



Hacettepe University Graduate School of Social Sciences

Department of Economics

**DETERMINANTS OF INFORMAL EMPLOYMENT OF WOMEN IN TURKEY**

Zeynep Nazmiye AKINCI

Master's Thesis

Ankara, 2020



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## ABSTRACT

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The socio-economic transformations and structural changes in the world economy in recent years have caused the restructuring of the labor markets. Classic blue collar and formal jobs have gradually left their places to precarious and informal jobs; this deeply affected women's economic activities and their place in employment. Since the inclusion of women's power in working life for a fee and the pursuit of policies in this direction have an important place in the development of the country, revealing the current status of women's power will also shed light on the policies to be followed

The importance of informal employment of women in Turkey is emphasized and the strategies and policies that can be used to solve this socio-economic problem will be developed and proposed. There are not many studies that examine the position women in the informal sector in Turkey, in detail. The purpose of this study is to determine the position of women in the informal sector in Turkey, and the factors pushing them to work. In this research, the concept of female labor force participation rate (FLFPR) and informal economy will be defined as a first step. Furthermore, a general literature review –both national and international- will be provided. In addition, TurkStat statistics between 2015 and 2018 and Household Labour Force Surveys (HLFS) will be used to investigate the defined research question, statistically. While obtaining statistical results, the Multinomial Logistic Regression Analysis will be used.

### **Keywords**

Female Labor Force Participation, Informal Employment, Women, Turkey

## ÖZET

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Günümüzde dünya ekonomisinde yaşanan sosyo-ekonomik dönüşümler ve yapısal değişiklikler işgücü piyasalarının tekrar şekil almasına yol açmıştır. Mavi ve beyaz yakalıların çalıştıkları işlerin zamanla güvencesiz ve kayıtdışı işlere dönüştüğünü söylemek mümkünken; bu durum kadınların ekonomik faaliyetlerini ve istihdamdaki konumlarını ciddi derecere değiştirdi. Ne kadar çok kadın emeği çalışma hayatında ücret karşılığı bulursa ve bu doğrultuda politikalar takip edilirse ülkenin kalkınması da o kadar etkilenir. Bu durumda kadınların istihdam sürecinde sahip oldukları roller ve karşılaştıkları sorunların ifade edilmesi mevcut durumlarını iyileştirmek adına izlenecek politikalara ışık tutacaktır.

Bu çalışmada, Türkiye'de kadınların kayıt dışı istihdamının önemi vurgulanmakta ve bu sosyo-ekonomik sorunu çözmek için kullanılabilir strateji ve politikalar önerilecektir. Türkiye'de kayıt dışı sektördeki kadınların konumunu detaylı olarak inceleyen pek fazla çalışma bulunmamaktadır. Bu çalışmanın amacı, kadınların kayıt dışı sektördeki Türkiye'deki konumunu ve onları çalışmaya iten faktörleri belirlemektir. Bu araştırmada kadın işgücüne katılım oranı ve kayıt dışı ekonomi kavramı ilk adımda tanımlanacaktır. Ayrıca, ulusal ve uluslararası genel literatür taraması yapılacaktır. Analiz kısmında ise 2015-2018 yılları arasındaki TÜİK istatistikleri ve Hanehalkı İşgücü Anketleri (HLFS) araştırma konusuna istatistiksel bir yanıt aramak için kullanılacaktır. Ampirik sonuçlar elde edilirken Çok Kategorili Lojistik Regresyon Analizi kullanılacaktır.

### **Anahtar Kelimeler**

Kadınların İşgücüne Katılımı, Kayıtdışı Çalışma, Kadın, Türkiye

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**ABBREVIATIONS**

<b>LFPR</b>	: Labor Force Participation Rate
<b>FLFP</b>	: Female Labor Force Participation
<b>FLFPR</b>	: Female Labor Force Participation Rate
<b>OECD</b>	: Organization for Economic Co-operation and Development
<b>ILO</b>	: International Labour Organization
<b>TURKSTAT</b>	: Turkish Statistical Institute
<b>WIEGO</b>	: Women in Informal Employment Globalizing and Organizing
<b>MDGs</b>	: Millennium Development Goals
<b>HLFS</b>	: Household Labour Force Survey
<b>NUTS</b>	: Nomenclature of Territorial Units for Statistics
<b>MLR</b>	: Multinomial Logistic Regression
<b>RRR</b>	: Relative Risk Ratios

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## INTRODUCTION

In many countries of the world, women have worked behind men in the past and today, with a second workforce status. One of the most important reasons for the secondary status of women is the patriarchal social structure and the traditional division of labor in the family. The role of women in this gender-based division of labor can be categorized as giving birth, taking care of children and elderly people, taking care of household chores and cooking. From this point of view, women who removed from the labor market in the past feel the pressure both sociologically and culturally. It can be said that women who work as unpaid family workers due to the patriarchal family structure have been working from the beginning of the Industrial Revolution. In accordance with the culture that persisted throughout history, women produced, but were not involved in the labor market. Nowadays, it is known that the participation of women in the labor force has been increasing in developed and undeveloped countries. Participation rates of women in the labor force in Turkey is lagging behind, compared to the growing trend of European countries.

The purpose of this study is stating the position of women in the informal sector in Turkey, to determine the factors which pushes them to work and to highlight problems they encounter in the labor market. The biggest factor in choosing this subject was the informal sector as one of the areas where gender-based inequalities are the highest in the labor markets. Most of people know more or less how disadvantaged women are in this industry, and definitely know one or more women around them who have to work in this field. This study draws attention to those women and the reasons that pushed them to this situation. In order to provide a set of policy recommendations to be implemented in the short term, the policymakers should ensure equality between women and men in education, subsidize child care system, and institutionalize small businesses and disseminate awareness of work in insured jobs. The definition of female labor force participation rate and its historical development in the world and Turkey will be given before demonstrating the statistics from specific countries and Turkey. After examining

the factors affecting the unregistered work of women, the reasons will be investigated comparatively and policy recommendations will be made by using the micro data.

## **CHAPTER 1: FEMALE LABOR FORCE PARTICIPATION AND INFORMAL ECONOMY**

### **1.1. WHAT IS FEMALE LABOR FORCE PARTICIPATION RATE?**

One of the most important factor affecting economic performance and productivity in a society is the labor force participation rate (LFPR). Labor force is the whole of human labor involved in production or any work in a country or enterprise. Along with capital accumulation and technological progress, it is considered as one of the three main sources of economic development. Labor force is the sum of the working population and those who are unemployed and looking for work. TurkStat defines LFPR as the ratio of the labor force in the population aged between 15 and 64 (TurkStat, 2011: 175). Indeed the labor force participation rate and the growth rate provide a stabilization over unemployment rate. In countries where the growth rate increases more than the labor force participation rate, unemployment rate increases gradually.

$$\text{Labor Force} = \text{Employed} + \text{Unemployed Population}$$

$$\text{Labor Force Participation Rate (LFPR)} = \left( \frac{\text{Labor Force}}{\text{Working Age Population}} \right) \times 100$$

However, those who are unemployed but not looking for a job are called “discouraged workers” and are not included in this group. They’ve quitted looking for job since they’ve lost their hope that they will find job for them.

Along with the Second World War, while development theories has caused the improvement in effective use of labor whereas endogenous growth models investigated qualitative capacity of labor. Therefore, the establishment of a high LFPR stands out as one of the basic conditions for achieving high potential growth. An increase in the LFPR causes an increase in labor supply and, thus, a recovery in economic growth.

High labor force participation of women also brings important gains for social justice as well as its contribution to economic activity. The exclusion of certain demographic groups within the population from the labor market makes them more likely to be located on the lower layers of the income distribution.

The rate is one of the main indicators taken into account in the implementation of economic policies, reflecting the possibility of a person of a certain age, gender and race to be in the labor force and reflecting individuals' decisions to participate in the labor force (Yılmaz & Zoğal, 2015:10). In a study, it was determined that the employment rate of women for 187 countries in the world has a positive effect on economic growth in the 1998-2008 period (Er, 2012:27-42).

