females to be primary workers of the households. We also find that the effect of being male is stronger in lower education as compared to higher level education. This reflects that as education level increases, males and females attitudes become more alike during the decision of obtaining a job.

We have negative effects of being currently in urban areas on having ever worked /obtaining the first permanent job. Nevertheless, we have significant effects only for lower education levels (primary (5-year) school, primary (8-year) school and high school). This reflects that for lower educated individuals, there are fewer job opportunities in urban areas than in rural areas. The ease of obtaining a job in agricultural sector in rural areas after separation from school may also increase the probability of ever worked/obtaining a first permanent job[20]. In addition, we find that being currently in urban area has a significant effect on obtaining the first permanent paid job after separation from school.

To sum up, we more or less find the same results from the estimations of different dependent variables on the same explanatory variables. From the estimation results of logit models, there are four main findings. The first one is the fact that recent graduates (individuals who have recent YSFSs) have a lower probability of obtaining the first permanent job after separation from school. Main reason for this is the fact that the elapsed time after separation from school is short. Another possible reason for this could be the economic crisis in 2008. The second one is the fact that YSFSs, which coincide with structural changes or crisis, have significant effects, and their effects are changing according to education levels.

The third one is related to gender issues. Being male has a positive effect on the probability of obtaining the first permanent job. This is expected since males are the main breadwinners; in other words, they are much more likely to be primary workers of the households than females. We also find that the effect of being male is stronger in lower education level compared to higher education level. This reflects that as the education level increases, males' and females' attitudes become more alike during the decision of obtaining a job. One of the possible reasons for that is that, as education increases, opportunity cost of non-market time increases; and therefore, higher educated females are more likely to work than their counterparts with low education levels. In absolute values, for vocational high school graduates and primary (8-years) graduates, the impact of being a male is 2 times of the impact of being a new graduate on obtaining first permanent job. On the other hand, it is 0.3 times the impact of being a new graduates for the university graduates. This finding is parallel with our findings in Chapter 5, as well. In Chapter 5, we observe that

[20] Due to the fact that small family farms account for the majority of the agriculture in 2006 (İlkkaracan and Tunali, 2010).

females who are vocational high school and university graduates are more likely to be employed than their male counterparts. As Lancaster and Chesher (1983) propose, unemployed job seekers change their reservation wages in response to perceived changes in the wage offer distribution and availability of jobs. For males, there is a greater perception of having a higher job offer rate and since this perception influences individuals, therefore, their reservation wage may be higher for this aspect, as well. On the other hand, conditional on being employed, females are more likely to be wage workers than males. The fourth finding is about the impact of being in urban areas. Being in urban areas has a negative effect on obtaining the first permanent job while it has a positive effect on obtaining the first permanent paid job.

To sum up, we find more or less the same results from the estimations of different dependent variables on the same explanatory variables. However, one should not forget that the results from the logit analysis via effects of YSFS on obtaining the first permanent job are limited. On the other hand, by using duration analyses, we are able to examine whether structural changes/economic crises have an effect on the duration of obtaining the first permanent job. Moreover, we can test whether these effects are permanent or they disappear over time.

6.3 Duration Analysis of Obtaining First Permanent Job and First Permanent Paid Job

In this section, we focus on the duration analysis of obtaining the first permanent job and first permanent paid job after separation from school. There are four-sub sections in this part. First sub-section includes the descriptive statistics while the second sub-section covers the non-parametric analysis of obtaining first permanent job. The semi-parametric analysis is in the third sub-section. The last sub-section includes the results.

Before moving on to the descriptive statistics, we draw a diagram to understand how we generate the duration variable we use in the duration analysis of obtaining the first permanent job. There are retrospective questions on the labor market situation of the individuals in the 2009 Modular Survey. We use these questions to construct the duration variable (Figure 6.16). We use four questions. One of the questions asks the year of permanent separation from school (YSFS-hereafter). The second one asks the month of the permanent separation from school. These two questions are used in order to generate the variable for the timing of the first permanent work (first_wrk). The third one is about the year in which the individual started his/her permanent job while the fourth question is about the month of starting the permanent job. Thus, the third and fourth questions are used in order to generate the variable for the timing of the separating from school (edu_last). By using the variables 'first_wrk' and 'edu_last', the variable called 'duration' is generated[21]. This variable represents the duration (in months) of obtaining the first permanent job after separation from school.

[21] Note that, we exclude the observations whose duration gets negative values. This means that those individuals starts their permanent job before seperating from school.

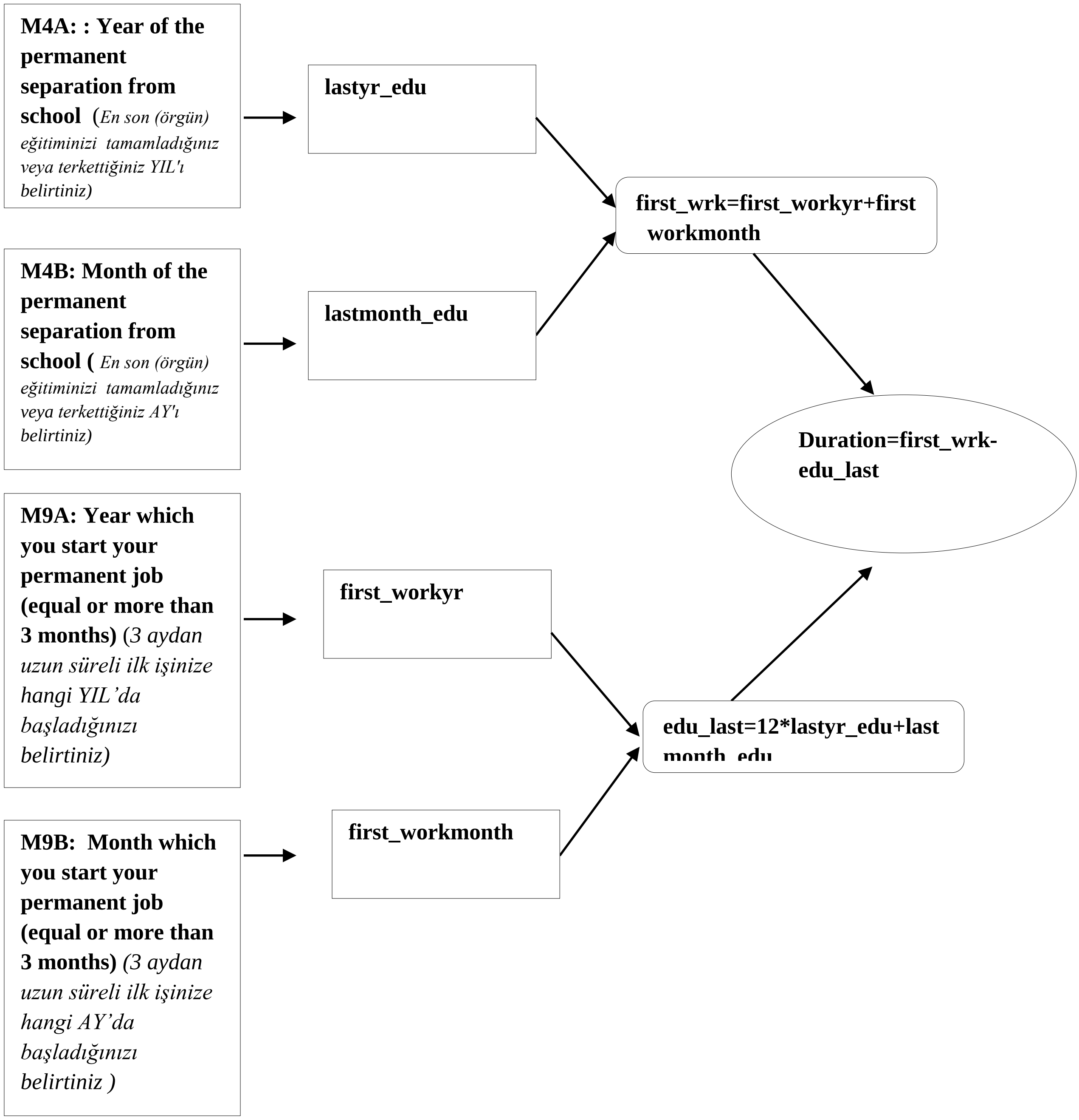


Figure 6.16: Generation of the 'Duration' Variable by Using the Retrospective Questions

6.3.1 Descriptive Statistics

In this section, we examine the descriptive statistics of the data set from a duration analysis perspective. Therefore, we use mostly tabulations and histograms of the variable that represents the duration of the first permanent job after separation from school. We start with the table which depicts the individuals who obtain their first permanent paid job by current location and employment status in order to understand the reason for estimations the duration of obtaining the first permanent job and the first permanent paid job, respectively (Table 6.6). The italic numbers are used for the fractions that show the composition of the individuals by employment status. The first column of the table is for individuals who are non-wage workers at their first permanent jobs while the second column of the table gives the non-wage workers. The first row is for the rural areas while the second row is for the urban areas. Our sample consists of 16,920 individuals. Of these, 12,597 (74%) are wage workers at their first permanent jobs while the rest (4,323) are non-wage workers[22]. In other words, 74% of first permanent jobs are paid jobs while the rest are unpaid jobs. The fraction of the paid jobs is 85% among the individuals whose current locations are urban while the fractions of the paid jobs and unpaid jobs are nearly the same for the ones whose current locations are rural (51% for unpaid jobs and 49% paid jobs).

Table 6.6: Employment Status of First permanent Job by Current Location

	Non-Wage Worker	**Wage-Worker**	**Total**
Rural	2481	2400	4881
	0.51	*0.49*	*1.00*
Urban	1842	10197	12039
	0.15	*0.85*	*1.00*
Total	4323	12597	16920
	0.26	*0.74*	*1.00*

Source: 2009 Modular HLFS

Table 6.7 documents the composition of individuals who have successful transitions from school to first permanent jobs by educational level and employment status at

[22] Note that, instead of saying 'obtaining the first permanent paid job as a wage worker', we also use 'obtaining the first permanent paid job'.

their first permanent jobs. The rows represent the educational levels while the columns show their status at first permanent jobs. The first column represents the non-wage workers while the second illustrates the wage workers. The last column is for the entire group. The (5-year) primary school graduates have the highest (49%) share among the non-wage workers while the university graduates have the lowest (5%). The (8-year) primary school graduates have the second highest value (%28). In other words, nearly 80% of non-wage workers have less than a high school degree. Nevertheless, the composition of the wage workers by educational level is quite different. Moreover, among wage workers, the shares of the vocational high school graduates and university graduates are considerably higher than the shares among non-wage workers. Of wage workers, 17% and 20% are vocational high school and university graduates while only 7% and 5% of non-wage workers are vocational high school and university graduates.

Table 6.7: Employment Status at their First Permanent Job by Education

	Non-Wage Worker	Wage Worker	Total
Prim5	2102 *0.49*	3303 *0.26*	5405 *0.32*
Prim8	1208 *0.28*	2686 *0.21*	3894 *0.23*
Highsch	496 *0.11*	1889 *0.15*	2385 *0.14*
VocHigh	318 *0.07*	2172 *0.17*	2490 *0.15*
Uni	199 *0.05*	2547 *0.20*	2746 *0.16*
Total	4323 *1.00*	12597 *1.00*	16920 *1.00*

Source: 2009 Modular HLFS

We create Table 6.8 which includes the descriptive statistics of the duration of obtaining the first permanent job by gender and employment status. The first two columns reflect the duration of obtaining the first permanent job for males and females. The second and the third columns show the duration of obtaining a non-wage work as the first permanent job while the last two columns are for the duration of obtaining a wage-work for males and females. The first row is the minimum duration while the second row is the mean of the duration. The last row shows the maximum duration. The other rows give the duration at different points of the distribution. For females, maximum duration of obtaining the first permanent job is 265 months, with an average of 35 months and the duration of first 50% (median) of them is 15 months. For males, maximum duration is 248 months, average value is 28 and the duration of first 50% is 11 months. There is clear evidence that obtaining a wage work takes a longer time than obtaining a non-wage work as the first permanent job after separation from school. This is more obvious in the third row which represents the duration of first 50% of the individuals. The duration of the first 50% of the females is 1 month to obtain a non-wage work while the duration increases to 19 months to obtain a wage work. For the case of males, it is 1 month to obtain a non-wage work while it is 12 months to obtain a non-wage work.

Table 6.8: Descriptive Statistics of Duration of obtaining first Permanent Job by Employment Status and Gender (Months)

	All		Non-Paid Job		Paid Job	
	F	**M**	**F**	**M**	**F**	**M**
min	0	0	0	0	0	0
mean	35	28	27	21	36	28
p50	15	11	1	1	19	12
p10	0	0	0	0	1	1
p75	48	36	34	23	49	37
p90	96	81	86	72	96	82
max	265	248	260	248	265	240

Source: 2009 Modular HLFS
Note: p50, p10, p75 and p90 are for the first 50, 10, 75 and 90% of the individuals who obtain the first permanent job.

We also tabulate a more detailed table where we break down the duration of obtaining the first permanent job by education (See Appendix N, Table N.1). We draw figures by using Table N.1. Figure 6.17 illustrates the duration of the first 50% of the individuals who find their first permanent jobs while Figure 6.18 is for the first 75% of individuals. In both figures, the duration of the first permanent job is given by the education level, gender and the employment status. On the vertical axis, the duration of the first permanent job is shown. On the horizontal-axis, the education level, gender and the employment status are presented. There are six groups of bars and highlighted dots with asterisk markers. The highlighted dots with asterisk markers depict the duration of obtaining the first permanent job for the entire group broken down into education levels. There are six dots. The first dot is for the entire females while the second dot shows the entire males. The third and the fourth dots are for female wage-workers and male wage workers (female/male who obtains the first permanent paid job). The last two are for non-wage workers (females/males who obtain the first permanent unpaid job). Males are represented by ‘M’ where females are shown by ‘F’ in these two figures. The entire group is shown by ‘A’. In addition to these, ‘Nww’ and ‘Ww’ stand for non-wage workers and wage workers, respectively (the first permanent unpaid job/ the first permanent unpaid job). In each group, there are five bars. The first bar shows the duration for the primary (5-year) school graduates’ while second is for the primary (8-year) school graduates. The third and the fourth bar are for the high school and the vocational high school graduates, respectively. The last one is for the university graduates.

Starting with the entire group which is represented by the connected dots in the figure, it is seen that the duration of the first 50% of the individuals for obtaining a non-wage work is not more than 3 months (Figure 6.17). This is true for not only males but also females and for all education categories. On the other hand, discrepancies among the education levels are seen for the case of wage workers. In addition to that, among wage workers, the gap between males and females is remarkable. For the primary (5-year) school graduate females, the duration of obtaining the first permanent paid job is more than twice the duration for their male counterparts. Among primary (5-year) school graduates, females find the first permanent paid job in 50 months while males find in 21 months after permanent separation from school. Note that, as the education level increases, the gap between males and females becomes narrower. This is probably due to the fact that females with lower educational levels are more likely to be selective than their male counterparts. The fact that there is less appropriate wage works for less educated females may also cause prolongation of obtaining the first permanent paid job for females. The gap is 3 months for high school graduates while it decreases to 1 month for university graduates.

If we increase the proportion of the individuals from the first 50% to 75%, the duration of obtaining the first permanent job is more than doubled (Figure 6.18). This is true for all of the education levels and wage workers. For the case of the non-wage workers, the least increase occurs among university graduate females. It increases from 1 to 7 months after increasing the proportion from first 50% to 75%. The highest increase occurs among primary (5-year) school graduate females (1 month to 35 months). In addition to these, there are two remarkable findings for the case of males. One of the findings is the fact that duration of obtaining a non-wage work as the first permanent job (obtaining the first permanent unpaid job) increases as the education level increases opposed to obtaining a wage work (obtaining the first permanent paid job). Except for the vocational high school graduates the duration of obtaining a wage work (obtaining the first permanent paid job) decreases as the educational level increases. Nevertheless, for vocational high school graduate males is higher than for primary (8-year) school graduates. It is higher than the duration for primary (8-year) school graduates and it is closer to the duration of obtaining a wage work for primary (5-year) school graduates. There are also similarities between these two figures. One of them is the fact that the duration of having the first permanent job for the primary (5-year) school graduates is higher than for the higher education categories. This is true not only for wage-works but also for non-wage works.

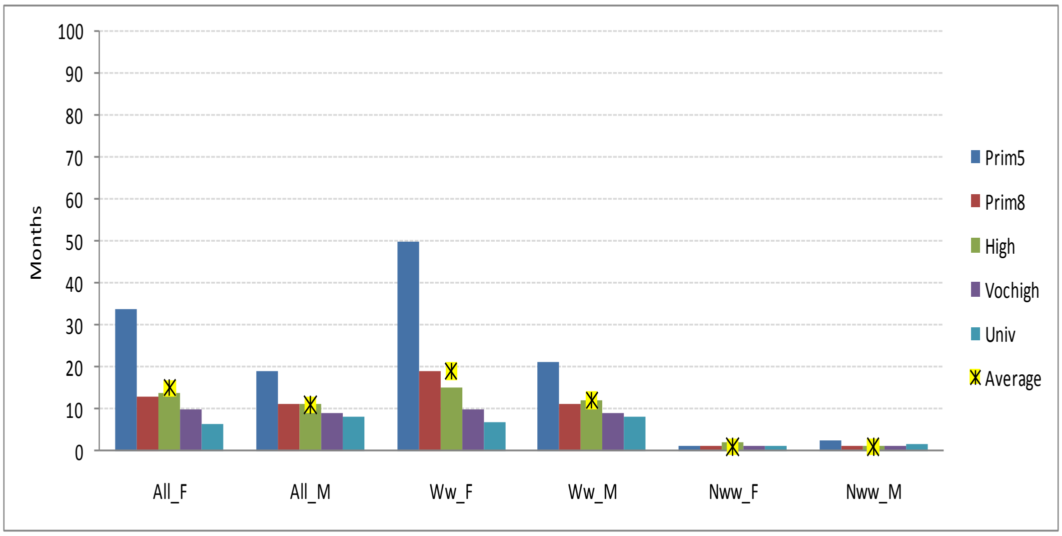


Figure 6.17**:** Duration for the Median Individual Conditional on Education, Sex and Employment Status (months)
Source: 2009 Modular HLFS

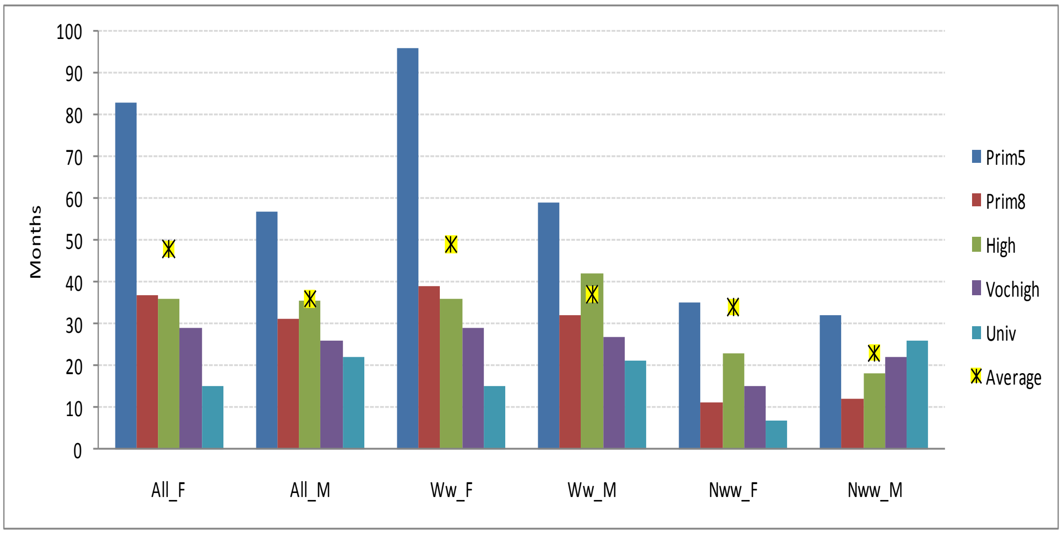


Figure 6.18**:** Duration of the First 75% of the Individuals who obtain the first Permanent Job by Education, Gender and Employment Status (months)
Source: 2009 Modular HLFS

Figure 6.19-6.21 depicts the histogram for the duration of obtaining the first permanent job after separation from school. The horizontal axis is frequency of the individuals and the vertical axis is the duration of obtaining the first permanent job. Figure 6.19 is for the entire sample that consists of individuals who have a successful transition to the first permanent job while Figure 6.20 is created by breaking down these individuals into age groups. Figure 6.20 comprises four panels. First two panels are for age groups 15-19 and 20-24. The third and fourth panels are for age groups 25-29 and 30-34. The right of the tail of the distribution for all of the individuals who have successful transitions to the permanent jobs after separation from school is longer in other words the mass of the distribution is concentrated on the left (Figure 6.19). This is true for age groups 20-24, 25-29 and 30-34. Nevertheless, the distribution of the duration for age group 15-19 does not resemble other age groups' distributions. This is because for the ones who are 15-19 years old in 2009 have less time to have a permanent job after permanent separation from school. Note that, for older age groups, the right tail of the distribution gets longer. Therefore, to minimize the impact of noisy information about exit times recorded in the upper tail of the spell distribution, we artificial censored all long spells at 24, 36, 48 and 60 months. There is another reason for artificially censoring the data. Since exposure to risk for different age groups is different, we used artificially censoring so that all individuals have the same probability of exposure. More precisely, since we have a cross sectional data exposure to risk is different for different age groups. For example, 15-19 years old in 2009 have less time to have a permanent job after permanent separation from school as compared to 30-34 years olds.

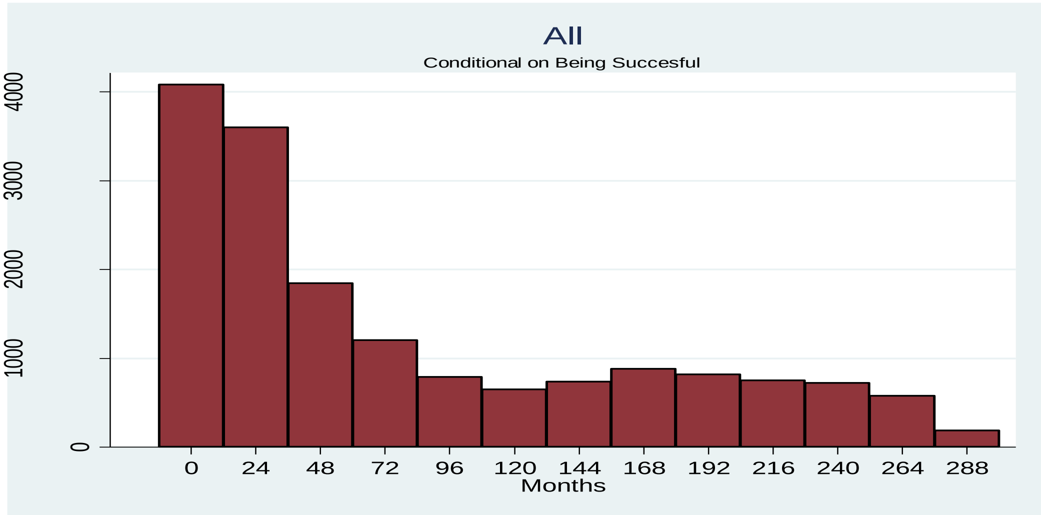


Figure 6.19: Histogram for Duration of Obtaining the first permanent Job after Separation from School
Source: 2009 Modular HLFS

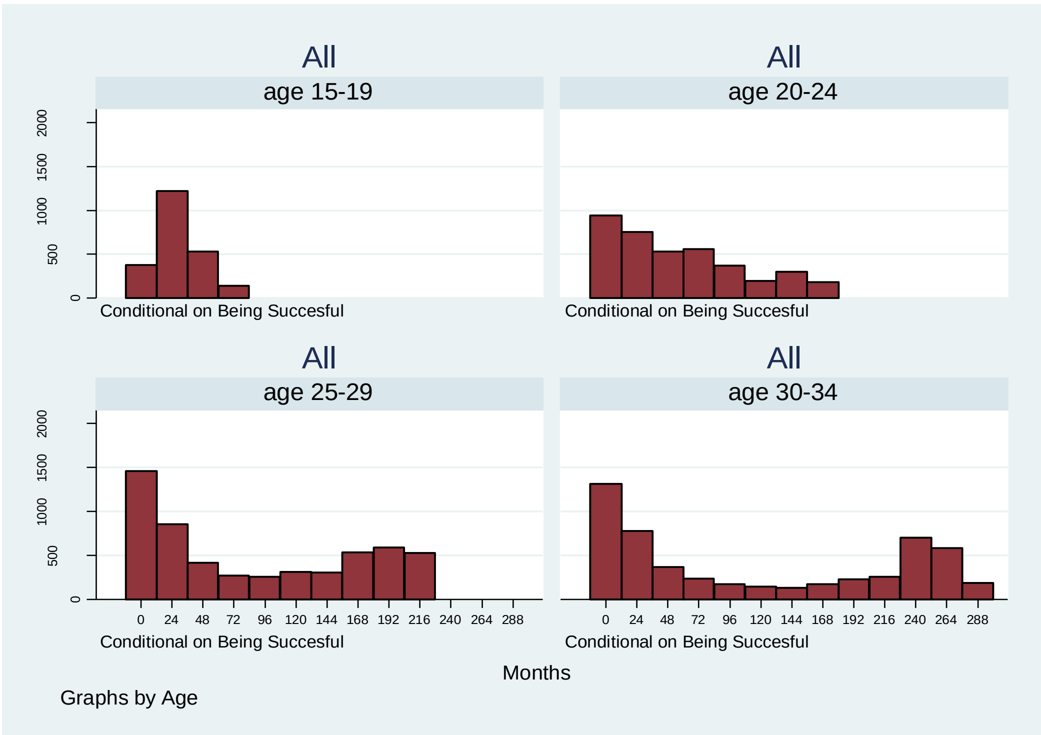


Figure 6.20: Histogram for Duration of Obtaining the first permanent Job after Separation from School by Age Groups
Source: 2009 Modular HLFS

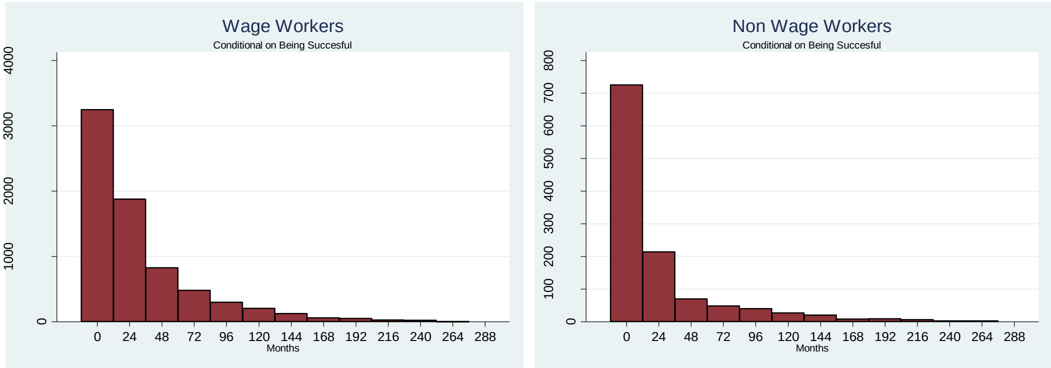


Figure 6.21 Histogram for Duration of Obtaining the first permanent Job after Separation from School by Employment Status
Source: 2009 Modular HLFS

To sum up, there are important points that should be taken into account during the duration analysis in the following sections. The first one is the fact that individuals whose current locations are urban are more likely to be wage workers at their first permanent job than the individuals whose current locations are rural. The second is that as education level increases, the share of wage workers increases. The third one is related to the duration of obtaining the first permanent paid job. The duration of first 75% of the individuals to obtain the first permanent paid job is higher than the duration it takes to obtain the first permanent unpaid job. Taking the same proportion of individuals, in lower education levels the duration of obtaining the first permanent paid job for males is lower than the duration in higher education levels (except for primary (5-year) school graduates). The last interesting point is about the vocational high school graduates. Among males, the duration of obtaining the first permanent paid job for the vocational high school graduates is higher than for the primary (8-year) school graduates. The most remarkable difference is coming from the fact that, in the case of first 50% of the individuals, the duration of obtaining the first permanent paid job for the lower educated females is higher than their male counter parts while as education increases, the gap between the duration of males and females gets shorter and in the university graduate category, the duration for the first 50% of the females to obtain the first permanent paid job is shorter than their male counterparts. On the other hand, in the first 75% of the individuals, the duration of obtaining the first permanent paid job for vocational high school graduate and university graduate males is longer than their female counterparts. There may be several reasons for this observation. One of them may be the fact that university graduate males are more selective than females while in low education categories, females are more selective. From this result, it can be said that university graduate males wait longer to have proper jobs. This is true especially at the beginning of the spell (duration). On the other hand, as duration of obtaining the first permanent paid job lengthens, the job offer rate may be lower since longer duration may be a bad signal for employers.

Note that, there is another important point that is crucial during the interpretation of the duration results. This is having seasonality of obtaining a job. Table 6.9 shows the month of starting the permanent job by education level of the individuals. Total number of observations is at the bottom of the table. The row is highlighted. As it is known, there is a regular month of separation from school: June. This is valid for the individuals whose education levels are lower than university. In addition, for the case of university, most of the individuals (72.9%) separate from school in June while 13.5% of them separate from school in July, as well. We also make the tabulations for the month of starting the first permanent job and starting the first permanent paid job (Table 6.10 and Table 11). The months of starting the first permanent paid job are June, July, August and September. Note that these months are within the four months of separation from school. For the case of university graduates, September comes to the forefront more than for the lower education level graduates. These tabulations are crucial during the examination of the duration of obtaining first permanent job and obtaining first permanent paid job after separation from school since we use these two variables in order to generate the duration variable.

Table 6.9: Month of Separation from School by Education

Month of Seperation from school	Education				
	PRI5_8	HGHSCH	VOCHGH	UNI	Total
January	0.36	0.58	0.41	0.80	0.45
February	0.95	0.81	0.76	1.58	0.99
March	0.99	0.52	0.70	0.77	0.85
April	0.66	0.29	0.48	0.65	0.58
May	1.12	1.28	1.11	1.61	1.20
June	89.52	88.90	89.66	72.94	87.33
July	4.57	5.11	5.14	13.49	5.86
August	0.97	1.62	0.86	3.99	1.44
September	0.38	0.45	0.51	3.25	0.77
October	0.17	0.13	0.16	0.28	0.18
November	0.15	0.18	0.10	0.40	0.18
December	0.16	0.13	0.13	0.25	0.16
Total	100.00	100.00	100.00	100.00	100.00
Total	***15,196***	***3,819***	***3,153***	***3,233***	***25,401***

Source: 2009 Modular 2009

Table 6.10: Month of Starting the First Permanent Job by Education

Month of Starting the first Permanent Job	Education				
	PRI5_8	HGHSCH	VOCHGH	UNI	Total
January	10.35	11.44	11.05	9.12	10.48
February	5.63	5.09	6.50	6.05	5.75
March	6.78	6.00	5.67	5.31	6.30
April	9.86	9.48	6.56	7.63	8.97
May	11.28	9.41	7.80	7.46	9.95
June	24.07	21.62	18.91	16.25	21.88
July	15.51	15.20	15.96	12.60	15.19
August	6.19	7.88	7.80	7.38	6.86
September	4.98	6.69	11.70	16.42	7.78
October	2.23	3.07	4.08	5.64	3.08
November	1.64	1.81	2.19	3.48	1.98
December	1.48	2.30	1.77	2.65	1.79
Total	100.00	100.00	100.00	100.00	100.00
Number of obs.	***5,558***	***1,434***	***1,692***	***1,206***	***9,890***

Source: 2009 Modular 2009

Table 6.11: Month of Starting the First Permanent Paid Job by Education

Month of Starting the first Permanent paid Job	Education				
	PRI5_8	**HGHSCH**	**VOCHGH**	**UNI**	**Total**
January	11.36	12.17	11.27	8.94	11.13
February	6.32	5.42	6.57	6.25	6.22
March	7.50	6.20	5.89	5.38	6.71
April	10.47	9.89	6.32	7.47	9.18
May	11.33	9.50	7.95	7.20	9.85
June	19.25	19.23	17.60	15.28	18.39
July	14.91	14.91	15.72	12.67	14.76
August	6.70	8.40	8.08	7.64	7.35
September	5.84	7.30	12.15	17.01	8.79
October	2.62	2.98	4.32	5.82	3.44
November	1.92	1.73	2.25	3.65	2.19
December	1.78	2.28	1.88	2.69	2.00
Total	100.00	100.00	100.00	100.00	100.00
Total	***4,385***	***1,274***	***1,597***	***1,152***	***8,408***

Source: 2009 Modular 2009

6.3.2 Non-Parametric Duration Analysis

This section presents non-parametric analyses, which do not impose strong assumptions for data exploration and description. For this purpose we use Kaplan-Meier estimate of survival function.

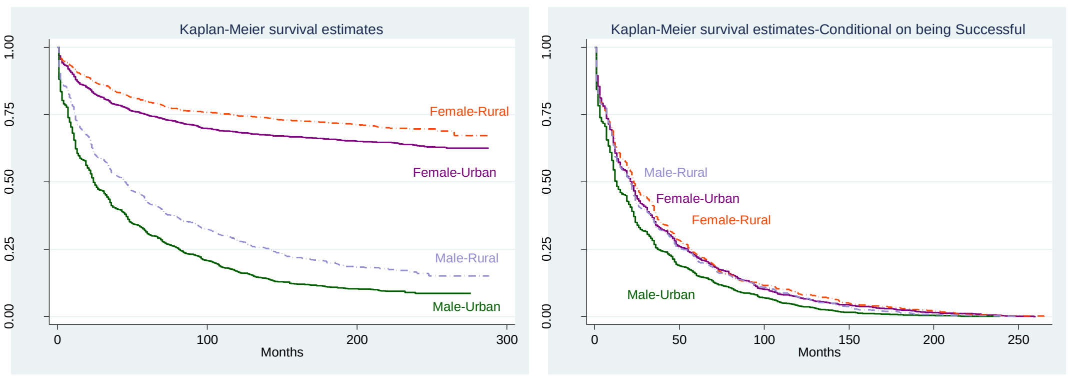
Let $t_1, t_2 \dots t_k$ are the k distinct event times observed in the sample:

$$t_1 < t_2 < t_3 \dots t_k$$

Note that, at each event time t_j where there are n_j , individuals at risk and d_j is the number of the spells ending at time t_j and then survival function can be shown as:

$$S(t) = \prod_{j:t_j \leq t} 1 - \frac{d_j}{n_j} \qquad (6.1)$$

Figure 6.22 represents the Kaplan-Meier Survival functions. Panel (b) of this graph represents the proportions of individuals who still do not obtaining the first permanent job at that time conditional on obtaining the first permanent job while panel (a) of Figure 6.22 shows the unconditional proportions which means that it includes not only the ones obtained the first permanent job but also the ones never obtained. The horizontal axis shows the duration of obtaining the first permanent job after separation in months. The vertical axis depicts the fraction of the individuals without a permanent job who are permanently separated from school. In panel (a), the survivor functions of males and females by current location are shown. The rightmost two lines show the survival estimates of females by current residential areas while the others show the survival estimates of males[23]. Panel (a) implies that women have longer unemployment durations than men. The survivor functions for men decline more steeply than that for women, implying that unemployed men find jobs sooner than unemployed women. The survivor functions also show that unemployment durations are longer in urban locations than in rural locations. On the other hand, when we condition on obtaining the first permanent job, the gap between males and females decreases.



(a) (b)

Figure 6.22: Kaplan-Meier Survival estimates By Gender and Area
Source: 2009 Modular HLFS

Figure 6.23 shows the Kaplan-Meier Survival estimates of males by education groups (conditional on obtaining a first permanent job). Figure 6.22 is for females. In Figure 6.23, the steeper line (leftmost line) is for university graduates which mean that university graduate males find permanent jobs sooner than other levels of education. Since 5 year primary graduates are shown by the rightmost line, we understand that 5 year primary graduate males wait the longest. The slopes of general high school graduates (dark green line) and vocational high school graduates (orange line) are nearly the same. Comparing females and males, the slope of university graduate is steeper than their male counterparts: females obtain their permanent jobs

[23] Note that the names of the lines are tagged.

sooner (in Figure 6.24). Among females, vocational high school graduate females find a permanent job sooner than high school graduates. In addition to this, primary (8-year) school graduates (red line) and high school graduates are nearly the same in terms of finding permanent jobs after separation school.

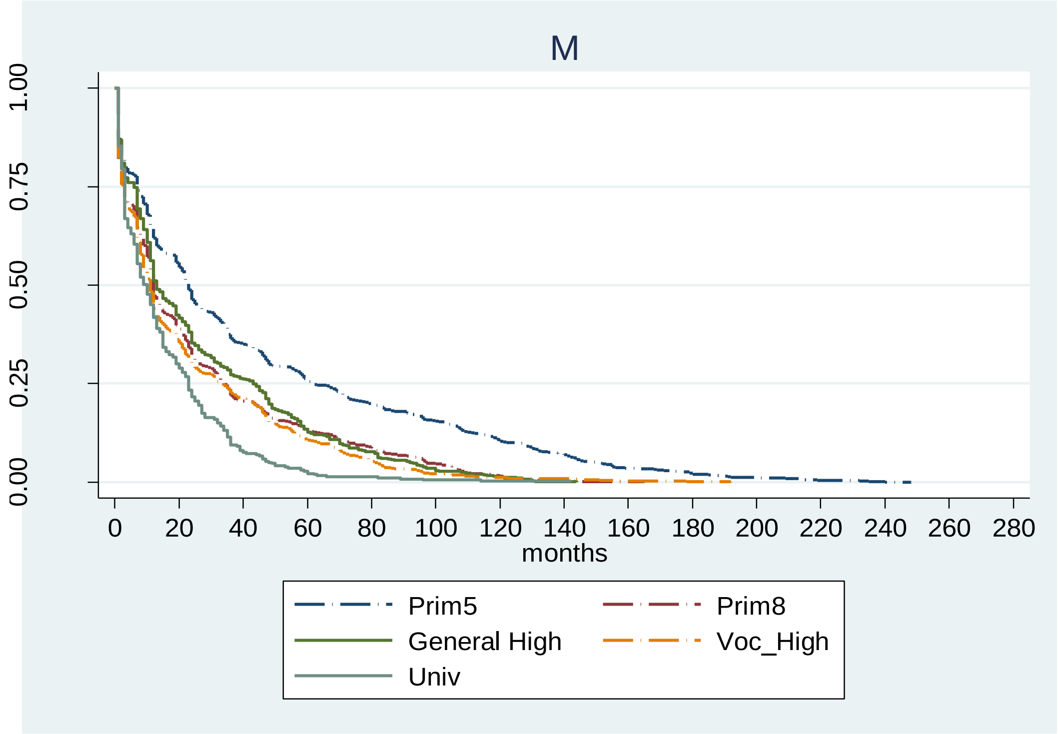


Figure 6.23: Kaplan-Meier Survival estimates by Education-Males
Source: 2009 Modular HLFS

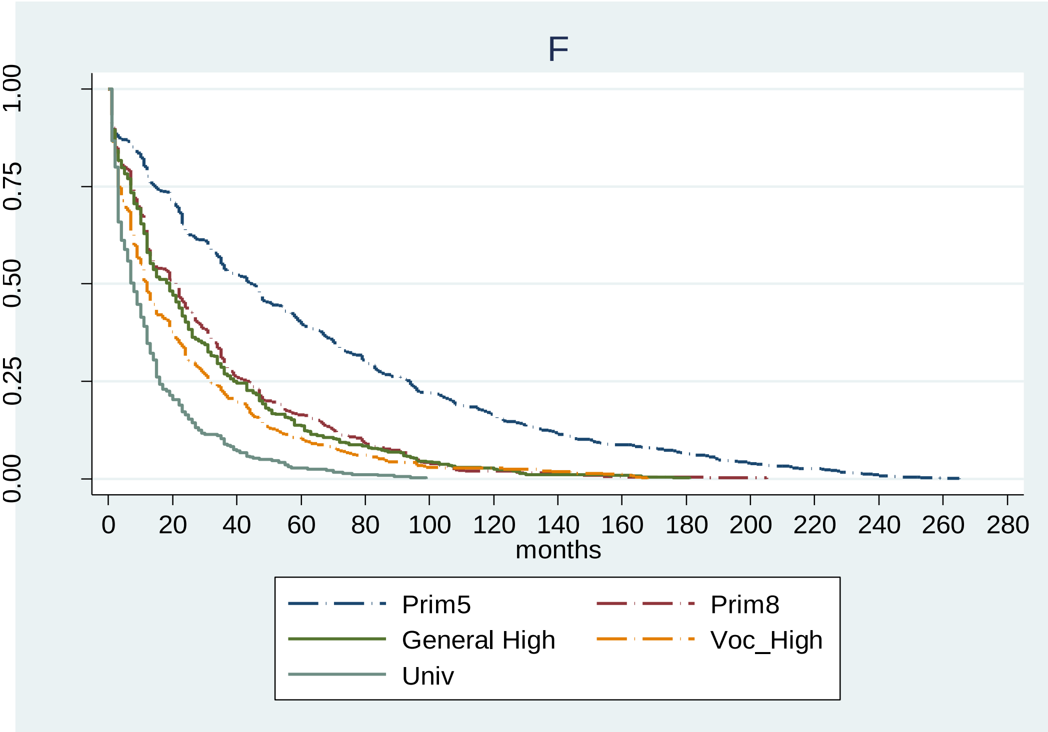


Figure 6.24: Kaplan-Meier Survival estimates by Education-Females
Source: 2009 Modular HLFS

6.3.3 Semi Parametric Duration Analysis

Up to now, we have analyzed having a successful transition to a permanent job by exiting to employment by non-parametric estimation. In this section, we employ Cox Proportional Hazard (PH) Model which allows us to draw inferences about the effects of explanatory variables without any knowledge of the functional form of the baseline hazard. In other words, we use a proportional hazards model, whereby explanatory variables move a baseline hazard up and down by a fixed proportion.

In the Cox PH model, the hazard of exit at time t is assumed to be

$$h(t) = h_0(t)\exp(\beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_k x_k) \qquad (6.2)$$

Where $h_0(t)$ is the baseline hazard,x's are the characteristics of individuals (gender, parental, age groups/dummies for year of separation from school (YSFS), etc…) and β's are parameters to be estimated[24]. We create a table for the definitions of the explanatory variables (Table 6.12).

Table 6.12 Definitions of Explanatory Variables

Variable	Abbreviation	Definition
Personal Characteristics		
MALE	MALE	=1 if male ; =0 female
Age 15-19	A1519	=1 if 15-19 year-old ; =0 else
Age 20-24	A2024	=1 if 20-24 year-old ; =0 else
Age 25-29	A2529	=1 if 25-29 year-old ; =0 else
Age 30-34	A3034	=1 if 3034 year-old ; =0 else
YSFSs		
YSFS 1985	1985	=1 if Year of seperation from school is 1985 ; = else
YSFS 1986	1986	=1 if Year of seperation from school is 1986 ; = else
YSFS 1987	1987	=1 if Year of seperation from school is 1987 ; = else
...		
YSFS 2008_9	2008_9	=1 if Year of seperation from school is 2008 or2009 ; = else
Parental Education		
Mother's Education		
Illiterate or Literate	FILL_LIT	=1 if the mother is literate without a diploma or literate ; =0 else
Primary 5 year graduate	MPRI5	=1 if the mother is a primary 5 year graduate ; =0 else
Primary 8 year graduate	MPRI8	=1 if the mother is a primary 8 year graduate ; =0 else
High School graduate	MHGHSCH	.=1 if the mother is a high school graduate ; =0 else
Vocational High school graduate	MVOCHG	=1 if the mother is a vocational high school graduate ; =0 else
University Graduate	MUNI	=1 if the mother is an university graduate ; =0 else
High School and More	MHG>=	=1 if the mother is a high school or higher graduate ; =0 else
Father's Education		
Illiterate or Literate	FILL_LIT	=1 if the fathe is literate without a diploma or literate ; =0 else
Primary 5 year graduate	FPRI5	=1 if the father is a primary 5 year graduate ; =0 else
Primary 8 year graduate	FPRI8	=1 if the father is a primary 8 year graduate ; =0 else
High School graduate	FHGHSCH	=1 if the father is a high school graduate ; =0 else
Vocational High school graduate	FVOCHG	=1 if the father is a vocational high school graduate ; =0 else
University Graduate	FUNI	=1 if the father is an university graduate ; =0 else
High School and More	FHG>=	=1 if the father is a high school or higher graduate ; =0 else
Time Dependent Covariates		
Funtional form 'T'		
MALE*T	Malet	
Age 20-24*T	A2024t	
YSFS 1987*T	1987t	
YSFS 1989*T	1989t	
YSFS 1992*T	1992t	
YSFS 1994*T	1994t	
YSFS 1995*T	1995t	

[24] For more information look at Appendix O.

Table 6.12 Continued

YSFS 2006*T	2006t	
YSFS 2007*T	2007t	
YSFS 2008_9*T	2008_9t	
Funtional form 'T*T'		
MALE*(T*T)		
Age 20-24*(T*T)	A2024tsq	
YSFS 1987*(T*T)	1987tsq	
YSFS 1989*(T*T)	1989tsq	
YSFS 1992*(T*T)	1992tsq	
YSFS 1994*(T*T)	1994tsq	
YSFS 1995*(T*T)	1995tsq	
YSFS 2006*(T*T)	2006sq	
YSFS 2007*(T*T)	2007sq	
YSFS 2008_9*(T*T)	2008_9tsq	
Funtional form 'ln(T)'		
MALE*ln(T)	MALElnt	
Age 20-24*ln(T)	A2024lnt	
YSFS 1987*ln(T)	1987lnt	
YSFS 1989*ln(T)	1989lnt	
YSFS 1992*ln(T)	1992lnt	
YSFS 1994*ln(T)	1994lnt	
YSFS 1995*ln(T)	1995lnt	
YSFS 2006*ln(T)	2006lnt	
YSFS 2007*ln(T)	2007lnt	
YSFS 2008_9*ln(T)	2008_9lnt	

We focus on two different dependent variables. One of them is the hazard rate of obtaining first permanent job after separation from school; the other is the hazard rate of obtaining first permanent paid job after separation from school. In addition, we also run two models by using each dependent variable. ‘Model 1’ includes the explanatory variables which comprise only two parental education level dummies while ‘Model 2’ includes the explanatory variables which comprise ten parental education level dummies. To summarize, the information for each individual consists of the following[25]:

- ***Dependent Variable*:** hazard rate of obtaining a first permanent job after separation from school at time t
- Regressors:
  - Gender Dummies (male, female), Age dummies (age 15-19 , age 20-24, age 25-29, age 30-34), YSFSs (yr1986, yr1987, yr1988, …,yr2000,

[25] Note that underlined variables show the reference categories.

yr2001,…yr2008_9), Education (primary (5-year) school, primary (8-year) school, high school, vocational high school, university), mother's education (lower than high school, high school and higher or illiterate/literate without a diploma, primary (5-year) school, primary (8-year) school, high school, vocational high school, university), father's education (lower than high school, high school and higher or illiterate/literate without a diploma, primary (5-year) school, primary (8-year) school, high school, vocational high school, university-for Model 2), time dependent covariates

- ***Dependent Variable*:** hazard rate of obtaining a first permanent paid job after separation from school at time t
- Regressors:
  - Gender Dummies (male, female), Age dummies (age 15-19 , age 20-24, age 25-29, age 30-34), YSFSs (yr1986, yr1987, yr1988, …,yr2000, yr2001,…yr2008_9), Education (primary (5-year) school, primary (8-year) school, high school, vocational high school, university), mother's education (lower than high school, high school and higher or illiterate/literate without a diploma, primary (5-year) school, primary (8-year) school, high school, vocational high school, university), father's education (lower than high school, high school and higher or illiterate/literate without a diploma, primary (5-year) school, primary (8-year) school, high school, vocational high school, university- for Model 2), time dependent covariates

Specification Issues:

Note that there are some specification issues in Cox Proportional Hazard Models. One of them is related to 'TIES'. The other one is related to 'Proportionality assumption'. First we deal with the 'TIES'.

In continuous time there can be no tied exists[26]. But frequently data is recorded discretely, so in practice, ties are common. The basic problem that tied events pose

[26] Ties occur when two or more cases fail at the same observed time.

for the partial likelihood function is in the determination of the composition of the risk set at each failure time, and the sequencing of event occurrences. For two or more observations that fail, or experience an event at the same time, it is impossible to tell which observation failed first. Consequently, it is not possible to discern precisely the composition of the risk set at the time of the failures. There are four methods for handing tied failures in the calculation of the Cox partial likelihood. These methods are Breslow method, Efron method, Exact marginal Method and Exact partial method[27]. Breslow method will not be very good as the risk pools include too may observation while Efron's approximation is a more accurate approximation of the exact marginal likelihood than Breslow's but takes longer to calculate. We applied three of the method and we saw that magnitude and signs of the coefficients are the same and therefore we use Efron Method to handle tied events.

There is another important specification issue in Cox Proportional Hazard Models: proportionality assumption. Estimation of proportional hazard models when in fact hazards are non-proportional results in coefficient biases and decrease the power of significance tests thus specification error occurs. In particular, misspecified PH models will overestimate the impact of variables whose associated hazards are diverging, while coefficient estimates for covariates in which hazards are converging will be biased towards zero (Kalbfleisch and Prentice, 1980). In other words, if a covariate fails this assumption for hazard ratios that increase over time for that covariate, relative risk is overestimated for ratios that decrease over time, relative risk is underestimated standard errors are incorrect and significance tests are decreased in power. Schemper (1992) summarizes the consequences of assuming constant hazard ratios when they are not applicable: For covariates whose hazard ratios are non-constant over time, the power of corresponding tests decreases because of suboptimal weights for combining the information provided by the risk sets of times where failures occur (Lagakos and Schoenfeld, 1984). To sum up, assessing whether the proportionality assumption holds is one of the central theme in survival analysis.

[27] For more information see Stata Survival Analysis and Epidemiological Tables Reference Manual 8.

More recent work by various authors (e.g. Grambsch and Therneau, 1994) has extended the techniques of testing the proportionality assumption, considerably. Therneau et. al (1990) use the maximum of the absolute value of the summed (over time) Schoenfeld residuals as a test for nonproportionality. A second, related test for proportional hazards is to calculate the correlation between the Schoenfeld residuals for a particular covariate and the rank of the survival time (Harrell,1986 in Box-Steffensmeier et al. 1998). A variation of this test, proposed by Grambsch and Therneau (1994), involves examining the rescaled residuals, defined for the kth covariate Grambsch and Therneau (1994) suggest a global test for nonproportionality, based on the aggregated (across covariates) covariance between the unscaled Schoenfeld residuals and the rank of survival time[28]. Scaled Schoenfeld residuals for a separate test for each covariate and that they request the unscaled residuals if we want the global test.

Once non-proportionality is established, there are different ways to deal with this problem. For example, if one is not interested in longer time periods, by shortening the follow-up time the problem is lessened since the non-proportionality problem is less likely to occur on short time intervals (Bellera et al 2010). In other words, we artificially censor the data[29]. Stratification is another way to account for non-proportionality. Note that this method works well with the categorical variables and if the effects of them on the hazard rate do not of direct interest. Although stratification is easier to set up and is less computationally intensive, effect of stratifying variable is not estimated and correctly specified interaction provides more efficient estimates for the effects of the other covariates. Thus, this approach should be selected if quantifying the effect of that stratified variable is not in the direct

[28] Under the proportionality assumption, the correlation between the scaled Schoenfeld residuals from the model and some function of time should not be statistically significantly different from zero. Having a statistically significant positive or negative correlation indicates that the residuals are trending over time and which means that there is a nonproportional effect of that variable.

[29] As earlier discussed, there are another reasons for us to artifically censor the data: To minimize the impact of noisy information about exit times recorded in the upper tail of the spell distribution, we artificially censored all long spells at 12, 24 and 36 months. There is another reason for doing artificially censoring the data. Since exposure to risk for different age groups is different, we used artificially censoring so that all individuals have the same probability of exposure. In addition, from the previous chapter, we examine that, the numbers of significant YSFSs backward from 2009 are not higher than three. This is true for all education levels.

interest of the researcher. The last thing about stratifying is that is also assumes that the effect of the other variables on survival is the same across strata. As a result, stratification method is more effective in diagnostic technique than dealing with the non-proportionality problem (Steffensmeier and Zorn, 1998). The last method to deal with the non-proportionality is to use time dependent covariates. These covariates are chosen by the help of the test results. Time dependent covariates are ones that the chi-square test for the significance of that relationship between the covariates and time. We include additional variables for example multiplying the covariates by logarithm of time (ln(time)). In our models, time refers to duration of obtaining the first permanent job after separating from school and obtaining the first permanent paid job. Other forms of the time are possible, time to the power of 2 ($time^2$) which reflects the possible diversity in non-proportionality[30]. Most treatments, however, favor ln(time) (eg.Kalbfleisch and Prentice, 1980). Our initial focus point is the effects of years of separation from school on the duration of obtaining first permanent job therefore; we do not hesitate to use the stratification by education. To sum up, we run Cox Proportional Hazard Models without time dependent covariates and by using stratification and we use 'Efron' method to solve the 'Ties' problem. After testing the proportionality assumption, we use time dependent variables.

