

**ISTANBUL TECHNICAL UNIVERSITY ★ GRADUATE SCHOOL OF ARTS AND
SOCIAL SCIENCES**

UNDERSTANDING FEMALE LABOR FORCE PARTICIPATION IN TURKEY

M.A. THESIS

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Department of Economics

M.A. Economics Programme

JUNE 2019

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To my family and my homeland 'ALGERIA',

FOREWORD

“Educate a boy and you educate one person, educate a girl and you educate a nation.”
(A.Ibn-Badis, Algerian reformist, 1889-1940).

Education of women seems to be the key of everything nowadays. Even if there are so many restrictions put on her, woman can be a successful career professional beside being a mother and wife. As a woman, I believe that my thesis is the first step in my journey.

Firstly, I would like to thank my Advisor, Assist. Prof. Dr. Quentin STOEFFLER for all his help, constant guidance and continuous encouragement during my journey. I could not thank him enough. I would like also to express my gratitude to my co-advisor Assist.Prof.Dr. Ayşegül Kayaoğlu Yılmaz for her support. Secondly, My sincere thanks goes to all my professors and classmates.

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ABBREVIATION

NEET	: Not in employment, not in education, nor in training
ILO	: International labor organization
LR	: Likelihood Ratio
OLS	: Ordinary least squares
TURKSTAT	: Turkish Statistical Institute
MENA	: Middle East and North Africa
HLFS	: Household labor force survey
FLFP	: Female labor force participation

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UNDERSTANDING FEMALE LABOR FORCE PARTICIPATION IN TURKEY

SUMMARY

Our planet today is far from being what it used to be and it goes without saying that women have from past to present immensely contributed to whatever civilization prevails on it also by enabling men. However, it is unfortunately also true that women have been and, worse, still are seen subservient to men in many parts of the world. The role that they are supposed to diligently play revolves around that of a wife and a mother. In the meantime, their rights are violated and consequentially their potential as at least equally creative and productive individuals remains under-tapped.

Female labor force participation (FLFP) rates that remain still low and even sagging in certain regions around the world are but one indication of this huge problem. And Turkey, at the intersection of Europe and Asia, appears hardly immune to it. Despite its rapid economic growth and notable improvements to women's education, age of marriage and fertility rates, the country is still characterized by a low FLFP. Proudly as the work of another woman, the thesis at hand aims to help decipher this phenomenon in the striking case of Turkey.

Unsurprisingly, several studies have already been conducted to identify the reasons behind low FLFP rate in Turkey. This thesis, however, is the first of its sort that focuses specifically on the country's female population 'not in employment, nor in education, nor in training.' It explores why some women remain out of the nation's otherwise strong labor force although they are not following any formal education or professional training either. It contains regression analyses run for different age groups in order to identify specific factors for each group and, as a result, develop useful policy advice.

The thesis is summarized as follows: Firstly, I have formulated some hypotheses in relation to gender, geography, educational attainment, marital status and migration status based on the existing literature. Secondly, I have tested those hypotheses by using econometric models to identify the determinants of low FLFP in Turkey. And thirdly, in the light of the results obtained, I have put together some policy recommendations for improving the country's FLFP.

In doing so, I have used in my analysis a micro data set of the household labor force survey of 2016 conducted by the Turkish Statistical Institute (TurkStat). Including 308,709 observations for individuals who are 15 and older, this survey is useful for it is more than large enough and therefore perfectly representative of the whole country.

In order to answer my research question, I have included a binary variable denoted as 'NEET' that refers to those who are not in employment, nor in education, nor in

training. I have also used several explanatory variables that are related to educational attainment and migration status as well as marital status and regions of residence, controlling for age and household size.

In the analysis, I have employed logit models to look for the reasons behind low FLFP in Turkey. In the first three of those models, I have analyzed the entire sample. In the first model, I have run a basic regression where only the gender variable is included. In the second and the third models, I have controlled for a set of variables. The fourth model, on the other hand, has included only individuals younger than 60. And in the fifth model, I have focused on individuals between 30 and 50 years old and eventually in the sixth and the last model, I have focused on the young NEET who are between 15 and 29 years old.

The results have showed that being female increases the odds of being NEET. I have also found that the probability of being NEET is even higher after controlling for various covariates. Unsurprisingly, the results show that people older and nearing retirement have a higher likelihood of being NEET than those between 15 and 19 years old (the reference category). Results remain robust when focusing on younger groups in models 4, 5 and 6.

As expected, the results have proved that education plays a crucial role in decreasing the odds of being NEET. It appears particularly to be the case with higher education since it increases the probability of women being employed in a formal job. Additionally, married women are more likely to be NEET than single women. This can be explained by the sad fact that women, on average, are less educated and skilled than men, so they enter the labor market at a young age but leave the labor force once they are married or have children. Accordingly, young married women have a higher risk of being NEET.

I have also found evidence that internal migration increases the likelihood of being NEET, especially for women who migrated from villages. Being a return migrant increases the odds of being NEET for all age groups and for both males and females. However, the effect of internal migration reduces when the analysis focuses on the young NEET and this might be because they migrated for reasons other than education.

Region-wise, for those who are between 15 and 60 and, more specifically, those between 30 and 50 years old, the Black Sea region is the best in terms of reducing the odds of being NEET for women, which is not the case for men anywhere in the region. Yet, the Central Eastern and the Southeastern regions of Turkey are the worst in terms of being “NEET” for both men and women. Thus, the social norms cannot be the only factors that affect the FLFP. Based on these results, I suggest that the eastern part of Turkey does not fit the “U-shaped” hypothesis, which states that less industrialized regions would enjoy high levels FLFP thanks to common farming activities. Additionally, women from the Aegean and West Marmara regions are less likely to be NEET than those living in Istanbul. Among the youth, females residing in Southeast Turkey have the highest probability of being NEET than elsewhere in the country.

Based on the results produced, I have also formulated certain policy recommendations. Firstly, encouraging young women to pursue more education, particularly up to university level and those older to receive professional trainings could help improve FLFP. Secondly, providing subsidized childcare centers could offset the adverse impact of marriage. And thirdly, policies should target the eastern parts of Turkey in

particular since that region's economy is challenged by both a low FLFP and rampant poverty.

TÜRKİYE'DE KADIN İŞ GÜCÜ KATILIMINI ANLAMAK

ÖZET

Bugün gezegenimiz önceki halinden çok uzaktır ve açıkça söyleyebiliriz ki, kadınlar, medeniyetteki her gelişmeye, erkeklere de destek vererek katkıda bulundular. Bununla birlikte, maalesef, dünyanın birçok yerinde, kadınların erkeklere itaatkar etmeleri gerektiğinin düşünüldüğü de doğrudur. Özenle oynamaları gereken rol, bir eş ve anne olmanın etrafında dönmektedir. Bu arada, hakları ihlal edilmekte ve nihayetinde, en az eşit derecede yaratıcı ve üretken bireyler oldukları halde potansiyelleri atıl kalmaktadır.

Dünyanın belirli bölgelerinde, kadınların işgücüne katılım oranları hala düşük olması ve hatta düşmeye devam etmesi bu büyük sorunun göstergelerinden biridir. Ve Avrupayla Asya'nın kesiştiği noktada, Türkiye, bundan muaf görünmemektedir. Hızlı ekonomik büyümesine ve kadınların eğitimi, evlilik yaşı ve doğurganlık oranlarında gözle görülür iyileşmelere rağmen, ülkedeki kadınların iş gücüne katılımı hala düşüktür. Başka bir kadının eseri olan, gururla elimde duran bu tez, bu olguyu çarpıcı Türkiye örneğinde deşifre etmeye yardımcı olmayı amaçlamaktadır.

Beklenildiği üzere, Türkiye'de kadınların iş gücüne katılımı oranının düşüklüğünün arkasındaki nedenleri belirlemek için çok sayıda çalışma yapılmıştır. Ancak bu tez, ülkenin kadın nüfusunun özellikle "ne istihdamda, ne eğitimde, ne de mesleki eğitimde" oluşuna odaklanan ilk örnektir. Bazı kadınların, Herhangi bir örgün eğitimin veya mesleki eğitimin dışında kalarak neden ülkenin, diğer türlü güçlü işgücünden uzak durduğunu araştırmaktadır. Her grup için spesifik faktörleri belirlemek ve sonuçta faydalı politika önerileri geliştirmek amacıyla farklı yaş gruplarına yönelik regresyon analizlerini içermektedir.

Tez aşağıdaki gibi özetlenmiştir: İlk olarak, mevcut literatüre dayanarak cinsiyet, coğrafya, eğitim durumu, medeni durum ve göç durumu ile ilgili bazı hipotezler formüle ettim. İkinci olarak, bu hipotezleri Türkiye'deki düşük kadın iş gücü katılımının belirleyicilerini tanımlamak için ekonometrik modeller kullanarak test ettim. Üçüncü olarak, elde edilen sonuçlar ışığında, ülkenin FLFP'sini iyileştirmek için bazı politika önerileri hazırladım.

Bunu yaparken, analizimde Türkiye İstatistik Kurumu (TÜİK) tarafından yapılan 2016 yılındaki hane halkı işgücü anketi mikro veri setini kullandım. Bu anket, 15 yaş ve üzerindeki bireyler için 308.709 gözlemi içerdiğinden, yeterince büyük olduğundan ve bu nedenle tüm ülkeyi kusursuz temsil ettiğinden dolayı faydalıdır.

Araştırma sorumu yanıtlamak için, ne istihdamda, ne eğitimde ne de mesleki eğitimde olmayanları ifade eden 'NEET' olarak adlandırılan bir ikili değişken dahil ettim. Ayrıca eğitim durumu ve göç durumu, medeni hal ve ikamet bölgeleri, yaş ve hane halkı büyüklüğünün kontrolü ile ilgili birkaç açıklayıcı değişken kullandım.

Analizde, Türkiye'deki düşük kadın iş gücü katılımının arkasındaki nedenleri araştırmak için logit modelleri kullandım. Bu modellerin ilk üçünde tüm örneği analiz ettim. İlk modelde, sadece cinsiyet değişkeninin yer aldığı temel bir regresyon yaptım. İkinci modelde ve üçüncü modellerde, bir dizi değişken için kontrol ettim. Dördüncü model ise sadece 60 yaşından genç bireyleri kapsamaktadır. Ve beşinci modelde, 30 ila 50 yaşları arasındaki bireylere odaklandım ve nihayet altıncı ve son modelde ise 15 ila 29 yaş arasındaki genç ne eğitimde ne de mesleki eğitimde olmayan bireylere odaklandım.