## **1.2. DEVELOPMENT OF FLFP**

From a historical perspective, women's participation in production goes back to the division of labor within primitive societies. In the pre-written periods, women took part in the primary part of the economic activity as “collector” men engage in “hunting” as a secondary activity. In history, it's known that woman starts community living with contributions with values she add to production. Therefore, the first human figures in the Paleolithic Age are female depictions (Gözener, 2012: 20). In other words, in the Paleolithic period, when the concept of private property did not develop, the collective cooperation of men and women is vital and they do not exploit each other socially or economically (Michael, 1993: 25 – 30). There is a general acceptance that human beings have developed in an effort to survive and invented tools in this development, so that life varies within the framework of institutions. Institutionalization and diversification have brought professionalization over time, thereby creating social structures (Malinovski, 1992: 33). In this sociality, job separations have emerged, and women were subjected to discriminations within the framework of the division of labor, gathering food and housework, etc. These functions of women did not prevent them from staying away from the family institution or waiving their family responsibilities, but this created a more burdensome life for them (Afşar, Öğrekçi, 2015: 69-70).

In the Neolithic period, with the formation of class differences between the male and female gender, the social rules set by the male began to operate and property was transferred to the male descendant of the male. The emergence of this class difference between women and men and the exclusion of women covers a period of 2,000 years. This relationship between gender and sovereignty and supremacy that lasted until the Industrial Revolution led to radical changes in both sexes and social areas with the industrial revolution (Gözener, 2012: 22). Along with this new sociality, besides the forms of administration, it has also undergone changes in economic forms. With classes, social classes have emerged because sociality means business management; Thus, the concept of ownership and commerce took place in the social structure (Beer, 2012: 23). In this case, women in the division of labor and socialization; According to the earliest information and sources available, they had a vital history of "home-work", in which they traveled freely over time, but their unique income opportunity was very rare (Freeman, 2013: 67).

It is known that the social division of labor began to become apparent since the 12th century. As the industrial development increased, the male was moving towards the public sphere in the business division, while the woman was more busy with the remaining jobs. All kinds of secondary jobs, from wool work to spinning, from sheep care to the housework of the senior, belonged to the female, but were advancing in the men's craft segment (Afşar and Öğrekçi, 2015: 74). In the 16th and 17th centuries, women were involved in the internal dynamics of the Ottoman economic structure. Imagine behind closed doors, the Ottoman woman was actively involved in the fields, markets, and shops and contributing to the production. However, the changes in the economic world, the birth of the industrial revolution and the closure of many workshops in the Ottoman Empire confined the woman to her home (Yılmaz & Zoğal, 2015:8). In Turkey, to participate in the non-agricultural labor force in the true sense of the woman took place after 1950s. Migration from the rural area to the city, adaptation to the characteristics of urban life and changes in mentality, changes in the family structure and family labor relations have brought along and changed the social position of women and their place in working life (Berber, Metin & Yılmaz, 2008: 3). Before the

industrial revolution, women could not go far beyond their traditional state. Like the industrial revolution, the Second World War and the globalization process that has been spreading recently have been the main factors affecting the numbers and positions of women in the labor markets.

### **1.2.1. Industrial Revolution and FLFP**

The industrial revolution is an important turning point in the historical development of the female labor force. Women were able to work with the status of “workers for wages” in the industrial revolution (Özer & Biçerli, 2003-2004: 56). Due to the ongoing culture throughout the history, women have been in production but not in the labor market. Although women's participation in the production process is as old as the history of humanity, women started to work for wages with the need of new and cheap labor in the 19th century with the industrial revolution.

In this period, with the mass production that started in European industry, developments took place in agriculture and the wasted agricultural women labor force migrated to the city and started to join labor markets as labor force. Another reason for the use of women's labor in the Industrial Revolution is the technological developments in production. The physical superiority of a man is insufficient in the use of machines, which brings women's labor together with machines. In the face of all these developments, women gain a new identity as individuals who offer labor with the Industrial Revolution. Since women are accepted as cheap labor, they are employed in the sectors such as textiles and contexture (Gözener, 2012: 20). In the first period of industrialization, the female labor force was employed 12 hours a day, especially in the textile business, under low wages and poor working conditions (Özer & Biçerli, 2003-2004: 57). The textile industries formed the largest manufacturing sector in the eighteenth century, and women dominated all its major branches. Large numbers of women were also employed in the factories and large workshops (Berg, 1991; 12). Over the years, the development of the industry has increased the number and scale of firms. Accordingly, women are not only in the manufacturing industry; they also have the

opportunity to work in service jobs such as sales clerkship, secretarial and accountancy (Costa, 2000: 10-11).

The first thing began with the industrial revolution was that women received wage in return for their labor. Nevertheless, it has not been able to prevent inequality between men and women in labor force although the industrial revolution has a dynamo effect on the employment of women. These inequalities faced by women in the workforce have changed in favor of the woman after the World War II.

### **1.2.2. World War II and FLFP**

The event that affected female labor force participation more than industrialization was World War II and it was observed that female labor force participation increased significantly during the war. This increase has reasons for both labor supply and labor demand. In terms of labor supply; patriotism was the main driving force for some women to enter the market, while for others it was effective for men to go to war and to decrease the income of families and to reduce women's work at home. In terms of labor demand, the fact that men went to war increased the demand for labor and wages in the economy, which encouraged women to enter the labor market (Özer & Biçerli, 2003-2004: 58). The increase in female employment in response to decreased male employment during World War II increased the economic activity of women. Although, with the demobilization of post-war men, some women returned to traditional housework, a good part of the women continued to work.

Claudia D. Goldin researched the U.S.A labor force, found that more than half of the working women in 1950 entered the labor market in 1940. Goldin also found that 5.4-6.3% of the women who started to work in 1940s and returned home after the war ended came back to the labor market (Goldin, 1991: 740, 742, 745). In addition, Goldin and others argue that the massive military personnel mobilization during the war created vacuums in the male dominated work force, which were filled by women. While the long-term impact varied depending on women's socio-economic level, familial status,

and education, this experience of drastic mobilization changes may have had a hand in transforming the female labor supply into what is seen today (Goldin and Olivetti, 2013).

Studies examining the war period in the following years describe this increase in the participation rate of women - especially married women - as a revolution in the labor market. After this revolution, an increasing trend has been observed in the FLFPR worldwide and the FLFPR in almost every country is approaching the LFPR of men. Similar trends are observed in developing countries; however, FLFP rates in developing countries lag behind FLFPR observed in developed countries (Kılıç and Öztürk, 2014:110).

### **1.2.3. Globalization and FLFP**

The phenomenon of globalization affects the labor market in the whole world as also affects Turkey's labor structure. With the transition from industrial society to information society, countries have turned to produce technology intensive and high value added products. Therefore, the demand for qualified labor increases in this process. Although women's employment rates increase with globalization, the majority of these jobs are low-paid, lacking social security and legal protection.

Since the beginning of the 1970s, the productivity decrease in the Fordist system, the expansion of international trade due to globalization and the increase in the demand for the products that are more characteristic than the standard products have caused the system not to adapt to changing situations. In this period, the successful production of flexible production, especially in Japan, caused other countries to change their production systems (Özer & Biçerli, 2003-2004: 59). With the flexibility of production, it is seen that businesses are increasingly turning to part-time and temporary staff employment by reducing the number of full-time employees. This new system has provided an important opportunity especially for women who cannot participate in the labor markets due to their domestic responsibilities, and recently, the participation of

women in the labor force in developed countries has continued its increasing trend. With part-time employment, women had the opportunity to work in the market without giving up their responsibilities at home. Increasing international competition has brought costs to the forefront, making this practice important again and this has increased the participation of women in the labor force (Eraydın et al., 1999: 20). In this system, which provides advantages to both workers and employers from various angles, workers get rid of the obligation to work full-time daily or weekly (Darling, 1975: 73).

In Turkey, it's known that women's education and immigration status have been effective in participation in the labor force during the globalization process. As the women living in the city are more educated than the women in the rural areas, they are being preferred more in the labor market. So, women living in rural areas began immigrating to cities and getting education by globalization. Although labor supply of women increased day by day, the number of female labor force participation is still low comparing to male participation in labor market.