Before moving to the estimation results of the duration models, we summarize our hypothesizes in this section. We hypothesize that the duration of obtaining the first permanent job/obtaining the first permanent paid job is longer for the individuals who have recent YSFSs since the elapsed time after separation school is short and there is a crisis in 2008. We hypothesize that the duration of obtaining the first permanent job/obtaining the first permanent paid job of the individuals who have YSFSs which coincide with structural changes/crises etc… and YSFSs which ensue the structural changes are statistically different from the ones whose YSFSs are 2000.

[30] Note that, stata TVC and TEXT command do for us. On the other hand, stata does not support time function exept time and ln(time). Therefore, if one wants to see the effect of $X*t$ and $X*t^2$ together in the function, data must be splited. In addition to this, split must be done in order to draw the cumulative baseline hazard after estimation since stata does not support to draw the cumulative baseline hazard with TVC command,.

(Due to the structural changes/crises, there are changes in the wage arrival rates, in non-labor incomes of the individuals (which lead changes in reservation wages), schooling decisions etc…). We test whether these impacts are permanent or not. We also test whether the duration of obtaining the first permanent job/obtaining the first permanent paid job for males are shorter than for females (Due to the breadwinner characteristics of the males in the households and the gender discrimination in the labor market). Afterwards, we also test whether the impact of being a male is permanent or diseapper over time. Furthermore, we test whether having a more qualified education leads to shorten the duration of obtaining the first permanent job/ obtaining the first permanent paid job (we use the mother's education as a proxy for quality of education). Last one is related to the family resource. We test whether having more family resources leads to lengthen the duration of obtaining first permanent job since family resources cause reservation wage of an individual to increase (We use the father's education as a proxy for family resources).

6.3.4 Results

Before moving to the estimation results of Cox Proportional Hazard Models, we focus on the test results of proportional assumption. Table 6.13 and Table 6.14 show the test results for obtaining first permanent paid job by artificial censored data while the test results for obtaining the first permanent job are in Appendix P, Table P.1 and Table P.2. We artificially censor all long spells at 12, 24, 36, 48 and 60 months. Table 6.10 is for the results for 12, 24 and 36 months while Table 6.14 is for 48 and 60 months. Model 1 includes two dummies for parental education while there are ten dummies for parental education as discussed earlier. In tables, the estimated values for Harrell's correlation coefficients (i.e., the correlation between the unscaled Schoenfeld residuals and the rank of survival time) are reported as well as the chisquare test for the significance of that relationship. In tables 'rho' stands for the correlation coefficients and 'prop>chi2' is for the p-values for correlation coefficients. We highlight the variables for which the proportionality assumption fails. If the proportionality assumption fails, it means that there is a nonproportionality influence of that variable and the residuals are trending over time.

First of all, we look at the recent YSFSs. For 12 months artificial censored model, the correlation for YSFS 2008_9 is strongly statistically significant. This is true for two of the models. If period is increased to 24 months, the correlation for YSFS 2007 becomes significant. For 36 months, the correlation coefficient of YSFS 2007 and 2008-9 are statistically significant. In the model for 48 months, the recent three YSFSs are statistically significant (YSFS 2006, 2007, 2008_9). The last model is for 60 months, in this model the correlation coefficients of YSFS 2005, 2006, 2007 and 2008_9 are statistically different from zero. To sum up, as the period of artificially censoring increases, the number of significant recent YSFS dummies increases. Turning to the other YSFSs, for 12 months artificial censored model, the correlations coefficient of YSFS 1989 and 1995 are statistically significantly different from zero. For 24 months artificial censored model, the correlation coefficients of YSFS 1988 and 1994 are statistically significantly different from zero. In 36 months, the correlation coefficient of YSFS 1994 is statistically significant. For 48 months artificial censored model, the correlation coefficient of YSFSs 1992 and 1994 are statistically significant. For 60 months artificial censored model, the correlation coefficient of YSFSs 1990 to 1995 are statistically significant and YSFSs 2001 and 2002. In addition to that for model 2, the correlation coefficients of 'MPRI5', 'MPRI8', and 'FHGHSCH' are statistically significant.

Finally, the global test for nonproportionality is also marginally statistically significant, suggesting (as is clear from the individual test results) that one or more of the variables in the model exhibits substantial nonproportionality. The corresponding p-values, as well as the pvalue associated with a global test of non-proportionality are reported in Table 6.13 and Table 6.14. The global test suggested strong evidence of non-proportionality ($p < 0.01$).

Table 6.13: Test Results of the Proportional Hazards Assumption of the First Permanent Paid Job, 12, 24 and 36 Months

	12 MONTHS				**24 MONTHS**					**36 MONTHS**			
	Model 1		**Model 2**		**Model 1**		**Model 2**			**Model 1**		**Model 2**	
Variables	rho	Prob>chi2	rho	Prob>chi2	rho	Prob>chi2	chi2	df	Prob>chi2	rho	Prob>chi2	rho	Prob>chi2
Personal Characteristics													
MALE	-0.03	0.10	-0.03	0.08	-0.05	0.00	-0.05		0.00	-0.08	0.00	-0.08	0.00
A20-24	0.03	0.09	0.03	0.09	0.02	0.27	0.02		0.26	0.01	0.56	0.01	0.57
A25-29	0.01	0.54	0.01	0.51	0.01	0.52	0.01		0.51	0.00	0.76	0.00	0.75
A30-34	0.01	0.71	0.01	0.69	0.01	0.61	0.01		0.60	0.00	0.94	0.00	0.92
YSFSs													
1985	0.01	0.60	0.01	0.62	0.01	0.58	0.01		0.59	0.01	0.56	0.01	0.58
1986	0.03	0.13	0.03	0.14	0.01	0.36	0.01		0.36	0.00	0.90	0.00	0.89
1987	-0.01	0.76	-0.01	0.77	-0.01	0.66	-0.01		0.67	0.03	0.07	0.03	0.07
1988	-0.01	0.56	-0.01	0.56	0.03	0.05	0.03		0.05	0.02	0.19	0.02	0.18
1989	0.05	0.00	0.05	0.00	0.02	0.25	0.02		0.24	0.01	0.41	0.01	0.39
1990	-0.01	0.52	-0.01	0.52	-0.01	0.68	-0.01		0.70	0.00	0.98	0.00	0.95
1991	-0.02	0.36	-0.02	0.36	0.00	0.77	0.00		0.76	0.00	0.76	0.00	0.75
1992	0.01	0.51	0.01	0.51	0.02	0.17	0.02		0.17	0.03	0.06	0.03	0.06
1993	0.03	0.10	0.03	0.11	0.02	0.24	0.02		0.25	0.02	0.17	0.02	0.18
1994	0.03	0.10	0.03	0.09	0.04	0.03	0.04		0.03	0.04	0.02	0.04	0.02
1995	0.04	0.05	0.04	0.05	0.01	0.51	0.01		0.49	0.02	0.28	0.02	0.27
1996	0.02	0.19	0.02	0.18	0.01	0.37	0.01		0.35	0.00	0.81	0.00	0.79
1997	0.03	0.17	0.03	0.17	0.00	0.88	0.00		0.87	0.00	0.89	0.00	0.88
1998	0.02	0.19	0.02	0.19	0.01	0.62	0.01		0.61	0.01	0.54	0.01	0.55
1999	0.03	0.07	0.03	0.07	0.00	0.92	0.00		0.93	0.00	0.83	0.00	0.84
2001	0.02	0.21	0.02	0.23	0.00	0.95	0.00		0.93	0.00	0.96	0.00	0.97
2002	0.00	0.86	0.00	0.88	0.01	0.75	0.00		0.78	0.00	0.90	0.00	0.91
2003	0.02	0.19	0.02	0.19	0.01	0.75	0.00		0.77	0.00	0.80	0.00	0.78
2004	0.03	0.17	0.03	0.16	0.00	0.76	0.00		0.76	0.00	0.96	0.00	0.97
2005	0.00	0.88	0.00	0.91	-0.01	0.47	-0.01		0.47	-0.02	0.26	-0.02	0.25
2006	-0.01	0.78	0.00	0.81	-0.01	0.49	-0.01		0.51	-0.04	0.01	-0.04	0.01

Table 6.13 Continued

2007	0.00	0.94	0.00	0.90	-0.05	0.00	-0.05	0.00	-0.08	0.00	-0.08	0.00
2008-9	-0.05	0.01	-0.05	0.01	-0.07	0.00	-0.07	0.00	-0.08	0.00	-0.08	0.00
Parental Education												
Mother's Education												
MHG>=	0.01	0.74			-0.01	0.69			-0.01	0.41		
FHG>=	-0.02	0.35			-0.01	0.57			0.01	0.56		
MPRI5			-0.02	0.34			-0.01	0.48			-0.01	0.34
MPRI8			0.00	0.92			-0.01	0.69			-0.01	0.35
MHGHSCH			0.01	0.47			0.01	0.65			0.00	0.76
MVOCHG			-0.01	0.62			-0.02	0.16			-0.02	0.29
MUNI			0.00	0.92			0.00	0.95			-0.01	0.36
Father's Education												
FPRI5			0.00	0.92			0.00	0.96			0.00	0.83
FPRI8			0.01	0.50			0.01	0.46			0.01	0.39
FHGHSCH			0.01	0.49			0.00	0.99			0.02	0.30
FVOCHG			-0.01	0.47			0.01	0.61			0.01	0.38
FUNI			-0.02	0.19			-0.02	0.30			0.00	0.96
global test	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***

Table 6.14 Test Results of the Proportional Hazards Assumption of the First Permanent Paid Job, 48 and 60 Months

	48 MONTHS				**60 MONTHS**			
	Model 1		**Model 2**		**Model 1**		**Model 2**	
Variables	rho	Prob>chi2	rho	Prob>chi2	rho	Prob>chi2	rho	Prob>chi2
Personal Characteristics								
MALE	-0.08	0.00	-0.08	0.00	-0.08	0.00	-0.08	0.00
A20-24	0.01	0.57	0.01	0.55	0.01	0.60	0.01	0.59
A25-29	0.00	0.84	0.00	0.83	0.00	0.86	0.00	0.85
A30-34	0.01	0.73	0.00	0.74	0.00	0.87	0.00	0.91
YSFSs								
1985	0.01	0.40	0.01	0.42	0.01	0.62	0.01	0.65
1986	0.02	0.08	0.02	0.08	0.02	0.12	0.02	0.12
1987	0.02	0.23	0.02	0.22	0.03	0.03	0.03	0.03
1988	0.01	0.54	0.01	0.53	0.02	0.17	0.02	0.15
1989	0.01	0.54	0.01	0.51	0.02	0.08	0.03	0.07
1990	0.01	0.42	0.01	0.41	0.03	0.02	0.03	0.02
1991	0.02	0.20	0.02	0.19	0.03	0.03	0.03	0.03
1992	0.04	0.01	0.04	0.01	0.05	0.00	0.05	0.00
1993	0.03	0.06	0.03	0.06	0.04	0.00	0.04	0.01
1994	0.04	0.00	0.04	0.00	0.05	0.00	0.05	0.00
1995	0.01	0.36	0.01	0.34	0.04	0.01	0.04	0.01
1996	0.01	0.45	0.01	0.44	0.01	0.30	0.01	0.28
1997	0.00	0.97	0.00	0.97	0.01	0.59	0.01	0.59
1998	0.01	0.65	0.01	0.65	0.01	0.43	0.01	0.43
1999	0.00	0.80	0.00	0.80	0.02	0.13	0.02	0.13
2001	0.02	0.17	0.02	0.18	0.03	0.04	0.03	0.04
2002	0.01	0.39	0.01	0.38	0.04	0.01	0.04	0.01
2003	0.01	0.58	0.01	0.58	0.01	0.52	0.01	0.52
2004	0.01	0.30	0.01	0.30	0.01	0.61	0.01	0.60
2005	-0.02	0.08	-0.02	0.08	-0.04	0.01	-0.03	0.01
2006	-0.05	0.00	-0.05	0.00	-0.06	0.00	-0.06	0.00

Table 6.14 Continued

2007	-0.09	0.00	-0.09	0.00	-0.09	0.00	-0.09	0.00
2008-9	-0.07	0.00	-0.07	0.00	-0.07	0.00	-0.07	0.00
Parental Education								
Mother's Education								
MHG>=	-0.01	0.50			-0.01	0.54		
FHG>=	0.01	0.44			0.02	0.24		
MPRI5			-0.03	0.06			-0.03	0.04
MPRI8			-0.02	0.11			-0.04	0.01
MHGHSCH			0.00	0.89			0.00	0.98
MVOCHG			-0.03	0.07			-0.03	0.03
MUNI			-0.01	0.61			-0.01	0.39
Father's Education								
FPRI5			0.00	0.79			0.00	0.98
FPRI8			0.01	0.30			0.02	0.15
FHGHSCH			0.03	0.05			0.03	0.02
FVOCHG			0.01	0.38			0.01	0.36
FUNI			-0.01	0.67			0.00	0.99
global test	***0.00***	***0.00***		***0.00***		***0.00***		***0.00***

Because of the fact of nonproportionality in our model, we next consider means of estimating Cox regression models in the presence of nonproportionality. In order to that, we have to use time dependent covariates. These covariates are chosen by the help of the test results. Note that, we only report the estimation results for 12, 24 and 26 months artificial censored model with time dependent covariates. We use three different functional form of time. First we use the interaction of time and the covariate at which the proportional assumption is violated. Afterwards, we use the interaction of time and the covariate, the interaction of time square and the covariate. The last time dependent covariate is generated by using the interaction of ln(time) and the covariate. We choose the model that has the minimum AIC (Akaike information criterion): the models with the time dependent covariates which are generated by using the interaction of ln(time) and the covariates and two parental education variables have the minimum AICs[31].

Goodness of Fit of the Final Model

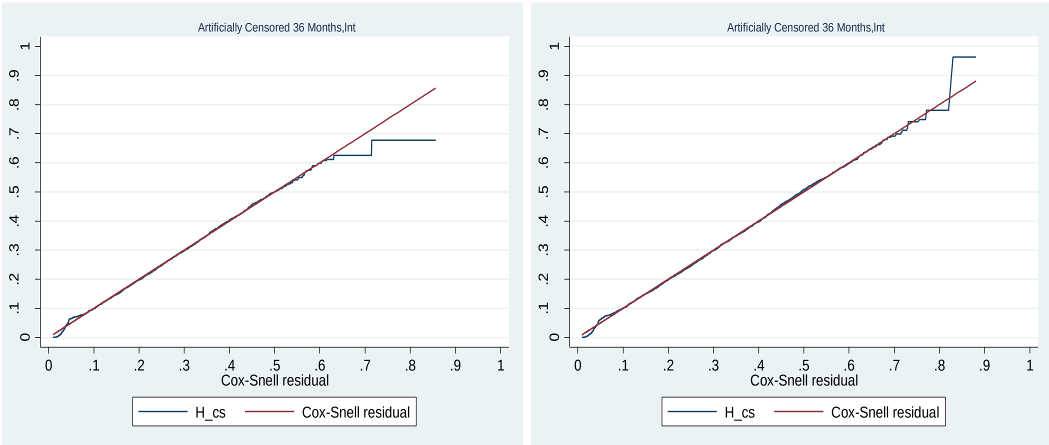
After estimating the models with time dependent covariates, we evaluate the fit of the model by using the Cox-Snell residuals[32]. If the model fits the data well then the true cumulative hazard function conditional on the covariate vector has an exponential distribution with a hazard rate of one. In other words, if the hazard function follows the 45 degree line then it approximately has an exponential distribution with a hazard rate of one and that the model fits the data well. We see that the hazard function follows the 45 degree line very closely except for very large values of time. It is very common for models with censored data to have some wiggling at large values of time and it is not something which should cause much concern. Overall we would conclude that the model stratified by education fits the data well. Figure 6.25 shows the model for artificial censored 36 months[33]. The Panel (a) shows the Cox-Snell residuals of estimated model of obtaining first permanent

[31] AICs of the models can be seen at the bottom of the Tables 6.15-6.17 for obtaining the first permanent paid job and AICs of the models for obtaining the first permanent job are in tables in Appendix T.

[32] There is other type of residual which is called Martingale residuals which are useful in determining the functional form of covariates to be included in the model and are occasionally useful in assessing lack of fit. However, we have only categorical variables , we do not use Martingal residuals.

[33] Note that, for artificially censored data 12 and 24 Months figures are shown in Appendix R.

job while the Panel (b) is for the model of obtaining first permanent paid job. From the figures, we can conclude that the estimated hazard function for the duration of obtaining first permanent paid job fits better than the one for the duration of obtaining first permanent job. This is expected since the individuals who obtain first permanent paid job are a more homogenous group than the ones who obtain a first permanent job which includes unpaid and paid jobs together.



(a)First Permanent Job (b)First permanent paid job

Figure 6.25: Cox-Snell Residuals of the Cox Proportional Models, 36 Months

Source: 2009 Module HLFS

Baseline Hazard Functions:

After choosing the right model, we move to baseline hazard functions. As earlier mentioned, Cox Proportional hazard is estimated by allowing the baseline hazard function to differ but assuming the coefficients are equal for the groups identified by education, in other words, stratification allows a different baseline hazard function in each level of the stratum, but common coefficients among each level[34]. Stratification controls for possible confounding variable. It takes care of proportional hazards assumption violation for that variable.

Although the benefit of the Cox model is that we do not need to specify a particular hazard function, it turns out that we can still get estimates of the baseline hazard, the integrated hazard, and the survivor functions from the Cox model[35]. In Figure 26 through Figure 28, the baseline hazard functions according to education levels are

[34] Education are categorized by primary 5 year school/ prim 8 year school graduates, high school graduates, vocational high school graduates and university graduates.

[35] For more information look at Appendix S.

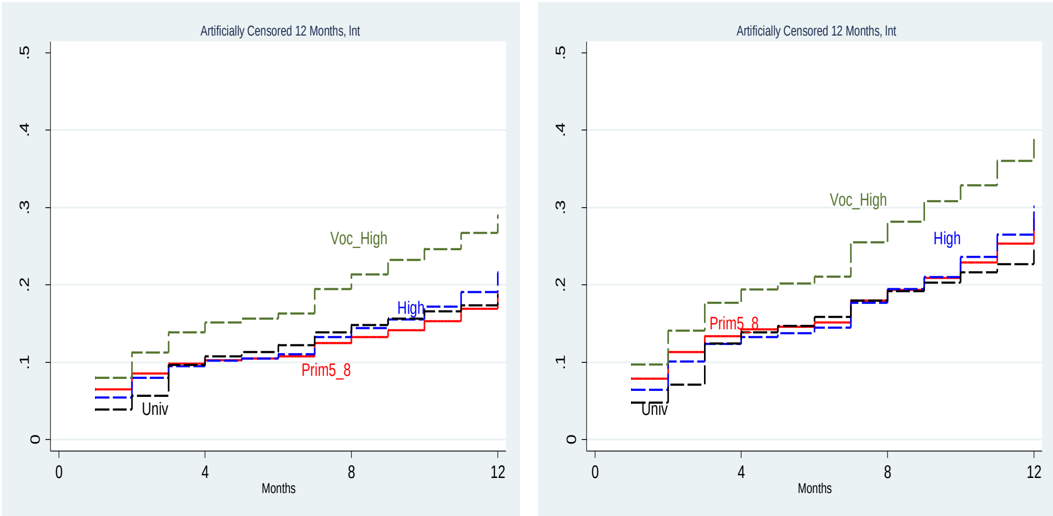
displayed. The cumulative baseline hazard functions for the estimated models of obtaining first permanent job are shown in panel (a) while the cumulative baseline hazard functions for the estimated models of obtaining first permanent paid job are shown in panel (b). The labels next to every baseline hazard functions show the education level which the baseline hazard function belongs to. For all education baseline hazard functions, we see that both functions are similar in the sense that they are both initially upward-sloping; however, there are marked differences. Before analyzing the baseline cumulative hazard, one should remember the regular graduation month of any school is june and july (look at Table 6.10 in Section 6.3.1). In addition, there is a seasonality of starting the job and also there is a variation among the education level (look at Table 6.11 and Table 6.12 in Section 6.3.1).

Cumulative Baseline Functions of Obtaining the First Permanent Job: For university graduates, the cumulative baseline function is flatter than for vocational high school graduates in one year span (12 months). This shows that finding first permanent job after separation from school is harder for university graduates than vocational high school graduates (Figure 6.26, Panel (a)). This is true not only for obtaining first permanent job but also for obtaining first permanent paid job after separation from school. In addition, over time the slope of the cumulative baseline of the university graduates gets flatter while the slope of the cumulative baseline function of the vocational high school graduates are more likely to be constant. Therefore, comparing the vocational high school graduates and university graduates, obtaining first permanent job gets harder and harder for university graduates. Two years after separation from school, the slopes of the cumulative baseline functions of university graduates and primary (5-year) school/primary (8-year) school graduates look the same (Figure 6.28, Panel (a)). In addition, the slope of the cumulative baseline function of high school graduates differs from the slope of the ones of university graduates that the slopes look same in one year span.

Cumulative Baseline Functions of Obtaining the First Permanent Paid Job: Same as in the cumulative baseline function of obtaining the first permanent job, for university graduates, the baseline hazard rate is flatter than for vocational high school graduates in one year span (12 months) which means that for university graduates, obtaining first permanent paid job after separation from school is harder than for vocational high school graduates (Figure 6.26, Panel (b)). In addition, over time the slope of the cumulative baseline of the university graduates gets flatter. By looking at the slopes in these figures, one can see that the slopes for the time span 1-12 months, 12-24 and 24-36 months are different for university graduates. The slope is flatter for the time span 12-24 months than the slope for the time span 1-12 months. Although the slope for the time span 24-36 months is not as steep as the one for the 1-12 months, it is steeper than the one for the time span 12-24 months. This phenomenon has probably links with ability of the individuals and also CMS (Compulsory Military Service).

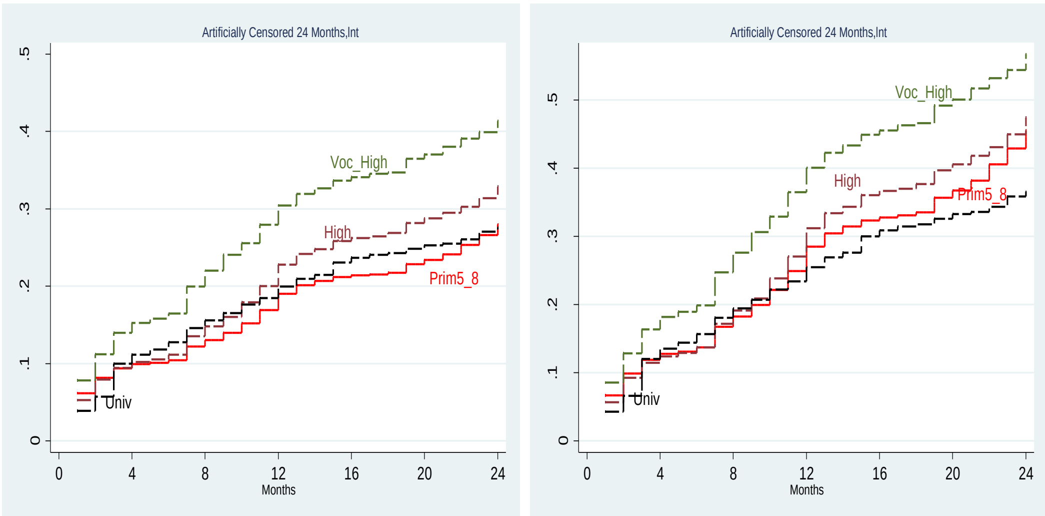
Having a relationship between the wage and education level and rate of return to education as it is mentioned in Human Capital Theory, one can ask why those individuals have different hazard rates among different time spans. One of the reasons that cause the difference in the hazard rates is difference in the ability of the individuals. Conditional on having the same education level and rate of returns of the individuals and holding all the other relevant factors constant, those individuals may have different abilities. In one year time span, individuals who have more ability are more likely to obtain first permanent paid job after separation from school and thus the hazard rate of obtaining first permanent paid job for them is higher. After one year time span, less able individuals are left in the labor market. Prolonged transition may serve as a negative signal, attach stigma to the searcher and adversely affect future career prospects (Genda, 2001). Therefore, for those individuals, the job offer rate would be probably lower. Since the hiring process is taken under uncertainty about worker productivity, employers may use previous unemployment spells as indicators of productivity and therefore, prefer to hire workers with shorter unemployment histories. Another explanation may come from the depreciation of human capital which leads to change wage offer distribution and the offer rate. The other reason may be related to CMS for males. For the ones who decide to do their CMS after separation from university are less likely to enter the labor market for the first 12 months after separation from school and afterwards, they are in the military for 6 months or 12 months. To sum up, around 24 months pass after separation from school, they return back to labor market and therefore, the hazard rate of obtaining first permanent paid job gets steeper.

For the case of primary (5-year) school/primary (8-year) school graduates, the slope gets steeper 20 months after separation from school and then it mimics the slope for high school graduates (Figure 6.28, Panel(b)). From these findings, one can say that if an university graduate did not find first permanent paid job in one year after separation from school, finding permanent paid job would be harder between the time span 12 months to 24 months. In addition, for vocational high school graduates, the hazard rate of obtaining first permanent paid job is steeper in a 4-month span due to the fact that there is a seasonality of starting work: the starting month is mostly June, July, August and September which is within the 4 months following the month of separation from school. The same pattern can be seen for the case of university graduates.



(a)First Permanent Job (b)First permanent paid job

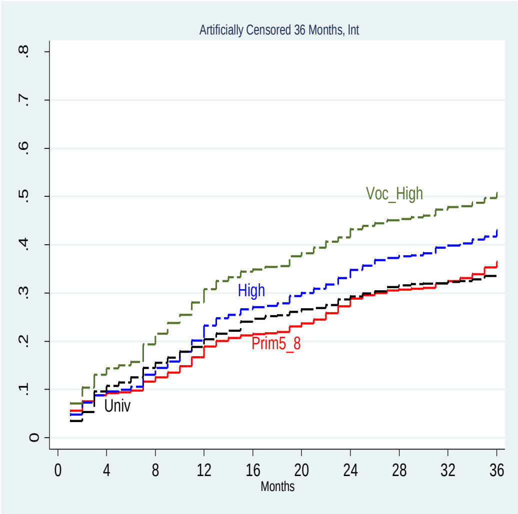
Figure 6.26: Cumulative Baseline Hazard Functions of Cox Models Stratified by Education, 12 Months



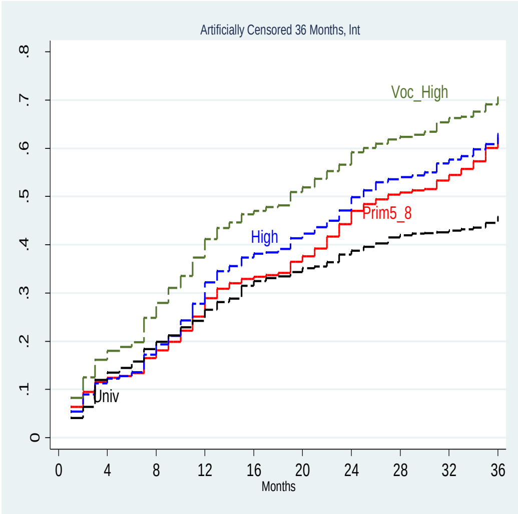
(a)First Permanent Job (b)First permanent paid job

Figure 6.27: Cumulative Baseline Hazard Functions of Cox Models Stratified by Education, 24 Months

Source: 2009 Modular HLFS



(a)First Permanent Job



(b)First permanent paid job

Figure 6.28: Cumulative Baseline Hazard Functions of Cox Models Stratified by Education, 36 Months

Source: 2009 Moduler HLFS

After analyzing the cumulative baseline functions for each education level, we turn to the effects of variables which shift the baseline hazard up or down. The results of the models for obtaining the first permanent job are reported in Appendix T, Table T.1-T.6. Table 6.15-6.17 shows the normalized estimated coefficients of Cox Proportional Hazard Models of obtaining first permanent paid job stratified by education for artificial censored 12, 24 and 36 months, respectively[36]. The normalization is done by using the variable YSFS 2008_9 which is highlighted. Since its effect on the duration is negative, it has a '-1' as a normalized coefficient. First two columns reflect the normalized estimation coefficients of the models that have the covariates that are generated by using the interaction of time and the covariate. The next two columns show the normalized estimation coefficients with the covariates that are generated by using the interaction of time and the covariates and the interaction of time square and the covariates. Last two columns have the covariates that are generated by using the interaction of ln(time) and the covariates. As discussed earlier, since AIC of the Model 5 which have the interaction of ln(time) and the covariates and two parental dummies has the lowest value, we use Model 5 during our interpretations below. The non-gray coefficients show the significant coefficients. We start with effects of the personal characteristics of the individuals on the duration of obtaining first permanent job/obtaining first permanent paid job. Afterwards, we move to the effects of YSFSs and parental education.

Personal Characteristics

Obtaining the First Permanent Job: The hazard of obtaining first permanent job for males is initially higher than for females in one year (12 months) time span (Appendix T, Table T.1). This is same for the case of artificial censored 24 months. However, in 36 months time span, the hazard of obtaining first permanent job for males is initially higher than females and decreases over time.

In a 12-month time span, there are no differences among age groups with respect to the duration of obtaining the first permanent job. On the other hand, the coefficient of 'A2024lnt' is statistically significant and positive which means that over time

[36] The exact estimation coefficients of the models are shown in Appendix T, Table T.7-T.9.

being in age group 20-24 shortens the duration of obtaining the first permanent job. Nevertheless, as we increase the time span to 24 months, the duration of obtaining first permanent job becomes longer for individuals who are in age group 30-34 than for the ones who are in age group 15-19. Same result can be seen for the artificial censored 36 months.

Obtaining the First Permanent Paid Job: For the case of obtaining the first permanent paid job, in a 12 month time span, the hazard is initially higher for males than for females (Table 6.15). However, in a 24 month time span, although the hazard is initially higher than for females, it decreases over time. In order to have a decreasing effect of males on obtaining first permanent paid job, increasing the time span to 24 months is enough (Table 6.16). The same decreasing effect can be seen for artificial censored 36 months (Table 6.17). From the labor supply perspective, the breadwinner characteristics of males are on the scene. In addition to that, since the reservation wage of males are lower than the reservation of females therefore holding other factors constant (say there is no difference in the job offer rates, in human capital, ability etc…), males are more likely to obtain the first permanent job. Nevertheless, if we look at from the demand side perspective, one should not forget that due to the gender discrimination in the labor market, males are more likely to obtain a permanent job sooner even if there are differences in reservation wages. On the other hand, if we increase the time span to 24 months, the gap between the male and female hazard rate of obtaining first permanent paid job converges. This phenomenon has probably links with the implications of the decrease in the job offer due to the negative signal of having long unemployment spells.

In 12 months time span, the hazard of obtaining first permanent paid job is statistically lower for the age group 30-34 than for the age group 15-19. As we increase the time span to 24 months, the duration of obtaining first permanent job is longer for individuals who are in age group 25-29 or 30-34 than for the ones who are in age group 15-19. As the 24 months time span, same results can be seen for the artificial censored 36 months.

YSFSs

Obtaining First Permanent Job: For the case of artificial censored 12 months, the hazard of obtaining first permanent job for individuals whose year of separation from school (YSFS) is 2008-9 is initially lower than that for the individuals whose year of separation is 2000 (the base group individuals) and decreases over time since the coefficient of the time dependent covariate '2008_9lnt' is negative and statistically significant(Appendix T, Table T.1). As discussed earlier, YSFS 2000 is a good year with respect to macro-economic conditions. This shows the continuing effect of the crisis and also the effect of having a recent YSFS. If we increased the time span to 24 months, initially there is no significant difference between the YSFSs 2007 and 2000 however over time YSFS 2007 leads to lengthening of obtaining the first permanent job after separation from school. For the case of artificial censored 36 months, the coefficients of '2008_9lnt', '2007lnt' and '2006lnt' are statistically significant and negative. However, only the coefficient of YSFS 2008_9 has significant effect on the hazard of obtaining first permanent job while the hazard of obtaining first permanent job for individuals whose YSFSs are 2007 or 2006 are not initially different from the base group individuals. Over time, the YSFS 2007 and 2006 lead to lengthen the duration.

Turning to the YSFSs except for the recent YSFSs, YSFSs 1996 and 1997 have statistically significant effects on the duration of obtaining the first permanent job for the 12 months time span. For those individuals, the duration of obtaining first permanent job is shorter. If we increase time span to 24 months, YSFSs 1989, 1990, 1991, 1993, 1995, 1996 and 1997 become significant. Their effects are positive which means that they shorten the duration of obtaining the first permanent job. For the case of artificial censored 36 months, YSFSs 1989, 1990, 1991, 1993, 1995, 1996 and 1997 are significant, as well. In addition, the coefficient of '1994lnt' has a positive significant effect on the duration which means that over time YSFS 1994 shortens the duration of obtaining the first permanent job. In other words, although initially there is no significant difference between the hazard for individuals whose YSFS 1994 and 2000, over time YSFS 1994 shortens the duration. This may be related to General Elections in 1995 and the economic expansionary policies before the election. Another reason for this could be the fact that reservation wages of new graduates may decrease since their parental sources decreases and thus they are more willing to accept the job offers.

On the other hand, before including the time dependent variable for year of separation 2007 dummy, it has a significant negative effect on hazard rate. After including interaction of year 2007 and ln(time), year 2007 dummy loses its significance and only the interaction covariate has a significant negative effect on hazard rates that is to say, year 2007 is different from year 2000 while as time passes separation from school in 2007 lengthens the time before obtaining a first permanent job. This reflects the crisis effect on the labor market.

Obtaining First Permanent Paid Job: Most of the results resemble those presented for the case of obtaining the first permanent job (Table 6.15, Model 5). If we examine the recent YSFSs, for the case of artificial censored 12 months, the hazard of obtaining first permanent job for individuals whose year of separation from school (YSFS) is 2008-9 is initially lower and diverges over time. Increasing the time span to 24 months, although initially there is no significant difference between the YSFSs 2007 and 2000, over time YSFS 2007 lengthens time before obtaining first permanent job after separation from school. In addition, if we increase the time span to 36 months, the coefficients of '2008_9lnt', '2007lnt' and '2006lnt' become statistically significant and negative. However, only the coefficient of YSFS 2008_9 has a significant effect on the hazard of obtaining first permanent paid job while the hazard of obtaining first permanent paid job for individuals whose YSFSs are 2007 or 2006 are not initially different from the base group individuals. Besides that, over time the YSFS 2007 and 2006 lead to lengthen the duration.

There are some different results of the YSFSs effects on the obtaining first permanent paid job for the case of YSFSs other than the recent years, as well. YSFS 1996 has statistically significant effects on duration of obtaining first permanent paid job. For those individuals, the duration of obtaining first permanent paid job is shorter. In addition, '1989lnt' has a significant positive effect on the hazard of obtaining first permanent paid job which means that YSFS 1989 shortens the duration over time. If we increase time span to 24 months, only YSFSs 1989, 1996 become significant. Their effects are positive which means that they shorten the duration of obtaining first permanent paid job. For the case of artificial censored 36 months, YSFSs 1989, 1991, 1993, 1995, 1996 are significant. In addition, for the case of YSFS 1994, only the coefficient of '1994lnt' has a positive significant effect on the duration which means that over time YSFS 1994 shortens the duration of obtaining first permanent paid job. In other words, although initially there is no significant difference between the hazard for individuals whose YSFS 1994 and 2000, over time YSFS 1994 shortens the duration and then the hazard rate of the individuals whose YSFSs are 1995 and 1996 are initially higher than the ones whose YSFS are 2000. They may accept the job offers since the 'willingness' to accept a job changes over time and by the unemployment benefits, which are affected by the macro-economic conditions.

Parental Education

In order to examine the effects of each education level of parents, we run the models by including parental education dummies. The sixth columns of the Table 6.15 to 6.17 show the normalized coefficients for the 'model 6' which includes ten parental education dummies (unrestricted model) while the fifth column shows the ones for the 'model 5' which is with two parental dummies (restricted model).

Obtaining First Permanent Job: Having a mother with high school and more education level shortens the duration of obtaining the first permanent job while father's education does not have any effect (Table 6.15 to Table 6.17, Model 5). This is true for the artificial censored 12, 24 and 36 months. Note that, if we examine the unrestricted model, we find that as education level of mother increases, the duration of obtaining first permanent job shortens (Table 6.15 to 6.17, Model 6). This is valid for the artificial censored 12, 24 and 36 months. For the case of artificial censored 24 months, having a father with high school graduate has a negative effect on the hazard of obtaining first permanent job.

Obtaining First Permanent Paid Job: The results of the duration of obtaining first permanent paid job and obtaining first permanent job are same. There is one exception which is related to father's education in unrestricted model (Model 6). Although having a father with high school education level has a significant effect on the duration of obtaining first permanent job for only the case of artificial censored 24 months, it has a significant effect on the duration of obtaining first permanent paid job for all the cases of artificially censored.

We find evidence for the hypothesis that the duration of obtaining the first permanent job/obtaining the first permanent paid job is longer for the individuals who have recent YSFSs. As discussed earlier, this is expected since the elapsed time after separation school is short and there is a crisis in 2008.

We also confirm that the duration of obtaining the first permanent job/obtaining the first permanent paid job of the individuals who have YSFSs which coincide with structural changes/crises etc… and YSFSs which ensue the structural changes are statistically different from the ones whose YSFSs are 2000.

In addition, the duration of obtaining the first permanent job/obtaining the first permanent paid job for males are shorter than for females nevertheless, although the hazard of obtaining the first permanent job/obtaining the first permanent paid job for males is initially higher than females and decreases over time.

As the quality of individual's education increases, the duration of obtaining the first permanent job/obtaining the first permanent paid job gets shorter. We use mother's education as a proxy for quality of education and we find that having a mother with high school and more education shortens the duration of obtaining the first permanent job/ obtaining the first permanent paid job.

Our last hypothesis is about family resources. We do not have a significant effect on the duration of obtaining the first permanent job/obtaining the first permanent job if we use only one education dummy to identify the father's education level. On the other hand, if we use five education dummies to identify father's education level, we find that family resources have an impact on obtaining first permanent job. We hypothesize that having a father with high school and more education level lengthens the duration of obtaining the first permanent job/ obtaining the first permanent paid job since family resources can be stated as one of the factors leads to increase reservation wage of an individual. One can conclude from this result that, conditional holding constant the job offer rate, the hazard rate of obtaining the first permanent paid job would not change if the family resources change due to the crisis. This effect is unexpected. Thus, one can say that father's education may be a poor proxy.

Now, we summarize our findings in this section. The duration of obtaining the first permanent job is longer for recent graduates (and/or recently separate from school). As discussed earlier, this is expected since the elapsed time after separation school is short and there is a crisis in 2008. There is another finding about the recent graduates. The individuals forming the recent graduates who have an effect on the duration of obtaining first permanent job changes as artificial censoring changes (in other words as the examined time span changes). For the case of artificial censored 12 months, being an individual graduated 12 months before the survey has a lower hazard of obtaining first permanent job than the individuals whose YSFSs are 2000. If the examined time span increases to 24 months, individuals graduated 24 months before the survey are also in the group who has a lower hazard rate of obtaining first permanent job.

For the case of artificial censored 36 months, the hazard rate of the individuals whose YSFSs are 2008_9 is 0.6 times lower than the ones whose YSFSs are 2000. Over time, the YSFS 2007 and 2006 lead to lengthen the duration. Being not different from the base year should not be interpreted as an undesirable situation. Note that after 2000, the employment rate starts to decrease. This decrease cannot be solely related to the crisis since the decrease continues during until 2005 and it has nearly the same values after 2005 and GDP at constant prices has an increasing trend after 2002. The increase in high school and university enrollments is probably one of factors that can explain the decrease in the employment rate. As a result of the fast growth process after the 2001 crisis, GDP at constant prices during the period from 2002 until the 2008 crisis increased by 41%. Nevertheless, this growth did not have a comparable effect on employment rates, especially for individuals with lower education levels. As Öz (2010) states, this is due to the fact that Turkey reaches a certain level of technology, but it isn't compatible with the labor supply. From this perspective, it is not surprising to find that the chance of obtaining the first permanent job is higher for more educated individuals after separation from school.

Turning to the YSFSs which coincide with structural changes, crises, general elections: their impacts on the duration of obtaining the first permanent job changes with artificial censoring. More precisely, although some of the YSFSs have impacts on the duration of obtaining the first permanent job, these YSFSs may lose their impact if the amount of the artificial censoring is changed. Furthermore, we deduce from the estimation results that the impacts of structural changes and general elections on the duration of first permanent paid job and the duration of first permanent job are the same. The effect of 1994 crisis on the duration of obtaining the first permanent job are permanent and lead to shorten the duration of obtaining the first permanent job. Elections have positive effects on the hazard rates of the duration of obtaining the first permanent job and these effects are permanent in other words, these effects do not disappear over time.

We found that most of the YSFSs after 2000 do not have any impact on the hazard rate of obtaining the first permanent job after separation from school. This means that the duration of obtaining the first permanent job are the same for the young individuals whose YSFS are after 2000 and whose YSFSs are 2000. On the other hand, the duration of obtaining first permanent job for the ones separated from school before 2000 are shorter than the ones separated in 2000. This happened although there are more macroeconomic instabilities during the 1990s. The hazard rates of obtaining the first permanent job for individuals separated from school before 2000 are around 1.3 times higher than the ones separated from school in 2000.

From our examination of the cumulative baseline hazards, we learn that the hazard rate of obtaining the first permanent paid job is higher for vocational high school than for university graduates. In this chapter, we find out that over time, the slope of the cumulative baseline hazard shows variation for university graduates: Slope is highest for 0-12 months; it decreases for 12-24, and then it increases somewhat for 24-36 (but does not reach the initial level.) This non-linearity matches what we saw in Chapter 5: we found evidence that the males who were in military in the previous year have a higher probability of being a wage worker than the ones who were inactive. We may link the variations in the hazard rates for university graduates over time with the CMS (Compulsory Military Service). After separation from university, males may prefer doing their CMS and wait to enlist: they are inactive and then they come back and they are more likely to enter the labor market (around 24 months past after separation from university). Since they are more likely to enter the labor market, the probability of obtaining the first permanent job increases for them. Briefly then, although we may not examine the pure effect of the CMS on the transition from school to work, we are able to make connections with it. In other words, the CMS effects on the transition from school to work show its face implicitly.

In addition, the duration of obtaining the first permanent job for males is shorter than for females. However, the hazard rates of obtaining the first permanent job for males are initially higher than females and it decreases over time. Again, this probably has links with CMS, since the gap between the hazard rates of males and females start to decrease after 12 months, coinciding with the duration for males completing their CMS after separation from school (especially university and vocational high school graduates). It converges after 14 months. For the case of first permanent job, it starts to decrease after 24 months and it converges after 22 months. There is another remarkable finding from the cumulative baseline hazards: there is a seasonality of obtaining first permanent job after separation from school.

We use the mother's education as a proxy for quality of education and we find that having a mother with high school education and higher education level shortens the duration of obtaining the first permanent job. Our last finding is about the family resources. We do not have a significant effect on the duration of obtaining the first permanent job if we use father's education as a proxy for the family resources.

Table 6.15: Normalized Coefficients of Cox Proportional Hazard Models of Obtaining First Permanent Paid Job Stratified By Education, 12 Months

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Personal Characteristics						
MALE	0.342	0.380	0.125	0.141	0.249	0.278
A20-24	-0.032	-0.030	-0.016	-0.016	-0.021	-0.019
A25-29	-0.385	-0.371	-0.145	-0.141	-0.278	-0.269
A30-34	-0.804	-0.777	-0.297	-0.289	-0.583	-0.565
YSFSs						
1985	-0.708	-0.626	-0.261	-0.233	-0.516	-0.456
1986	-0.209	-0.175	-0.078	-0.066	-0.151	-0.127
1987	0.060	0.065	0.021	0.022	0.045	0.048
1988	-0.366	-0.354	-0.136	-0.132	-0.267	-0.257
1989	-0.474	-0.467	-0.603	-0.600	-0.476	-0.471
1990	0.332	0.345	0.120	0.125	0.242	0.252
1991	0.270	0.270	0.098	0.099	0.197	0.197
1992	-0.013	-0.006	-0.006	-0.003	-0.008	-0.003
1993	0.272	0.289	0.099	0.105	0.199	0.211
1994	0.187	0.175	0.067	0.064	0.136	0.129
1995	-0.017	-0.017	0.075	0.076	0.056	0.056
1996	0.413	0.415	0.151	0.153	0.301	0.305
1997	0.315	0.322	0.115	0.119	0.230	0.237
1998	0.192	0.197	0.071	0.072	0.140	0.144
1999	0.128	0.128	0.047	0.048	0.095	0.094
2001	0.074	0.069	0.027	0.025	0.054	0.050
2002	-0.085	-0.095	-0.031	-0.034	-0.062	-0.069
2003	-0.160	-0.168	-0.058	-0.062	-0.117	-0.122
2004	-0.130	-0.138	-0.048	-0.051	-0.095	-0.101
2005	0.075	0.065	0.027	0.023	0.055	0.048
2006	0.011	-0.013	0.003	-0.006	0.010	-0.008
2007	-0.191	-0.210	-0.071	-0.079	-0.138	-0.152
2008-9	***-1.000***	***-1.000***	***-1.000***	***-1.000***	***-1.000***	***-1.000***
Parents Education						
MPRI5		0.223		0.083		0.163
MPRI8		0.605		0.224		0.444
MHGHSCH		0.704		0.261		0.514
MVOCHG		1.158		0.429		0.846
MUNI		0.477		0.176		0.348
FPRI		0.125		0.046		0.091
FPRI8		-0.006		-0.002		-0.004
FHGHSCH		-0.438		-0.163		-0.320
FVOCHG		-0.048		-0.018		-0.035
FUNI		0.158		0.058		0.116
MHG>=	0.638		0.234		0.465	
FHG>=	-0.177		-0.065		-0.129	
Time Dependent Covariates						
1989t	0.157	0.155	0.287	0.286		
1995t	0.064	0.063	-0.026	-0.027		
2008_9t	-0.379	-0.374	0.300	0.298		
1989tsq			-0.018	-0.018		

Table 6.15:Continued

1995tsq			0.004	0.004		
2008_9tsq			-0.046	-0.045		
1989lnt					0.567	0.559
1995lnt					0.147	0.146
2008_9lnt					-0.777	-0.770
Observations	124,358	124,358	124,358	124,358	124,358	124,358
LR test: Incremental Chi-sq(d.f)	209	238	224	253	204	233
Prob < Incremental Chi-sq	0	0	0	0	0	0
Log Lik	-23100	-23086	-23093	-23078	-23103	-23088
AIC	43.9048	59.9060	49.9054	65.9067	43.9046	59.9059

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Reference for model 1, model 3 and model 3: female, age 15-19, mother/father with less than high school education level, YSFS 2000
Reference for model 2, model 4 and model 6: female, age 15-19,mother/ father whose education level is illiterate or illiterate without a diploma, YSFS 2000

Table 6.16 Normalized Coefficients of Cox Proportional Hazard Models of Obtaining First Permanent Paid Job Stratified By Education, 24 Months

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Personal Characteristics						
MALE	0.592	0.638	0.240	0.255	0.554	0.584
A20-24	-0.064	-0.061	-0.025	-0.024	-0.035	-0.032
A25-29	-0.508	-0.492	-0.152	-0.149	-0.349	-0.338
A30-34	-1.017	-0.981	-0.300	-0.292	-0.710	-0.687
YSFSs						
1985	-0.840	-0.736	-0.247	-0.219	-0.586	-0.514
1986	-0.241	-0.191	-0.072	-0.059	-0.163	-0.129
1987	-0.045	-0.038	-0.016	-0.013	-0.027	-0.022
1988	-0.663	-0.635	0.081	0.085	-0.232	-0.217
1989	0.666	0.659	0.192	0.191	0.473	0.469
1990	0.408	0.428	0.116	0.123	0.290	0.307
1991	0.499	0.504	0.143	0.146	0.356	0.360
1992	0.234	0.242	0.066	0.070	0.168	0.174
1993	0.442	0.461	0.127	0.134	0.314	0.328
1994	-0.093	-0.099	0.009	0.007	-0.121	-0.126
1995	0.461	0.459	0.133	0.134	0.327	0.327
1996	0.573	0.581	0.165	0.170	0.404	0.411
1997	0.356	0.369	0.103	0.108	0.252	0.262
1998	0.279	0.285	0.081	0.084	0.200	0.202
1999	0.119	0.120	0.035	0.035	0.086	0.086
Base 2000						
2001	-0.005	-0.012	-0.001	-0.003	-0.002	-0.007
2002	-0.019	-0.038	-0.005	-0.010	-0.013	-0.027
2003	-0.198	-0.214	-0.057	-0.062	-0.141	-0.153
2004	-0.212	-0.226	-0.061	-0.066	-0.149	-0.159
2005	0.057	0.042	0.015	0.012	0.040	0.032
2006	-0.029	-0.056	-0.010	-0.018	-0.018	-0.038
2007	0.499	0.466	-0.098	-0.105	0.263	0.242

Table 6.16: Normalized Coefficients of Cox Proportional Hazard Models of Table

6.16 Continued

2008-9	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Parents Education						
MPRI5		0.280		0.082		0.197
MPRI8		0.675		0.199		0.478
MHGHSCH		0.894		0.263		0.630
MVOCHG		1.165		0.343		0.823
MUNI		0.572		0.168		0.403
FPRI		0.165		0.048		0.116
FPRI8		0.056		0.017		0.040
FHGHSCH		-0.548		-0.162		-0.386
FVOCHG		0.120		0.035		0.083
FUNI		0.153		0.045		0.108
MHG>=	0.695		0.202		0.488	
FHG>=	-0.203		-0.059		-0.143	
Time Dependent Covariates						
Malet	-0.036	-0.035	-0.032	-0.032		
1988t	0.074	0.073	-0.064	-0.064		
1994t	0.060	0.059	0.006	0.006		
2007t	-0.160	-0.158	0.054	0.054		
2008_9t	-0.573	-0.565	0.306	0.305		
Maletsq			0.001	0.001		
1988tsq			0.003	0.003		
1994tsq			0.001	0.001		
2007tsq			-0.006	-0.006		
2008_9tsq			-0.047	-0.046		
Malelnt					-0.211	-0.207
1988lnt					0.171	0.169
1994lnt					0.260	0.259
2007lnt					-0.477	-0.473
2008_9lnt					-1.396	-1.381
Observations	228,156	228,156	228,156	228,156	228,156	228,156
LR test: Incremental Chi-sq(d.f)	352.7	387.7	383.8	418.9	326.1	361.1
Prob < Incremental Chi-sq	0	0	0	0	0	0
Log Lik	-31270	-31253	-31255	-31237	-31283	-31266
AIC	47.2992	63.3003	57.3001	73.3013	47.2983	63.2994

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Reference for model 1, model 3 and model 3: female, age 15-19, mother/father with less than high school education level, YSFS 2000
Reference for model 2, model 4 and model 6: female, age 15-19,mother/ father whose education level is illiterate or illiterate without a diploma, YSFS 2000

Table 6.17: Normalized Coefficients of Cox Proportional Hazard Models of Obtaining First Permanent Paid Job Stratified By Education, 36 Months

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Personal Characteristics						
Male	0.641	0.682	0.209	0.223	0.672	0.700
Age20-24	-0.114	-0.109	-0.038	-0.037	-0.058	-0.055
Age25-29	-0.651	-0.630	-0.183	-0.179	-0.456	-0.444
Age30-34	-1.154	-1.114	-0.319	-0.312	-0.831	-0.806

Table 6.17: Normalized Coefficients of Cox Proportional Hazard Models of Table

6.17 Continued

YSFSs						
1985	-0.689	-0.588	-0.190	-0.166	-0.494	-0.422
1986	-0.334	-0.275	-0.094	-0.079	-0.232	-0.190
1987	0.347	0.352	0.092	0.095	0.269	0.274
1988	0.139	0.159	0.036	0.041	0.117	0.130
1989	0.714	0.705	0.191	0.192	0.536	0.532
1990	0.461	0.486	0.123	0.131	0.351	0.369
1991	0.549	0.551	0.147	0.150	0.412	0.415
1992	0.377	0.387	0.101	0.105	0.284	0.293
1993	0.544	0.561	0.146	0.153	0.406	0.420
1994	0.157	0.149	-0.014	-0.015	-0.061	-0.066
1995	0.572	0.566	0.154	0.155	0.427	0.422
1996	0.582	0.591	0.158	0.162	0.432	0.439
1997	0.365	0.377	0.098	0.103	0.269	0.280
1998	0.334	0.337	0.091	0.093	0.249	0.250
1999	0.167	0.164	0.045	0.045	0.122	0.121
Base 2000						
2001	0.025	0.015	0.007	0.005	0.019	0.013
2002	-0.013	-0.032	-0.003	-0.008	-0.011	-0.026
2003	-0.253	-0.270	-0.068	-0.073	-0.189	-0.201
2004	-0.238	-0.253	-0.065	-0.070	-0.174	-0.186
2005	-0.025	-0.040	-0.008	-0.012	-0.015	-0.026
2006	0.539	0.496	0.032	0.023	0.471	0.439
2007	0.770	0.725	-0.120	-0.127	0.508	0.479
2008-9	***-1.000***	***-1.000***	***-1.000***	***-1.000***	***-1.000***	***-1.000***
Parents Education						
MPRI5		0.273		0.075		0.199
MPRI8		0.645		0.177		0.475
MHGHSCH		0.876		0.242		0.644
MVOCHG		1.216		0.336		0.896
MUNI		0.476		0.131		0.351
FPRI		0.191		0.053		0.141
FPRI8		0.104		0.029		0.077
FHGHSCH		-0.481		-0.133		-0.355
FVOCHG		0.216		0.060		0.159
FUNI		0.251		0.069		0.185
MHG>=	0.699		0.191		0.512	
FHG>=	-0.154		-0.042		-0.113	
Time Dependent Covariates						
Malet	-0.041	-0.040	-0.019	-0.019		
1994t	0.038	0.037	0.022	0.022		
2006t	-0.076	-0.074	0.010	0.010		
2007t	-0.225	-0.221	0.063	0.062		
2008_9t	-0.623	-0.613	0.306	0.305		
Maletsq			0.000	0.000		
1994tsq			-0.001	-0.001		
2006tsq			-0.001	-0.001		
2007tsq			-0.006	-0.006		
2008_9tsq			-0.047	-0.047		
Malelnt					-0.288	-0.282

Table 6.17 Continued

1994lnt					0.263	0.261
2006lnt					-0.360	-0.355
2007lnt					-0.814	-0.804
2008_9lnt					-1.731	-1.706
Observations	321,487	321,487	321,487	321,487	321,487	321,487
LR test: Incremental Chi-sq(d.f)	519.4	558.3	557.7	596.7	465.0	503.8
Prob < Incremental Chi-sq	0	0	0	0	0	0
Log Lik	-36335	-36315	-36316	-36296	-36362	-36343
AIC	38.9989	55.0000	49.0000	65.0011	38.9974	54.9985

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Reference for model 1, model 3 and model 3: female, age 15-19, mother/father with less than high school education level, YSFS 2000
Reference for model 2, model 4 and model 6: female, age 15-19,mother/ father whose education level is illiterate or illiterate without a diploma, YSFS 2000

CHAPTER 7

SUMMARY AND CONCLUSION

In Turkey, the ratio of the population under 30 years of age in the total population in 2009 was 52.2%, whereas the ratio of the population over 64 years of age was 14.2%. These figures confirm that there is a young and growing population in Turkey. Turkey has a demographic gift. In 1990, there were 33 million working age individuals. During the 1990s, on average 971 thousand additional individuals per annum joined the working age population. In 2000 the stock reached 43 million. During the 2000s, the stock grew by 463 thousand per year and reached 47 million in 2009. Since fertility is approaching replacement levels (2.15 in 2008), the demographic window of opportunity will close in the near future. The impact of the decrease in fertility became evident during the 2000s. It is stronger on 15-24 year-olds than 25-34 year-olds in that the former group is growing at a slower rate than the latter.

