THE EFFECT OF MATERNITY LEAVE POLICY ON FEMALE LABOR FORCE PARTICIPATOIN IN TURKEY

Thesis submitted to the
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Master of Science in Economics

by

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Dedication

I dedicate this thesis to my father, who gave me the greatest gift by always believing in me and encouraging my path. I believe he is feeling very happy and proud of me from the Heaven. I also dedicate this study to my mother who always supported me and was my well-wisher throughout this research process. Thank you very much for believing in me and my ability to finish this study.

Модарчони азизам! Ташаккури бенихоят зиёд барои дастгирию дуохоят. Зиндагиро дуст дорам аз барои модарам.

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THE GRADUATE SCHOOL OF SOCIAL SCIENCES
GAZIANTEP

The Masters Thesis, titled "The Effect of Maternity Leave Policy on Female Labor Force Participation in Turkey" written by Rukhshona Fatoeva, graduate student in the Master of Science of Economics, was accepted by the members of the jury listed below on 15 June 2016.

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The material included in this thesis has not been submitted wholly or in part for any academic award or qualification other than that for which it is now submitted.

Rukhshona Fatoeva

June, 2016

ABSTRACT

June 2016

THE EFFECT OF MATERNITY LEAVE POLICY ON FEMALE LABOR FORCE PARTICIPATOIN IN TURKEY

The paper estimates the effect of maternity leave policy implemented on 2003 and 2004 on labor force participation rate of women in Turkey. According to OECD standards, the levels of participation in Turkey are now lower than all other OECD members. Thus, understanding determinants of female labor force participation (FLFP) is of particular interest.

Majority of female working age population of Turkey consists of mothers with young children. Government decided to encourage women to move to the labor market and increase the female labor force participation, that have been continuing since last half century and reached the lowest rate in 2006 compared with OECD countries. In 2004, Turkish government implemented maternity leave reform of 2004, which was aimed to extend the duration of paid maternity leave from 12 weeks to 16 weeks. Turkish government aims to make Turkey one of the world's top 10 economies by 2023, which is going to be the 100th anniversary of Turkish Republic Foundation. For this to be effective, the labor force participation of women has to increase.

Using a cross sectional data set from 2002 and 2005, this thesis will both empirically analyze the effects of the upcoming reforms in Turkey, as well as analyze some scenarios, concerning the mothers' decision to stay in the labor market and the paid maternity leave. Hence, will the reform lead to an increase in the period that women stay active in the labor force?

Key words: *Female Labor Force Participation, Maternity Leave, Labor Law, and Turkey.*

KISA ÖZET

Haziran 2016

TÜRKİYE'DE DOĞUM İZNİ POLİTİKALARININ KADIN İŞ GÜCÜ KATILIMINA ETKİSİ

Bu çalışma Türkiye'de 2003 ve 2004 de uygulanan doğum izni politikanın kadınların işgücüne katılma oranı üzerinde etkisini değerlendirmektedir. Ekonomik Kalkınma ve İşbirliği Örgütü (OECD) standartlarına göre, Türkiye'de iş gücü katılım düzeylerinin diğer tüm OECD üyelerine göre daha düşüktür. Bu nedenle, kadınların işgücüne katılım belirleyicilerin anlaşılması özel ilgi çekmektedir.

Türkiye kadın çalışma çağındaki nüfusun çoğunluğu çocuklu annelerden oluşur. Hükümet son yarım yüzyıldan beri devam etmekte olan ve OECD ülkeleri ile kıyaslandığında, 2006 yılında en düşük oranına ulaşan kadın işgücü katılımını artırmak ve kadınları işgücü piyasasına teşvik etmeye karar verdi. Türk hükümeti 2004 yılında, ücretli doğum izni süresini 12 haftadan 16 haftaya uzatma kararı ile analık izni reformunu uygulamıştır. Türkiye hükümeti Türk Cumhuriyeti Vakfı 100. yıldönümü olacak 2023, Türkiye'yi dünyanın en büyük 10 ekonomisinden biri haline getirmek amacındadır. Türkiye hükümeti, Türkiye Cumhuriyeti'nin kuruluşunun 100. yıldönümü olacak 2023 yılı için, Türkiye'yi dünyanın en büyük 10 ekonomisinden biri haline getirmeyi hedeflemiştir. Bunun için, kadınların işgücüne katılımının artması gerekmektedir.

Bu tezde, 2002 ve 2005 yıllarını kapsayan kesit veri seti kullanılarak ampirik olarak yakın zamandaki reformların etkileri analiz edilmiş, aynı zamanda ücretli doğum izni ile annelerin işgücü piyasasında kalma kararı gibi senaryoları da incelemiştir. Sonuç olarak, reform kadınların işgücünde aktif kalma dönemini uzatacak mıdır?

Anahtar Kelimeler: *Kadın İşgücü Katılımı, Doğum İzni, İş Hukuku, ve Türkiye.*

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LIST OF ABBREVIATIONS

OECD- Organization for Economic Cooperation and Development
ILO- International Labor Organization
EU-European Union
EEC-European Economic Community
LFP- Labor Force Participation
FLFP- Female Labor Force Participation
FLPR-Female Labor Participation Rate
DD-Difference-in-Difference
Turk Stat- Turkish Statistical Institute
MENA- Middle East and North Africa
HBS- Household Budget Survey
HLFS- Household Labor Force Survey
TDHS- Turkish Demographic and Health Survey
ABPRS- Address Based Population Registration System
FMLA- Family Medical Leave Act
LPM- linear probability model
KPSS- Kamu Personeli Seçme Sınavı - Public Service Personnel Selection Examination)
OSYM-Measurement, Selection, Placement Center

CHAPTER ONE

1. Introduction

Female labor force participation has been identified as the most important factor in explaining increase in aggregate participation rates as well as the current cross-country variation of aggregate participation rates (Burniaux *et al.,* 2003).

Employment is essential for poverty reduction and economic growth. In fact, creating employment and other income generating activities are fundamental to achieving sustainable economic and social development.

According to World Bank Development Report (2013), over 3 billion people have jobs worldwide, but the types and levels of their jobs vary greatly. Approximately 1.65 billion work in the formal sector and earn regular wages and some 1.5 billion engage in farming and small family enterprises, most of them from developing countries. Worldwide, approximately 200 million people are unemployed, many of them young. Further, "Almost 2 billion working-age adults are neither working nor looking for work; the majority of these are women, and an unknown number are eager to have a job"[1]

Labor force participation level of women has been decreasing since 1980 from 48% to current levels at around 29% in 2012. According to OECD standards, the levels of participation in Turkey are now lower than many countries in Middle East (such as Iran, Pakistan, Kuwait and Libya), which have had historically low female participation rates. The important reason of this fall is found to be urbanization. The level of migration has increased a lot since 1988 in Turkey, and women have been loosing their jobs as they move to other regions due to lack of experience or no agricultural sectors for rural ones.

According to empirical studies, many developing countries seeking to increase the aggregate participation rates by implementing policies that increase women participation rates. However, majority of working age population of Turkey consists of mothers with young children. Government decided to encourage women to move to the labor market and increase the declining female labor force participation, that have been continuing since last half century and reached the lowest rate in 2006

[1] World Bank, 2013

compared with OECD countries. In 2004, Turkish government implemented maternity leave reform of 2004, which was aimed to extend the duration of paid maternity leave from 12 weeks to 16 weeks.

Turkish government aims to make Turkey on of the world's top 10 economies[2] by 2023, which is going to be the 100th anniversary of Turkish Republic Foundation. Though, this goal would be achieved easier by increasing labor force participation of women in the paid work.

1.1 International Regulations on Maternity Leave

Protecting maternity is among the priority concerns of International Labor Organization (ILO) since the first International Labor Conference held in Washington D.C. at 1919, where the maternity protection regulation (Convention No.3) was adopted.

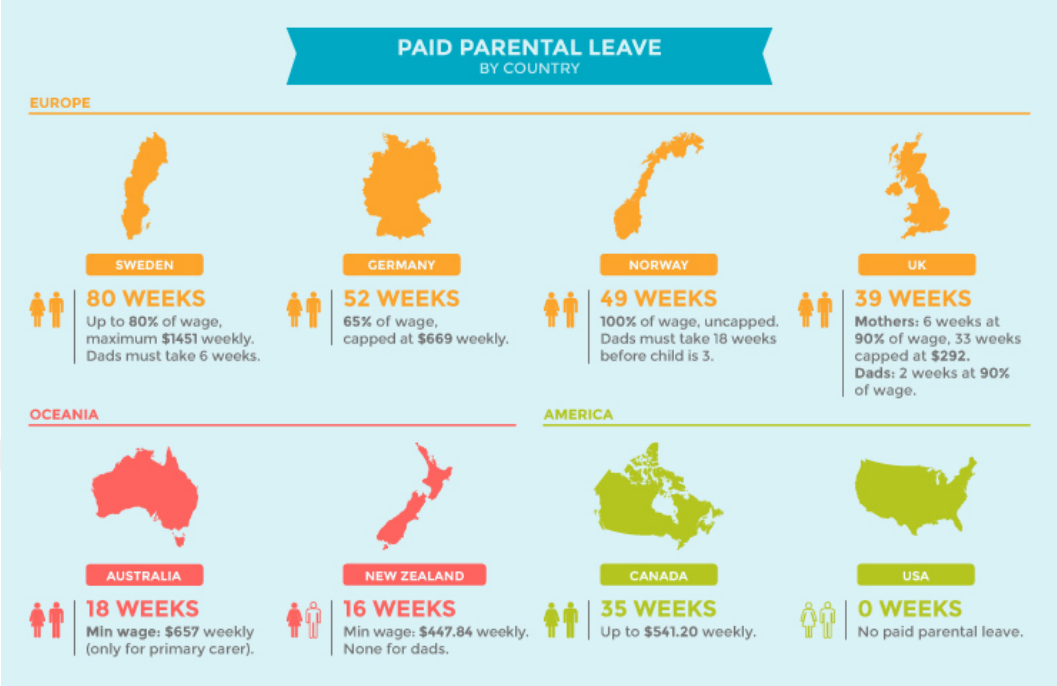
The most up-to-date ILO standard on maternity protection is titled 'Maternity Protection Convention, 2000 No.183'. Unfortunately, Turkey has not ratified this document. There are no standards of maternity leave that Turkey has ratified yet.

In EU, maternity leave must include a period of at least two (2) weeks allocated before and/or after confinement as stipulated by EU Directive 92/85/EEC [European Economic Community,1992, Article 8(2)]. Although many EU countries provide longer periods of compulsory leave, still a number of EU countries provide this two (2) week minimum [two-week compulsory maternity leave periods include Denmark (after birth), Iceland (after birth) and the United Kingdom (after birth)]. On the other hand, many other EU countries provide longer periods of compulsory leave [Austria mandates leave of 8 weeks before and 8 weeks after birth, and Belgium prohibits employment for 1 week before birth and 9 weeks after birth].[3]

Currently, 119 countries meet the ILO standard of twelve (12) weeks included in the Convention on the Maternity Protection (No. 183), with 62 of those countries providing for fourteen (14) weeks or more. Only 25 countries mandate a maternity leave of less than twelve (12) weeks.

[2] It currently ranks 17th
[3] (Michalevicz)

Figure 1.1 Paid parental leave in OECD



Source: http://thenewdaily.com.au

Figure 1 shows duration of maternity leave in some developed OECD countries. The UK and Canada, both economically and socially comparative countries, offer new parents 37 weeks and 35 weeks respectively. In Europe, the Scandinavians lead the way, with Norway providing 49 weeks of replacement wages and Sweden 80 weeks at 80 per cent of parents' wages. Significantly, most OECD countries that provide a percentage of replacement wages have a cap for higher income earners.[4]

1.2 Maternity Leave in Turkey

In labor law terminology the terms "parental leave or family leave" include maternity leave, paternity leave, and adoption leave, and are designed to give parents time to care for a new born or an adopted child or a child with a disability or chronic disease. While these three types of leave are mostly statutory requirements in many of the western countries, employees in Turkey were entitled only to the maternity leave - also contains the nursing leave - which is granted to

[4] (Donohoe, 2015)

women in case of pregnancy and childbirth; and three days paid time off work for marriage and three days bereavement leave in the event of the death of the employee's mother, father, spouse, brother or sister, and child.

By the above mentioned legislative arrangement the other three types of parental leave are now available for Turkish employees. Three (3) days of paid leave for adoptive parents; five (5) days of paid leave for fathers with a new-born child; and ten (10) days of paid leave for the parents of disabled or chronically ill child shall be granted.

Turkish legislation guarantees a total of sixteen (16) weeks of paid maternity leave; eight (8) weeks before and eight (8) weeks after birth (Article 74, Turkish Labor Code No. 4857). In cases of a multiple pregnancy (twins or more), the maternity leave is extended to a total of eighteen (18) weeks. (Figure 2)

The protection of women on maternity leave under Turkish law is similar to some European legal systems [14 weeks in Germany and 16 weeks in France, the Netherlands and Spain] but less than some others including Poland [45 weeks in Bulgaria, 52 weeks in the UK 39 of which are paid].

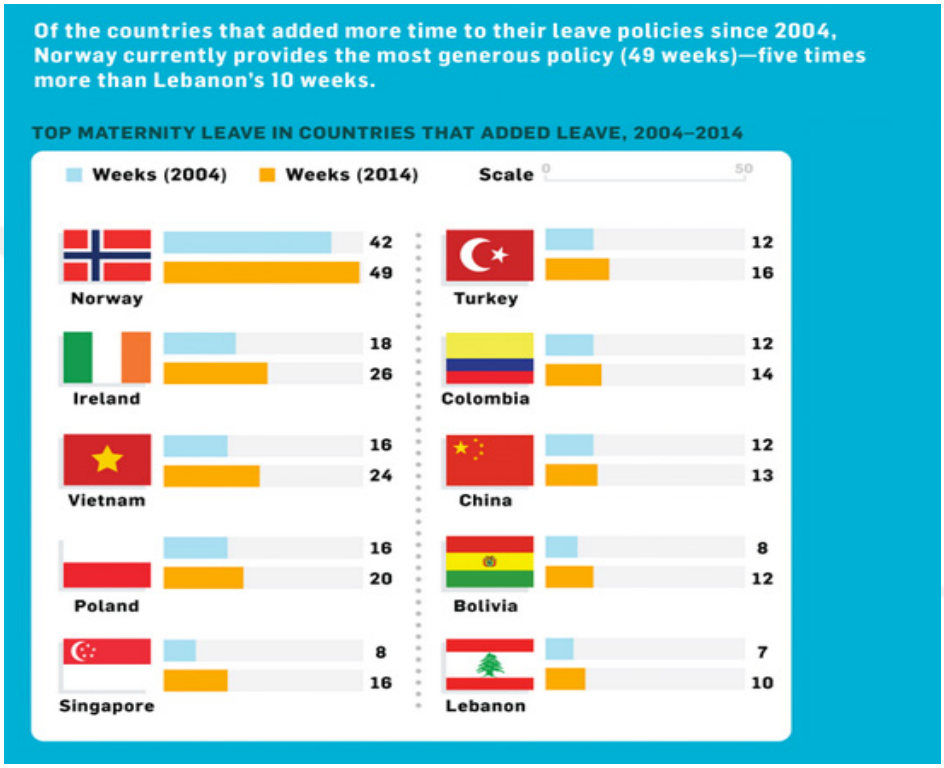
Although the maternity leave period is limited, the Turkish system allows for a non-paid leave period to the female employees up to six (6) months following the completion of the sixteen (16) weeks (or 18 weeks as the case may be) paid leave (Article 74, Turkish Labor Code). This additional leave is taken into consideration for severance calculations but is left out of the calculations for regular annual paid leave.

If the employee would like to work until delivery, she should submit a medical certificate confirming the pregnancy and that there are no medical contraindications to work. Upon submitting of such a report, the employee will be able to work until three (3) weeks prior to the expected date of delivery. In such cases the time spent working prior to delivery will be added to the period of maternity leave to be granted following birth.