### **1.3. BASIC STATISTICAL CONCEPTS ON FLFP IN THE WORLD AND TURKEY**

Women, no matter where they are in the world, is less valued in labor market; while the economic contribution of men is seen more valuable and higher in income. According to 2018 TurkStat Statistics; in Turkey, the male population was 41 million 139 thousand 980 people, while the female population was 40 million 863 thousand 902 people. In other words; 50.2 percent of the population were men and 49.8 percent were women. While the population defined as labor force was 31 million 520 thousand people; 10 million 142 thousand of this number were women and 21 million 377 thousand were men. There are 8 million 787 thousand women and 19 million 379 thousand men in the employed population. When we evaluate these numbers proportionally, we see a huge inequality; because the employment rate in the total population over the age of 15 is 64.8% for men, this rate remains at 28.8% for women (Table 1). The rate of

participation in the workforce for men decreased by 0.2 points compared to the previous year to 71.5%, and for women, it increased by 1 point to 33.3%.

**Table 1: Population and Employment Statistics in Turkey**

	<b>Population (Billions)</b>	<b>Percentage (%)</b>	<b>Labor Force</b>	<b>Employed</b>	<b>Employment Rate (%)</b>
<b>Male</b>	41,139,980	50.2	21,377	19,379	64.8
<b>Female</b>	40,863,902	49.8	10,142	8,787	28.8
<b>Total</b>	82,003,882	100.00	31,519	28,166	

Source: TurkStat, 2018.

To explain the differences in female labor force participation, we need to consider a set of factors. These are non-economic factors such as political ideology of the government, differences in social structure of society, and religion, and economic determinants like relative demand for female workers, and differences in policies. Political ideology of government also plays a role, as seen in the high rates of female employment in Russia with 55% in 2019 (The World Bank Data, 2019).

**Figure 1: Female Labor Force Participation Rate According to Years in Turkey**

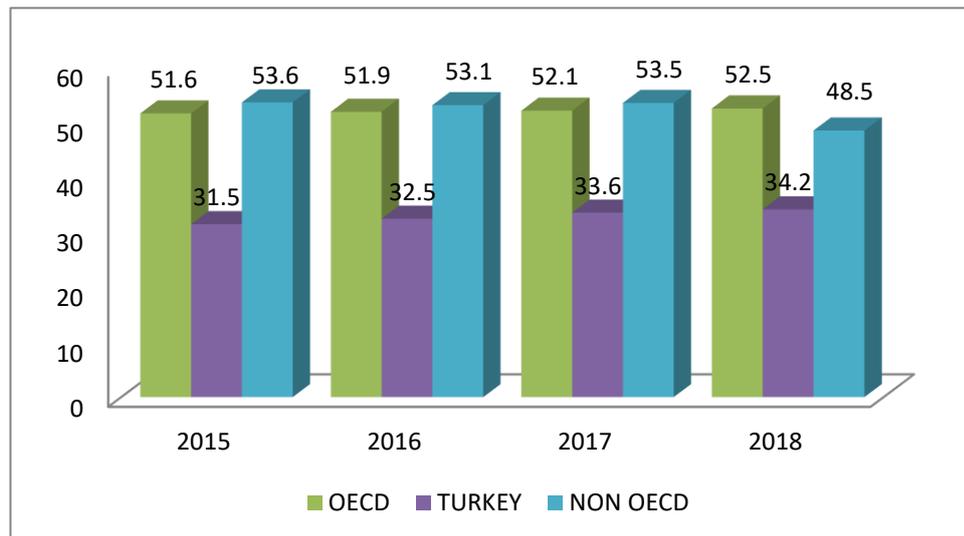


Source: International Labour Organization, ILOSTAT database, Data retrieved in February, 2020.

According to Figure 1, the FLFPR is increasing over the years in Turkey. However, the FLFPR in Turkey in 2018 is 34.2 which is under the OECD average that is 52.5. In 2019, the FLFPR is decreasing to 33.4 from 34.2. According to OECD Statistics, the FLFPR in Turkey from 2015 to 2018 are 31.5, 32.5, 33.6 and 34.2 respectively. There are some reasons why Turkey's FLFPR is under the OECD average.

Figure 2 shows the LFPR averages among women in the 15-64 age group in Turkey, OECD Countries and non OECD Countries.

**Figure 2: Comparing FLFPR in Turkey to OECD Average and non OECD Countries' Average**

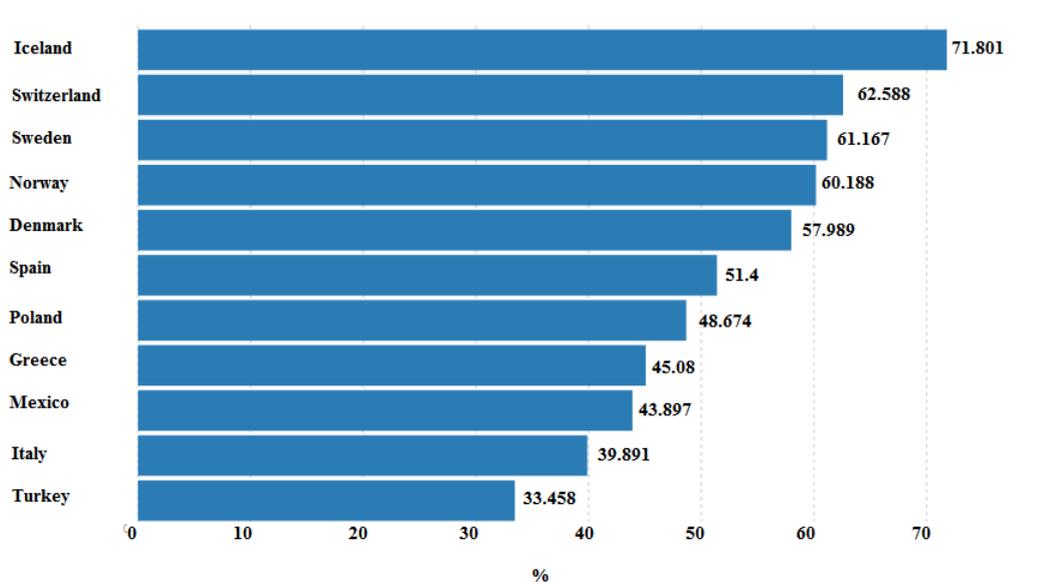


**Source:** OECD Statistics Labour Force Participation Rate, retrieved in February 2020.

It can be understood that Turkey from 2015 to 2018 achieved to increase FLFPR, by either some policies or not, in the country but it is still not enough to reach OECD average which is 52.5 in 2018. Turkey is also under the Non OECD countries' FLFPR average which is 48.5 in 2018. Women's labor force participation differs significantly between countries. Different FLFPRs between countries are not only attributed to employment opportunities and social development in the labor market. Indeed, in socially developed Scandinavian countries, FLFPR tends to exceed 75%. However, in Turkey, it is known that FLFPR is below OECD average. According to OECD report

published in 2006, less than 50% of women are in paid employment in Turkey, Mexico, Italy, Greece, Spain and Poland, while more than 70% are employed in Iceland, Norway, Denmark, Sweden and Switzerland.