The pace of employment growth did not match the population growth rates. According to the “old” HLFS series, the number of employed individuals increased from 18.5 million to 22 million between 1990-1999. According to the “new” HLFS series, it decreased from 21.6 million to 21.2 million between 2000- 2009. Broken down by age groups, job creation for 15-24 year-olds is more problematic than that for 25-34 year-olds. The stock of 15-24 year-old employed individuals increased from 4.6 million in 1990 to 5 million in 1999 (old series) and decreased from 4.7 million in 2000 to 3.3 million in 2009 (new series). In the case of 25-34 year-olds, the stock of employed individuals was 5 million in 1990, 6.5 million in 1999 (old series). It was around 6.6 million throughout the 2000s (new series).

Turning to unemployment, we see that the stock of unemployed individuals increased during the last twenty years. According to the old series, the number of unemployed individuals increased from 1.6 million to 1.8 million between 1990 and 1999. According to the new series, it was 1.5 million in 2000, and climbed to 3.5 million in 2009. Broken by age groups, the change in the stock of 15-24 year-old unemployed individuals is higher than that for 25-34 year-olds. The unemployment rates for 15-24 year-olds are also higher. In the 1990s youth unemployment rates (for 15-24 year-olds) were in the range of 14% to 18%. A decade later, the minimum value of the unemployment rate for this age group was 16% and the maximum value was 25% in 2009. For the case of 25-34 year-olds, values were substantially lower. During the 1990s the unemployment rates were around 6%. During the 2000s, the minimum value was 8% and the highest value was 15% in 2009. In sum, it can be said that job creation was not enough to match the influx of young individuals. This is more noticeable during the 2000s compared to the 1990s. Thus, one can say that Turkey has not taken full advantage of the demographic window of opportunity.

Comparing age groups 15-24 and 25-34 year-olds, we can say that the problem of jobless young individuals is more severe for 15-24 year-olds, especially in terms of job creation rates per year. Furthermore, it can be said that today's jobless young individuals can be tomorrow jobless adults. From this point of view, it is important to underscore that proper understanding of the concerns and needs of the youth is crucial not only for the current generations, but also for future generations.

On a positive note, enrollments in high school and above have gone up over time. Fraction of 15-19 year-olds who were in school was lower than 25% in 1988 while it was higher than 50% in 2010. For the case of 20-24 year-olds, these values were barely 5% in 1988 and 13% in 2010. The extension of compulsory schooling to eight years (1997) fueled the demand and the establishment of 75 new universities during the period 1982 to 2008 expanded the educational opportunities greatly. During the 1990s, share of university graduates among 20-24 year-olds was not higher than 5%. The share increased to 12% in 2009.

During the last twenty years, average annual GDP growth rate of Turkey was above 4%. As the economy integrated with the world financial markets in the 1990s, it became susceptible to crises and growth became more volatile. Examining the repercussions of a crisis on the transition from school to work is important because individuals with long transitions to their first job can get scarred. Sometimes entire cohort can get affected because of a major shock. Who gets affected the least, who gets most affected, what are the channels through which the effects operate are questions which can be answered with the help of Human Capital Theory and Search Theory. Note that, not only economic crises but structural adjustments such as changes in educational system and trade regime may also affect youth in the labor market. This motivates us to study the transitions from school to work, especially the time it takes to find the first permanent job after separation from school.

Now we start summarizing the thesis. We begin our empirical examination in Chapter 3 by painting a broad picture of youth (ages 15-34) in the labor market. Two main observations related to individuals who are not in school and in the labor force emerge. The first one is the gender gap in inactivity. Females have very high inactive ratios compared to males. During the last twenty years, the inactivity ratios are not lower than 30% for females while for males these values are not higher than 10%. Secondly, age-inactivity profiles for males and females display opposite patterns. The inactive ratios for females increase as they age while the reverse happens for males. Before we seek explanations for observed patterns, we point out important shortcomings of widely used data sets such as the HLFS and develop a correction.

HLFS sample frame targets only the civilian, non-institutional population. This means males who do their CMS (Compulsory Military Service) leave and re-enter the sample frame. In Chapter 4, we examine the sex ratio obtained from HLFS database maintained on the TURKSTAT webpage by age groups and we see that there are unexpected changes in ranges that are likely to be affected by CMS. For example, we find that during the period 1988-2009, the fraction of missing males is not lower than 20% for the age group 20-24. We then tackle this problem formally by using other data sources (TDHS 2003 and ABPRS 2007). After doing some adjustment by using life tables, we take the sampling variation of TDHS 2003 into consideration and determine at which age groups the HLFS male ratios are not within the 95% confidence interval.

Since HLFS reports ages in 5-year intervals, one cannot study single digits. However, we found a way to further decompose some of the age groups. We exploit the information on age-based weights to break down the youth more finely by age (as 15-17, 18-19, 20, 21-24). By using these age groups, we find that HLFS male ratios for some of the age groups are significantly different from ABPRS male ratios (15-

17 in 2004, 18-19 in 2005, 20 in all years, and 21-24 in 2004 and 2005). For these age groups, we take missing males into account and make corrections. Then, we compute aggregate rates of school leaving and entry to employment by taking the middle point of the age groups.

When we examine enrollments with uncorrected data, we see that fraction of those in school declines until age 18.5 and then abruptly increases between the ages of 18.5 to 20. At first this seems reasonable, because some high school graduates retake the university placement exam and resume their education after a break. On the other hand, we know that some males who have completed their schooling drop out of the sample frame when they enlist. When we do the correction, we discover that fraction in school declines monotonically after age 15. In other words, young individuals observed in HLFS constitute a selective sample, by virtue of the fact that those engaged in CMS are excluded.

In Chapter 4, we also undertake a longitudinal examination of labor market activities using the HLFS database on the TURKSTAT webpage. We construct synthetic cohorts (before and after the correction) and then decompose the changes into age, year and cohort effects.. We observe that the year effects on employment ratio change their signs for the year 1989 and 1994. If decomposition is calculated without corrections, we find that employment went up during these crisis years. However, if the corrections are used, we get the opposite result. Clearly, crises are more likely to lead to reductions than increases, so this finding lends support for our method. To our knowledge, this is the first study that investigates these ‘missing males’ and suggests a method of correction. What makes the study of special significance is our evaluation of the possible influence of compulsory military service on the school-to-work transition and on the fraction of individuals in various labor market states.

In Chapter 5, we use data from 2004-2006 HLFS in a discrete hazard framework to examine transition rates between labor market states using different methodologies. Data contain a retrospective question on states occupied one year before the survey date, including CMS. We use a broader definition of labor market states and include ‘being in school’ as well as ‘being in the military’. There are four different labor market states to categorize females and five states to categorize males: in school, inactive, unemployed, employed and in the case of men, military. All males must enlist and do their military service when they reach the age of 19, unless they are in school. Therefore, CMS may alter the course of the transition from school to work in the case of males. Since our analysis is conditional on being in the sample, we only catch the transitions from CMS to other labor market states. We are unable to study the transitions from other labor market states to CMS.

We calculate in turn, annual backward and forward transition rates between labor market states. We average the rates from three years (2004-6) and comment on the patterns and magnitudes. We observe that school continuation in urban areas is higher than the one in rural areas. This is attributable to the fact that better education is not a pre-condition for agricultural jobs. We also find that males are more likely to continue higher education than females. This pattern is attributable to the patriarchy in the family. The fact that males have longer career spans than females and fraction of employed individuals is higher for males than females surely contributes to the preservation of patriarchy. Another reason is for the gender differential is selectivity. Most of the males who do not continue their education are in the military; therefore, the ones who are in the sample do not represent all males. As previously mentioned, proper accounting for the missing males alters the transition rates, especially for age group 20-24. From the forward transition probabilities, we deduce that conditional on being in the military a year ago, half of the males are employed a year later. The highest values are for age group 20-24 which is the age range during which most of the enlisting occurs.

In all age groups, we observe that permanence of inactivity is not only high in rural areas (higher than 90%) where choices are scarce, but also in urban areas (higher than 85%). In other words, inactive individuals rarely change their labor market states. Reasons of permanence of inactivity in rural areas are probably different from the reasons in urban areas. As education level increases, individuals in rural areas are more likely to search jobs in non-agricultural sectors. From this perspective, permanence of inactivity in rural areas is not surprising (because obtaining a job in non-agricultural job in rural areas is more difficult). Explanation of permanence of inactivity in urban areas is more complicated. There may be many reasons which vary depending on gender, education levels, and age groups. For example: As home production orientation increases, the reservation wage increases. This could lead to a decrease in female labor force participation. The fact that males wait to be enlisted or retake the university placement exam and resume their education after a break could be one of the reasons for permanence of inactivity for males.

In all of the age groups, less than 50% remain unemployed a year later. The state-dependence of unemployment increases with age. Turning to employment, we see that the persistence is as high as that for inactivity. For urban females, the permanence of employment is not as high as males, possible because they are often the first to be fired, and are also more likely to leave the labor market because of marriage, child bearing etc. Remarkably in rural areas, 15-19 year-old females are more likely to remain in school than males. One possible reason for this could be the fact that in rural areas, once a girl continues her education beyond compulsory education, she becomes more likely to stay because she belongs to a very selective sample. Another explanation is delayed entry and grade repetition. Unfortunately in the absence of single digit age information, we cannot determine which factor dominates.

With the help of the backward transition probabilities, one can study the variation in the rates of inflow to employment from other labor market states. We mostly focus on the inflows from being in school to being employed and the inflows from being in the military to being employed. The inflow rate from school to being employed is higher for 15-19 year-olds than for the other age groups. Comparing the rural and urban areas for 15-19 year-olds, the inflow rate from school is lower in rural areas than in urban areas. This effect is stronger for females. Since school attendance beyond primary (8-year) school in rural areas is less likely, 15-19 year-olds are more likely to enter the labor market in rural areas. For males, the inflow rates from military to being employed are higher than the inflow rates from school. While only 2.2% of rural and 4.7% of urban 20-24 year-old employed males were in school a year ago, more than 10% were in the military.

In order to study the factors that determine the likelihood of transiting to employment from other labor market states, we rely on a multinomial logit model where outcomes are the labor market states in the previous year. We pick employment as the reference category and examine how covariates impact the outcome, meaning the probability of having started in a state other than employment. As covariates, we use demographics (age groups, location), education, and dummies for survey years. We run models separately for males and females. Being in urban areas increases the share of inflows from other labor market states relative to starting as employed. For 20-24 year-olds, females in urban areas have a 5% higher probability of having started in the inactive state. Likewise females in urban areas have a 7% higher probability of having started in the unemployed state. Furthermore, for 15-19 year-olds, urban residents have a 5% higher probability of starting in school rather than in employment compared to those in rural areas. This effect decreases as individuals get older.

To examine state dependence further, we estimate the impact of membership in previous labor market states on current labor market states by running binary logit models. We exclude those in school and study the employment outcome vs. non-employment (unemployment or non-participant). Covariates are demographics, education, and indicators for previous labor market states. We find that currently employed males are more likely to be employed in the previous year than females. This gender difference can be attributed to the influence of reservation wage and the fact that females might confine search to particular jobs. Nevertheless, if we control for education by using male-education interaction dummies, further differentials emerge. We find that education has a bigger impact on the employability of females than males. Among vocational high school and university graduates, females are more likely to be employed than their male counterparts. This pattern can be attributed to the presence of CMS. For females, there is no obligatory early career interruption like CMS. Thus their transitions from school to work are expected to be smoother than males.

CMS impacts the outcomes via several channels. Starting from the demand side of the labor market, employers do not want to hire individuals who have not completed their military service. In other words, the ones who are yet to complete their CMS will probably have fewer job opportunities. Turning to the supply side, completion of military service is an achievement comparable to completion of schooling. Thanks to the retrospective information, we can detect and quantify the influences. We find that males who were in military service a year ago have a higher probability of being employed than the ones who were inactive and the ones who were in school. In the case of 20-24 year-old males, being in military a year ago increases the likelihood of transition 1.3 times compared to being in school a year ago for 20-24 year-old males. The factor is 2 for 25-29 year-old males. Depending on ones' education, CMS can enhance human capital accumulation or cause a depreciation. Males with low levels of education can learn useful skills during CMS. As education level increases, the career interruption is likely to result in depreciation of human capital. Consequently, for vocational high school and university graduates, completion of military service has a smaller influence on the transition to employment compared to individuals with lower education.

Up till this point, we disregarded variations in employment status and lumped all types of work together. Empirically the distribution of employment status of young individuals by gender and by residential area is not the same. In urban areas, share of wage workers among females is higher than males while the reverse is true in rural areas. However, during the period 1998-2009, share of wage workers has an increasing trend and the rate of increase in the share of wage workers among females is higher. Therefore, the gender gap in market orientation is closing, especially in urban areas. Since labor market characteristics of wage workers and non-wage workers may be different, there is reason to believe that the impact of previous labor market states will vary depending on the nature of employment.

We investigate this using a binary logit model where the dependent variable equals one for wage workers, zero for non-wage workers and include an indicator for non-wage work in the previous year among the explanatory variables. We use demographics and education as controls. Despite the recent trends, we discover that the probability of being a wage worker is higher for males who were non-wage workers a year ago than for females who were non-wage workers. This pattern can be attributed to the fact that females face additional challenges than males during transitions between different employment statuses. This supports key premises of

Dual Labor Market Theory and Feminist Theory which associate desirable jobs with the male work force. Furthermore, we also detect that the effect of education differs between males and females: the impact of education on the probability of being a wage worker is higher for females than males.

In Chapter 6, we undertake another investigation of the schooling transition using the special module of the 2009 HLFS which targeted 15-34 year-old individuals. The module has information on the time (months) it took to find the first permanent job held by the individual following permanent separation from school. With the help of this data set, we are able to study transition behavior over a 20-year time span during which many changes took place in the Turkish economy. Economic crises (1991, 1994, 2001, 2008) and structural changes, such as changes in the trade regime (1996, 2001), and changes in education system (1998, 2002 -In 2002 a law was implemented that provided vocational high school graduates with a right to be directly transferred to the vocational higher schools of universities: Law no 4702) occur during these years.

Furthermore, one should not forget that during the 1990s, there were coalition governments and volatile growth. All of these events may have had effects on the transitions to first permanent job after separation from school. Moreover, there were five general elections during this time. There is evidence that expansionary fiscal and monetary policies are implemented just before and just after the elections. Therefore, these elections may have effects on the transition rates as well. One of the focus points in this chapter is to test whether any given change in the economic environment has an effect on the transitions and whether it leads to a permanent impact on the youth in the labor market. Towards that end we define dummy variables which mark the year of separation from school (YSFS for short).

During our estimation, we use year 2000 as the base year. Our main reason for taking 2000 as the base was the distinction between policy in the 1990s and 2000s. However, it is important to remember that there is a break in the HLFS series between 1999 and 2000. Since the employment rate for the entire period took the highest value in the year 2000 after 1991, the comparison is done with a good year. We analyze, in turn, the determinants of having ever worked, obtaining the first permanent job, and obtaining the first permanent paid job after separation from school. We first use a binary choice model; we than turn to a hazard analysis.

From the estimation results of binary logit models, there are five main findings. The first one is the fact that recent graduates (individuals who have YSFS values 2008-9) have a lower probability of obtaining their first permanent job after separation from school. Main reason for this is the fact that the elapsed time after separation from school is short. Another possible reason for this could be the economic crisis in 2008. The second finding is that the significance and sign of the YSFS effects vary by education and nature of work.

The third one is related to gender issues. Being male increases the probability of obtaining the first permanent job. This is expected; because young males have to become the main breadwinners to establish an independent household, and the labor market is ready to receive them. We also find that the effect of being male is stronger at lower education levels compared to higher education levels. As education level increases, males' and females' attitudes towards work as well as their market opportunities become more similar. Put differently, as education increases, opportunity cost of leisure (non-market time) increases and renders higher educated females more likely to work than their counterparts with low education levels. This finding is parallel with our findings in Chapter 5 where we observed that females who were vocational high school and university graduates were more likely to be employed than their male counterparts.

Fourth finding is about the impact of being in urban areas. Being in urban areas has a negative effect on obtaining the first permanent job while it has a positive effect on obtaining the first permanent paid job. Finally, conditional on being employed, females are more likely to have started in the inactive state in urban areas.

Although widely used, Logit analysis does not adjust for exposure to risk. We remedy this by using duration analyses and reexamine whether structural changes/economic crises have an effect on the duration of obtaining the first permanent job. Moreover, we are able to test whether these effects are permanent or they disappear over time.

We begin our continuous time investigation with a descriptive overview. For this purpose, we use the Kaplan-Meier estimate of the survival function. Four important differences emerge, which we investigate further. First, the hazard rate of obtaining the first permanent paid job is lower than the hazard rate of obtaining the first permanent job after separation from school. Second, the hazard rate of obtaining the first permanent job varies among education levels. University and vocational high school graduates find a permanent job sooner than high school graduates. In addition to this, 8-year primary school graduates and high school graduates are nearly the same in terms of finding permanent jobs. 5-year primary graduates wait the longest. Notably while vocational high school graduates and university graduates show the same performance early on, after a while (20 months after separation from school) vocational school graduates fall behind university graduates. Third, the hazard rate of obtaining the first permanent job is higher for males than females. The last one concerns the shape of the distribution of transition times. The right tail of the distribution for individuals who have successful transitions to permanent jobs after separation from school is longer; in other words, the mass of the distribution is concentrated on the left.

To disentangle the effects of covariates and time, we turn to multivariate analysis. We use the Cox Proportional Hazard (PH) Model because it allows us to draw inferences about the effects of explanatory variables without any knowledge of the functional form of the baseline hazard. In this model explanatory variables influence the outcome by moving the baseline hazard up and down by a fixed proportion.

We use artificial censoring, stratification and other specification tests to defend the model against misspecification. Since the period of exposure to transition risk for different age groups is different, we use artificial censoring (at 12, 24 and 36 months) to ensure have all individuals had the same exposure. There is another reason to use artificial censoring: to minimize the impact of noisy information about exit times recorded in the right tail of the spell distribution. We find that stratification by education is called for, and are able to capture the influence of education by retrieving estimates of the baseline hazard. Thus, we are able to examine the differences in the hazard of obtaining the first permanent job via education levels non-parametrically.

Multiple exits at the same time (in our case month) or ‘ties’ is another specification issue in Cox PH Model. We solve this problem by using Efron’s methodology. The final specification issue has to do with the ‘Proportionality assumption’. Note that stratification relaxes the proportional hazards assumption for that variable. To relax the proportionality assumption for other variables, we rerun the model by adding time dependent covariates. We chose a logarithmic functional form, since it provides the best fit according to AIC (Akaike Information Criteria).

Next we turn to the effects of covariates on the duration of obtaining first permanent job. We see that the impacts of YSFSs which coincide with any given change in the economic environment become more evident when we relax the amount of the artificial censoring. With one exception, we are unable to detect a crisis year effect in the 1990s. The exception is 1994, and the effect is the opposite of what one would expect. It is worth mentioning that the retirement age was reduced in 1992 and parliamentary elections took place in 1995. These developments plus the employment creation motives of coalition governments may have produced the unexpected outcome. The YSFSs that coincide with other elections also shorten the duration of obtaining first permanent job. Overall we are unable to associate negative employment outcomes with the macroeconomic instability observed during the 1990s. Furthermore we do not detect any statistically significant differences between YSFS values after 2000. The only difference that emerges is that between 1990s and 2000s. Talking with numbers, the hazard rate of obtaining first permanent job for individuals who left school in the 1990s is around 1.3 times higher than the hazard rate for individuals who left school a decade later.

Note that the significance of the YSFS effects and their time dependence vary depending on the employment status of the individual (paid job or not). From our examination of the estimated cumulative baseline hazards, we learn that the hazard rate of obtaining the first permanent paid job is higher for vocational high school than for university graduates. Interestingly, we discover that over time, the slope of the estimated cumulative baseline hazard shows variation for university graduates:

Slope (that is baseline hazard rate) is highest in the first 12 months; it decreases for months 12-24, and then it increases somewhat for months 24-36 (but does not reach the initial level). We think this non-linearity is attributable to the influence of CMS. As we saw in Chapter 4-5, young men who do not face good employment prospects enlist. Completion of CMS gives them an edge over those who try to transit directly after finishing school.

Proper understanding of the temporal variation in the baseline hazard requires knowledge of the distribution of conscripts by service category, something we were unable to obtain. However, we also know that the duration of service is closely related to the education of the individual. University graduates may serve either 12 months or 6 months. Without a university diploma, conscripts are subject to 15-month service. Briefly then, although we may not be able to extract the exact effect of the CMS on the transition from school to work, we have reason to suspect that the decline and subsequent rise in the hazard has to do with CMS.

Examination of the evidence along gender lines provides additional evidence on how CMS effects the transitions from school to work. Overall, the duration of obtaining the first permanent job for males is shorter than for females. Although the hazard rates of obtaining the first permanent job for males are initially higher than females, it decreases over time. Again, this probably has links with CMS, in that males who have poor labor market prospects prefer to enlist. The gap between the hazard rates of males and females decrease after 12 months, coinciding with the time it takes for most males to complete their CMS. At this point the male sample ceases to be as selective. In addition, we detect seasonality in the hazard of obtaining the first permanent job after separation from school. This is probably due to the fact that separation from school typically occurs midyear.

There is widespread concern among economists that schooling quality can differ considerably, and that family resources restrain educational achievements. We make an attempt to address these issues by using parental education as controls. We use mother's education as a proxy for quality of education and we find that having a mother with high school and higher education level shortens the duration of obtaining the first permanent job. However, we do not detect a significant effect on the duration of obtaining the first permanent job when we use father's education as a proxy for family resources.

We wrap up this chapter by highlighting the main findings in this thesis. Perhaps the most important contribution is our investigation of the effects of CMS. After correction for missing males, labor market indicators point at a more consistent picture of the school to work transition. Without the correction, there are discrepancies during ages when most men enlist. Furthermore, the possible impacts of crises on the employment ratio are incorrectly inferred unless the missing male correction is used.

Notably, completion of CMS has a positive effect on the transition to employment. However, depending on education, outcomes can be different. This is because while CMS has a disruptive effect for individuals with high levels of human capital, it can actually help individuals with low levels of human capital. We expect that enlisted males with high school education and less would be more likely to accumulate some human capital during CMS. Indeed, enlisted males with high school education and less who served in the military the year before are more likely to be employed a year later compared to those with higher education.

The second finding is that it takes longer to secure wage employment compared to other forms of employment. In the case of individuals with high school education and less, it is important to find a job early. The hazard is highest in the first four months following separation from school and declines afterwards. The third one is related to the effects of education on the transition from school to work. The transitions are faster for vocational high school graduates than others. This supports the policy emphasis given to vocational education in recent years.

The fourth one reinforces recent concerns that the transition from school to work lengthened over time. Overall transition to the first permanent job was faster in the 1990s despite macroeconomic instability. It is well known that the crisis in 2001 sealed the fate of coalition governments associated with the policy mistakes of the 1990s. Evidently macroeconomic stability came at the cost of negative labor market effects in the 2000s compared to the 1990s.

The fifth one is about gender differences. The transition from unemployment to employment is higher for females than males among higher educated individuals. Furthermore, the positive impact of education is higher for females than males. Despite this finding, females face additional challenges than males during transitions between different employment statuses.

Last one is about the parental education influences on the transitions from school to first permanent job. By using mothers' education as a proxy for quality of education, we have argued that having better quality of education shortens the transitions from school to first permanent job. This result lends support to policy proposals that place quality of education on the reform agenda.

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APPENDICES

APPENDIX A

Table A.1: Number of Students in Boarding Houses

3.3 Öğrenci pansiyonları
Student boarding houses

[2009/'10 Öğretim yılı - The education year 2009/'10]

Öğretim dairesi - General Directorate/Department	Pansiyon sayısı Number of boarding houses	Pansiyon kapasitesi Capacity of boarding houses	Parasız yatılı öğrenci sayısı Number of boarding students exempt from payment	Paralı yatılı öğrenci sayısı Number of boarding students subject to payment	Pansiyonda kalan öğrenci sayısı Number of students in boarding houses Toplam Total	Erkek Males	Kadın Females
Genel toplam - General total	**2 068**	**422 441**	**337 668**	**5 843**	**343 511**	**216 206**	**127 305**
İlköğretim Genel Müdürlüğü General Directorate of Primary Education	574	197 095	163 792	-	163 792	94 580	69 212
Ortaöğretim Genel Müdürlüğü General Directorate of Secondary Education	533	88 517	63 934	3 660	67 594	39 514	28 080
Erkek Teknik Öğretim Genel Müdürlüğü General Directorate of Technical Education for Boys	202	32 235	26 368	521	26 889	23 266	3 623
Kız Teknik Öğretim Genel Müdürlüğü General Directorate of Technical Education for Girls	87	12 654	10 234	105	10 339	1 814	8 525
Ticaret ve Turizm Öğretimi Genel Müdürlüğü General Directorate of Commercial And Tourism Education	84	10 490	8 186	212	8 398	5 494	2 904
Oğretmen Yetiştirme ve Eğitimi Genel Müdürlüğü General Directorate of Teacher Training and Education	146	29 370	22 321	1 240	23 561	12 523	11 038
Din Öğretimi Genel Müdürlüğü General Direcrotate of Religious Education	355	42 556	37 366	97	37 463	36 537	926
Sağlık İşleri Dairesi Başkanlığı Department of Health Affairs	15	2 048	1 747	8	1 755	105	1 650
Özel Eğitim Rehberlik ve Dan. Hiz. Genel Müdürlüğü General Directorate of Special Education Guidance and Counselling Services	72	7 476	3 720	-	3 720	2 373	1 347

Table A.2: Number of Private Dormitories and Students in Dormitories for Secondary and Tertitary Education

3.4 Ortaöğretim ve yükseköğretim özel öğrenci yurtları ile öğrenci sayısı
Number of private dormitories and students in dormitories for secondary and tertiary education

[2009/'10 Öğretim yılı - The educational year 2009/'10]

Öğretim türü Type of education	Yurt sayısı Number of dormitories Toplam Total	Erkek Males	Kadın Females	Karma Mixed	Yurtta kalan öğrenci sayısı Number of students in dormitories Toplam Total	Erkek Males	Kadın Females
Toplam Total	**3 503**	**2 174**	**1 264**	**65**	**158 721**	**97 655**	**61 066**
Ortaöğretim Secondary Education	**2 124**	1 563	534	27	**74 355**	57 110	17 245
Yükseköğretim Tertiary Education	**1 379**	611	730	38	**80 009**	37 376	42 633
Diğerleri(1) Others(1)	-	-	-	-	**4 357**	3 169	1 188

Kaynak: Ortaöğrenim Burs ve Yurtlar Dairesi Başkanlığı Source : Department of Secondary Education Scholarship and Dormitories

(1) Yüksek öğrenime hazırlayıcı dersanelere devam edenlerdir. (1) Persons who attend private courses preparing for university entrance examination

Table A.3: Number of Dormatories Dependent on Hgher Education Loans and Dormitories Institution and Their Capacities

4.2 Yüksek Öğrenim Kredi ve Yurtlar Kurumuna bağlı yurtlar ve kapasiteleri
Number of dormitories dependent on Higher Education Loans and Dormitories Institution and their capacities

[1991/'92-2009/'10 öğretim yılı - The education year 1991/'92-2009/'10]

		Kapasite - Capacity		
Öğretim Yılı Education Year	**Yurt sayısı** Number of dormitories	**Toplam** Total	**Erkek** Males	**Kadın** Females
1991/'92	114	113 680	70 544	43 136
1992/'93	125	127 487	77 552	49 935
1993/'94	132	139 344	84 218	55 126
1994/'95	137	150 342	86 836	63 506
1995/'96	144	155 754	86 320	69 434
1996/'97	151	161 095	86 141	74 954
1997/'98	162	160 421	82 444	77 977
1998/'99	171	167 486	83 234	84 252
1999/'00	179	171 771	82 952	88 819
2000/'01	188	180 691	82 959	97 732
2001/'02	190	182 628	83 660	98 968
2002/'03	191	185 085	81 689	103 396
2003/'04	199	188 779	82 753	106 026
2004/'05	201	192 071	83 098	108 973
2005/'06	211	194 781	83 522	111 259
2006/'07	216	198 945	84 922	114 023
2007/'08	222	201 637	86 083	115 554
2008/'09	229	208 869	88 018	120 851
2009/'10(1)	241	222 633	92 046	130 587

Kaynak: Yüksek Öğrenim Kredi ve Yurtlar Kurumu Genel Müdürlüğü

Source : General Directorate of Higher Education Loans and Dormitories Institution

(1) [**09.11.2009 tarihi itibariyle** - As of 09.11.2009]

APPENDIX B

Table B.1: Inactive Ratios By Age Groups

	Male			Female		
	15-19	**20-24**	**25-29**	**15-19**	**20-24**	**25-29**
1988	0.06	0.06	0.01	0.43	0.57	0.64
1989	0.05	0.05	0.01	0.40	0.56	0.63
1990	0.05	0.05	0.02	0.42	0.56	0.64
1991	0.06	0.06	0.02	0.41	0.56	0.65
1992	0.06	0.05	0.02	0.43	0.56	0.66
1993	0.06	0.07	0.02	0.46	0.63	0.70
1994	0.05	0.06	0.03	0.41	0.58	0.66
1995	0.08	0.08	0.03	0.40	0.59	0.65
1996	0.09	0.07	0.02	0.41	0.58	0.67
1997	0.10	0.09	0.03	0.45	0.60	0.69
1998	0.09	0.08	0.03	0.42	0.59	0.66
1999	0.11	0.11	0.04	0.41	0.57	0.68
2000	0.14	0.15	0.08	0.47	0.61	0.67
2001	0.14	0.16	0.08	0.46	0.61	0.69
2002	0.16	0.16	0.08	0.44	0.60	0.68
2003	0.17	0.16	0.08	0.43	0.61	0.68
2004	0.16	0.14	0.06	0.45	0.59	0.68
2005	0.15	0.14	0.06	0.44	0.61	0.68
2006	0.14	0.14	0.07	0.41	0.60	0.67
2007	0.12	0.13	0.07	0.40	0.58	0.67
2008	0.12	0.12	0.06	0.37	0.57	0.66
2009	0.10	0.12	0.06	0.33	0.55	0.63

Source: HLFS database, TURKSTAT (1988-2009)

APPENDIX C

Table C.1: Predicted Year, Cohort and Age effects on the Labor Market Activities of Males

			LF			EMP			UNEMP			INACT			INSCHOOL		
years	**age**	**cohorts**	**year effect**	**cohort effect**	**age effect**	**year effect**	**cohort effect**	**age effect**	**year effect**	**cohort effect**	**age effect**	**year effect**	**cohort effect**	**age effect**	**year effect**	**cohort effect**	**age effect**
2009	**15**	**8**	3,34	-23,11	0,00	1,20	-29,27	0,00	2,13	6,19	0,00	-1,88	7,96	0,00	-1,45	15,04	0,00
2004	**15**	**7**	-2,78	-16,25	0,00	-1,69	-23,90	0,00	-1,10	7,55	0,00	2,00	9,19	0,00	0,81	7,09	0,00
2009	**20**	**7**	3,34	-16,25	26,62	1,20	-23,90	18,84	2,13	7,55	7,73	-1,88	9,19	1,56	-1,45	7,09	-28,18
1999	**15**	**6**	-2,57	-6,34	0,00	0,13	-14,98	0,00	-2,68	8,62	0,00	1,18	6,00	0,00	1,33	0,39	0,00
2004	**20**	**6**	-2,78	-6,34	26,62	-1,69	-14,98	18,84	-1,10	8,62	7,73	2,00	6,00	1,56	0,81	0,39	-28,18
2009	**25**	**6**	3,34	-6,34	39,12	1,20	-14,98	35,44	2,13	8,62	3,64	-1,88	6,00	-2,21	-1,45	0,39	-36,91
1994	**15**	**5**	0,13	-3,12	0,00	-0,01	-11,09	0,00	0,15	7,93	0,00	-0,85	3,50	0,00	0,71	-0,36	0,00
1999	**20**	**5**	-2,57	-3,12	26,62	0,13	-11,09	18,84	-2,68	7,93	7,73	1,18	3,50	1,56	1,33	-0,36	-28,18
2004	**25**	**5**	-2,78	-3,12	39,12	-1,69	-11,09	35,44	-1,10	7,93	3,64	2,00	3,50	-2,21	0,81	-0,36	-36,91
2009	**30**	**5**	3,34	-3,12	39,66	1,20	-11,09	37,57	2,13	7,93	2,02	-1,88	3,50	-1,77	-1,45	-0,36	-37,91
1989	**15**	**4**	1,88	1,50	0,00	0,37	-5,91	0,00	1,50	7,34	0,00	-0,45	1,27	0,00	-1,40	-2,73	0,00
1994	**20**	**4**	0,13	1,50	26,62	-0,01	-5,91	18,84	0,15	7,34	7,73	-0,85	1,27	1,56	0,71	-2,73	-28,18
1999	**25**	**4**	-2,57	1,50	39,12	0,13	-5,91	35,44	-2,68	7,34	3,64	1,18	1,27	-2,21	1,33	-2,73	-36,91
2004	**30**	**4**	-2,78	1,50	39,66	-1,69	-5,91	37,57	-1,10	7,34	2,02	2,00	1,27	-1,77	0,81	-2,73	-37,91
1989	**20**	**3**	1,88	2,09	26,62	0,37	-2,58	18,84	1,50	4,64	7,73	-0,45	0,36	1,56	-1,40	-2,46	-28,18
1994	**25**	**3**	0,13	2,09	39,12	-0,01	-2,58	35,44	0,15	4,64	3,64	-0,85	0,36	-2,21	0,71	-2,46	-36,91
1999	**30**	**3**	-2,57	2,09	39,66	0,13	-2,58	37,57	-2,68	4,64	2,02	1,18	0,36	-1,77	1,33	-2,46	-37,91
1989	**25**	**2**	1,88	0,84	39,12	0,37	-1,70	35,44	1,50	2,52	3,64	-0,45	0,32	-2,21	-1,40	-1,16	-36,91
1994	**30**	**2**	0,13	0,84	39,66	-0,01	-1,70	37,57	0,15	2,52	2,02	-0,85	0,32	-1,77	0,71	-1,16	-37,91
1989	**30**	**1**	1,88	0,00	39,66	0,37	0,00	37,57	1,50	0,00	2,02	-0,45	0,00	-1,77	-1,40	0,00	-37,91

Source: HLFS database,(1989, 1994, 1999, 2004, 2009)

Table C.2**:** Predicted Year, Cohort and Age effects on the Labor Market Activities of Females, 15-34

			LF			**EMP**			**UNEMP**			**INACT**			**INSCHOOL**		
years	**age**	**cohorts**	**year effect**	**cohort effect**	**age effect**	**year effect**	**cohort effect**	**age effect**	**year effect**	**cohort effect**	**age effect**	**year effect**	**cohort effect**	**age effect**	**year effect**	**cohort effect**	**age effect**
2009	**15**	**8**	4,35	-25,84	0,00	2,84	-25,63	0,00	1,54	-0,36	0,00	-2,47	0,31	0,00	-1,90	25,34	0,00
2004	**15**	**7**	-3,94	-14,51	0,00	-2,95	-16,43	0,00	-1,00	1,81	0,00	2,63	6,49	0,00	0,89	8,00	0,00
2009	**20**	**7**	4,35	-14,51	4,44	2,84	-16,43	1,90	1,54	1,81	2,51	-2,47	6,49	15,54	-1,90	8,00	-19,92
1999	**15**	**6**	-2,17	-6,94	0,00	-0,88	-9,56	0,00	-1,35	2,54	0,00	0,78	5,08	0,00	2,14	1,15	0,00
2004	**20**	**6**	-3,94	-6,94	4,44	-2,95	-9,56	1,90	-1,00	2,54	2,51	2,63	5,08	15,54	0,89	1,15	-19,92
2009	**25**	**6**	4,35	-6,94	-0,92	2,84	-9,56	-1,50	1,54	2,54	0,53	-2,47	5,08	24,89	-1,90	1,15	-23,77
1994	**15**	**5**	-1,25	-3,99	0,00	-0,76	-5,77	0,00	-0,48	1,74	0,00	0,46	5,30	0,00	0,66	-1,27	0,00
1999	**20**	**5**	-2,17	-3,99	4,44	-0,88	-5,77	1,90	-1,35	1,74	2,51	0,78	5,30	15,54	2,14	-1,27	-19,92
2004	**25**	**5**	-3,94	-3,99	-0,92	-2,95	-5,77	-1,50	-1,00	1,74	0,53	2,63	5,30	24,89	0,89	-1,27	-23,77
2009	**30**	**5**	4,35	-3,99	-2,49	2,84	-5,77	-1,83	1,54	1,74	-0,70	-2,47	5,30	26,53	-1,90	-1,27	-24,08
1989	**15**	**4**	3,00	-2,75	0,00	1,75	-4,44	0,00	1,28	1,58	0,00	-1,39	6,10	0,00	-1,79	-3,45	0,00
1994	**20**	**4**	-1,25	-2,75	4,44	-0,76	-4,44	1,90	-0,48	1,58	2,51	0,46	6,10	15,54	0,66	-3,45	-19,92
1999	**25**	**4**	-2,17	-2,75	-0,92	-0,88	-4,44	-1,50	-1,35	1,58	0,53	0,78	6,10	24,89	2,14	-3,45	-23,77
2004	**30**	**4**	-3,94	-2,75	-2,49	-2,95	-4,44	-1,83	-1,00	1,58	-0,70	2,63	6,10	26,53	0,89	-3,45	-24,08
1989	**20**	**3**	3,00	-3,22	4,44	1,75	-4,65	1,90	1,28	1,32	2,51	-1,39	5,80	15,54	-1,79	-2,68	-19,92
1994	**25**	**3**	-1,25	-3,22	-0,92	-0,76	-4,65	-1,50	-0,48	1,32	0,53	0,46	5,80	24,89	0,66	-2,68	-23,77
1999	**30**	**3**	-2,17	-3,22	-2,49	-0,88	-4,65	-1,83	-1,35	1,32	-0,70	0,78	5,80	26,53	2,14	-2,68	-24,08
1989	**25**	**2**	3,00	-2,71	-0,92	1,75	-3,11	-1,50	1,28	0,26	0,53	-1,39	4,04	24,89	-1,79	-1,33	-23,77
1994	**30**	**2**	-1,25	-2,71	-2,49	-0,76	-3,11	-1,83	-0,48	0,26	-0,70	0,46	4,04	26,53	0,66	-1,33	-24,08
1989	**30**	**1**	3,00	0,00	-2,49	1,75	0,00	-1,83	1,28	0,00	-0,70	-1,39	0,00	26,53	-1,79	0,00	-24,08

Source: HLFS database,(1989, 1994, 1999, 2004, 2009)

Table C.3: Predicted Year, Cohort and Age effects on Share of Male Wage Worker

years	cohorts	age	WAGE WORKER				
			SHARE of ww	cohorts	year effect	cohort effect	age effect
2004	1980-84	20	62,16	6	-2,50	22,73	11,58
1999	1965-69	30	59,82	3	-2,52	6,46	25,30
1999	1970-74	25	59,72	4	-2,52	11,78	21,25
1994	1965-69	25	55,77	3	12,54	6,46	21,25
2009	1990-94	15	67,56	8	3,66	34,11	0,00
1989	1965-69	20	50,16	3	-7,52	6,46	11,58
1999	1980-84	15	50,10	6	-2,52	22,73	0,00
1989	1960-64	25	56,86	2	-7,52	2,79	21,25
1994	1970-74	20	50,29	4	12,54	11,78	11,58
1989	1970-74	15	46,59	4	-7,52	11,78	0,00
1999	1975-79	20	54,82	5	-2,52	16,28	11,58
2009	1975-79	30	74,02	5	3,66	16,28	25,30
2004	1985-89	15	54,33	7	-2,50	28,70	0,00
2004	1975-79	25	66,14	5	-2,50	16,28	21,25
1994	1975-79	15	43,98	5	12,54	16,28	0,00
2009	1985-89	20	75,39	7	3,66	28,70	11,58
2009	1980-84	25	76,78	6	3,66	22,73	21,25
1994	1960-64	30	56,24	2	12,54	2,79	25,30
2004	1970-74	30	64,17	4	-2,50	11,78	25,30
1989	1955-59	30	58,55	1	-7,52	0,00	25,30

Source: HLFS database,(1989, 1994, 1999, 2004, 2009)

Table C.4: Predicted Year, Cohort and Age effects on Share of Female Wage Worker

years	cohorts	age	WAGE WORKER				
			SHARE of ww	cohorts	year effect	cohort effect	age effect
2009	1985-89	20	70,71	7	3,00	51,68	21,33
1999	1965-69	30	39,31	3	-3,36	10,54	37,71
1994	1970-74	20	33,00	4	11,56	20,34	21,33
1999	1975-79	20	41,48	5	-3,36	29,29	21,33
2009	1980-84	25	70,39	6	3,00	40,99	32,43
1999	1970-74	25	41,57	4	-3,36	20,34	32,43
1994	1975-79	15	21,26	5	11,56	29,29	0,00
1989	1955-59	30	33,33	1	-6,59	0,00	37,71
2004	1975-79	25	55,37	5	-1,61	29,29	32,43
1989	1965-69	20	26,04	3	-6,59	10,54	21,33
1994	1965-69	25	35,99	3	11,56	10,54	32,43
2004	1970-74	30	48,68	4	-1,61	20,34	37,71
1989	1970-74	15	19,41	4	-6,59	20,34	0,00
2009	1975-79	30	60,96	5	3,00	29,29	37,71
1994	1960-64	30	33,48	2	11,56	0,98	37,71
2009	1990-94	15	60,15	8	3,00	63,94	0,00
1989	1960-64	25	27,02	2	-6,59	0,98	32,43
2004	1985-89	15	41,79	7	-1,61	51,68	0,00
1999	1980-84	15	29,68	6	-3,36	40,99	0,00
2004	1980-84	20	54,33	6	-1,61	40,99	21,33

Source: HLFS database,(1989, 1994, 1999, 2004, 2009)

APPENDIX D

Table D.1: Calculations of Missing Male Ratios for HLFS Using ABPRS

		ADNKS-ABPRS			HLFS			e(1+x)/k=E/K		Missing Male Ratios	
Age Groups	**Year**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**M/F (ABPRS)**	**m/f (HLFS)**	**x**	**x/(x+1)**
age 4	2004	3173132	2995071	6135707	24359	23414	47773	1.059	1.040	0.018	0.018
	2005	3104964	2882869	6147917	24633	23692	48325	1.077	1.040	0.036	0.035
	2006	3047453	2827500	5825173	24728	23770	48498	1.078	1.040	0.036	0.035
age 511	2004	4661211	4427267	9020127	32927	32069	64996	1.053	1.027	0.025	0.025
	2005	4679887	4442366	9392839	34035	33094	67129	1.053	1.028	0.024	0.024
	2006	4635178	4432315	9029556	34237	33299	67536	1.046	1.028	0.017	0.017
age 1214	2004	1884175	1779043	3633406	12884	12738	25622	1.059	1.011	0.047	0.045
	2005	1904682	1805675	3828192	13446	13336	26782	1.055	1.008	0.046	0.044
	2006	1960147	1845852	3824191	13705	13622	27327	1.062	1.006	0.056	0.053
age 1517	2004	1916781	1833495	3718091	12327	12040	24367	1.045	1.024	0.021	0.021
	2005	1908109	1814254	3845549	12749	12447	25195	1.052	1.024	0.027	0.026
	2006	1882376	1794974	3659796	12983	12773	25756	1.049	1.016	0.032	0.031
age 1819	2004	1274095	1230187	2481634	9262	8335	17597	1.036	1.111	-0.068	-0.073
	2005	1270854	1227171	2584516	9417	8448	17865	1.036	1.115	-0.071	-0.076
	2006	1279775	1220730	2500929	9124	8298	17422	1.048	1.099	-0.046	-0.049
age 20	2004	645250	615358	1248831	2952	4169	7122	1.049	0.708	0.481	0.325
	2005	636814	612573	1293750	2810	4079	6889	1.040	0.689	0.509	0.337
	2006	634254	616506	1244185	2858	4083	6942	1.029	0.700	0.470	0.320
age 2124	2004	2655720	2580788	5184520	15485	17440	32925	1.029	0.888	0.159	0.137
	2005	2624135	2530535	5349083	15655	17718	33372	1.037	0.884	0.174	0.148
	2006	2550957	2455306	5001644	15258	17468	32726	1.039	0.874	0.189	0.159
age 2529	2004	3004297	2925631	5864439	22716	21979	44695	1.027	1.034	-0.006	-0.006
	2005	3139731	3064706	6464490	23346	22599	45946	1.024	1.033	-0.008	-0.008
	2006	3299432	3195996	6519646	23398	22673	46071	1.032	1.032	0.000	0.000
age 3034	2004	2779139	2762499	5472243	20560	19980	40541	1.006	1.029	-0.022	-0.023
	2005	2793875	2774894	5835734	21662	21003	42665	1.007	1.031	-0.024	-0.024
	2006	2889824	2803111	5735183	22262	21541	43803	1.031	1.033	-0.002	-0.002
age 3539	2004	2396167	2318085	4646792	17009	16875	33884	1.034	1.008	0.026	0.025

Table D.1: Continued

	2005	2347366	2260494	4863571	17943	17769	35712	1.038	1.010	0.028	0.028
	2006	2570546	2349529	5081314	18632	18400	37032	1.094	1.013	0.080	0.074
	2004	2269484	2258314	4454058	15042	14778	29820	1.005	1.018	-0.013	-0.013
age 4044	2005	2381822	2368194	5063647	15687	15485	31172	1.006	1.013	-0.007	-0.007
	2006	2386305	2399863	4737624	16039	15889	31928	0.994	1.009	-0.015	-0.015
	2004	1930689	1892724	3751543	13253	12758	26011	1.020	1.039	-0.018	-0.018
age 4549	2005	1903620	1861191	4073578	13876	13415	27290	1.023	1.034	-0.011	-0.011
	2006	2066608	1907976	4100777	14233	13796	28029	1.083	1.032	0.050	0.048
	2004	1526699	1538964	2998899	10671	10439	21110	0.992	1.022	-0.029	-0.030
age 5054	2005	1680214	1699831	3738284	11392	11137	22529	0.988	1.023	-0.034	-0.035
	2006	1792679	1777708	3586537	11898	11604	23502	1.008	1.025	-0.016	-0.017
	2004	1200609	1311706	2447642	7820	7971	15791	0.915	0.981	-0.067	-0.072
age 5559	2005	1259898	1358688	2999521	8336	8460	16796	0.927	0.985	-0.059	-0.063
	2006	1383184	1383728	2813972	8759	8875	17634	1.000	0.987	0.013	0.013
	2004	888321	1012395	1840942	6372	6782	13154	0.877	0.940	-0.066	-0.071
age 6064	2005	929795	1035177	2378020	6592	7016	13609	0.898	0.940	-0.044	-0.046
	2006	996697	1055281	2097687	6586	7063	13649	0.944	0.932	0.013	0.013
	2004	1629372	2076255	3533047	12428	15001	27429	0.785	0.829	-0.053	-0.056
age 65+	2005	1661423	2085872	5664830	13041	15723	28764	0.797	0.829	-0.040	-0.041
	2006	1787509	2067394	3940393	13259	16023	29282	0.865	0.828	0.045	0.043

Source: HLFS 2004, 2005, 2006 and ABPRS 2007
Note : Weights and Life Table Adjustments are used

Table D.2 Calculations of Missing Male Ratios for HLFS by Using TDHS

		TDHS			HLFS			e(1+x)/k=M/F		Missing Male Ratios	
Age Groups	**Year**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**M/F (TDHS)**	**m/f (HLFS)**	**x**	**x/(x+1)**
age 4	2004	1796	1655	3453	24359	23414	47773	1.085	1.040	0.043	0.041
	2005	1276	1200	2481	24633	23692	48325	1.064	1.040	0.023	0.023
	2006	799	767	1571	24728	23770	48498	1.042	1.040	0.002	0.002
age 511	2004	3141	3152	6294	32927	32069	64996	0.996	1.027	-0.030	-0.031
	2005	3214	3138	6353	34035	33094	67129	1.024	1.028	-0.004	-0.004
	2006	3262	3129	6394	34237	33299	67536	1.042	1.028	0.014	0.014
age 1214	2004	1403	1365	2768	12884	12738	25622	1.028	1.011	0.016	0.016
	2005	1346	1344	2690	13446	13336	26782	1.001	1.008	-0.007	-0.007
	2006	1319	1376	2695	13705	13622	27327	0.958	1.006	-0.047	-0.050
age 1517	2004	1423	1405	2828	12327	12040	24367	1.013	1.024	-0.011	-0.011
	2005	1400	1390	2791	12749	12447	25195	1.008	1.024	-0.016	-0.017
	2006	1415	1362	2777	12983	12773	25756	1.039	1.016	0.022	0.022
age 1819	2004	1024	1025	2049	9262	8335	17597	1.000	1.111	-0.100	-0.112
	2005	1048	1021	2070	9417	8448	17865	1.027	1.115	-0.079	-0.085
	2006	953	935	1888	9124	8298	17422	1.020	1.099	-0.073	-0.078
age 20	2004	461	445	906	2952	4169	7122	1.037	0.708	0.465	0.317
	2005	493	504	997	2810	4079	6889	0.977	0.689	0.419	0.295
	2006	530	519	1050	2858	4083	6942	1.021	0.700	0.459	0.314
age 2124	2004	1932	1952	3884	15485	17440	32925	0.990	0.888	0.115	0.103
	2005	1896	1906	3803	15655	17718	33372	0.995	0.884	0.126	0.112
	2006	1909	1872	3782	15258	17468	32726	1.020	0.874	0.167	0.143
age 2529	2004	2008	2140	4148	22716	21979	44695	0.938	1.034	-0.092	-0.101
	2005	2125	2222	4348	23346	22599	45946	0.956	1.033	-0.074	-0.080
	2006	2236	2376	4614	23398	22673	46071	0.941	1.032	-0.088	-0.096
age 3034	2004	1841	1828	3670	20560	19980	40541	1.007	1.029	-0.021	-0.022
	2005	1878	1873	3752	21662	21003	42665	1.003	1.031	-0.028	-0.029
	2006	1855	1915	3772	22262	21541	43803	0.969	1.033	-0.063	-0.067
age 3539	2004	1567	1560	3127	17009	16875	33884	1.004	1.008	-0.004	-0.004
	2005	1532	1567	3099	17943	17769	35712	0.978	1.010	-0.032	-0.033

Table D.2 Continued

	2006	1635	1583	3219	18632	18400	37032	1.033	1.013	0.020	0.020
age 4044	2004	1530	1619	3150	15042	14778	29820	0.945	1.018	-0.072	-0.077
	2005	1575	1625	3202	15687	15485	31172	0.969	1.013	-0.043	-0.045
	2006	1555	1646	3203	16039	15889	31928	0.945	1.009	-0.064	-0.068
age 4549	2004	1347	1332	2680	13253	12758	26011	1.011	1.039	-0.027	-0.028
	2005	1405	1400	2806	13876	13415	27290	1.003	1.034	-0.030	-0.031
	2006	1409	1445	2856	14233	13796	28029	0.975	1.032	-0.055	-0.058
age 5054	2004	1077	1132	2209	10671	10439	21110	0.952	1.022	-0.069	-0.074
	2005	1115	1124	2240	11392	11137	22529	0.992	1.023	-0.030	-0.031
	2006	1186	1103	2291	11898	11604	23502	1.074	1.025	0.048	0.046
age 5559	2004	889	926	1816	7820	7971	15791	0.959	0.981	-0.022	-0.023
	2005	917	1004	1922	8336	8460	16796	0.913	0.985	-0.073	-0.079
	2006	981	1106	2090	8759	8875	17634	0.887	0.987	-0.102	-0.113
age 6064	2004	644	645	1290	6372	6782	13154	0.999	0.940	0.063	0.060
	2005	682	673	1356	6592	7016	13609	1.013	0.940	0.079	0.073
	2006	697	695	1394	6586	7063	13649	1.003	0.932	0.076	0.071
age 65+	2004	1197	1469	2669	12428	15001	27429	0.815	0.829	-0.016	-0.016
	2005	1222	1488	2715	13041	15723	28764	0.821	0.829	-0.010	-0.010
	2006	1198	1444	2649	13259	16023	29282	0.829	0.828	0.002	0.002

APPENDIX E

While analyzing the data, we discovered that there are some observations that have the same weights in the age groups 15-19 and 20-24. These observations belong to age group 18-20. By using this information, we constructed the age group 18-20. More precisely, we construct tables for every Nuts-2 region, location area and gender. For example, Table E.1 is tabulated for males by using the weights of the age groups 15-19 and 20-24 in one of the Nuts-2 urban regions. It is obvious that some of the observations which are in the age group 15-19 and 20-24 have the same sampling weight (weights=261.1305). By using these observations, we are able to construct a finer age group the 18-20 age group.