Under Turkish system, the employee is not automatically entitled to receive a full salary from the employer during the maternity leave. Within this period, the employee receives only two-thirds (2/3) of the full salary from the Social Security Institution. The employee is entitled to return to the same job in which she was

employed before maternity leave with the same working conditions. In Turkish systems the employer is required to grant time-off to pregnancy health examinations and this time is still counted as working time.

Figure 1.2 Top maternity leave in countries that added leave, 2004-2014



Source: http//www.statista.com

1.3 Objectives

In this research we study the impact of parental leave reform of 2003 and 2004, which was aimed to extend the duration of paid maternity leave from 12 weeks to 16 weeks, and brought paternal leave for few days and breastfeeding leave for working mothers. The expansion of the reform is predicted to affect mothers with young children, but it is predicted to have no impact on single women or mothers with children below 5 years old. Therefore, the study compares the change in labor force participation of married mothers with young children under the age of two to the change in labor force participation of women having 5years old children and older.

Research questions of the study are listed below:

1. How is the effect of recent parental leave policy on FLFP in Turkey?

2.What is the reason behind the low participation of women in labor market over the 2000-2010 period?

2.What are the roles of socio-economic and geographic factor in determining women's behavior to the labor market?

1.4 Contribution of My Research

This research makes numbers of contributions to the pervious studies. Firstly, the study analyses a recent maternity leave reform in Turkey. This fact makes results relevant for other developing counties that have short duration of paid maternity leave, and are planning to expand it. To the best of my knowledge, this is the first study that differs examines the effect of maternity leave on labor force participation of women in Turkey. Another contribution to the literature is adding the reform to determinants of women labor supply. Lastly, this research differs from the literature by using Difference-in-Difference (DD) Model. DD model is not used in literature in Turkey to examine the impact of the policy and determinants of female labor force participation in Turkey.

1.5 Organization of the Thesis

This thesis consists of six chapters. Chapter one gives a brief introduction and objectives of the study, as well as explains the structure of parental leave reform. Chapter two introduces background information on labor force participation and its recent trends in the world and in Turkey, whereas chapter three presents brief determinants of female labor force and related literature review respectively. In chapter four, data and methodology used in the study are presented. Chapter five, describes the results and discussions of the research based on obtained econometrical analyses. Finally, chapter six presents the main findings and concludes the thesis.

CHAPTER TWO

2. Background

2.1 Labor Force Participation

Labor economics studies the outcomes of the market for labor and how the labor markets work. The primary concern of labor economics is the behavior of employers and employees to the general incentives of wages, prices, profits and employment relationship. The field of labor economics has been recognized as an important area of study a long time ago. But the subject matter of the field has changed dramatically in the past several years. About 25 or 30 years ago the study of labor was descriptive, emphasizing historical developments, facts, institutions, and legal considerations. Moreover, labor markets and unemployment were had some attention, but the analysis was typically minimum and insufficient. Economists have achieved important analytics in studying labor market and labor problems in recent decades. As a result, historical, institutional, legal and anecdotal materials have been removed from economic analysis and labor economics increasingly has become applied micro and macro theory.

The labor force participation rate is the percentage of active population that is in the labor force (the sum of the number of employed and unemployed population). It is calculated by the number of people in the labor force indicated as a percentage of total working-age population. The participation rate includes the amount of the population who are either working or are searching for work. It is important to note that working-age population is the population above the legal working population, which is often the ages at the age of 15, but it may not be the same in all countries due to their national law and practices. In addition to this, the numbers of people above the age 64 are not included in labor force, as well as the number of people not looking for

work. Additionally, retirees, students, the disabled, homemakers, and the voluntary idle are not accounted as a part of labor force.

Employment by gender is separated to make better to determine the trends and determinants of labor force participation. The decomposition of labor force by gender, age group, and living are and socio-economic activities are a profile of the distribution of the labor force amongst the country. It is important to look at labor force participation for men and women by their age groups. The labor force activities between 55 to 65 years and over show the attitude of the workers towards retirement and social safety existence for the old population. While the labor force activities of the young generation, which is between the ages of 15 to 24 usually indicates the availability of educational opportunities. The studies show that in each age category women have lower participation rates rather than man. Usually the lowest rate is considered among the prime working age due to the choice of women to leave the labor force to give birth and to raise children. When the children get older not all of women return to economy, but at a lower rate.

2.2 Impact of Labor Force Participation on Economy

Labor force participation rate is one of the most important fields of economics. It is important for understanding of production capabilities, discussion turns to transfer payments and redistribution of income. Moreover, labor force participation is useful for getting information for long-term structural changes. It is one of the key economic data that has an impact on Fed policy and economic policies of all countries around the world.

Furthermore, the labor force participation plays a central role in defining of the size of human resources and in making plans for the future labor supply of the country. Employment policies, financial planning for social security system, retirement, and training demands are arranged using the labor force participation rate information. Besides, the indicator of labor force participation is used to determine the behavior of the labor market according to the different categories of population. For instance, various researches have found that the female labor force participation consistently changes according to their age, marital status, and the level of education.

2.3 Female Labor Force Participation

Female labor force participation has been identified as the most important factor in explaining increases in aggregate participation rates as well as the current cross-country variation of aggregate participation rates (Burniaux *et al*., 2003).

The issue of female labor force is related to gender equity, poverty, and child well being. Reduction of poverty and improvements in gender equity support the increase of female participations. The case for child wellbeing is more complex compare to poverty and gender equity. The empirical evidence finds formal day care beneficial for the young children above the age of one, while it is found to have more negative effects on very young children.

Labor force participation of women is generally lower compare to man in all counties around the world. Therefore, understanding the health of female participation is an important topic of the labor market and the entire economy. More recently, the aging of population put a negative implication on overall labor supply. The clearest cause of this decline is the retirement of the generation born in the second half of 20th century. When these workers reached their retirement age they left the labor force and caused a decline in the labor force participation rate. Nevertheless, the young workers between the ages 16 to 24 are more likely to stay in school longer. As a result, an increase in education attainment caused a decline in labor force participation rate for decades as well. In order to solve this problem female labor force participation is the most effective and helpful way. Thus, policies supporting women to move to the labor force and stay there for a long are more acceptable than policies working toward keeping old people longer in work.

Female labor force participation rates have been climbing significantly in the developed countries over the last few decades.

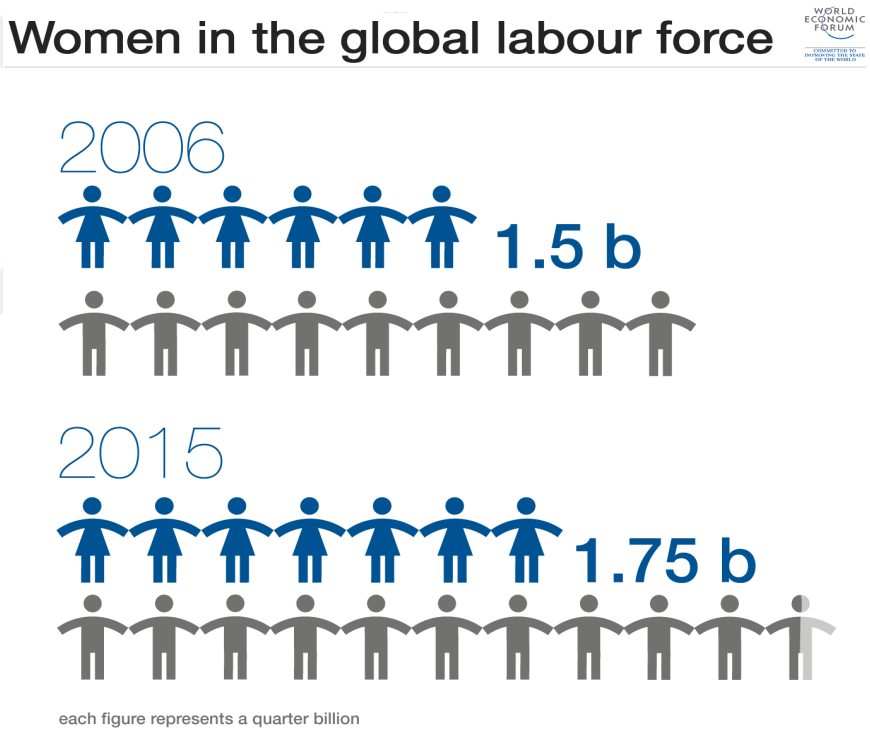
2.3.1 Importance of Female Labor Force Participation

Starting from the second half of 20th century the labor force participation rates have increased in almost all countries in the world. This was driven by the factor of more women entering the labor force than ever. Most countries of the world spent efforts to create enabling environment for the women to use and increase their

capabilities. The labor force participation rate of countries at various economical stages is indicated by a U-shaped relationship.

Figure 2.1 presents the comparison of women in global labor force from 2006 to 2015. In 2006, 1,5 billion of working age women were in the labor force in the world. By 2015, this amount increased a quarter billion and reached 1.75 billion. In developed countries, the female labor participation is increasingly becoming almost the same as the profile of male participation. Whereas, in developing countries labor force participation rate decreases as the economic growth increases.

Figure 2.1



Source: The Global Gender Gap Report 2015

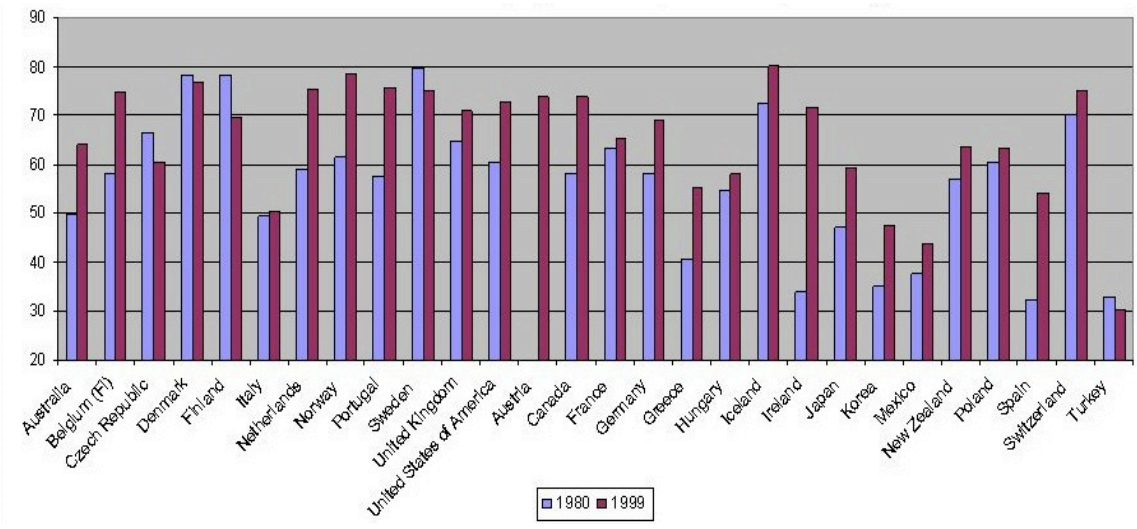
This situation causes as a result of expanding educational fields and facilities, an increase in wages and job opportunities especially for the working ages between 25-54, which makes other household members with lower earning opportunities to choose to quid their jobs. As a consequence, the overall labor force participation rate for both male and female goes down.

2.3.2 Female Labor Force Participation in OECD Countries

In OECD countries the labor force participation rate of women has steadily increased in over the past decades (Figure 2.2). In some countries like Nordics and the United States the increase started earlier. The largest increases have been considered during the last two decades in lower income countries as Spain, Italy, Greece, Portugal, Ireland, and also in some Northern European countries like Netherland, Belgium, Luxembourg, and Germany.

In the United States the labor force participation rate began climbing since 1965 reaching the pick that was on 2000 at 67.3 percent. There was steady increase that lasted for 35 years. It was the labor force participation by gender that caused the steady incline in the rate. In January 1948, male labor force participation rate was 86.7 percent, while by April 2000- during the peak of the overall labor force participation, the male participation declined to 74.9 percentage. However, the female trend was the reverse direction. Female labor force participation was 32 percent in 1948, while it steadily increased and in half century peaked at 60.3 percent in 2000 year. Starting from the second half of 20th century, the number of women entering the labor force and staying there even after childbirth has increased. This change was the key factor what helped the overall participation rate to increase, despite the increasingly less man being in the labor force. (Figure 2.2)

Figure 2.2. Labor Force participation in OECD countries



Source: The World Bank

Female labor force participation rate in the United States was 32 percent in April 1948, when the Bureau of Labor Statistics started to keep the track of the labor force participation rate for the first time. In half century the women entered the labor force, and the participation rate steady increased reaching the rate of 60.3 percent in 2000. Furthermore, women moved and increasingly preferred to stay in labor force even after becoming mothers. This huge change in women behavior towards the working environment is the clearest cause that helped the overall participation rate to increase steadily, even when the men were less willing to work compare to last decades.

Preferences for female participation are high in most OECD countries. In 1998 a survey was carried out to analyze the preferences of couples with small children. The results of the survey showed that only one in ten women preferred the traditional male-only breadwinner for all countries except for Spain, where the preferences were higher. Another international survey carried out in 1994 with more extensive coverage found that Eastern European countries prefer the traditional male breadwinner. This result is surprising because Czech Republic, Poland and Hungary were members of Soviet Union countries and during the communist era the female labor force participation was very high.

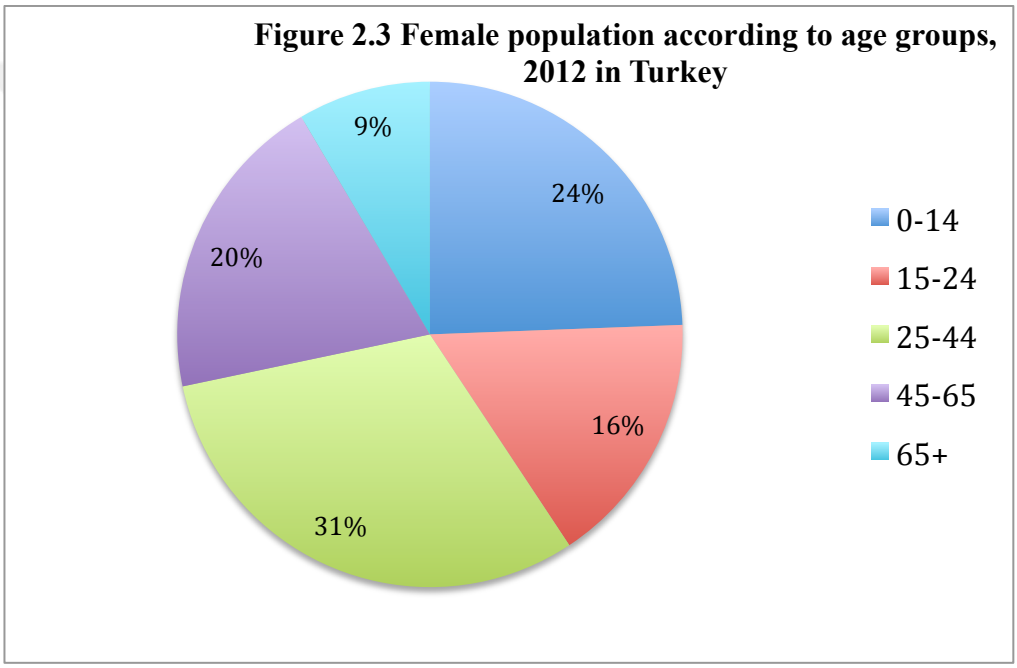
2.3.3 FLFP in Turkey

One of the most recent attractive attentions on female labor force has been the increasing participation of women in paid work. Considering an increase in female labor force participation rates in developed countries, Turkey has a declining trend as well as many developing countries. Turkey has the lowest female participation rate among the OECD countries with the rate of 26.7 percent in 2007, meanwhile the averages of OECD was 64 percent. Furthermore, data from the World Development Indicators show that Turkey has the 5th lowest female labor participation among 62 developing countries. According to the WDI 2008 Turkey reported female labor participation rate of 28% which is lower than the average of Latin America and Caribbean with the rate of 53% and East Asia and Pacific regions with the rate of 66% participation. Even in comparison with the countries having the lowest historically reports (Islamic Republic of Iran, Pakistan, Syria, and Libya),

Turkey reported lower indicators in 2006, which gives the fact that the country seriously has low and declining level of female labor participation. Accordingly, only about one-in-four women was active in the labor market out of the working age population as of 2006.