**Figure 3: 2019 Female Labor Force Participation Rates of 11 OECD Countries**



**Source:** The World Bank, International Labour Organization, ILOSTAT database, retrieved in May, 2020.

As it can be seen on the Figure 3, the highest FLFPR among the 11 OECD countries belongs to Iceland with 71.801% and the lowest value is 33.458% in Turkey. The social structure may affect FLFPRs in a country. Scandinavian countries have different socio-economic features from Turkey. On the other hand, women's participation in the labor force has lower figures in more crowded societies such as India. However, in countries where women are more educated and employed, the birth rate is less likely to be higher. This situation highlights the impact of population on women's labor force participation. Also, according to World Bank Data, Islamic countries such as Yemen, Iraq, or Jordan has lowest FLFPRs in the world with 6%, 12% and 14% respectively in 2019. It may be inferred that religion affects the female's participation in labor market as well as social structure of society. According to Güler (1991), the economic life in the old Arab society is based on trade, animal husbandry and partly agriculture. This is the

workspace that required manpower under the conditions of that time. This situation made it obligatory for the man to work outside and women to stay home and busy with the housework. But production relations have changed, the field of work has shifted to jobs that no longer require power, technology has reduced domestic responsibilities. However, the idea that “still, in some circles, the 'working place of the woman is inside the house' is universalized by making a compulsory situation arising from a form of production. However, the age distribution of the population may differ and so does the age distribution in labor market. People in society aged 25 to 54 who regarded as ready for working need to be in the labor force. If there are more women in this age group in a country, this may cause to higher FLFPRs. Countries may have differences with respect to the age at which young people usually start to work instead attend to college. In addition, countries varies on number of older people exit the labor market, because of having retirement funds or familial support. Also, they might continue to work after retirement because they cannot receive enough retirement funds (e.g. Turkey) and this causes higher results in FLFPRs of countries.

#### **1.4. BARRIERS TO PARTICIPATION RATE OF FEMALE IN THE LABOR FORCE**

Although there are many factors that affect the participation of women in the labor force, they can be summarized as having low education level; and social factors such as gender inequality, marital status, and patriarchal structure in society.

Patriarchy is one of the social indicators that reduce the FLFPRs. Traditional values and patriarchal family structure prevent women from working and exclude her from working life. In rural areas where traditions and patriarchy is still heavily sustained, most of the female accept the social responsibility of child-care and housekeeping; so they are counted out from the civilian labor force and thus leads to low female participation rates. According to Zaheer and Qaiser (2016), however, in urban areas, the effect of customs on LFPR is decreased because of number of economic and demographic factors such as level of education and marital status of women.

Level of Education is an important factor that affects the FLFPR significantly. Women's education generally has a positive impact on labor market participation. When woman is more educated and talented, she tends to work more. It is an expected element to gain the knowledge and skills for women to participate in high status and high income professions in the labor market. When women reach education and training more, barriers to employment in primary and high-income occupations tend to disappear (Kıral & Karlılar, 2017: 273).

There is a strong link between women's marital status and decisions to join the workforce. Married women are more likely to have a low rate of participation especially in the presence of the small children (Zaheer & Qaiser, 2016: 20). Women who have children cannot participate in working life or it prevents women who want to work from looking for a job. Even if women do not have children, her husband may want her to stay at home and busy with house works. Regardless of being employed or not, cooking, child caring or tidying are seen as the women's primary responsibilities from traditional perspective. In this case, most of the married women prefer to be out of market (Sarsılmaz, 2018: 17).

According to TurkStat data, the female population that was not included in the workforce in 2018 is approximately 16 million 484 thousand and the male population is 5 million 769 thousand. The reasons for not participating in the workforce include housework, retirement, being disabled, and not looking for a job. While the majority of women who did not participate in the workforce stated that they were unable to participate in the workforce because they were "busy with housework", the reason for not being able to participate in the most common workforce for men was "retirement".

**Table 2: Reasons Why Women Do Not Participate in the Workforce**

<b>Reasons</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>No Hope to Find Job</b>	258	251	266	234
<b>Jobless and Ready to Work / Other</b>	1,112	1,150	1,058	1,074
<b>Working Seasonally</b>	59	57	51	81
<b>Busy With Housework</b>	10,285	9909	9917	9,794
<b>Continues Education and Training</b>	2,275	2,320	2,263	2,324
<b>Retired</b>	627	627	678	714
<b>Disabled, Elderly Or Patient</b>	765	807	757	763
<b>Family And Personal Reasons</b>	1,267	1,421	1,455	1,439
<b>Other</b>	70	62	67	60

**Source:** TurkStat, 2018, retrieved in February 2020.

According to Table 1, mostly, women are not participating in the labor force because they are busy with housework. This rate gradually decreased from 10,285 in 2015 and became 9,794 in 2018. According to these statistics, some of the women are obliged to stay at home due to the gender-defined duties in the society. Second reason for women who are not participating in the workforce after engaging in house works is continuing education and training, followed by family and personal reasons.

## **CHAPTER 2: INFORMAL ECONOMY AND INFORMAL EMPLOYMENT OF WOMEN**

### **2.1. DEFINITION OF INFORMAL ECONOMY AND EMPLOYMENT OF WOMEN**

The informal economy, defined by the International Labour Office (ILO) as "informal sector", refers to an economic structure that is not officially recognized, does not include government control, is not taxed or included in the social security. In the following years, the ILO has defined this definition as activities carried out by extending it from taxation and legal regulations. According to Fidan and Genç (2013), informal economy and informal employment in Turkey have an upward trend after the 1980s (Fidan & Genç, 2013: 139). Unregistered employment has many definitions in the literature. Social Security Institution defines unregistered employment as "the under-reporting or not reporting to the relevant institutions and organizations in terms of day or wage of the labor exerted by individuals participating in employment (SGK, 2013). OECD, on the other hand, called unregistered employment as undeclared confidential work and defined this informal study as "one or more legal obligations related to working in the production of products are not fulfilled (Çelik & Güney, 2017:215). According to Ilgın (1995), informal or unregistered employment is the type of employment in which employees do not have adequate working standards; employers do not comply with minimum age limit, minimum wage right, overtime pay and workplace standards; and do not pay social security and tax.

According to WIEGO (Women in Informal Employment, Globalizing and Organizing), in developing countries more women are employed in the informal economy than the formal economy. Many women in the informal economy are part of global value chains who work from their homes – home-based workers (Bertulfo, 2011). In Thailand, an estimated 38 per cent of clothing industry workers are homeworkers; in Chile, an estimated 60 per cent of all women's and children's clothing is produced by

homeworkers; and in the Australian garment industry, at one time there were an estimated 15 homeworkers for every factory worker (McCormick & Schmitz, 2001).

## **2.2. CONDITIONS OF WOMEN IN INFORMAL ECONOMY**

Particularly in households with low educational levels and gender roles, women's participation in employment occurs in “informal ways” when the men's income is insufficient or the male becomes unemployed. In other words, the female workforce is used as an “additional workforce” (Erikli, 2017). In a study conducted in Eskişehir in 2010, women revealed the reasons for entering the labor market and pointed out poverty as the reason for their participation in informal employment. The women in question stated that they felt lucky because they were in employment, even if they were informal, and they did extra work with the “fear of losing their jobs”. Poverty and unemployment are the reasons why women work in informal jobs. (Suğur et al., 2010).

Women working in informal sectors are faced with inadequate and inconsistent wages and with high risks of poverty. Outside of agriculture, women are more likely than men to be own account workers, domestic workers, unpaid contributing workers in family enterprises and industrial outworkers or homeworkers (Bertulfo, 2011: 5). Also, an important part of women as unpaid workers are working in the agricultural sector. Women spend so much hours in unpaid house works. This causes to labor segmentation that women have to work in home-based employment, and mostly, they get less wages than men's. Although they get low earnings and face with various risks- not only physical health but also safety issues in informal economy, in developed and developing countries, their work can help keep a family out of poverty. If accessing formal child care has high costs to family in a country, women are more likely to work in informal sectors. Therefore, they can take care of children while doing their work. It is also possible that they bring their children to their work places and children might be exposed to the same work hazards mothers' face. In countries where formal child care services and standards are higher and more qualified, the number of women employed in informal sectors might tend to be lower. In additions, there are some sectors such as

agriculture and home-based works that have more women workers who don't have any health insurance and if they work in hazardous conditions due to poorly functioning equipment, they might face with specific illnesses because of unsecured working for long hours.