Sonuçlar, kadın olmanın ne eğitimde ne de mesleki eğitimde olmayan bir birey olma ihtimalini arttırdığını göstermiştir. Ayrıca ne eğitimde ne de mesleki eğitimde olmayan bir birey olma olasılığının, çeşitli değişkenlerin kontrolünden sonra daha da yüksek olduğunu buldum. Şaşırtıcı olmayan bir şekilde, sonuçlar yaşlı ve yakındaki emekli olacak kişilerin ne eğitimde ne de mesleki eğitimde olmayan bir birey olma olasılığının 15 ila 19 (referans kategorisi) yaş arasında olduğundan daha yüksek olduğunu göstermektedir. 4., 5. ve 6. modellerdeki daha genç gruplara odaklanıldığında sonuçlar güçlü kalmaktadır.

Beklendiği üzere, sonuçlar ne eğitimde ne de mesleki eğitimde olmayan bir birey olma ihtimalini azaltmada eğitimin çok önemli bir rol oynadığını kanıtlamıştır. Kadınların resmi bir işte çalıştırılma ihtimalini arttırdığından, özellikle yüksek öğrenimin önemli olduğu görülmektedir. Ayrıca, evli kadınların ne eğitimde ne de mesleki eğitimde olmayan bir birey olma ihtimali bekar kadınlardan daha fazladır. Bu durum, kadınların ortalama olarak erkeklerden daha az eğitilmiş ve yetenekli oldukları üzücü gerçeğiyle açıklanabilir, bu nedenle genç yaşta işgücü piyasasına girerler, ancak evlendiklerinde veya çocuk sahibi olduklarında işgücünü terk ederler. Buna göre, genç evli kadınların ne eğitimde ne de mesleki eğitimde olmayan bir birey olma ihtimali daha yüksektir.

İç göçün, özellikle köylerden göç eden kadınlar için ne eğitimde ne de mesleki eğitimde olmayan bir birey olma ihtimalini arttırdığına dair bir kanıt buldum. Geri dönüş yapan bir göçmen olmak, tüm yaş gruplarında ve hem erkekler hem de kadınlarda ne eğitimde ne de mesleki eğitimde olmayan bir birey olma ihtimalini arttırmaktadır. Bununla birlikte, analiz genç ne eğitimde ne de mesleki eğitimde olmayan bireylere odaklandığında iç göçün etkisi azalmaktadır ve bunun nedeni eğitim dışında başka nedenlerle göç etmeleri olabilir.

Bölge bazında, 15 ila 60 yaş arası ve daha spesifik olarak, 30 ila 50 yaş arasındakiler için, Karadeniz Bölgesi, kadınlar için, ne eğitimde ne de mesleki eğitimde olmayan bir birey olma ihtimalini azaltma bakımından en iyisidir. Bu durum bölgedeki erkekler için geçerli değildir. Fakat, Türkiye'nin İç Anadolu ve Güneydoğu bölgeleri hem kadın hem de erkek için “ne eğitimde ne de mesleki eğitimde olmayan bir birey” olma açısından daha kötüdür. Dolayısıyla, sosyal normlar kadınların iş gücüne katılımını etkileyen tek faktör olamaz. Bu sonuçlara dayanarak, Türkiye'nin doğu kısmının, daha az sanayileşmiş bölgelerin ortak tarımsal faaliyetler sayesinde kadınların iş gücüne katılımının yüksek seviyelere çıkacağını belirten “U-biçimli” hipoteze uymadığını öne sürüyorum. Ek olarak, Ege ve Batı Marmara bölgelerinden gelen kadınların İstanbul'da yaşayanlara oranla ne eğitimde ne de mesleki eğitimde olmayan bir birey olma olasılığı daha düşüktür. Gençler arasında Türkiye'nin Güneydoğusunda ikamet eden kadınlar, ülkenin diğer yerlerinden daha yüksek ne de mesleki eğitimde olmayan bir birey olma olasılığına sahiptir.

Elde edilen sonuçlara dayanarak, bazı politika önerileri de oluřturdum. İlk olarak, genç kadınları daha fazla eğitim almaya teşvik etmek, özellikle üniversite seviyesine ve mesleki eğitim almak için daha yaşlı olanlara yardım etmek kadınların iş gücüne katılımının geliştirilmesine yardımcı olabilir. İkinci olarak, sübvansede edilmiş çocuk bakımı merkezlerinin sağlanması, evliliğin olumsuz etkilerini dengeleyebilir. Üçüncü olarak, bölgenin ekonomisi hem düşük kadın işgücü katılımı hem de yaygın yoksulluk nedeniyle sıkıntıda olduğundan, politikalar özellikle Türkiye'nin doğu bölgelerini hedef almalıdır.

1. INTRODUCTION

Improving the FLFP leads to many social and economic benefits. Firstly, it narrows the gender gap in the job market which will affect positively the efficiency of the economy as well as the achievement of equity between males and females which is pretty much the declared goal of all governments around the world today (Jaumotte, 2003, 2004; OECD, 2008; Tansel, 2002; World Bank, 2006). Secondly, it has a positive impact on the economic growth through a greater and better use of the available human capital (Kızılırmak, 2008; OECD, 2008). And thirdly, it helps the alleviation of poverty since nearly 70% of the globe's poor are women (Klasen, 1999; OECD, 2008). Accordingly, increasing the number of employed women would also increase the returns to education and thus parents and governments will invest more in females' education (Hare, 2016; Heath & Jayachandran, 2016; Klasen & Pieters, 2015). Likewise, keeping women out of the labor market represents a loss in the economic potential since a part of the female population remains inactive (Kyridis et al., 2015).

Almost all the developed economies enjoy relatively high FLFP rates. However in developing nations, the same figures display huge differences across the aisle. While they exceed 70% in Angola, Ghana and Nepal; in countries such as Algeria and Iraq they are south of 20% (ILO, 2016, 2017; World Bank, 2018a). Nevertheless, the FLFP has risen in many territories such as Latin America where it went up from 44.5% in 1995 to 52.6% in 2015 (ILO, 2016). In contrast, some other regions in the world such as the Middle East and North Africa are home to nations "still suffering from low rates of female participation in the workforce" (ILO, 2016). Despite its rapid economic growth over the last years, Turkey, in particular, experiences an even declining trend. The country's FLFP has tumbled from 72% in 1955 to just 34% in 2016, and this rate is lower than the OECD average rate which was 52.1% for the same year (OECD, 2008, 2019a; Tansel, 2002; Turkish Statistical Institute, 2015; World Bank, 2018b).

The existing literature demonstrates that FLFP is influenced by many factors at the micro level such as age, education level, fertility rates and migration from rural to urban areas (Başlevent & Onaran, 2003; Cameron et al., 2001; Ilkcaracan, 2012; Mehrotra & Parida, 2017; Mehrotra & Sinha, 2017; Tansel, 2002). Many scholars have also argued that a declining pattern occurs due to the “U-shaped” hypothesis that explains the relation between the economic development of an area and its FLFP. More specifically, it suggests that the FLFP rates initially fall when a country begins to develop and urbanize. According to the hypothesis, this happens because the incomes rise and the demand for laborers in the agricultural sector reduces as a result. And when this mechanism is intact, women start leaving the labor market for several reasons. They are, firstly, often uneducated or have little education as they could not enjoy as much access to schooling and technology as men. Secondly, due to the perceptions of the societies towards women’s work outside the farms, they sometimes face more barriers than men when they try to enter a more advanced work setting than that of an agricultural field. And thirdly, it sometimes proves too difficult to be both an ultimate caretaker at home and a professional at work. However, in the later stages of the country’s economic development, women, too, become more educated and the social norms against their employment alongside men do change as well. Then, the FLFP starts increasing again, hence the representation by a ‘U’ shape. In short, it has been found that the rates of women’s participation in the job market are high in low and high-income countries but are lower in middle-income countries (Boserup, 1970; Cagatay & Ozler, 1995; Gaddis & Klasen, 2014; Goldin, 1994; Mammen & Paxson, 2010; Mehrotra & Parida, 2017; Tam, 2011; Tansel, 2002).

Nonetheless, strengthening the FLFP is necessary but not sufficient since unemployment rates, too, are higher among women than men (OECD, 2019b, 2019a). Worse, unemployment has been understood to have a negative impact on the FLFP in Turkey in such a way that women do not look for a job because they think that it is difficult to find one (Tansel, 2002). In recognition of this rather psychological aspect, some scholars have recently emphasized that the jobless rates do not actually give a clear picture about the performance of a job market. That is because, there are always people who are ready to work but not seeking a job, the non-seekers, as well as those who are not looking for a job because they think that they could not find a job anyway, the discouraged. In other words, the unemployment rates do not include persons who

are, somehow, excluded, from the labor market, either economically or socially or, sometimes, even both (Argy, 2005; Bynner & Parsons, 2002; Genda, 2007; Murphy & Topel, 1997; O'Higgins, 2015; OECD, 2016; Ozerkek, 2013; Shambaugh & Nunn, 2018). In recent years, 'NEET' has been introduced as a new acronym to stand for those who are neither in employment, nor in education, nor in training. One of its advantages is that it takes into account both unemployed and inactive young persons. According to OECD studies, in many countries we have more women NEET than men and this is the case for Turkey as well (Genda, 2007; Henderson et al., 2017; Kilic, 2014; O'Higgins, 2015; OECD, 2016; Susanli, 2016).

In Turkey, FLFP is one of the most debated and controversial topics. And the country performs extremely poorly compared to OECD averages after its rate has dramatically gone down in the past few decades despite its rapid economic growth, increase in the years of education for young women, rise in age of marriage and decline in fertility rates (Dayioğlu & Kırdar, 2010; Jaumotte, 2003, 2004; OECD, 2008, 2019a). As a result, it has grown in seriousness as a challenge for its economy as well. The peculiarity of the path it has taken begets a tighter scrutiny of the challenges the females might be facing in the labor market.