Turkey has never been in such low female labor participation rate level since 30 years. In the second half of 20^{the} century, Turkey was comparable with Northern European countries and Australia with he rate of 48% of working age group of women being active in labor force.

Figure 2.3 Female population according to age groups, 2012 in Turkey

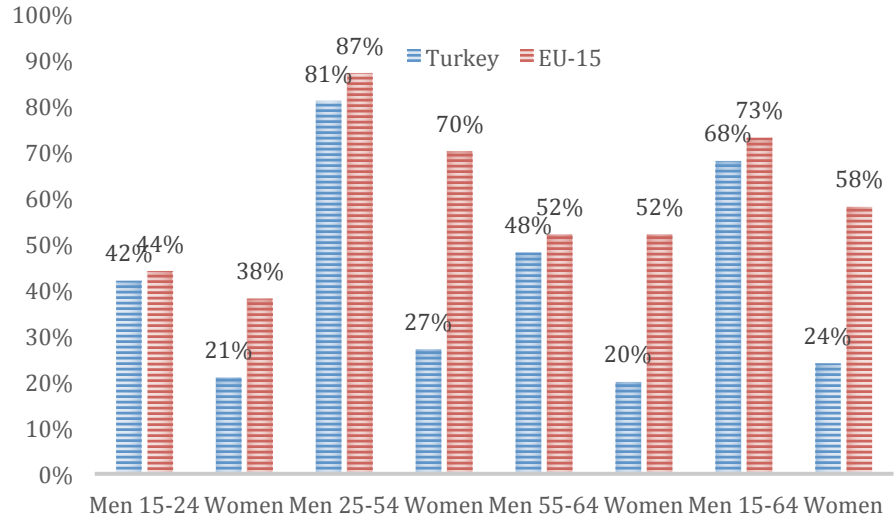


Source: Turkey Labor Force Survey 2012, authors calculations

Male labor force participation rate does not differ much across rural and urban areas for the ages below 45, but for the urban men the participation rate sharply declines above the age 45. The level of education also is not the main determinant of male population to enter the labor market neither in urban nor in rural areas. Illiterate men with no schooling are participate in the labor force with the rate of 74% between the ages 25-49, while 91% of men with prime school degree and 95% of high school and university graduates are active in the labor market. The gap between the education levels of male for participation in the labor market is not as big as it is for women in urban areas of Turkey. Men also start leaving the labor market like women

since the age of 45, thus this age is similar throughout almost all educational levels to leave the labor force.

FIGURE 2.4. EMPLOYMENT RATES, TURKEY AND EU-15, 2004



Source: WDI 2004

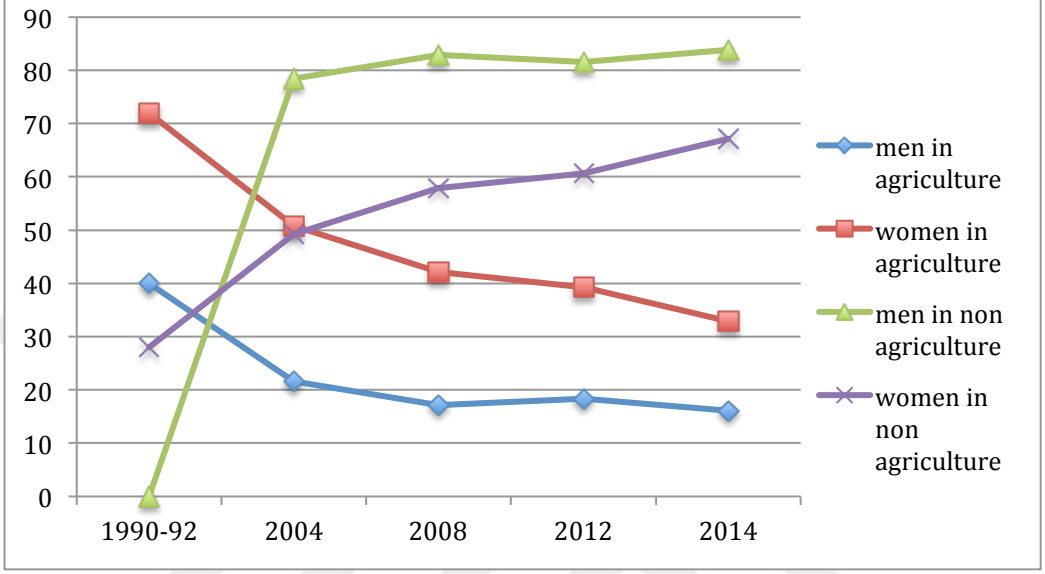
One of the important reasons for the decline in female labor force participation rate is found to be urbanization. The level of migration from rural to urban areas Turkey has been increasing dramatically since 1980's. Urban population has increased more than 20% from 51.1% in 1988 to 63.3% in 2006. Labor force participation of women in rural area is higher than the ones in urban area in 2006. Therefore, the increasingly share of urban population brings down female labor force participation rate. However, the labor force participation rate in rural areas has been declining itself. As it can be seen from the figure 2.5 female labor force in rural areas has decreased from 50.7 percent in 1988 to 33 percent in 2006. While examining the period from 1988 to 2006 we can see that 50.7 percent of rural women were in labor force in 1988. When we look at 1988-1999 period, we can see a decline from 50.7 percent to 47.4 percent, whereas in 2000-2006 periods the labor force participation of rural women has decreased from 47.4 percent to 40.4 percent. Thus, the fall in rural participation of women in labor force is found to be much more in 2000-2006 period.

The active number of women in labor market consists of 1-in-4 women in the working age population of Turkey. In 2006 only 26.7percent of women were active in the labor market and about 23.9 percent of them were employed. This decline is still being continued up to now. Informality in women's employment level remains higher with the rate of 66 percent of female employment not registered compared to 34 percent f or men. Previously, the level of informal female workers was higher than this by 71% in 2003 and has declined to 66% in 2006. The level of employed women in unpaid family jobs declined by 10% from 48.3% in 2003 to 38.3% until 2006. However, the level of working women who work as registered regular employees has increased during that 3 year period from 27.4% to 31.9%. The overall decrease of the number of unpaid family workers has caused a reduction in overall informality of female workers, which is followed by a decrease in total female participation rate.

The agriculture sector has been the largest employer for women in Turkey. The largest categories of working women in are mostly employed in agricultural enterprises, who are unpaid family workers and work in the agricultural enterprises of their households. Figure 2.5 shows the level of participations in agricultural and non-agricultural sectors. During 1990's the labor force participation level of women in agriculture sector was 72 percent. In about 20 years it has declined to the level of 32 percent, which is more than 50 percent decline. From the data in 2006, 47% of active women in labor force participate in agricultural sector jobs and 74 percent of whom are employed as unpaid family workers. The number of women working in agricultural enterprises has decreased about 10% from 2003 to 2006. The next two large employers of women after agriculture are services and manufacturing. The proportion of women working in services contains 37.4 percent, and of manufacturing-14.6 percent of active women in labor force.

As a matter of fact, the total female labor force participation has been reducing as a result of the decline in female employment in agricultural sector as well as unpaid family workers. The total employment rate in the agricultural sector has declined from 1992 by 72 percent to 2014 by 33 percent. The level of men labor participation in agriculture has ben lower than for women since 1990 to 2014 years.

Figure 2.5. The distribution of employment by agriculture and non-agriculture, 2004-2014



Source: http//www.tuik.com.tr, author calculations.

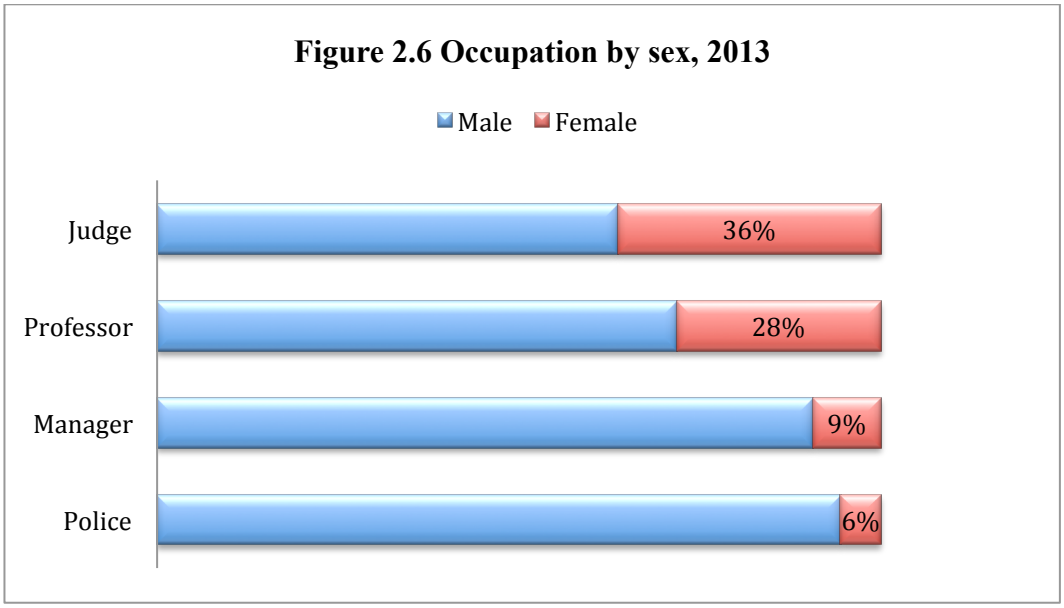
Female labor force participation is a problem in urban areas more than in rural areas in Turkey, because the higher women employer in rural areas is agriculture sector. Low participation is especially common among low-skilled women in urban areas. In account for this, labor force participation is strongly related with education, especially in urban areas of Turkey. The total level of women being active in labor force who are illiterate or have not completed primary school is below 9percent. This level inclines to 32 percent for the women having secondary degree of schooling, and even to 80 percent for university graduates. Therefore, illiterate women and those who do not have formal schooling in urban areas make up the lowest levels of participation in the labor market. Given that almost 73% of urban women are either low skilled or inactive in the labor market, joining of these female to the labor force would significantly rise the current levels of female labor force participations, as well as the overall participation rates.

University graduate women in urban areas are the most active group in labor market among other women. Nevertheless, their participation rate shrinks down to around 40 % as the age increases. The labor force participation rate of university

graduate urban women is around 80% between the ages of 25 to 44, whereas this level declines to almost the half for the 45 to 54 age groups. In figure 2.6 occupation of male and female is shown in 2013. According to TUIK, 36 percent of judges are consisting of women, which is the highest than other occupations. The number of women in academia comes after the judges. Professor women consist 28% of academia in Turkey. However, manager and police women are seen quite less and they are only 9% and 6% of respectively.

In the rural areas, the level of education does not effect much the decisions of women to be active in labor market. The difference between the women having primary school diploma and no diploma is very few with the rate of 38% and 43%, and indeed 90% of agricultural sector is employed by those women who have either primary school degree or less. The average education level of women working in agriculture sector is around 5 years, while a third of these women are either illiterate or have no level of education. However, the education level of women working in other than agricultural sector is much more higher. As of 2003, 38% of non-agricultural employees have secondary school degree and about 30% of them are university graduates. University graduates consist a small part of working age population of women, which is only 16 percent and this group makes up only about 7 percent of working–age population.

Figure 2.6 Occupation by sex, 2013



Source: http//www.tuik.com.tr, author calculations.

CHAPTER THREE

3. Literature Review

This chapter provides brief background information regarding the previous studies on the subject area. The first section presents previous international literature on female labor supply and summarizes the findings on this area in OECD countries. Second section reviews the studies done about FLFP in Turkey during recent decades. The third part describes a brief overview of the determinants of the labor force participation rate and the factors that effect participation in rural and urban areas of Turkey. A brief international literature review of the studies regarding the policies encouraging women to move to the labor market and a detailed review of this area of study done in Turkey is then presented in the following parts.

3.1. Empirical Studies Female Labor Force Participation

Labor force participation of women in most countries, especially OECD and Europe zone countries showed a great increasing trend during last half century. The increase of the number of women in labor market was different across countries, with several countries like Nordics and United States starting earlier and some other developing countries started later during last few decades. The behavior of moving women to the labor market and substantially increase of FLFP attracted many scholars to research the reason for it. In the following parts of this section the most recent studies regarding FLFP are reviewed.

Jamotte, (2003) examines the factors determining female labor force participation in OECD countries. The study uses 17 OECD countries during 1985-1999 years. The analysis could not be done for all age groups due to lack of data. Therefore, the author analyses the total participation of 25-54 year old women. She uses two different models in the study. In model first, total women participation is the dependent variable and explanatory variables are policy variables such as tax difference between second earners and single individuals, child benefits, public childcare, paid parental leave and the share of part-time in employment. The disadvantage of this model is that part-time job complicates the casual links. As the

result, the second model is used with the dependent variable of full-time and part time participation.

Finally, the analysis concludes the proceeding policies that boost overall female participations. It is stated that increasing part-time work opportunities rises female participations, but not with the same rate in all counties; childcare subsidies increases female labor supply by increasing the return on market work; paid parental leave also helps to keep women in the labor market with a job guarantee and helps them have better family life; taxation policies tend to increase female participations. The author suggests that women should invest in heir education as these policies are more developed, because it is the education choice of women that depends on her future career.

Chamlou et al (2011) studied determinants of FLFP in the Middle East and North Africa (MENA) region, focusing on the role on the role of education, especially higher education. The level education in MENA region has been increasing during the last decades. However the FLFP remains the lowest compared to all other regions. The research studies the effects of education and social norms on FLFP in Amman, Jordan as a sample of MENA. The data used in the study is the primary data collected by Jordanian Department of Statistics in 2008. The authors estimate a single equation probit model to examine the determinant of female participation in Amman. According to used model, the results show that higher education level has a positive and significant effect on FLFP, but secondary level and below do not impact the choice of women to work. Moreover, traditional norms play a salient role in women labor participation and have statistically significant results.

H.Y. Lee and Ping Lee (2011) study women participation in Japan labor market, fertility rates and the impact of childcare problems on it for the period 1971-2009. The authors use a Granger causality method and find the evidence of bilateral Granger-causal effect among childcare availability and FLFP only for women in 20 to 29 ages. This method gives a result of having more children does not reduce female labor force participation in long run. Furthermore, they conclude that there is no evidence that suggests working women to have fewer children and fertility decision is strongly dependent on childcare availability.

Another research done in this topic is by E.A. Khan and Khan in Punjab, Pakistan. The authors investigate the factors that impact the decision of married women to move to the labor market. The data used in the study was obtained from a survey of 4000 households containing at least one female who has been married in the working age group of 16-60.

3.2 Empirical Studies for Turkey

Turkish labor market has been losing female employees since 1980s. FLFP was at its lowest rate of 26.7% in 2006, which the also the lowest ranking among OECD countries. Many scholars have been investigating the reason behind this sharp decline that started from 1980 with he rate of 48.3%. There have been a number of studies previously on Female Labor Force Participation in Turkey. The following passages of the subsection discuss the studies done and their results.

Uraz et al (2010) present a comprehensive study of the most trends and profiles in FLFP in Turkey. They use three different household level data sources: Household Budget Survey(HBS), Labor Force Survey (LFS), and Turkey Demographic and Health Survey (TDHS) drawn in 2003-2006. The aim of the paper is to observe the changing profiles of FLFP during 2003-2006 years. This research is concluding by finding four main keys to understand the reason of low women participation in urban areas. First, the large earning gap between low skilled women and man, which is available both in rural and urban areas may discourage women enter the labor market or reduce the participation in labor force. The second reason behind the low participation is found to be lack of affordable childcare availabilities, especially for low skilled women. Since they get paid low wages, they face a high opportunity cost of working. However, high skilled urban women and rural women do not face that difficulty and the number of children does not effect significantly not to work.

Economic situation of husband is the next finding of the research. Married women (low skilled) are more likely to stay at home as the education level, wealth status and wage of the husband increases. The final finding of the research is cultural and social proxies for traditional family values, mostly seen in rural women.