Women generally prefer jobs that do not have economic value but contribute to household income, such as child and elderly care, household chores or free employment in a free family business. The highest in the world in these sectors which are closely related gender roles in Turkey and is indicated as seen in Mexico (Antonopolous, 2009). According to UN Women, Informal women workers can work as street vendors, petty goods and service traders, subsistence farmers, seasonal workers, domestic workers and industrial outworkers. In medium and small businesses, women have started to work in informal jobs in the agricultural sector to prevent poverty. These women, who work in low wage and precarious jobs as seasonal and daily agricultural workers, have a high share in the rural economy. In addition, women from the lower class are employed as sub-contractors, not as paid agricultural workers, in large-scale enterprises that want to reduce the cost of production in recent years (Şahinli and Şahbaz, 2013). As part of the rural impoverishment process, especially women living in landless or collective households have to accept working in low-paid temporary jobs in the agricultural sector as a result of their family income at risk. Large landowners who want to reduce production costs also employ poor women as subcontractors in low-wage and insecure jobs (Mert and Sefer, 2019).

Working in this informal sectors mostly causes women to have no protection of labor laws, social benefits such as pension, health insurance or paid sick leave. They routinely work for lower wages and in unsafe conditions, including risk of sexual harassment. The lack of social protections has long-term impact on women. For example, fewer women receive pensions globally, and as a result, more elderly women are now living in poverty. Even in developed economies, such as in France, Germany, Greece and Italy, women's average pension is more than 30 per cent lower than men's (UN Women, 2015:147).

## 2.3. DETERMINANTS OF INFORMAL EMPLOYMENT OF WOMEN

### 2.3.1. Informal Employment of Women by Education Level

One of the most important factors is education level of women. While university or higher educated women are less willing to work informally, the low-educated ones tend to work more in informal sectors. There are several reasons why education level affects the participation of women in informal employment. Low-educated women work informally due to underemployment of male in the family and repulsive economic factors such as family income and social status, while highly educated women work informally due to unemployment. Participation of women in employment, especially in households with low levels of education, takes place in “informal ways” when the income of the male is insufficient or the male is unemployed. It is observed that the rate of illiterate women joining the workforce has decreased nowadays. Nevertheless, it is seen that the rate of participation of women who have received primary and secondary education in the labor force has fluctuated in the 2000s, but this rate has increased. The fact that women who have received university education have a much higher labor force participation rate than women who do not have university education. As it can be understood from here, it is seen that the majority of women participating in the workforce are women with university education or higher education (Yılmaz and Zoğal, 2015).

**Table 3: Education Levels and Number of Women Working Informal Sector in Turkey (Thousand)**

<b>Education/Year</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>No Education</b>	9,933	6,361	6,098	7,912
<b>Primary Education</b>	14,164	10,089	10,091	12,478
<b>Secondary Education</b>	4,038	2,913	2,884	3,729
<b>University</b>	542	429	543	827
<b>Master/PhD</b>	22	18	24	36
<b>High School</b>	1,076	821	827	1,135

Source: TurkStat HLFS

### 2.3.2. Informal Employment of Women by Regions of Turkey

Region is also concerned as noteworthy since residents may be employed accordance with their location either urban areas or villages. According to ILO Statistics (2018) at the global level, persons living in rural areas are twice as likely to be in informal employment as those in urban areas. Sector and occupation may be other determinants of informal employment of women. Holding other factors constant, skilled agricultural and fishery workers are more likely to be employed in informal secondary jobs and as self-employed. The industry and service sectors has less informal women workers, especially in the Arab States and Asia and the Pacific Areas. However, in developing countries, since there are higher rates of unemployment comparing to developed countries, a high level of informality is observed in all sectors.

**Table 4: Regions and Number of Women Working Informally by Regions (Thousand)**

<b>Region/Year</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Istanbul</b>	992	740	858	1,206
<b>Western Marmara</b>	1,997	1,506	1,500	1,955
<b>Aegean</b>	3,813	2,777	2,556	3,301
<b>Eastern Marmara</b>	1,669	946	1,094	1,541
<b>Western Anatolia</b>	2,565	1,718	1,922	2,492
<b>Mediterranean</b>	3,005	2,278	2,147	3,047
<b>Central Anatolian</b>	2,209	1,558	1,379	1,717
<b>Western Black Sea</b>	4,147	3,119	3,057	3,734
<b>Eastern Black Sea</b>	2,506	1,916	1,784	2,298
<b>Northeast Anatolian</b>	3,293	1,937	1,735	2,206
<b>Middle East Anatolian</b>	2,680	1,545	1,777	1,957
<b>Southeastern Anatolian</b>	1,735	1,206	1,383	1,704

Source: TurkStat HLFS

When unregistered employment is analyzed by region, the unregistered employment rate of the western regions of the country such as the Aegean Region is expected to be lower compared to other regions such as Southeastern Anatolia.

### 2.3.3. Informal Employment of Women by Marital Status

The marital status is categorized into four groups as never married, married, widow/widower and separated/divorced. While never married is taken as reference group, married and widow/ widower have less likely to participate in the informal economy. It may be assumed that marriage is still one of the barriers for women in labor force participation. Also, age is affects informal employment of women directly. If an individual is higher age, the probability to work in informal sector is higher. Comparing to young working age group, older women are more likely to involve in informal jobs. There might be fewer job opportunities for young workers to work first formally. But, there are lots of cases suggesting that young age group works informally more. The rate of women's participation in the workforce, which varies according to the educational status of women, differs according to age. FLFPRs are represented in table 3 according to age and years in level of Turkey.

**Table 5: Age and Number of Women Working Informally in Turkey by Age Groups (Thousand)**

<b>Age Group/Year</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>15-19</b>	2,369	1,626	1,468	1,689
<b>20-24</b>	2,088	1,264	1,218	1,605
<b>25-29</b>	1,991	1,416	1,470	1,985
<b>30-34</b>	1,900	1,125	1,294	1,499
<b>35-39</b>	2,795	1,801	1,750	2,129
<b>40-44</b>	3,405	2,440	2,435	3,034
<b>45-49</b>	4,079	2,756	2,703	3,355
<b>50-54</b>	3,616	2,,531	2,596	3,508
<b>55-59</b>	3,653	2,614	2,593	3,421
<b>60-64</b>	2,790	2,034	2,020	2,822
<b>65+</b>	1,925	1,539	1,45	2,111

**Source:** TurkStat HLFS

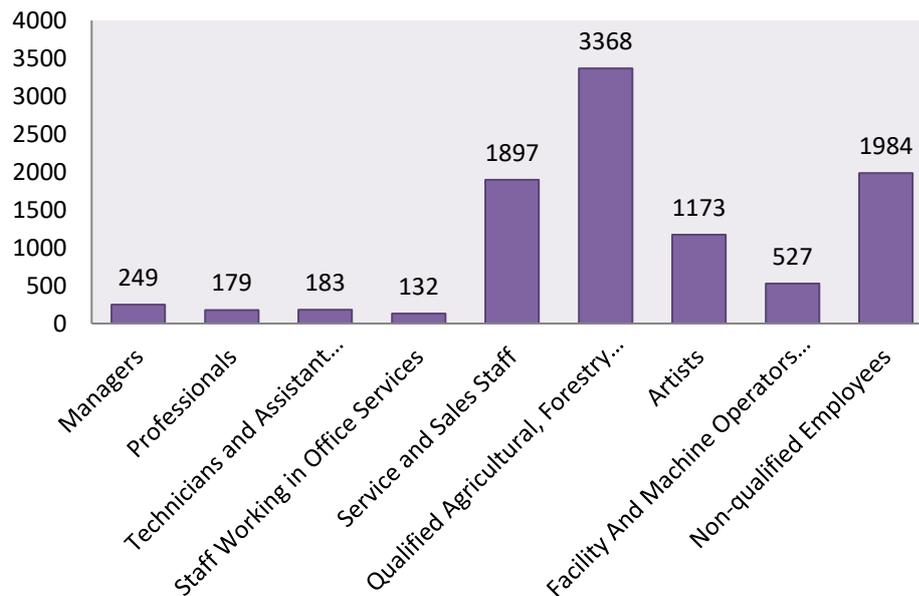
It is possible to see that most increasing values are between 35-49 age group. It is observed that the number of women working informal jobs in the workforce has decreased from 2015 to 2018. It means that if age of woman increases, woman more

likely to work informally comparing to its younger fellows. Also, minimum values of informal working women are in 30-34 age group. Mostly, women in this age group are married or mother. So, they might be busy with housework or child care.