Table E.1: Frequencies by Weights for Urban Males, Nuts2

	Age Groups	
Weights	**15-19**	**20-24**
211,81	1273	
261,13	**853**	**264**
249,62		1509

Source: HLFS 2004-2006

We can also construct the age group 18-19 by gathering the individuals who belong to not only the age group 15-19 but also 18-20 (Figure E.1). The age group 15-17 is generated by grouping individuals who belong to the age group 15-19 but who do not belong to the age group 18-20. The ones that do not belong to the age group 18-19 but belong to the age group 18-20 constitute age group 20. To sum up, we can decompose age group 15-19 into 15-17 and 18-19 age groups. By using 15-17, 18-19, 20, 21-24 age groups we calculate female/male ratios. We find the missing male ratio by using female/male ratio and taking into account the age groups that we decomposed.

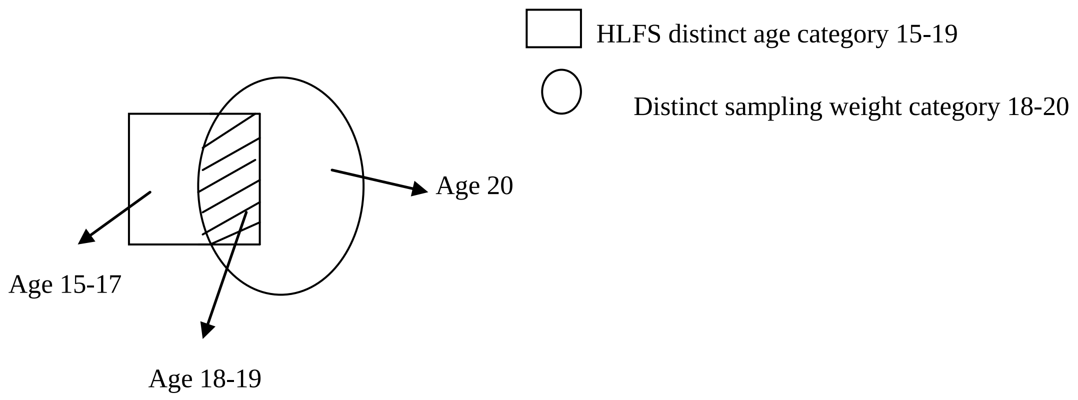
HLFS distinct age category 15-19
Distinct sampling weight category 18-20
Age 20
Age 15-17
Age 18-19

Figure E.1

APPENDIX F

Table F.1 Test Results for ABPRS and HLFS Male Ratios

Age Groups	Year	p(abprs)	q(hlfs)	Ho:Log[p(tdhs)/q(hlfs)]=0	var=[(1-p)]/pn+[(1-q)]/qm	std	%95 CI t value=1.96	lower=log(p/q)-1,96*std(log(p/q))	upper=log(p/q)+1,96*std(log(p/q))	Result
age 4	2004	0.517	0.510	0.006	0.00002	0.005	1.960	-0.003	0.015	
	2005	0.505	0.510	-0.004	0.00002	0.004	1.960	-0.013	0.005	
	2006	0.523	0.510	0.011	0.00002	0.004	1.960	0.002	0.020	
age 511	2004	0.517	0.507	0.009	0.00002	0.004	1.960	0.001	0.016	reject
	2005	0.498	0.507	-0.008	0.00001	0.004	1.960	-0.015	0.000	
	2006	0.513	0.507	0.005	0.00001	0.004	1.960	-0.002	0.013	
age 1214	2004	0.519	0.503	0.013	0.00004	0.006	1.960	0.001	0.026	reject
	2005	0.498	0.502	-0.004	0.00004	0.006	1.960	-0.016	0.008	
	2006	0.513	0.502	0.009	0.00004	0.006	1.960	-0.002	0.021	
age 1517	2004	0.516	0.506	0.008	0.00004	0.006	1.960	-0.004	0.021	
	2005	0.496	0.506	-0.008	0.00004	0.006	1.960	-0.021	0.004	
	2006	0.514	0.504	0.0088	0.00004	0.006	1.960	-0.003	0.021	
age 1819	2004	0.513	0.526	-0.011	0.00005	0.007	1.960	-0.025	0.003	
	2005	0.492	0.527	-0.030	0.00005	0.007	1.960	-0.044	-0.016	reject
	2006	0.512	0.524	-0.010	0.00005	0.007	1.960	-0.024	0.004	
age 20	2004	0.517	0.415	0.096	0.00020	0.014	1.960	0.068	0.123	reject
	2005	0.492	0.408	0.0817	0.00021	0.015	1.960	0.053	0.110	reject
	2006	0.510	0.412	0.093	0.00021	0.014	1.960	0.065	0.121	reject
age 2124	2004	0.512	0.470	0.037	0.00003	0.006	2.960	0.020	0.054	reject
	2005	0.491	0.469	0.019	0.00003	0.006	3.960	-0.004	0.043	
	2006	0.510	0.466	0.039	0.00004	0.006	4.960	0.010	0.068	reject
age 2529	2004	0.512	0.508	0.003	0.00002	0.005	5.960	-0.024	0.031	
	2005	0.486	0.508	-0.020	0.00002	0.005	6.960	-0.052	0.012	
	2006	0.506	0.508	-0.002	0.00002	0.005	7.960	-0.038	0.035	
age 3034	2004	0.508	0.507	0.001	0.00002	0.005	8.960	-0.043	0.045	

Table F.1 Continued

	2005	0.479	0.508	-0.026	0.00002	0.005	9.960	-0.073	0.022	
	2006	0.504	0.508	-0.004	0.00002	0.005	10.960	-0.055	0.048	
age 3539	2004	0.516	0.502	0.012	0.00003	0.005	11.960	-0.053	0.077	
	2005	0.483	0.502	-0.017	0.00003	0.005	12.960	-0.086	0.051	
	2006	0.506	0.503	0.002	0.00003	0.005	13.960	-0.070	0.075	
age 4044	2004	0.510	0.504	0.004	0.00003	0.006	14.960	-0.082	0.091	
	2005	0.470	0.503	-0.029	0.00003	0.006	15.960	-0.119	0.061	
	2006	0.504	0.502	0.001	0.00003	0.006	16.960	-0.094	0.096	
age 4549	2004	0.515	0.510	0.004	0.00004	0.006	17.960	-0.105	0.114	
	2005	0.467	0.508	-0.037	0.00004	0.006	18.960	-0.150	0.077	
	2006	0.504	0.508	-0.003	0.00003	0.006	19.960	-0.121	0.114	
age 5054	2004	0.509	0.505	0.003	0.00005	0.007	20.960	-0.140	0.146	
	2005	0.449	0.506	-0.051	0.00004	0.007	21.960	-0.196	0.094	
	2006	0.500	0.506	-0.006	0.00004	0.006	22.960	-0.154	0.143	
age 5559	2004	0.491	0.495	-0.004	0.00006	0.008	23.960	-0.197	0.189	
	2005	0.420	0.496	-0.072	0.00006	0.008	24.960	-0.267	0.122	
	2006	0.492	0.497	-0.005	0.00006	0.008	25.960	-0.202	0.193	
age 6064	2004	0.483	0.484	-0.002	0.00008	0.009	26.960	-0.245	0.242	
	2005	0.391	0.484	-0.093	0.00008	0.009	27.960	-0.341	0.155	
	2006	0.475	0.483	-0.007	0.00008	0.009	28.960	-0.264	0.251	
age 65+	2004	0.461	0.453	0.008	0.00004	0.007	29.960	-0.192	0.207	
	2005	0.293	0.453	-0.189	0.00004	0.007	30.960	-0.391	0.012	
	2006	0.454	0.453	0.001	0.00004	0.006	31.960	-0.205	0.207	

Source: HLFS 2004, 2005, 2006 and ABPRS 2007
Note: Weights and Life Table Adjustments are used

Table F.2 Test Results for TDHS and HLFS Male Ratios

Age Groups	Year	p(tdhs)	q(hlfs)	Ho:Log[p(tdhs)/q(hlfs)]=0	var=[(1-p)]/pn+[(1-q)]/qm	std	%95 CI t value=1.96	lower=log(p/q)-1,96*std(log(p/q))	upper=log(p/q)-1,96*std(log(p/q))	Result
age 4	2004	0.520	0.510	0.009	0.00029	0.017	1.960	-0.025	0.042	
	2005	0.514	0.510	0.004	0.00040	0.020	1.960	-0.035	0.043	
	2006	0.509	0.510	-0.001	0.00063	0.025	1.960	-0.050	0.048	
age 511	2004	0.499	0.507	-0.007	0.00017	0.013	1.960	-0.032	0.019	
	2005	0.506	0.507	-0.001	0.00017	0.013	1.960	-0.026	0.024	
	2006	0.510	0.507	0.003	0.00016	0.013	1.960	-0.022	0.028	
age 1214	2004	0.507	0.503	0.003	0.00039	0.020	1.960	-0.035	0.042	
	2005	0.500	0.502	-0.002	0.00041	0.020	1.960	-0.041	0.038	
	2006	0.489	0.502	-0.011	0.00042	0.021	1.960	-0.051	0.030	
age 1517	2004	0.503	0.506	-0.002	0.00039	0.020	1.960	-0.041	0.036	
	2005	0.502	0.506	-0.004	0.00039	0.020	1.960	-0.043	0.035	
	2006	0.510	0.504	0.005	0.00038	0.020	1.960	-0.034	0.043	
age 1819	2004	0.500	0.526	-0.022	0.00054	0.023	1.960	-0.068	0.023	
	2005	0.507	0.527	-0.017	0.00052	0.023	1.960	-0.062	0.027	
	2006	0.505	0.524	-0.016	0.00057	0.024	1.960	-0.063	0.031	
age 20	2004	0.509	0.415	0.089	0.00126	0.036	1.960	0.020	0.159	REJECT
	2005	0.494	0.408	0.083	0.00124	0.035	1.960	0.014	0.152	REJECT
	2006	0.505	0.412	0.089	0.00114	0.034	1.960	0.023	0.155	REJECT
age 2124	2004	0.497	0.470	0.024	0.00029	0.017	2.960	-0.026	0.075	
	2005	0.499	0.469	0.027	0.00030	0.017	3.960	-0.042	0.095	
	2006	0.505	0.466	0.034	0.00029	0.017	4.960	-0.051	0.120	
age 2529	2004	0.484	0.508	-0.021	0.00028	0.017	5.960	-0.121	0.078	
	2005	0.489	0.508	-0.017	0.00026	0.016	6.960	-0.130	0.096	
	2006	0.485	0.508	-0.020	0.00025	0.016	7.960	-0.147	0.106	
age 3034	2004	0.502	0.507	-0.005	0.00029	0.017	8.960	-0.158	0.149	
	2005	0.501	0.508	-0.006	0.00029	0.017	9.960	-0.175	0.163	
	2006	0.492	0.508	-0.014	0.00030	0.017	10.960	-0.203	0.174	
age 3539	2004	0.501	0.502	-0.001	0.00035	0.019	11.960	-0.224	0.222	
	2005	0.494	0.502	-0.007	0.00036	0.019	12.960	-0.252	0.238	

Table F.2 Continued

	2006	0.508	0.503	0.004	0.00033	0.018	13.960	-0.249	0.257	
age 4044	2004	0.486	0.504	-0.016	0.00037	0.019	14.960	-0.304	0.271	
	2005	0.492	0.503	-0.010	0.00035	0.019	15.960	-0.310	0.291	
	2006	0.486	0.502	-0.015	0.00036	0.019	16.960	-0.337	0.308	
age 4549	2004	0.503	0.510	-0.006	0.00041	0.020	17.960	-0.368	0.356	
	2005	0.500	0.508	-0.007	0.00039	0.020	18.960	-0.382	0.368	
	2006	0.493	0.508	-0.013	0.00039	0.020	19.960	-0.409	0.384	
age 5054	2004	0.487	0.505	-0.016	0.00052	0.023	20.960	-0.495	0.463	
	2005	0.498	0.506	-0.007	0.00049	0.022	21.960	-0.495	0.481	
	2006	0.517	0.506	0.009	0.00045	0.021	22.960	-0.477	0.496	
age 5559	2004	0.489	0.495	-0.005	0.00064	0.025	23.960	-0.611	0.601	
	2005	0.477	0.496	-0.017	0.00063	0.025	24.960	-0.644	0.610	
	2006	0.469	0.497	-0.025	0.00060	0.024	25.960	-0.659	0.610	
age 6064	2004	0.500	0.484	0.013	0.00086	0.029	26.960	-0.776	0.803	
	2005	0.503	0.484	0.016	0.00081	0.028	27.960	-0.778	0.811	
	2006	0.500	0.483	0.015	0.00080	0.028	28.960	-0.801	0.832	
age 65+	2004	0.449	0.453	-0.004	0.00050	0.022	29.960	-0.677	0.669	
	2005	0.450	0.453	-0.003	0.00049	0.022	30.960	-0.690	0.684	
	2006	0.452	0.453	-0.001	0.00050	0.022	31.960	-0.714	0.713	

Source: HLFS 2004, 2005, 2006 and TDHS 2003
Note: Weights and Life Table Adjustments are used

APPENDIX G

Table G.1: Decomposition of Year, Cohort and Age Effects by Labor Market States (Missing Male Corrections are used)

			Labor force			**Employment**			**Unemployment**			**Inactive**			**In School**		
Years	**Ages**	**Cohort Older to Younger**	**Year Effects**	**Cohort Effects**	**Age Effects**	**Year Effects**	**Cohort Effects**	**Age Effects**	**Year Effects**	**Cohort Effects**	**Age Effects**	**Year Effects**	**Cohort Effects**	**Age Effects**	**Year Effects**	**Cohort Effects**	**Age Effects**
2009	**15**	**8**	2.58	-21.83	0.00	0.63	-28.06	0.00	1.95	6.26	0.00	-1.81	7.73	0.00	-1.53	14.93	0.00
2004	**15**	**7**	-2.70	-14.82	0.00	-1.71	-22.08	0.00	-1.01	7.21	0.00	1.93	8.89	0.00	0.92	6.52	0.00
2009	**20**	**7**	2.58	-14.82	12.26	0.63	-22.08	7.36	1.95	7.21	4.87	-1.81	8.89	-0.27	-1.53	6.52	-30.34
1999	**15**	**6**	-1.41	-5.65	0.00	1.09	-14.20	0.00	-2.47	8.54	0.00	1.12	5.73	0.00	1.32	0.26	0.00
2004	**20**	**6**	-2.70	-5.65	12.26	-1.71	-14.20	7.36	-1.01	8.54	4.87	1.93	5.73	-0.27	0.92	0.26	-30.34
2009	**25**	**6**	2.58	-5.65	40.45	0.63	-14.20	36.74	1.95	8.54	3.68	-1.81	5.73	-2.32	-1.53	0.26	-37.04
1994	**15**	**5**	0.61	-3.06	0.00	0.45	-11.03	0.00	0.16	7.94	0.00	-0.79	3.39	0.00	0.73	-0.45	0.00
1999	**20**	**5**	-1.41	-3.06	12.26	1.09	-11.03	7.36	-2.47	7.94	4.87	1.12	3.39	-0.27	1.32	-0.45	-30.34
2004	**25**	**5**	-2.70	-3.06	40.45	-1.71	-11.03	36.74	-1.01	7.94	3.68	1.93	3.39	-2.32	0.92	-0.45	-37.04
2009	**30**	**5**	2.58	-3.06	41.12	0.63	-11.03	39.02	1.95	7.94	2.05	-1.81	3.39	-1.94	-1.53	-0.45	-38.07
1989	**15**	**4**	0.92	0.58	0.00	-0.46	-6.61	0.00	1.37	7.13	0.00	-0.45	1.35	0.00	-1.43	-2.77	0.00
1994	**20**	**4**	0.61	0.58	12.26	0.45	-6.61	7.36	0.16	7.13	4.87	-0.79	1.35	-0.27	0.73	-2.77	-30.34
1999	**25**	**4**	-1.41	0.58	40.45	1.09	-6.61	36.74	-2.47	7.13	3.68	1.12	1.35	-2.32	1.32	-2.77	-37.04
2004	**30**	**4**	-2.70	0.58	41.12	-1.71	-6.61	39.02	-1.01	7.13	2.05	1.93	1.35	-1.94	0.92	-2.77	-38.07
1989	**20**	**3**	0.92	-1.21	12.26	-0.46	-5.47	7.36	1.37	4.23	4.87	-0.45	0.47	-0.27	-1.43	-2.45	-30.34
1994	**25**	**3**	0.61	-1.21	40.45	0.45	-5.47	36.74	0.16	4.23	3.68	-0.79	0.47	-2.32	0.73	-2.45	-37.04
1999	**30**	**3**	-1.41	-1.21	41.12	1.09	-5.47	39.02	-2.47	4.23	2.05	1.12	0.47	-1.94	1.32	-2.45	-38.07
1989	**25**	**2**	0.92	0.19	40.45	-0.46	-2.26	36.74	1.37	2.44	3.68	-0.45	0.27	-2.32	-1.43	-1.20	-37.04
1994	**30**	**2**	0.61	0.19	41.12	0.45	-2.26	39.02	0.16	2.44	2.05	-0.79	0.27	-1.94	0.73	-1.20	-38.07
1989	**30**	**1**	0.92	0.00	41.12	-0.46	0.00	39.02	1.37	0.00	2.05	-0.45	0.00	-1.94	-1.43	0.00	-38.07

Note: Missing male corrections are used

Table G.2: Decomposition of Year, Cohort and Age Effects by Labor Market States (Missing Male Corrections are not used)

			Labor force			**Employment**			**Unemployment**			**Inactive**			**In School**		
Years	**Ages**	**Cohort Older to Younger**	**Year Effects**	**Cohort Effects**	**Age Effects**	**Year Effects**	**Cohort Effects**	**Age Effects**	**Year Effects**	**Cohort Effects**	**Age Effects**	**Year Effects**	**Cohort Effects**	**Age Effects**	**Year Effects**	**Cohort Effects**	**Age Effects**
2009	**15**	**8**	3.34	-23.11	0.00	1.20	-29.27	0.00	2.13	6.19	0.00	-1.88	7.96	0.00	-1.45	15.04	0.00
2004	**15**	**7**	-2.78	-16.25	0.00	-1.69	-23.90	0.00	-1.10	7.55	0.00	2.00	9.19	0.00	0.81	7.09	0.00
2009	**20**	**7**	3.34	-16.25	26.62	1.20	-23.90	18.84	2.13	7.55	7.73	-1.88	9.19	1.56	-1.45	7.09	-28.18
1999	**15**	**6**	-2.57	-6.34	0.00	0.13	-14.98	0.00	-2.68	8.62	0.00	1.18	6.00	0.00	1.33	0.39	0.00
2004	**20**	**6**	-2.78	-6.34	26.62	-1.69	-14.98	18.84	-1.10	8.62	7.73	2.00	6.00	1.56	0.81	0.39	-28.18
2009	**25**	**6**	3.34	-6.34	39.12	1.20	-14.98	35.44	2.13	8.62	3.64	-1.88	6.00	-2.21	-1.45	0.39	-36.91
1994	**15**	**5**	0.13	-3.12	0.00	-0.01	-11.09	0.00	0.15	7.93	0.00	-0.85	3.50	0.00	0.71	-0.36	0.00
1999	**20**	**5**	-2.57	-3.12	26.62	0.13	-11.09	18.84	-2.68	7.93	7.73	1.18	3.50	1.56	1.33	-0.36	-28.18
2004	**25**	**5**	-2.78	-3.12	39.12	-1.69	-11.09	35.44	-1.10	7.93	3.64	2.00	3.50	-2.21	0.81	-0.36	-36.91
2009	**30**	**5**	3.34	-3.12	39.66	1.20	-11.09	37.57	2.13	7.93	2.02	-1.88	3.50	-1.77	-1.45	-0.36	-37.91
1989	**15**	**4**	1.88	1.50	0.00	0.37	-5.91	0.00	1.50	7.34	0.00	-0.45	1.27	0.00	-1.40	-2.73	0.00
1994	**20**	**4**	0.13	1.50	26.62	-0.01	-5.91	18.84	0.15	7.34	7.73	-0.85	1.27	1.56	0.71	-2.73	-28.18
1999	**25**	**4**	-2.57	1.50	39.12	0.13	-5.91	35.44	-2.68	7.34	3.64	1.18	1.27	-2.21	1.33	-2.73	-36.91
2004	**30**	**4**	-2.78	1.50	39.66	-1.69	-5.91	37.57	-1.10	7.34	2.02	2.00	1.27	-1.77	0.81	-2.73	-37.91
1989	**20**	**3**	1.88	2.09	26.62	0.37	-2.58	18.84	1.50	4.64	7.73	-0.45	0.36	1.56	-1.40	-2.46	-28.18
1994	**25**	**3**	0.13	2.09	39.12	-0.01	-2.58	35.44	0.15	4.64	3.64	-0.85	0.36	-2.21	0.71	-2.46	-36.91
1999	**30**	**3**	-2.57	2.09	39.66	0.13	-2.58	37.57	-2.68	4.64	2.02	1.18	0.36	-1.77	1.33	-2.46	-37.91
1989	**25**	**2**	1.88	0.84	39.12	0.37	-1.70	35.44	1.50	2.52	3.64	-0.45	0.32	-2.21	-1.40	-1.16	-36.91
1994	**30**	**2**	0.13	0.84	39.66	-0.01	-1.70	37.57	0.15	2.52	2.02	-0.85	0.32	-1.77	0.71	-1.16	-37.91
1989	**30**	**1**	1.88	0.00	39.66	0.37	0.00	37.57	1.50	0.00	2.02	-0.45	0.00	-1.77	-1.40	0.00	-37.91

Note: Missing male corrections are not used.

APPENDIX-H

Table H-1: Descriptive statistics of individuals

Variables Obs	Total obs	Mean	obs	Std. Dev.	Min	Max
Personal Characteristics						
Male	365001	0.468	170971	0.499	0	1
Age 15-17	365001	0.232	84732	0.422	0	1
Age 18-20	365001	0.141	51499	0.348	0	1
Age 20	365001	0.057	20927	0.232	0	1
Age 21-24	365001	0.256	93370	0.436	0	1
Age 25-29	365001	0.314	114473	0.464	0	1
Education Levels						
ILL	365001	0.048	17496	0.214	0	1
LIT	365001	0.060	21955	0.238	0	1
PR5	365001	0.283	103337	0.451	0	1
PRI8	365001	0.273	99756	0.446	0	1
HGSCH	365001	0.174	63504	0.379	0	1
VOCHG	365001	0.097	35541	0.296	0	1
UNIV	365001	0.064	23412	0.245	0	1
Current Labor Market States						
EMP	365001	0.359	131134	0.480	0	1
UNEMP	365001	0.073	26727	0.261	0	1
INSCH[1]	365001	0.190	69518	0.393	0	1
INSCH[2]	365001	0.228	83362	0.420	0	1
INACT	365001	0.344	125390	0.475	0	1
Previous Labor Market States						
INACT	365001	0.301	109998	0.459	0	1
MIL	365001	0.020	7481	0.142	0	1
UNEMP	365001	0.081	29525	0.273	0	1
INSCH[2]	365001	0.258	94051	0.437	0	1
EMP	365001	0.316	115516	0.465	0	1
WW	365001	0.200	73046	0.400	0	1
NWW	365001	0.116	42490	0.321	0	1
Period Dummies						
YR2004	365001	0.329	119943	0.470	0	1
YR2005	365001	0.336	122610	0.472	0	1
YR2006	365001	0.335	122448	0.472	0	1
Residential Area						
URB	365001	0.691	252122	0.462	0	1
Disabled	365001	0.014	5036	0.117	0	1

Source: HLFS 2004, 2005, 2006
Note: Weights are not used
INSCH[1]: Only individuals who are in school
INSCH[2]:Individuals who are in school+individuals who take courses+individuals who said they do not search jobs since they are in education/training+ individuals who said 'they can not start working since they are in education/training.

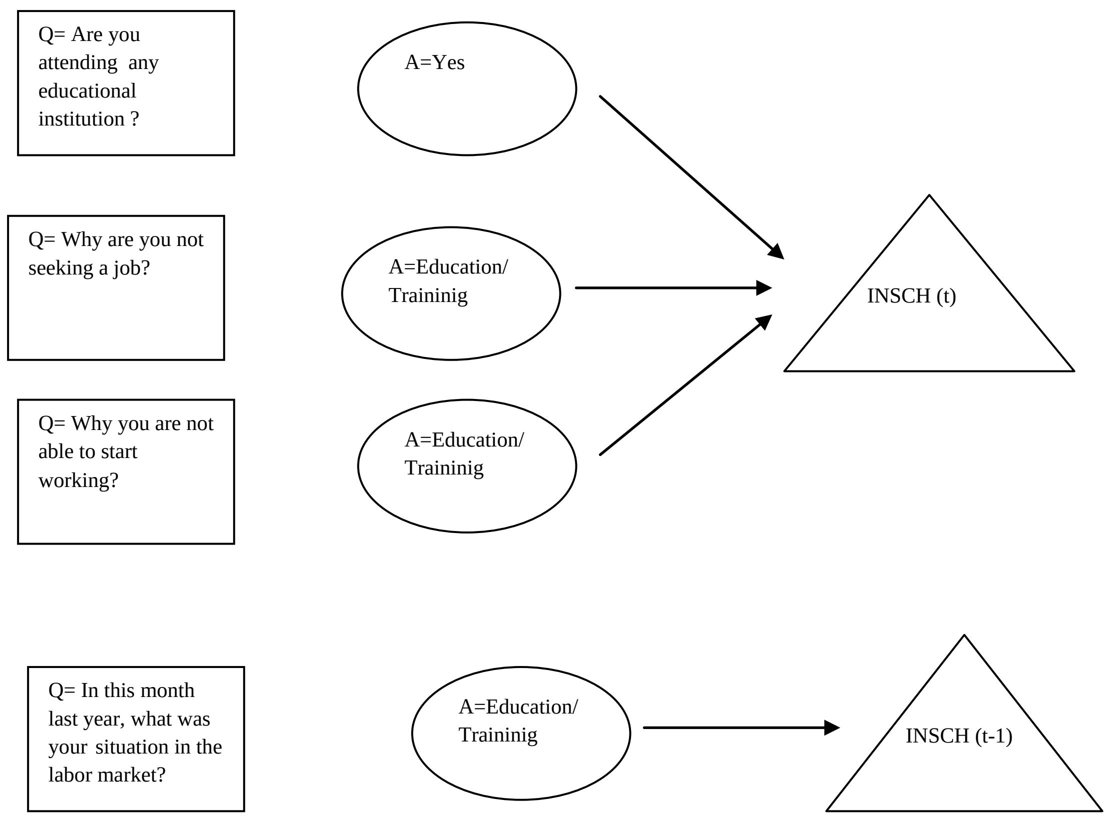

Figure H.1: The Questions and Answers to Generate Being in School in the Second Period:

Table H.2 The Forward Transitions to 'Formal Education' and 'Non-Formal Education'

RURAL		2004			2005			2006		
State (t-1)		**Formal Edu**	**Not Formal Edu**	**Total**	**Formal Edu**	**Not Formal Edu**	**Total**	**Formal Edu**	**Not Formal Edu**	**Total**
Other	female	0.18	0.82	1.00	0.21	0.79	1.00	0.10	0.90	1.00
	male	0.39	0.61	1.00	0.25	0.75	1.00	0.36	0.64	1.00
Inactive	female	0.66	0.34	1.00	0.64	0.36	1.00	0.64	0.36	1.00
	male	0.00	1.00	1.00	0.64	0.36	1.00	1.00	0.00	1.00
Unemp	female	1.00	0.00	1.00	0.60	0.40	1.00	0.22	0.78	1.00
	male	0.63	0.37	1.00	0.68	0.32	1.00	0.69	0.31	1.00
Emp	female	0.81	0.19	1.00	0.22	0.78	1.00	0.65	0.35	1.00
	male	0.68	0.32	1.00	0.89	0.11	1.00	0.62	0.38	1.00
School	female	0.86	0.14	1.00	0.85	0.15	1.00	0.84	0.16	1.00
	male	0.88	0.12	1.00	0.84	0.16	1.00	0.85	0.15	1.00
Military	female									
	male	0.64	0.36	1.00	0.29	0.71	1.00	0.10	0.90	1.00
Total	female	***0.84***	***0.16***	***1.00***	***0.82***	***0.18***	***1.00***	***0.81***	***0.19***	***1.00***
	male	***0.87***	***0.13***	***1.00***	***0.82***	***0.18***	***1.00***	***0.84***	***0.16***	***1.00***
URBAN										
		Formal Edu	**Not Formal Edu**	**Total**	**Formal Edu**	**Not Formal Edu**	**Total**	**Formal Edu**	**Not Formal Edu**	**Total**
Other	female	0.15	0.85	1.00	0.23	0.77	1.00	0.33	0.67	1.00
	male	0.23	0.77	1.00	0.25	0.75	1.00	0.28	0.72	1.00
Inactive	female	0.68	0.32	1.00	0.72	0.28	1.00	0.73	0.27	1.00
	male	0.80	0.20	1.00	0.81	0.19	1.00	0.87	0.13	1.00
Unemp	female	0.64	0.36	1.00	0.57	0.43	1.00	0.57	0.43	1.00
	male	0.74	0.26	1.00	0.71	0.29	1.00	0.65	0.35	1.00
Emp	female	0.83	0.17	1.00	0.69	0.31	1.00	0.83	0.17	1.00
	male	0.71	0.29	1.00	0.64	0.36	1.00	0.78	0.22	1.00
School	female	0.89	0.11	1.00	0.84	0.16	1.00	0.86	0.14	1.00
	male	0.88	0.12	1.00	0.84	0.16	1.00	0.86	0.14	1.00
Military	female									
	male	0.54	0.46	1.00	0.84	0.16	1.00	0.84	0.16	1.00
Total	female	***0.87***	***0.13***	***1.00***	***0.82***	***0.18***	***1.00***	***0.84***	***0.16***	***1.00***
	male	***0.87***	***0.13***	***1.00***	***0.83***	***0.17***	***1.00***	***0.85***	***0.15***	***1.00***

Source: HLFS 2004, 2005, 2006
Note: Weights are not used

Table H.3: Number Individiduals who are in Formal Education by Previous Labor Market States

					RURAL					
		2004			2005			2006		
State(t-1)		**Formal Edu**	**Not Formal Edu**	**Total**	**Formal Edu**	**Not Formal Edu**	**Total**	**Formal Edu**	**Not Formal Edu**	**Total**
Other	female	3	15	18	9	33	41	4	34	38
	male	17	27	45	25	75	100	28	50	77
Inactive	female	94	49	143	148	85	232	153	87	241
	male	0	2	2	5	3	8	6	0	6
Unemp	female	2	0	2	6	4	11	1	2	3
	male	19	11	31	22	10	32	18	8	26
Emp	female	8	2	10	2	5	7	12	6	18
	male	14	6	20	12	1	13	15	9	24
School	female	1727	283	2009	1973	341	2314	2014	380	2394
	male	2866	380	3245	2877	558	3435	2717	476	3193
Military	female									
	male	3	2	5	1	2	3	1	7	7
Total	female	***1835***	***348***	***2183***	***2137***	***468***	***2605***	***2184***	***510***	***2694***
	male	***2919***	***429***	***3348***	***2941***	***649***	***3590***	***2784***	***550***	***3334***
					URBAN					
		Formal Edu	**Not Formal Edu**	**Total**	**Formal Edu**	**Not Formal Edu**	**Total**	**Formal Edu**	**Not Formal Edu**	**Total**
Other	female	16	91	107	37	127	164	62	123	184
	male	45	152	197	65	196	261	63	167	230
Inactive	female	361	168	529	504	194	698	538	201	739
	male	13	3	16	21	5	26	17	3	20
Unemp	female	21	12	33	21	16	37	27	20	47
	male	39	14	53	55	22	77	47	25	72
Emp	female	51	10	62	58	26	84	84	17	101
	male	38	16	54	48	28	76	89	25	113
School	female	7605	968	8573	7520	1394	8914	7919	1268	9186
	male	9910	1299	11210	9279	1711	10990	9533	1564	11097
Military	female									
	male	6	5	11	14	3	16	14	3	17
Total	female	***8054***	***1249***	***9303***	***8140***	***1757***	***9897***	***8629***	***1629***	***10258***
	male	***10051***	***1489***	***11540***	***9482***	***1964***	***11446***	***9764***	***1786***	***11550***

Source: HLFS 2004, 2005, 2006
Note: Weights are not used

APPENDIX I

The Analysis of the 'OTHER' category

This section contains detailed analysis of the individuals who are in category 'Other' as per the question: 'In this month last year, what was your situation in the labor market?'. Besides this respond, other responses include, "working", "retired", "searching for a job", "home-maker", "in school", "handicapped/ill", and "in military". We learned from TURKSTAT that most of the individuals who are in the category 'other' had said that "they do not want to work" or if they are older (i.e. older than 50), they considered themselves too old to do anything. TURKSTAT informed us that some other explanations are also provided, but with far less frequency than the above two explanations. The question is, can we lump 'other' with 'inactive'? By studying patterns of individuals who are in 'other' and 'inactive' categories by age and gender, we end up a result that individuals who are in'other' category are not behaving same as the inactive ones and therefore, they must not lump with inactives.

In Table I.1, the share of previous labor market states of 15-29 year-olds by location and year is shown[1]. The first three columns show the previous labor market states for urban areas while the second three columns depict the previous labor market states for rural areas. The shares of the individuals who were in the 'other' category are not higher than 2% of the entire group. In Table I.2, we show the 'other' category by age groups conditional on gender. In 2004, 18.3% and 12.6% of males and females who were in the 'other' category are in the 15-19 age group. In 2005 and 2006, these values are around 2 points higher than the values in 2004. This age group has the highest percentage of observations as compared to other age groups after the share of 65+ year-olds (Not only for females but also males). 20-24 year-olds has the second highest percentage afterwards it starts to decrease.

[1] Note that weights are used during the tabulations.

Table I.1: Previous Labor Market States of 15-29 year-olds by Location

	Urban			Rural			Total		
	2004	**2005**	**2006**	**2004**	**2005**	**2006**	**2004**	**2005**	**2006**
Inactive	35.9	34.8	34.5	31.4	33.6	33.2	34.4	34.4	34.1
Unemp	9.7	10.3	9.7	7.0	8.7	9.7	8.8	9.8	9.7
Emp	49.6	50.4	51.4	58.6	54.1	53.9	52.6	51.6	52.2
School	2.3	2.5	2.5	0.7	0.8	0.9	1.8	1.9	2.0
Military	1.3	1.1	1.0	0.5	0.7	0.6	1.0	1.0	0.9
Other	1.2	0.9	0.9	1.9	2.1	1.6	1.4	1.3	1.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	25654	***27546***	***28383***	***10292***	***11062***	***11536***	***35946***	***38608***	***39919***

Source: HLFS 2004, 2005, 2006
Note: Weights are used

Table I.2: Category ‘Other’ by Age Groups

	2004			2005			2006		
Age Groups	**M**	**F**	**Total**	**M**	**F**	**Total**	**M**	**F**	**Total**
15-19	18.3	12.6	16.2	20.5	15.1	18.4	19.1	14.9	17.4
20-24	16.8	10.8	14.5	16.5	10.9	14.4	14.0	8.9	12.0
25-29	10.1	5.7	8.4	9.8	4.8	7.9	8.7	4.7	7.1
30-34	7.2	2.7	5.5	7.4	3.0	5.7	7.1	3.8	5.8
35-39	5.7	3.3	4.8	4.7	2.7	4.0	6.0	3.3	4.9
40-44	5.2	2.2	4.0	4.4	1.9	3.4	5.1	2.1	3.9
45-49	4.5	1.8	3.5	4.4	1.7	3.4	5.4	1.6	3.9
50-54	3.9	1.4	3.0	4.7	2.0	3.7	5.5	1.2	3.9
55-59	2.8	2.0	2.5	3.4	0.9	2.5	3.6	0.6	2.5
60-64	4.0	7.9	5.5	4.5	7.9	5.8	4.4	6.5	5.2
65+	21.4	49.7	32.1	19.8	49.1	30.8	21.1	52.4	33.2
Total	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
Observations	***4,513***	***2,731***	***7,244***	***4,623***	***2,799***	***7,421***	***4,382***	***2,771***	***7,153***

Source: HLFS 2004, 2005, 2006
Note: Weights are used

We use graphs in order to visualize the shape of the share of the category ‘other’ by age groups. We also draw graphs for inactives. Figures I.1-I.3 for the category ‘other’ and figures B4-B6 for inactives by age groups show disparities. Not only for males but also for females: the shape for the category ‘other’ is U-shaped with a long flat bottom whereas, only the shape of figures for inactive males are U-shaped. For females, the category ‘other’ is U-shaped with a long flat bottom whereas the shape of inactives by age groups is inverse U-shaped with a long right hand side arm.

In summary, the category 'other' shows disparities among age groups. In addition to this, the shapes of the category 'other' and inactives by age groups are different. From these findings, we conclude that the category 'other' should be analyzed separately from inactives in other words, we can not lump them up in our analysis.

Figures by Age Groups

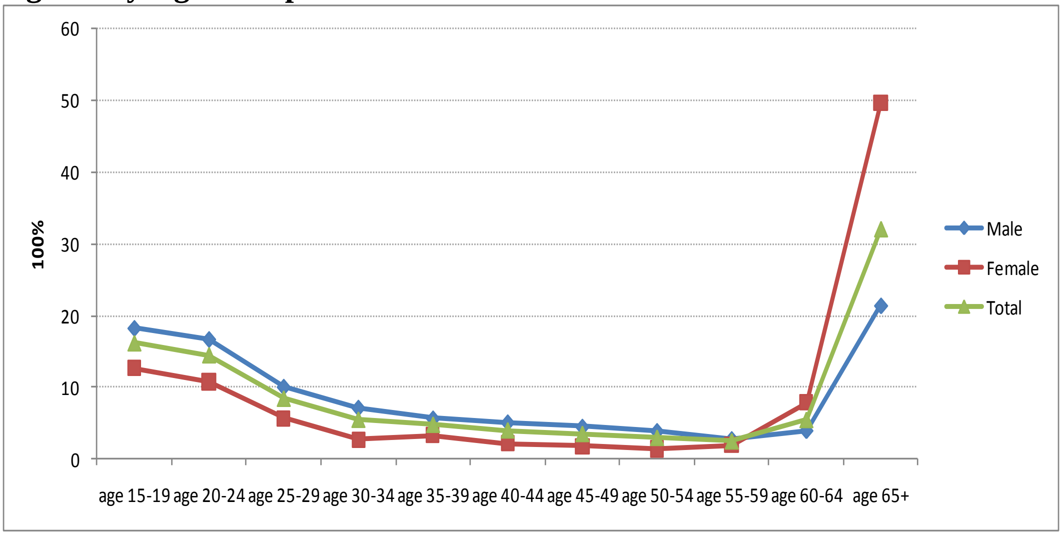

Figure I.1: Breakdown of 'Other' Category by Age Groups Conditional on Sex, 2004
Source: HLFS 2004
Note: Weights are used

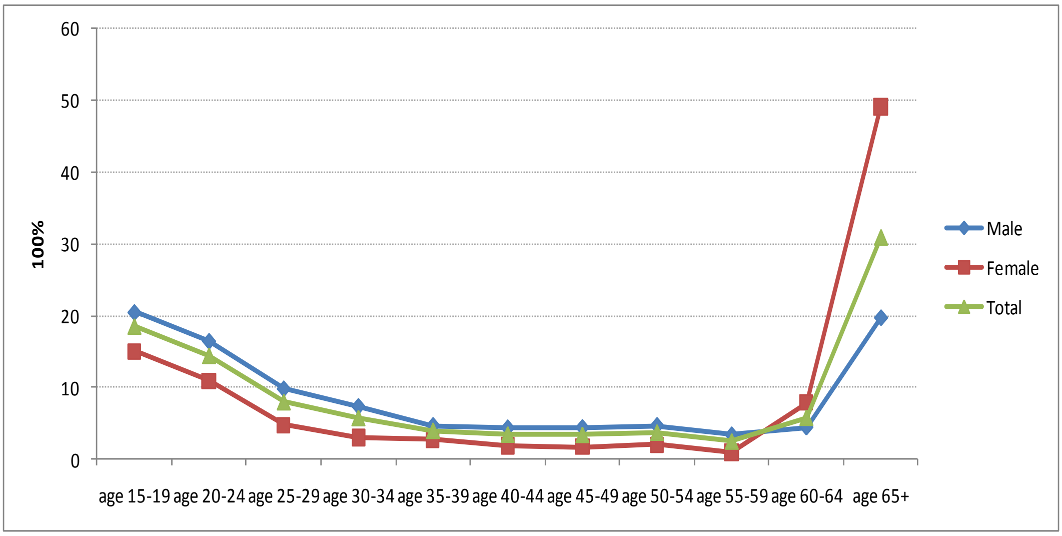

Figure I.2: Breakdown of 'Other' Category by Age Groups Conditional on Sex, 2005
Source: HLFS 2005
Note: Weights are used

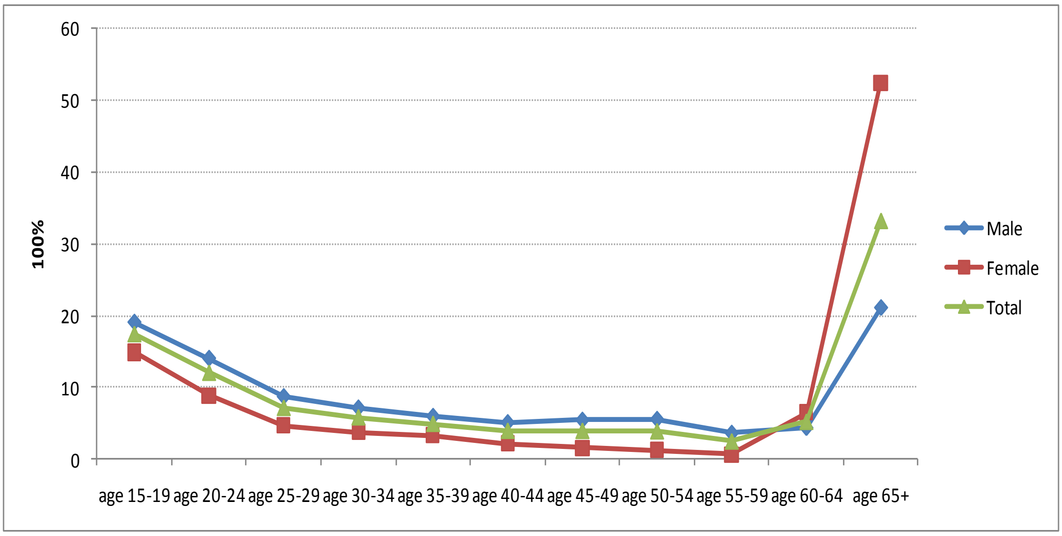

Figure I.3: Breakdown of 'Other' Category by Age Groups Conditional on Sex, 2006
Source: HLFS 2006
Note: Weights are used

Inactives By Age Groups

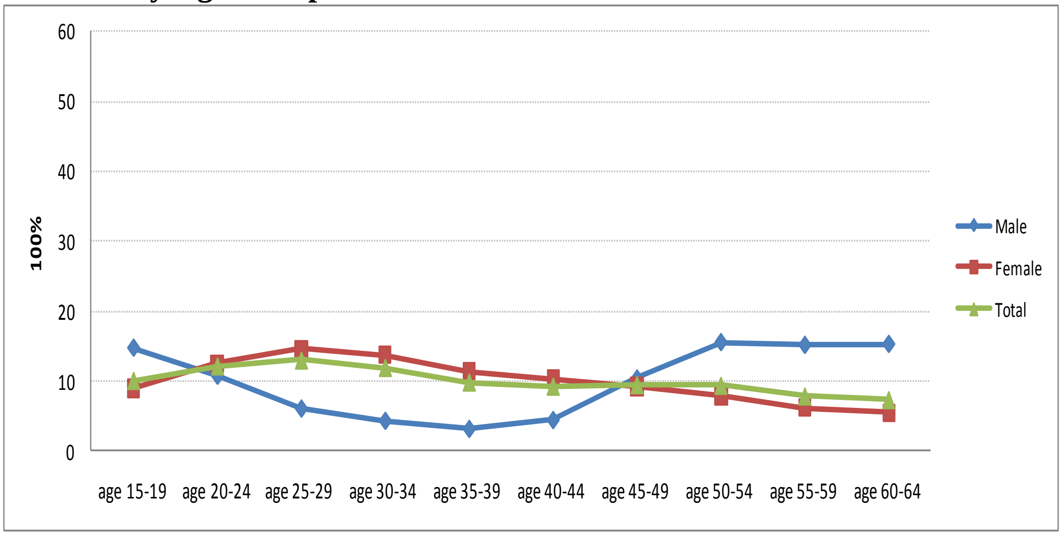

Figure I.4: Breakdown of Inactive Category by Age Groups Conditional on Sex, 2004
Source:HLFS database 2004

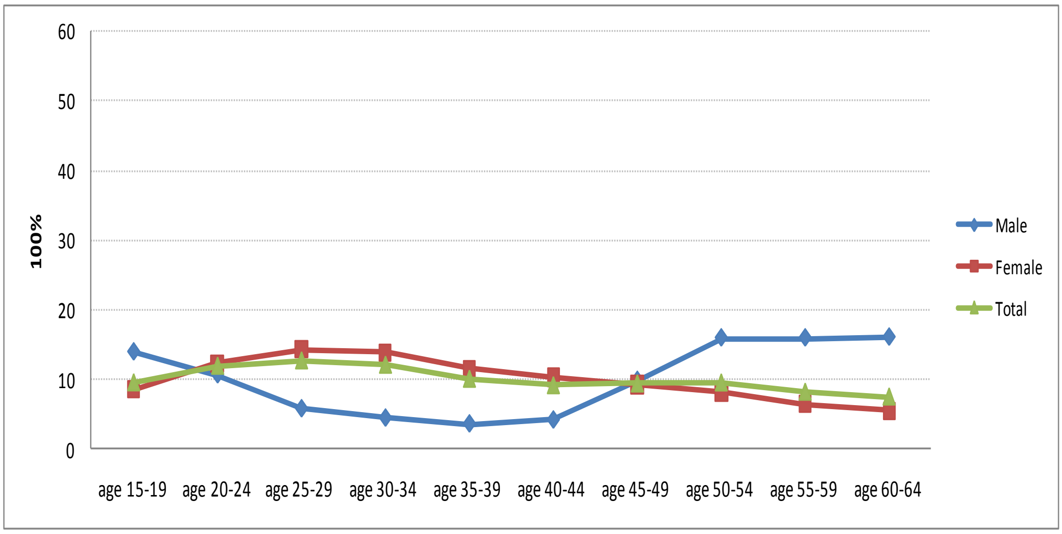

Figure I.5: Breakdown of Inactive Category by Age Groups Conditional on Sex, 2005
Source:HLFS database 2005

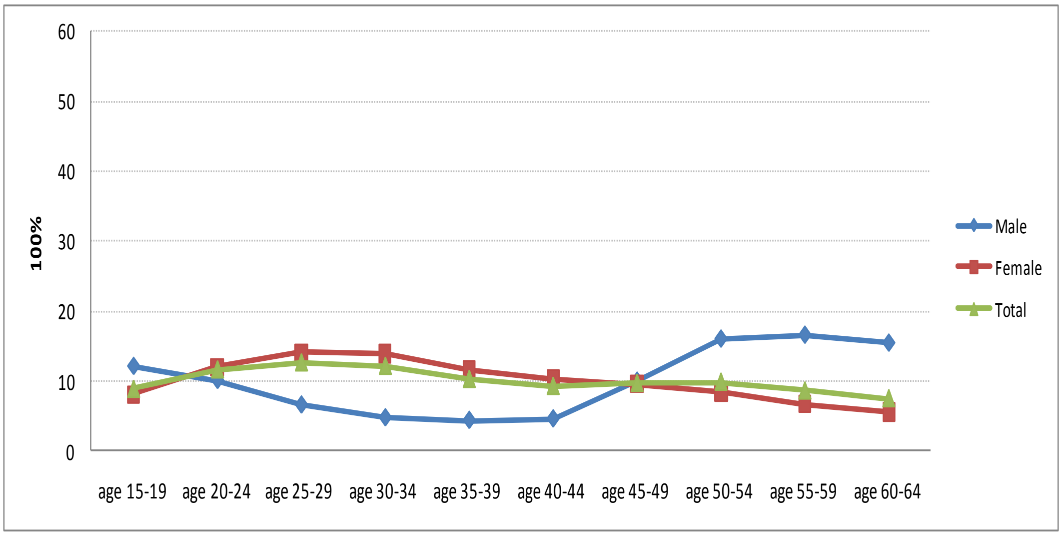

Figure I.6: Breakdown of Inactive Category by Age Groups Conditional on Sex, 2006
Source:HLFS database 2006

Table I.3 :Number of Individuals

		RURAL														
		Age 15-19 state (t)					Age 20-24 state (t)					Age 25-29 state (t)				
state (t-1)		**Inactive**	**Unemp**	**Emp**	**School**	**Total**	**Inactive**	**Unemp**	**Emp**	**School**	**Total**	**Inactive**	**Unemp**	**Emp**	**School**	**Total**
Other	female	288	6	29	83	406	174	17	20	19	231	113	9	17	2	141
	male	708	55	70	138	970	522	55	74	68	719	295	52	87	6	441
Inactive	female	9669	124	430	393	10616	10763	230	339	175	11507	10601	179	294	74	11148
	male	327	5	16	11	360	402	8	23	4	438	339	8	13	0	360
Unemp	female	130	147	124	7	409	154	312	179	7	652	101	142	71	2	316
	male	887	647	603	42	2179	694	933	766	37	2430	503	1027	784	4	2318
Emp	female	227	51	4726	16	5020	321	82	5887	13	6303	283	51	5683	7	6023
	male	277	171	5787	28	6263	339	255	7298	24	7917	277	358	11057	2	11694
School	female	828	161	457	6666	8111	109	135	146	596	985	20	24	15	50	109
	male	895	340	1035	8882	11151	158	165	200	781	1303	29	31	33	59	152
Military	female	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	male	12	2	13	0	27	397	594	989	10	1991	27	62	95	3	187
Total	female	***11142***	***489***	***5766***	***7165***	***24562***	***11520***	***777***	***6571***	***811***	***19679***	***11118***	***405***	***6079***	***135***	***17738***
	male	***3105***	***1220***	***7524***	***9101***	***20950***	***2513***	***2011***	***9350***	***924***	***14798***	***1469***	***1539***	***12070***	***74***	***15152***
		URBAN														
state (t-1)		**Inactive**	**Unemp**	**Emp**	**School**	**Total**	**Inactive**	**Unemp**	**Emp**	**School**	**Total**	**Inactive**	**Unemp**	**Emp**	**School**	**Total**
Other	female	548	44	51	308	951	349	74	63	137	623	146	53	26	9	233
	male	1001	101	141	437	1680	725	162	137	214	1237	270	156	109	13	548
Inactive	female	13018	323	575	872	14788	23882	722	748	645	25996	28181	674	760	350	29965
	male	512	11	22	26	572	675	24	26	25	751	523	27	50	7	606
Unemp	female	207	444	512	25	1188	311	1351	1092	52	2806	226	987	670	30	1912
	male	900	1404	1621	92	4016	775	2228	2385	82	5471	515	2695	2648	15	5873
Emp	female	324	265	2512	58	3160	745	649	6583	104	8081	677	461	8434	63	9636
	male	306	616	7797	103	8823	372	934	13898	85	15290	314	1490	28140	37	29981
School	female	1936	532	749	21827	25045	431	867	741	4767	6806	116	162	123	461	862
	male	1731	837	2159	25739	30466	517	661	923	6263	8365	140	150	204	618	1113
Military	female	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	male	10	2	15	4	31	517	1446	2408	24	4395	80	324	440	11	855
Total	female	***16034***	***1608***	***4400***	***23089***	***45131***	***25717***	***3664***	***9226***	***5705***	***44312***	***29346***	***2337***	***10012***	***913***	***42608***
	male	***4460***	***2972***	***11755***	***26401***	***45588***	***3583***	***5456***	***19778***	***6692***	***35508***	***1841***	***4843***	***31590***	***702***	***38975***
Total	female	***27176***	***2097***	***10166***	***30254***	***69693***	***37237***	***4441***	***15797***	***6516***	***63991***	***40464***	***2742***	***16091***	***1049***	***60346***
Total	male	***7565***	***4192***	***19280***	***35502***	***66538***	***6096***	***7466***	***29128***	***7616***	***50306***	***3310***	***6382***	***43660***	***775***	***54127***