However so far, only a small number of studies have been conducted regarding youth NEET in Turkey (Kilic, 2014; Susanli, 2016). And the particular contribution of this thesis to the literature is that it is the first scholarly attempt made to understand the determinants of the low FLFP in the country by taking into account the NEET women. In doing so, it also looks at different age groups as women are exposed to different obstacles during their lives which affect their decisions to enter the job market (Heinz & Krüger, 2001) and may well undermine women's labor market attachment (Ilkcaracan, 2012; Jaumotte, 2003, 2004).

Using a 2016, nationally representative household labor survey from TurkStat, this thesis focuses on NEET individuals. And it uses a logit model with its recent dataset in order to identify, in particular, the determinants of the low FLFP in Turkey. Its aim is to provide a clearer understanding of the drivers of nonparticipation for women in the country's job market.

Its findings show that women are more likely to be NEET than men, especially those with poorer schooling. Higher education, therefore, is found to play a very crucial role

in reducing the likelihood of being NEET, hence the likelihood of nonparticipation. Marriage, on the other hand, appears to have a negative effect on females' employment, education and training and thus on the FLFP.

findings also point to evidence that internal migration increases the probability of being NEET, especially for women who have migrated from a rural area. Likewise, being a return migrant also increases the odds of being NEET for all age groups and for both males and females. However, the impact of migration for females reduces when we focus on the female youth NEET. Moreover, the analysis across regions demonstrates that the eastern part of the country offers the worst economic setting for both males and females. The findings, in sum, have rendered it possible to develop some policy recommendations.

The remainder of the thesis is organized as follows: The next section reviews the existing literature about the determinants of the FLFP in the world and particularly in Turkey. Additionally, it explains the importance of overcoming professional inactivity while dealing with unemployment. It also formulates some hypotheses to later test them. Section 3 presents the data and the descriptive statistics. The fourth section provides the methodology used in the thesis and the results are given in Section 5. The sixth, and the last, section concludes, offering policy advice, albeit humbly.

2. DETERMINANTS OF FEMALE LABOR FORCE PARTICIPATION

The female labor force participation rate is the number of women who have a job or are looking for a one divided by the total female population who are 15 years old and over (Abhayaratna & Lattimore, 2007; ILO, 2016; Özsoy & Atlama, 2006).

Many developing countries have experienced a decline in the female labor force participation rates. For instance, In India the decrease in the female labor force participation rates in the last decades a result of urbanization which led to a drop in the demand for workers in the agriculture, where females were working. On the other hand, women delay their entrance to the labor market since they are spending more years in education than previously (Mehrotra et al., 2014; Mehrotra & Parida, 2017; Mehrotra & Sinha, 2017).

2.1 Female labor force participation and the economic growth

Many scholars explained the decline in the female labor participation trend by the “U-shaped” hypothesis which implies that high and low incomes countries enjoy high levels of female labor participation. However, middle income countries are characterized by low female labor force participation (Boserup, 1970; Cagatay & Ozler, 1995; Lv & Yang, 2018; Tam, 2011).

The Turkish literature has also attempted to show that the Turkish female participation follows a “U-curve”. The Turkish economy has shifted over the last decades from agriculture to manufacturing while showing an increasing trend of urbanization. This transformation led many households to move from rural areas to urban areas, where men were usually those finding a job. Women on the other hand were in majority working in the agricultural sector as unpaid family workers or paid workers. Moving to urban areas meant exiting the labor market for many of them, especially given that the average levels of education and skills among rural migrants usually prevented them to find formal jobs (Başlevent & Onaran, 2003; Cagatay & Ozler, 1995; Dildar, 2015; Gündüz-Hoşgör & Smits, 2008; Kasnakoglu & Dayioglu, 2002; Tansel, 2002).

Tansel (2002) showed that the total female labor force participation in Turkey follows a “U-shaped” pattern. Likewise, when looking just for the non-agricultural sector, the Turkish case does not fit the “U-curve”.

Gündüz-Hoşgör (2008) investigated that the female labor force participation in Turkey may fit the “U-shaped” pattern when we consider Turkey is in the transitional stages of the development. However, the “U-curve” cannot fully demonstrate the Turkish case as some developing countries which shared the same income per capita and female labor force participation rates as Turkey such as, Mexico. The female labor force participation rates in Mexico rose from 34% in 1990 to 43% in 2017, however, Turkey is still characterized by low rates (OECD, 2019a). This pattern has been explained by the fact that Turkey belongs to the Middle Eastern society which Caldwell (1978) termed “patriarchal belt”. This kind of society is a male-dominated society where men are seen as the primary breadwinners, contrary to women, who are seen as home makers (Atasoy, 2017; Dayıoğlu & Kırdar, 2010; Dildar, 2015; Göksel, 2013; Gündüz-Hoşgör & Smits, 2008; Guner & Uysal, 2014; Karaoğlu & Ökten, 2012; Kasnakoglu & Dayioglu, 2002; Moghadam, 2004; Youssef, 1972).

2.2 Female labor force participation and education

The education of female is seen as an investment in the human capital as it leads to many social and economic benefits such as, reduction in the fertility rates (Angel-Urdinola & Wodon, 2010; Dayıoğlu & Kırdar, 2010). Yet, education is not sufficient as it should be accompanied by employment resulting greater returns (Heath & Jayachandran, 2016; Klasen & Pieters, 2015).

Many researches showed the strong positive impact of education on the female workforce participation in Turkey (Başlevent & Onaran, 2003; Dayıoğlu & Kırdar, 2010; Gündüz-Hoşgör & Smits, 2006; Guner & Uysal, 2013; Tansel, 2002). On the other side, some others emphasized that education cannot be the sole factor that impact the female participation in Turkey as males having the same educational level as those of the females could find a job and they demonstrated that the cultural and the social norms influence the decision of women in participating in the job market (Dildar, 2015; Göksel, 2013; Gündüz-Hoşgör & Smits, 2008; Guner & Uysal, 2013). Likewise, some other authors argued that while females’ education has an increasing trend, the labor force participation of female is showing a declining one. they explained this

pattern by stating that females nowadays are spending more years in education and this led them to postpone their entry to the job market (Tansel, 2002).

Some findings affirmed that low educated women and the ones with higher education participate more in the labor market than those with secondary school levels. Women with low levels of education belong usually to poor households and they found themselves obliged to work in order to support their families. Yet, the high wages motivate high educated women to work (Klasen & Pieters, 2015; Mehrotra et al., 2014; Mehrotra & Sinha, 2017; Olsen & Mehta, 2006; Verick, 2018). Higher education is found to be one of the major factors that increases the probability of women to participate in the job market. Ilkcaracan (2012) investigated that women with university education have more likelihood to participate in the labor market compared to those with no education, in addition to that, she mentioned that those with low education participate at their early ages in the informal sector, however, they withdraw from the job market because of marriage or childbearing and she claimed that Turkish women suffer from an issue of “Labor force attachment”.

2.3 Female labor participation, fertility and childcare

A decline in the fertility rates may imply more women in the labor market since the relation between fertility and female participation in the job market is found to be negative (Dayioğlu & Kırdar, 2010). Married women’s decision to join the job market is influenced by many familial such as, childbearing and childbearing. In other words, women having children have to spend more time caring for their children and doing the house chores. As a result, some of them may drop out of the job market (Dayioğlu & Kırdar, 2010; Mammen & Paxson, 2010; Mishra & Smyth, 2010). Further, the reservation wage of married women is higher when they have children as woman is considered as the first responsible for childrearing (Dayioğlu & Kırdar, 2010). Consequently, if she decides to work she has to find an affordable childcare center or someone who can look after her children (Dayioğlu & Kırdar, 2010; Kasnakoglu & Dayioglu, 2002). Many women, especially those uneducated and who usually work in the informal sector, exit the workforce after giving birth since they cannot benefit from the maternity leave in their informal jobs as well as they cannot afford the fees of the childcare centers due to their low wages.

Recently, some findings showed that the correlation between women participation and the fertility rates in some European countries has become positive and this is thanks to the childcare subsidies (Del Boca & Sauer, 2009; Galor, 2012; Mira & Ahn, 2002). Similarly, an interesting study conducted in Japan investigated that the access to the childcare centers is associated with a rise in both fertility rates and female labor participation which is a desirable goal (Griffen et al., 2015). Likewise, Lalive & Zweimuller (2009) pointed out that childcare subsidy may not work well for women just after giving birth, but, some other policies such as parental policies can work well at this stage. Consequently, women will not exit the labor market and this implies a rise in both fertility rates and the female labor participation rates. Although, providing child care subsidies is found to be more effective than other policies but it should not be the sole solution for women with children where it can be combined with parental and maternity leaves and all these policies may give a way to an increase in the female participation (Jaumotte, 2003, 2004).

2.4 Unemployment and married women's labor force participation

The unemployment rate is found to affect negatively the female labor force participation by discouraging women to enter to the labor force (Schweitzer & Smith, 1974; Tansel, 2002).

Some authors showed that the rise in unemployment rates can lead to either an “added worker effect” or a “discouraged worker effect” (Başlevent & Onaran, 2003; Karaoğlu & Ökten, 2012; Ozerkek, 2013; Tansel, 2002; Tansel & Taşçı, 2004). The “added worker effect” implies that the wife decides to enter to the job market when her husband loses his job and the latter signifies that the wife becomes discouraged and does not look for a job because of her husband's job loss (Başlevent & Onaran, 2003; Bratti & Staffolani, 2009; Tansel, 2002). In Turkey, Tansel (2002) found that “the discouraged worker effect” is dominant when the unemployment rates rise. Unlike, Başlevent & Onaran (2003) who supported the “added worker effect” evidence by showing that the economic crisis of 1994 led women to enter to the labor market. On the other hand, the income of the husband tends to affect the decision of married women. Granau (1977) showed by using an OLS regression that the husband income as well as the non-labor income impact the decision of women in the job market.

Eswaran et al. (2013) argued that Indian women who reside in the rural areas despite their high, they exit from the job market when they have some wealth.