Karaoglan and Okten (2012) study labor supply of married women and their responses to husband's job lost. Using yearly cross-sectional data of HLFS for periods of 2000-2010, the research finds that women who have unemployed or underemployed husband prefer to be in the labor market and work for more hours. The authors find significant results for added worker effect during 2000-2010. By applying probit estimates for FLFP, authors predict the probability of labor force participation taking constant other independent variables. This paper is the first study that analyzes the effect of husband's unemployment status on wife's labor force participation response in Turkey. Results of the study show that the unemployment status of husband has a positive significant effect on wife's decision to participate in labor force.

Dayiogu and Kırdar (2010) investigate the status of women in Turkish labor market. They stressed that the main reason of low labor force participation is migration from rural to urban areas. The low skilled women, who leave the agricultural sector, are unable (or unwilling) to find job in urban areas. These articles also emphasize that education level of women and the education level of their husband plays a role in their participation in labor force. However, women education level effects positively, but of their husband's effects negatively. As the level of education of husband and his wealth increases, low skilled women in urban areas prefer to stay at home instead of working. According to this paper changes in agricultural activities strongly influences trends in the labor force participation of women. They find from examination of labor force participation in Turkey that declining labor force in rural areas is another potential explanation to the falling participation rates, which usually results from declining agricultural wages. Another key finding of this study is the decline of highly skilled women participation in labor force for 1988-1999 periods and their stagnant participation after 2000.

Fraker and Ozdemir (2011) examine the causes of low FLFP rate in Turkey according to demographic, educational, economic, and religion backgrounds. They take into consideration income, male labor force participation, economic growth, percentage of rural areas population, and the age distribution of population. World Values Surveys are used in this study to determine the effect of religion in labor force and the role of women. According to study's model, the pressure of religion

does not affect FLFP in Turkey, though it is not presenting the best example of Muslim majority population country in terms of FLFP. The authors find majority of the factors examined in this study to be difficult to change, which are income, life in rural areas and religion.

Ikkaracan (2012) investigate the reasons behind few women in the labor market in Turkey. She shows that a non-negligible share prefers to be a party to a patriarchal contract when faced with the unsupportive institutional framework and the poor working conditions under market liberalization. The study suggest that policies regarding childcare subsidies, parental leaves and transformation of gender roles may lead to an increase of number of women in labor force.

Gunduz-Hosgor and Smith (2008) analyze the role of paid work in female employment in Turkey. The most effective instrument of making women less dependent on their family and releasing them from the affect of patriarchal ideologies is found to be in employment status. The study explores the impact of women's characteristics, the effect of their husbands and the family they are living with on their decision to be in the labor market. It also questions the status of labor market of different demographic regions. The authors use the data from Turkish Demographic and Health Survey (TDHS) released in 1998 and study the topic using bivariate cross tabulations and multivariate logistic regression analyses. The results show that education level is the major factor effecting FLFP. As education level increases, the chance of being housewife decreases respectively. However, the education level of husband has negative significant level on participation of the wife. The reason behind this situation maybe the fact that most women see men the only bread-winner.

3.3 Brief Review of Determinants of the FLFP: The Case of Turkey

The neoclassical theory of labor supply is the beginning step to analyze the labor force participation of people. According to neoclassical theory, the preference between hours of work and leisure varies with wages (Mincer, 1962). An increase in wages has two effects, which are a positive substitution effect and a negative income effect. The first effect implies an increase in hours of supplied labor by a worker, but later this implies to raise the demand of leisure. Therefore, work-leisure preference

depends on individuals and relative values placed on every additional wage and leisure.

3.3.1. Education

Education level has a main impact on labor supply behavior and it is among the main determinants of FLFP. The level of schooling of women has been increasing in recent decades. However, a large number of women population have less than primary school education level in Turkey. Consequently, this situation effects negatively the participation of women in labor market whereas compared to men, who in terms of schooling are better than women are in disadvantage. According to the data in 2006, one out of five women was illiterate, while the illiterate men consisted only 4 percent of overall men population. On the other hand, the number of women completed primary school was one third of female population. Nevertheless, the education level by years of both women and men has been improving. When we look at historical results of women's education, the proportion of illiterate women is 80.6% in 1950s (table 3.1). This rate drops over time and in about twenty years the rate of illiterate women declines to 58.2 % in 1970s and it reaches its lowest rate in 2004, which was 6.3%. The level of primary school education for both men and women becomes into equal proportion. Besides, the number of women completed more than primary school education level becomes doubled **.**

There is a positive relationship between higher education and high level of participation, especially in urban areas. The gap between the rural and urban education level for women is as large as the gender-schooling gap. In 2006, the proportion of rural illiterate women was 27.7 percent, whereas this amount was 14.8 percent in urban areas. In the same way, the proportion of women having more than primary school education in urban areas was 40%, which is twice the proportion of women in rural areas. The improvement of educational attainment in urban areas has been faster than in rural areas and as a result the overall schooling years have been increasing over time.

Table 3.1 Population by Literacy Rate1950-2014

Census year	Total%	Female%	Male%
1950[5]	67.5	80.6	54.5
1960	60.5	75.2	46.4
1970	43.8	58.2	29.7
1980	32.5	45.3	20.0
1990	19.5	28.0	11.2
2000	12.7	19.4	6.1
2010[6]	6.0	9.9	2.2
2014[2]	3.8	6.3	1.3

Source: http//www.tuik.com.tr, author's calculations.

The division of urban and rural exists for men as well as for women. However, the gap between the education attainment for rural and urban man is not too big like the one for women. The proportion of illiterate men in urban areas was 2.8 percent, while rural illiterate men consisted 6.2 of overall rural men population, as of 2006. Likewise, while nearly 60 percent of men had more than primary school education level in urban areas, it was 40 percent for rural men. The improvement in the education attainment of men was relatively faster in urban areas than in rural areas, correspondingly to the improvements for women. It is important to pay attention to migration from rural to urban areas, especially from the perspective of women's participation in labor force because the proportion of active women in labor market with primary school level of education is very low in urban areas.

In order to get better information about recent educational development, we need to check the variation of education levels over time for the different age groups. Younger age groups of men and women have higher education level than older age groups. Table 3.2 shows that the average years of schooling for all age groups have been increasing in last few decades. The average level of education of prime age

5 Population 5 years of age and over

6 Address based population registration system

women and men has improved by 2.2 years from 1988 to 2006. However, the average schooling years of 20-24 age women in 2006 are still below the average schooling year of men in 1988. Considering from the gender educational gap among the prime age men and women, it seems that education gender gap among these age groups probably will not improve in short run.[7] On the other hand, educational attainment, mainly for women has been increasing in the past few decades. University graduates are the ones who have the highest participation rates for both men and women. Labor market participation for men mostly requires primary school diploma, but for female participation this does not open many doors. In urban areas, the role of education is more obvious in the entrance of labor market. The labor force participation of illiterate women was 5.6 percent as of 2006, whereas it was 36.4 percent for illiterate men. Therefore, urban labor market is not as open for women as it is for men. The participation rate of urban women in labor market shifts up as the level of education increases. University graduate women labor force participation is almost 80 percent in their prime age. Women with university degrees are more likely to stay in the labor market, but due to conditions after entry they do not remain there for a long time. As a matter of fact, only one in third of women still remains in the labor force by the age of 50.

[7] The case that the gender education gap does not seem to change in short run has very important effects on labor market. If we look from the perspective of women, they have disadvantages entering the labor market compared to men. However, reducing women's earnings and other opportunities to work makes women to leave the labor force.

Table 3.2 FLFP rate by educational status and periods (15 + age)

Year	Illiterate	Literate but no diploma	Primary school	high school or equivalent vocational	High school	Vocational school at high school level	Universities and other higher education
1988	47,1	51,2	55,0	27,5	50,3	64,6	89,8
1989	50,5	58,3	60,0	33,0	55,4	65,1	92,6
1990	47,6	55,8	56,4	27,4	55,9	72,0	92,3
1991	50,1	60,6	60,6	26,6	50,4	76,7	89,8
1992	47,3	49,3	57,3	28,6	47,8	64,8	88,1
1993	37,3	28,3	45,5	25,1	44,7	66,2	88,7
1994	42,7	45,7	54,5	28,6	50,9	58,5	88,1
1995	43,9	44,7	55,0	27,4	46,4	57,1	80,7
1996	43,7	48,8	56,0	23,2	44,0	60,2	71,0
1997	39,0	40,9	49,9	23,4	47,4	60,9	75,5
1998	41,2	43,7	51,9	25,1	41,9	61,3	76,9
1999	42,5	45,2	51,8	28,6	45,7	52,5	71,5
2000	38,2	39,2	42,5	21,3	32,4	54,9	75,5
2001	37,5	43,0	45,6	22,1	34,5	47,5	77,8
2002	37,8	40,1	45,1	24,0	31,9	43,8	78,8
2003	37,6	36,8	41,4	26,2	28,4	38,6	71,4
2004	30,5	33,4	41,9	32,6	29,5	47,4	71,7
2005	27,3	31,9	39,1	33,7	30,4	41,7	70,1
2006	25,5	30,1	39,3	34,1	30,0	42,5	68,6
2007	24,5	27,9	38,9	34,5	30,6	44,4	72,0
2008	24,4	31,2	38,3	34,7	30,7	45,0	72,1
2009	24,8	31,1	42,0	38,9	35,2	44,7	74,9
2010	26,6	32,3	45,2	38,5	34,6	43,6	71,9
2011	27,8	34,2	47,8	37,6	34,3	42,6	69,0
2012	26,6	33,8	47,5	41,8	33,7	40,7	68,2
2013	26,3	32,4	46,5	36,4	33,8	42,3	70,1

Source: http//www.tuik.com.tr

3.3.2. Differences by Marital Status

Previous studies on FLFP rate suggest that marital status of a women is an endogeniety problem, which states that married women are not independent on deciding whether to move to the labor market or not. Since marriage is very common in Turkey, understanding determinants of labor force participation of married women is of particular interest. Married women make up a large proportion of female working age group, thus higher FLPR significantly depends on participation of married women in the labor market. A survey completed before 2009 shows that 98 % of women get married by the age of 49 at least once. In 2006, the HLFS data confirms that only 2.1 percent of women at the age of 50 and above have never got married. Hence, this rate shows that marriage occurs when women are young and it is a strong determinant of FLFP. Marriage takes place in early ages of women. Therefore, the average age of first marriage is at the age of 20.7 for 15-49 year-old women. Unlike marriage, divorce is a rare event and it is recorded only by 1 percent among 15-49 year-old women.

Table 3.3: Employment Rate by Marital Status, 2004-2014

Marital status	2004		2008		2010		2012		2014	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Single	44	26	46.8	28.2	47.0	28.3	50.5	28.9	53.1	30.7
Married	71.9	20.5	70.3	20.9	70.7	24.2	72.8	27.3	72.1	27.6
Divorced	58.6	32	55.2	34.2	58.3	37.5	61.1	41.2	63.2	39.7
Widowed	22.8	8.6	18.4	8.2	17.6	8.6	19.2	9.0	16.4	7.8

Source: http//www.tuik.com.tr, author calculations.

Over the last few decades, women are postponing marriage. Compared to year 1988, women prefer to get married at a later age, which is a sign of longer schooling years and remaining in the labor force longer. Even though, the studies found that the LFPR of married women still remains quite low can see in table 3.3

that the increase of the number of married women in labor force is higher then single ones. According to TUIK calculations, in 2004 26% of single women were in the labor force. After 10 year, this rate reached 30.7%. Reasonable excuses of low participation of married women in the labor market are motherhood, lack of affordable childcare, lack of childcare subsidies and lack of maternity policies supporting mother to move to the labor market. Data indicates that 20-65 aged women who are currently not working describe the main reason for not working as ‘‘being a housewife ’’ and ‘‘taking care of children’’. Among the working age group, 58 percent of women state the reason of not working as ‘‘being a housewife’’, while 9 percent of them find ‘‘childcare’’ as reason of not being in the labor market. Only 6 percent of women in working age group, who are not working are looking for a job. In fact, the labor force participation of men in the same age group is completely different: 32% of the men who are not working, do not have job and are looking for one; 26% of them are retired and 12% are sick or too old to work

Some studies have found that even women living in different areas and having different level of education attainment have almost the same results for not being in the labor force. Even majority of highly skilled[8] urban women (almost 60 percent) state the reason of not working as ‘‘being a housewife’’ or ‘‘taking care of children’’

Marriage is a strong institution both in urban and rural areas of Turkey. Regardless of education level and the region of residence, the proportion of married women is very similar in urban area with 97.7 percent and 98.2 percent of rural women had been married at least once by age of 50-54. Table 3.4 and 3.5 show the participation rates by marital status in urban and rural areas respectively. The highest LFPR is recorded for married men and the lowest participation rates are observed for widowed women[9]. On the other hand, divorced women in urban areas have quite high participation rates, perhaps due to need of family and children support. In 2013, married men have the highest participation rate, about above 70 percent in both rural and urban areas.

[8] Highly skilled is defined as having secondary school degree and/or university degree

[9] The very low participation rate of widowed women may be behind the fact that a high proportion of widows are elderly people and retired ones, thus have reduced participation rates.

Table 3.4 Employment rate in Urban Areas by Marital Status, 2004-2013

Marital status	2004		2006		2008		2010		2013	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Single	41.4	23.5	45.6	27.2	46.7	28.2	47.0	27.9	50.5	30.7
Married	70	12.3	70.1	13.4	69.1	14.5	70.7	17.2	72.8	22.0
Divorced	57.6	31.2	52.1	32.9	56.6	34.0	58.3	37.7	61.1	42.4
Widowed	15.5	4.7	13.6	4.5	13.2	4.6	17.6	5.1	19.2	5.5

Source: http//www.tuik.com.tr, author calculations.

However, the participation rate of married urban women is only 22 percent, which is very low compared to 41 percent of rural married women being active in the labor market. Studies have found that the proportion of married urban women in the labor force is very low compared to single ones. Especially prime age married women have the lowest participation rate (20 percent) among all age groups. Hence, the proportion of single women in the labor market with the same age is 60 percent. The participation gap between prime aged single and married women in rural areas exist as well, but it is narrower than in urban areas.

Table 3.5 Employment rate in Rural Areas by Marital Status, 2004-2013

Marital status	2004		2006		2008		2010		2013	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Single	51	32.6	48	28.3	47.0	28.4	48.7	29.3	52.4	29.2
Married	76.6	39.4	73.7	35.4	73.2	34.8	73.6	39.6	73.9	40.9
Divorced	62.5	36,9	54	32.7	50.4	35.2	55.3	36.8	62.8	35.5
Widowed	31.9	16.8	26	15.5	23.9	14.7	22.0	14.4	19.7	13.0

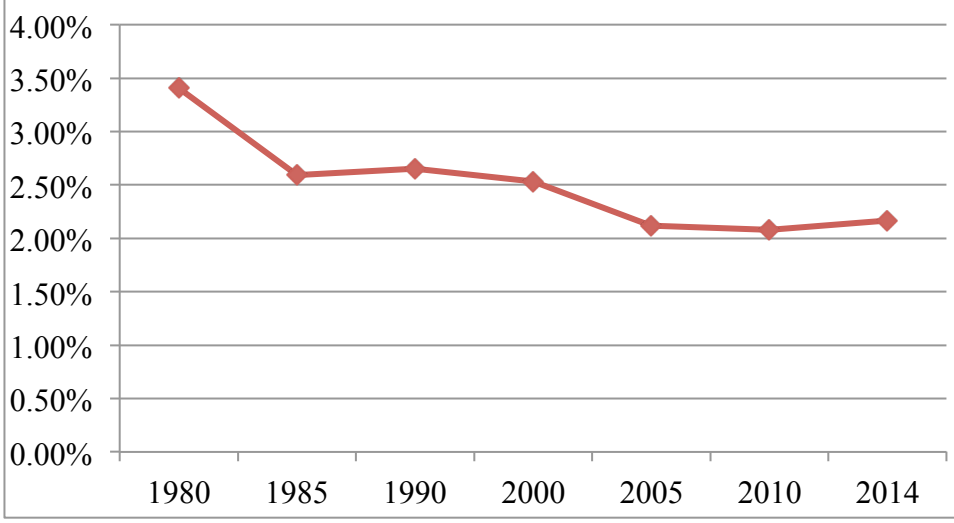
Source: http//www.tuik.com.tr, author calculations.