Table I.3 Continued

	34740	6289	29446	65756	136231	43333	11907	44925	14132	114297	43774	9124	59751	1824	114473

Source: 2004, 2005, 2006 HLFS

APPENDIX J

Table J.1: Forward Transitions, 2006

		RURAL														
		Age 15-19 state (t)					Age 20-24 state (t)					Age 25-29 state (t)				
state (t-1)		Inactive	Unemp	Emp	School	Total	Inactive	Unemp	Emp	School	Total	Inactive	Unemp	Emp	School	Total
Other	female	66.8	2.2	6.5	24.5	100.0	71.7	8.8	12.5	7.0	100.0	85.1	6.7	8.2	0.0	100.0
	male	65.5	7.8	9.1	17.6	100.0	65.7	9.0	15.8	9.4	100.0	62.8	11.1	25.0	1.1	100.0
Inactive	female	89.3	1.5	5.2	3.9	100.0	92.8	2.3	3.0	2.0	100.0	94.5	1.7	3.0	0.8	100.0
	male	90.3	0.5	3.7	5.4	100.0	91.5	1.5	7.0	0.0	100.0	97.9	0.5	1.6	0.0	100.0
Unemp	female	34.7	39.2	25.1	1.0	100.0	23.2	48.3	28.5	0.0	100.0	30.7	48.0	19.7	1.6	100.0
	male	44.2	26.3	28.2	1.3	100.0	32.3	34.6	31.4	1.6	100.0	25.5	40.8	33.7	0.0	100.0
Emp	female	4.8	1.1	93.5	0.6	100.0	5.0	1.6	93.2	0.2	100.0	5.5	0.8	93.3	0.3	100.0
	male	4.5	2.5	92.2	0.7	100.0	4.0	3.6	92.1	0.4	100.0	2.4	2.8	94.8	0.0	100.0
School	female	8.4	1.9	6.0	83.6	100.0	10.9	13.2	14.4	61.5	100.0	23.6	19.4	16.7	40.3	100.0
	male	5.9	2.9	11.2	80.1	100.0	8.5	10.5	15.3	65.6	100.0	17.3	21.4	22.6	38.7	100.0
Military	female	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
	male	48.1	0.0	51.9	0.0	100.0	19.4	24.8	55.2	0.7	100.0	19.5	14.4	64.2	1.9	100.0
		URBAN														
state (t-1)		Inactive	Unemp	Emp	School	Total	Inactive	Unemp	Emp	School	Total	Inactive	Unemp	Emp	School	Total
Other	female	47.0	6.6	3.0	43.4	100.0	52.5	12.1	7.3	28.1	100.0	54.7	28.5	13.1	3.8	100.0
	male	57.8	4.9	8.0	29.4	100.0	56.7	12.8	10.0	20.5	100.0	56.1	29.1	12.8	2.0	100.0
Inactive	female	85.9	2.6	4.9	6.6	100.0	90.8	2.9	3.2	3.1	100.0	93.4	2.4	2.8	1.4	100.0
	male	85.2	2.5	8.6	3.8	100.0	90.5	2.7	4.0	2.8	100.0	90.5	2.1	5.8	1.7	100.0
Unemp	female	14.9	35.8	44.9	4.4	100.0	10.5	48.6	39.1	1.7	100.0	13.2	46.5	38.3	2.1	100.0
	male	23.6	33.1	41.2	2.2	100.0	18.5	39.0	40.6	1.9	100.0	12.1	44.8	42.8	0.3	100.0
Emp	female	10.5	9.5	77.7	2.3	100.0	9.9	7.4	81.2	1.6	100.0	7.1	5.2	86.9	0.8	100.0
	male	4.0	6.6	87.7	1.7	100.0	2.3	6.0	91.2	0.6	100.0	1.0	4.8	94.0	0.2	100.0
School	female	5.7	1.9	3.5	88.8	100.0	5.3	11.2	11.8	71.8	100.0	10.3	13.2	16.8	59.7	100.0

Table J.1 Continued

	male	4.1	2.5	8.2	85.2	***100.0***	5.0	6.9	12.6	75.4	***100.0***	14.9	11.6	18.0	55.6	***100.0***
Military	female	n.a	n.a	n.a	n.a	***n.a***	n.a	n.a	n.a	n.a	***n.a***	n.a	n.a	n.a	n.a	***n.a***
	male	48.0	13.8	38.2	0.0	***100.0***	13.1	29.4	56.8	0.7	***100.0***	7.5	38.3	52.0	2.2	***100.0***

Source: 2006 HLFS
Note: Weights are used

Table J.2: Forward Transitions, 2005

		RURAL														
		Age 15-19 state (t)					Age 20-24 state (t)					Age 25-29 state (t)				
state (t-1)		Inactive	Unemp	Emp	School	*Total*	Inactive	Unemp	Emp	School	Total	Inactive	Unemp	Emp	School	*Total*
Other	female	69.4	0.9	10.1	19.6	***100.0***	71.1	10.1	7.9	10.9	100.0	75.4	2.5	17.1	5.0	***100.0***
	male	72.2	5.0	6.1	16.6	***100.0***	73.0	7.0	7.3	12.8	100.0	71.6	10.1	16.9	1.4	***100.0***
Inactive	female	89.7	1.3	4.7	4.3	***100.0***	93.0	2.1	3.4	1.6	100.0	94.6	1.6	3.0	0.8	***100.0***
	male	88.7	3.1	3.8	4.5	***100.0***	94.2	0.0	4.4	1.4	100.0	92.7	2.4	4.9	0.0	***100.0***
Unemp	female	19.9	41.1	35.0	4.0	***100.0***	21.2	52.2	23.9	2.7	100.0	27.7	47.9	24.4	0.0	***100.0***
	male	38.1	32.3	27.3	2.3	***100.0***	26.8	38.1	34.0	1.2	100.0	19.3	45.5	34.9	0.3	***100.0***
Emp	female	3.7	1.1	94.9	0.3	***100.0***	5.9	1.0	93.0	0.1	100.0	4.3	1.2	94.4	0.0	***100.0***
	male	3.8	2.7	93.2	0.3	***100.0***	3.9	2.8	93.0	0.2	100.0	1.3	3.0	95.6	0.0	***100.0***
School	female	11.2	2.0	5.5	81.4	***100.0***	8.6	12.9	13.8	64.7	100.0	16.1	25.3	8.1	50.5	***100.0***
	male	7.8	2.9	9.2	80.2	***100.0***	15.0	12.0	15.2	57.7	100.0	17.1	17.9	36.6	28.3	***100.0***
Military	female	n.a	n.a	n.a	n.a	***n.a***	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	***n.a***
	male	70.3	0.0	29.7	0.0	***100.0***	20.4	30.0	49.2	0.4	100.0	13.1	37.8	49.1	0.0	***100.0***
		URBAN														
state (t-1)		Inactive	Unemp	Emp	School	*Total*	Inactive	Unemp	Emp	School	*Total*	Inactive	Unemp	Emp	School	*Total*
Other	female	52.4	4.6	7.7	35.3	***100.0***	57.5	12.5	8.5	21.6	***100.0***	67.0	21.7	6.0	5.3	***100.0***
	male	55.5	6.0	10.2	28.4	***100.0***	57.6	12.6	11.9	18.0	***100.0***	46.9	32.1	18.8	2.2	***100.0***
Inactive	female	88.3	2.1	3.5	6.1	***100.0***	91.4	2.6	3.3	2.7	***100.0***	93.9	2.3	2.6	1.2	***100.0***
	male	89.1	2.3	2.4	6.2	***100.0***	87.2	3.9	5.3	3.6	***100.0***	81.4	6.2	11.2	1.2	***100.0***
Unemp	female	17.6	39.0	42.2	1.2	***100.0***	10.4	46.7	41.1	1.9	***100.0***	11.3	53.3	33.9	1.5	***100.0***
	male	20.8	34.4	42.5	2.4	***100.0***	11.8	40.6	45.8	1.7	***100.0***	8.0	44.4	47.4	0.2	***100.0***
Emp	female	11.2	7.6	79.4	1.8	***100.0***	9.0	8.5	81.2	1.3	***100.0***	7.1	4.7	87.5	0.6	***100.0***
	male	3.2	7.4	88.5	0.9	***100.0***	2.3	5.8	91.2	0.7	***100.0***	1.0	4.3	94.6	0.1	***100.0***
School	female	7.8	2.0	3.0	87.3	***100.0***	6.7	12.7	9.7	70.8	***100.0***	17.6	18.4	10.3	53.7	***100.0***
	male	5.4	2.8	7.2	84.7	***100.0***	6.3	8.2	11.6	73.9	***100.0***	12.3	14.0	19.2	54.5	***100.0***
Military	female	n.a	n.a	n.a	n.a	***n.a***	n.a	n.a	n.a	n.a	***n.a***	n.a	n.a	n.a	n.a	***n.a***
	male	22.6	0.0	59.3	18.0	***100.0***	10.2	31.6	57.5	0.7	***100.0***	9.2	35.1	54.7	1.1	***100.0***

Source: 2005 HLFS
Note: Weights are used

Table J.3: Forward Transitions, 2004

RURAL

state (t-1)		Age 15-19 state (t): Inactive	Unemp	Emp	School	*Total*	Age 20-24 state (t): Inactive	Unemp	Emp	School	Total	Age 25-29 state (t): Inactive	Unemp	Emp	School	*Total*
Other	female	80.4	0.8	3.5	15.3	***100.0***	85.0	2.7	6.0	6.3	100.0	79.8	10.5	9.7	0.0	***100.0***
	male	80.8	4.3	6.6	8.3	***100.0***	78.8	7.1	8.3	5.9	100.0	65.8	14.6	18.3	1.2	***100.0***
Inactive	female	94.4	0.7	2.2	2.8	***100.0***	95.0	1.6	2.4	1.0	100.0	96.4	1.5	1.8	0.4	***100.0***
	male	93.6	0.8	5.6	0.0	***100.0***	89.8	4.2	4.7	1.3	100.0	91.8	4.1	4.2	0.0	***100.0***
Unemp	female	40.4	29.2	30.1	0.4	***100.0***	26.0	43.6	29.7	0.7	100.0	38.0	37.7	24.4	0.0	***100.0***
	male	39.4	30.9	27.4	2.4	***100.0***	26.4	42.8	29.0	1.8	100.0	19.0	48.3	32.6	0.1	***100.0***
Emp	female	5.0	0.9	93.9	0.1	***100.0***	4.4	1.3	93.9	0.3	100.0	4.2	0.5	95.3	0.0	***100.0***
	male	4.8	2.9	91.9	0.4	***100.0***	4.8	3.3	91.6	0.3	100.0	3.4	3.4	93.2	0.0	***100.0***
School	female	11.2	2.1	5.4	81.3	***100.0***	14.2	15.2	16.4	54.3	100.0	14.1	22.6	15.3	47.9	***100.0***
	male	10.4	3.4	7.6	78.7	***100.0***	12.7	15.6	15.5	56.1	100.0	22.6	22.3	5.8	49.3	***100.0***
Military	female	n.a	n.a	n.a	n.a	***n.a***	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	***n.a***
	male	23.5	19.7	56.8	0.0	***100.0***	20.1	35.8	43.7	0.4	100.0	8.3	53.6	33.9	4.2	***100.0***

URBAN

state (t-1)		Inactive	Unemp	Emp	School	*Total*	Inactive	Unemp	Emp	School	Total	Inactive	Unemp	Emp	School	*Total*
Other	female	73.3	2.7	5.3	18.8	***100.0***	57.3	11.3	13.6	17.7	100.0	65.6	18.6	13.6	2.2	***100.0***
	male	65.9	7.2	6.8	20.1	***100.0***	60.7	13.7	11.1	14.5	100.0	45.6	25.1	26.4	3.0	***100.0***
Inactive	female	89.8	1.8	3.4	5.0	***100.0***	93.3	2.9	2.1	1.7	100.0	94.9	2.0	2.1	1.0	***100.0***
	male	95.6	0.9	0.3	3.2	***100.0***	92.5	3.1	1.0	3.4	100.0	86.3	5.3	7.8	0.7	***100.0***
Unemp	female	19.4	37.0	42.5	1.1	***100.0***	12.3	49.2	36.6	1.9	100.0	10.8	55.5	32.5	1.1	***100.0***
	male	23.0	37.7	37.0	2.3	***100.0***	12.7	42.3	44.0	0.9	100.0	6.1	48.8	44.9	0.2	***100.0***
Emp	female	9.1	8.0	81.5	1.4	***100.0***	8.7	8.2	82.0	1.0	100.0	6.8	4.4	88.3	0.5	***100.0***
	male	3.2	7.0	89.0	0.8	***100.0***	2.7	6.6	90.3	0.4	100.0	1.2	5.8	92.9	0.1	***100.0***
School	female	9.8	2.5	2.5	85.3	***100.0***	7.0	14.5	11.2	67.3	100.0	12.3	26.0	15.9	45.8	***100.0***
	male	7.5	3.0	5.9	83.5	***100.0***	7.2	8.6	9.0	75.3	100.0	10.1	15.2	18.0	56.8	***100.0***
Military	female	n.a	n.a	n.a	n.a	***n.a***	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	***n.a***
	male	14.3	0.0	56.9	28.9	***100.0***	12.1	37.1	50.6	0.3	100.0	11.0	40.2	48.1	0.7	***100.0***

Source: 2004 HLFS
Note: Weights are used

Table J.4: Backward Transitions, 2006

RURAL

state (t-1)		Age 15-19 state (t) Inactive	Unemp	Emp	School	Total	Age 20-24 state (t) Inactive	Unemp	Emp	School	Total	Age 25-29 state (t) Inactive	Unemp	Emp	School	Total
Other	female	2.8	2.0	0.6	1.5	1.9	1.2	2.2	0.4	1.5	1.0	0.9	1.9	0.2	0.0	0.7
	male	20.8	6.2	1.2	1.8	4.6	18.1	3.2	1.2	6.0	4.8	15.5	2.9	0.8	5.4	2.6
Inactive	female	87.7	31.4	10.7	5.5	44.1	94.2	33.5	5.9	25.1	61.2	94.9	41.8	5.6	55.8	63.3
	male	11.0	0.2	0.2	0.2	1.8	14.6	0.3	0.3	0.0	2.8	20.8	0.1	0.0	0.0	2.2
Unemp	female	1.1	26.1	1.7	0.0	1.4	1.2	35.0	2.8	0.0	3.0	1.0	39.6	1.2	3.5	2.1
	male	36.9	54.8	9.8	0.4	12.1	33.8	46.9	9.2	4.0	18.1	42.5	71.7	7.4	1.3	17.5
Emp	female	1.9	9.1	77.3	0.3	17.7	2.4	11.4	88.2	1.4	29.1	2.9	11.1	92.6	9.6	33.2
	male	8.5	11.7	71.1	0.4	26.9	11.3	13.2	73.2	2.7	49.2	16.9	21.0	90.3	5.4	75.3
School	female	6.6	31.4	9.8	92.7	35.0	1.0	17.9	2.6	72.0	5.6	0.3	5.6	0.4	31.1	0.7
	male	22.3	27.1	17.5	97.2	54.6	4.8	7.7	2.4	85.8	9.7	1.9	2.5	0.3	83.2	1.2
Military	female	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
	male	0.5	0.0	0.2	0.0	0.2	17.3	28.7	13.7	1.5	15.4	2.4	1.9	1.0	4.6	1.3
Total	female	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
	male	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***

URBAN

state (t-1)		Inactive	Unemp	Emp	School	Total	Inactive	Unemp	Emp	School	Total	Inactive	Unemp	Emp	School	Total
Other	female	3.0	3.8	0.6	1.7	2.1	1.1	1.9	0.4	2.5	1.2	0.4	2.8	0.3	0.8	0.5
	male	22.7	2.8	1.0	1.7	3.5	15.7	2.6	0.5	3.0	2.8	13.2	3.0	0.2	1.3	1.2
Inactive	female	83.7	22.8	15.1	3.9	31.7	92.9	20.9	8.6	12.7	57.8	95.9	31.0	8.0	38.2	69.4
	male	12.4	0.5	0.4	0.1	1.3	20.9	0.5	0.2	0.3	2.4	27.6	0.3	0.1	1.4	1.6
Unemp	female	1.1	23.8	10.5	0.2	2.4	1.1	37.5	11.1	0.8	6.2	0.9	38.5	6.9	3.7	4.4
	male	24.1	48.5	13.7	0.3	9.0	26.2	40.4	10.3	1.4	14.4	33.7	55.6	7.7	2.5	14.7
Emp	female	2.3	19.0	54.3	0.3	7.2	3.3	17.5	71.2	2.1	18.9	2.5	22.7	83.4	7.4	23.6
	male	9.0	21.2	64.5	0.6	19.8	10.0	19.3	71.7	1.3	44.7	14.3	31.8	90.0	9.0	77.6
School	female	10.0	30.6	19.5	93.9	56.7	1.5	22.3	8.7	82.0	15.9	0.3	5.1	1.4	50.0	2.1
	male	31.3	26.8	20.2	97.2	66.5	11.8	11.9	5.3	93.5	23.8	8.3	2.9	0.7	83.7	2.9
Military	female	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a

Table J.4 Continued

	male	0.5	0.2	0.1	0.0	0.1	15.4	25.4	12.0	0.4	12.0	2.9	6.5	1.3	2.2	2.0
Total	female	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
	male	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***

Source: 2006 HLFS

Note: Weights are used

Table J.5: Backward Transitions, 2005

		RURAL													
		Age 15-19 state (t)					**Age 20-24 state (t)**					**Age 25-29 state (t)**			
state (t-1)		**Inactive**	**Unemp**	**Emp**	**School**	**Total**	**Inactive**	**Unemp**	**Emp**	**School**	**Total**	**Inactive**	**Unemp**	**Emp**	**School**
Other	female	2.8	2.0	0.6	1.5	1.9	3.6	0.3	3.5	1.4	0.9	0.8	0.4	4.8	0.8
	male	20.8	6.2	1.2	1.8	4.6	2.7	0.6	10.7	5.4	26.4	3.1	0.7	12.9	3.3
Inactive	female	87.7	31.4	10.7	5.5	44.1	30.4	5.9	20.4	58.4	96.0	44.1	5.9	57.4	64.5
	male	11.0	0.2	0.2	0.2	1.8	0.0	0.2	0.7	3.2	24.7	0.5	0.1	0.0	2.4
Unemp	female	1.1	26.1	1.7	0.0	1.4	42.1	2.3	2.0	3.2	0.7	32.0	1.2	0.0	1.6
	male	36.9	54.8	9.8	0.4	12.1	47.6	9.3	3.1	17.1	34.1	67.8	6.9	14.6	15.9
Emp	female	1.9	9.1	77.3	0.3	17.7	7.7	89.3	0.6	31.9	2.2	16.7	92.4	1.5	32.5
	male	8.5	11.7	71.1	0.4	26.9	10.6	76.4	1.7	51.1	10.9	21.7	90.9	3.3	76.0
School	female	6.6	31.4	9.8	92.7	35.0	16.2	2.1	73.6	5.1	0.2	6.4	0.1	36.3	0.6
	male	22.3	27.1	17.5	97.2	54.6	8.1	2.3	83.0	9.2	1.7	1.5	0.4	69.3	0.9
Military	female	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
	male	0.5	0.0	0.2	0.0	0.2	30.9	11.1	0.8	14.1	2.2	5.3	0.9	0.0	1.5
Total	female	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
	male	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
		URBAN													
state (t-1)		**Inactive**	**Unemp**	**Emp**	**School**	**Total**	**Inactive**	**Unemp**	**Emp**	**School**	**Total**	**Inactive**	**Unemp**	**Emp**	**School**
Other	female	3.0	3.8	0.6	1.7	2.1	2.2	0.6	2.3	1.4	0.5	1.9	0.1	1.2	0.5
	male	22.7	2.8	1.0	1.7	3.5	2.9	0.7	3.4	3.5	14.2	3.6	0.3	1.7	1.3
Inactive	female	83.7	22.8	15.1	3.9	31.7	18.6	9.3	12.0	58.8	95.8	28.1	7.7	37.2	69.9
	male	12.4	0.5	0.4	0.1	1.3	0.6	0.2	0.4	2.1	28.2	0.8	0.2	1.0	1.5
Unemp	female	1.1	23.8	10.5	0.2	2.4	36.3	12.4	0.9	6.3	0.8	44.2	6.8	3.2	4.7
	male	24.1	48.5	13.7	0.3	9.0	42.6	12.9	1.5	15.9	28.4	58.2	9.0	2.1	15.6
Emp	female	2.3	19.0	54.3	0.3	7.2	19.1	70.6	1.9	18.2	2.4	18.9	84.4	6.6	22.7
	male	9.0	21.2	64.5	0.6	19.8	16.3	69.2	1.6	43.0	16.9	27.9	88.4	2.8	76.6
School	female	10.0	30.6	19.5	93.9	56.7	23.9	7.1	82.9	15.3	0.5	6.9	0.9	51.9	2.1
	male	31.3	26.8	20.2	97.2	66.5	12.5	4.8	92.6	23.3	7.9	3.3	0.7	91.0	2.8
Military	female	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
	male	0.5	0.2	0.1	0.0	0.1	25.0	12.2	0.5	12.1	4.4	6.1	1.4	1.3	2.1
Total	female	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
	male	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***

Source: 2005 HLFS
Note: Weights are used

Table J.6: Backward Transitions, 2004

RURAL															
		Age 15-19					**Age 20-24**					**Age 25-29**			
		state (t)					**state (t)**					**state (t)**			
state (t-1)		**Inactive**	**Unemp**	**Emp**	**School**	**Total**	**Inactive**	**Unemp**	**Emp**	**School**	**Total**	**Inactive**	**Unemp**	**Emp**	**School**
Other	female	2.0	0.5	0.2	0.7	1.2	1.6	0.8	0.2	2.1	1.1	1.2	5.0	0.2	0.0
	male	22.8	3.4	0.8	0.9	4.4	21.9	2.3	0.6	5.2	4.5	19.4	4.2	0.6	6.3
Inactive	female	86.4	16.8	3.5	4.6	42.4	92.9	24.3	3.8	17.6	55.8	95.2	47.4	2.9	48.1
	male	11.0	0.3	0.3	0.0	1.8	16.5	0.9	0.2	0.8	2.9	24.2	1.0	0.1	0.0
Unemp	female	1.7	33.0	2.2	0.0	1.9	1.7	44.1	3.0	0.9	3.7	1.0	32.6	1.1	0.0
	male	21.5	46.9	6.1	0.5	8.5	23.8	44.9	6.4	5.0	14.4	24.4	60.1	5.0	2.8
Emp	female	2.7	13.4	88.1	0.1	24.7	2.7	12.9	91.1	3.4	35.2	2.5	8.9	95.5	1.0
	male	10.6	17.8	82.6	0.3	34.3	17.8	14.2	83.5	3.4	59.3	28.9	27.5	93.8	0.0
School	female	7.2	36.3	6.1	94.5	29.8	1.1	17.9	1.9	76.0	4.3	0.1	6.0	0.2	50.8
	male	33.9	31.1	10.1	98.3	50.9	6.1	8.7	1.8	84.7	7.6	2.2	2.1	0.1	83.9
Military	female	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
	male	0.2	0.5	0.2	0.0	0.2	14.1	29.1	7.5	0.9	11.2	0.8	5.0	0.4	7.1
Total	female	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
	male	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***

URBAN															
state (t-1)		**Inactive**	**Unemp**	**Emp**	**School**	**Total**	**Inactive**	**Unemp**	**Emp**	**School**	**Total**	**Inactive**	**Unemp**	**Emp**	**School**
Other	female	4.1	1.6	1.2	0.8	2.1	1.5	2.1	1.1	2.4	1.6	0.6	2.2	0.4	0.8
	male	21.6	3.9	1.0	1.3	3.6	23.3	3.3	0.8	3.2	4.1	17.0	3.1	0.6	2.9
Inactive	female	78.7	17.1	12.0	3.4	33.3	92.8	19.7	6.3	8.8	59.4	96.4	27.3	6.9	40.1
	male	9.5	0.2	0.0	0.1	1.1	16.2	0.3	0.0	0.3	1.9	29.6	0.6	0.1	0.6
Unemp	female	1.4	28.1	12.5	0.1	2.7	1.3	36.8	12.0	1.1	6.5	0.7	44.1	6.3	2.8
	male	16.9	45.8	12.7	0.3	8.2	19.1	39.6	13.0	0.8	15.9	20.1	53.3	8.4	1.8
Emp	female	1.6	15.2	59.6	0.2	6.8	2.6	16.7	72.4	1.5	17.6	2.1	17.4	85.1	6.7
	male	5.4	19.3	69.1	0.3	18.5	10.7	16.1	69.9	0.9	41.6	20.8	32.5	88.8	3.2
School	female	14.2	38.0	14.8	95.5	55.1	1.8	24.7	8.3	86.2	14.9	0.3	9.0	1.3	49.6
	male	46.5	30.8	17.1	98.1	68.5	15.9	12.0	3.9	94.6	23.5	6.3	3.1	0.6	90.6
Military	female	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
	male	0.1	0.0	0.1	0.0	0.1	14.9	28.6	12.3	0.2	13.1	6.2	7.4	1.5	0.9
Total	female	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***

Table J.6 Continued

male	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***

Source: 2005 HLFS

APPENDIX K

Table K.1: Number of observations used in MNL models

state (t-1)		Age 15-19 state (t)					Age 20-24 state (t)					Age 25-29 state (t)				
		Inactive	Unemp	Emp	School	*Total*	Inactive	Unemp	Emp	School	*Total*	Inactive	Unemp	Emp	School	*Total*
Other	female	1143	47	75	75	***1340***	651	84	75	65	***875***	254	57	39	4	***354***
	male	2207	150	206	146	***2709***	1521	226	209	88	***2044***	642	224	199	13	***1078***
Inactive	female	23795	435	966	837	***26033***	35220	949	1086	552	***37807***	38909	850	1046	326	***41131***
	male	78	14	31	13	***136***	65	32	44	7	***148***	57	36	61	1	***155***
Unemp	female	363	562	591	15	***1531***	505	1571	1175	34	***3285***	336	1078	687	26	***2127***
	male	1908	1979	2096	93	***6076***	1634	3257	3165	91	***8147***	1098	3758	3409	20	***8285***
Emp	female	537	284	6905	47	***7773***	1043	672	12019	84	***13818***	898	467	13698	56	***15119***
	male	557	698	12827	97	***14179***	713	1178	20956	74	***22921***	554	1806	39104	25	***41489***
School	female	6543	643	1129	24059	***32374***	1212	966	836	4464	***7478***	167	182	134	426	***909***
	male	7149	1102	3137	31122	***42510***	1659	816	1102	5921	***9498***	196	175	222	604	***1197***
Military	female	n.a	n.a	n.a	n.a	***n.a***	n.a	n.a	n.a	n.a	***n.a***	n.a	n.a	n.a	n.a	***n.a***
	male	18	3	26	3	***50***	945	2055	3381	22	***6403***	108	371	498	9	***986***
Total	female	***32381***	***1971***	***9666***	***25033***	***69051***	***38631***	***4242***	***15191***	***5199***	***63263***	***40564***	***2634***	***15604***	***838***	***59640***
	male	***11917***	***3946***	***18323***	***31474***	***65660***	***6537***	***7564***	***28857***	***6203***	***49161***	***2655***	***6370***	***43493***	***672***	***53190***
Our sample size in our mlogit models	female			***9591***					***15116***					***15565***		
	male			***18117***					***28648***					***43294***		

Source: 2004,2005, 2006 HLFS
Note: Disabled individuals are excluded

Table K.2 Parameter Estimates from Multinomial Logit Model of Previous Labor Market States, Males

Male	15-19				20-24				25-29			
	Base EMP (t-1)				**Base EMP (t-1)**				**Base EMP (t-1)**			
EMP(t)	**INACT(t-1)**	**UNEMP (t-1)**	**INSCH(t-1)**	**MIL (t-1)**	**INACT(t-1)**	**UNEMP (t-1)**	**INSCH(t-1)**	**MIL (t-1)**	**INACT(t-1)**	**UNEMP (t-1)**	**INSCH(t-1)**	**MIL (t-1)**
Personal Characteristics												
A1517	0.604	0.206***	1.809***	-0.687								
	(0.387)	(0.051)	(0.055)	(0.457)								
A20					0.475	0.115*	1.416***	-1.282***				
					(0.416)	(0.062)	(0.092)	(0.104)				
HGSCH	-0.818	0.295***	1.937***	-0.368	-0.201	0.174***	3.016***	-0.184***	-0.595	-0.092*	1.958***	1.787***
	(1.035)	(0.080)	(0.065)	(0.753)	(0.423)	(0.052)	(0.186)	(0.055)	(0.414)	(0.050)	(0.383)	(0.184)
VOCHG					-0.748	0.270***	3.034***	0.249***	-0.294	-0.186***	1.106**	1.424***
					(0.536)	(0.052)	(0.187)	(0.049)	(0.374)	(0.053)	(0.461)	(0.200)
VOCUNI	0.598	0.399***	2.026***	0.282								
	(0.645)	(0.085)	(0.072)	(0.638)								
UNIV					-1.003	0.466***	5.300***	-0.151*	-0.352	-0.080	4.393***	3.439***
					(1.022)	(0.074)	(0.182)	(0.085)	(0.421)	(0.057)	(0.333)	(0.164)
HHSIZE	0.095*	-0.029***	-0.143***	-0.053	0.015	-0.013	-0.062***	-0.027***	-0.044	0.026***	0.068*	0.088***
	(0.056)	(0.010)	(0.011)	(0.085)	(0.057)	(0.008)	(0.020)	(0.008)	(0.062)	(0.008)	(0.037)	(0.021)
Period Dummies												
Yr2005	0.522	0.271***	0.137**	-0.559	1.341***	0.161***	0.213**	0.111**	0.503*	0.155***	0.067	-0.091
	(0.571)	(0.059)	(0.055)	(0.509)	(0.466)	(0.046)	(0.086)	(0.046)	(0.304)	(0.044)	(0.172)	(0.114)
Yr2006	1.395***	0.280***	0.312***	-0.099	1.266***	-0.044	0.219***	0.175***	-0.287	0.053	0.076	-0.066
	(0.508)	(0.060)	(0.053)	(0.453)	(0.473)	(0.048)	(0.085)	(0.046)	(0.361)	(0.045)	(0.171)	(0.112)
Residential Area												

Table K.2 Continued

URB	0.302	0.702***	0.444***	-0.118	-0.285	0.506***	0.474***	0.230***	0.211	0.328***	0.306	0.238*
	(0.378)	(0.053)	(0.046)	(0.399)	(0.310)	(0.045)	(0.089)	(0.041)	(0.305)	(0.043)	(0.196)	(0.123)
Constant	-7.890***	-2.436***	-2.604***	-5.398***	-6.969***	-2.347***	-6.318***	-1.874***	-6.379***	-2.821***	-8.256***	-6.668***
	(0.703)	(0.090)	(0.091)	(0.653)	(0.577)	(0.069)	(0.221)	(0.065)	(0.465)	(0.064)	(0.417)	(0.222)
Observations	*18,117*	*18,117*	*18,117*	*18,117*	*28,648*	*28,648*	*28,648*	*28,648*	*43,294*	*43,294*	*43,294*	*43,294*
Log Lik	*-13449*	*-13449*	*-13449*	*-13449*	*-22871*	*-22871*	*-22871*	*-22871*	*-15719*	*-15719*	*-15719*	*-15719*
LR test: Incremental Chi-sq(d.f)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

Reference : Age 18-19, Less than High school, Yr2004, Rural

Reference : Age 21-24, Less than High school,Yr2004, Rural

Reference : Less than High school,Yr2004, Rural

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

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Table K.3 Parameter Estimates from Multinomial Logit Model of Previous Labor Market States, Females

Female		**15-19**			**20-24**			**25-29**	
		Base EMP (t-1)			**Base EMP (t-1)**			**Base EMP (t-1)**	
EMP(t)	**INACT (t-1)**	**UNEMP(t-1)**	**INSCH(t-1)**	**INACT (t-1)**	**UNEMP(t-1)**	**INSCH(t-1)**	**INACT (t-1)**	**UNEMPt-1)**	**INSCH(t-1)**
Personal Characteristics									
A1517	0.420***	0.148	1.944***						
	(0.075)	(0.101)	(0.094)						
A20				0.139*	0.340***	1.117***			
				(0.080)	(0.083)	(0.115)			
HGSCH	0.491***	0.855***	2.398***	-0.119	0.921***	3.074***	-0.739***	0.256**	2.813***
	(0.120)	(0.135)	(0.108)	(0.090)	(0.091)	(0.234)	(0.100)	(0.126)	(0.698)
VOCHG				-0.277***	0.598***	2.535***	-0.919***	0.164	2.638***
				(0.096)	(0.099)	(0.248)	(0.114)	(0.140)	(0.740)
VOCUNI	0.269*	1.272***	2.655***						

Table K.3 Continued

	(0.149)	(0.134)	(0.120)						
UNIV				-0.959***	1.314***	5.087***	-2.069***	0.294***	4.682***
				(0.129)	(0.094)	(0.229)	(0.116)	(0.107)	(0.639)
HHSIZE	-0.025	-0.075***	-0.169***	-0.085***	0.030*	-0.015	-0.118***	0.041**	0.142***
	(0.015)	(0.022)	(0.019)	(0.016)	(0.016)	(0.026)	(0.018)	(0.021)	(0.052)
Period Dummies									
Yr2005	0.467***	0.094	0.194**	0.491***	0.010	-0.231**	0.336***	0.054	-0.108
	(0.092)	(0.107)	(0.091)	(0.084)	(0.077)	(0.099)	(0.084)	(0.100)	(0.228)
Yr2006	0.719***	-0.104	0.429***	0.553***	-0.053	-0.121	0.352***	0.086	0.088
	(0.089)	(0.111)	(0.088)	(0.083)	(0.078)	(0.096)	(0.084)	(0.098)	(0.214)
Residential Area									
URB	0.989***	1.809***	0.912***	0.864***	1.360***	0.365***	1.069***	1.706***	0.072
	(0.072)	(0.105)	(0.074)	(0.075)	(0.091)	(0.105)	(0.080)	(0.138)	(0.268)
Constant	-2.940***	-3.344***	-3.304***	-2.755***	-4.012***	-6.080***	-2.435***	-4.676***	-8.687***
	(0.132)	(0.180)	(0.155)	(0.122)	(0.138)	(0.267)	(0.127)	(0.188)	(0.715)
Observations	*9,591*	*9,591*	*9,591*	*15,116*	*15,116*	*15,116*	*15,565*	*15,565*	*15,565*
Log-Likelihood	*-7448*	*-7448*	*-7448*	*-9552*	*-9552*	*-9552*	*-6810*	*-6810*	*-6810*
LR test: Incremental Chi-sq(d.f)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Reference : Age 18-19, Less than High school, Yr2004, Rural			Reference : Age 21-24, Less than High school,Yr2004, Rural			Reference : Less than High school,Yr2004, Rural		
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1									

Table K.4a: Parameter Estimates from Logit Model Estimates of Being Employed Conditional on Being in the Risk Set

	UNRESTRICTED						RESTRICTED		
	Females			Males			Pooled		
	A15-19	A20-24	A25-29	A15-19	A20-24	A25-29	A15-19	A20-24	A25-29
Personal Characteristics									
Male							0.457***	0.432***	0.678***
							(0.027)	(0.025)	(0.029)
A1517	-0.001			0.218***			0.126***		
	(0.043)			(0.035)			(0.027)		
A20		0.054			-0.450***			-0.194***	
		(0.042)			(0.040)			(0.029)	
LIT	0.131	0.097	0.077	0.048	0.132	0.035	0.070	0.085	0.033
	(0.090)	(0.119)	(0.149)	(0.112)	(0.143)	(0.165)	(0.068)	(0.086)	(0.102)
PRI5	0.316***	0.236***	0.388***	0.228**	0.403***	0.404***	0.256***	0.297***	0.342***
	(0.088)	(0.077)	(0.084)	(0.111)	(0.121)	(0.133)	(0.067)	(0.064)	(0.068)
PRI8	0.768***	0.363***	0.328***	0.579***	0.331***	0.449***	0.644***	0.305***	0.369***
	(0.080)	(0.092)	(0.109)	(0.103)	(0.122)	(0.137)	(0.062)	(0.067)	(0.075)
HGSCH	-0.018	0.537***	0.521***	-0.213*	0.184	0.448***	-0.141**	0.286***	0.421***
	(0.093)	(0.085)	(0.096)	(0.109)	(0.122)	(0.136)	(0.068)	(0.066)	(0.073)
VOCHG	0.490***	0.543***	0.671***	0.349***	0.555***	0.672***	0.410***	0.523***	0.628***
	(0.100)	(0.088)	(0.102)	(0.113)	(0.124)	(0.137)	(0.071)	(0.068)	(0.075)
UNIV	1.003***	0.997***	1.236***	-0.142	0.380***	0.743***	0.427**	0.650***	0.940***
	(0.238)	(0.091)	(0.096)	(0.266)	(0.128)	(0.138)	(0.177)	(0.071)	(0.074)
Previous Labor Market States									
MILVOCUNI				0.072	-0.228***	-0.113	0.130	-0.270***	-0.279*
				(0.970)	(0.068)	(0.149)	(0.967)	(0.063)	(0.147)
MIL				2.371***	1.899***	1.230***	2.827***	2.997***	2.653***

Table K.4a Continued

				(0.323)	(0.075)	(0.141)	(0.317)	(0.046)	(0.128)
UNEMP	2.831***	2.720***	2.653***	1.432***	1.341***	0.912***	2.096***	2.465***	2.351***
	(0.065)	(0.051)	(0.061)	(0.075)	(0.072)	(0.074)	(0.043)	(0.038)	(0.042)
SCH	2.190***	2.431***	2.203***	1.981***	1.466***	0.647***	2.356***	2.412***	2.007***
	(0.056)	(0.066)	(0.116)	(0.075)	(0.083)	(0.117)	(0.042)	(0.049)	(0.080)
EMP	5.287***	5.291***	5.711***	4.460***	4.212***	4.083***	5.075***	5.246***	5.534***
	(0.050)	(0.040)	(0.043)	(0.076)	(0.072)	(0.073)	(0.039)	(0.035)	(0.037)
Period Dummies									
Yr2005	0.171***	0.120***	0.051	0.213***	0.199***	0.218***	0.191***	0.166***	0.154***
	(0.046)	(0.040)	(0.047)	(0.038)	(0.031)	(0.036)	(0.029)	(0.024)	(0.028)
Yr2006	0.313***	0.134***	0.049	0.290***	0.189***	0.114***	0.289***	0.163***	0.083***
	(0.048)	(0.040)	(0.047)	(0.039)	(0.032)	(0.035)	(0.030)	(0.025)	(0.028)
Residential Area									
URB	-0.434***	-0.561***	-0.593***	0.062*	0.154***	0.071**	-0.140***	-0.113***	-0.201***
	(0.039)	(0.037)	(0.044)	(0.032)	(0.028)	(0.033)	(0.025)	(0.022)	(0.026)
Constant	-3.500***	-3.491***	-3.649***	-2.695***	-2.303***	-1.916***	-3.543***	-3.611***	-3.744***
	(0.086)	(0.080)	(0.087)	(0.125)	(0.138)	(0.150)	(0.067)	(0.067)	(0.071)
Observations	*39,431*	*56,991*	*58,647*	*29,098*	*41,720*	*52,451*	*68,529*	*98,711*	*111,098*
Log-Likelihood w/o covariates	*-21960*	*-33043*	*-33975*	*-19179*	*-25772*	*-23977*	*-46345*	*-67849*	*-76780*
Log-Likelihood	*-10209*	*-13760*	*-10972*	*-13162*	*-18599*	*-16235*	*-23603*	*-32673*	*-27475*
LR test: Incremental Chi-sq(d.f)	*23504*	*38566*	*46006*	*12034*	*14346*	*15485*	*45484*	*70353*	*98611*

Note: (Employed= 1 if an individual is employed, =0 else; we only include the individuals who are in the risk set)
Reference for 15-19 year-old females: age 18-19, illiterates, inactive, yr2004, rural
Reference for 20-24 year-old females: age 20, illiterates, inactive, yr2004, rural
Reference for 25-29 year-old females:illiterates, inactive, yr2004, rural
Reference for 15-19 year-old males: age 18-19, illiterates, inactive, yr2004, rural
Reference for 20-24 year-old males: age 20, illiterates, inactive, yr2004, rural
Reference for 25-29 year-old males:illiterates, inactive, yr2004, rural

Table K.4b: Parameter Estimates from Logit Model Estimates of Being Employed Conditional on Being in the Risk Set

	UNRESTRICTED						RESTRICTED		
	Females			Males			Pooled		
	A15-19	A20-24	A25-29	A15-19	A20-24	A25-29	A15-19	A20-24	A25-29
Personal Characteristics									
Male							0.468***	0.441***	0.683***
							(0.027)	(0.025)	(0.029)
A1517	0.005			0.230***			0.136***		
	(0.043)			(0.035)			(0.027)		
A20		0.048			-0.428***			-0.184***	
		(0.042)			(0.041)			(0.029)	
LIT	0.112	0.104	0.102	0.001	0.137	0.025	0.028	0.080	0.012
	(0.090)	(0.119)	(0.149)	(0.112)	(0.143)	(0.165)	(0.068)	(0.086)	(0.102)
PRI5	0.270***	0.274***	0.464***	0.134	0.305**	0.307**	0.166**	0.244***	0.276***
	(0.090)	(0.079)	(0.086)	(0.112)	(0.121)	(0.134)	(0.068)	(0.064)	(0.069)
PRI8	0.712***	0.414***	0.421***	0.444***	0.198	0.332**	0.528***	0.235***	0.292***
	(0.083)	(0.095)	(0.111)	(0.104)	(0.123)	(0.137)	(0.063)	(0.068)	(0.076)
HGSCH	-0.083	0.592***	0.630***	-0.362***	0.038	0.318**	-0.272***	0.211***	0.334***
	(0.097)	(0.088)	(0.100)	(0.110)	(0.123)	(0.136)	(0.069)	(0.068)	(0.074)
VOCHG	0.424***	0.601***	0.784***	0.177	0.391***	0.530***	0.266***	0.441***	0.537***
	(0.104)	(0.091)	(0.105)	(0.115)	(0.125)	(0.138)	(0.073)	(0.070)	(0.076)
UNIV	0.929***	1.059***	1.363***	-0.306	0.199	0.554***	0.281	0.561***	0.830***
	(0.240)	(0.094)	(0.101)	(0.268)	(0.129)	(0.139)	(0.178)	(0.073)	(0.076)
HHSIZE	-0.019**	0.018**	0.038***	-0.052***	-0.054***	-0.073***	-0.042***	-0.026***	-0.035***
	(0.008)	(0.007)	(0.009)	(0.006)	(0.005)	(0.006)	(0.005)	(0.004)	(0.005)
Previous Labor Market States									
MILVOCUNI				0.154	-0.216***	-0.110	0.189	-0.267***	-0.280*

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Table K.4b Continued

				(0.971)	(0.068)	(0.150)	(0.967)	(0.063)	(0.147)
MIL				2.333***	1.855***	1.201***	2.804***	2.999***	2.672***
				(0.323)	(0.075)	(0.141)	(0.317)	(0.046)	(0.128)
UNEMP	2.829***	2.714***	2.640***	1.426***	1.312***	0.881***	2.096***	2.475***	2.367***
	(0.065)	(0.051)	(0.061)	(0.075)	(0.072)	(0.074)	(0.043)	(0.038)	(0.042)
SCH	2.186***	2.428***	2.180***	1.959***	1.425***	0.623***	2.344***	2.416***	2.027***
	(0.056)	(0.066)	(0.116)	(0.075)	(0.083)	(0.117)	(0.042)	(0.049)	(0.080)
EMP	5.284***	5.290***	5.708***	4.454***	4.181***	4.038***	5.073***	5.251***	5.541***
	(0.050)	(0.040)	(0.043)	(0.076)	(0.072)	(0.074)	(0.039)	(0.035)	(0.037)
Period Dummies									
Yr2005	0.170***	0.122***	0.052	0.209***	0.197***	0.219***	0.188***	0.165***	0.154***
	(0.046)	(0.040)	(0.047)	(0.038)	(0.031)	(0.036)	(0.029)	(0.024)	(0.028)
Yr2006	0.311***	0.135***	0.049	0.288***	0.183***	0.115***	0.286***	0.160***	0.083***
	(0.048)	(0.040)	(0.047)	(0.039)	(0.032)	(0.036)	(0.030)	(0.025)	(0.028)
Residential Area									
URB	-0.442***	-0.549***	-0.558***	-0.442***	-0.549***	-0.558***	-0.163***	-0.130***	-0.237***
	(0.039)	(0.037)	(0.045)	(0.039)	(0.037)	(0.045)	(0.025)	(0.023)	(0.027)
Constant	-3.332***	-3.631***	-3.931***	-3.332***	-3.631***	-3.931***	-3.182***	-3.411***	-3.489***
	(0.112)	(0.100)	(0.111)	(0.112)	(0.100)	(0.111)	(0.079)	(0.075)	(0.080)
Observations	*39,431*	*56,991*	*58,647*	*29,098*	*41,720*	*52,451*	*68,529*	*98,711*	*111,098*
Log-Likelihood	*-10206*	*-13757*	*-10963*	*-13128*	*-18550*	*-16159*	*-23568*	*-32656*	*-27451*
LR test: Incremental Chi-sq(d.f)	*23509*	*38572*	*46023*	*12101*	*14446*	*15636*	*45554*	*70388*	*98659*

Note: (Employed= 1 if an individual is employed, =0 else; we only include the individuals who are in the risk set)
Reference for 15-19 year-old females: age 18-19, illiterates, inactive, yr2004, rural
Reference for 20-24 year-old females: age 20, illiterates, inactive, yr2004, rural
Reference for 25-29 year-old females:illiterates, inactive, yr2004, rural
Reference for 15-19 year-old males: age 18-19, illiterates, inactive, yr2004, rural
Reference for 20-24 year-old males: age 20, illiterates, inactive, yr2004, rural Reference for 25-29 year-old males:illiterates, inactive, yr2004, rural

Table K.5 Parameter Estimates from from Logit Model Estimates of Being Employed Conditional on Being in the Risk Set, Unrestricted Model with Male Interaction Dummies

VARIABLES	A15-19	A20-24	A25-29
Personal Characteristics			
MALE	0.806***	1.188***	1.733***
	(0.152)	(0.160)	(0.173)
A1517	-0.001		
	(0.043)		
A1517_male	0.218***		
	(0.055)		
A20		0.054	
		(0.042)	
A20_male		-0.505***	
		(0.058)	
LIT	0.131	0.097	0.077
	(0.090)	(0.119)	(0.149)
LIT_male	-0.083	0.035	-0.042
	(0.144)	(0.186)	(0.222)
PRI5	0.316***	0.236***	0.388***
	(0.088)	(0.077)	(0.084)
PRI5_male	-0.088	0.167	0.016
	(0.142)	(0.143)	(0.158)
PRI8	0.768***	0.363***	0.328***
	(0.080)	(0.092)	(0.109)
PRI8_male	-0.189	-0.033	0.121
	(0.131)	(0.153)	(0.175)
HGSCH	-0.018	0.537***	0.521***
	(0.093)	(0.085)	(0.096)
HGSCH_male	-0.195	-0.354**	-0.073
	(0.143)	(0.148)	(0.166)
VOCHG	0.490***	0.543***	0.671***
	(0.100)	(0.088)	(0.102)
VOCHG_male	-0.141	0.011	0.001
	(0.151)	(0.152)	(0.171)
UNIV	1.003***	0.997***	1.236***
	(0.238)	(0.091)	(0.096)
UNIV_male	-1.144***	-0.617***	-0.493***
	(0.357)	(0.157)	(0.168)
Previous Labor Market States			
MIL	2.371***	1.899***	1.230***
	(0.323)	(0.075)	(0.141)
VOCUNIMIL	0.072	-0.228***	-0.113
	(0.970)	(0.068)	(0.149)
UNEMP	2.831***	2.720***	2.653***
	(0.065)	(0.051)	(0.061)
UNEMP_male	-1.399***	-1.379***	-1.741***
	(0.099)	(0.088)	(0.096)
INSCH	2.190***	2.431***	2.203***
	(0.056)	(0.066)	(0.116)

Table K.5 Continued

INSCH_male	-0.209**	-0.965***	-1.556***
	(0.094)	(0.106)	(0.165)
EMP	5.287***	5.291***	5.711***
	(0.050)	(0.040)	(0.043)
EMP_male	-0.827***	-1.079***	-1.628***
	(0.091)	(0.083)	(0.085)
Period Dummies			
Yr2005	0.171***	0.120***	0.051
	(0.046)	(0.040)	(0.047)
Yr2005_male	0.042	0.079	0.167***
	(0.060)	(0.050)	(0.059)
Yr2006	0.313***	0.134***	0.049
	(0.048)	(0.040)	(0.047)
Yr2006_male	-0.023	0.055	0.065
	(0.062)	(0.051)	(0.059)
Residential Area			
URB	-0.434***	-0.561***	-0.593***
	(0.039)	(0.037)	(0.044)
URB_male	0.496***	0.714***	0.664***
	(0.051)	(0.046)	(0.055)
Constant	-3.500***	-3.491***	-3.649***
	(0.086)	(0.080)	(0.087)
Observations	*68,529*	*98,711*	*111,098*
Log-Likelihood	*-23371*	*-32360*	*-27206*
LR test: Incremental Chi-sq(d.f)	*45948*	*70980*	*99149*

Table K.6a: Parameter Estimates from Logit Model of Being a Wage Worker Conditional on Being Employed

	UNRESTRICTED						RESTRICTED		
	Females			Males			Pooled		
	A15-19	**A20-24**	**A25-29**	**A15-19**	**A20-24**	**A25-29**	**A15-19**	**A20-24**	**A25-29**
Personal Characteristics									
Male							-0.464***	-0.498***	-0.330***
							(0.064)	(0.066)	(0.065)
A1517	-0.380***			-0.075			-0.165**		
	(0.126)			(0.076)			(0.065)		
A20		0.134			-0.094			-0.043	
		(0.139)			(0.090)			(0.073)	
LIT	-0.637**	-0.048	0.936	0.197	-0.580*	-0.535	-0.202	-0.166	-0.010
	(0.313)	(0.439)	(0.583)	(0.298)	(0.335)	(0.342)	(0.208)	(0.239)	(0.262)
PRI5	-0.267	-0.094	0.246	0.487	-0.334	-0.021	0.118	0.015	0.298
	(0.316)	(0.301)	(0.342)	(0.298)	(0.292)	(0.281)	(0.208)	(0.190)	(0.190)
PRI8	0.072	0.254	0.231	0.614**	-0.385	-0.078	0.321*	0.086	0.326
	(0.282)	(0.334)	(0.387)	(0.277)	(0.294)	(0.287)	(0.190)	(0.195)	(0.201)
HGSCH	0.277	0.720**	0.877**	0.145	-0.523*	-0.222	0.029	0.084	0.316
	(0.314)	(0.322)	(0.375)	(0.286)	(0.295)	(0.285)	(0.200)	(0.195)	(0.197)
VOCHG	0.900***	1.085***	0.963**	0.736**	0.015	0.152	0.608***	0.638***	0.650***
	(0.339)	(0.343)	(0.393)	(0.292)	(0.300)	(0.287)	(0.208)	(0.201)	(0.200)
UNIV	0.728	1.155***	1.303***	0.167	-0.035	0.341	0.308	0.662***	0.931***
	(0.670)	(0.344)	(0.381)	(0.512)	(0.306)	(0.290)	(0.388)	(0.206)	(0.201)
Previous Labor Market States									
MILVOCUNI					-0.223*	-0.203		-0.431***	-0.321
					(0.125)	(0.262)		(0.120)	(0.260)