2.5 Why do women NEET matter?

Although, the unemployment rate has always been an indicator which shows the health of the job market. Recently, it seems that the unemployment rate does not provide a clear understanding of the performance of the job market since some people such as, those “discouraged” or the “non-seekers” are ignored while accounting for unemployment (Argy, 2005; Genda, 2007). In addition to that, many students are not participating in the job market because of being in education since people are spending more years in school than previously. Thus, we should distinguish between those who are not participating because of being enrolled in education or any training programs and between those who are not active because of other factors (Barham et al., 2009). Recently, a new acronym “NEET” came to light and it refers to the youth who are not in employment, not in education, nor in training. The NEET status does not have a common definition as the age range changes from a country to another. According to the OECD, young people NEET are those who are between 15 and 29 years old and who are not employed and neither in education nor in training (Bălan, 2015; Barham et al., 2009; Çelik & Lüküslü, 2010; Kilic, 2014; O’Higgins, 2015; OECD, 2016).

In OECD countries, Turkey, Italy and Mexico had the highest percentage of persons out of the labor force among the youth “NEET”, and this is contrarily to Spain and Greece which had more unemployed young people than inactive (OECD, 2016, 2019b). Some people because of the high unemployment rates think they cannot find a job and become “discouraged” and this category is not taken into account while accounting for the unemployment rates since they are out of the labor force (Bruno et al., 2014; Schweitzer & Smith, 1974). For this reason, taking both the unemployed and the inactive people in one category provides a better understanding of the job market. In addition to that, Turkey is a young country and it should benefit from this demographic advantage (OECD, 2016). However, the youth population in Turkey suffers from high levels of unemployment and nonparticipation in the labor market, especially among women (Carcillo & Königs, 2015; OECD, 2019b).

In light of all this, this thesis aims, by using recent data, to find the factors behind the low female labor participation and this is by focusing specifically on those who are not

in employment while not being in education or in training at different age groups and by running the regressions separately for males and females.

2.6 Hypotheses

Based on the existing literature about the female labor participation and its drivers, we formulated some hypotheses in order to test our research question about the determinants of the low female labor participation. By doing so, women are more likely to be NEET than men (H1). The likelihood of being NEET is higher for young people and those nearing retirement (H2). Education plays an important role when one seeks a job (H3). Higher education is more important for women than men (H4). As the eastern region of Turkey is less developed than the western, we expect that females from the east part of Turkey have more likelihood to be NEET (H5). Migration does not have a huge impact on the female labor participation as it decreased over the last decades (H6). Married women are more likely to be in NEET than those who have not been married (H7).

3. DATA DESCRIPTION

3.1 Data

This thesis uses a micro level data from a Household Labor Force survey (HLFS) released by TurkStat for the period of up to 2016. Beginning in 1988, the HLFS is a nationally representative survey conducted on a monthly basis ever since and it contains information about the socio-demographic characteristics, educational attainment and the labor status of individuals who are 15 and older. Besides, it is the largest survey in Turkey providing statistics on the job market, enabling policymakers to calculate the number of persons who are employed and unemployed as well as those who are out of the labor force. Within, each week is considered as a reference week so a year includes 52 of them.

TurkStat uses a two-stage stratified cluster sampling method while conducting the HLFS and the outcomes are weighted according to the new population projections based on the 2013 population. Since 2014, TurkStat has been conducting the HLFS according to the new regulations covering the new administration division and new population projection estimates as well as the characteristics of the duration of the job search. Consequentially, the length of time one takes to find a job has been revised in order to make it in line with European countries and the reference period was changed from “the last three months” to “the last four weeks”. Thus, an unemployed person, according to the new regulations of TurkStat, is defined as an individual who is seeking a job for the last four weeks and also remains available to work within the next two.

The micro dataset used in this thesis includes an ocean of information about individuals who are 15 and older. Below, those information are categorized in three main groups:

- **Socio-demographic characteristics:**

It covers questions about the respondents' backgrounds such as age, gender, place of residency (Level 1 and 2), marital status, the place of birth (in Turkey or abroad), and some other questions related to migration, whether they have ever migrated or rather lived at the same place since they were born as well as their relation to the head of their household.

- **Education:**

This part includes questions regarding the individuals' educational status; the last institution they have graduated from, whether they are currently attending any formal education or training including distance learning and in which grade. Yet if the individuals do not have any diploma at all, they are also asked whether they are literate or not.

- **Labor market indicators:**

The questions in this part are mainly about the individuals' labor status. They are asked if they worked in the reference week and why not if they did not. They also provide information as to their place of work, whether they have a part-time or a full-time job and are covered by social security.

Eventually, other variables such as the migration status and years of education can also be inferred from the dataset.

3.2 The descriptive statistics

In an attempt to understand the drivers of the FLFP in Turkey, a binary dependent variable – NEET – is used and it is made equal to '1' if the individual is NEET and to '0' otherwise. To recap, in Economics literature, individuals are identified as NEET if they are either unemployed or out of the labor market while they do not subscribe to any education or training, either.

Table 3.1 on the next page shows the description of the variables used in the thesis in order to test its hypotheses.

Table 3.1: The description of the variables.

Variables	Description of the variable
The independent variable :	
NEET	A binary variable which is equal to '1' if the individual is not in employment, nor in education, nor in training and to '0' otherwise.
The independent variables:	
Age	A continuous variable between 15 and 116 years old.
Age groups	A set of dummy variables which includes 10 age groups: 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64 and 65 years old and over.
Female	A dummy variable that is equal to '1' if the individual is female and to '0' if the individual is male.
Educational attainment	A set of dummy variables which tells the last institution the individual has graduated from and it includes 6 categories: '0' if the individual has no literacy; '1' if the individual is literate but has not graduated from primary school; '2' if the individual has graduated from primary school (5 years); '3' if the individual has graduated from middle school (8 years); '4' if the individual has graduated from high school (12 years); '5' if the individual has graduated from university (tertiary level); and finally '6' if the individual has a postgraduate diploma (master's degree or PhD).
Literacy	A dummy variable that is equal to '0' if the individual is illiterate and '1' if they are literate.
Marital status	A categorical variable that is equal to '1' for being single, '2' for married, '3' for divorced, and '4' for widowed.
In education	A dummy variable that is equal to '1' if the individual is in education and to '0' otherwise.
In training	A dummy variable that is equal to '1' if the individual is involved in a training and to '0' otherwise.

Table 3.1(continued): The description of the variables.

Variables	Description of the variable
Regions (Level 1)	A categorical variable that contains 12 regions.
Regions(Level 2)	A categorical variable that contains 26 regions.
Household size	A continuous variable that contains the size of family and it is between '1' to '21' members.
Years of schooling	A continuous variable between '0' and '24' years. I computed years of education based on the latest educational attainment in addition to whether the individual is in education or not, if yes, in which grade the individual is. Then, I added the grades the individuals are in from 1 to 6.
Migration status	These variables are created based on questions related to whether the individual has ever migrated from or rather lived at the same place they were born in. It includes those who "have always lived at the same place" as well as "return migrants" and those who "migrated from district", "migrated from province" and "migrated from village". They are all transformed into dummy variables.
Labor Status	A categorical variable which is equal to '1' if the individuals are employed, to '2' for unemployed and to '3' if they are not in the labor force.

The full sample includes 149,076 households and 380,709 individuals. Summary statistics of the most crucial variables are provided in Table 3.2 below. It illustrates the mean, standard deviation, the minimum and the maximum values of the individuals' age, educational attainment, years of education, migration status, labor status and the marital status. It is important to mention at this point that I have applied the weights in descriptive statistics.

51% of the individuals in our sample are females. On average, the mean age of the sample is nearly 41 years old. The table shows that our sample's household size mean is approximately 4 persons per household. We also see that 90% of the individuals in our sample are literate. On average, the total duration of education in our sample is 8.14 years. More than half of the individuals there have not graduated from high school, and only 14% of them are in education and those who are in training represent just 2%.

Regarding the labor status, 52% of the individuals in the sample are in the labor market. Among those who are in the labor market, the ones in employment constitute the 46% and the others who are unemployed are 6%. The remaining 48% are out of the labor force, which means that more than half of the individuals in the sample are not in employment. Table 3.2 illustrates that 44% of the individuals in our sample are neither in education, nor in employment, nor in training. They are, therefore, NEET. Besides, 64% of the individuals in the sample are married and nearly 26% of them are single.

In terms of migration status, Table 3.2 shows that 58% of the individuals in the sample have always lived at the same place and have never migrated. Those who had once lived abroad and have later returned to Turkey represent a tiny 4%.

In addition, Table 3.3 provides more detailed statistics about whether they are NEET by gender, and as can be observed, females are more likely to be NEET than males since 70% of those NEET are women. The mean age of those NEET is 48.6 years, however, it is 34.9 years for those who are in employment, education or training (EET). For females, the mean age for those NEET is 46.98 years but it is 32 years for those who are rather EET. For males, the mean age for those NEET is 52 years old and it is 36 years for those EET. We see that, on average, the years of education of those NEET are 6, 5.61 and 7 years for the whole sample, females and males, respectively. However, on average, the years of schooling for those EET are 9.79, 9.86 and 9.75, again, respectively.

Table 3.2 : Summary statistics of the variables.

Variables	Mean	Std.Dev.	Min	Max
Female (Female: 1, Male: 0)	0.51	0.500	0	1
Age	40.94	17.421	15	116
Household Size	4.24	2.242	1	21
Literacy (Literate: 1, Illiterate: 0)	0.90	0.299	0	1
Educational attainment:				
No Literacy	0.10	0.299	0	1
Having Literacy without Diploma	0.06	0.231	0	1
Primary School	0.31	0.464	0	1
Middle School	0.20	0.403	0	1
High School	0.18	0.383	0	1
Undergraduate	0.13	0.340	0	1
Postgraduate	0.01	0.117	0	1
Years of Education	8.14	5.054	0	28
In Education (In education: 1, Not: 0)	0.14	0.346	0	1
Being in Training (In training: 1, Not: 0)	0.02	0.142	0	1
In Labor Force (In the labor force: 1, Out of the labor force: 0)	0.52	0.500	0	1
Unemployed (Unemployed:1,Nonunemployed: 0)	0.06	0.231	0	1
Being employed (Employed: 1, Not employed: 0)	0.46	0.499	0	1
NEET (NEET:1,Otherwise:1)	0.44	0.496	0	1
Migration status:				
Have always lived at the same place	0.58	0.494	0	1
Return Migrant	0.04	0.195	0	1
Migrated From Province	0.11	0.318	0	1
Migrated From District	0.16	0.364	0	1
Migrated From Village	0.11	0.318	0	1
Marital status:				
Widowed	0.06	0.246	0	1
Divorced	0.03	0.161	0	1
Married	0.64	0.479	0	1
Single	0.26	0.441	0	1
Observations	380709			

Source: HLFS, 2016, own calculation.