3.3.3. Differences by Fertility Rates

Fertility is another important determinant of female labor force participation. Overall fertility rate in Turkey have been reducing with female participation rates since 1980. Total fertility rate has fallen substantially during last three decades Figure 3.1 compares fertility rates over time. As can be seen from the figure, number of children per women was recorded at a level of almost 3.5 in 1980, falling from 5.7 in 1968. However, fertility rate has fallen to nearly 2 percent per women in 2014, which is very low compared to the level in 1968.

According to 2003 DHS results, the average age of women at first- birth is 22.5 years. Women usually get married and have their first child before they reach age 25 and the second child at the age of 30 or before. According to Dayıoğlu and Kırdar (2010) fertility rate is closely associated with women's education level. Women having high school education level or more, expect to have 1.4 children until the end of their reproductive years, whereas an illiterate woman expects to have 3.7 children before her reproductive year ends. Perhaps, only less than 2 percent of women do not have child by the end of their productive year. Besides, having children is negatively related with labor force participation rate, especially for illiterate urban women. The participation probability of this group of women in labor

Figure 3.1 Total fertility rate (Number of children)

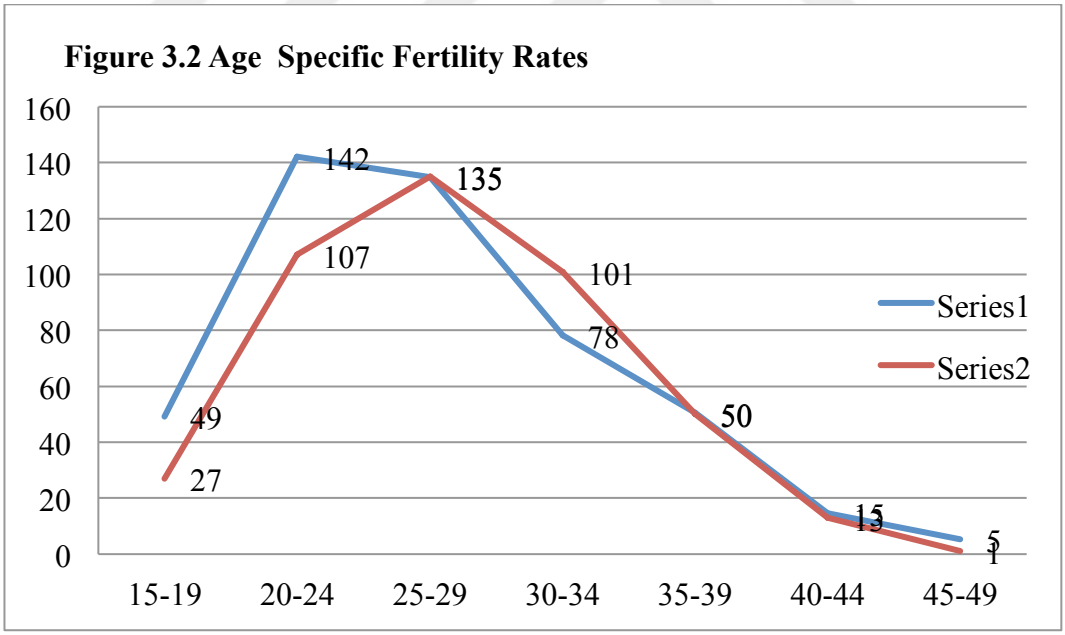


Source: http//www.tuik.com.tr, author calculations.

force drops from 32 percent to 15 percent immediately after their first birth and remains in low level thereafter. But the situation is quite different in rural areas. During the first pregnancy, women somehow leave the labor market, but after the first child birth they return to their agricultural duties and their participation rate goes back almost to the same level as it was before pregnancy.

Figure 3.2 compares the fertility rates from 2000 to 2014 for various age groups. The fertility rate examined by age groups shows that the highest age specific fertility rate was in 20 - 24 age group in 2000. According to 2000 revised data, fertility rate of 20 - 25 aged group was 142 per thousand, whereas it was 107 per thousand for the same age group women in 2014. Fertility rates until age 25 are considerably higher in 2000 than in 2014. Moreover, fertility rates at the age of 25 and above are almost at the same level both in 2001 and 2014.

Figure 3.2 Age Specific Fertility Rates



Source: http//www.tuik.com.tr, author calculations.

According to the results of the 2012 Address Based Population Registration System (ABPRS), 15-19 age group has a total of 6 405 552 population. 3 286 864 of these are male, 3 118 688 of these are female. Household Labor Force Survey in 2012 reported the labor force participation rate of 15-19 age groups of women as

15.8%, while unemployment rate was 14.9%. Labor force participation rate of men in the same age group was 34.6%, while the unemployment rate is 14.9%, similar to women.

While the number of live births was 1 million 291 thousand 217 according to the revised 2013 data, this number was 1 million 337 thousand 504 by increasing 3.6% in 2014. 51% of births were boys and 49% of births were girls in 2014.

While the total fertility rate was 2.10 children according to the revised 2013 data, this rate was 2.17 children in 2014. It means that a woman gave approximately 2.17 live births during her reproductive life. This case showed that the replacement level of fertility (2.1) was exceeded.

3.4 Policies affecting Female Labor Force Participation

Economic theory suggests that, because of the specialization effect, the responsibility for childcare falls on women hence reducing their labor supply (Becker, 1985). Therefore, women are the ones who face pauses in their jobs mostly or indeed stop participating in labor force. In order to reduce gender gap in labor force caused by fertility and childcare, governments use policies regarding maternal, paternal and parental leave benefits. Policies targeting encouragement of parents during early periods of having children have become much more during the last half century. Maternity leave affects mothers in terms of wage, growth, career and employability. Although, unpaid maternity leave gives mothers the opportunity to leave labor market for a certain period and return to the same job with the same salary after the given period. Maternity leave duration differs among countries. The minimum time period is 6 month and the maximum duration of maternity leave consists of 68.6 weeks in the world.

3.4.1 Studies about parental leave

Kuhlenkasper and Kauemann (2009) study duration of maternity leave in West Germany for women who have been employed between 1995 and 2006. The study uses data from the German Socio Economic Panel from January 1995 to December 2006 and analyses maternity leave duration of 689 and 517 mothers separately for first and second child maternity leaves. The authors build a statistical

model upon a classical Cox-model for the research. The study is observational and focuses on family effected covariance effects on the period of maternity leave for first and second childbirth. For the analysis the dynamic duration time model is used. They found that the personal income of mother and educational attainment influence the decision when to return back to labor market. To be more specific, highly educated mothers return to their job early after their childbirth, and not surprisingly, low paid mothers are less likely to get reemployed after their first and second childbirth. Mothers without a working partner move to the labor market sooner than mothers living with an employed partner Also, they show that the leave period after the second birth is effected by the mother's duration in labor force between two maternity leave periods, and a complete going of labor market between the leave periods keeps mothers off the job while the childcare of the second child continues.

Casa and Herrera (2012) study a historical review of maternity protection and maternity rights for working women in Chile. They examine Health and Labour Ministry policies from 1910-2010 on labor maternity rights. Female labor force participation was an obstacle to motherhood and it still remains for women in Chile. The authors conclude the study saying that regardless of several policies, Chilean mothers have no enough right to exercise their maternity rights and use of childcare benefits. The reason of issues is seen in ineffectiveness of policies and penalization of women.

Ray (2008) presents a comprehensive report of parental leave policies in 21 high-income OECD countries. The profile of every country introduces the period of leave, the amount of financial support during and after leave to mother and child, arrangement of part-time jobs' leave and if the workers return to the same job after the end of maternal leave duration. The report examines three types of child-based leaves, which are maternity, paternal and maternity leave. Almost all countries describe national policies and provide these three types of leave except for Australia and Switzerland that provide only maternal leave. Below I will mention some countries legislative profiles mentioned by this study.

Mothers in Australia have the right to use 52 weeks of unpaid family leave. However, the mother can transfer one week to the child's father as paternity leave. Austrian women can take 16 weeks of paid maternity leave starting eight months

before birth and eight months after child is born. This duration may be extended to twelve weeks in case of multiple birth and cesarean delivery. Belgian new parents can have 43 weeks of leave at most. Mothers receive 15 weeks of paid maternity leave; being paid 80% of their salary first 30 days and the left of those 15 weeks they receive 75% of salary via health insurance. Fathers may take two weeks of paternal leave and they are paid 100% of usual salary during the firs three days, and then the amount reduces to 82% of salary in remaining days. The U.S parents are provided leave via the Family Medical Leave Act (FMLA) of 1993. Duration of the leave is 12 unpaid weeks and parents must have at least one year of job tenure with the current employer in order to qualify for leave.

Brugiavni et al (2012) provide a research on the effects of maternity leave benefits on job interruptions after delivery of every child. They use a unique data set that contains complete work and fertility histories. Used data set is SHARELIFE, which is consisted of 30,000 male and female participants from 13 European countries. A system of six equations is estimated in the study, which has dependent variables for 3 childbirth weeks ‘’in job’’ and ‘’out of job’’. The regressions give significant results about countries differences regarding women’s decision to participate in labor market. Furthermore, the decision of women to be in labor market varies due to cultural factors and welfare state features of the country. The authors suggest that governments should raise the level of the benefits for women during high turnover and position of female labor market participation. This study emphasizes the comparable policies across countries and time, although it provides further information for future analyses and research in this type of research.

Staehelin et al (2006) emphasize the length of maternity leave and health of mothers and children in Switzerland by evaluating Swiss situation after the implementation of maternity leave policy in 2005. The method used in the study is a review of thirteen original studies recognized by PubMed with analogous topic terms. Research finds a positive relationship between the length of maternity leave and mother’s mental health and duration of breastfeeding. Moreover, longer maternity leaves are associated with lower perinatal, neonatal and post-neonatal mortality rates and also lower child mortality rates. The authors note that Switzerland made a new policy in 2005 to extend maternity leave for several women up to 14

weeks. The effect of new policy was such that less depressive symptoms and longer breastfeeding duration would women get. Finally, the study concludes that longer maternity leaves reasonably result health benefits for both mother and child. They assume that the new maternity leave policy in Switzerland is possibly going to heal the situation of those women, who were previously taking the minimum leave.

3.4.2 Studies about Childcare Availability and Child Benefits

Using data from the Statistical Bureau of Japan for the period of 1971-2009, H.Y Lee and Ping Lee (2014) examine the problems of childcare scarcity, declining fertility rates and work-family conflicts caused by increasing female labor force in Japan. The study analyses the relationship between childcare availability, FLPR and total fertility rate in Japan during 1971-2009 years. They find long-run equilibrium relations between childcare availability, fertility and FLPR. In the long run, their results show that having more children at home does not discourage FLPR. Furthermore, they show that increased childcare supply will encourage labor market entry and facilitates continuous employment among females. The authors conclude that there is no evidence that childbearing is discourages by labor force participation between women aged 20-29, and they do not find any evidence that suggests that working women tend to have less children

Gustafsson and Stafford (1995) study the evolution of policies towards maternal employment and early childhood programs in the United States, Sweden and Netherlands, which are three completely different countries in terms of government involvement in child and family policy and in maternal employment. The authors use the data from labor force surveys for Sweden conducted in 1984 and for Netherlands conducted in 1988, and the National Longitudinal Survey of Youth in 1988 for U.S. This study demonstrates that one of the best policies that encourage women to move to labor market is childcare policy, whereas mothers of young children need early childcare programs when they are employed. Gusafsson and Staford conclude that considering the barriers of maternal employment is of import to understand the effect of childcare policy on decision of mother in labor for participation. In addition to this, they state that the reason why United States, Sweden and Netherlands have completely different structure of childcare and

maternal employment despite all being industrialized is the result of historical differences in broad social institutions.

Goux and Maurin (2010) present a comprehensive research about Public school availability for two-year olds and mothers' labor supply in France. A population census data carried in March 1999 taken from French national Institute for Statistics and Economic Studies (INSEE) was used in this study. The results of the research show that early school availability lets mothers to participate in labor force, mainly less educated women. The authors find that the impact of employment is more significant for lone parents than for two parents. It is more reasonable that family's well being and net resources grow with substitution of free pre-elementary school for non-free childcare. However, it is not noticeable in data of the study. Finally, they suggest that early school policy is more cost-effective than existing other non-free childcare systems for two years old children in France. But it does not show that preschool institutions are the most worthwhile institutions that people can perceive, still it can be designed and improved better by further research.

Nunley and Seals (2010) analyze child-custody reform, marital investment in children and the labor supply of married mothers in United States. The study on child-custody mainly focuses on well-being of divorced family's children. Authors of this research extend the topic by exploring how joint child-custody effects household bargaining power of married couples. Data used in research is from the 1980 and 1990 five percent Integrated Public Use Microdata Series (IPUMS) from the U.S. Population Census. The units of observation are children whose biological parents are married at the survey date. A chi-square test of independence is also carried on in research to determine the difference between states' private school attendance during 1980-1990. Probit estimates that adoption of joint-custody laws explains that FLFP, per-capita income and the adoption of no-fault property division laws are positively related to join-custody laws. Nunley and Seals find negative result for children who live in states that have joint-custody law. Children's probability of attending high schools in these states decreases. As a result, parental spending on children's education declines, which is the only investment in child quality. Furthermore, they found that custody reform has a limited positive effect on married women's labor force participation. Although, the impact of child custody

reform is noticed bigger for married mothers with younger children than others. The study suggests that joint-custody may lessen the effect of losing regular contact with one of their parents, but a prospect of post-divorce cooperation with a joint custody may have a negative impact on child investment.

3.4.3 Other Policies

Cascio et al (2015) present a comprehensive study about the policies that promote FLFP and discuss the importance of articles written and submitted to Labor Economics recently. They describe and consider potential effects of the policies that can effect labor supply of women with young children studied by many authors form different countries. These are: leave policies, subsidized childcare, and formal preschool. The study concludes with comparing the effect of international studies. Authors stress that different authors studying the same policy in different countries may not have the same result, because the effect of the policy varies with context in which policy was adopted. The study suggests the impact of policies should also consider on labor demand, perhaps women do not benefit from those policies.

Bick and Schündeln (2014) study a cross-country labor supply of married men and women and taxation. They build a simple model of joint household decision and check for international differences in taxation and wages. The study adds two contributions to previous research. Firstly, several micro data is combined together in order to find new determinants of international labor supply of various groups in OECD in the 2000s. Then, internationally tax differences in the tax treatment of married couples are analyzed using non linearity of income tax. Three different micro data from European Labor Force Survey, the Current Population Survey, and the German Microcensus are used in research. Upon the data used and the result of the study, the authors find worked hours differently through countries. Although, the largest difference in hours worked is noticed among married women. However, married man in European countries work 9 percent and 17 percent less than U.S married man, but European women work 26%-31% fewer hours when compared to U.S working women. The research results show that taxes and wages have a big significant effect on hours worked of married women internationally. Also, it is found that moving to a strictly separate taxation system of married couple, is likely

to increase working hours of married women by almost 300 hours in Germany, and by 100-250 hours in Belgium, Denmark, Ireland, France, Portugal, and the US.

Blundell (1995) investigate the impact of taxation on labor force participation and labor supply in OECD. He analyzes tax reforms of 1980s and finds that married women are the most sensitive to tax reforms and the change of marginal wages shows that it takes to exit the labor market. The research emphasizes the importance of care in estimating and interpreting labor supply and differs tax reforms that encourage women, especially married ones to participate in labor force and other tax reforms that encourage more ours of work for those who are already in labor market. The estimates results of the study are divided into different demographic groups. Given responses may be useful for representation of new policies, but they cannot effect on their own.