Table K.6a Continued

MIL				2.214***	0.274*	0.908***	1.914**	0.284***	0.666***
				(0.769)	(0.149)	(0.247)	(0.765)	(0.097)	(0.225)
UNEMP	2.389***	1.666***	1.864***	1.900***	1.331***	1.503***	1.628***	1.364***	1.381***
	(0.324)	(0.187)	(0.218)	(0.164)	(0.151)	(0.139)	(0.113)	(0.095)	(0.090)
SCH	-0.690***	0.263	0.510	0.263*	0.342**	0.593***	-0.228**	0.275**	0.405**
	(0.133)	(0.194)	(0.348)	(0.151)	(0.167)	(0.219)	(0.091)	(0.110)	(0.171)
WW	3.340***	3.481***	4.159***	3.580***	3.186***	3.461***	3.251***	3.233***	3.375***
	(0.211)	(0.169)	(0.194)	(0.170)	(0.154)	(0.136)	(0.115)	(0.097)	(0.085)
NWW	-5.775***	-6.099***	-5.895***	-4.348***	-4.345***	-3.873***	-5.043***	-4.830***	-4.369***
	(0.206)	(0.217)	(0.215)	(0.178)	(0.158)	(0.140)	(0.118)	(0.099)	(0.086)
Period Dummies									
Yr2005	-0.097	-0.114	0.048	-0.044	0.031	-0.155**	-0.060	0.004	-0.127**
	(0.138)	(0.140)	(0.149)	(0.080)	(0.063)	(0.066)	(0.068)	(0.057)	(0.060)
Yr2006	0.011	-0.163	0.191	0.155*	-0.010	0.069	0.114*	-0.035	0.091
	(0.136)	(0.138)	(0.149)	(0.080)	(0.063)	(0.067)	(0.068)	(0.057)	(0.061)
Residential Area									
URB	2.417***	1.242***	1.195***	1.427***	1.020***	0.680***	1.716***	1.113***	0.862***
	(0.114)	(0.112)	(0.124)	(0.064)	(0.053)	(0.058)	(0.055)	(0.048)	(0.052)
Constant	0.508*	0.293	-0.444	-0.849***	0.432	-0.029	0.210	0.446**	-0.073
	(0.303)	(0.313)	(0.360)	(0.314)	(0.321)	(0.306)	(0.200)	(0.198)	(0.199)
Observations	*9,666*	*15,191*	*15,604*	*18,320*	*28,857*	*43,493*	*27,986*	*44,048*	*59,097*
Log-Likelihood w/o covariates	*-6698*	*-5572*	*-5941*	*-12065*	*-18160*	*-26810*			
Log-Likelihood	*-1279*	*-1319*	*-1091*	*-3530*	*-5572*	*-5941*	*-4890*	*-6983*	*-7162*
LR test: Incremental Chi-sq(d.f)	*10838*	*17568*	*18625*	*17068*	*25174*	*41737*	*28123*	*42710*	*60420*

Reference for 15-19 year-old females: age 18-19, illiterates, inactive, yr2004, rural
Reference for 20-24 year-old females: age 20, illiterates, inactive, yr2004, rural
Reference for 25-29 year-old females:illiterates, inactive, yr2004, rural

Reference for 15-19 year-old males: age 18-19, illiterates, inactive, yr2004, rural
Reference for 20-24 year-old males: age 20, illiterates, inactive, yr2004, rural
Reference for 25-29 year-old males:illiterates, inactive, yr2004, rural

Table K.6b: Parameter Estimates from Logit Model of Being a Wage Worker Conditional on Being Employed

	UNRESTRICTED						**RESTRICTED**		
	Females			**Males**			**Pooled**		
	A15-19	**A20-24**	**A25-29**	**A15-19**	**A20-24**	**A25-29**	**A15-19**	**A20-24**	**A25-29**
Personal Characteristics									
Male							-0.445***	-0.485***	-0.319***
							(0.065)	(0.066)	(0.065)
A1517	-0.362***			-0.052			-0.141**		
	(0.127)			(0.076)			(0.065)		
A20		0.144			-0.074			-0.024	
		(0.140)			(0.090)			(0.074)	
LIT	-0.711**	-0.051	0.883	0.088	-0.546	-0.601*	-0.297	-0.152	-0.090
	(0.317)	(0.439)	(0.580)	(0.294)	(0.333)	(0.337)	(0.209)	(0.239)	(0.262)
PRI5	-0.440	-0.140	0.021	0.228	-0.427	-0.181	-0.126	-0.079	0.102
	(0.324)	(0.308)	(0.352)	(0.294)	(0.291)	(0.276)	(0.210)	(0.191)	(0.191)
PRI8	-0.128	0.196	-0.021	0.258	-0.505*	-0.264	0.007	-0.033	0.102
	(0.293)	(0.344)	(0.398)	(0.274)	(0.294)	(0.282)	(0.194)	(0.197)	(0.201)
HGSCH	0.040	0.661**	0.607	-0.251	-0.656**	-0.439	-0.325	-0.045	0.060
	(0.327)	(0.332)	(0.387)	(0.284)	(0.294)	(0.281)	(0.205)	(0.196)	(0.198)
VOCHG	0.667*	1.026***	0.699*	0.300	-0.131	-0.065	0.226	0.501**	0.394*
	(0.351)	(0.353)	(0.404)	(0.291)	(0.300)	(0.283)	(0.212)	(0.203)	(0.202)
UNIV	0.449	1.084***	0.967**	-0.233	-0.200	0.061	-0.084	0.507**	0.610***

Table K.6b Continued

	(0.679)	(0.358)	(0.399)	(0.514)	(0.306)	(0.287)	(0.392)	(0.208)	(0.204)
HHSIZE	-0.073***	-0.019	-0.091***	-0.136***	-0.052***	-0.096***	-0.121***	-0.045***	-0.098***
	(0.025)	(0.027)	(0.032)	(0.014)	(0.011)	(0.011)	(0.012)	(0.010)	(0.010)
Previous Labor Market States									
MILVOCUNI					-0.214*	-0.228		-0.427***	-0.346
					(0.125)	(0.263)		(0.120)	(0.261)
MIL				2.161***	0.266*	0.945***	1.889**	0.287***	0.729***
				(0.775)	(0.149)	(0.248)	(0.771)	(0.097)	(0.226)
UNEMP	2.348***	1.673***	1.913***	1.889***	1.330***	1.518***	1.622***	1.373***	1.422***
	(0.324)	(0.187)	(0.220)	(0.166)	(0.151)	(0.140)	(0.114)	(0.095)	(0.091)
SCH	-0.710***	0.265	0.564	0.195	0.330**	0.602***	-0.276***	0.274**	0.445***
	(0.134)	(0.194)	(0.349)	(0.153)	(0.168)	(0.220)	(0.092)	(0.111)	(0.172)
WW	3.324***	3.482***	4.161***	3.560***	3.177***	3.443***	3.240***	3.235***	3.381***
	(0.212)	(0.169)	(0.194)	(0.172)	(0.155)	(0.137)	(0.115)	(0.097)	(0.086)
NWW	-5.768***	-6.087***	-5.842***	-4.377***	-4.328***	-3.866***	-5.055***	-4.806***	-4.330***
	(0.206)	(0.218)	(0.216)	(0.179)	(0.158)	(0.140)	(0.118)	(0.099)	(0.087)
Period Dummies									
Yr2005	-0.097	-0.113	0.044	-0.047	0.031	-0.150**	-0.063	0.004	-0.123**
	(0.138)	(0.140)	(0.149)	(0.080)	(0.063)	(0.066)	(0.069)	(0.057)	(0.060)
Yr2006	-0.002	-0.163	0.198	0.156*	-0.012	0.078	0.108	-0.036	0.100
	(0.136)	(0.138)	(0.150)	(0.081)	(0.063)	(0.067)	(0.069)	(0.057)	(0.061)
Residential Area									
URB	2.402***	1.236***	1.132***	1.380***	0.998***	0.613***	1.680***	1.095***	0.793***
	(0.114)	(0.113)	(0.126)	(0.064)	(0.054)	(0.059)	(0.055)	(0.048)	(0.053)
Constant	1.117***	0.435	0.227	0.309	0.826**	0.648**	1.209***	0.780***	0.618***

Table K.6b Continued

	(0.372)	(0.374)	(0.431)	(0.332)	(0.330)	(0.312)	(0.226)	(0.212)	(0.212)
Observations	*9,666*	*15,191*	*15,604*	*18,320*	*28,857*	*43,493*	*27,986*	*44,048*	*59,097*
Log-Likelihood	*-1275*	*-1318*	*-1087*	*-3484*	*-5562*	*-5905*	*-4841*	*-6973*	*-7120*
LR test: Incremental Chi-sq(d.f)	*10846*	*17568*	*18633*	*17161*	*25196*	*41809*	*28221*	*42728*	*60505*

Reference for 15-19 year-old females: age 18-19, illiterates, inactive, yr2004, rural
Reference for 20-24 year-old females: age 20, illiterates, inactive, yr2004, rural
Reference for 25-29 year-old females:illiterates, inactive, yr2004, rural
Reference for 15-19 year-old males: age 18-19, illiterates, inactive, yr2004, rural
Reference for 20-24 year-old males: age 20, illiterates, inactive, yr2004, rural
Reference for 25-29 year-old males:illiterates, inactive, yr2004, rural

Table K.7: Paremeter Estimates from Logit Model of Being a Wage Worker Conditional on Being Employed, Unrestricted Model with Male Interaction Dummies

VARIABLES	**A15-19**	**A20-24**	**A25-29**
Personal Characteristics			
MALE	-1.357***	0.139	0.415
	(0.436)	(0.448)	(0.472)
A1517	-0.380***		
	(0.126)		
A1517_male	0.305**		
	(0.147)		
A20		0.134	
		(0.139)	
A20_male		-0.229	
		(0.166)	
LIT	-0.637**	-0.048	0.936

Table K.7 Continued

	(0.313)	(0.439)	(0.583)
LIT_male	0.834*	-0.533	-1.471**
	(0.433)	(0.552)	(0.676)
PRI5	-0.267	-0.094	0.246
	(0.316)	(0.301)	(0.342)
PRI5_male	0.754*	-0.240	-0.267
	(0.434)	(0.419)	(0.443)
PRI8	0.072	0.254	0.231
	(0.282)	(0.334)	(0.387)
PRI8_male	0.542	-0.638	-0.310
	(0.396)	(0.445)	(0.482)
HGSCH	0.277	0.720**	0.877**
	(0.314)	(0.322)	(0.375)
HGSCH_male	-0.132	-1.242***	-1.099**
	(0.425)	(0.436)	(0.471)
VOCHG	0.900***	1.085***	0.963**
	(0.339)	(0.343)	(0.393)
VOCHG_male	-0.163	-1.070**	-0.810*
	(0.447)	(0.455)	(0.486)
UNIV	0.728	1.155***	1.303***
	(0.670)	(0.344)	(0.381)
UNIV_male	-0.561	-1.190***	-0.962**
	(0.843)	(0.461)	(0.478)
Previous Labor Market States			
MIL	2.214***	0.274*	0.908***
	(0.769)	(0.149)	(0.247)
VOCUNIMIL		-0.223*	-0.203
		(0.125)	(0.262)
UNEMP	2.389***	1.666***	1.864***
	(0.324)	(0.187)	(0.218)
UNEMP_male	-0.489	-0.335	-0.361
	(0.363)	(0.240)	(0.258)
INSCH	-0.690***	0.263	0.510

380

Table K.7 Continued

	(0.133)	(0.194)	(0.348)
INSCH_male	0.954***	0.078	0.083
	(0.201)	(0.256)	(0.411)
WW	3.340***	3.481***	4.159***
	(0.211)	(0.169)	(0.194)
WW_male	0.240	-0.294	-0.698***
	(0.272)	(0.229)	(0.237)
NWW	-5.775***	-6.099***	-5.895***
	(0.206)	(0.217)	(0.215)
NWW_male	1.427***	1.754***	2.022***
	(0.272)	(0.268)	(0.256)
Period Dummies			
Yr2005	-0.097	-0.114	0.048
	(0.138)	(0.140)	(0.149)
Yr2005_male	0.054	0.145	-0.204
	(0.159)	(0.153)	(0.162)
Yr2006	0.011	-0.163	0.191
	(0.136)	(0.138)	(0.149)
Yr2006_male	0.144	0.153	-0.122
	(0.158)	(0.152)	(0.164)
Residential Area			
URB	2.417***	1.242***	1.195***
	(0.114)	(0.112)	(0.124)
URB_male	-0.990***	-0.222*	-0.515***
	(0.131)	(0.124)	(0.137)
Constant	0.508*	0.293	-0.444
	(0.303)	(0.313)	(0.360)
Observations	27,986	44,048	59,097
LR test: Incremental Chi-sq(d.f)	28286	42893	60680
Log-Likelihood	-4809	-6891	-7032

APPENDIX L

Table L.1: Years of Separation from School by Education Level

YSFS	PRI5	PRI8	MIDDLE_VOC	HGSCH	VOCHGH	UNI	TOTAL
1985	63	0	0	0	0	0	63
1986	440	0	0	0	0	0	440
1987	794	0	0	0	0	0	794
1988	786	0	15	0	0	0	801
1989	878	0	66	0	0	0	944
1990	817	0	121	0	0	0	938
1991	745	0	127	22	15	0	909
1992	807	0	133	85	91	0	1116
1993	771	0	185	138	139	2	1235
1994	648	0	179	167	177	8	1179
1995	654	0	243	191	156	35	1279
1996	667	0	279	225	221	69	1461
1997	480	0	231	234	229	106	1280
1998	215	13	195	193	229	127	972
1999	85	66	171	187	203	157	869
2000	37	193	123	198	222	213	986
2001	7	315	39	165	200	181	907
2002	3	343	18	192	187	265	1008
2003	2	365	7	196	188	262	1020
2004	4	467	3	270	180	302	1226
2005	6	583	3	239	178	307	1316
2006	4	597	4	318	169	321	1413
2007	7	700	2	490	235	332	1766
2008	6	443	1	285	127	444	1306
2009	0	40	0	24	7	102	173
Total	8926	4125	2145	3819	3153	3233	25401

Source: 2009 Modular HLFS

We learn from TURKSTAT that there may be individuals who got their diplomas from diplomas from open-education or distance education programs. Therefore, there are primary (5-year) school graduates whose YSFS are after 2001 although from formal schools, the last primary (5-year) school graduates and primary (8-year) school graduates’ diplomas were given 2001.

Table L.2 Timing of YSFS by Last Education Level of 15-34 Year-olds

	Pri5	*Pri8*	*HGSCH*	*VOCHG*	*UNI*	*Total*
			MALE			
Before	60	66	252	146	5	529
OnTime	2044	2897	1464	1492	1017	8914
Later	1385	409	317	243	586	2940
Total	***3489***	***3372***	***2033***	***1881***	***1608***	***12383***
			FEMALE			
Before	84	82	277	136	7	586
OnTime	3186	2511	1289	988	1136	9110
Later	2167	305	220	148	482	3322
Total	***5437***	***2898***	***1786***	***1272***	***1625***	***13018***
			TOTAL			
Before	144	148	529	282	12	1115
OnTime	5230	5408	2753	2480	2153	18024
Later	3552	714	537	391	1068	6262
Total	***8926***	***6270***	***3819***	***3153***	***3233***	***25401***

Source: 2009 Modular HLFS

For example, the graduation years from primary (8-year) schools of individuals who are in the age group 20-24 are between the years 1999 to 2003 (2009-20:1989+14=**2003** and 2009-24:1985+14=**1999**). By using this information, we categorize the 20-24 year-old primary (8-year) school graduates as 'LATER' if their YSFSs are after 2003.

APPENDIX M

Table M.1: Estimated Coefficients of Logit Models of Having Ever Worked

	ALL	PRI5	PRI8	VOCHG	HGHSCH	UNI
MALE	2.670***	5.683***	2.755***	2.405***	1.851***	0.557***
	(0.0472)	(0.303)	(0.0831)	(0.149)	(0.0919)	(0.139)
URB	-0.589***	-0.824***	-0.622***	0.0144	-0.302***	0.146
	(0.0402)	(0.0599)	(0.0742)	(0.159)	(0.108)	(0.190)
A2024	0.287***	0.367*	0.221	0.206	0.741***	0.856
	(0.0778)	(0.200)	(0.142)	(0.258)	(0.150)	(0.594)
A2529	0.619***	0.177	0.839***	0.702*	1.103***	1.186**
	(0.104)	(0.145)	(0.261)	(0.363)	(0.227)	(0.602)
A3034	0.958***	dropped	1.023***	0.626	1.954***	2.035***
	(0.132)		(0.317)	(0.442)	(0.292)	(0.637)
PRI8	0.305***					
	(0.0718)					
HGHSCH	0.137*					
	(0.0826)					
VOCHG	1.086***					
	(0.0922)					
UNI	2.054***					
	(0.126)					
1985	-0.413	0.277	dropped	dropped	dropped	dropped
	(0.331)	(0.520)				
1986	-0.541***	0.0397	dropped	dropped	dropped	dropped
	(0.201)	(0.445)				
1987	-0.401**	0.210	dropped	dropped	dropped	dropped
	(0.185)	(0.437)				
1988	-0.297	0.298	-0.219	dropped	dropped	dropped
	(0.186)	(0.438)	(0.773)			
1989	-0.560***	0.0344	-0.822*	dropped	dropped	dropped
	(0.180)	(0.436)	(0.463)			
1990	-0.475***	0.0924	-0.779*	dropped	dropped	dropped
	(0.176)	(0.434)	(0.430)			
1991	-0.282*	0.0907	-1.034**	0.153	-0.272	dropped
	(0.162)	(0.425)	(0.417)	(1.153)	(0.707)	
1992	-0.201	-0.204	-0.273	1.957**	0.252	dropped
	(0.150)	(0.423)	(0.432)	(0.809)	(0.562)	
1993	-0.131	0.00178	-0.301	0.0166	-0.750*	dropped
	(0.148)	(0.425)	(0.397)	(0.460)	(0.391)	
1994	-0.328**	-0.274	-0.518	0.283	-0.922**	dropped

Table M.1 Continued

	(0.146)	(0.426)	(0.362)	(0.456)	(0.371)	
1995	-0.145	-0.173	-0.272	0.783	-0.815**	-1.360
	(0.143)	(0.424)	(0.340)	(0.492)	(0.353)	(0.891)
1996	-0.112	-0.248	-0.598*	0.0200	-0.392	-0.605
	(0.136)	(0.417)	(0.332)	(0.381)	(0.327)	(0.881)
1997	0.0256	-0.363	-0.425	0.193	0.0648	-0.590
	(0.136)	(0.424)	(0.340)	(0.333)	(0.295)	(0.777)
1998	-0.0998	-0.653	-0.273	0.270	-0.218	0.702
	(0.146)	(0.442)	(0.327)	(0.337)	(0.291)	(1.126)
1999	0.0130	-1.038**	0.358	0.250	0.0241	-0.367
	(0.153)	(0.487)	(0.278)	(0.343)	(0.304)	(0.717)
2001	-0.0563	-0.964	-0.0346	0.513	-0.0878	-0.549
	(0.150)	(0.963)	(0.218)	(0.370)	(0.305)	(0.643)
2002	0.0166	dropped	0.115	0.192	0.0690	-0.501
	(0.148)		(0.217)	(0.378)	(0.313)	(0.599)
2003	-0.296**	-0.0642	-0.324	-0.260	-0.165	0.267
	(0.140)	(1.473)	(0.205)	(0.377)	(0.327)	(0.668)
2004	-0.169	0.203	-0.113	0.578	-0.458	-0.415
	(0.139)	(1.312)	(0.217)	(0.421)	(0.312)	(0.591)
2005	-0.274*	-1.248	-0.261	0.0536	-0.339	-0.356
	(0.141)	(1.270)	(0.231)	(0.407)	(0.318)	(0.593)
2006	-0.336**	dropped	-0.230	0.638	-0.617**	-0.763
	(0.141)		(0.234)	(0.421)	(0.308)	(0.572)
2007	-0.946***	0.0507	-0.756***	-0.117	-1.004***	-1.125**
	(0.140)	(1.460)	(0.232)	(0.410)	(0.304)	(0.562)
2008_9	-1.665***	-0.198	-1.137***	-0.917**	-1.559***	-2.077***
	(0.144)	(1.104)	(0.239)	(0.453)	(0.315)	(0.545)
Constant	0.214	0.616	0.469**	0.425	0.0261	1.724**
	(0.145)	(0.429)	(0.221)	(0.449)	(0.321)	(0.817)
Observations	25,401	8,919	6,270	3,153	3,819	3,223
Log-Likelihood w/o covariates	-13820	-5343	-3623	-1186	-2258	-945
Log-Likelihood	-10321	-3718	-2672	-952	-1755	-797
LR test: Incremental Chi-sq(d.f)	6997	3245	1901	467	1005	295
Pseudo R-sq	0.2532					

Note: For the case of Primary (5-year) school graduates and university graduates, although we use the same number of observations in the logit models of having ever worked and obtaining a first permanent job, in regression results, we have different number of observations since there are some observations that are dropped due to 'predicts success perfectly'. This is due to the fact that there are small numbers in these cells and there is not variation. The difference for the case of primary (5-year) school graduates is 4 observations while it is 8 observations for university graduates.
Reference for 'all' model: female, rural, age 15-19, primary (5-year) school graduates, yr2000
Reference for each education level models: female, rural, age 15-19, yr2000

Table M.2: Estimated Coefficients of Logit Models of Obtaining the First Permanent job

	ALL	PRI5	PRI8	VOCHG	HGHSCH	UNI
MALE	2.035***	2.779***	2.110***	1.701***	1.518***	0.609***
	(0.034)	(0.067)	(0.063)	(0.101)	(0.080)	(0.110)
URB	-0.413***	-0.627***	-0.412***	-0.145	-0.225**	0.200
	(0.035)	(0.054)	(0.065)	(0.128)	(0.097)	(0.153)
A2024	0.115*	0.058	0.156	0.052	0.654***	0.837
	(0.069)	(0.180)	(0.130)	(0.214)	(0.147)	(0.628)
A2529	0.478***	0.002	0.613***	0.459	1.163***	1.178*
	(0.092)	(0.130)	(0.221)	(0.292)	(0.208)	(0.632)
A3034	0.859***	dropped	0.808***	0.530	1.639***	2.013***
	(0.116)		(0.270)	(0.362)	(0.251)	(0.648)
PRI8	0.320***					
	(0.063)					
HGHSCH	0.259***					
	(0.074)					
VOCHG	0.975***					
	(0.079)					
UNI	1.938***					
	(0.108)					
1985	-0.265	0.036	dropped	dropped	dropped	dropped
	(0.307)	(0.490)				
1986	-0.221	-0.010	dropped	dropped	dropped	dropped
	(0.176)	(0.415)				
1987	-0.287*	-0.073	dropped	dropped	dropped	dropped
	(0.160)	(0.408)				
1988	-0.103	0.109	0.259	dropped	dropped	dropped
	(0.160)	(0.408)	(0.689)			
1989	-0.343**	-0.147	-0.140	dropped	dropped	dropped
	(0.155)	(0.407)	(0.407)			
1990	-0.271*	-0.104	-0.105	dropped	dropped	dropped
	(0.151)	(0.405)	(0.367)			
1991	-0.175	-0.173	-0.358	0.250	0.630	dropped
	(0.139)	(0.397)	(0.356)	(0.846)	(0.682)	
1992	-0.017	-0.280	0.214	1.535***	0.295	dropped
	(0.128)	(0.396)	(0.365)	(0.523)	(0.419)	
1993	0.079	-0.034	0.058	0.363	-0.216	dropped
	(0.126)	(0.397)	(0.330)	(0.380)	(0.332)	
1994	-0.052	-0.233	0.111	0.492	-0.364	-2.200**
	(0.125)	(0.399)	(0.306)	(0.370)	(0.315)	(0.895)
1995	0.067	-0.219	0.137	0.877**	-0.253	-0.959
	(0.121)	(0.396)	(0.281)	(0.389)	(0.302)	(0.698)
1996	0.066	-0.264	-0.221	0.485	-0.118	-0.483

Table M.2 Continued

	(0.115)	(0.390)	(0.273)	(0.315)	(0.278)	(0.622)
1997	0.208*	-0.347	-0.031	0.679**	0.174	-0.784
	(0.115)	(0.396)	(0.280)	(0.270)	(0.250)	(0.505)
1998	0.212*	-0.312	0.199	0.509**	-0.073	0.426
	(0.124)	(0.412)	(0.274)	(0.259)	(0.250)	(0.679)
1999	0.128	-0.707	0.375*	0.366	0.013	-0.490
	(0.127)	(0.457)	(0.227)	(0.259)	(0.255)	(0.475)
2001	0.140	-2.203*	0.094	0.776***	0.155	-0.198
	(0.125)	(1.273)	(0.186)	(0.284)	(0.265)	(0.468)
2002	0.001	dropped	-0.017	0.515*	0.191	-0.634
	(0.121)		(0.184)	(0.297)	(0.269)	(0.406)
2003	-0.007	0.417	0.006	0.157	0.090	0.074
	(0.120)	(1.464)	(0.180)	(0.304)	(0.286)	(0.442)
2004	-0.010	0.783	0.089	0.539*	-0.213	-0.218
	(0.117)	(1.272)	(0.188)	(0.324)	(0.272)	(0.413)
2005	-0.211*	-1.272	-0.054	0.186	-0.423	-0.277
	(0.118)	(1.062)	(0.201)	(0.320)	(0.276)	(0.410)
2006	-0.401***	-0.273	-0.147	0.220	-0.637**	-0.720*
	(0.118)	(1.448)	(0.204)	(0.323)	(0.269)	(0.395)
2007	-0.890***	-0.458	-0.666***	-0.268	-0.928***	-0.821**
	(0.118)	(1.103)	(0.203)	(0.322)	(0.266)	(0.394)
2008_9	-1.560***	-1.715	-1.034***	-0.839**	-1.271***	-1.962***
	(0.122)	(1.138)	(0.211)	(0.361)	(0.279)	(0.378)
Constant	-0.466***	0.180	-0.324*	0.026	-0.591**	0.834
	(0.123)	(0.400)	(0.194)	(0.356)	(0.284)	(0.738)
Observations	25,401	8,923	6,270	3,153	3,819	3,231
Log-Likelihood w/o covariates	-16178	-5987	-4160	-1622	-2527	-1370
Log-Likelihood	-12772	-4611	-3312	-1376	-2031	-1153
LR test: Incremental Chi-sq(d.f)	6812	2748	1697	491.8	993.4	433
Pseudo R-sq	0.2105					

Note: For the case of Primary (5-year) school graduates and university graduates, although we use the same number of observations in the logit models of having ever worked and obtaining a first permanent job, in regression results, we have different number of observations since there are some observations that are dropped due to ‘predicts success perfectly’. This is due to the fact that there are small numbers in these cells and there is not variation. The difference for the case of primary (5-year) school graduates is 4 observations while it is 8 observations for university graduates.
Reference for ‘all’ model: female, rural, age 15-19, primary (5-year) school graduates, yr2000
Reference for each education level models: female, rural, age 15-19, yr2000

Table M.3: Estimated Coefficients of Logit Models of Obtaining First Permanent Paid job

	ALL	PRI5	PRI8	VOCHG	HGHSCH	UNI
MALE	1.439***	2.193***	1.686***	0.880***	0.801***	-0.040
	(0.029)	(0.052)	(0.060)	(0.082)	(0.071)	(0.091)
URB	0.840***	1.048***	1.002***	0.592***	0.626***	0.327**
	(0.033)	(0.057)	(0.063)	(0.098)	(0.087)	(0.127)
A2024	0.277***	0.031	0.340***	0.173	0.625***	0.734
	(0.065)	(0.176)	(0.128)	(0.197)	(0.149)	(0.622)
A2529	0.578***	0.062	0.607***	0.491*	0.931***	1.044*
	(0.085)	(0.127)	(0.199)	(0.256)	(0.196)	(0.625)
A3034	0.711***	dropped	0.639***	0.470	1.182***	1.464**
	(0.106)		(0.239)	(0.308)	(0.225)	(0.633)
PRI8	0.370***					
	(0.056)					
HGHSCH	0.439***					
	(0.067)					
VOCHG	1.160***					
	(0.070)					
UNI	1.940***					
	(0.097)					
1985	-0.777**	-0.956*	dropped	dropped	dropped	dropped
	(0.332)	(0.516)				
1986	-0.210	-0.440	dropped	dropped	dropped	dropped
	(0.161)	(0.415)				
1987	-0.313**	-0.548	dropped	dropped	dropped	dropped
	(0.145)	(0.408)				
1988	-0.255*	-0.483	-1.088	dropped	dropped	dropped
	(0.144)	(0.408)	(0.675)			
1989	-0.313**	-0.555	-0.227	dropped	dropped	dropped
	(0.139)	(0.407)	(0.364)			
1990	-0.166	-0.418	0.008	dropped	dropped	dropped
	(0.135)	(0.405)	(0.316)			
1991	-0.090	-0.443	-0.142	0.183	0.982	dropped
	(0.125)	(0.397)	(0.311)	(0.645)	(0.597)	
1992	-0.074	-0.571	0.181	1.065***	-0.266	dropped
	(0.114)	(0.395)	(0.310)	(0.381)	(0.308)	
1993	-0.001	-0.364	0.125	0.267	-0.412	dropped
	(0.110)	(0.396)	(0.279)	(0.309)	(0.273)	
1994	-0.076	-0.501	-0.164	0.394	-0.120	-1.360*
	(0.110)	(0.398)	(0.261)	(0.299)	(0.265)	(0.758)
1995	0.071	-0.341	0.172	0.586*	-0.316	-0.975**
	(0.106)	(0.394)	(0.243)	(0.308)	(0.252)	(0.424)

Table M.3 Continued

1996	0.031	-0.492	0.090	0.342	-0.167	-0.504
	(0.100)	(0.390)	(0.238)	(0.262)	(0.232)	(0.360)
1997	0.101	-0.472	0.012	0.483**	-0.052	-0.206
	(0.100)	(0.397)	(0.242)	(0.223)	(0.207)	(0.331)
1998	0.030	-0.554	0.001	0.184	0.038	0.073
	(0.106)	(0.416)	(0.236)	(0.209)	(0.213)	(0.333)
1999	0.097	-0.835*	0.155	0.152	0.145	0.272
	(0.109)	(0.471)	(0.197)	(0.215)	(0.216)	(0.324)
2001	0.066	-1.548	-0.070	0.487**	0.185	0.024
	(0.108)	(1.237)	(0.172)	(0.227)	(0.225)	(0.289)
2002	0.104	dropped	-0.030	0.274	0.339	0.063
	(0.106)		(0.172)	(0.241)	(0.232)	(0.268)
2003	0.071	0.677	-0.134	0.225	0.147	0.495*
	(0.107)	(1.464)	(0.176)	(0.262)	(0.251)	(0.288)
2004	0.149	2.172*	0.170	0.620**	-0.150	0.209
	(0.104)	(1.297)	(0.179)	(0.277)	(0.240)	(0.269)
2005	-0.030	-0.902	-0.067	0.405	-0.295	0.338
	(0.105)	(1.090)	(0.192)	(0.275)	(0.244)	(0.274)
2006	-0.095	-1.042	0.075	0.364	-0.474**	-0.016
	(0.105)	(1.155)	(0.195)	(0.280)	(0.238)	(0.261)
2007	-0.484***	-1.125	-0.351*	-0.215	-0.638***	-0.198
	(0.106)	(0.919)	(0.196)	(0.278)	(0.238)	(0.259)
2008_9	-1.069***	dropped	-0.698***	-0.415	-1.018***	-1.094***
	(0.111)		(0.208)	(0.320)	(0.256)	(0.242)
Constant	-2.206***	-1.772***	-2.141***	-0.776**	-1.468***	0.142
	(0.112)	(0.401)	(0.190)	(0.308)	(0.258)	(0.670)
Observations	25,401	8,917	6,270	3,153	3,819	3,231
Log-Likelihood w/o covariates	-17606	-5882	-4282	-1955	-2647	-1671
Log-Likelihood	-14419	-4702	-3570	-1831	-2378	-1541
LR test: Incremental Chi-sq(d.f)	6373	2349	1423	248.4	538.6	258.4

Note: For Primary (5-year) school graduates, Although we use the same number of observations in the logit models of having ever worked and obtaining first permanent paid job, in regression results, we have different number of observations since there are some observations that are dropped due to 'predicts success perfectly'.
Reference for 'all' model: female, rural, age 15-19, primary (5-year) school graduates, yr2000
Reference for each education level models: female, rural, age 15-19, yr2000

APPENDIX N

Table N.1: Descriptive Statistics of Duration of Obtaining the first permanent Job by Gender and Education

		All		Ww		Nww	
		F	**M**	**F**	**M**	**F**	**M**
	mean	54	38	67	41	29	26
	p50 (Median)	34	19	50	21	1	3
Prim5	p10	0	0	4	1	0	0
	p75	83	57	96	59	35	32
	p90	140	118	151	120	95	99
	mean	27	22	29	23	14	18
	p50 (Median)	13	11	19	11	1	1
Prim8	p10	0	0	1	1	0	0
	p75	37	31	39	32	11	12
	p90	72	69	77	69	52	82
	mean	26	24	27	25	22	12
	p50 (Median)	14	11	15	12	2	1
High	p10	1	0	1	1	0	0
	p75	36	36	36	42	23	18
	p90	67	67	63	70	82	31
	mean	21	20	21	20	25	14
	p50 (Median)	10	9	10	9	1	1
Voc_High	p10	0	0	0	0	0	0
	p75	29	26	29	27	15	22
	p90	56	59	54	60	82	46

Table N.1 Continued

	mean	12	14	12	14	11	16
	p50 (Median)	7	8	7	8	1	2
Univ	p10	0	1	1	1	0	0
	p75	15	22	15	21	7	26
	p90	34	36	34	36	70	50
	mean	35	28	36	28	27	21
	p50 (Median)	15	11	19	12	1	1
Total	p10	0	0	1	1	0	0
	p75	48	36	49	37	34	23
	p90	96	81	96	82	86	72

Source: 2009 Modular HLFS

Note: Conditional on being succesful

APPENDIX O

Suppose we have a data set with n observations and k distinct failure event times. Cox estimation first proceeds by ordering the failure times, as:

$t_1 < \ t_2 < t_3 \ldots t_k$

For censored cases, we define δ_i to be 0 if the case is right-censored, and 1 if the case is uncensored. Finally, the ordered event times are modeled as a function of covariates. The partial likelihood function is derived by taking the product of the conditional probability of a failure at time t_i , given the number cases that are risk of failing at time t_i. If we define $R(t_i)$ to denote the number of cases that are at risk of experiencing an event at time t_i, that is, the 'risk set' then the probability that j^{th} case will fail at time T_i is given by

$$\Pr\left(t_j = T_i \middle| R(t_i)\right) = \frac{e^{\beta' x_i}}{\sum_{j \epsilon R(t_i)} e^{\beta' x_j}} \tag{1}$$

Where the summation operator in the denominator is summing over all individuals in the risk set. Taking the product of the conditional probabilities yields the partial likelihood function,

$$L_P = \prod_{i=1}^{K} \left[\frac{e^{\beta' x_i}}{\sum_{j \epsilon R(t_i)} e^{\beta' x_j}}\right]^{\delta_i} \tag{2}$$

With corresponding log-likelihood function,

$$log L_P = \sum_{i=1}^{K} \delta_i \left[\beta' x_i - log \sum_{j \epsilon R(t_i)} e^{\beta' x_j}\right] \tag{3}$$

By maximizing the log-likelihood, estimates of the β are obtained.

APPENDIX P

Table P.1**:** Test Results of the Proportional Hazards Assumption of the First Permanent Job, 12, 24 and 36 Months

	12 MONTHS				24 MONTHS					36 MONTHS			
	Model 1		**Model 2**		**Model 1**		**Model 2**			**Model 1**		**Model 2**	
Variables	rho	Prob>chi2	rho	Prob>chi2	rho	Prob>chi2	chi2	df	Prob>chi2	rho	Prob>chi2	rho	Prob>chi2
Personal Characteristics													
MALE	-0.01	0.52	-0.01	0.48	-0.03	0.06	-0.03		0.06	-0.05	0.00	-0.05	0.00
A20-24	0.03	0.04	0.04	0.04	0.02	0.17	0.02		0.17	0.01	0.41	0.01	0.42
A25-29	0.01	0.44	0.01	0.43	0.01	0.48	0.01		0.48	0.00	0.91	0.00	0.88
A30-34	0.01	0.55	0.01	0.54	0.01	0.57	0.01		0.57	0.00	1.00	0.00	0.97
YSFSs													
1985	0.02	0.30	0.02	0.30	0.01	0.50	0.01		0.50	0.01	0.35	0.01	0.35
1986	0.03	0.08	0.03	0.09	0.01	0.33	0.01		0.33	0.01	0.57	0.01	0.55
1987	-0.01	0.43	-0.01	0.44	0.00	0.98	0.00		0.96	0.03	0.05	0.03	0.05
1988	-0.03	0.09	-0.03	0.09	0.02	0.14	0.02		0.13	0.01	0.46	0.01	0.44
1989	0.04	0.03	0.04	0.03	0.01	0.45	0.01		0.43	0.01	0.58	0.01	0.54
1990	-0.02	0.36	-0.02	0.37	-0.01	0.74	0.00		0.76	0.01	0.60	0.01	0.57
1991	-0.01	0.76	-0.01	0.75	0.01	0.52	0.01		0.51	0.00	0.74	0.00	0.73
1992	0.01	0.49	0.01	0.50	0.02	0.13	0.02		0.12	0.03	0.04	0.03	0.04
1993	0.02	0.19	0.02	0.21	0.02	0.24	0.02		0.25	0.02	0.20	0.02	0.20
1994	0.02	0.20	0.02	0.20	0.03	0.05	0.03		0.05	0.03	0.05	0.03	0.05
1995	0.03	0.05	0.03	0.05	0.01	0.46	0.01		0.44	0.02	0.18	0.02	0.17
1996	0.02	0.22	0.02	0.22	0.01	0.34	0.01		0.33	0.00	0.92	0.00	0.95
1997	0.01	0.40	0.01	0.40	-0.01	0.62	-0.01		0.62	-0.01	0.66	-0.01	0.66
1998	0.02	0.21	0.02	0.21	0.00	0.83	0.00		0.83	0.00	0.89	0.00	0.89
1999	0.03	0.08	0.03	0.08	0.00	0.82	0.00		0.83	0.00	0.92	0.00	0.92
2001	0.03	0.09	0.03	0.09	0.00	0.88	0.00		0.86	0.00	0.81	0.00	0.80
2002	0.00	0.83	0.00	0.80	0.00	0.93	0.00		0.90	-0.01	0.69	-0.01	0.67

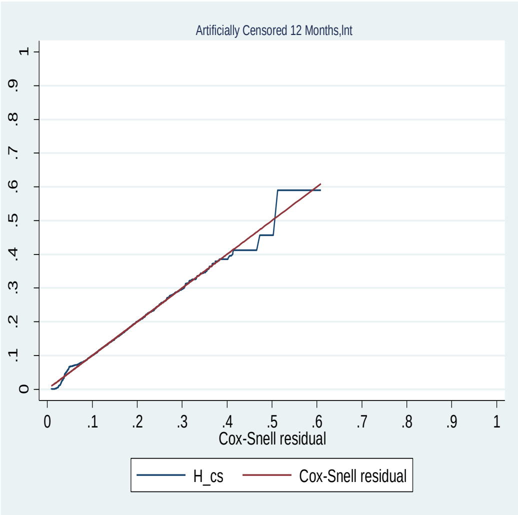
Table P.1 Continued

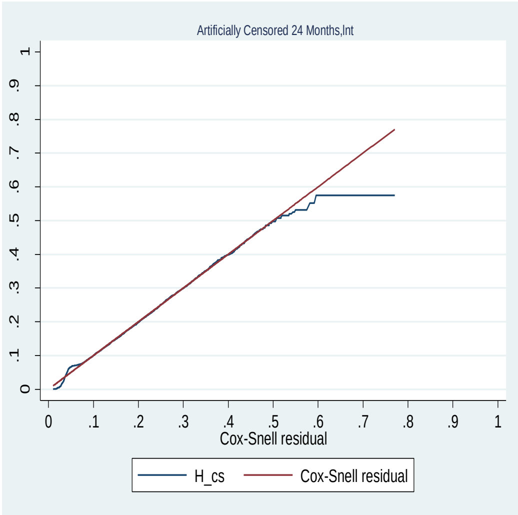
2003	0.03	0.12	0.03	0.12	0.00	0.80	0.00	0.81	-0.01	0.60	-0.01	0.58
2004	0.02	0.17	0.02	0.16	0.00	0.76	0.00	0.76	0.00	0.81	0.00	0.81
2005	0.00	0.79	0.00	0.81	-0.01	0.42	-0.01	0.42	-0.02	0.16	-0.02	0.16
2006	0.00	0.94	0.00	0.96	-0.01	0.48	-0.01	0.50	-0.04	0.01	-0.04	0.01
2007	0.00	0.82	0.00	0.79	-0.05	0.00	-0.05	0.00	-0.08	0.00	-0.08	0.00
2008-9	-0.05	0.01	-0.05	0.01	-0.07	0.00	-0.07	0.00	-0.08	0.00	-0.08	0.00
Parental Education												
Mother's Education												
MHG>=	0.00	1.00			0.00	0.81			-0.01	0.54		
FHG>=	-0.01	0.76			0.00	0.87			0.01	0.36		
MPRI5			-0.02	0.26			-0.01	0.61			-0.02	0.23
MPRI8			0.00	0.83			0.00	0.91			-0.01	0.51
MHGHSCH			0.01	0.65			0.01	0.54			0.00	0.86
MVOCHG			-0.01	0.48			-0.02	0.18			-0.02	0.27
MUNI			0.00	0.97			0.00	0.82			-0.01	0.52
Father's Education												
FPRI5			0.01	0.71			0.00	0.96			0.01	0.68
FPRI8			0.01	0.42			0.01	0.42			0.02	0.27
FHGHSCH			0.02	0.18			0.01	0.56			0.02	0.13
FVOCHG			-0.01	0.63			0.00	0.82			0.01	0.42
FUNI			-0.02	0.38			-0.01	0.33			0.00	0.76
global test	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table P.2: Test Results of the Proportional Hazards Assumption of the First Permanent Job, 48 and 60 Months

	48 MONTHS				60 MONTHS			
	Model 1		Model 2		Model 1		Model 2	
Variables	rho	Prob>chi2	rho	Prob>chi2	rho	Prob>chi2	rho	Prob>chi2
Personal Characteristics								
MALE	-0.06	0.00	-0.06	0.00	-0.06	0.00	-0.06	0.00
A20-24	0.01	0.42	0.01	0.42	0.01	0.47	0.01	0.47
A25-29	0.00	0.83	0.00	0.84	0.00	0.91	0.00	0.88
A30-34	0.01	0.68	0.01	0.71	0.00	0.79	0.00	0.83
YSFSs								
1985	0.03	0.04	0.03	0.04	0.02	0.15	0.02	0.15
1986	0.03	0.02	0.03	0.02	0.02	0.06	0.02	0.06
1987	0.02	0.22	0.02	0.21	0.03	0.04	0.03	0.03
1988	0.00	0.98	0.00	0.99	0.01	0.55	0.01	0.52
1989	0.00	0.98	0.00	0.95	0.02	0.24	0.02	0.21
1990	0.02	0.24	0.02	0.23	0.03	0.01	0.03	0.01
1991	0.02	0.24	0.02	0.24	0.03	0.04	0.03	0.04
1992	0.04	0.01	0.04	0.01	0.05	0.00	0.05	0.00
1993	0.02	0.08	0.02	0.09	0.03	0.01	0.03	0.01
1994	0.03	0.01	0.03	0.01	0.04	0.00	0.04	0.00
1995	0.01	0.27	0.02	0.26	0.03	0.01	0.04	0.01
1996	0.01	0.65	0.01	0.65	0.01	0.42	0.01	0.41
1997	-0.01	0.50	-0.01	0.48	0.00	0.96	0.00	0.94
1998	0.00	0.83	0.00	0.84	0.01	0.48	0.01	0.49
1999	-0.01	0.60	-0.01	0.60	0.02	0.20	0.02	0.20
2001	0.01	0.32	0.01	0.33	0.02	0.07	0.02	0.07
2002	0.01	0.61	0.01	0.62	0.03	0.02	0.03	0.02
2003	0.00	0.78	0.00	0.79	0.01	0.66	0.01	0.66
2004	0.01	0.54	0.01	0.53	0.00	0.88	0.00	0.86
2005	-0.03	0.04	-0.03	0.04	-0.04	0.01	-0.04	0.01
2006	-0.05	0.00	-0.05	0.00	-0.06	0.00	-0.06	0.00
2007	-0.08	0.00	-0.08	0.00	-0.08	0.00	-0.08	0.00
2008-9	-0.07	0.00	-0.07	0.00	-0.07	0.00	-0.07	0.00
Parental Education								
Mother's Education								
MHG>=	0.00	0.72			0.00	0.86		
FHG>=	0.01	0.28			0.02	0.15		
MPRI5			-0.02	0.09			-0.02	0.06
MPRI8			-0.01	0.29			-0.02	0.07
MHGHSCH			0.00	0.75			0.01	0.54
MVOCHG			-0.02	0.09			-0.03	0.04
MUNI			0.00	0.82			-0.01	0.52
Father's Education								
FPRI5			0.00	0.92			0.00	0.83
FPRI8			0.01	0.32			0.02	0.12
FHGHSCH			0.03	0.04			0.03	0.01
FVOCHG			0.01	0.40			0.01	0.36
FUNI			-0.01	0.67			0.00	0.80
global test	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

APPENDIX R

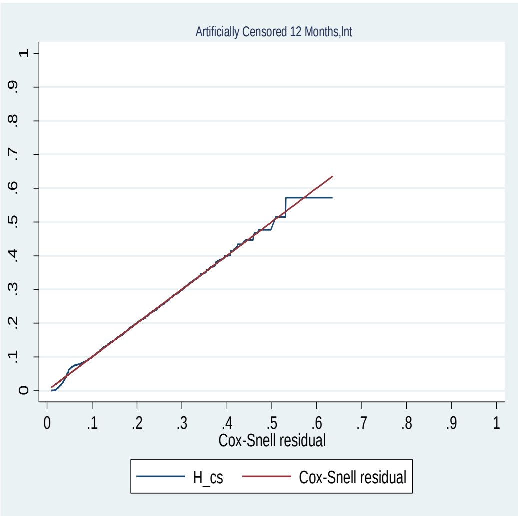


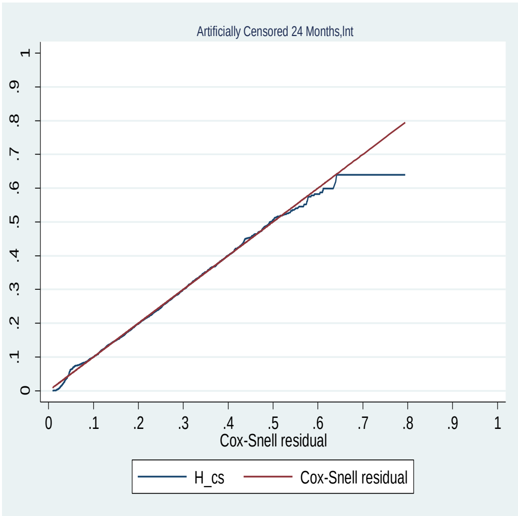


(a)12 Months (b)24 Months

Figure R.1: Cox-Snell Residuals of the Cox Proportional Model of First Permanent Job

Source: 2009 Moduler HLFS





(a)12 Months b)24 Months

Figure R.2: Cox-Snell Residuals of the Cox Proportional Model of First permanent Paid Job

Source: 2009 Moduler HLFS

APPENDIX S

Remember that:

$$h(t) = h_0(t)e^{X\beta}$$

We would like to get an estimate of the baseline hazard $h_0(t)$. Essentially, we estimate our model to obtain the coefficients in the β vector and then we estimate the components that make up $h_0(t)$.

Recall the following result:

$$H(t) = \ln(-S(t))$$

From this, we have:

$$S(t) = \exp(-H(t))$$

$$= \exp\left[-\int_0^t h_t dt\right]$$

$$= \exp\left[-\exp(X_i\beta)\int_0^t h_0(t)dt\right]$$

$$= \exp\left[-\int_0^t h_0(t)dt\right]^{\exp(X_i\beta)}$$

.

$$= \exp[-(H(t))]^{\exp(X_i\beta)}$$

$= [S_0(t)]^{\exp(X_i\beta)}$ (**)

where $S_0(t)$ is the baseline survivor function.

It turns out that Equation (**) is very useful. After estimating our model, we know $\exp(X_i\beta)$. We can then use the data to estimate the survivor function, $S(t)$ - this was essentially the KM plot. Thus, from the data we know $S(t)$ and $\exp(X_i\beta)$. From here, we can get an estimate of the baseline survivor function, $S_0(t)$.

From the fact that we know $S(t)$ from the data, we also know $H(t)$. This is because $S(t) = e^{-H(t)}$

From here, we know that:

$$H(t) = \int_0^t \mathrm{h_t dt}$$

$$= \mathrm{e}^{(\mathrm{X_i}\beta)} \int_0^t \mathrm{h_t dt}$$

$$= \mathrm{e}^{(\mathrm{X_i}\beta)} \mathrm{H_0(t)}$$

Since we know $H(t)$ because we know $S(t)$, and we know $\exp(X_i \beta)$, we can estimate $H_0(t)$ and so get an estimate of the baseline cumulative hazard. Note also, that in deriving $H_0(t)$, we had the equation such that:

$$H(t) = \mathrm{e}^{(\mathrm{X_i}\beta)} \int_0^t \mathrm{h_0(t) dt}$$

One question that people sometimes have is whether the baseline hazard function from the Cox model is the same as the baseline hazard function from the Kaplan-Meier estimate we saw earlier. The confusion arises because we interpret the baseline hazard in the Cox model (and other PH models) as the hazard rate when all the covariates are 0 and because the Kaplan-Meier hazard rate is when we do not condition on any covariates. It would seem at first sight that these would be the same things. However, this is not the case, precisely because the baseline hazard from the Cox model uses the results from the Cox model (the βs) to get the estimate of the baseline hazard. In other words, the baseline hazard from the Cox model is *conditional* on the covariates. If we add covariates or remove covariates from the Cox model, the estimated baseline hazard will change. The Kaplan-Meier estimate of the baseline hazard on the other hand is not conditional on any covariates (If we estimate the cox model with no covariates, then we would have the same baseline hazard as the KM estimate).