The ones who have never migrated represent 55% of NEET females and 60% of EET males. 70% of the NEET are married compared to only 14% single. Among male NEETs, 22% are single and 68% are married. And among female NEETs, 10% are single and 71% are married. Likewise, among females who are EET, 53% are married and 41% are single.

Table 3.3 shows us that those who are EET have more years of education than those who are NEET. Moreover, the majority of female NEETs are married and only a few among them are single.

Table 3.3: Descriptive statistics of the variables by NEET and gender (Weighted).

Variables (Mean & standard deviation)	NEET			EET		
	Total	Female	Male	Total	Female	Male
Female (Female: 1, Male: 0)	0.71 (0.455)	1	0	0.35 (0.476)	1	0
Age	48.67 (18.592)	46.98 (18.034)	52.78 (19.271)	34.91 (13.692)	32.83 (13.532)	36.01 (13.648)
Household Size	4.09 (2.363)	4.12 (2.337)	4.01 (2.424)	4.36 (2.135)	4.35 (2.149)	4.37 (2.128)
Educational attainment:						
No Literacy	0.19 (0.390)	0.22 (0.417)	0.10 (0.298)	0.03 (0.171)	0.06 (0.242)	0.01 (0.112)
Having Literacy without Diploma	0.09 (0.287)	0.10 (0.298)	0.07 (0.259)	0.03 (0.169)	0.04 (0.197)	0.02 (0.153)
Primary School	0.38 (0.485)	0.36 (0.481)	0.41 (0.493)	0.27 (0.442)	0.23 (0.421)	0.28 (0.451)
Middle School	0.13 (0.334)	0.12 (0.323)	0.15 (0.358)	0.26 (0.440)	0.26 (0.436)	0.27 (0.442)
High School	0.13 (0.340)	0.13 (0.331)	0.15 (0.360)	0.21 (0.411)	0.19 (0.390)	0.23 (0.420)
Undergraduate	0.08 (0.269)	0.07 (0.252)	0.10 (0.305)	0.18 (0.381)	0.20 (0.399)	0.16 (0.371)
Postgraduate	0.00 (0.066)	0.00 (0.056)	0.01 (0.085)	0.02 (0.145)	0.03 (0.157)	0.02 (0.138)
Years of education	6.03 (4.730)	5.61 (4.702)	7.05 (4.641)	9.79 (4.671)	9.86 (5.088)	9.75 (4.433)
Migration status:						
Non-migrant	0.55 (0.498)	0.55 (0.498)	0.55 (0.498)	0.60 (0.491)	0.62 (0.485)	0.58 (0.493)
Return Migrant	0.05 (0.220)	0.04 (0.204)	0.07 (0.254)	0.03 (0.172)	0.02 (0.151)	0.03 (0.183)
Migrated From Province	0.10 (0.306)	0.10 (0.305)	0.11 (0.309)	0.12 (0.326)	0.13 (0.332)	0.12 (0.323)
Migrated From District	0.16 (0.366)	0.16 (0.370)	0.15 (0.357)	0.16 (0.362)	0.15 (0.360)	0.16 (0.363)
Migrated From Village	0.14 (0.343)	0.14 (0.348)	0.12 (0.330)	0.10 (0.295)	0.08 (0.264)	0.11 (0.310)
Marital status:						
Widowed	0.13 (0.340)	0.16 (0.364)	0.08 (0.265)	0.01 (0.103)	0.02 (0.144)	0.01 (0.071)
Divorced	0.03 (0.167)	0.03 (0.166)	0.03 (0.170)	0.02 (0.155)	0.04 (0.187)	0.02 (0.135)
Married	0.70 (0.458)	0.71 (0.453)	0.68 (0.467)	0.60 (0.490)	0.53 (0.499)	0.64 (0.481)
Single	0.14 (0.343)	0.10 (0.303)	0.22 (0.412)	0.36 (0.481)	0.41 (0.492)	0.34 (0.474)
Observations	171951	121170	50781	208758	74790	133968

Source: HLFS, 2016. Own calculation.

Based on the HLFS 2016, Table 3.4 below shows the educational attainment of both males and females who are employed in the formal or the informal sectors. We have used the registration in the social security status to determine whether one is working in the informal or in the formal sector in the Turkish labor market and this has previously been done by many authors in the country (Acar & Tansel, 2014; Başlevent & Acar, 2015). We can see from the given table (Table 3.4) that among women who are working in the informal sector, 17,86% are illiterate and 10,21% do not have a primary school diploma despite being literate. For both men and women, about 45% of those who are working in the informal sector have a primary school diploma. Interestingly, 41,3% of women working in the formal have graduated from university. We can see that the majority of women who are working in the informal sector have primary school diploma or less, however, most of those working in the formal sector have at least a primary school diploma. Among employed women, most of those illiterate are employed in the informal sector.

Table 3.4 : The formality and informality by education level.

Gender	Female (Percentage)		Male (Percentage)	
	Formal Job	Informal Job	Formal Job	Informal Job
Formality/ Level of Education				
Illiterate	1,08	17,86	0,5	3,76
Literate without diploma	1,49	10,21	1,26	6,32
Primary school diploma	17,31	45,86	27,17	44,51
Middle school diploma	11,24	14,34	19,59	26,26
High school diploma	21,66	8,00	25,48	14,08
Undergraduate diploma	41,35	2,58	23,05	4,85
Postgraduate diploma	5,87	0,16	2,95	0,23
Total	100%	100%	100%	100%

HLFS 2016, own calculation.

4. METHODOLOGY

This part discusses the methodology used in this thesis. In order to test the hypotheses mentioned in Section 2, we present a logit model based on the HLFS. To do so, a binary dependent variable, NEET, is used, and it takes the value of ‘1’ if the individual is NEET and ‘0’ otherwise.

4.1 The logit model

The least squares method is often used to estimate the association between a continuous dependent variable and independent variables.

A basic regression model is given as follows:

$$\hat{Y} = b_0 + b_1x_1 + b_2x_2 + \dots + b_p x_p \quad (4.1)$$

Where $\hat{Y}$ is the estimated outcome variable of the true Y , b_0 is the constant and $b_1, b_2, \dots, b_p$ are the slopes of the equation (Lewis-Beck et al., 2003).

However, social scientists often use a categorical dependent variable which led to the violation of the assumptions of the ordinary least squares (Hair et al., 2006). Alternatively, there are some other models used to fix this problem. The logistic regression is one of those models, which examines the relationship between a categorical outcome and a set of continuous or categorical explanatory variables. In the logistic function, the estimation of the parameters is through the maximum likelihood method. Contrary to the ordinary least squares, the logistic regression does not impose a linear association between the outcome and the explanatory variables (Bewick et al., 2005). However, it requires a linear relation between the log odds and the dependent variable. Secondly, homoscedasticity is not necessary since there is no need for the error terms to be normally distributed. And lastly, the interval and the ratio scale are not essential while measuring the dependent variable. At the same time, the

logit regression is not free of assumptions and requires some other assumptions. Firstly, the observations should be independent from each other. Secondly, the correlation between the explanatory variables should not be high. Thirdly, the logit regression requires a linear relation between the log odds and the dependent variable. And finally, the sample size should be large while using the logistic model.

The logistic regression has the following equation:

$$\ln \left(\frac{P}{1-P} \right) = \log (\text{odds}) = \text{logit} = \alpha + \beta x \quad (4.2)$$

The logistic function is given as follows:

$$g(x) = \text{probability} (Y = \text{the outcome} \mid X = x) = \left(\frac{e^{\alpha + \beta x}}{1 + e^{\alpha + \beta x}} \right) \quad (4.3)$$

‘P’ represents the probability that Y_i equals ‘1’ and the parameters are estimated by using the maximum likelihood method (Eliason, 1993).

4.2 The weighted and the unweighted logit regression

The use of sample weights is a controversial topic, especially for analytical studies. That is because most economists aim to estimate the causal effect rather than simply presenting descriptive statistics. In fact, there are two points of view about weighting. Some authors support weighting in both descriptive and analytical parts. Others, however, do not agree with the first group and argue that the use of the sample weight yields more variable estimators generally due to the variability in the weights. Although the weighted analysis reduces the bias arising in the unweighted estimate that cannot be solved even when the sample size is large, the weighted estimates suffer from inefficiency. Hence, it has been suggested that it is preferable to use the unweighted analysis when the inefficiency is large. However, when the inefficiency is not large, then using the weighted analysis is better in order to reduce the bias from the unweighted estimates (Cabrera, 1994; Forthofer & Lee, 2005; Graubard & Korn, 1999; Holt & Smith, 1979; Korn & Graubard, 1995, 1999, 2002; Solon et al., 2013). Some other scholars emphasize that weighting protects the model from the problem of mis-specification since it estimates the population parameters contrary to the unweighted estimate that sometimes yields a biased analysis. That is because the models often do not include all the variables that exist in the population due to the

omission of variables and also due to the unequal probabilities that the sample includes. Moreover, it has been shown that weighting corrects for heteroscedasticity. However, the majority of the public-use data include only the primary sampling units for reasons of confidentiality where the final weights are obtained after non-response and post-stratification adjustments (Alexander, 1987; Forthofer & Lee, 2005). Korn & Graubard (1999) argued that the weighting can be used when the study is descriptive or the variability of the estimators does not rise. Furthermore, Lee and Solon (2011) have showed in their findings that the ordinary least squares is more efficient than the weighted least squares.

Overall, in its analysis, this thesis has used both the weighted and the unweighted logit models but the outcomes are slightly different (The weighted logit model is provided in Table A.1 in the appendix). Thus, based on what was mentioned earlier and following the more common research practice, the thesis went about its analysis without using weighting.

4.3 Statistical test of the individual parameters

Many tests are used in order to test the hypotheses about the significance of the parameters in a logistic model. From those tests, I use the Wald test and the maximum likelihood test. In general, the Wald test's reliability is doubtful, especially for small-size samples.

4.3.1 Wald test

The Wald test is used in order to investigate the significance of the coefficients in the model and is calculated as follows:

$$\left(\frac{\text{Coefficient}}{\text{SE Coefecient}} \right)^2 \quad (4.4)$$

And the resulting Wald statistic is compared with a χ^2 distribution with 1 degree of freedom. However, this test does not offer certain reliability for small samples.