CHAPTER FOUR

4. Data and Methodology

The analysis of this study examines some different approaches of FLFP in Turkey. Initially, the data that will be used in analyses is an improved and updated data, in order to update the past empirical studies. The second approach of this thesis is that policies affecting labor force participation of women are added to the topic. In this part of the thesis data and methodology used in the study will be discussed. This chapter consists of the following three sections. Section one (4.1) provides information about the methodology that will be used to analyze results of the research. Section (4.2) two discusses econometric models that will be used in the empirical part of the study and describes the variables used model. Finally, section three (4.3) presents the data sources to be used in regression analyses.

4.1 The Data

The data used in this analysis is obtained from Turkish Statistical Institute's (Turk Stat) Household Budget Survey's (HBS) household data set and individual data set of 2002 (a year before the reform) and 2005 (one year after the reform). We exclude 2004, the year that the reform was accepted in order to allow women time to adjust their behavior.

Household budget surveys are one of the major sources of the society, to understand the distribution of the which provide information on the socio-economic income among the households or individuals and to test structures, living standards and consumption patterns of the households and are used to determine the needs of the society, to understand the distribution of the income among the households or individuals and to test e validity of the applied socio-economic policies. The HBS contains information on families, household, and individuals. The estimation level of HBS contains whole Turkey at urban and rural area. The data obtained from these surveys enable researchers to monitor the economic and social changes from a close perspective, accelerate the development in a definite balanced way, develop policies

in order to reach the living standard of the society at a prescribed level and evaluate the applied policies and their results.

The 2002 HBS, which was designed for the purpose of data collection on socio-economic status, consumption expenditures and income. Components were applied on 40675 sample households changing every month and 9555 sample households for a year between 1 January- December 2002. Similarly, 2005 HBS was carried out at the same period to 720 households monthly.

The numbers of women used in the data set are representative sample of all females in Turkey for ages 15 and above. The sample includes females (married, divorced, widowed, and never married) who are between 15 and 65 years old. The analysis is consisted of 8557 numbers of females. I exclude households in which there are no females and households that live in an extended. The only individuals in the sample remained married women, who have aged 0 to 16. The final sample size after cleaning the data is observations 8557.

4.2 Methodology

The dependent variable is labor force participation rate that takes the value of one if the person is in labor force, and the value of zero if not. The study models the binary choice if the women is in labor force (Lf=1) or outside of labor force (Lf=0). Therefore, a group of binary response models are used. These models are referred as "probabilistic models" since independent variables affect the probability of dependent variable being 1. (i.e Y=1). These are the LPM model, Logistic model and Probit model.

4.2.1 The LPM Model

Multiple regression analysis is used when a continuous dependent variable is regressed on $k+1$ explanatory variables which can be either continuous or dummy variables. The dependent variable, wage, is continuous and in such a case employing OLS is the most appropriate statistical method. The linear regression model can be written as:

$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \ldots\ldots\ldots\ldots\ldots + \beta_k x_{ik} + U_i$ $(i = 1,2, \ldots\ldots\ldots N)$ (4.1)

When OLS assumptions are satisfied, OLS estimators are unbiased estimators of the population parameter.[10]

LFP= $\alpha + \beta_1(HUSBSALARY) + \beta_2(AGE) + \beta_3(AGESQR) + \beta_4(ELEMEDU) + \beta_5(INTEDU) + \beta_6(HIGHEDU) + \beta_7(\text{NCHILD}) + \beta_8(\text{URBAN}) + \varepsilon i$ (4.2)

Where LFP is the dependent variable; α is the intercept; $\beta 1, \beta 2, \ldots\ldots\ldots\ldots \beta k$ is a $(k + 1)$ vector of coefficients which measures the change in the dependent variable with respect to explanatory variables, holding other variable constant; εi is the error term.

$y_i = \alpha + \beta_1 x_1 + \beta_2 x_2 + \ldots\ldots\ldots\ldots \beta_k x_k + \varepsilon_i$ (4.3)

Where x are the independent variables$(i = 1 \ldots\ldots\ldots k)$; α is the predicted probability of labor force participation when all $xj's$ are equal to zero; β is a vector of coefficients $(k\ x\ 1)$ which measures the probability of participation when xj changes, holding other variables fixed; εi is the disturbance term $(E(\varepsilon_i) = 0)$; and $y = 1$ when a respondent participates in the labor force and 0, otherwise i.e. $y_i = \{1\ for\ a\ participant.\ 0\ otherwise$

When the dependent variable y is categorical, it is certainly true that the probability of labor force participation is the same as the expected value of y i.e. $P(y = 1 \mid x = E(y \mid x)$. Hosmer and Lemeshow (1989, p. 6) refer this probability $\pi(x)$. Consequently, this gives the following equation:

$\pi(x) = E(y|x) = P(y = 1 \mid x = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots\ldots\ldots + \beta_k x_k + \varepsilon_i$ (4.4)

[10] (Wooldridge, 2009).

The linear probability model (LPM) is easier to use and estimate, but it has some disadvantages. The two most important drawbacks are that the fitted probabilities can be less than zero or greater than one. In addition to this, the partial effect of any explanatory variable is constant. These limitations of LPM can be overcome by using more sophisticated binary response models (Wooldridge, 2009).

4.2.2 The Logit Model

Logistic regression, also called a logit model, is used to model dichotomous outcome variables. In the logit model the log odds of the outcome is modeled as a linear combination of the predictor variables. A logistic regression is used to eliminate the probability that LFP is not in the limit of (0-1). The logistic transformation of labor force participation is p is log $p/(1-p)$, and it is written as $logit(p)$. The odd of participation is $p/(1-p)$, which converts the log(p) in the limit of (0-1) to $-\infty$ to ∞.

If p is the probability of participation, then $p/(1-p)$ are the odds of participation. In this case, the odds are shown as:

$$\frac{P\,(y=1|x)}{P\,(y=0\,|\,x)} = \frac{P\,(y=1|x)}{1-p(y=1\,|\,x)} \qquad (4.5)$$

Here, (y= 1) indicates the odds of participation compared to (y= 0), the odds of not participating in the labor force. The linear logistic model for the relationship between the dependent variable (LFP) on k + 1 explanatory variables is:

$$logit(p_i) = \alpha + \beta_1 x_1 + \beta_2 x_2 + \ldots\ldots\ldots\ldots + \beta_k x_k \qquad (4.6)$$

Firstly, the k+1 unknown parameters $\alpha+\beta 1 + \beta 2 + \ldots\ldots\ldots\ldots\ldots \beta k$ are predicted using the maximum likelihood estimation (MLE), which is given by:

$$L(\beta) = \prod_{i=1}^{n} p_i y_i\,(1-pi)1-yi \qquad (4.7)$$

The final equation, which estimates labor force participation in Turkey can be written as:

$LFP = \propto + \beta 1(TREATMENT) + \beta 2(POSTREFORM) + \beta 3(TREAT*POST) + \beta 4(AGE) + \beta 5(AGESQR) + \beta 6(ELEMEDU) + \beta 7(INTEDU) + \beta 8(HIGHEDU) + \beta 4(\text{NCHILD}) + \beta 9(\text{URBAN}) + \beta 10(\text{HUSBSALARY}) + U_i$ (4.8)

4.2.3 The Probit Model

In order to explain the behavior of a dichotomous dependent variable we will have to use a suitably chosen CDF. The logit model uses the cumulative logistic function. But this is not the only CDF that one can use. In some applications, the normal CDF has been found useful. The estimating model that emerges from the normal CDF is popularly known as the **probit model,** although sometimes it is also known as the **normit model** *(Gujarati 1995)***.**

The decision of the *i*th individual to participate in labor force or not depends on an *un- observable* utility index I_i (also known as a latent variable), that is determined by one or more explanatory variables, say education X_i, in such a way that the larger the value of the index I_i, the greater the probability of an individual to participate in labor force. The index I_i expressed as

$$I_i = \beta 1 + \beta 2\, X_i \qquad (4.8)$$

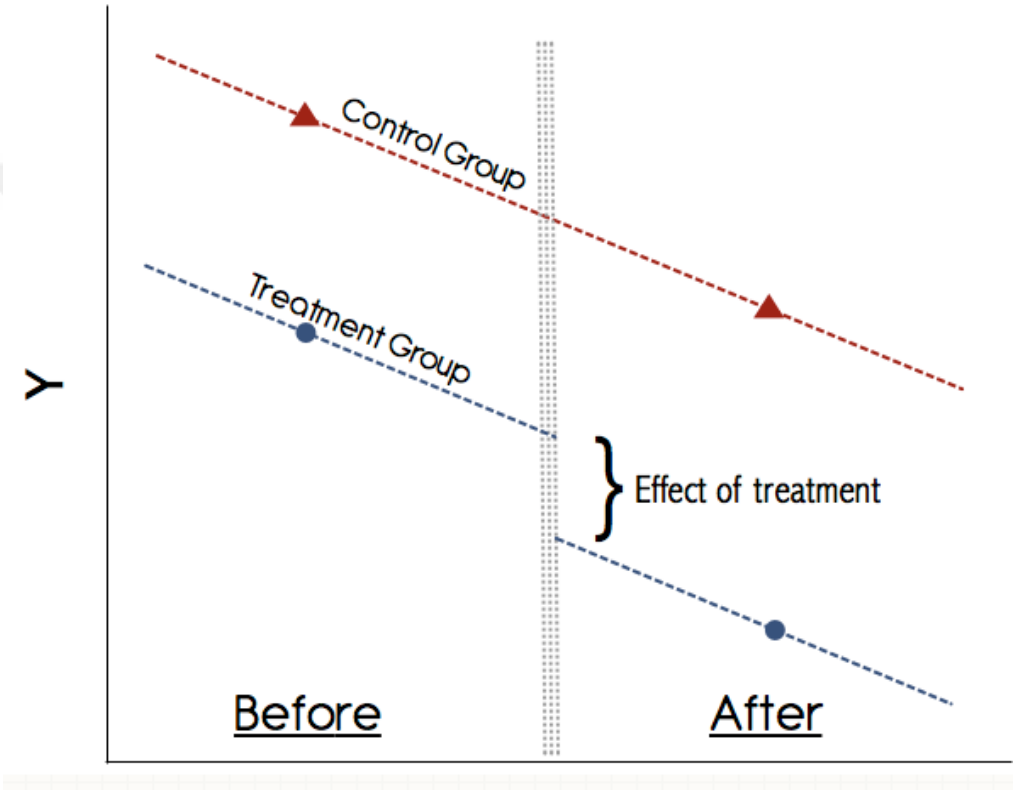
where X_i is the education level of the *i*th individual.

4.2.3 The Difference-in-Differences Model

Differences-in-Differences (DD) is a quasi-experimental technique used to understand the effect of a sharp change in the economic environment or government policy. This estimation has become an increasingly popular way to estimate causal relationships. DD estimation consists of identifying a specific intervention or treatment (often the passage of a law). One then compares the difference in outcomes after and before the intervention for groups affected by the intervention to the same

difference for unaffected groups. The great appeal of DD estimation comes from its simplicity as well as its potential to circumvent many of the endogeneity problems that typically arise when making comparisons between heterogeneous individuals (*Bertrand et al, 2003*)

Graph 4.1. DD Estimator



Source: www.stats.stackexchange.com

The simplest set up of DD method is that the outcomes are observed for two groups and two time periods. One of the groups is taken to treatment only in second period and the second group is not taken to treatment in either periods. The most feature of DD method is that it is used to estimate treatment effects without experimental data. DD is a version of fixed effect estimation. The difference between DD model and fixed model is that in standard fixed effects model panel data is required, while in DD you don't need panel data as your repeated cross section data is from the same total unit *s*. This feature makes DD applicable to a wider array of data.

The model for a generic member of any group is as

$$Y=B_0+B_1dB+t_0d2+t_1d2*dB+u$$

where y is the outcome of interest, d2 is a dummy variable for the second time period. The dummy variable dB takes possible differences between the treatment and control groups before the policy change. The time period dummy, d2, takes total factors that may cause changes in *y* even in the absence of a policy change. The coefficient of interest, t_1, multiplies the interaction term, d2*B, which is the same as a dummy variable equal to one for those observations in the treatment group in the second period.

The DD estimate is

$$T^_1=(y^_{B,2}-y^_{B,1})-(y^_{A,1}-y^_{A,1}).$$

This study estimates the effect of maternity leave policy on FLFP using a Differences-in-Differences (DD) model. The estimation strategy contrasts LFP fo women with children before and after the 2004 maternity leave reform. We have two treatment groups. For first treatment group I use female influenced by the change in maternity leave policy reform, who have children under the age of 2 or do not have any child, and the second treatment group includes mothers having children under the age of 5 and the ones without children . The control group consists mothers with 5-16 aged children. The reason why I used this group of female as a control group is that, they are the same with women in treatment group, but they are not affected by the reform. I consider on women who have children, because they make the largest group of female population. Additionally, they are the most relevant group to examine whether the parental leave reform increases the FLFP rate.

The model for a member of any group in this study is as

$$Y_{it}= \beta_1+ \beta_2\gamma_s + \beta_3\lambda_t +\rho\ T_i+ u_{it}$$

where γ_s is a dummy for treatment group and λ_t a dummy for period. Another dummy T_i is generated which equals one if a person is in treatment group and the time is the post-treatment period, otherwise zero.

We estimate two regressions; one with social-demographic characteristics, another one without social-demographic characteristics.

1) $LFP = \propto + \beta 1(TREATMENT) + \beta 2(POSTREFORM) + \beta 3(TREAT*POST) + U_i$

2) $LFP = \propto + \beta 1(TREATMENT) + \beta 2(POSTREFORM) + \beta 3(TREAT*POST) + \beta 4(AGE) + \beta 5(AGESQR) + \beta 6(ELEMEDU) + \beta 7(INTEDU) + \beta 8(HIGHEDU) + \beta 4(\text{NCHILD}) + \beta 9(\text{RURAL}) + \beta 10(\text{HUSBSALARY}) + U_i$

4.3 Description of variables

4.3.1 Dependent Variable

Dependent variable used in this study's model is Labor Force (LF) which is a dummy variable that equals one if person is in labor force, and zero if the person is not in the labor force.

4.3.2 Independent Variables

Explanatory variables are categorical and divide into four categories:

1) determinants of reform: treatment, post-reform, treatment*post-reform;

2) individual and demographic factors: age, education, marital status, number of children;

3) socio-economic category: wage of husband, and,

4) geographic location: urban or rural residential.

4.3.3 Expected Sign of Variables

The impact of independent variables on dependent variable can be either positive or negative. The expected sign of variables is described categorically based on findings of the literature.

Determinants of reform:

I. *Treatment.* Variable *treatment* is the variable that contains women in treatment group. It is expected to have negative sign, as women deliver child, they are less likely to work, especially when they have young kids.

II. *Post*-reform. The expected sign of *post-reform* variable is positive on labor force participation of women. As the maternity leave duration increases, women have more time to spend with their babies and are more likely to return to their job after the paid leave. Additionally, this reform brought breast feeding opportunity to women, which gives them 1h 30minutes leave per daily leave.

III. *Treatment*post*-reform. This variable shows the effect of the reform on treatment group after the reform. The expected sign of the variable is positive. If we get positive sign in results, then we can say that longer duration of paid maternity leaves have positive effect on labor force participation of women.

Individual and demographic factors:

I. *Age and Age-squared*. Both positive and negative effects are expected from this variable. Age variable is expected to effect positively labor force participation as the age increases. The negative sign of Age-squared variable is that participation decreases with retiring individuals.

II. *Education.* Education variable is divided into 5 categories in this study: illiterate, primary, secondary, high school, college, and higher education. According to human capital theory, education variable is positively related to LFP. The effect of first three categories may not be positive, but I believe that last three categories have positive effect on labor participation decision of

women. Especially college and higher education categories, which include university graduates and postgraduate education level, has very important role on participating in formal sector.

III. *Marital Status.* This variable is divided into four categories: married, divorced, widowed, and never married in the data. I kept only married women category and omitted the rest, because they are the majority group consisting female population and are affected the most by the policy. Empirical studies have found different results of the effect of marriage on FLPR. Most recent studies have found negative effect of marriage on women labor force participation. However, marital status is expected to have positive effect in my research as it the variable that shows the effect of the policy.