APPENDIX T

Table T.1: Estimation Results of Cox Proportional Hazard Models of Obtaining First Permanent Job Stratified By Education, 12 Months

12 MONTHS	**T**		**T&Tsq**		**lnT**	
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Personal Characteristics						
MALE	0.195***	0.218***	0.195***	0.218***	0.195***	0.218***
	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)
A20-24	-0.034	-0.033	-0.052	-0.051	-0.030	-0.029
	(0.103)	(0.103)	(0.128)	(0.128)	(0.103)	(0.103)
A25-29	-0.030	-0.025	-0.036	-0.030	-0.028	-0.023
	(0.109)	(0.109)	(0.109)	(0.109)	(0.109)	(0.109)
A30-34	-0.251*	-0.242*	-0.256*	-0.246*	-0.249*	-0.240*
	(0.133)	(0.133)	(0.133)	(0.133)	(0.133)	(0.133)
YSFSs						
1985	-0.159	-0.138	-0.163	-0.141	-0.163	-0.141
	(0.513)	(0.513)	(0.513)	(0.513)	(0.513)	(0.513)
1986	-0.040	-0.020	-0.044	-0.023	-0.043	-0.023
	(0.200)	(0.200)	(0.200)	(0.200)	(0.200)	(0.200)
1987	-0.001	0.010	-0.005	0.006	-0.005	0.006
	(0.167)	(0.167)	(0.167)	(0.167)	(0.167)	(0.167)
1988	-0.017	-0.004	-0.021	-0.008	-0.021	-0.008
	(0.164)	(0.164)	(0.164)	(0.164)	(0.164)	(0.164)
1989	-0.091	-0.085	-0.273	-0.265	-0.075	-0.067
	(0.205)	(0.206)	(0.277)	(0.277)	(0.206)	(0.206)
1990	0.215	0.230	0.211	0.226	0.211	0.226
	(0.148)	(0.148)	(0.148)	(0.148)	(0.148)	(0.148)
1991	0.177	0.190	0.175	0.187	0.174	0.187
	(0.139)	(0.139)	(0.139)	(0.139)	(0.139)	(0.139)
1992	0.009	0.020	0.007	0.018	0.007	0.018
	(0.128)	(0.129)	(0.128)	(0.129)	(0.128)	(0.129)
1993	0.153	0.169	0.151	0.167	0.151	0.167
	(0.120)	(0.120)	(0.120)	(0.120)	(0.120)	(0.120)
1994	0.119	0.122	0.117	0.119	0.117	0.120
	(0.121)	(0.121)	(0.121)	(0.121)	(0.121)	(0.121)
1995	-0.044	-0.040	0.029	0.034	0.000	0.004
	(0.154)	(0.154)	(0.204)	(0.204)	(0.152)	(0.153)
1996	0.226**	0.236**	0.225**	0.235**	0.225**	0.235**
	(0.107)	(0.107)	(0.107)	(0.107)	(0.107)	(0.107)
1997	0.230**	0.241**	0.229**	0.240**	0.229**	0.241**
	(0.105)	(0.105)	(0.105)	(0.105)	(0.105)	(0.105)
1998	0.090	0.097	0.089	0.096	0.090	0.096
	(0.113)	(0.113)	(0.113)	(0.113)	(0.113)	(0.113)
1999	0.012	0.013	0.011	0.013	0.012	0.013
	(0.116)	(0.116)	(0.116)	(0.116)	(0.116)	(0.116)
2001	0.035	0.034	0.035	0.034	0.035	0.034
	(0.114)	(0.114)	(0.114)	(0.114)	(0.114)	(0.114)

Table T.1 Continued

2002	-0.019	-0.022	-0.018	-0.021	-0.019	-0.022
	(0.114)	(0.114)	(0.114)	(0.114)	(0.114)	(0.114)
2003	-0.085	-0.090	-0.085	-0.089	-0.086	-0.091
	(0.120)	(0.120)	(0.120)	(0.120)	(0.120)	(0.120)
2004	-0.026	-0.030	-0.026	-0.031	-0.027	-0.032
	(0.115)	(0.115)	(0.115)	(0.116)	(0.115)	(0.115)
2005	0.049	0.048	0.048	0.046	0.048	0.047
	(0.117)	(0.117)	(0.117)	(0.117)	(0.117)	(0.117)
2006	0.040	0.031	0.038	0.029	0.038	0.029
	(0.119)	(0.119)	(0.119)	(0.120)	(0.119)	(0.119)
2007	-0.127	-0.135	-0.130	-0.138	-0.128	-0.137
	(0.126)	(0.126)	(0.126)	(0.126)	(0.126)	(0.126)
2008-9	-0.472*	-0.476*	-1.369***	-1.371***	-0.682***	-0.686***
	(0.244)	(0.244)	(0.440)	(0.440)	(0.230)	(0.230)
Parents Education						
MPRI5		0.158***		0.158***		0.158***
		(0.042)		(0.042)		(0.042)
MPRI8		0.367***		0.366***		0.367***
		(0.101)		(0.101)		(0.101)
MHGHSCH		0.405***		0.405***		0.406***
		(0.125)		(0.125)		(0.125)
MVOCHG		0.651***		0.651***		0.651***
		(0.133)		(0.133)		(0.133)
MUNI		0.351**		0.350**		0.352**
		(0.170)		(0.170)		(0.170)
FPRI5		0.060		0.060		0.060
		(0.053)		(0.053)		(0.053)
FPRI8		0.003		0.002		0.003
		(0.082)		(0.082)		(0.082)
FHGHSCH		-0.197*		-0.197*		-0.197*
		(0.104)		(0.104)		(0.104)
FVOCHG		0.016		0.016		0.016
		(0.112)		(0.112)		(0.112)
FUNI		0.086		0.086		0.086
		(0.113)		(0.113)		(0.113)
MHG>=	0.346***		0.346***		0.346***	
	(0.085)		(0.085)		(0.085)	
FHG>=	-0.051		-0.052		-0.051	
	(0.063)		(0.063)		(0.063)	
Time Dependent Covariates						
Age2024t	0.029***	0.029***	0.036	0.035		
	(0.010)	(0.010)	(0.048)	(0.048)		
1989t	0.064***	0.063***	0.174	0.173		
	(0.024)	(0.024)	(0.115)	(0.115)		
1995t	0.040**	0.040**	-0.007	-0.008		
	(0.018)	(0.018)	(0.087)	(0.087)		
2008_9t	-0.207***	-0.208***	0.440*	0.439*		
	(0.056)	(0.057)	(0.258)	(0.258)		
A2024tsq			-0.001	-0.000		

Table T.1 Continued

			(0.004)	(0.004)		
1989tsq			-0.009	-0.009		
			(0.009)	(0.009)		
1995tsq			0.004	0.004		
			(0.007)	(0.007)		
2008_9tsq			-0.069**	-0.069**		
			(0.029)	(0.029)		
Age2024lnt					0.121***	0.121***
					(0.043)	(0.043)
1989lnt					0.259**	0.258**
					(0.102)	(0.102)
1995lnt					0.136*	0.136*
					(0.077)	(0.077)
2008_9lnt					-0.582***	-0.583***
					(0.176)	(0.176)
Observations	168,656	168,656	168,656	168,656	168,656	168,656
LR test: Incremental Chi-sq(d.f)	236.9	275.6	246.1	284.7	228.4	267.0
Prob < Incremental Chi-sq	0	0	0	0	0	0
Log Lik	-27242	-27223	-27238	-27219	-27247	-27227
AIC	45.57497	61.576365	53.575263	69.576659	45.574603	61.576071

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Reference for model 1, model 3 and model 3: female, age 15-19, mother/father with less than high school education level, YSFS 2000
Reference for model 2, model 4 and model 6: female, age 15-19,mother/ father whose education level is illiterate or illiterate without a diploma, YSFS 2000

Table T.2: Estimation Results of Cox Proportional Hazard Models of Obtaining First Permanent Job Stratified By Education, 24 Months

	T		**T&Tsq**		**lnT**	
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Personal Characteristics						
MALE	0.147***	0.171***	0.147***	0.171***	0.147***	0.170***
	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)
A20-24	0.110	0.112	0.099	0.100	0.117	0.118
	(0.078)	(0.078)	(0.078)	(0.078)	(0.078)	(0.078)
A25-29	-0.044	-0.038	-0.053	-0.047	-0.038	-0.033
	(0.096)	(0.096)	(0.096)	(0.096)	(0.096)	(0.096)
A30-34	-0.264**	-0.254**	-0.270**	-0.261**	-0.260**	-0.251**
	(0.116)	(0.116)	(0.116)	(0.116)	(0.116)	(0.116)
YSFSs						
1985	-0.081	-0.055	-0.086	-0.060	-0.077	-0.052
	(0.420)	(0.420)	(0.420)	(0.420)	(0.420)	(0.420)
1986	-0.018	0.004	-0.023	-0.002	-0.015	0.007
	(0.170)	(0.170)	(0.170)	(0.170)	(0.170)	(0.170)
1987	0.011	0.024	0.006	0.019	0.015	0.028
	(0.143)	(0.143)	(0.143)	(0.143)	(0.143)	(0.143)

Table T.2 Continued

1988	0.190	0.206	0.184	0.201	0.193	0.210
	(0.134)	(0.134)	(0.134)	(0.134)	(0.134)	(0.134)
1989	0.304**	0.314**	0.299**	0.308**	0.308**	0.317**
	(0.128)	(0.128)	(0.128)	(0.128)	(0.128)	(0.128)
1990	0.231*	0.249*	0.226*	0.244*	0.234*	0.252**
	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)
1991	0.261**	0.276**	0.257**	0.272**	0.264**	0.279**
	(0.117)	(0.117)	(0.117)	(0.117)	(0.117)	(0.117)
1992	0.129	0.142	0.126	0.138	0.131	0.144
	(0.108)	(0.108)	(0.108)	(0.108)	(0.108)	(0.108)
1993	0.210**	0.227**	0.207**	0.223**	0.212**	0.229**
	(0.102)	(0.102)	(0.102)	(0.102)	(0.102)	(0.102)
1994	0.030	0.034	0.087	0.092	0.019	0.023
	(0.135)	(0.135)	(0.164)	(0.165)	(0.151)	(0.151)
1995	0.188*	0.193**	0.185*	0.191*	0.189*	0.195**
	(0.098)	(0.098)	(0.098)	(0.098)	(0.098)	(0.098)
1996	0.254***	0.267***	0.252***	0.265***	0.256***	0.268***
	(0.092)	(0.092)	(0.092)	(0.092)	(0.092)	(0.092)
1997	0.194**	0.206**	0.193**	0.205**	0.195**	0.207**
	(0.092)	(0.092)	(0.092)	(0.092)	(0.092)	(0.092)
1998	0.087	0.094	0.086	0.093	0.087	0.095
	(0.097)	(0.097)	(0.097)	(0.097)	(0.097)	(0.097)
1999	-0.009	-0.007	-0.009	-0.008	-0.009	-0.007
	(0.101)	(0.101)	(0.101)	(0.101)	(0.101)	(0.101)
2001	-0.023	-0.025	-0.023	-0.025	-0.024	-0.026
	(0.100)	(0.100)	(0.100)	(0.100)	(0.100)	(0.100)
2002	0.011	0.006	0.012	0.007	0.010	0.005
	(0.098)	(0.098)	(0.098)	(0.098)	(0.098)	(0.098)
2003	-0.093	-0.098	-0.091	-0.097	-0.094	-0.099
	(0.103)	(0.103)	(0.103)	(0.103)	(0.103)	(0.103)
2004	-0.044	-0.049	-0.044	-0.049	-0.044	-0.049
	(0.100)	(0.100)	(0.100)	(0.100)	(0.100)	(0.100)
2005	0.028	0.027	0.026	0.025	0.029	0.028
	(0.101)	(0.101)	(0.101)	(0.101)	(0.101)	(0.101)
2006	0.015	0.007	0.012	0.004	0.016	0.008
	(0.104)	(0.104)	(0.104)	(0.104)	(0.103)	(0.104)
2007	0.161	0.153	-0.230	-0.237	0.078	0.070
	(0.136)	(0.136)	(0.172)	(0.172)	(0.145)	(0.145)
2008-9	-0.383*	-0.387*	-1.371***	-1.374***	-0.575***	-0.579***
	(0.229)	(0.230)	(0.435)	(0.435)	(0.217)	(0.217)
Parents Education						
MPRI5		0.163***		0.163***		0.163***
		(0.036)		(0.036)		(0.036)
MPRI8		0.351***		0.350***		0.351***
		(0.088)		(0.088)		(0.088)
MHGHSCH		0.430***		0.430***		0.430***
		(0.107)		(0.107)		(0.107)
MVOCHG		0.550***		0.550***		0.550***
		(0.121)		(0.121)		(0.121)

Table T.2 Continued

MUNI		0.375**		0.374**		0.375**
		(0.148)		(0.148)		(0.148)
FPRI5		0.059		0.059		0.059
		(0.045)		(0.045)		(0.045)
FPRI8		0.034		0.034		0.034
		(0.070)		(0.070)		(0.070)
FHGHSCH		-0.182**		-0.182**		-0.181**
		(0.090)		(0.090)		(0.090)
FVOCHG		0.066		0.067		0.066
		(0.096)		(0.096)		(0.096)
FUNI		0.058		0.058		0.058
		(0.099)		(0.099)		(0.099)
MHG>=	0.318***		0.318***		0.319***	
	(0.075)		(0.075)		(0.075)	
FHG>=	-0.042		-0.042		-0.042	
	(0.055)		(0.055)		(0.055)	
Time Dependent Covariates						
1994t	0.020**	0.020**	0.001	0.001		
	(0.009)	(0.009)	(0.032)	(0.032)		
2007t	-0.065***	-0.065***	0.098**	0.098**		
	(0.012)	(0.012)	(0.043)	(0.043)		
2008_9t	-0.243***	-0.243***	0.442*	0.441*		
	(0.051)	(0.051)	(0.254)	(0.254)		
1994t2			0.001	0.001		
			(0.001)	(0.001)		
2007t2			-0.009***	-0.009***		
			(0.002)	(0.002)		
2008_9t2			-0.069**	-0.069**		
			(0.028)	(0.028)		
1994lnt					0.116*	0.117*
					(0.061)	(0.061)
2007lnt					-0.254***	-0.254***
					(0.065)	(0.065)
2008_9lnt					-0.834***	-0.835***
					(0.158)	(0.158)
Observations	314,698	314,698	314,698	314,698	314,698	314,698
LR test: Incremental Chi-sq(d.f)	387.5	436.7	414.6	463.8	355.7	404.8
Prob < Incremental Chi-sq	0	0	0	0	0	0
Log Lik	-36779	-36754	-36765	-36741	-36795	-36770
AIC	42.974635	58.975995	48.975397	64.976703	42.973766	58.975125

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Reference for model 1, model 3 and model 3: female, age 15-19, mother/father with less than high school education level, YSFS 2000
Reference for model 2, model 4 and model 6: female, age 15-19,mother/ father whose education level is illiterate or illiterate without a diploma, YSFS 2000

Table T.3: Estimation Results of Cox Proportional Hazard Models of Obtaining First Permanent Job Stratified By Education, 36 months

	T		T&Tsq		lnT	
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Personal Characteristics						
Male	0.236***	0.259***	0.257***	0.279***	0.289***	0.311***
	(0.045)	(0.045)	(0.059)	(0.059)	(0.056)	(0.056)
Age20-24	0.100	0.100	0.087	0.087	0.113	0.114
	(0.074)	(0.074)	(0.074)	(0.074)	(0.074)	(0.074)
Age25-29	-0.075	-0.071	-0.086	-0.082	-0.064	-0.060
	(0.091)	(0.091)	(0.091)	(0.091)	(0.091)	(0.091)
Age30-34	-0.287***	-0.280**	-0.296***	-0.289***	-0.279**	-0.272**
	(0.110)	(0.110)	(0.109)	(0.110)	(0.110)	(0.110)
YSFSs						
1985	0.014	0.040	0.008	0.034	0.021	0.046
	(0.365)	(0.365)	(0.365)	(0.365)	(0.365)	(0.365)
1986	-0.006	0.018	-0.012	0.012	-0.000	0.024
	(0.156)	(0.156)	(0.156)	(0.156)	(0.156)	(0.156)
1987	-0.097	-0.081	0.234	0.251	0.056	0.072
	(0.175)	(0.175)	(0.202)	(0.202)	(0.199)	(0.199)
1988	0.180	0.198	0.174	0.192	0.186	0.204*
	(0.124)	(0.124)	(0.124)	(0.124)	(0.124)	(0.124)
1989	0.301**	0.313***	0.295**	0.307***	0.307***	0.319***
	(0.118)	(0.119)	(0.118)	(0.118)	(0.118)	(0.119)
1990	0.270**	0.290**	0.264**	0.285**	0.276**	0.296**
	(0.116)	(0.116)	(0.116)	(0.116)	(0.116)	(0.116)
1991	0.258**	0.273**	0.254**	0.269**	0.263**	0.278**
	(0.108)	(0.109)	(0.108)	(0.109)	(0.108)	(0.109)
1992	-0.005	0.008	0.036	0.050	-0.025	-0.011
	(0.130)	(0.130)	(0.158)	(0.158)	(0.154)	(0.154)
1993	0.234**	0.251***	0.231**	0.248***	0.238**	0.255***
	(0.094)	(0.094)	(0.094)	(0.094)	(0.094)	(0.094)
1994	0.084	0.090	0.044	0.050	0.030	0.035
	(0.121)	(0.122)	(0.149)	(0.149)	(0.144)	(0.145)
1995	0.233***	0.240***	0.231**	0.237***	0.236***	0.242***
	(0.090)	(0.090)	(0.090)	(0.090)	(0.090)	(0.090)
1996	0.227***	0.241***	0.225***	0.239***	0.230***	0.243***
	(0.085)	(0.085)	(0.085)	(0.085)	(0.085)	(0.085)
1997	0.181**	0.194**	0.180**	0.193**	0.182**	0.195**
	(0.085)	(0.085)	(0.085)	(0.085)	(0.085)	(0.085)
1998	0.087	0.095	0.087	0.094	0.089	0.096
	(0.090)	(0.090)	(0.090)	(0.090)	(0.090)	(0.090)
1999	-0.005	-0.004	-0.005	-0.004	-0.005	-0.004
	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)
2001	-0.022	-0.024	-0.022	-0.024	-0.022	-0.024
	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)
2002	0.001	-0.003	0.003	-0.002	0.001	-0.004
	(0.091)	(0.091)	(0.091)	(0.091)	(0.091)	(0.091)
2003	-0.121	-0.128	-0.120	-0.126	-0.122	-0.129
	(0.096)	(0.096)	(0.096)	(0.096)	(0.096)	(0.096)

Table T.3 Continued

2004	-0.063	-0.068	-0.064	-0.069	-0.063	-0.068
	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)
2005	-0.013	-0.015	-0.016	-0.019	-0.010	-0.013
	(0.095)	(0.095)	(0.095)	(0.095)	(0.094)	(0.095)
2006	0.211*	0.202*	0.029	0.019	0.218*	0.208
	(0.118)	(0.118)	(0.143)	(0.143)	(0.132)	(0.132)
2007	0.236*	0.228*	-0.264	-0.272	0.172	0.163
	(0.128)	(0.129)	(0.168)	(0.169)	(0.138)	(0.139)
2008-9	-0.382*	-0.387*	-1.397***	-1.401***	-0.546**	-0.551***
	(0.227)	(0.227)	(0.434)	(0.434)	(0.212)	(0.213)
Parents Education						
MPRI5		0.150***		0.150***		0.150***
		(0.033)		(0.033)		(0.033)
MPRI8		0.331***		0.330***		0.330***
		(0.083)		(0.083)		(0.083)
MHGHSCH		0.407***		0.408***		0.406***
		(0.101)		(0.101)		(0.101)
MVOCHG		0.541***		0.541***		0.541***
		(0.113)		(0.113)		(0.113)
MUNI		0.329**		0.328**		0.329**
		(0.140)		(0.140)		(0.140)
FPRI		0.073*		0.073*		0.073*
		(0.042)		(0.042)		(0.042)
FPRI8		0.059		0.059		0.059
		(0.065)		(0.065)		(0.065)
FHGHSCH		-0.137*		-0.137*		-0.137*
		(0.083)		(0.083)		(0.083)
FVOCHG		0.108		0.109		0.108
		(0.089)		(0.089)		(0.089)
FUNI		0.104		0.104		0.104
		(0.092)		(0.092)		(0.092)
MHG>=	0.307***		0.307***		0.307***	
	(0.070)		(0.070)		(0.070)	
FHG>=	-0.015		-0.015		-0.016	
	(0.051)		(0.051)		(0.051)	
Time Dependent Covariates						
Malet	-0.011***	-0.011***	-0.016*	-0.016*		
	(0.003)	(0.003)	(0.010)	(0.010)		
1987t	0.017**	0.017**	-0.060**	-0.060**		
	(0.008)	(0.008)	(0.029)	(0.029)		
1992t	0.014**	0.014**	0.004	0.004		
	(0.006)	(0.006)	(0.021)	(0.021)		
1994t	0.013**	0.013**	0.021	0.022		
	(0.006)	(0.006)	(0.020)	(0.020)		
2006t	-0.027***	-0.027***	0.022	0.022		
	(0.007)	(0.007)	(0.022)	(0.022)		
2007t	-0.085***	-0.085***	0.108***	0.108***		
	(0.011)	(0.011)	(0.041)	(0.041)		

Table T.3 Continued

2008_9t	-0.247***	-0.247***	0.447*	0.445*		
	(0.050)	(0.050)	(0.255)	(0.254)		
Maletsq			0.000	0.0001584		
			(0.0002	(0.0002		
1987tsq			0.002***	0.002***		
			(0.001)	(0.001)		
1992tsq			0.0003058	0.0003067		
			(0.0006149	(.0006149		
1994tsq			-0.0002465	-0.0002447		
			(0.001)	(0.001)		
2006tsq			-0.002**	-0.002**		
			(0.001)	(0.001)		
2007tsq			-0.010***	-0.010***		
			(0.002)	(0.002)		
2008_9tsq			-0.069**	-0.069**		
			(0.028)	(0.028)		
Malelnt					-0.094***	-0.094***
					(0.024)	(0.024)
1987lnt					0.047	0.047
					(0.074)	(0.074)
1992lnt					0.103*	0.104*
					(0.057)	(0.057)
1994lnt					0.113**	0.115**
					(0.053)	(0.053)
2006lnt					-0.162***	-0.162***
					(0.052)	(0.052)
2007lnt					-0.399***	-0.399***
					(0.060)	(0.060)
2008_9lnt					-0.920***	-0.921***
					(0.151)	(0.151)
Observations	449,057	449,057	449,057	449,057	449,057	449,057
LR test: Incremental Chi-sq(d.f)	579.9	634.7	632.3	687.2	509.6	564.3
Prob < Incremental Chi-sq	0	0	0	0	0	0
Log Lik	-42706	-42679	-42680	-42652	-42741	-42714
AIC	50.675811	66.677075	64.677029	80.678341	50.674172	66.675436

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Reference for model 1, model 3 and model 3: female, age 15-19, mother/father with less than high school education level, YSFS 2000
Reference for model 2, model 4 and model 6: female, age 15-19,mother/ father whose education level is illiterate or illiterate without a diploma, YSFS 2000

Table T.4: Normalized Coefficients of Cox Proportional Hazard Models of Obtaining First Permanent Job Stratified By Education, 12 months

12 MONTHS	**T**		**T&Tsq**		**lnT**	
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Personal Characteristics						
MALE	0.413	0.458	0.142	0.159	0.286	0.318
A20-24	-0.072	-0.069	-0.038	-0.037	-0.044	-0.042
A25-29	-0.064	-0.053	-0.026	-0.022	-0.041	-0.034
A30-34	-0.532	-0.508	-0.187	-0.179	-0.365	-0.350
YSFSs						
1985	-0.337	-0.290	-0.119	-0.103	-0.239	-0.206
1986	-0.085	-0.042	-0.032	-0.017	-0.063	-0.034
1987	-0.002	0.021	-0.004	0.004	-0.007	0.009
1988	-0.036	-0.008	-0.015	-0.006	-0.031	-0.012
1989	-0.193	-0.179	-0.199	-0.193	-0.110	-0.098
1990	0.456	0.483	0.154	0.165	0.309	0.329
1991	0.375	0.399	0.128	0.136	0.255	0.273
1992	0.019	0.042	0.005	0.013	0.010	0.026
1993	0.324	0.355	0.110	0.122	0.221	0.243
1994	0.252	0.256	0.085	0.087	0.172	0.175
1995	-0.093	-0.084	0.021	0.025	0.000	0.006
1996	0.479	0.496	0.164	0.171	0.330	0.343
1997	0.487	0.506	0.167	0.175	0.336	0.351
1998	0.191	0.204	0.065	0.070	0.132	0.140
1999	0.025	0.027	0.008	0.009	0.018	0.019
2001	0.074	0.071	0.026	0.025	0.051	0.050
2002	-0.040	-0.046	-0.013	-0.015	-0.028	-0.032
2003	-0.180	-0.189	-0.062	-0.065	-0.126	-0.133
2004	-0.055	-0.063	-0.019	-0.023	-0.040	-0.047
2005	0.104	0.101	0.035	0.034	0.070	0.069
2006	0.085	0.065	0.028	0.021	0.056	0.042
2007	-0.269	-0.284	-0.095	-0.101	-0.188	-0.200
2008-9	***-1.000***	***-1.000***	***-1.000***	***-1.000***	***-1.000***	***-1.000***
Parents Education						
MPRI5		0.332		0.115		0.230
MPRI8		0.771		0.267		0.535
MHGHSCH		0.851		0.295		0.592
MVOCHG		1.368		0.475		0.949
MUNI		0.737		0.255		0.513
FPRI5		0.126		0.044		0.087
FPRI8		0.006		0.001		0.004
FHGHSCH		-0.414		-0.144		-0.287
FVOCHG		0.034		0.012		0.023

Table T.4 Continued

FUNI		0.181		0.063		0.125
MHG>=	0.733		0.253		0.507	
FHG>=	-0.108		-0.038		-0.075	
Time Dependent Covariates						
Age2024t		0.061	0.026	0.026		
1989t		0.132	0.127	0.126		
1995t		0.084	-0.005	-0.006		
2008_9t		-0.437	0.321	0.320		
A2024tsq			-0.001	0.000		
1989tsq			-0.007	-0.007		
1995tsq			0.003	0.003		
2008_9tsq			-0.050	-0.050		
Age2024lnt					0.177	0.176
1989lnt					0.380	0.376
1995lnt					0.199	0.198
2008_9lnt					-0.853	-0.850
Observations	168,656	168,656	168,656	168,656	168,656	168,656
LR test: Incremental Chi-sq(d.f)	236.9	275.6	246.1	284.7	228.4	267.0
Prob < Incremental Chi-sq	0	0	0	0	0	0
Log Lik	-27242	-27223	-27238	-27219	-27247	-27227
AIC	45.57497	61.576365	53.575263	69.576659	45.574603	61.576071

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Reference for model 1, model 3 and model 3: female, age 15-19, mother/father with less than high school education level, YSFS 2000
Reference for model 2, model 4 and model 6: female, age 15-19,mother/ father whose education level is illiterate or illiterate without a diploma, YSFS 2000

Table T.5: Normalized Coefficients of Cox Proportional Hazard Models of Obtaining First Permanent Job Stratified By Education, 24 months

	T		T&Tsq		lnT	
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Personal Characteristics						
MALE	0.384	0.442	0.107	0.124	0.256	0.294
A20-24	0.287	0.289	0.072	0.073	0.203	0.204
A25-29	-0.115	-0.098	-0.039	-0.034	-0.066	-0.057
A30-34	-0.689	-0.656	-0.197	-0.190	-0.452	-0.434
YSFSs						
1985	-0.211	-0.142	-0.063	-0.044	-0.134	-0.090
1986	-0.047	0.010	-0.017	-0.001	-0.026	0.012
1987	0.029	0.062	0.004	0.014	0.026	0.048
1988	0.496	0.532	0.134	0.146	0.336	0.363

Table T.5 Continued

1989	0.794	0.811	0.218	0.224	0.536	0.547
1990	0.603	0.643	0.165	0.178	0.407	0.435
1991	0.681	0.713	0.187	0.198	0.459	0.482
1992	0.337	0.367	0.092	0.100	0.228	0.249
1993	0.548	0.587	0.151	0.162	0.369	0.396
1994	0.078	0.088	0.063	0.067	0.033	0.040
1995	0.491	0.499	0.135	0.139	0.329	0.337
1996	0.663	0.690	0.184	0.193	0.445	0.463
1997	0.507	0.532	0.141	0.149	0.339	0.358
1998	0.227	0.243	0.063	0.068	0.151	0.164
1999	-0.023	-0.018	-0.007	-0.006	-0.016	-0.012
2001	-0.060	-0.065	-0.017	-0.018	-0.042	-0.045
2002	0.029	0.016	0.009	0.005	0.017	0.009
2003	-0.243	-0.253	-0.066	-0.071	-0.163	-0.171
2004	-0.115	-0.127	-0.032	-0.036	-0.077	-0.085
2005	0.073	0.070	0.019	0.018	0.050	0.048
2006	0.039	0.018	0.009	0.003	0.028	0.014
2007	0.420	0.395	-0.168	-0.172	0.136	0.121
2008-9	***-1.000***	***-1.000***	***-1.000***	***-1.000***	***-1.000***	***-1.000***
Parents Education						
MPRI5		0.421		0.119		0.282
MPRI8		0.907		0.255		0.606
MHGHSCH		1.111		0.313		0.743
MVOCHG		1.421		0.400		0.950
MUNI		0.969		0.272		0.648
FPRI5		0.152		0.043		0.102
FPRI8		0.088		0.025		0.059
FHGHSCH		-0.470		-0.132		-0.313
FVOCHG		0.171		0.049		0.114
FUNI		0.150		0.042		0.100
MHG>=	0.830		0.232		0.555	
FHG>=	-0.110		-0.031		-0.073	
Time Dependent Covariates						
1994t	0.052	0.052	0.001	0.001		
2007t	-0.170	-0.168	0.071	0.071		
2008_9t	-0.634	-0.628	0.322	0.321		
1994t2			0.001	0.001		
2007t2			-0.007	-0.007		
2008_9t2			-0.050	-0.050		
1994lnt					0.202	0.202
2007lnt					-0.442	-0.439
2008_9lnt					-1.450	-1.442

Table T.5 Continued

Observations	314,698	314,698	314,698	314,698	314,698	314,698
LR test: Incremental Chi-sq(d.f)	387.5	436.7	414.6	463.8	355.7	404.8
Prob < Incremental Chi-sq	0	0	0	0	0	0
Log Lik	-36779	-36754	-36765	-36741	-36795	-36770
AIC	42.974635	58.975995	48.975397	64.976703	42.973766	58.975125

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Reference for model 1, model 3 and model 3: female, age 15-19, mother/father with less than high school education level, YSFS 2000
Reference for model 2, model 4 and model 6: female, age 15-19,mother/ father whose education level is illiterate or illiterate without a diploma, YSFS 2000

Table T.6: Normalized Coefficients of Cox Proportional Hazard Models of Obtaining First Permanent Job Stratified By Education, 36 months

	T		T&Tsq		lnT	
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Personal Characteristics						
Male	0.618	0.669	0.184	0.199	0.529	0.564
Age20-24	0.262	0.258	0.062	0.062	0.207	0.207
Age25-29	-0.196	-0.183	-0.062	-0.059	-0.117	-0.109
Age30-34	-0.751	-0.724	-0.212	-0.206	-0.511	-0.494
YSFSs						
1985	0.037	0.103	0.006	0.024	0.038	0.083
1986	-0.016	0.047	-0.009	0.009	0.000	0.044
1987	-0.254	-0.209	0.168	0.179	0.103	0.131
1988	0.471	0.512	0.125	0.137	0.341	0.370
1989	0.788	0.809	0.211	0.219	0.562	0.579
1990	0.707	0.749	0.189	0.203	0.505	0.537
1991	0.675	0.705	0.182	0.192	0.482	0.505
1992	-0.013	0.021	0.026	0.036	-0.046	-0.020
1993	0.613	0.649	0.165	0.177	0.436	0.463
1994	0.220	0.233	0.031	0.036	0.055	0.064
1995	0.610	0.620	0.165	0.169	0.432	0.439
1996	0.594	0.623	0.161	0.171	0.421	0.441
1997	0.474	0.501	0.129	0.138	0.333	0.354
1998	0.228	0.245	0.062	0.067	0.163	0.174
1999	-0.013	-0.010	-0.004	-0.003	-0.009	-0.007
2001	-0.058	-0.062	-0.016	-0.017	-0.040	-0.044
2002	0.003	-0.008	0.002	-0.001	0.002	-0.007
2003	-0.317	-0.331	-0.086	-0.090	-0.223	-0.234
2004	-0.165	-0.176	-0.046	-0.049	-0.115	-0.123
2005	-0.034	-0.039	-0.011	-0.014	-0.018	-0.024
2006	0.552	0.522	0.021	0.014	0.399	0.377
2007	0.618	0.589	-0.189	-0.194	0.315	0.296

Table T.6 Continued

2008-9	*-1.000*	*-1.000*	*-1.000*	*-1.000*	*-1.000*	*-1.000*
Parents Education						
MPRI5		0.388		0.107		0.272
MPRI8		0.855		0.236		0.599
MHGHSCH		1.052		0.291		0.737
MVOCHG		1.398		0.386		0.982
MUNI		0.850		0.234		0.597
FPRI		0.189		0.052		0.132
FPRI8		0.152		0.042		0.107
FHGHSCH		-0.354		-0.098		-0.249
FVOCHG		0.279		0.078		0.196
FUNI		0.269		0.074		0.189
MHG>=	0.804		0.220		0.562	
FHG>=	-0.039		-0.011		-0.029	
Time Dependent Covariates						
Malet	-0.029	-0.028	-0.011	-0.011		
1987t	0.045	0.044	-0.043	-0.043		
1992t	0.037	0.036	0.003	0.003		
1994t	0.034	0.034	0.015	0.016		
2006t	-0.071	-0.070	0.016	0.016		
2007t	-0.223	-0.220	0.077	0.077		
2008_9t	-0.647	-0.638	0.320	0.318		
Maletsq			0.000	0.000		
1987tsq			0.001	0.001		
1992tsq			0.000	0.000		
1994tsq			0.000	0.000		
2006tsq			-0.001	-0.001		
2007tsq			-0.007	-0.007		
2008_9tsq			-0.049	-0.049		
Malelnt					-0.172	-0.171
1987lnt					0.086	0.085
1992lnt					0.189	0.189
1994lnt					0.207	0.209
2006lnt					-0.297	-0.294
2007lnt					-0.731	-0.724
2008_9lnt					-1.685	-1.672
Observations	449,057	449,057	449,057	449,057	449,057	449,057
LR test: Incremental Chi-sq(d.f)	579.9	634.7	632.3	687.2	509.6	564.3
Prob < Incremental Chi-sq	0	0	0	0	0	0
Log Lik	-42706	-42679	-42680	-42652	-42741	-42714
AIC	50.675811	66.677075	64.677029	80.678341	50.674172	66.675436

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Reference for model 1, model 3 and model 3: female, age 15-19, mother/father with less than high school education level, YSFS 2000
Reference for model 2, model 4 and model 6: female, age 15-19,mother/ father whose education level is illiterate or illiterate without a diploma, YSFS 2000

Table T.7: Estimation Results of Cox Proportional Hazard Models of Obtaining First Permanent Paid Job Stratified By Education, 12 Months

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Personal Characteristics						
MALE	0.181***	0.204***	0.181***	0.204***	0.181***	0.204***
	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)
A20-24	-0.017	-0.016	-0.023	-0.023	-0.015	-0.014
	(0.091)	(0.091)	(0.091)	(0.091)	(0.091)	(0.091)
A25-29	-0.204*	-0.199*	-0.209*	-0.204*	-0.202*	-0.198*
	(0.113)	(0.113)	(0.113)	(0.113)	(0.113)	(0.113)
A30-34	-0.426***	-0.417***	-0.429***	-0.420***	-0.424***	-0.415***
	(0.137)	(0.138)	(0.137)	(0.138)	(0.137)	(0.138)
YSFSs						
1985	-0.375	-0.336	-0.377	-0.338	-0.375	-0.335
	(0.717)	(0.717)	(0.717)	(0.717)	(0.717)	(0.717)
1986	-0.111	-0.094	-0.113	-0.096	-0.110	-0.093
	(0.226)	(0.226)	(0.226)	(0.226)	(0.226)	(0.226)
1987	0.032	0.035	0.030	0.032	0.033	0.035
	(0.182)	(0.183)	(0.182)	(0.183)	(0.182)	(0.183)
1988	-0.194	-0.190	-0.196	-0.192	-0.194	-0.189
	(0.192)	(0.192)	(0.192)	(0.192)	(0.192)	(0.192)
1989	-0.251	-0.251	-0.871**	-0.871**	-0.346	-0.346
	(0.244)	(0.244)	(0.361)	(0.361)	(0.260)	(0.260)
1990	0.176	0.185	0.174	0.182	0.176	0.185
	(0.160)	(0.160)	(0.160)	(0.160)	(0.160)	(0.160)
1991	0.143	0.145	0.141	0.143	0.143	0.145
	(0.149)	(0.150)	(0.149)	(0.150)	(0.149)	(0.150)
1992	-0.007	-0.003	-0.008	-0.004	-0.006	-0.002
	(0.137)	(0.137)	(0.137)	(0.137)	(0.137)	(0.137)
1993	0.144	0.155	0.143	0.153	0.145	0.155
	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)
1994	0.099	0.094	0.097	0.093	0.099	0.095
	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)
1995	-0.009	-0.009	0.109	0.111	0.041	0.041
	(0.164)	(0.165)	(0.220)	(0.220)	(0.165)	(0.165)
1996	0.219*	0.223**	0.218*	0.222**	0.219*	0.224**
	(0.112)	(0.112)	(0.112)	(0.112)	(0.112)	(0.112)
1997	0.167	0.173	0.166	0.173	0.167	0.174
	(0.111)	(0.111)	(0.111)	(0.111)	(0.111)	(0.111)
1998	0.102	0.106	0.102	0.105	0.102	0.106
	(0.118)	(0.118)	(0.118)	(0.118)	(0.118)	(0.118)
1999	0.068	0.069	0.068	0.069	0.069	0.069
	(0.119)	(0.119)	(0.119)	(0.119)	(0.119)	(0.119)
2001	0.039	0.037	0.039	0.037	0.039	0.037
	(0.119)	(0.119)	(0.119)	(0.119)	(0.119)	(0.119)
2002	-0.045	-0.051	-0.045	-0.050	-0.045	-0.051

Table T.7 Continued

	(0.119)	(0.119)	(0.119)	(0.119)	(0.119)	(0.119)
2003	-0.085	-0.090	-0.084	-0.090	-0.085	-0.090
	(0.123)	(0.123)	(0.123)	(0.123)	(0.123)	(0.123)
2004	-0.069	-0.074	-0.069	-0.074	-0.069	-0.074
	(0.119)	(0.120)	(0.119)	(0.120)	(0.119)	(0.120)
2005	0.040	0.035	0.039	0.034	0.040	0.035
	(0.120)	(0.120)	(0.120)	(0.120)	(0.120)	(0.120)
2006	0.006	-0.007	0.005	-0.008	0.007	-0.006
	(0.123)	(0.123)	(0.123)	(0.123)	(0.123)	(0.123)
2007	-0.101	-0.113	-0.103	-0.115	-0.100	-0.112
	(0.130)	(0.130)	(0.130)	(0.130)	(0.130)	(0.130)
2008-9	-0.530**	-0.537**	-1.445***	-1.451***	-0.727***	-0.735***
	(0.260)	(0.260)	(0.473)	(0.473)	(0.248)	(0.248)
Parents Education						
MPRI5		0.120***		0.120***		0.120***
		(0.045)		(0.045)		(0.045)
MPRI8		0.325***		0.325***		0.326***
		(0.104)		(0.104)		(0.104)
MHGHSCH		0.378***		0.379***		0.378***
		(0.127)		(0.127)		(0.127)
MVOCHG		0.622***		0.623***		0.622***
		(0.135)		(0.135)		(0.135)
MUNI		0.256		0.255		0.256
		(0.177)		(0.177)		(0.177)
FPRI		0.067		0.067		0.067
		(0.058)		(0.058)		(0.058)
FPRI8		-0.003		-0.003		-0.003
		(0.086)		(0.086)		(0.086)
FHGHSCH		-0.235**		-0.236**		-0.235**
		(0.108)		(0.108)		(0.108)
FVOCHG		-0.026		-0.026		-0.026
		(0.118)		(0.118)		(0.118)
FUNI		0.085		0.084		0.085
		(0.116)		(0.116)		(0.116)
MHG>=	0.338***		0.338***		0.338***	
	(0.087)		(0.087)		(0.087)	
FHG>=	-0.094		-0.094		-0.094	
	(0.065)		(0.065)		(0.065)	
Time Dependent Covariates						
1989t	0.083***	0.083***	0.415***	0.415***		
	(0.028)	(0.028)	(0.132)	(0.132)		
1995t	0.034*	0.034*	-0.038	-0.039		
	(0.019)	(0.019)	(0.092)	(0.092)		
2008_9t	-0.201***	-0.201***	0.434	0.433		
	(0.058)	(0.059)	(0.267)	(0.267)		
1989tsq			-0.026**	-0.026**		
			(0.010)	(0.010)		
1995tsq			0.006	0.006		
			(0.007)	(0.007)		

Table T.7 Continued

2008_9tsq			-0.066**	-0.066**		
			(0.029)	(0.029)		
1989lnt					0.412***	0.411***
					(0.128)	(0.128)
1995lnt					0.107	0.107
					(0.084)	(0.084)
2008_9lnt					-0.565***	-0.566***
					(0.185)	(0.185)
Observations	124,358	124,358	124,358	124,358	124,358	124,358
LR test: Incremental Chi-sq(d.f)	209.0	238.0	223.5	252.6	203.9	233.0
Prob < Incremental Chi-sq	0	0	0	0	0	0
Log Lik	-23100	-23086	-23093	-23078	-23103	-23088
AIC	43.9048	59.9060	49.9054	65.9067	43.9046	59.9059

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Reference for model 1, model 3 and model 3: female, age 15-19, mother/father with less than high school education level, YSFS 2000
Reference for model 2, model 4 and model 6: female, age 15-19,mother/ father whose education level is illiterate or illiterate without a diploma, YSFS 2000

Table T.8: Estimation Results of Cox Proportional Hazard Models of Obtaining First Permanent Paid Job Stratified By Education, 24 Months

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Personal Characteristics						
MALE	0.248***	0.271***	0.345***	0.368***	0.330***	0.352***
	(0.055)	(0.055)	(0.075)	(0.075)	(0.066)	(0.066)
A20-24	-0.027	-0.026	-0.036	-0.034	-0.021	-0.019
	(0.081)	(0.081)	(0.080)	(0.081)	(0.081)	(0.081)
A25-29	-0.213**	-0.209**	-0.219**	-0.215**	-0.208**	-0.204**
	(0.099)	(0.099)	(0.099)	(0.099)	(0.099)	(0.099)
A30-34	-0.426***	-0.417***	-0.431***	-0.421***	-0.423***	-0.414***
	(0.120)	(0.120)	(0.120)	(0.120)	(0.120)	(0.120)
YSFSs						
1985	-0.352	-0.313	-0.356	-0.316	-0.349	-0.310
	(0.586)	(0.586)	(0.586)	(0.586)	(0.586)	(0.586)
1986	-0.101	-0.081	-0.104	-0.085	-0.097	-0.078
	(0.190)	(0.190)	(0.190)	(0.190)	(0.190)	(0.190)
1987	-0.019	-0.016	-0.023	-0.019	-0.016	-0.013
	(0.156)	(0.157)	(0.156)	(0.157)	(0.156)	(0.157)
1988	-0.278	-0.270	0.117	0.123	-0.138	-0.131
	(0.225)	(0.226)	(0.271)	(0.271)	(0.251)	(0.252)
1989	0.279**	0.280**	0.276**	0.276**	0.282**	0.283**
	(0.138)	(0.138)	(0.138)	(0.138)	(0.138)	(0.138)
1990	0.171	0.182	0.167	0.178	0.173	0.185
	(0.136)	(0.136)	(0.136)	(0.136)	(0.136)	(0.136)
1991	0.209*	0.214*	0.206*	0.211*	0.212*	0.217*
	(0.125)	(0.125)	(0.125)	(0.125)	(0.125)	(0.125)
1992	0.098	0.103	0.095	0.101	0.100	0.105
	(0.114)	(0.115)	(0.114)	(0.115)	(0.114)	(0.115)
1993	0.185*	0.196*	0.183*	0.193*	0.187*	0.198*
	(0.108)	(0.108)	(0.108)	(0.108)	(0.108)	(0.108)

Table T.8 Continued

1994	-0.039	-0.042	0.013	0.010	-0.072	-0.076
	(0.146)	(0.146)	(0.182)	(0.182)	(0.168)	(0.168)
1995	0.193*	0.195*	0.192*	0.193*	0.195*	0.197*
	(0.103)	(0.103)	(0.103)	(0.103)	(0.103)	(0.103)
1996	0.240**	0.247**	0.238**	0.245**	0.241**	0.248***
	(0.096)	(0.096)	(0.096)	(0.096)	(0.096)	(0.096)
1997	0.149	0.157	0.148	0.156	0.150	0.158
	(0.096)	(0.096)	(0.096)	(0.096)	(0.096)	(0.096)
1998	0.117	0.121	0.117	0.121	0.119	0.122
	(0.101)	(0.102)	(0.101)	(0.102)	(0.101)	(0.102)
1999	0.050	0.051	0.051	0.051	0.051	0.052
	(0.103)	(0.103)	(0.103)	(0.103)	(0.103)	(0.103)
2001	-0.002	-0.005	-0.001	-0.004	-0.001	-0.004
	(0.103)	(0.103)	(0.103)	(0.103)	(0.103)	(0.103)
2002	-0.008	-0.016	-0.007	-0.014	-0.008	-0.016
	(0.101)	(0.101)	(0.101)	(0.101)	(0.101)	(0.101)
2003	-0.083	-0.091	-0.082	-0.089	-0.084	-0.092
	(0.106)	(0.106)	(0.106)	(0.106)	(0.106)	(0.106)
2004	-0.089	-0.096	-0.088	-0.095	-0.089	-0.096
	(0.103)	(0.103)	(0.103)	(0.103)	(0.103)	(0.103)
2005	0.024	0.018	0.022	0.017	0.024	0.019
	(0.104)	(0.104)	(0.104)	(0.104)	(0.104)	(0.104)
2006	-0.012	-0.024	-0.014	-0.026	-0.011	-0.023
	(0.107)	(0.107)	(0.107)	(0.107)	(0.107)	(0.107)
2007	0.209	0.198	-0.141	-0.152	0.157	0.146
	(0.140)	(0.140)	(0.177)	(0.178)	(0.150)	(0.150)
2008-9	-0.419*	-0.425*	-1.439***	-1.444***	-0.596**	-0.603***
	(0.243)	(0.243)	(0.468)	(0.468)	(0.232)	(0.233)
Parents Education						
MPRI5		0.119***		0.119***		0.119***
		(0.038)		(0.038)		(0.038)
MPRI8		0.287***		0.287***		0.288***
		(0.091)		(0.091)		(0.091)
MHGHSCH		0.380***		0.380***		0.380***
		(0.109)		(0.109)		(0.109)
MVOCHG		0.495***		0.496***		0.496***
		(0.123)		(0.123)		(0.123)
MUNI		0.243		0.242		0.243
		(0.154)		(0.154)		(0.154)
FPRI		0.070		0.070		0.070
		(0.049)		(0.049)		(0.049)
FPRI8		0.024		0.024		0.024
		(0.074)		(0.074)		(0.074)
FHGHSCH		-0.233**		-0.234**		-0.233**
		(0.094)		(0.094)		(0.094)
FVOCHG		0.051		0.051		0.050
		(0.100)		(0.100)		(0.100)
FUNI		0.065		0.065		0.065
		(0.102)		(0.102)		(0.102)
MHG>=	0.291***		0.291***		0.291***	

Table T.8 Continued

	(0.076)		(0.076)		(0.076)	
FHG>=	-0.085		-0.085		-0.085	
	(0.056)		(0.056)		(0.056)	
Time Dependent Covariates						
Malet	-0.015***	-0.015***	-0.046***	-0.046***		
	(0.005)	(0.005)	(0.017)	(0.017)		
1988t	0.031**	0.031**	-0.092	-0.092		
	(0.015)	(0.015)	(0.057)	(0.057)		
1994t	0.025***	0.025***	0.009	0.009		
	(0.010)	(0.010)	(0.035)	(0.035)		
2007t	-0.067***	-0.067***	0.078*	0.078*		
	(0.013)	(0.013)	(0.044)	(0.044)		
2008_9t	-0.240***	-0.240***	0.441*	0.440*		
	(0.052)	(0.052)	(0.264)	(0.264)		
Maletsq			0.001*	0.001*		
			(0.001)	(0.001)		
1988tsq			0.005**	0.005**		
			(0.002)	(0.002)		
1994tsq			0.001	0.001		
			(0.001)	(0.001)		
2007tsq			-0.008***	-0.008***		
			(0.002)	(0.002)		
2008_9tsq			-0.067**	-0.067**		
			(0.029)	(0.029)		
Malelnt					-0.126***	-0.125***
					(0.032)	(0.032)
1988lnt					0.102	0.102
					(0.105)	(0.105)
1994lnt					0.155**	0.156**
					(0.068)	(0.068)
2007lnt					-0.284***	-0.285***
					(0.068)	(0.068)
2008_9lnt					-0.832***	-0.833***
					(0.165)	(0.165)
Observations	228,156	228,156	228,156	228,156	228,156	228,156
LR test: Incremental Chi-sq(d.f)	352.7	387.7	383.8	418.9	326.1	361.1
Prob < Incremental Chi-sq	0	0	0	0	0	0
Log Lik	-31270	-31253	-31255	-31237	-31283	-31266
AIC	47.2992	63.3003	57.3001	73.3013	47.2983	63.2994

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Reference for model 1, model 3 and model 3: female, age 15-19, mother/father with less than high school education level, YSFS 2000
Reference for model 2, model 4 and model 6: female, age 15-19,mother/ father whose education level is illiterate or illiterate without a diploma, YSFS 2000

Table T.9: Estimation Results of Cox Proportional Hazard Models of Obtaining First Permanent Paid Job Stratified By Education, 36 Months

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Personal Characteristics						
Male	0.253***	0.275***	0.303***	0.325***	0.362***	0.383***

Table T.8 Continued

	(0.049)	(0.049)	(0.066)	(0.066)	(0.063)	(0.064)
Age20-24	-0.045	-0.044	-0.055	-0.054	-0.031	-0.030
	(0.076)	(0.076)	(0.076)	(0.076)	(0.076)	(0.076)
Age25-29	-0.257***	-0.254***	-0.265***	-0.262***	-0.246***	-0.243***
	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)	(0.094)
Age30-34	-0.456***	-0.449***	-0.463***	-0.456***	-0.448***	-0.441***
	(0.113)	(0.113)	(0.113)	(0.113)	(0.113)	(0.113)
YSFSs						
1985	-0.272	-0.237	-0.276	-0.242	-0.266	-0.231
	(0.509)	(0.509)	(0.509)	(0.509)	(0.509)	(0.509)
1986	-0.132	-0.111	-0.136	-0.115	-0.125	-0.104
	(0.175)	(0.175)	(0.175)	(0.175)	(0.175)	(0.175)
1987	0.137	0.142	0.134	0.138	0.145	0.150
	(0.137)	(0.137)	(0.137)	(0.137)	(0.137)	(0.137)
1988	0.055	0.064	0.052	0.060	0.063	0.071
	(0.139)	(0.139)	(0.139)	(0.139)	(0.139)	(0.139)
1989	0.282**	0.284**	0.278**	0.280**	0.289**	0.291**
	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)
1990	0.182	0.196	0.178	0.191	0.189	0.202
	(0.125)	(0.125)	(0.125)	(0.125)	(0.125)	(0.125)
1991	0.217*	0.222*	0.214*	0.219*	0.222*	0.227**
	(0.115)	(0.115)	(0.115)	(0.115)	(0.115)	(0.115)
1992	0.149	0.156	0.147	0.153	0.153	0.160
	(0.105)	(0.105)	(0.105)	(0.105)	(0.105)	(0.105)
1993	0.215**	0.226**	0.212**	0.223**	0.219**	0.230**
	(0.099)	(0.099)	(0.099)	(0.099)	(0.099)	(0.099)
1994	0.062	0.060	-0.020	-0.022	-0.033	-0.036
	(0.130)	(0.130)	(0.163)	(0.163)	(0.160)	(0.160)
1995	0.226**	0.228**	0.224**	0.226**	0.230**	0.231**
	(0.094)	(0.095)	(0.094)	(0.095)	(0.094)	(0.095)
1996	0.230***	0.238***	0.229**	0.236***	0.233***	0.240***
	(0.089)	(0.089)	(0.089)	(0.089)	(0.089)	(0.089)
1997	0.144	0.152*	0.143	0.151*	0.145	0.153*
	(0.089)	(0.090)	(0.089)	(0.090)	(0.089)	(0.089)
1998	0.132	0.136	0.132	0.136	0.134	0.137
	(0.094)	(0.094)	(0.094)	(0.094)	(0.094)	(0.094)
1999	0.066	0.066	0.066	0.066	0.066	0.066
	(0.095)	(0.095)	(0.095)	(0.095)	(0.095)	(0.095)
2001	0.010	0.006	0.010	0.007	0.010	0.007
	(0.096)	(0.096)	(0.096)	(0.096)	(0.096)	(0.096)
2002	-0.005	-0.013	-0.004	-0.012	-0.006	-0.014
	(0.094)	(0.094)	(0.094)	(0.094)	(0.094)	(0.094)
2003	-0.100	-0.109	-0.099	-0.107	-0.102	-0.110
	(0.099)	(0.099)	(0.099)	(0.099)	(0.099)	(0.099)
2004	-0.094	-0.102	-0.094	-0.102	-0.094	-0.102
	(0.096)	(0.096)	(0.096)	(0.096)	(0.096)	(0.096)
2005	-0.010	-0.016	-0.012	-0.018	-0.008	-0.014
	(0.097)	(0.097)	(0.097)	(0.097)	(0.097)	(0.097)
2006	0.213*	0.200*	0.047	0.033	0.254*	0.240*

Table T.8 Continued

	(0.122)	(0.122)	(0.148)	(0.148)	(0.137)	(0.137)
2007	0.304**	0.292**	-0.174	-0.186	0.274*	0.262*
	(0.132)	(0.132)	(0.173)	(0.173)	(0.143)	(0.143)
2008-9	-0.395*	-0.403*	-1.452***	-1.460***	-0.539**	-0.547**
	(0.240)	(0.240)	(0.467)	(0.467)	(0.227)	(0.227)
Parents Education						
MPRI5		0.110***		0.109***		0.109***
		(0.035)		(0.035)		(0.035)
MPRI8		0.260***		0.259***		0.260***
		(0.085)		(0.085)		(0.085)
MHGHSCH		0.353***		0.354***		0.352***
		(0.103)		(0.103)		(0.103)
MVOCHG		0.490***		0.491***		0.490***
		(0.115)		(0.115)		(0.115)
MUNI		0.192		0.191		0.192
		(0.146)		(0.146)		(0.146)
FPRI		0.077*		0.077*		0.077*
		(0.045)		(0.045)		(0.045)
FPRI8		0.042		0.042		0.042
		(0.068)		(0.068)		(0.068)
FHGHSCH		-0.194**		-0.194**		-0.194**
		(0.086)		(0.086)		(0.086)
FVOCHG		0.087		0.088		0.087
		(0.093)		(0.093)		(0.093)
FUNI		0.101		0.101		0.101
		(0.094)		(0.094)		(0.094)
MHG>=	0.276***		0.277***		0.276***	
	(0.072)		(0.072)		(0.072)	
FHG>=	-0.061		-0.061		-0.061	
	(0.052)		(0.052)		(0.052)	
Time Dependent Covariates						
Malet	-0.016***	-0.016***	-0.028***	-0.028***		
	(0.003)	(0.003)	(0.010)	(0.010)		
1994t	0.015**	0.015**	0.032	0.032		
	(0.006)	(0.006)	(0.022)	(0.022)		
2006t	-0.030***	-0.030***	0.014	0.014		
	(0.007)	(0.007)	(0.023)	(0.023)		
2007t	-0.089***	-0.089***	0.091**	0.091**		
	(0.011)	(0.011)	(0.042)	(0.042)		
2008_9t	-0.246***	-0.247***	0.445*	0.445*		
	(0.052)	(0.052)	(0.264)	(0.264)		
Maletsq			0.000	0.000		
			(0.000)	(0.000)		
1994tsq			-0.001	-0.001		
			(0.001)	(0.001)		
2006tsq			-0.002**	-0.002**		
			(0.001)	(0.001)		
2007tsq			-0.009***	-0.009***		
			(0.002)	(0.002)		
2008_9tsq			-0.068**	-0.068**		

Table T.8 Continued

			(0.029)	(0.029)		
Malelnt					-0.155***	-0.154***
					(0.027)	(0.027)
1994lnt					0.142**	0.143**
					(0.058)	(0.058)
2006lnt					-0.194***	-0.194***
					(0.054)	(0.054)
2007lnt					-0.439***	-0.440***
					(0.062)	(0.062)
2008_9lnt					-0.933***	-0.933***
					(0.158)	(0.158)
Observations	321,487	321,487	321,487	321,487	321,487	321,487
LR test: Incremental Chi-sq(d.f)	519.4	558.3	557.7	596.7	465.0	503.8
Prob < Incremental Chi-sq	0	0	0	0	0	0
Log Lik	-36335	-36315	-36316	-36296	-36362	-36343
AIC	38.9989	55.0000	49.0000	65.0011	38.9974	54.9985

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Reference for model 1, model 3 and model 3: female, age 15-19, mother/father with less than high school education level, YSFS 2000
Reference for model 2, model 4 and model 6: female, age 15-19,mother/ father whose education level is illiterate or illiterate without a diploma, YSFS 2000

APPENDIX U

TURKISH SUMMARY

Türkiye'de, 30 yaş altındakilerin toplam nüfusa oranı 2009 yılında %59,9'ken 64 yaş ve üstündekilerin oranı % 14,2'dir. Bu durum, Türkiye'nin genç ve büyüyen bir nüfusa sahip olduğunun göstergesi sayılabilir. Dolayısıyla, yakın bir zamanda kapanacak olsa da, Türkiye fırsat penceresine sahiptir. Ancak 2008 yılı verilerine bakıldığında doğum oranları yenilenme düzeyine oldukça yaklaşmıştır (2.15). 1990 yılında 33 milyon olan çalışma nüfusu, her sene ortalama 971 bin artarak 41 milyona ulaşmıştır. Ancak 2000'li yıllarda bu artış ancak 43 milyondan 47 milyona olmuştur.