## 2.4. COUNTRY STATISTICS ON INFORMAL EMPLOYMENT OF WOMEN

According to Turkstat data, in Turkey, although between 2014 and 2016 the number of informal employment of women has begun to decrease, in 2017 it reached the peak which is 3.889.000. In next years, it continued to fall as it was before 2017.

**Figure 4: The Number of Women in Informal Employment According to Sectors in 2019 in Turkey**



**Source:** Turkstat, 2019 Labor Force Statistics, retrieved in May 2020.

As it can be seen on Figure 4, the highest number of women work informally in agricultural sectors by 3.368.000. However, it's surprising that there are few women working as managers or professionals in informal sectors. If they are employed as managers or professionals, it's unexpected that they work informally while they might

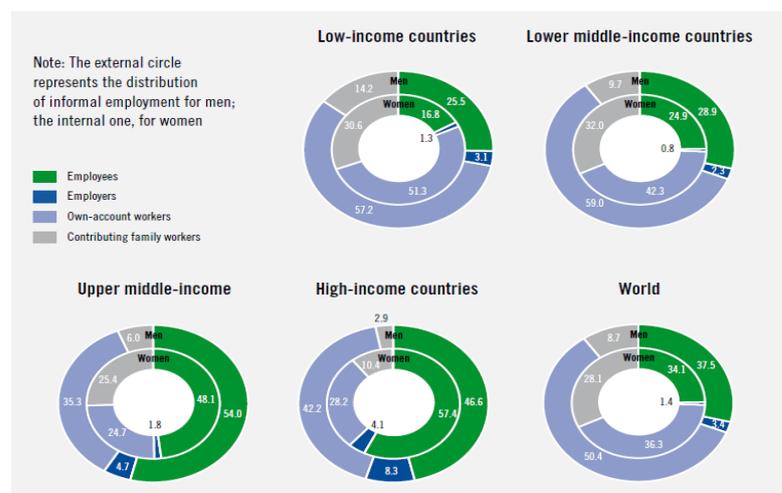
have higher level of education than those who works as non-qualified employees. In most of the countries, women are the majority of home-based workers. In Germany, Greece, Ireland, Italy, the UK, and the Netherlands, 95 per cent of known homeworkers are women; in France, 84 per cent; in Spain, 75 per cent while in many developing countries such as Pakistan, India, Philippines and Indonesia, it's estimated that women make up the majority of home-based workers. Homeworkers are the most vulnerable and poorest among home-based informal workers, according to Bertulfo (2011). The statistics of informal employment differs in various countries in world.

**Table 6: Statistics on Regions' Informal Employment Rates**

Region	Informal Employment (%)
Africa	85.8
Asia and Pacific	68.2
Arab States	68.6
The Americas	40.0
Europe and Central Asia	25.1

Source: ILO, 2018

**Figure 5: Distribution of the Employed Population in Informal Employment by Categories of Employment Status and Sex (percentages, 2016)**

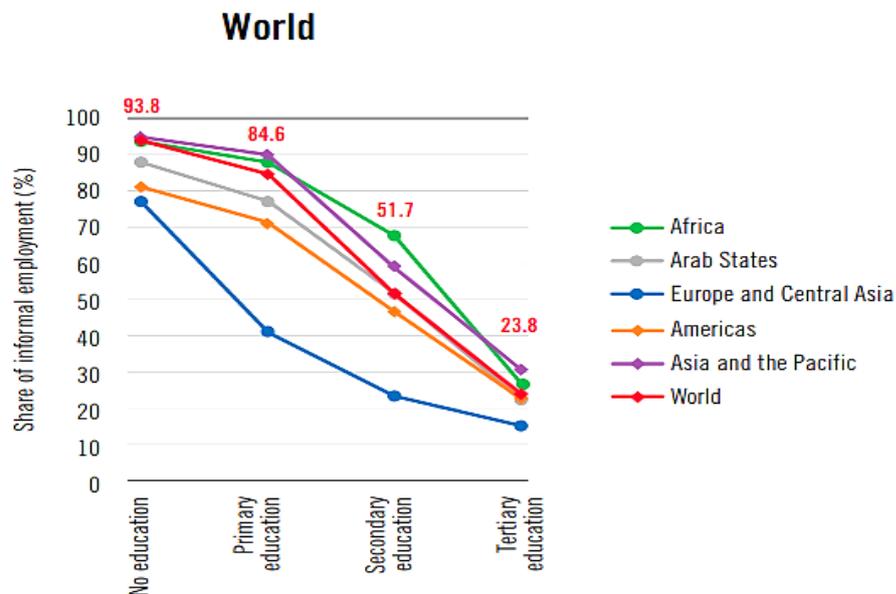


Source: ILO, Women and men in the informal economy: A statistical picture, 2018, p.22

In figure 5, own-account workers is the largest group of workers in informal employment and in both low and lower-middle income countries. 36.3 per cent of women are own account workers. The situation changes when coming to higher income countries where employees account for the largest part of informal employment, particularly women. In high-income countries, most of women working informally are employees with 57.4 per cent. 35.7 per cent of women employees in informal employment work on a part-time basis and more than a quarter are in temporary employment (ILO Statistics, 2018). The conclusion is that a lower share of women in informal works are employees and own-account workers except high- income countries.

Furthermore, in low and lower-middle income countries, women are in informal employment than men at a higher rate. According to ILO Statistics (2018), in low-income countries, 92.1 per cent of employed women are in informal employment an in lower-middle countries, 84.5 per cent of women are in informal employment.

**Figure 6: Share of informal employment in total employment by level of education (percentages, 2016)**

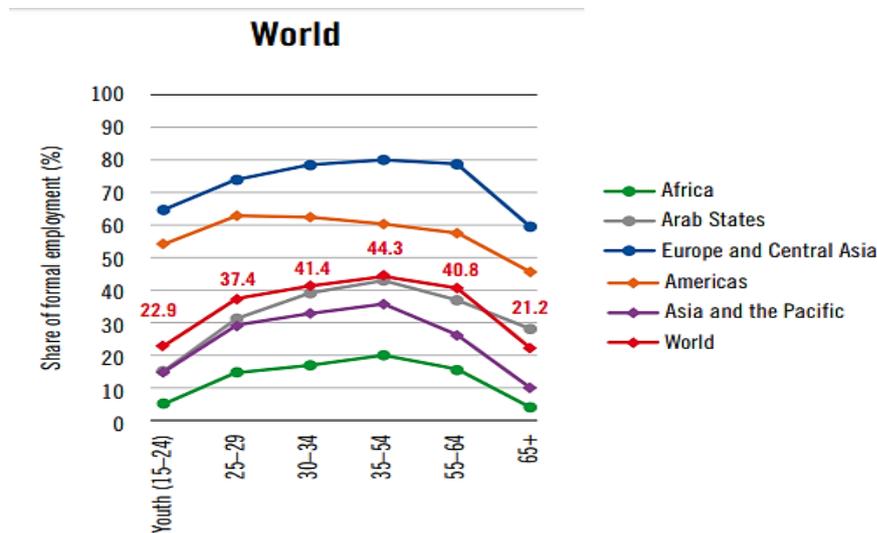


**Source:** ILO, Women and men in the informal economy: A statistical picture, 2018, p.20

Figure manifest the global effect of education on informal employment. If the level of education that person obtain increases, the possibility of working as informal worker decreases. Those who have completed secondary education are less likely to be in informal employment compared to workers who have either no education or completed primary education. If this claim is investigated at the global and regional level, it may be understand that developing and developed countries share similar patterns.

Age is another concern for informal workers. Both young people and older persons are exposed to higher level of informality. According to ILO Statistics (2018), globally, every three young person out of four (77.1 per cent) and older persons (77.9 per cent) are working as informal employee. In developing countries, informal employment is at higher rate for young people. Comparing the both age groups, the informal employment of older persons is more likely to be higher than that of young people (Figure 7).