Suppose that Θ is our parameter of interest, and then the Wald test will test the following hypothesis:

$$H_0: \Theta = \Theta_0$$

$$H_A: \Theta \neq \Theta_0$$

4.3.2 Likelihood ratio test

The likelihood ratio test compares a logit model which has only the constant and another one which contains all the explanatory variables that we want to include. It does also compare nested models to each other.

$$-2 \ln (\text{Likelihood ratio}) = -2 \ln (L_0/L_1) = -2(\ln L_0 - \ln L_1) \quad (4.2)$$

The assumptions that will be tested are as follows:

H_0 : the restricted model is true.

H_A : the current model is true.

The H_0 is rejected if the p-value is smaller than the test value.

4.4 Empirical Analysis

Six models are tested to identify the determinants of NEET. Our analyses are different in such a way that we conducted different regressions for the whole sample as well as for different age groups and for both males and females in order to identify the age and gender effects in NEET and labor force participation.

The models are as follows:

Models 1, 2, and 3 analyzed the full sample.

Model 1: includes only the gender variable.

Model 2: includes the household size, educational attainment, city of residence, marital status and the age group variables.

Model 3: includes the household size, educational attainment, the city of residence, marital status variables and the age group and migration status variables. Yet, it is run for the whole sample.

Model 4: included the same explanatory variables as the previous model yet, it is run only for those who are less than 60 years old. Furthermore, it is conducted separately for the whole sample, females and males.

Model 5: included the same explanatory variables as the previous model. Yet, it is run only for those who are between 30 and 50 years old. Furthermore, it is conducted separately for the whole sample, females and males.

Model 6: : included the same explanatory variables as the previous model and instead of educational attainment we included the years of education variable since some of the individuals at this age group category may still in education so we used education as a continuous variable. Yet, it is run only for those who are between 15 and 29 years old. Furthermore, it is conducted separately for the whole sample, females and males.

My analysis is at the individual level, as shown by Arellano (1987), and I clustered the error terms in the analysis at the household level to correct for heteroscedasticity as individuals within the same cluster are more homogenous than those across clusters (Miller & Cameron, 2015).

5. RESULTS AND DISCUSSION

Through these analyses, we explore the reasons behind having as many NEET females in Turkey by using a logistic model. The results are presented in terms of odds ratios since the coefficients in the logit model can only tell us about the direction of the relation between the explanatory variables and the outcome. Table 5.1 presents the results of the estimated effect of the explanatory variables on the outcome variable NEET for the full sample.

In Model 1, I have run a basic regression using one explanatory variable which is the gender variable (Female) and I have found that the odds of being NEET for females are 4.27 times higher than for males.

In Model 2, even after controlling for age, household size, education, marital status and region of residence, the odds of being NEET for females appear to be more than 5 times those of men. This implies that the state of being NEET is far more common among women than men. Unsurprisingly, I have found that those who are older (60 and over) and those who are nearing retirement age (55-59) have the highest odds of being NEET in all age groups.

However, an increase of one person in the household size decreases the odds of being NEET by one percentage point, while all other variables are held constant. Likewise, the odds of being NEET decreases with years of education as well. In fact, having a primary school diploma decreases the odds of being NEET by 25% compared to those with no literacy. Similarly, the odds of being NEET are also lower for those with middle and high school diplomas compared to those with no literacy. Interestingly, the odds of being NEET are 65% and 85% lower for those with undergraduate and postgraduate diplomas, respectively, compared to those who are illiterate. The importance of higher education in reducing the risk of being NEET is clearly demonstrated as a result.

In Model 3, where I have included some other variables related to migration status, the odds of being NEET are found to be 5.42 times as high for women than men, *ceteris paribus*. When we control for age, household size, gender, educational attainment, marital status and the regions of residence; individuals who have migrated from villages, provinces and districts turn out to have higher odds of being NEET in their new place of residence. Interestingly, being a return migrant approximately doubles the odds of being NEET compared to those who have never migrated.

In terms of the region of residence in this third regression, dummies of regions (Level 1) are included to determine the variation across Turkey. When the country's largest metropolis, Istanbul, is taken as a reference area, it is seen that there are regions residing in which reduces the odds of being NEET while there are others producing the opposite effect. Clearly, the odds of being NEET for those living in the Southeast Anatolia are nearly twice that of those residing in Istanbul (Model 3). The odds of being NEET for those residing in Central Eastern Anatolia are 1.2 times higher relative to those inhabiting Istanbul, while all the variables are held constant (Model 3). Persons living in the Mediterranean region have 1.08 times higher odds than those from Istanbul of being NEET. Those from the Black Sea region, however, have the lowest odds of being NEET of all the regions. Persons from West Marmara, Aegean and Northeast Anatolia regions have, similarly, less odds to be NEET compared to those from Istanbul. Furthermore, there seems to be no evidence that being a Central or Western Anatolian increases the odds of being NEET when all the other variables are held constant in Model 3. But, when we do not control for migration, the odds of being NEET are seen to be 12 percent less compared to Istanbul.

All in all, those living in Central Eastern Anatolia and Southeast Anatolia regions are more likely to be NEET than anywhere else in the country. This can be explained by the fact that these regions have the lowest income per capita in all of Turkey. Likewise, those residing in the Black Sea, Aegean, West Marmara and Northeast Anatolia regions have a lower probability of being NEET than Istanbulites.

The next regressions provide more detailed information about the gender gap in NEET and the regional differences as I have run the regressions separately for males and females and included 26 regions instead of 12.

Table 5.1 : The odds ratio of the logistic model for the whole sample.

Dep.var :NEET	Model 1	Model 2	Model 3
Female (Reference Category: Male)	4.274***	5.356***	5.422***
Household Size		0.991**	0.992**
Age range: (Reference Category:15-19)			
20-24		3.003***	2.975***
25-29		3.560***	3.520***
30-34		3.040***	2.980***
35-39		2.697***	2.631***
40-44		2.585***	2.511***
45-49		3.080***	2.994***
50-54		5.174***	5.042***
55-59		8.063***	7.859***
60-64		12.73***	12.40***
+65		34.02***	33.06***
Educational attainment: (No Literacy)			
Having Literacy without diploma		1.048	1.028
Primary School		0.746***	0.750***
Middle School		0.595***	0.585***
High School		0.620***	0.603***
Undergraduate		0.345***	0.316***
Postgraduate		0.142***	0.123***
Regions: (Reference Category: Istanbul)			
Aegean		0.746***	0.831***
Central Anatolia		0.881***	1.006
Central east Anatolia		1.081***	1.273***
East Black Sea		0.454***	0.526***
East Marmara		0.944**	0.989
Mediterranean		0.972	1.078***
Northeast Anatolia		0.683***	0.802***
Southeast Anatolia		1.641***	1.919***
West Anatolia		0.932***	1.025
West Black Sea		0.584***	0.664***
West Marmara		0.750***	0.822***
Marital status: (Reference Category: Single)			
Married		1.252***	1.195***
Divorced		1.173***	1.105***
Widowed		2.106***	2.035***
Migration status: (Reference category: non-migrant)			
Return Migrant			1.936***
Migrated From Village			1.433***
Migrated From District			1.328***
Migrated From Province			1.313***
Constant	0.379***	0.111***	0.0937***
Observations	380709	380709	380709
Pseudo R^2	0.088	0.263	0.266

Note: Odds ratio are obtained by the Exponentiation of the coefficients.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 5.2 shows the results of the two additional regressions by using two different age groups; Model 4 focuses on those who are younger than 60 while Model 5 focuses on those who are between 30 and 50 years old. That is, I have chosen the ‘30-50’ age category since by the age of 30 almost all the individuals should finish their education and enter the labor force and, in addition, most of them would not retire when they are 50 years old. Moreover, I have run separate regressions for both males and females in order to identify the specific reasons of staying out of the labor market for females.

For the whole subsample, we notice that for Model 4, being a female increases the odds of being NEET 5.83 times than being a male, while holding all the other variables constant. The odds of being NEET are, however, nearly 10 times higher for females compared to males in Model 5, while controlling for education, age, age squared, region of residency, marital status and migration status. I have included the age and its square to show the non-linear effect of age. And as the results indicate in Model 5, a positive effect of both age and its square is observed for those who are between 30 and 50. Therefore, as individuals get older, the effect of age becomes stronger for this age category.

More years of education are associated with lower odds of being NEET for both males and females. However, university education for females seems to play a crucial role in reducing the probability of being NEET. For instance, having an undergraduate diploma lowers the risk of being NEET by 70% for females who are younger than 60 and by 85% for those who are between 30 and 50 years old. Likewise, having a postgraduate diploma reduces the odds by more than 90% compared to illiteracy for both age categories. In Model 4, females who did not graduate from primary school have 1.26 times higher probability of being NEET compared to those illiterate. In Model 5, the odds of being NEET for females without any diploma are 12 less with respect to illiterate women. However, literacy without a diploma makes even more difference for men. Literate males who have not graduated from primary school are not even half likely ($OR=0.4$) to be NEET than those illiterate (Model 4 and 5). In addition to that, females with primary and middle school diplomas have nearly 20% and 40% lower odds to be NEET compared to their illiterate peers, respectively. Moreover, I have noticed that having a middle school diploma lowers the odds of being NEET more than having a high school diploma for both men and women in Model 4

and only for women in Model 5. Clearly, university education profoundly reduces the risk of being NEET and it enhances the chance of women to engage in formal employment since most of those with low education work in the informal sector (Table 3.4).

In terms of regions, females who reside in West Marmara, Aegean, and Black Sea regions in addition to those who reside in some cities of the Mediterranean region (Antalya, Isparta and Burdur) are less likely to be NEET than their peers in Istanbul. Among them, women who reside in the cities of Kastamonu, Cankiri or Sinop have the lowest risks of being NEET across Turkey. They are not even half likely to be NEET ($OR=0.4$) compared to those living in Istanbul (Model 4 and 5). Men from Kastamonu, Cankiri or Sinop, likewise, have 30% lower probability of being NEET than their peers in Istanbul. Among men, the lowest risks of being NEET, however, belong to those residing in Tekirdag, Edirne and Kirklareli ($OR=0.66$).