Çalışma çağındaki bireyleri yaş gruplarına göre ayırdığımızda, 1990 yılında 10 milyon olan 15-24 yaş grubu, her sene 288 bin artarak 1999 yılında 13 milyona ulaşmıştır. Ancak 2000 yıllarda, 15-24 yaş grubu azalmaktadır. 2000 yılında 12,7 milyonken 2009 yılında 11 milyona düşmüştür. Bu düşüş her sene 132 bin azalmaya denk gelmektedir. Kısacası, doğum oranlarındaki azalış 15-24 yaş gruplarında kendini göstermeye başlamıştır. 15-24 yaş grubu ile 25-34 yaş grubunu karşılaştırdığımızda, doğum oranlarındaki düşüşün etkisi 15-24 yaş grubunda daha çok görülmektedir. 1990 yılında 8 milyon olan 25-34 yaş grubu, 1999 yılında 11 milyona çıkmıştır (sene başına 334 bin kişi eklenmiştir). Bununla birlikte 2000'li yıllardaki artış 1990 yıllarındaki artışa göre çok daha düşük olmuştur. 25-34 yaş grubun, 2000'li yıllarda her sene ortalama 82 bin artmıştır.

İstihdam rakamlarına baktığımızda 1990 yılında 18,5 milyon olan istihdam, 1999 yılında 21,6 milyona çıkmıştır (sene başına ortalama 390 bin kişiye istihdam yaratılmıştır). 2000'den 2009 yılına ise bir azalma söz konusudur (21,6 milyondan 21,2 milyona-sene başına 34 bin kişi). Yaş gruplarına göre baktığımızda, 15-24 yaş grubunda, 1990 yılında 4,6 milyon olan istihdam rakamları 1999 yılında ancak 5 milyona çıkmıştır. Bu da, ortalama sene başına 43,6 bin kişiye istihdam yaratıldığını işaret etmektedir. 25-34 yaş grubuna bakıldığında ise, 1990 yılında 5 milyondan 6,5 milyona bir artış söz konusudur. Kısacası sene başına 175 bin kişi istihdama eklenmiştir. 2000'li yıllarda ise 15-24 yaş grubunda, her sene 152 bin kişi istihdamdan çıkmaktadır. Bu yaş gurubunda, 2000 yılında 4,7 milyon olan çalışan sayısı 2009 yılında 3,3 milyona düşmüştür. 25-34 yaş gurubunda ise istihdamdakilerin sayısı artıyor olsa da 1990 yıllarındaki artışın gerisinde kalmıştır. 2000 yılında 6,61 milyonken 2009 yılında 6,65'e çıkmıştır.

İncelenen yıllarda yeteri kadar istihdam yaratılamadığı için işsizlik rakamlarında artış olmaktadır. İşsiz sayısı her sene ortalama 24 bin kişi eklenerek 1990 yılında 1,6 milyonken, 1999 yılında 1,8 milyona çıkmıştır. 2000 yılında ise her sene ortalama 219 bin kişi işsizlere eklenmiştir. 2009 yılında, işsizler 3,5 milyon kişiye ulaşmıştır. Genç bireyler arasındaki işsizlerin sayısında 1990 ile 1999 yılı arasında büyük bir fark görülmemektedir (Aşağı yukarı 890 bin). Ancak 25-34 yaş gurubunda 1990 yılında 392 bin olan işsizlerin sayısı, 1999 yılında neredeyse 2'ye katlamış ve 552 bin olmuştur. Gene bu yaş gurubunda, 2000 yılında 440 bin olan işsizlerin sayısı, 2009 yılında 1,2 milyona ulaşmıştır. 15-24 yaş gurubunda ise 2000 yılında 705 bin olan işsizler 2009 yılında her sene ortalama 47 bin artarak 1,1 milyon olmuştur.

1990'lı yıllarda, 15-24 yaş gurubundaki işsizlik oranları %14 ile %18 arasında değişmektedir. Daha sonraki on yılda ise işsizlik oranları %16 ile %25 arasında değerler almıştır. 25-34 yaş gurubundakilerin işsizlik oranları 15-24 yaş gurubundakilere göre daha düşüktür. 1990'lı yıllarda aşağı yukarı %6 değerini almaktadır. 2000 yıllara gelindiğinde ise %8 ile %15 arasında değişmektedir ve 2009 yılında en yüksek değer olan %15 değerini almaktadır. Buradan çıkarılacak iki önemli sonuç vardır. Bir tanesi işsizlik sorunu 2000'li yıllarda 1990'lı yıllara göre daha büyüktür. Diğeri ise, Türkiye'nin henüz fırsat penceresinden yeteri kadar faydalanamadığıdır.

Bunlara ek olarak, 15-24 yaş guruplarını karşılaştırdıpğımızda, işsizlik sorunun daha genç gurup olan 15-24 yaş gurubunda daha büyük bir sorun olarak karşımıza çıktığını görebiliriz. Özellikle her sene yaratılan istihdam olarak bakıldığında sorun daha göze çarpıcı olmaktadır. Bugünün genç işsizleri gelecekteki işsiz yetişkinleri oluşturmaktadır. Bu bakış açısıyla, gençlerin sorunlarını ve ihtiyaçlarını hem şimdiki hem de gelecekteki nesiller için ele almak önemlidir.

Bütün bunların yanında, yüksek öğrenime devam son yıllarda bir artış göstermektedir. 1988 yılında, 15-19 yaş gurubunda işgücüne katılmayanların arasında okuldakilerin oranı %50'nin altındayken 2010 yılında bu oran %70'lere kadar çıkmıştır. 20-24 yaş gurubunda ise bu oran 1988 yılında %10'ken 2010 yılında %30'lara çıkmıştır. Bu oranların artmasında, zorunlu eğitimin 8 yıla çıkması ve 1982'den 2008 yılına kadar 75 yeni üniversitenin açılmasının pozitif etkisi yadsınamaz. Örneğin 1990'lı yıllarda 20-24 yaş gurubu içinde üniversite mezunu oranı %5'i aşamazken bir sonraki on yılda bu oranlar artarak 2009 yılında %12'ye kadar çıkmıştır. Bu durum okuldan iş hayatına geçişin uzamasına sebep olmuştur.

Son 20 yılda, 15-24 yaş gurubu içindekilerden okuldakilerin oranın artış göstermesi, bu yaş gurubundaki işsizlik büyüme hızının 25-34 yaş gurubundakilerin altında kalmasına sebep olmuştur. Buna rağmen, hala işsizlik oranı bu yaş gurubunda, 25-34 yaş gurubundakilere göre daha yüksektir. Buna ek olarak, okullaşma oranlarındaki artışın devamı ve kentleşme nedeni ile işgücüne katılım artacağından işsizlik oranlarında da gelecekte artışlar olacaktır. Bu problem 2015-2020 yılları arasında en yüksek değere ulaşacak ki bu yılların demografik baskının hala devam ettiği yıllar olacağı dikkat çekicidir (Ercan, 2007). Bütün bu bahsedilen nedenlerden dolayı bu çalışmada gençler üzerinde durmaya karar verdik.

Geçen 20 yıl boyunca, Türkiye'de milli gelirdeki büyüme hızı ortalama %4 olmuştur. Türkiye, 1990'lı yıllarda dünya finans piyasaları ile entegre olduktan sonra krizlere daha duyarlı oldu. Aynı zamanda da büyümesi da daha dalgalı bir hale geldi. Okuldan sonra ilk işe girişin uzaması bireyler üzerinde kalıcı bir etkiye neden olabileceğinden dolayı okuldan işe geçiş üzerindeki krizin yansımalarının incelenmesi önemlidir. Dolayısıyla, Beşeri Sermaye Teorisi ve Arama Teorisi'nin yardımlarıyla kimlerin daha çok kimlerin daha az etkilendiği, hangi yollar aracılığıyla etkilenildiği cevaplanabilir. Unutulmamalıdır ki, işgücü piyasasındaki gençleri sadece krizler etkilemezler, yapısal değişikliklerin de (eğitimdeki değişikliler, ticaret rejimindeki değişiklikler vb…) gençler üzerinde etkileri görülmektedir. Özetle bunların hepsi, gençlerin okuldan sonra ilk işe girişlerine kadar geçen süre üzerinde çalışma yapmamız tetikleyen unsurlardır.

Bu noktadan sonra, tezi özetlemeye başlamaktayız. İlk olarak Bölüm 3'te, işgücü piyasasındaki gençlere genel bir bakış açısıyla yaklaşmaktayız. Bu bölümde iki ana bulgu bulunmaktadır. Birincisi, inaktif oranlarının kadın ve erkeklerde yaş profillerine göre farklılık gösterdiğidir. Kadınlarda yaşlandıkça inaktif oranları belli bir yaşa kadar artmakta sonra azalmakta ancak bu durum erkeklerde tam tersi olmaktadır. Diğer bir bulgu ise, inaktif oranlarında kadın ve erkek arasındaki farkla ilgilidir. Kadınlarda, inaktif oranları erkeklerdekine göre oldukça yüksektir. Örneğin son 20 yıldır kadınlardaki inaktif olanların oranı %30'un altına düşmemiştir. Erkeklerde ise bu oran %10'nun üstüne çıkmamaktadır. Bu duruma neden olan sebepler üstünde durmadan önce kullandığımız veri setlerindeki eksikliklerden bahsetmek istemekteyiz. Daha sonra da bu eksikleri göz önüne alarak, bulgularımızı farklı veri setleri ile incelemekteyiz ki bu da tezin dikkat çekici noktalarından bir tanesidir.

Hanehalkı işgücü anketleri sadece kurumsal olmayan nüfusu ele almaktadır. Dolayısıyla zorunlu askerlik hizmetini yapan erkekler örneklemden çıkıp yeniden girmektedirler. Gerçekten de, yaş guruplarına göre cinsiyet oranlarına bakıldığında askerlik çağında olanlar için bu oranların beklenmedik bir şekilde farklılaştığı gözlemlenmektedir. Özetlemek gerekirse, 1988-2009 yıllarında, kayıp olan erkeklerin oranı 20-24 yaş gurubunda %20'den daha yüksek değerleri almaktadır. Dördüncü bölümde, başka veri setleri (TNSA 2003 ve ADNKS 2007) kullanarak bu problemi çözmeye çalıştık. Erkeklerin toplam nüfusa oranı için güven aralığını hesapladık. Daha sonra TNSA 2003 için örnekleme hatasını hesapladık. HİA'dan hesapladığımız erkek oranlarının hangi yaş guruplarında bu %95 güven aralığının içinde olmadığını bulduk.

Bu hesaplamaları yaparken ne yazık ki tekli yaş gurubu verileri elimizde olmadığı için elimizdeki 5'erli yaş guruplarını inceleyebildik. Yaş guruplarına göre verilen ağırlıklandırmayı kullanarak elimizdeki yaş guruplarını kendi içlerinde yaş guruplarına bölebildik (15-17, 18-19, 20, 21-24). Bu ayrıştırılan yaş guruplarını ele alarak, HİA'dan elde edilen erkek oranlarının hangi yaş guruplarında ADNKS'den elde edilen erkek oranlarından istatistiksel olarak farklılaştığını bulduk. Bu farklılaşan yaş gurupları için kayıp erkekleri ele alarak düzeltmeler yaptık. Sonra da okuldan çıkış ve işe girişin hızlarını gösteren eğimi hesapladık.

Hesaplamaları, düzeltmeleri kullanarak yaparsak, 18-20 yaş aralığında okuldan çıkışların olduğunu gördük. Eğer düzeltmeleri kullanmazsak, okula girişlerin olduğunu gözlemldik. Bu yaş aralığında bu durum mantıklı çünkü kayıp erkekleri göz önüne almazsak eğitim seviyesi en çok lise olanları almış oluyoruz. Ayrıca bu bireylerin, liseden mezun olduktan sonra üniversite sınavı için hazırlanıyor olmaları kuvvetli ihtimal. Diğer bir deyişle, liseden mezun olan gençlerin bir kısmı tekrar eğitime döneceklerdir. Üniversite sınavına hazırlanan bu kişiler inaktif olarak görülmekte ve büyük ihtimalle askerlik yapmayı tercih etmemektedirler. Kısacası, eğitimlerin devam etmeyi istemektedirler. Ancak düzeltmeleri yaparsak, 18-20 yaş gurubunda olup askere gidenleri de ele almış oluyoruz. Bu nedenle de okulda çıkışların olması doğaldır.

Gençlerin, doğum yıllarına (kohort) göre işgücü piyasası durumlarını incelerken gene düzeltmeleri yaptığımız sonuçlar ile düzeltme yapmadan elde ettiğimiz sonuçları karşılaştırdık. Ayrıca, işgücü piyasalarındaki durumları üzerindeki yaş, yıl ve kohort etkilerini ayrıştırdık. Düzeltme yaptıktan sonra krizin işgücü piyasasına olan etkisinin yön değiştirdiğini gözlemledik. Örneğin, 1989 ve 1994 yıllarının istihdam oranına etkisi işaret değiştirmektedir. Düzeltmelersiz, 1989 krizi istihdam oranının yükselmesine neden olurken düzeltmeler yapılarak elde edilen veriler kullanılınca aynı kriz istihdam oranının düşmesine neden olmaktadır. 1994 krizi için ise tam tersi sözkonusudur. Düzeltmelersiz, kriz istihdam oranlarının yükselmesine neden olurken, düzeltmeler yapılınca aynı kriz istihdam oranlarının düşmesine neden olmaktadır. Bildiğimiz kadarıyla, bu çalışma 'kayıp erkekler' ile ilgili ilk çalışmadır ve düzeltme metodu önerisinde bulunan ilk çalışma özelliğini taşımaktadır. Bu çalışmanın özgünlüğü, zorunlu askerliğin okuldan iş hayatına geçişe ve çeşitli işgücü piyasaları oranlarına olan etkisini incelemesinden gelmektedir.

Beşinci bölümde, 2004-2006 yılları HİA verilerini kullanarak ayrık risk modeli çerçevesinde, bireylerin geçen seneki işgücü piyasasındaki durumunun şuandaki işgücü piyasası durumuna etkisini farklı methodlar kullanarak incelemekteyiz. Veri bireylerin geçen seneki durumunu ait bilgileri de içermektedir. Bu çalışmada işgücü piyasası durumları için daha geniş bir tanım kullanmaktayız çünkü okulda ve askerde olanları da işgücü piyasası durumu olarak ele almaktayız. Kadınlar için dört farklı işgücü piyasası durumu, erkekler için ise beş farklı işgücü piyasası durumu oluşturduk. Kadınlar için okulda, inaktif, işsiz, istihdamda ve erkekler için bunlara ek olarak askerde. Zorunlu askerlik erkeklerin okuldan işe geçiş zamanı ile çakışmakta çünkü 19 yaşına giren ve okula devam etmeyen her erkek askere gitmek zorundadır. Bu nedenle zorunlu askerliğin erkeklerin okuldan iş hayatına geçişlerinde etkileri olması doğaldır. Bu çalışmada, geçen sene zorunluk askerliğini yapmış olanların diğer işgücü durumlarına geçişlerini inceleyebilmekteyiz.

İşgücü piyasaları arasında ileriye ve geriye geçişleri hesapladık. Kentlerdeki eğitime devam edenlerin daha fazla olması kentlerde okulda olmayanların oranının da daha düşük olmasına sebep olmaktadır. Bu durum, eğitimin getirisinin kentlerde daha yüksek olması ile ilişkilendirilebilir. Erkeklerin kadınlara göre eğitime devam etme oranı daha yüksektir. Bunun sebepleri ailedeki ataerkillik, kardeş sayısı, aile içindeki cinsiyet komposizyonu olarak belirtilebilir. Diğer bir neden olarak zorunlu askerliktir. Eğitimine devam etmeyen erkeklerin birçoğu askerdedir ve dolayısıyla da HİA'nın örnekleminde yer almamaktadır. Daha önce de belirtildiği üzere, zorunlu askerlik işgücü piyasası durumlar arası geçişleri de etkilemektedir, özellikle de 20-24 yaş gurubundakilerin geçişlerini. İleriye geçiş olasılıklarına bakıldığında, geçen sene askerde olanların yarısı bir sene sonra istihdamdadırlar. Bu değer en yüksek 20-24 yaş gurubunda gerçekleşmektedir ki bu da askere gidenlerin en yüksek olduğu yaş aralığıdır. Bu bulgu daha önceki sonuçlarla paralellik göstermektedir: kayıp erkekleri de göz önüne alarak hesaplanan sonuçlare göre 18-20 yaş aralığındakilerde okuldan çıkışlar olmaktadır.

Sadece seçeneklerin çok olmadığı kırsal alanlarda değil kentlerde de inaktifliğin devamlılığı yüksektir. Kırsal alanlarda bir sene önce inaktif olanların %85'i bir sene sonra da inaktiftir, bu oran kentsel alanlarda %90 değerini almaktadır. Daha başka bir deyişle, inaktif olan birinin durumunu değiştirme olasılığı çok düşüktür. Eğitim düzeyi arttıkça, tarım dışı sektörlerde iş aramaya meyil artmaktadır. Kırsal alanlarda tarım-dışı sektörlerde seçeneklerin daha az olmasından dolayı kırsal alanlarda inaktifliğin sürekli olması beklenen bir durumdur. Dolayısıyla da kırsal alanlardaki gençler inaktif olmaya adaydırlar.

Bütün yaş gurupları için, geçen sene işsiz olanların bu sene işsiz olma oranı %50'den daha düşüktür. Ancak, işsizlikte kalma ihtimali yaş ile birlikte artmaktadır. İstihdam sürekliliğine bakıldığında ise inaktiflikte olduğu gibi yüksek değerler almaktadır. Kentsel alanlardaki kadınların istihdamdaki devamlılığı erkeklere göre daha düşüktür. Çünkü kadınların evlilik, çocuk bakımı gibi nedenlerle işgücü piyasasından çıkma olasılığa daha fazladır. Geçişlere bakıldığında, kırsal alanlarda 15-19 yaş gurubundaki kadınlarda okula devamlılık erkeklere göre daha yüksektir. Bunun nedenlerinde biri kırsal alanlarda zorunlu eğitimi bitirdikten sonra okulda devam eden kızlar seçilmiş bir guruptan gelmektedirler ve bu seçici guruptaki kızlar erkeklere göre eğitime devam etmeleri daha olasıdır.

İleriye geçiş olasılıklarına baktığımızda, istihdamın sürekliliğini görmekteyiz. Bununla birlikte, geriye doğru geçişlere baktığımızda istihdamdaki bireylerin hangi işgücü durumlarından geldiğini inceleyebilmekteyiz. Daha çok, okuldan istihdama geçişlere ve askerden istihdama geçişlere odaklanmaktayız. Diğer yaş guruplarına göre 15-19 yaş gurubunda şuanda istihdamda olanların okuldan gelme oranı daha yüksektir. Bu yaş gurubunda, kır ve kenti karşılaştıracak olursak okuldan geçişler kırsal alanlarda daha düşüktür. Özellikle de bu durum kadınlarda daha belirgindir. Sekiz yıllık zorunlu eğitimden sonra devam edenler kırsal alanlarda daha azdır. Dolayısıyla 15-19 yaş gurubundakiler işgücü piyasasına girmektedirler. Ayrıca istihdamdakilerin büyük çoğunluğunu geçen sene askerden gelenler oluşturmaktadır. Okuldan geçişlerler karşılaştırdığımızda askerlikten geçişler daha çoktur. 20-24 yaş gurubunda istihdamda olanların %10'undan fazlası askerden gelenlerden oluşmaktadır. Erkekler için kırsal alanlarda, okuldan istihdama geçişler ancak istihdamın %2,2'sini oluşturmaktadır. Kentsel alanlarda ise bu oran %4.7'dir.

Farklı işgücü durumlarından istihdama geçişleri etkileyen faktörleri belirlemek için multinomial logit modelini kullandık. Referans kategorisi olarak istihdamı aldık. Diğer işgücü durumlarından istihdama gelenler istihdamdan istihdama gelenlere göre daha düşüktür. Bu durum ileri geçiş olasılıklarıyla hesapladığımız istihdamın sürekliliği ile ilgili bulduklarımıza paralalel bir sonuçtur. Buna ek olarak kentsel alanlarda bulunmanın istihdama geçişlerin diğer işgücü durumlarından olma olasılığını arttırdığını bulduk. Ancak kentsel alanda bulunmanın etkisi kadın ve erkekler için çok da farklılaşmamaktadır. 20-24 yaş gurubu kentsel istihdamdaki kadınların inaktiflerden geçiş yapmış olma olasılığı kırdakilerden %5 daha yüksektir. Kentsel alanlarda, işsizlikten geçiş yapmış olma olasılığı kırsal alanlardakilerden %7 daha yüksektir. 15-19 yaş gurubundakiler için istihdama okuldan geçiş yapma olasığı kentsel alanlarda kırsal alanlardakilerden %5 daha yüksektir. Kentsel alanda olmanın, istihdama okulan geçiş yapmaya etkisi yaşla birlikte azalmaktadır. 20-24 yaş gurubunda kentsel alanlarda olmak istihdamdan okula geçiş yapma olasılığını %2 artırmaktadır.

Beşinci bölümde, geçişlerin belirleyicilerini de mercek altına aldık. Temel modelde, erkeklerin kadınlara göre istihdamda olma ihtimalinin daha yüksek olduğunu bulduk. Burada, rezervasyon ücretinin etkisi olduğu aşikardır. Buna ek olarak kadınlar belirli işler aramaktadır. Başka deyişle, bu sonuçlar Arama Teorisi bulgularını destekler niteliktedir. Ev üretimine daha yatkın olma rezervasyon ücretinin yükselmesine neden olmaktadır. Başka bir açıklama da, kadınların ev üretimine daha yatkın olmaları, erkeklerin ise ücretli işlerde karşılaştırmalı üstünlüğe sahip olmalarıdır.

Erkek-eğitim etkileşim kukla değişkenleri ile eğitim durumunu kontrol ettiğimizde, eğitimin etkisinin kadınlarda erkeklere göre daha yüksek olduğunu gördük. Bunun nedeni, eğitimin getirisinin kadınlarda daha yüksek olması olabilir. Meslek lisesi ve üniversite mezunları arasında, kadınların erkeklere göre istihdamda olma ihtimali daha yüksektir. Bunu gene zorunlu askerlik ile ilişkilendirebiliriz. Kadınlarda, okuldan ayrıldıktan sonra zorunluk askerlik gibi kariyer kesintisi yoktur. Bu nedenle de, okuldan iş piyasasına geçiş erkeklere göre daha yumuşak olabilir. Piyasaya, talep tarafından bakacak olursak işverenler askerliğini tamamlamamış olanları tercih etmektedirler. Kısacası, askerliğini yapmamış olanlar daha az iş fırsatlarına sahiptirler. Diğer bir deyişle, iş tekliflerinin geliş hızı daha yavaş olacaktır.

Arz tarafından bakacak olursak, bir sene önce askerde olmak erkeklerin işgücü piyasasında gözlemlenebilen davranışlarını etkilemektedir. Geçmişe yönelik bilgiler sayesinde zorunlu askerliğin etkilerini görebilmekteyiz. Bir sene önce askerde olanlar, bir sene önce okulda ya da inaktif olanlara göre daha yüksek bir olasılıkla istihdamdadırlar. 20-24 yaş gurubunda, bir sene önce askerde olanlar, bir sene önce okulda olanlardan 1.3 katı kadar daha yüksek bir olasılıkla istihdamdadırlar. Bu durum 25-29 yaş gurubunda ise 2 katına kadar çıkmaktadır. Kısacası, zorunlu askerliğin varlığı, beşeri sermayenin artma ve amortisman etkisini test edebilmemizi sağlamaktadır. Eğitim seviyesi arttıkça, beşeri sermayenin amortismanı daha yüksek olmaktadır. Bir sene önce askerde olan meslek lisesi veya üniversite mezunlarının istihdamda olma ihtimali daha az eğitimlilere göre daha düşüktür.

Cinsiyete ve yaşadıkları yere göre gençlerin işteki durumların farkılaşma göstermektedir. Kentsel alanlardaki kadın istihdamındaki ücretli çalışanların oranı daha yüksektir. Ancak kırsal alanlarda bu durum tam tersidir. İncelenen 1988-2009 yılları arasında, ücretli çalışanların oranı artış eğilimindedir ve bu artış kadınlarda daha yüksektir. Bu nedenle de, ücretli çalışanların oranı arasındaki cinsiyet farkı azalmaktadır. Bu durum kentsel alanlarda daha gözle görülebilir şekildedir. Bu nedenle, istihdamdaki bireyler arasında ücretli çalışmanın belirleyicilerini tahmin etmek için de bir model kurduk. Bu da beşinci bölümün odak noktaları arasındaydı. Bir sene önceki sene ücretsiz çalışanlar arasında erkeklerin ücretli çalışan olma olasılığı kadınlara göre daha yüksektir. Bu durum, İkili İşgücü Piyasası Teorisi ile ilişkilendirilebilir. Bu teoriye göre, kadınların ikincil sektörlerden birincil sektöre geçişleri daha zordur. Bunlara ek olarak, eğitimin istihdamda olma durumuna etkilerinin kadın ve erkeklerde farklılıştığını gördük.

Altıncı bölümde, 2009 yılındaki 15-34 yaş gurubunu hedef alan HİA'nın özel bir modülünü kullanarak okuldan iş piyasasına geçişi farklı bir şekilde ele aldık. Bu özel modül ile, okuldan ayrıldıktan sonra ilk kalıcı işe geçişe kadar geçen zaman ile ilgili bilgiye ulaşabildik. Bu bilginin yardımı ile, 20 senelik zaman diliminde gerçekleşen geçişler üzerinde inceleme yapabilmekteyiz. Ayrıca unutulmamalıdır ki, bu 20 sene, Türkiye'de birçok değişikliğin gerçekleştiği bir zaman dilimidir. Ekonomik krizler (1991, 1994, 2001, 2008 yılındaki krizler) ve yapısal değişiklikler (ticaret rejimindeki değişiklikler 1996, 2001 ve eğitim sistemindeki değişiklikler, 1996, 2002) bu 20 sene içinde gerçekleşmiştir. Bu olayların hepsi, okuldan sonra ilk kalıcı işe geçişi etkilemişlerdir. Bunlara ek olarak, bu zaman diliminde beş tane genel seçim olmuştur. Seçimlerin hemen öncesinde ve sonrasında genişleyici mali ve para politikaları uygulanmıştır. Bu nedenle sözü geçen bu seçimlerin okuldan sonra ilk kalıcı işe geçişe etkileri olması olasıdır. Bu bölümde, ekonomideki herhangi bir değişikliğin geçişler üzerinde etkisi olup olmadığı ve eğer bir etkisi varsa bu etkinin kalıcı olup olmadığını test etmekteyiz.

Tahminlerimizi yaparken, 2000 yılını referans yılı olarak kullanmaktayız. Bunun başlıca nedeni 1990'lı yıllar ile 2000'li yıllar arasındaki ayırımı yapabilmektir. Referans aldığımız 2000 yılı istihdam oranları açısından, 1991 yılından sonra elde edilen en yüksek değere sahiptir bu nedenle de ekonomik açıdan iyi bir yıldır. 1990'lı yıllarda kolalisyon hükümetlerinin olduğu unutmamalıdır ki bu durumun da okuldan sonra ilk kalıcı işe geçişi etkilemesi olasıdır. Analizimize, okuldan sonra herhangi bir işte çalışıp çalışmadığı, ilk kalıcı işe girip girmediği ve ilk kalıcı ücretli bir işer girip girmediğini inceleyerek başladık.

Tahmin etttiğimiz logit modellerden, dört ana bulguya ulaştık. Birincisi, yeni mezunların (okuldan ayrılış senesi yeni olanlar) okuldan sonra ilk kalıcı işe girme olasılığının eskilere göre daha düşük olduğudur. Bunun ana nedeni, okuldan ayrıldıktan sonra geçen sürenin az olmasıdır. Diğer bir nedeni ise 2008 yılındaki ekonomik krizdir. İkinci bulgumuz, yapısal değişikliklerin ya da krizlerin olduğu senelerde okulda ayrılan bireylerin okuldan sonra ilk kalıcı işe girişe etkileri olduğu gözlemlenmektedir. Bu etkiler eğitim seviyelerine göre de değişmektedir.

Üçüncü bulgu ise cinsiyet ile ilgilidir. Erkeklerin ilk kalıcı işe girişi daha olasıdır. Bu durum beklenen bir sonuçtur. Çünkü erkekler ekmek parası kazanmak ile yükümlüdürler daha doğrusu hanehalkı içindeki birincil çalışan kişilerdir. Buna ek olarak, eğitim seviyesi düşük olanlar arasında erkek olmanın etkisi yüksek eğitimlilere göre daha yüksektir. Bu durum da, eğitim seviyesinin yükselmesi ile işgücü piyasasındaki kadın ve erkeklerin davranışlarının benzemesine işaret etmektedir. Eğitim seviyesi arttıkça, boş zamanın fırsat maliyeti de artmaktadır bu nedenledir ki yüksek eğitimli kadınlar düşük eğitimli kadınlara göre işgücüne daha yakındır. Bu bulgularımız beşinci bölümdekilerle örtüşmektedir. Beşinci bölümde, meslek lisesi mezunu ve üniversite mezunu kadınların daha çok istihdamda yer aldığını bulduk.

İşsizler, ücret teklifi dağılımına ve olası iş fırsatlarına dair düşüncelerinin değişmesiyle birlikte rezervasyon ücretlerinin de değitirmektedirler. Erkeklerin kadınlara göre daha yüksek ücret beklentileri vardır ki bu da rezervasyon ücretlerini arttırmaktadır. Ki bu durum yüksek eğitimliler de daha olasıdır. Bu durumda yüksek eğitimliler arasında kadınların ücretli çalışan olma ihtimalini artırmaktadır. Diğer bir bulgu ise kensel alanda bulunmanın okuldan sonra ilk kalıcı işe girişe olan etkisi ile ilgilidir. Kentsel alanda bulunmanın, okuldan sonra ilk kalıcı işe giriş üzerinde negatif bir etkisi olduğunu gördük. Buna karşın okuldan sonra ilk kalıcı ücretli işe geçiş kentsel alanlarda daha olasıdır.

Toparlayacak olursak, farklı bağımsız değişkenler kullansak da açıklayıcı değişkenlerin tahmin edilen etkileri aşağı yukarı aynıdır. Ancak unutulmamalıdır ki, okuldan ayrılma yılının okuldan sonra ilk kalıcı işe girişe etkisini logit analizi kullanarak tahmin etmenin bazı kısıtları vardır. Buna karşın süre analizlerini kullanarak yapısal değişiklikler ve ekonomik krizlerin okuldan ilk kalıcı işe geçiş süresine etkisi olup olmadığını inceleyebilmekteyiz. Ayrıca bu etkilerin kalıcı olup olmadıklarını da görebilmekteyiz.

Altıncı bölümde, sürekli zaman çerçevesini de ele alarak süre bilgisini doğrudan kullanmaya çalıştık. İlk olarak tanımlayıcı istatistiki bilgileri inceledik. Bu amaç doğrultusunda, yaşam fonksiyonunun Kaplan-Meier tahmini kullandık. Buradan dört tane önemli ipucunu öne çıkardık. Bunlardan birtanesi, okuldan sonra ilk kalıcı ücretli işe geçiş ilk kalıcı işe geçişe göre daha yavaş olmaktadır. Ayrıca okuldan sonra ilk işe geçiş süresi eğitim seviyelerine göre de değişmektedir. Diğer bir ipucu da kadın ve erkekler arasındaki farklılaşmadır. Kaplan-Meier tahmininden ortaya çıkan önemli ipucunun sonuncusu ise okuldan sonra ilk işe geçiş sürelerinin dağılımı ile ilgilidir. Dağılımın sağ-kuyruğu daha uzundur. Diğer bir deyişle, dağılım sol tarafta yoğunlaşmıştır.

Değişkenlerin ve zamanın etkisini incelemek için, çoklu analize geçtik. Bunun için Cox-Orantılı Risk Modelini kullanmayı tercih ettik çünkü bu model sayesinde temel hazard'ın fonksiyonel şeklini tahmin etmeden açıklayıcı değişkenlerin etkilerini inceleyebilmekteyiz. Diğer bir deyişle, açıklayıcı değişkenler temel risk fonsiyonunu sabit oranlarda yukarı ve aşağı hareket ettirmektedir.

Cox-Orantılı Risk Modelinde karşılaşılan bazı sorunlar vardır. Bunların bir tanesei 'Eşanlılık (Ties)' olmaktır. Diğeri ise 'Orantılılık Varsayımı (Proportionality assumption)'dır. 'Eşanlılık' sorununu Efron yöntemini kullanarak çözdük. Dişğer sorununu zamana bağlı değişkenleri modele ekleyerek çözdük. Logaritmik fonksiyonel formdaki zamana bağlı değişkenlerin olduğu modelde AIC (Akaike Information Criteria) en küçük değeri aldığı için logaritmik formu seçtik. Doğru modeli seçtikten sonra, temel risk fonksiyonlarına baktık. Cox-Orantılı Risk Modeli, farklı eğitim grupları için değişkenlerin aynı olduğunu varsayarak, temel risk fonksiyonunu farklılaşmasına izin veriyor. Kısacası, temel risk fonksiyonunu ayrıştırabiliyoruz ve eğitime göre ayrıştırdığımız temel risk fonksiyonlarını elde edebiliyoruz. Bu ayrıştırma, orantılılık varsayımını rededilmesine sebep olan değişken kullanılarak yapıldığında bu varsayımın neden olduğu problemleri çözmektedir.

Yeni mezunların (veya okuldan yeni ayrılanlar) eski mezunlara (veya okuldan daha önce ayrılmış olanlar) göre ilk kalıcı işe girmeleri daha uzun sürmektedir. Daha önce de üstünde durduğumuz üzere, bu beklenen bir durumdur çünkü yeni mezunların iş bulmaları için daha az bir zamanı olmuştur ve 2008 yılı kriz senesidir. Yeni mezun olmanın ilk kalıcı işe geçişlere olan etkisi incelenen zamana bağlı olarak değişmektedir. Örneğin okuldan ayrıldıktan sonra süre olarak ilk 12 ay ele alınırsa, anketin yapıldığı tarihten 12 ay öncesinde mezun olanlar temel alınan 2000 yılında mezun olanlardan daha yavaş işe girmekteler. Ancak bu süre 24 aya çıkartılırsa, anketten 24 ay önce mezun olanlar da yeni mezunlar gurubuna girmekte ve daha yavaş bir şekilde ilk kalıcı işe girmekteler.

Süre 36 aya çıkartılırsa, 2008 veya 2009 yılında mezun olanların ilk kalıcı işe girme hızı 2000 yılındakilerden 0.6 kadar daha yavaş olduğu gözlemlenmektedir. Zaman içerisinde, 2007 ve 2006 yılında mezun olanların da ilk kalıcı işe girme süresi uzamaktadır. Burada unutulmamalıdır ki, 2000 yılında mezun olanlarla ilk kalıcı işe girme süresi farklılaşmaması olumsuz bir durum olarak algılanmamalıdır. Çünkü daha önce de belirtildiği üzere 2000 yılı isitihdam açısından oldukça parlak bir yıldır. 2000 yılından sonra istihdam oranı düşmeye başlamıştır. Ancak bu düşüş sadece krizlerle ilişkilendirilmemelidir. Çünkü bu düşüş 2005 yılına kadar devam etmiştir.

Daha sonra da, 2002 yılından sonra artan sabit fiyatlarla hesaplanan milli gelirin artmasına rağmen istihdam oranlarında kayda değer bir değişiklik olmamıştır. 2001 krizi sonrasında hızlı büyüme sonucunda 2002'den 2008'e kadar sabit fiyatlarlar hesaplanan milli gelir %41 oranında büyümüştür. Kısacası, bu büyüme istihdam oranlarına yansımamıştır. Bu durum Türkiye'nin teknolojik olarak belli bir seviyeye geldiğinin göstergesidir. Ancak, bu gelişme işgücüne yansımamıştır. Bu bakış açısıyla, okuldan ayrıldıktan sonra daha eğitimli bireylerin ilk kalıcı işe girişinin daha hızlı olması gerekmektedir.

Okuldan ayrıldıktan sonra ele alınan süre değiştikçe, kriz seneleri, yapısal değişim yılları veya seçim yıllarına denk gelen okuldan ayrılış senesinin, bireylerin okuldan sonra ilk kalıcı işe girmesine olan etkisi de değişmektedir. Bunlara ek olarak yapısal değişikliklerin ve genel seçimlerin ilk kalıcı ücretli işe girişe ve ilk kalıcı işe girişe olan etkileri birbirine benzemektedir. Krizlerin ilk kalıcı işe giriş süresine olna etkisine bakıldığında ise 1990'larındaki krizlere denk gelen yıllarda mezun olanlarla 2000 yılında mezun olanlar arasında anlamlı bir farklılık yoktur sonucuna ulaşılmaktadır. Ancak 1994 krizi zaman içerisinde ilk kalıcı işe girişi hızlandırmaktadır. Genel seçimler de ilk kalıcı işe girişi hızlandırmaktadır ve genel seçimlerin de kalıcı bir etkisi vardır. Başka bir şekilde söylemek gerekirse, bu etkiler zaman içerisinde kaybolmamaktadır.

Genel olarak, 2000 yılından sonra okuldan ayrılmanın ilk kalıcı işe giriş üzerinde herhangi bir etkisi yoktur. Bu durum, 2000 yılı ve sonrası arasında okuldan sonra ilk kalıcı işe girenlerin ilk kalıcı işe girme sürelerinde bir farklılık yoktur anlamına gelmektedir. Buna karşın, 2000 yılı öncesinde okulan ayrılanlar, makro ekonomik değişkenlikler olmasına rağmen 2000 yılında ayrılanlara göre daha hızlı bir şekilde ilk kalıcı işe girmektedirler. 2000 yılından önce okuldan ayrılanların işe giriş hızı 2000 yılındakilerin 1.3 katıdır.

Temel risk fonsiyonuna bakıldığında, okuldan sonra ilk kalıcı ücretli işe girişlerin meslek lise mezunlarında üniversite mezunlarına göre daha hızlı olduğu görülmektedir. Bu bölümde, temel hazardın eğimi üniversite mezunlarından zaman göre farklılık göstermektedir. İlk 12 aydaki eğim en dik eğimdir. Daha sonra, 12-24 ay arasındaki eğim azalmaya başlamaktadır ve sonraki 12 ay (24-36 ay arası) eğim artış göstermektedir ancak ilk 12 aydaki eğim kadar dik değildir.

Üniversite mezunları için risk fonsiyonundaki değişimler ile zorunlu askerlik arasında bir ilişki kurabiliriz. Üniversiten mezun olduktan sonra erkekler zorunlu askerlik hizmetini yapmak için bekleyebilirler dolayısıyla da inaktif olabilirler. Askerden geldikten sonra işgücü piyasasına girebilirler ki bu da yaklaşık olarak okuldan ayrıldıktan sonra 24 aya tekabül etmektedir. Askerden geldikten sonra, işgücü piyasasına daha yakın oldukları için ilk kalıcı işe girme olasılıkları daha yüksek olacaktır.

Kısacası, zorunlu askerlik hizmetinin okuldan işe geçişi üzerindeki yalın etkisini inceleyemesek de, zorunlu askerlik hizmeti ve okuldan işe geçişi ilişkilendirebiliyoruz. Diğer bir deyişle, zorunlu askerlik hizmeti okuldan işe geçiş üzerindeki etkisini açık bir şekilde olmasa da görebilmekteyiz. Buna ek olarak, erkekler okuldan sonra ilk kalıcı işe daha hızlı bir şekilde girmektedirler. Ancak bir süre sonra kadın erkek arasındaki fark azalmaktadır. Bunu da zorunlu askerlik ile ilişkilendirmek mümkündür. Çünkü okuldan sonra ilk kalıcı işe giriş hızındaki kadın erkek farkı ilk 12 ay sonrasında azalmaya başlıyor ki bu da özellikle üniversite mezunları için askere gidip gelme süresine denk geliyor. Bunlara ek olarak okuldan sonra ilk kalıcı işe girişte mevsimselliğin de olduğu görülmektedir.

Annenin eğitim seviyesini bireyin aldığı eğitimin kalitesi için proxy olarak kullandığımızda, lise ve daha yüksek eğitimli annelerin ilk kalıcı işe giriş süresini kısalttığını görmekteyiz. Babanın eğitimini ise ailenin sahip olduğu kaynaklar olarak düşündüğümüzde, ilk kalıcı işe giriş babanın eğitiminin yani ailenin sahip olduğu kaynakların ilk kalıcı işe girişe bir etkisi olmadığını bulduk.

Tezdeki önemli bulguların üzerinde durarak toparlayacağız. Birinci önemli bulgumuz, zorunlu askerlik hizmetinin okuldan işe girişlere olan etkisi ile ilgilidir. Bu bulgu, diğer tezlerden ayıran önemli bulgulardan bir tanesidir. Kayıp erkekler ile ilgili düzeltmeler yapılmadan önce ve yapıldıktan sonra hesaplanan işgücü piyasası belirleyicilerinin oldukça farklılıştığı görülmektedir. Özellikle, askerlik çağındaki erkeklerde bu farklılaşma daha büyüktür. Buna ek olarak, krizin istihdam oranlarına olan etkisi kayıp erkekler ile ilgili düzeltme yapılıp yapılmadığına göre değişmektedir. Bir sene önce askerde olmak istihdama girişe pozitif etkide bulunmaktadır. Ayrıca istihdamda olanlar arasında, bir sene önce askerde olmak ücretli olarak istihdamda olma olasılığını arttırmaktadır.

Düşük eğitimli bireylerin zorunlu askerlik hizmetini yaparken beşeri sermayelerini arttırması daha olasıdır. Bir sene önce askerdeki lise ve daha düşük eğitimli erkeklerin bir sene sonra istihdamda olma ihtimali yüksek eğitimlilere göre daha yüksektir. Bu sonucu, eğitim seviyesi arttıkça ve uzmanlık arttıkça, beşeri sermayedeki amortismanın daha çok olması ile bağlayabiliriz. Bu nedenle, zorunlu askerlik hizmeti sırasında yüksek eğitimlilerin amortismanın daha yüksek olması doğaldır. Beşeri sermaye amortismanı farklılaşması, ücret teklifleri dağılımının ve de iş teklifi hızlarının da farklılaşmasına neden olacaktır. Bu nedenle de farklı eğitim seviyelerinin istihdama geçişlere olan etkisi de farklılaşmaktadır.

İkinci önemli bulgu, ilk kalıcı işteki duruma göre okuldan sonra ilk işe girişin süreleri değişmektedir. İlk kalıcı ücretli işe giriş süresi ilk kalıcı işe girişe göre daha uzun sürmektedir. Bireylerin okuldan mezun olmaları belli aylarda olmaktadır. Bu nedenle de okuldan ilk kalıcı işe girişte mevsimsellik olduğu bulgusuna rastlamak çok doğaldı. Okuldan ayrıldıktan sonra ilk dört ay daha sonraki aylara göre daha hızlıdır. İlk dört aydan sonra yavaşlayan işe giriş hızı daha sonra tekrar hızlanmaktadır. Üçüncü bulgu ise okuldan işe giriş süresi eğitim seviyelerine göre farklılaştığıdır. Meslek lisesi mezunları, diğer eğitim seviyelerine göre okuldan işe daha hızlı girmektedirler.

Dördüncü bulgu ise okuldan ayrılış yıllarının okuldan ilk kalıcı işe girişlere olan etkisi ile ilgilidir. Yeni mezunlar geçişlerde zorluklarla karşılaşmaktadırlar. Yeni mezunlar ya da başka bir deyişle okuldan ayrılış senesi yeni olanlar daha uzun süre de okuldan ilk kalıcı işe geçiyorlar. Yapısal değişikliklerin ve krizlerin de bu geçişler üzerinde etkileri görülmektedir. Ayrıca bu etkilerin çoğu kalıcıdır başka bir deyişle zaman içinde etkiler kaybolmamaktadır. Bu bulgular gençler ile ilgili politika kararları alırken dikkate alınmalıdır çünkü herhangi bir yapısal değişiklik gençler üzerinde kalıcı bir etkiye neden olacaktır. Bunlara ek olarak okuldan ilk kalıcı işe giriş zaman içerisinde zorlaşmaktadır. 1990'lı yıllarda makroekonomik değişkenliklerin çok olmasına rağmen 1990'lı yıllarda mezun olanlar 2000'li yıllarda mezun olanlara göre göre daha hızlı bir şekilde ilk kalıcı işe girmektedirler.

Beşinci bulgumuz ise okuldan işe geçişlerdeki cinsiyet farklılaşması ile ilgilidir. Yüksek eğitimliler arasında, kadınlarda işsizlikten istihdama geçiş oranı erkeklere göre daha yüksektir. Buna ek olarak, eğitimin kadınlar üzerine etkisi erkeklere göre daha yüksektir. Eğitim seviyesi yükseldikçe okuldan işe geçişlerde, kadın ve erkeklerin davranışları birbirine benzemektedirler. Okuldan ilk kalıcı işe giriş ise erkeklerde daha hızlı olmaktadır. Cinsiyet arasındaki fark zamana bağlı olarak azalmaktadır. Kadın ve erkeklerin, okuldan ilk kalıcı ücretli işe girişteki süreleri arasındaki fark 12 aydan sonra azalmaya başlamaktadır ve 14 ay sonra kapanmaktadır. İlk kalıcı işe geçişlerdeki fark ise 24 ay sonra azalmaya başlamıştır ve 22 ay sonra kapanmaktadır.

Son bulgumuz ise, ebevynlerin eğitimlerinin okuldan ilk kalıcı işe geçişe olan etkisi ile ilgilidir. Annenin eğitimini, bireyin aldığı eğitimin kalitesi ile ilişkilendirdiğimizde bireyin sahip olduğu eğitim kalitesi yükselince okuldan ilk kalıcı işe giriş de hızlanmaktadır. Buna karşın ailenin sahip olduğu kaynakların okuldan sonra ilk kalıcı iş girişe bir etkisi olmadığını bulduk.

CURRICULUM VITAE

PERSONAL INFORMATION

Surname, Name: Yanık İlhan, Bengi
Nationality: Turkish (TC)
Date and Place of Birth: 13 January 1976, Mersin
Marital Status: Married
Phone:+90 312 3381194
Email:byanik@ku.edu.tr
Homepage: http://home.ku.edu.tr/~byanik/

EDUCATION

Degree	Institution	Year of Graduation
M.A in Economics	ITU Economics	2004
M.B.A.	Galatasaray University	2003
B.S.	Boğaziçi University Economics	2001
1-year French preparation	Galatasaray University	1996

Research Fields

Econometrics, Applied Microeconometrics, Labor Economics; Labor Market Dynamics and Inequalities in the Labor Market

Dissertation

Title: Youth in the Labor Market and the Transition from School to Work in Turkey

Advisor: Meltem Dayıoğlu and İnsan Tunalı

Work Experiences

- **Research Assistant and Teaching Assistant**, Koç University, 2011-
  Labor Economics Assoc. Prof. Insan Tunalı
- **Research Assistant**, Koç University, Assoc. Prof. Insan Tunalı 2009-2010
- **Visiting Scholar,** University of Michigan, Population Studies Center 2009
- **Research Assistant**, Koç University, Prof. Kamil Yılmaz, ERF 2008-2009
  (Economic Research Forum)

- **Research Assistant,** TÜBITAK Project: *Project No:* 106K134 , 2006-2008
  "*The Impacts of Internal Migration Natives' Educational and Labor Market Outcomes: Evidence from Turkish Provinces*"
- **Research Assistant and Grader** Assoc. Prof. Insan Tunalı,*:* 2005-2008
  Econometrics, Applied Econometrics
- **Visiting Scholar** University of Minnesota, ERF 2004
- **Teaching Assistant** ITU*:* Econometrics, 2002-2004
  Game Theory
- **Management Trainee**, AKBANK T.A.Ş 2001-2002

Teaching Experiences

(G)raduate, **(U)**ndergraduate

Instructor

- **Introduction to Economics (U)** Fall 2011
  Department of Computer Engineering, Air Force Academy, Istanbul, Turkey

Teaching Assistant

- **Teaching Assistant (U)**, Koç University, Labor Economics**,** Fall 2011
  Assoc. Prof. Insan Tunalı
- **Teaching Assistant (U)** ITU*:* Econometrics, 2002-2004
  Game Theory

Working Papers and Conference Presentations

- "*Transition to first Permanent Job after Separation from School in Turkey*" presented at MEEA (Middle East Economic Association) 23th-24th June 2011 Conference"- Co-authored with İnsan Tunalı (in progress)
- " *The More Local Labor Market Opportunities The More Labor Market Re-entry of Older People: An Empirical Analysis from Turkey* " presented at EconAnadolu (Anadolu International Conference in Economics) 15th-17th June 2011 Conference"- Co authored with A. Aylin Bayar
- "*Transition from School to Work in Turkey*", MEEA (Middle East Economic Association) 24th-26th June 2010 Conference-Co authored with İnsan Tunalı (in progress)
- "*Labor Force Participation of Elderly: Turkish Case*", EBES (Eurasia Business and Economics Society) 26th-28th May 2010 Conference- Co authored with A. Aylin Bayar (in progress)
- "*How does Education Gender Inequality Change over Time and after the Increase in Compulsory Education in Turkey*?", International Multidisciplinary Women's Congress, 13th-16th October 2009, İzmir, Türkiye- Co authored with Nursel Aydiner Avşar (in progress)

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- *"Local Industrial Structure and Female Participation in Paid Work in Urban Turkey*", Paper presented at Workshop on Gender, Work, and Family in the Middle East and North Africa, 8th-10th June 2004, Mahdia City, Tunisia-Co Authored with Ragui Assaad
- "*Educational Inequality in the Turkish Labour Market: Gender-based Notes*", First International Conference on Women Studies of Centre for Women Studies in Cyprus, 2004,Co Authored with Nursel Aydiner Avşar

Referee for *Journal of Economic and Social Research*

AFFILIATION

- Co-Chair, TUKAED (Women Economists Association of Turkey)
- Research Committee Executive Board Representative, TUKAED (Women Economists Association of Turkey)

HONORS and AWARD

- Tübitak BİDEB Support for International Scientific Activities Participation Programme 2224, 2011
- Tübitak BİDEB International Research Fellowship Programme 2214 (for PhD students), 2009
- Vaksa Scholarship (Ranked in first 250 in the nation-wide University Entrance Exam-1996-ÖYS)
- Akdeniz Dershanesi Scholarship (Ranked in first 250 in the nation-wide University Entrance Exam-1996 -ÖYS)

COMPUTER SKILLS

- STATA, E-views, SPSS, MATLAB, Macromedia, FrontPage, Windows XP, MS Office

LANGUAGE SKILLS

- English (Advanced), French (Intermediate)

TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü	
Sosyal Bilimler Enstitüsü	*
Uygulamalı Matematik Enstitüsü	
Enformatik Enstitüsü	
Deniz Bilimleri Enstitüsü	

YAZARIN

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