**Figure 7: Share of formal employment in total employment by age (percentages, 2016)**



**Source:** ILO, Women and men in the informal economy: A statistical picture, 2018, p.19

## **2.5. OVERVIEW OF ILO'S WORK ON GENDER AND INFORMAL ECONOMY**

This part compares methodological frameworks in various studies of ILO on women, gender and the informal economy, especially, investigates directions for future research; and key findings that may assist in order to take action and suggesting policy directions. Employment in the economy, according to ILO (2002), is an “informal-formal” continuum in which formality lead to more effective regulations and greater access to social rights and protection. The ILO’s main objective is to shift greater numbers of workers towards the formal from informal employments. From a gender perspective, the current problem is to develop and carry out policy and practical laws which “combine employment creation and social protection and rights in every working area” while providing gender equality and enable employment for workers in as many sectors as possible. In 2007, there are 31 researches focusing specifically on gender problems in the informal employment conducted by the ILO’s Bureau for Gender Equality, with the Programme for the Promotion of the Declaration, and the Policy Integration Department. Studies are adding an analytical perspective to official statistics and are helping to show tendencies in the labor market (for example the relationship between formal and informal employment, conditions of genders in informal economy, the problems faced by employers creating “long-term works”). Also, according to Chant and Pedwell (2008), these studies investigate intersections of these phenomena with demographic and social change, and with processes of national development, regional integration and globalization. There are lots of discussion papers and debate documents in the ILO literature that draws great interest to the variety of the informal economy, especially women’s generally disadvantaged conditions within informal employment. These discussions emphasizes the type of informal employments of women, (home-based service, self-employed, own-account work, and unpaid work within small businesses, family works or home etc.). Some of the topics covered by ILO researches related with gender and informality are gender and employment legislation; regulatory environment, labor standards and rights; employment adjustment; and unpaid work and access to paid work. Through this analysis, the ILO gained notable improvement in

assessing gender, work and the informal economy in relation to major national and international policy implements such as poverty reduction strategies and the MDGs (Chant & Pedwell, 2008: 6). It need be known, however, that while Most of ILO studies manifest gender and informality with respect to macroeconomic indicators; employment, entrepreneurship and market access, there is not adequate research analyzing specially with the social protection of women in the informal economy. In addition, analysis do not include some key geographical countries such as Africa. There are studies that refer to problems faced by women in employment and poverty in this area but few explains issues associated with skills and training.

## **CHAPTER 3: EMPIRICAL ANALYSIS**

### **3.1. LITERATURE REVIEW**

Studies on unemployment and informal employment or economic growth and informal employment are frequently encountered in the economic literature. However, it is rare to find studies examining the informal employment of women and the factors affecting this. In this study, factors affecting the informal working women in Turkey are investigated. When the studies conducted in the literature about informal employment are examined, it is seen that researches are divided into two as descriptive studies and empirical studies. In the descriptive studies, the definition of informal economy and employment of women and various policy recommendations and solutions related with the informality problem are discussed. On the other hand, in the empirical studies, the determinants of the informal employment is tried to be found with the micro level data.

Chen (2001), in her descriptive study named “Women in the Informal Sector: A Global Picture, The Global Movement” discusses the relationship between gender, informality, poverty, and growth; and describes the global situation of women in the informal sectors. She also emphasizes the significant overlap between being a woman, working in the informal sector, and being poor for Africa, Asia and Latin America.

In one of the descriptive studies named “Women and the Informal Economy”, Bertulfo (2011) is addressing the conditions of female informal workers contributes to poverty reduction because it means improving the women life so that less women would work as informal employee. When working conditions of female, who is working in informal sector globally, improve, their productivity also improves, which leads to higher level of income nationally, contributes to overall economic growth in a country, and decreases poverty in the long term. Gender inequity in the informal economy will have to be taken into account in development planning. Such action will contribute to aid effectiveness.

Sharkey (1998) researches women's labor in changing global conditions, by focusing on global economies especially West Asia countries: Turkey, Jordan, Syria, and Iran; and North Africa region: Morocco, Tunisia, Egypt, and Algeria. A basic premise of this field is that women in all societies face fundamental disadvantages, and that gender issues are central to economic and social development worldwide.

Chant and Pedwell (2008) argued methodological and analytical frameworks used in various studies, identifies research gaps and proposes directions for future work. They identified the challenge of developing and implementing research, policy and practical initiatives which combine employment creation, social protection, rights at work and representation in ways that ensure gender equality and helps empowerment of workers in the informal sectors.

Erikli (2015) draw attention in her research that due to drop in labor cost, wage etc. for competitive advantage, most women labor had been influenced so that both gender and low education level lead to increase in women workers in informal economy. She says that neoliberal economy and globalization, cause increase informal employment which transforms women in informal employment into “working poverty.” Erikli argues that there is increase in the number of unpaid family worker and self-employed group of women. She refers that the control and punishment method in dealing with unregistered employment seems to be far from problem solving alone. Instead of this method, “transition from informal employment to formal employment” policies targeting should be brought to the fore especially for informal women workers.

Radchenko (2014) discussed the selection mechanisms nested in the model with essential heterogeneity in the context of informal employment and proposes a broader range of scenarios describing different behavioral patterns which informal workers follow and that are compatible with different kinds of empirical schemes investigated by the model with heterogeneity. Radchenko studied on lower-middle-income countries such as Egypt and an upper-middle-income economy like South Africa and a low-income economy such as Uganda. In addition, it focuses on the distribution of exclusion

variables required to identify the determinants. The different economies show varying patterns of allocation of workers between formal and informal employment.

Tasnim Khan and Rana Ejaz Ali Khan (2006) estimate the determinants of contribution of urban informal sector women in Pakistan that stand for their struggle for family survival, by using the primary data. At the end of the research, the policy proposals are introduced. Also, Charmes (2000) have analyzed the contribution of informal sector and of the women involved in informal sector to GDP in African countries. The study concluded that most countries faces with that the share in informal sector employment is much higher than their share of women in informal sector GDP.

Fidan and Genc (2013) suggested that an accurate analysis of the factors that trigger informal employment will increase the chances of success in combating this problem. They carried out to investigate the factors affecting informal employment and to propose solutions to these problems by using certain variables in HLFS. They found that those who were most likely to explain the risk of informal work were the number of other employees, the sector in which they operate, the salary and age factors.

Ozturk and Basar (2018) aimed to identify the position and preferences of women in informal sector in Turkey in their empirical study. For this purpose, they used 2015 Household Budget Surveys retrieved from TurkStat. They concluded that household and individual socio-economic factors affect woman's preferences on employment and informal employment.

Şahinli and Şahbaz (2013) focused on the number of women working in the agricultural sector. They complain about that women are usually not paid any wages for working in family farms due to these activities are accepted as a part of women's responsibilities. In their study, they use the data of period between 2004 and 2011 using the Household Labour Force Survey. Women's employment at agriculture sector is categorized based on being registered or unregistered status of the social security institutions according to regions of Turkey.

Akgül (2018) made a research for 3rd International Congress on Social Sciences - Humanities and Education. In his study, whether the gender pay gap varies between the formal and informal employment types, were analyzed using Household Labor Force Surveys for the time period between 2004 and 2017. For this analysis, 4 separate wage regressions (based on the two-stage Heckman selection model) designed for formal and informal male and female workers were tested on the datasets. Thus, the question of the explanatory variables are affected by the differences between male and female employees whether employment is registered or not is answered. According to the results, the effect of education on wages has statistically significant differences in terms of both formal and informal employment of the employee and gender. It was also determined that the rate of unregistered employment decreased, and that the rate of unregistered employment in women was higher than that of men.

Chen, Vanek and Carr (2004) published a handbook for policymakers to suggest various policy implements related with informal employment, gender and poverty. In their research, they focuses on the relationship between informally working, being a woman and being poor. They present a strategic implications for how best to provide decent work for working poor women to minimize the disadvantaged conditions they face and maximize the wages. They promote strategic policy approaches to the gender differentiations of the informal economy and premised on policies have various effects on the both formal and informal employment and on women and men within the informal economy.