On the other hand, men and women from Hatay, Kahramanmaras and Osmaniye have more odds being NEET than those from Istanbul. Residing in Adana and Mersin also increase the odds of being NEET for males but it is not significant for females in either of the models 4 and 5. Females from Kayseri, Sivas and Yozgat have more odds to be NEET than those from Istanbul. Females from Bursa, Eskisehir and Bilecik (only Model 4) and Ankara have slightly more odds of being NEET compared to their peers in Istanbul. Women and men residing in Erzurum, Erzincan and Bayburt have less odds of being NEET (Model 4). Likewise, being from Agri, Kars, Igdir and Ardahan reduce the odds of being NEET for women but raises the odds for men.

In East Marmara region, women living in Kocaeli, Sakarya, Duzce, Bolu and Yalova have less odds of being NEET than their peers in Istanbul. The results show that men residing in Van, Mus, Bitlis and Hakkari have more than two times the odds of being NEET than those living in Istanbul (Model 4 and 5). Yet, females who reside in the same four cities have 1.7 times higher odds of being NEET than their peers in Istanbul for the 15-60 age cohort and 1.36 times higher probability for the 30-50 age cohort.

Mardin, Batman, Sirnak and Siirt are the worst cities in terms of increasing the odds of being NEET for both men and women. Females from Gaziantep, Adiyaman, Kilis and Sanliurfa and Diyarbakir have more than twice the odds of being NEET than those from Istanbul. Men residing in Sanliurfa and Diyarbakir have more odds of being

NEET than women residing in these places for the 30-50 age cohort (Model 5).

The differences found among Turkish regions cannot be explained by a single factor as each region has its own characteristics. Females in Black Sea and Northeast Anatolia are employed in the agricultural sector, where women can work in farming as well as performing domestic duties at the same time (Gündüz-Hosgör & Smits, 2006). In addition to that, the western side of Turkey is known to be more industrialized than the eastern side and this can explain why the odds of being NEET for females is less in the western cities than in the eastern. This pattern can be understood as the east part of Turkey is far less industrialized and has the lowest income per capita among all the Turkish regions. Consequently, the results obtained about the southeastern region do not fit the “U-shaped” hypothesis. Gündüz-Hosgör & Smits (2008, p. 115) have made a similar interpretation. Note, however, that my findings have showed that residing in the southeastern region of Turkey increases the odds of being NEET for both males and females. Social norms, therefore, fail to fully account for the low FLFP.

Marriage, however, has a dramatic effect on the NEET status for females, particularly for women in the ‘15-60’ age group (Model 4). Interestingly, married women between 15 and 60 years old have 2.9 times higher odds of being NEET than single women. The odds are 1.13 times higher for married women (Model 5). Dauntingly however, the odds that a married man is NEET are approximately 70% lower than that of a single man for both age groups.

For females who are younger than 60, being divorced and widowed raise the odds of being NEET by 1.54 and 3.72, respectively. The same factors, however, reduce the odds of being NEET for men by 0.35 and 0.54, again, respectively. Nevertheless, divorced women who are between 30 and 50 years old have 42% less odds of being NEET compared to single women. It might be because when a woman gets divorced at those ages, she often has to assume the role of the primary breadwinner in her household and enter the labor market.

The results in Table 5.2 also show, while keeping all the variables constant, that migration increases the odds of being NEET for both men and women but it is higher for females especially when the female is a return migrant. In terms of internal

migration, while controlling for all the variables, women who migrate from villages have 1.5 times higher odds of being NEET than their non-migrant counterparts.

As is seen in Table 5.5, for the whole subsample of '15-29' age category, the odds of being NEET is 4.08 times higher for females than males. So, there is a clear gender gap in terms of NEET even for youth. I have included the age and its square to show the non-linear effect of age. That demonstrates a positive effect for age but a rather negative one for the squared age. Therefore, it can be inferred that as individuals get older the effect of age becomes less strong for this particular age category.

The findings also show that education has a noteworthy role in decreasing the odds of being NEET, particularly for women; in such a way that each additional year of education is estimated to decrease the odds of being NEET by 0.16, 0.13 for females and males, respectively, and 0.15 for the whole subsample.

On the other hand, dummies of regions are included but in our table only 5 dummies are displayed since some of them are found to be insignificant and left out and those significant that are not displayed have approximately 1.2 times higher odds of being NEET compared to Istanbul. Females residing in Kastamonu, Cankiri, Sinop have 40% less odds of being NEET than those who are living in Istanbul, however, there is not such an evidence for males because of being insignificant. The odds of being NEET for females are approximately twice in Hatay, Kahramanmaras, Osmaniye, Van, Mus, Bitlis, Hakkari, Sanliurfa and Diyarbakir compared to Istanbul. The odds of being NEET for females in Gaziantep, Adiyaman and Kilis are more than twice higher relative to Istanbul. Females and males who are based in Mardin, Batman, Sirnak and Siirt have 3.35 and 2.90 times more odds of being NEET than those who reside in Istanbul, respectively. Thus, Mardin, Batman, Sirnak and Siirt are the worst cities in terms NEET. Therefore, the social norms cannot be the only determinants of the low FLFP and there must certainly be other factors such as the availability of job opportunities. As a result, females from Kastamonu, Cankiri, Sinop have more chances to be in employment, education, or training compared to the rest of Turkey. As we mentioned earlier, it can be because females in the Black Sea region work in agriculture as unpaid family laborers since the odds of being NEET are not significant for males.

Table 5.2 : the odds ratio of the logistic model for different age ranges.

Dep.var :NEET Variables	Model 4 (15-60)			Model 5 (30-50)		
	Total	Female	Male	Total	Female	Male
Female (Reference Category: Male)	5.761***			9.905***		
Household Size	0.963***	0.964***	0.997	0.977***	0.965***	1.005
Age	1.003	1.032***	0.978***	0.741***	0.754***	0.781***
Age Squared	1.000***	1.000***	1.001***	1.004***	1.003***	1.004***
Educational attainment:						
(Reference category : No Literacy)						
Having Literacy without Diploma	1.024	1.266***	0.431***	0.801***	0.884**	0.410***
Primary School	0.588***	0.784***	0.233***	0.664***	0.792***	0.244***
Middle School	0.432***	0.580***	0.182***	0.526***	0.642***	0.199***
High School	0.508***	0.722***	0.209***	0.490***	0.691***	0.148***
Undergraduate	0.275***	0.305***	0.164***	0.150***	0.164***	0.0842***
Postgraduate	0.0902***	0.0824***	0.0744***	0.0567***	0.0522***	0.0551***
Marital Status:						
(Reference category: Single)						
Married	1.321***	2.901***	0.263***	0.550***	1.187***	0.218***
Divorced	1.101**	1.577***	0.643***	0.426***	0.581***	0.677***
Widowed	1.714***	3.858***	0.426***	0.604***	1.245***	0.480**
Migration status:						
(Reference category: Non-migrant)						
Return Migrant	1.951***	2.155***	1.754***	1.948***	1.957***	1.864***
Migrated From Province	1.256***	1.268***	1.191***	1.337***	1.379***	1.189***
Migrated From District	1.274***	1.306***	1.176***	1.310***	1.370***	1.167***
Migrated From Village	1.386***	1.583***	1.201***	1.342***	1.505***	1.142**

Table 5.2 (continued): the odds ratio of the logistic model for different age ranges.

Dep.var :NEET	Model 4 (15-60)			Model 5 (30-50)		
	Total	Female	Male	Total	Female	Male
Regions: (Reference region: Istanbul)						
Tekirdag, Edirne, Kirlareli	0.687***	0.645***	0.663***	0.607***	0.554***	0.630***
Balikesir, Canakkale	0.904***	0.834***	0.957	0.811***	0.731***	0.919
Izmir	0.873***	0.811***	0.944	0.823***	0.752***	0.971
Aydin, Denizli, Mugla	0.769***	0.640***	0.983	0.704***	0.573***	1.057
Manisa, Afyonkarahisar, Kutahya,Usak	0.823***	0.809***	0.799***	0.752***	0.746***	0.680***
Bursa, Eskisehir, Bilecik	1.082**	1.102**	1.056	0.988	0.991	0.939
Kocaeli, Sakarya, Duzce, Bolu, Yalova	0.927**	0.898**	0.922	0.842***	0.787***	0.940
Ankara	1.050*	1.103***	0.964	1.074*	1.127**	0.940
Konya, Karaman	1.001	1.086**	0.853***	1.015	1.049	0.931
Antalya, Isparta, Burdur	0.814***	0.745***	0.917	0.788***	0.688***	1.044
Adana, Mersin	1.081**	1.060	1.117**	1.033	0.960	1.190**
Hatay, Kahramanmaras,Osmaniye	1.438***	1.518***	1.397***	1.472***	1.442***	1.653***
Kirikkale,Aksaray,Nigde,Nevsehir	1.018	1.042	0.957	1.034	1.034	1.026
Kayseri, Sivas, Yozgat	1.142***	1.197***	1.020	1.191***	1.279***	1.034
Zonguldak, Karabuk, Bariin	0.857***	0.764***	1.022	0.871**	0.777***	1.196
Kastamonu, Cankiri, Sinop	0.565***	0.473***	0.720***	0.511***	0.436***	0.773**
Trabzon,Ordu,Giresun,Rize,Artvin, Gumushane	0.629***	0.504***	0.853***	0.621***	0.477***	1.094

Table 5.2 (continued): the odds ratio of the logistic model for different age ranges.

Dep.var :NEET		Model 4 (15-60)			Model 5 (30-50)		
Variables		Total	Female	Male	Total	Female	Male
Erzurum, Erzincan, Bayburt		0.872***	0.893**	0.820***	0.901*	0.901	0.939
Agri, Kars, Iğdir, Ardahan		0.909*	0.759***	1.210***	0.780***	0.552***	1.694***
Van, Mus, Bitlis, Hakkari		1.786***	1.703***	2.040***	1.800***	1.364***	2.894***
Gaziantep, Adiyaman, Kilis		1.718***	2.187***	1.405***	1.888***	2.437***	1.537***
Sanliurfa, Diyarbakir		1.960***	2.099***	2.087***	2.191***	2.035***	2.797***
Mardin, Batman, Siirt		2.809***	3.363***	2.658***	3.036***	3.332***	3.341***
Constant		0.176***	0.349***	0.700***	145.6***	582.2***	109.3***
Observations		309943	157804	152139	146499	75547	70952
Pseudo R^2		0.196	0.134	0.108	0.238	0.086	0.102

Exponentiated coefficients (Odds ratio) are reported.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

It seems that youth NEET status does not vary too much across the regions except the southeastern region that is the worst for all the age cohorts.