IV. *Number of Children.* The variable number of children is classified into three groups: 0-2 ages group, 0-5 age's group, and 5-16 ages group. The literature have examined the effect of the number of children on women's decision to participate in labor force and have conflicting conclusion. First and second category of this variable is expected to have negative sign on FLPR, as women want to take care of their small kind. However, the third category, which includes 5-16 age group, is expected to have a positive sign on labor participation.

Socio-economic Factors:

I. *Wage of Husband.* Heads of household need to work to pay for supports of their families. When the wage of head of household is increases, mostly women having low level of education decide to leave the labor market due to low wages. This variable has expected sign of negative effect.

Geographic Factors:

I. *Urban*. Dayioglu and Kirdar (2010) reported that migration of rural population to urban areas have been increasing during last decades. As the result, women working in agriculture, who are low skilled lose their jobs and hardly find another job in urban areas. Urban variable is a dummy variable that takes amount of 1 when an individual is from urban area and 0 if from

rural are. It is expected to have both negative and positive signs. The positive sign is expected to be seen for high skilled women, as there are more opportunities to find formal jobs in urban areas. In addition to this, women having lower levels education and illiterate ones have difficulty to find job in urban areas, which gives the negative sign of urban dummy variable.

Table 4.1 shows description of variables in details for logistic model, probit model, and DD model.

Table 4.1 Description of variables

Variable name	**Description**	**Expected sign of effect on**		
		Logistic	**Probit**	**DD**
TREATMENT	Control group	-	-	-
POST-REFORM	FLFP in 2005	+	+	+
TREATMENT* POST-REFORM	The effect of the reform on treatment group	+?	+?	+?
AGE	Individual's age (in years)	+	+	+
AGESQR	The square of individual's age	-	-	-
EDUCATION CATEGORY	0 if illiterate; 1-primary; 2-secondaty; 3-high school; 4-college 5-higher education	+?	+?	+?
URBAN	1 for urban residents; 0 for rural	- +	- +	- +
MARRIAGE	1 if married; 0 otherwise	-	-	-
HUSBSALARY	Monthly income of husband	-	-	-
LABOR FORCE	**Dependent variable**			

CHAPTER FIVE

5. Results and Discussion

This chapter comprises the results and discussions of the study. We used Difference-in-Difference, logistic and OLS models to analyze the effect of maternity leave policy on labor force participation decision of women.

The chapter is separated into three parts: the preliminary analysis followed by econometric analyses and the interpretation. The third part discusses the limitation of regression analyses.

5.1 Preliminary Analysis

In order to get valid and reliable results, several diagnostic tests were conducted in logistic model.

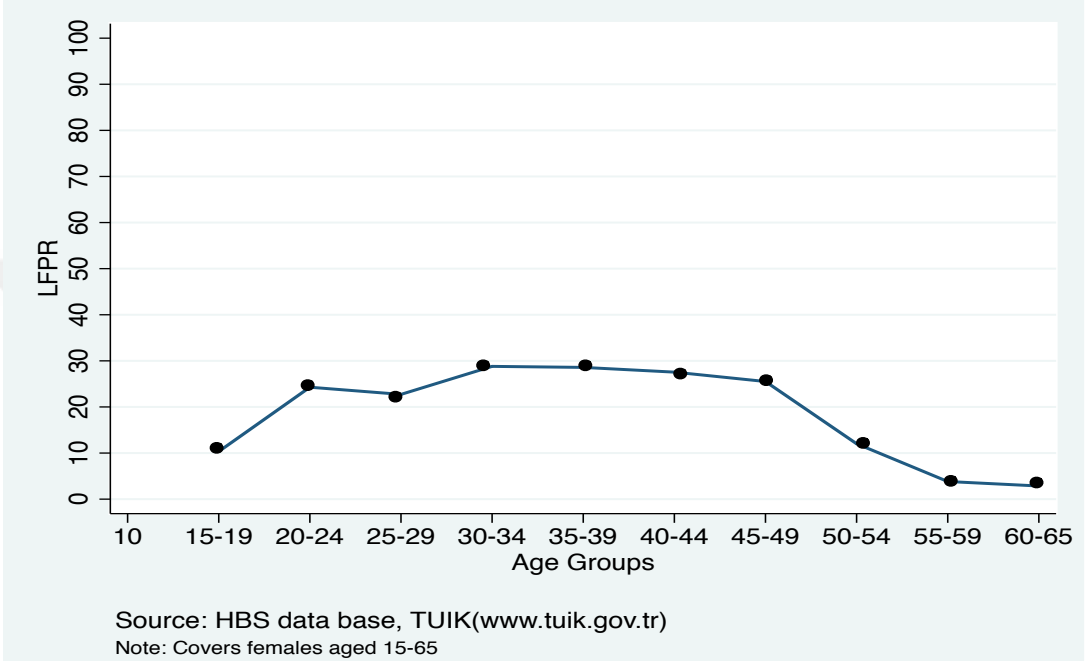
The participation of women in labor force by age groups is inverse U-shaped. The number of young women in labor market is less, it increases after the ages of 20, and reaches the pick at the age of 30-39. Thereafter women start leaving their jobs and participation declines to less than 10%.

Figure 5.1 shows labor force participation of urban woman by age groups. The u-shape participation profile of urban women is quite weak compare to the urban women. Their participation reaches the peaks earlier in their 30s to the rate of almost 30 percent. Urban women's participation start declining when they reach 45 and thereon. This is considered because women in Turkey get retired in earlier ages after they reach their 40s. According to the result of this study, only 12% of women of the sample remain in the labor market after the age of 50. This rate is even less than the half of prime age year participation of urban women.

The participation of women in rural areas is quite different. Figure 5.2 shows the distribution of women participation according to their age groups. In rural areas, the U-shape participation profile of women strengthens most probably

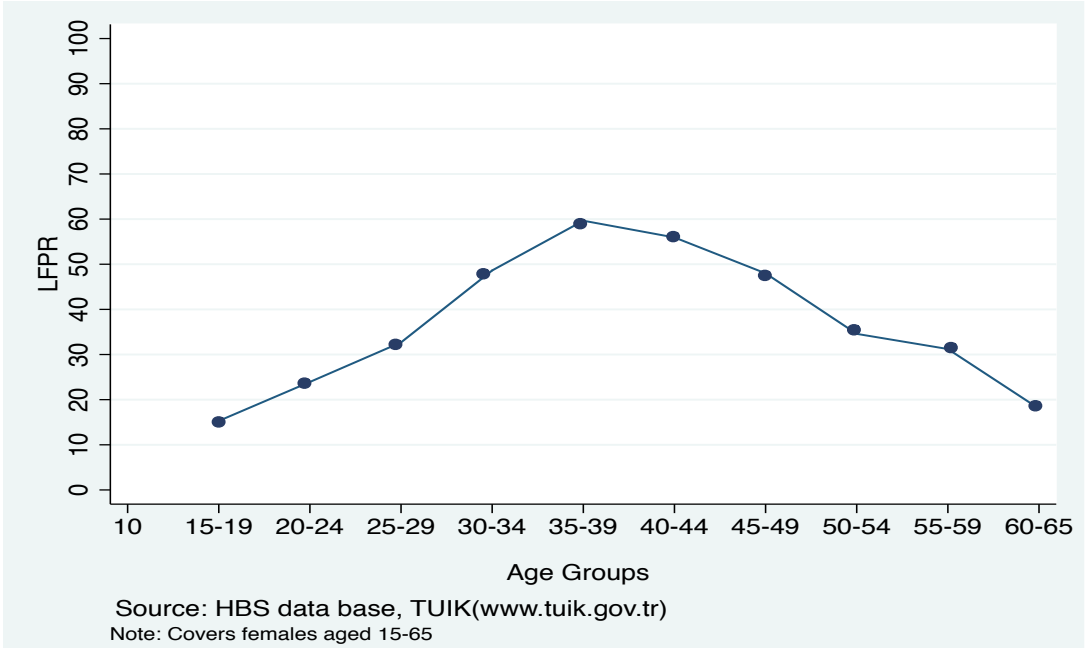
because women enter the labor market in their earlier ages owing to lower average of schooling levels, and leave the labor market faster at older ages.

Figure 5.1 FLFP in Urban Areas by Age Groups, 2005



Source: HBS data base, TUIK(www.tuik.gov.tr)
Note: Covers females aged 15-65

Figure 5.2 FLFP in Rural Areas by Age Groups, 2005



Source: HBS data base, TUIK(www.tuik.gov.tr)
Note: Covers females aged 15-65

Furthermore, labor participation of urban women reaches the peaks when they reach the age of 35, to the rate of 60 percent. However, rural women's participation starts declining immediately when they reach their 40s and declines faster after their 45s. Lower participation rates after age 40 is mostly as a result of the retirement insurance system. It is also important to note that low female labor participation rates after age 40, as a result of early retirement, is an important contributing factor to the low aggregate female labor for participation rate in Turkey[11].

In the 60-65 age groups, the participation reaches 20 percent, which is after the women make their transition to retirement. Even though it is considered higher than urban women, who are in their fifties. The potential explanation to the higher participation rates in rural areas than in urban areas is that a large proportion of women nearly 60 percent are involved in agricultural jobs. On the other hand, this implies that agricultural sector have a strong influence on labor market of Turkey. Women in rural areas work as un-paid family workers because of the fact that Turkish agricultural sector is controlled by small family workers. Since large shares of women work in agriculture, 40% of all working women are unpaid family workers.

[11] Dayioglu and Kirdar (2010)

Figure 5.3 Urban and Rural FLFP by Age Groups, 2005

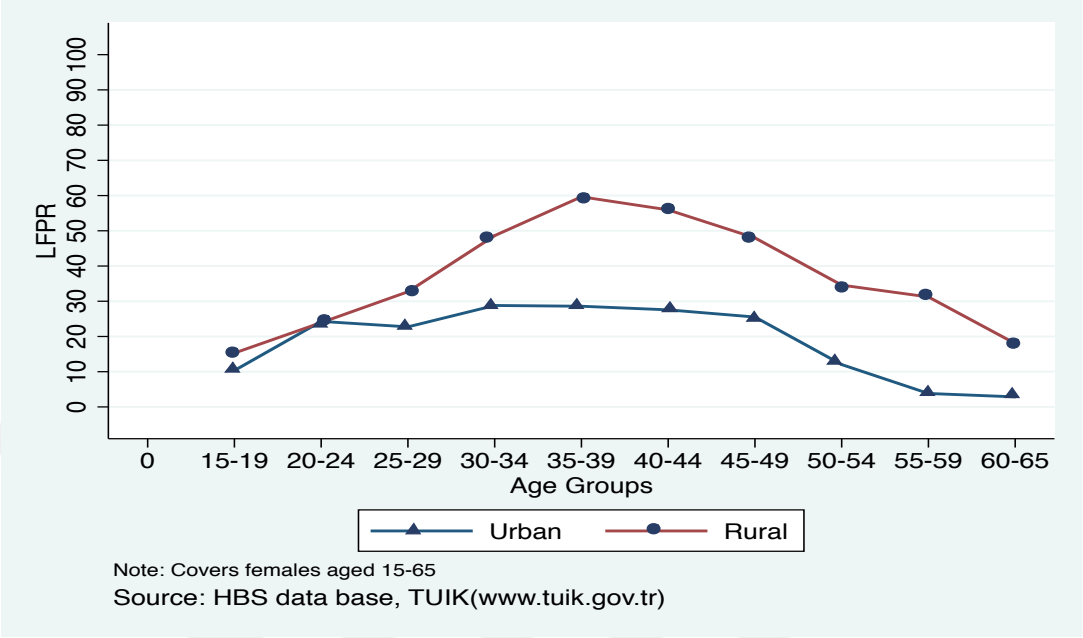
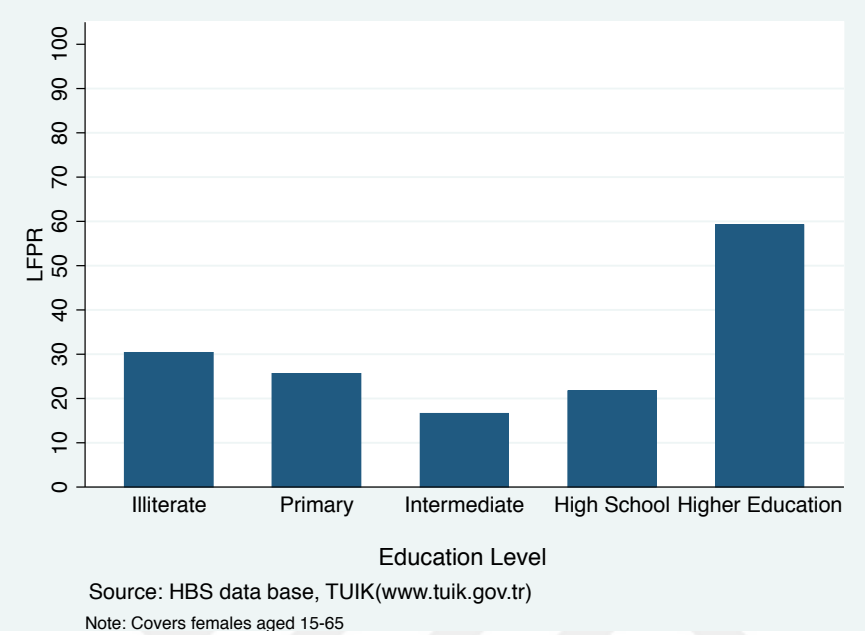


Figure 5.3 compares age-participation profiles of urban and rural women in 2005. According to the sample of the data that was used in the study, prime age women are more likely to participate in the labor force than their counterparts in the urban prime age women. For both urban and rural areas, women in younger generation groups are considered to be in the labor market by lower rate. Moreover, in all age groups, labor force participation of rural women tends to be higher than the ones in urban areas. In urban areas the first peak is at 20-24 age groups, whereas after that we see a slightly decline in female employment. The evidence to the declining participation during prime ages is that women are either involved in education or get married during in those age groups. The timing of marriage is early in Turkey and the average age at first marriage is considered as 20.7 years. Moreover, most women decide to have children in earlier years of their marriage, so they leave the labor force.

According to empirical studies, majority of Turkish women have only primary education level or are illiterate. Therefore, this situation negatively effects their participation in labor force. Figure 4.4 presents labor force participation of married women, who were used as a sample in this study. In 2005, 30 percent of the women taking the survey were illiterate or did not have any diploma are in the labor market.

Figure 5.4 Total FLFP Rate by Education Levels, 2005

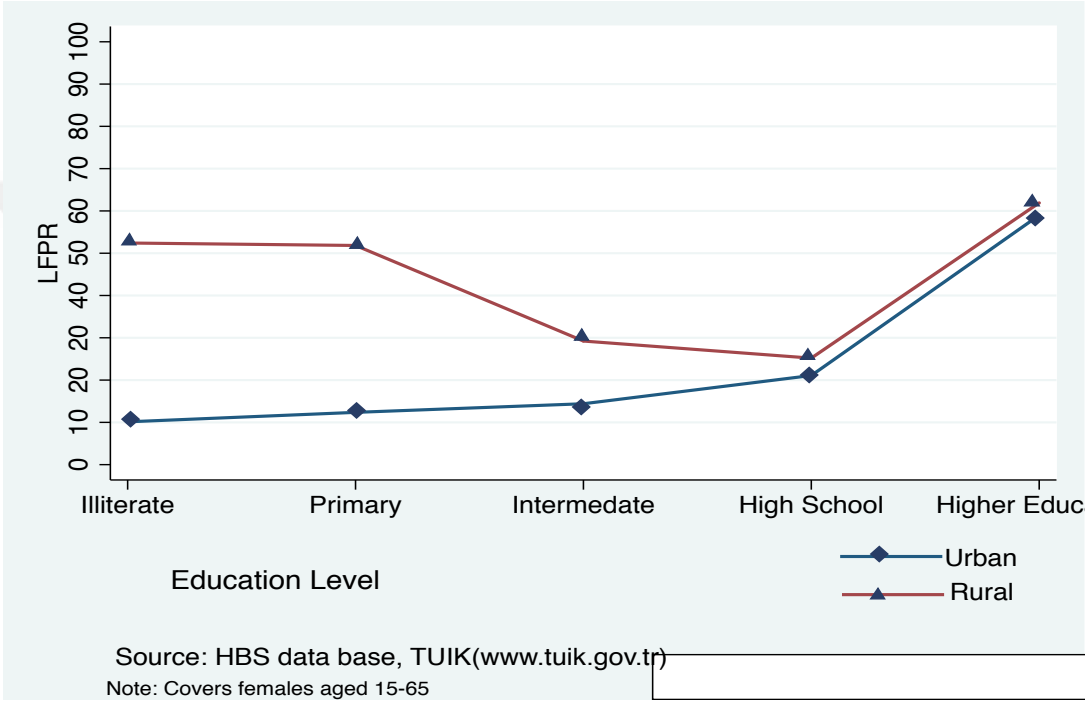


About 28 percent of the women who completed only primary school are participating in the labor force. The participation rate of intermediate and high school graduates is considered to be lower respectively. Finally, when we look at participation behavior of university graduates, only 60 percent are in the labor force. This rate is quite low when compared to early 90s, when 80 percent of university graduates used to be in the labor market. It is interesting to see the low participation rate of even educated mother. There should be some other factors that explain the reason behind discouraged university graduate women.