Coming to migration, the odds of being NEET for female return migrants were more than twice those who have not migrated. The odds of being NEET for return migrant men were 1.5 times high in their new settlements compared to those who have not migrated. Migrating from province increases the odds of both females (OR=1.08) and males (OR=1.18) compared to those who lived at the same place their entire life. Interestingly, young males when they migrate from provinces have higher likelihood to be NEET than young females in their new settlements. Additionally, migrating from villages rises the odds of being NEET for females by 1.26 times in their new place of residence, but it is not significant for young males. There is no evidence that migrating from district decreases the NEET for both gender. The findings show that internal migration does not affect the young females NEET as it does for the other age cohorts and this can be because the youth nowadays they migrate for some other reasons.

Married women are also estimated to have higher odds of being NEET than single women. In fact, the odds of being NEET for a married young woman are 3 times that of a single woman. In contrast, a married man has 60% less odds of being NEET than their single peers. Yet, there is no evidence that being divorced or widowed amplifies the risk of being NEET for both males and females.

Why marriage has such an adverse effect on women alone requires an explanation. Firstly, due to the societal perception of married women's work and roles, some women drop out of the labor market after tying the knot on a rather happy day. On the other hand, married women sometimes also exit the labor market after they become mothers since they are seen as the primary caregivers for their children, unlike their husbands who could go on working. Additionally, women with low education and skills usually work in the informal sector where the wages are low. And that challenges family budgets since there is not much left after daycare costs are deducted from mothers' incomes. So, they simply quit their jobs and take care of their children by themselves and at home.

All in all, it is crucial to point out, that the social norms cannot be the only drivers of the low FLFP, as both men and women residing in the southeastern region of Turkey have higher odds of being NEET compared to the rest of the country. Furthermore,

based on the HLFS for 2016, it is seen that 58.49% of the non-employed women who are younger than 60 reported that they previously had a job (Table 5.3). Therefore, this gives credible reason to think that the social perception towards women's work cannot be the sole factor for their low labor force participation since more than half of the non-employed women said that they actually used to work before. This is also in line with Ilkkaracan (2012)'s work, in which she stated that keeping women in the labor force is more challenging than their first entry.

Table 5.3: Previous work experience among nonemployee women.

Previous job experience	Percentage
They have worked before	58.49
They have never worked	41.51
Total	100.00

HLFS 2016, own calculation.

In order to take a closer look on those who have left the job market, I have used the individuals' status of registration in the social security system to identify whether one is employed in the formal or rather in the informal sector in the Turkish labor market like the same was done by many authors (Acar & Tansel, 2014; Başlevent & Acar, 2015). According to the HLFS 2016, persons are asked whether they are officially registered in the social security system by their workplace, and interestingly more than half (53.07%) of the employed women said they are not (Table 5.4). Thus, there are more women in the informal sector than in the formal sector and this confirms what was mentioned earlier that women with no formal education or just little of it work usually in the informal sector (Table 3.4). Upon getting married or giving birth, the probability for these females to stay in the job market decreases. Moreover, my analyses show that education possesses a great role in decreasing the NEET risk as well as increasing the FLFP rate as those females with high educational level work usually in the formal jobs where they enjoy higher rewards and more assuring work guarantees.

Table 5.4: The formality and informality among employed women.

The formality of the job	Percentage
In the formal sector	46.93
In the informal sector	53.07
Total	100.00

HLFS 2016, own calculation.

In order to make things clearer, it is worth pointing out that the reported R^2 pseudo is not interpreted the way the R - squared is. As while doing our analysis we used (STATA) which reports the McFadden's R^2 pseudo. R^2 pseudo which is between 0.2 and 0.4 shows that the model fits well. However, it is more used when we compare between two models and the one with the larger R^2 pseudo is preferable.

Table 5.5 : The odds ratios of the logistic regression for those who are between 15 and 29 years old.

Model 6 (15-29)	Total	Female	Male
Variables			
Female	4.085*** (0.0764)	-	-
Household Size	1.001 (0.00552)	1.001 (0.00778)	1.024** (0.00781)
Age	3.515*** (0.0790)	3.813*** (0.116)	2.568*** (0.0939)
Age Squared	0.974*** (0.000493)	0.973*** (0.000664)	0.981*** (0.000829)
Years of education	0.850*** (0.00216)	0.840*** (0.00290)	0.869*** (0.00360)
Marital Status: (Reference Category: Single)			
Married	1.673*** (0.0361)	3.150*** (0.0939)	0.392*** (0.0171)
Divorced	0.858 (0.0783)	0.971 (0.0988)	1.001 (0.192)
Widowed	1.410 (0.366)	1.773 (0.524)	1.007 (0.691)
Migration Status: (Reference Category: Non-migrant)			
Migrated From Province	1.134*** (0.0323)	1.088* (0.0406)	1.187*** (0.0558)
Migrated From District	1.033 (0.0277)	0.987 (0.0340)	0.974 (0.0481)
Migrated From Village	1.099* (0.0426)	1.269*** (0.0689)	0.879 (0.0647)
Return Migrant	1.949*** (0.119)	2.608*** (0.217)	1.578*** (0.154)
Regions : (26 regions) (Reference Category: Istanbul)			
Kastamonu, Cankiri, Sinop	0.698*** (0.0488)	0.617*** (0.0553)	0.826 (0.0962)
Hatay, Kahramanmaras,Osmaniye	1.670*** (0.0883)	1.779*** (0.124)	1.557*** (0.133)
Van, Mus, Bitlis, Hakkari	1.810*** (0.0903)	1.919*** (0.129)	1.872*** (0.138)
Gaziantep, Adiyaman, Kilis	1.900*** (0.0889)	2.288*** (0.142)	1.704*** (0.128)
Sanliurfa, Diyarbakir	1.790*** (0.0924)	1.945*** (0.136)	1.847*** (0.139)
Mardin, Batman, Sirnak, Siirt	3.008*** (0.171)	3.359*** (0.255)	2.906*** (0.237)
Constant	0.0000002***	0.0000003***	0.000008***
Observations	104506	52088	52418
Pseudo R ²	0.228	0.265	0.089

Exponentiated coefficients; Standard errors in parentheses. Note: the regression includes 26 dummies for the regions. I have displayed only 6 of them. (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$).

6. CONCLUSION

This thesis pursues a better understanding of the determinants of low female labor force participation (FLFP) in Turkey, a challenging topic for the country both economically and socially. It focuses specifically on women who are neither in employment, nor in education, nor in training – defined simply as NEET – for different age groups. And it works at the micro level by using a household labor force survey for 2016 by Turkish Statistics Institute (TurkStat). And its findings are summarized as follows:

Firstly, it has been shown that there exists a huge gender gap for those who are NEET. Even after controlling for other variables such as age, education and region of residence, women face much higher risks of being NEET compared to men.

Secondly, it has also been proven by running several regressions separately for females and males at different age groups that education plays a noteworthy role in decreasing the odds of being NEET. Higher education, in particular, has turned out to be an immensely important threshold for women to avoid being classified as such.

Thirdly, the findings have also demonstrated that married women are more likely to be NEET than single women, especially for the young cohort. For men, however, marriage has appeared to be rather supportive of one's chances of avoiding the same fate.

Fourthly, migration has been found to increase the likelihood of being NEET, particularly for those who used to live abroad and later returned to Turkey. Likewise, women who migrated from a village have been understood to experience a higher risk of being NEET in their new settlements.

And finally, in a region-wise analysis, it has been seen that the country's eastern part is the worst in terms of being NEET. Cultural and social norms, however, fall short of fully explaining the low FLFP in certain parts of the region since there appear to be a bruising issue of job scarcity.

In terms of policy recommendations, governments in Turkey would be well advised to encourage women to pursue higher education and professional training to improve their skill sets. Additionally, making sure childcare is more affordable either by guaranteeing more benefits or putting in place the very institutions to take care of working mothers' children could help offset the proven adverse impact of marriage on FLFP. It would equally be wise to channel more resources towards regions of high poverty such as the country's eastern parts.

It is the genuine hope of this work's author that the findings and policy recommendations listed above and throughout the text could be a guide not only for Turkey but also for other countries suffering from low FLFP rates all the same.

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APPENDICES

Appendix A: Results and discussion

APPENDIX A

Table A.1: The weighted Logit model (The full sample).

Variables	Model 1	Model 2	Model 3
Female (Reference Category: Male)	4.556***	5.577***	5.661***
Household Size		1.009**	1.007*
Age range: (Reference Category: 15-19)			
20-24		2.825***	2.800***
25-29		3.272***	3.231***
30-34		2.755***	2.712***
35-39		2.483***	2.431***
40-44		2.428***	2.365***
45-49		2.966***	2.884***
50-54		5.364***	5.209***
60-64		13.66***	13.26***
65+		36.90***	35.85***
Educational attainment: (Reference Category: No Literacy)			
Having Literacy without Diploma		0.970	0.958
Primary School		0.633***	0.648***
Middle School		0.492***	0.497***
High School		0.477***	0.478***
Undergraduate		0.275***	0.264***
Postgraduate		0.114***	0.103***
Regions: (Reference Category: Istanbul)			
Aegean		0.783***	0.857***
Central Anatolia		0.901***	1.020
Central east Anatolia		1.056*	1.236***
East Black Sea		0.507***	0.581***
East Marmara		0.956*	0.995
Mediterranean		1.017	1.112***
Northeast Anatolia		0.697***	0.812***
Southeast Anatolia		1.656***	1.923***
West Anatolia		0.998	1.069***
West Black Sea		0.622***	0.703***
West Marmara		0.762***	0.824***
Marital Status: (Reference Category: Single)			
Married		1.314***	1.254***
Divorced		1.244***	1.176***
Widowed		2.067***	1.992***
Migration Status: (Reference Category: Non-migrant)			
Return Migrant			2.018***
Migrated From Village			1.366***
Migrated From District			1.270***
Migrated From Province			1.264***
Constant	0.350***	0.119***	0.102***
Observations	380709	380709	380709

Odds ratios are reported, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

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