Finally, figure 5.5 illustrates the comparison of rural and urban female participation according to their education level. The urban-rural gap of women by educational level is as drastic as gender gap. The proportion of illiterate women in the labor force in urban areas was 10 percent, whereas it was 50 percent for rural women. Participation rate of rural illiterate women and those with primary education level is not much lower from university graduates. As it was mentioned above, majority of rural women are involved in agricultural jobs, therefore education is not the main determinant of rural female labor force participation. However, it is the opposite for the urban women. Urban work force rises as education level increases. In both regions, high school graduates are seen to be less likely to work. The reason

for this evidence may be university exams preparation or again it may be because some women get married in their early ages, especially when they finish high school. Studies show that marriage has negative significant effect on FLFP rate.

Figure 5.5 FLFP Rate in Urban and Rural Areas by Education Level, 2005



5.2 Econometric Analyses

The econometric analyses results obtained from DD and Logistic models are interpreted in sub-sections 5.2.1 and 5.2.2 respectively. Not all the same variables were used in both models regression. We selected the independent variables in regressions according to the norms established in previous research.

Table 5.1 shows the descriptive statistics of the samples used in regression equations. According to econometric results of the study, women being out of labor force consist very high percentage of the sample. Only 12.38% of women are in the labor force, which make up a very low percentage of the total. The reason of this low amount could be most likely because so many of married working women live in rural areas, and are involved in agricultural jobs. However, I dropped all women of the sample working in agriculture sector, so that the effect of the reform was

considered more clearly. The percentage of women having children aged 5 to 16 years old is the highest among any other age groups of children. This fact can be an explanation to the fact that number of children is not barrier for women to be in the labor force. Nevertheless, having older children does not help the women in urban areas to move to the labor force. Women who have 2 year old children and under are in the lowest group women in the sample. Those women are also member of our treatment group, who are consisting only 43.67% of the sample. The percentage of retired individuals is also very low by 2.19%. For the sample as a whole, 85.85% of women live in urban are and the rest are rural residents.

In terms of education, 23 % of respondents are illiterate or have no diploma, 53.5% completed primary school, only 6,6% have intermediate school level of education, 12,82 % have high school diploma, and only a few have higher education degree, which is 4.06% percent of the sample.

Table 5.1 Descriptive Statistic of Variables

Variables	**Mean**	**Std. Dev.**	**Min**	**max**
FLFP RATE	0.1238	0.3294	0	1
AGE	35.7303	9.8017	15	65
HUSBAND SALARY[12]	7.5369	9.5893	0	187.5
URBAN	0.8585	0.3486	0	1
NO EDUCATION	0.2301	0.4209	0	1
PRIMARY	0.535	0.4988	0	1
INTERMEDIATE	0.066	0.2482	0	1
HIGH SCHOOL	0.1282	0.3344	0	1
HIGHER EDUCATION	0.0406	0.1975	0	1

[12] In 1000 (thousand) Turkish Liras

5.2.1 Results from Difference-in-Difference Method

This section presents the results of the effect of maternity leave policy on female labor force participation as well as the determinants of participation. Table 5.2 displays the results from DD model regression.

By examining firstly TREATMENT, POST-REFORM and TREATMENT*POST-REFORM variables, we get unexpected results. TREATMENT variable has negative and significant results in all p-levels. This means that women, who have children under the age of 2, are less likely to participate in the labor force, which is expected in the early ages of having children. Variable POST-REFORM indicates the participation of treatment and control groups after the reform in 2005. The participation of women increases in 2005 by 2.8 percent and it is significant at all levels. Finally, TREATMENT*POST-REFORM variable, which is the most important variable in determining the effect of the reform, is not significant. Specifically, we estimated a TREATMENT group effect on reform after 2005 a year immediately after the reform was announced. No doubt, women with young kids did not adjust their behavior during one year. Moreover, this kind of reform and legislations take quite a long time to reach the goal. We could not examine the data after 2005 because of data limitation.

Another explanation to the insignificant results of the study is that Turkish women have difficulties to find job, especially in government sectors. Government sectors are usually preferred over private sector due to higher salary and less job responsibilities compared to private sectors. Turkish citizens are supposed to take an exam called KPSS (Kamu Personeli Seçme Sınavı - Public Service Personnel Selection Examination).

Table 5.2 Difference-in-Difference Regression of Labor Force Participation

VARIABLES	COEFFICIENT	STD. DEV	P-VALUE
TREATMENT	-0.0812***	0.0094	0.000
POSTREFORM	0.0283***	0.0086	0.001
TREATMENT*POST-REFORM	-0.0129	0.1334	0.332

Significance levels: ***p<0.01, ***p<0.05, *p<0.1

KPSS is applied by OSYM (Measurement, Selection, Placement Center), which is responsible for applications, examination, and evaluation. The Ministry of National Education concludes applications of teacher candidates.

The aims of KPSS are selection of personnel of first-time public service and duties and pre-selection of personnel to be assigned to public sector and bodies through special talent tests. The pre-requisites of being a public servant is mostly set by the Public Servant Laws with law No. 657. Except the law, every office and establishment has their own in-house rules. The candidate should make his/her decision accordingly with these laws and regulations. Otherwise, regardless of their scores, they cannot be placed into these establishments. Even in cases of placement, the establishment cannot appoint the candidates.

Furthermore, the fact that we could not see the positive effect of the reform on employment can be also related to the economic crisis that happened in 2001 and 2008. Turkish Economic crises that happened in 2001, is known as dark Wednesday, and is the biggest crisis ever happened in Turkish economic history. Financial and political instability were underscored and led to further panic in the markets. Stocks plummeted and the interest rate reached 3,000%. Large quantities of Turkish lira were exchanged for US dollars or euro, causing the Turkish Central Bank to lose $5 billion of its reserves.

The crash triggered even more economic turmoil. In the first eight months of 2001, 14,875 jobs were lost, the dollar rose to 1,500,000 liras, and income inequality had risen from its already high level. Among those who lost their jobs, majority of

which were women, left the labor market. This situation took quite a long time and was followed by 2008 Global Economic Crisis.

The Global economic crisis effected Turkish economy as much as other world economies. Except for financial sectors, all other sectors became smaller. The direct effect of this shrinkage was seen in employment. As a result, the real economic crisis came up against an employment crisis[13]. Thus, female workers were among the first who quit their jobs or fired. Therefor labor force continued declining and the number of discouraged workers increased.

5.2.2 Results from Logistic Model

In this section, factors affecting FLFP and the effect of paternity leave legislation on Turkish labor market and its results of logistic regression are discussed. Regression contains 8557 number of observations, which are only married women, who have children. The sample takes into consideration women aged 15 to 65, who are in working age population. The model used has nonlinear nature, therefore, the interpretation of the results is based on marginal probabilities of variables contrary to the coefficients of the variables.

By examining firstly the determinants of women labor fore participation, it can be seen that variables as AGE, AGE SQUARE, HUSBAND SALARY, URBAN, PRIMARY, INTERMEDIATE, HIGH SCHOOL, HIGHER EDUCATION, mothers have significant result according to our analysis.

Variable AGE has statistically positive and significant effect, as expected. The participation behavior of women changes positively when they get older. However, the variable AGESQUARE has negative significant effect, which is reasonable. The negative sign tells us that the participation increases until a certain age, and then declines as the age increases and individual gets older. As women get older, they decide to leave labor force slightly, especially when they get retired. Therefore, there is an inverted U-shaped relationship between age and labor force participation both for men and women. The empirical studies worldwide have been proved this relationship with many analyses.

[13] Darican (2015), Economic Crisis and Turkey

The human capital investment theory together with studies regarding to labor force participation show that education plays a salient role in labor force participation, particularly to the behavior of urban women. According to some Turkish empirical studies, primary school diploma is what matters for participation of men to be in labor market. However, only primary school diploma does not open opportunity doors to find job for women. Consistent with the literature, our results show that primary and intermediate level of education does not impact FLFP much. These variables have statistically positive significant effect, which increase the participation rate by 2.8% for primary and 8.8% for intermediate education level compared to women without any education attainment. Furthermore, high school education level is also statistically significant and has a positive impact. According to our sample results 17.4 percent of high school graduate women are in the labor market, compared to illiterate ones. Finally, the marginal probability of participation of women having university degree is 77.2 percent in contrast to those without education. Higher education is correlated with higher labor force participation in Turkey, that is correspondent to literature (Dayioglu and Kirdar, 2010; Gunduz-Hosgor and Smith, 2006).

Number of children is classified into three groups: women having 0-2 aged kid(s), 0-5 aged children, and 5years old and older. The estimated results of women with children are statistically significant, but different signs and levels. Having 0 to 2 age kid(s) has positive impact, but it is significant only at 10% p level. The two remaining groups are highly significant with negative sign, which implies that number children conversely relates to the labor force participation of women.

Table 5.3 Logistic Regressions Results
Coefficients
Sample: All Women 15-65
Dependent Variable: Labor Force Participation

Variable	Coefficients	Standard Deviation	P-values
Treatment	-0.6735**	0.3034	0.026
Post-reform	0.3294***	0.0884	0.000
Treatment*Post-reform	-0.1407	0.1700	0.408
Age	0.3260***	0.0400	0.000
Age square	-0.0046***	0.0006	0.000
Husband salary	-0.0533***	0.0061	0.000
Urban	0.2339*	0.1216	0.054
Education Level [a]			
Primary	0.3661**	0.1218	0.003
Intermediate	0.8503***	0.1693	0.000
High school	1.4541***	0.1440	0.000
Higher education	4.2461***	0.2021	0.000
Constant	-7.6670	0.7114	0.000
Number of Observations	8557		
Pseudo R^2	0.1918		
Prob > chi2	0.0000		

Significance levels: ***p<0.01, ***p<0.05, *p<0.1
a = omitted variable is women with no education

Table 5.4 Logistic Regressions Results
Marginal Effects
Sample: All Women 15-65
Dependent Variable: Labor Force Participation

Variable	Coefficients	Standard Deviation	P-values
Treatment	-0.0488*	0.0213	-2.29
Post-reform	0.0255***	0.0070	3.65
Treatment*Post-reform	-0.0103	0.0119	-0.86
Age	0.0248***	0.0028	8.78
Age square	-0.0003***	0.0000	-8.97
Husband salary	-0.0040***	0.0005	-8.71
Urban	0.0166**	0.0080	2.07
Education Level[a]			
Primary	0.028***	0.009	3.03
Intermediate	0.088***	0.023	3.88
High school	0.174***	0.024	7.21
Higher education	0.772***	0.026	29.91
Number of Observations	8557		

Significance levels: ***p<0.01, ***p<0.05, *p<0.1
a = omitted variable is women with no education

5.3 Limitations

As the econometric results of this thesis are interpreted, we need to acknowledge some important point. Some important variables and explanatory variables that could explain the effect of paternity leave reform of 2004 in Turkey in female labor force

participation rate were missing from the data. Labor market reforms such as employment legislation, maternity leave policies, and childcare subsidy laws need quite long time to show their effect in labor market. The working age population needs time to consider those kinds of policies.

The estimation of DD method suffers from the lack of data after the reform that could be used to determine post-reform effect on treatment group. HBS of Turkey has problem with age category since 2006 to 2011, during which is the best period to analyze reform' impact on employment. Individuals surveyed in 2006 to 2011 data are all under the age of 13. For example in 2006 individual data there are 34939 observations, which all are aged 1 to 13 years old. Mistakes were visible in the data set, which could have changed the results of the study.

CHAPTER SIX

6. Conclusions

The issue of female labor force is related to gender equity, poverty, and child well being. Reduction of poverty and improvements in gender equity support the increase of female participations. Labor force participation of women is generally lower compare to man in all counties around the world. Therefore, understanding the health of female participation is an important topic of the labor market and the entire economy.

This thesis is the first attempt to analyze the impact of maternity leave reform of 2003 & 2004 on labor force participation of women in Turkey. The sample includes married women, who are 15-65 years old and have children pre-reform and after the reform. Labor force participation is examined using two groups: treatment and control group.

The main findings of the study are interpreted below according to the models used in the analyses.

6.1 Main Findings

Some estimated results of women with children are statistically significant, but different signs and levels. By examining firstly the determinants of women labor fore participation, it can be seen that variables as AGE, AGE SQUARE, HUSBAND SALARY, URBAN, PRIMARY, INTERMEDIATE, HIGH SCHOOL, HIGHER EDUCATION, 0 TO 2 AGES, 0 TO 5 AGES, and 5 AND OLDER aged kid's mothers have significant result according to our analysis. The descriptive statistics of the variables and the regression results of both models indicate that married women are less likely to be in the labor force then single ones. This fact further supports the results of previous empirical studies on FLFP.

The results indicated that post-reform and interaction variables, we get unexpected results. Treatment variable has negative and significant results in all p-levels. This means that women, who have children under the age of 2, are less likely

to participate in the labor force, which is expected in the early ages of having children. Variable post-reform indicates the participation of treatment and control groups after the reform in 2005. The participation of women increases in 2005 by 2.8 percent and it is significant at all levels. Finally, interaction variable, which is the most important variable in determining the effect of the reform, is not significant. Specifically, we estimated a treatment group effect on reform after 2005, a year immediately after the reform was announced. No doubt, women with young kids did not adjust their behavior during one year. Moreover, this kind of reform and legislations take quite a long time to reach the goal.

Another reasonable explanation to our insignificant result and the low labor participation of women may be their difficult access to government organizations. Turkish citizens are supposed to take an exam called KPSS (Kamu Personeli Seçme Sınavı - Public Service Personnel Selection Examination).The graduates from the education faculties first have to pass a national exam, KPSS. Between 2003 and 2014, only 16 out of 100 graduates managed to pass the exam and to be assigned. This has caused depression amongst the aspirants and even more than 40 unassigned teachers have committed suicide in recent years[14].

Furthermore, the fact that we could not see the positive effect of the reform on employment can be also related to the economic crisis that happened in 2001 and 2008. Turkish Economic crises that happened in 2001, is known as dark Wednesday, and is the biggest crisis ever happened in Turkish economic history. In the first eight months of 2001, 14,875 jobs were lost, majority of which were women. This situation took quite a long time and was followed by 2008 Global Economic Crisis, which had a direct effect on labor market. Thus, female workers were among the first who quit their jobs or fired.

Last, but not the least, the negative effect of maternity leave legislation on FLFP can also be related to the demand side of labor market. It is a positive development in aggregate participation rates, but may become an obstacle for women to return to their old job with the same amount of wage. Employers may avoid hiring pregnant women due to their absence during paid maternity leave. And if a women uses

[14] https://www.csee-etuce.org

unpaid maternity leave, she will be away for more than one year, which is a long period. Therefore, not all employers hire women, especially those who are married and have young children.

6.2 Future Research

Further studies can be carried on the effect of female labor force participation provided by time series analysis for the pre-reform period and post reform period using a richer and proper data set than the one used in our research. Furthermore, some other legislation implemented by government to increase employment and encourage women to move to the labor market may also be added to get more precise results.

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