Finally, as it can be seen here, there are not many studies empirically investigating the factors affecting women's informal employment in Turkey. At the end of the research, the findings obtained from the MLR analysis are expected to be significant and have some differences from other researches' findings. In model, there are ten independent variables to show decision of women to work informally and three sub-categorized dependent variable to present factors, effectively.

### 3.2. DATA AND METHODOLOGY

In Turkey, detailed information about the factors affecting women's informal employment is superficial. It is of great importance to know the effect of the factors in the resolution of this problem that should be prevented. In order to achieve this, all elements from model selection to the fit of the model must be taken into consideration.

The purpose of this study is to build a logistic regression model to estimate the probabilities of informal employment of women by determining the micro factors that affect women working informally in Turkey. The contribution of factors to informality through the model will be discussed. In this context, both public and private sector employees will be included in this study.

In the study, HLFS data sets between the years 2015 and 2018 taken from the Turkey Statistical Institute were used. The variables included in the survey are gender, number of households, regions of Turkey (NUTS1)<sup>1</sup>, education level, age, marital status, manner of work, number of employee, status of work and continuity of work as independent variables, and the multinomial logistic regression model has been used because the dependency status, which is the dependent variable, is a three-level categorical variable as registered, unregistered, and non-employed persons (Table 2). The manner of work indicates that the employee is working part-time or full-time. Number of employee in firm is subcategorized into small firm (with 10 or less employee), medium firm (with 11-49 employee) and big firm (with 50 or more employee). Status of work implies that the employee is working in public sector or private sector. Continuity of work is divided into 2 subcategories as permanent or temporary working. The reason for choosing the multinomial logistic regression model is that it does not require much assumptions even when the variables are categorical. While analysis process, STATA program is used. Also, number of observations are between 274.935 and 389.036 for 4 years. The variable related to the educational status

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<sup>1</sup> In the survey, the Nomenclature of Territorial Units for Statistics (NUTS 1) consists of 12 regions.

of the individual was created by using the answer to the question “the last school you graduated from” in the HLFS. Answers to the question; did not finish a school, primary school, general secondary school, vocational or technical secondary school, primary school, general high school, vocational or technical high school, 2 or 3 year college, 4 year college or faculty, 5 or 6 year faculty, master and PhD. These answers were combined and used as outlined in Table 2.

**Table 7: Independent Variables and Their Explanations**

<b>Variable Name</b>	<b>Explanation</b>
<b>Age<sup>2</sup></b>	
<b>Gender</b>	1: Male 2:Female
<b>Number of Households</b>	1: Alone (Base) 2: Couple 3: Nuclear Family 4: Big Family
<b>Regions (NUTS 1)</b>	1: İstanbul (Base) 2: Western Marmara, 3: Aegean, 4: Eastern Marmara, 5: Western Anatolian, 6: Mediterranean, 7: Central Anatolian, 8: Western Black Sea, 9: Eastern Black Sea, 10: Northeast Anatolian, 11: Middle East Anatolian, 12: Southeastern Anatolian
<b>Education Level</b>	0: No Education, 1: Primary education, 2: Secondary education, 3: University, 4: Master or PhD
<b>Marital Status</b>	1: Single (Base), 2: Married, 3: Widowed
<b>Manner of Work</b>	1: Part-time 2: Full-time
<b>Number of Employee</b>	1: 0-10 Employees (Base), 2: 11-49 Employees, 3: 50 and more employees

<sup>2</sup> Age had by the individual is available in the questionnaire as numeric values.

<b>Status of Work</b>	1: Public Sector 2: Private Sector
<b>Continuity of Work</b>	1: Permanent 2: Temporary

Within the scope of the research, data on individuals over 15 years old were used. Tables below summarize the descriptive statistics of independent variables.

**Table 8: Descriptive Statistics of Women Age**

<b>Year</b>	<b>Obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
<b>2015</b>	200,731	42.97829	18.39299	15	110
<b>2016</b>	274,933	42.82977	18.1416	15	111
<b>2017</b>	276,715	43.14014	18.20874	15	116
<b>2018</b>	374,172	43.26488	18.16687	15	117

**Table 9: Summary of Education Level of Individuals**

<b>Education</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
<b>0</b>	225,523	17.15	17.15
<b>1</b>	437,608	33.28	50.43
<b>2</b>	260,971	19.85	70.28
<b>3</b>	220007	16.73	87.01
<b>4</b>	155,901	11.86	98.87
<b>5</b>	14,845	1.13	100
<b>Total</b>	1,314,855	100	

**Table 10: Summary of Genders of Individuals**

<b>Gender</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
<b>1</b>	635,498	48.33	48.33
<b>2</b>	679,357	51.67	100.00
<b>Total</b>	1,314,855	100.00	

Table 11: Summary of Number of Households

<b>Gender</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
<b>1</b>	635,498	48.33	48.33

Table12: Summary of Regions (NUTS1)

<b>Region</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
<b>1</b>	117,85	8,96	8,96
<b>2</b>	93,82	7,14	16,10
<b>3</b>	160,27	12,19	28,29
<b>4</b>	107,60	8,18	36,47
<b>5</b>	147,09	11,19	47,66
<b>6</b>	147,16	11,19	58,85
<b>7</b>	86,56	6,58	65,43
<b>8</b>	117,67	8,95	74,38
<b>9</b>	60,01	4,56	78,95
<b>10</b>	72,19	5,49	84,44
<b>11</b>	86,07	6,55	90,98
<b>12</b>	118,56	9,02	100,00
<b>Total</b>	1,314,857	100,00	

Table 13: Summary of Marital Status of Individuals

<b>Marital Status</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
<b>1</b>	313,995	23.88	23.88
<b>2</b>	880,487	66.96	90.85
<b>3</b>	31,371	2.39	93.23
<b>4</b>	89,002	6.37	100.00
<b>Total</b>	1,314,855	100.00	

Table 14: Descriptive Statistics of Manner of Work

<b>Manner of Work</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
<b>1</b>	516,44	86.94	86.94
<b>2</b>	77,562	13.06	100.00
<b>Total</b>	594	100.00	

Table 15: Summary of Number of Employee

<b>Number of Employee</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
<b>1</b>	358,64	60.38	60.38
<b>2</b>	99,882	22.81	83.19
<b>3</b>	135,48	16.81	100.00
<b>Total</b>	594	100.00	

Table 16: Descriptive Statistics of Continuity of Work

<b>Continuity of Work</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
<b>1</b>	308,44	85.16	85.16
<b>2</b>	53,748	14.84	100.00
<b>Total</b>	362,19	100.00	

Table 17: Descriptive Statistics of Status of Work

<b>Status of Work</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
<b>1</b>	509,26	84.16	84.16
<b>2</b>	84,74	14.27	100.00
<b>Total</b>	594	100.00	

The main purpose of Logistic Regression (LR) analysis is to model the relationship between dependent and independent variables as in other regression analyzes. However, in linear regression analysis, while the dependent variable is continuous, the dependent variable in MLR is categorical. In addition, all of the independent variables can be categorical or continuous, but they can also consist of a mixture of categorical and continuous variables (Hosmer & Lemeshow, 2000:1). Multinomial LR is used in the analysis if there is more than one independent variable and dependent variable divided into more than one category. In the MLR analysis, a mathematical equation is established that defines the relationship between these variables by defining dependent variables as 1, 2 or 3 and independent variables as  $X_1 X_2 X_3 X_4 \dots X_p$ .

### 3.3. RESULTS

In 2015, only 15,25% of total women works as registered workers. The number of unregistered workers are higher than those who are registered workers (Table 13).

**Table 18: Descriptive Statistics of Dependent Variable According to Years**

<b>Year</b>	<b>Dependent</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
<b>2015</b>	Registered (1)	24.875	12,39	12,39
	Unregistered (2)	30.611	15,25	27,64
	Not Employed (3)	145.245	72,36	100
<b>2016</b>	Registered (1)	75.080	27,31	27,31
	Unregistered (2)	49.343	17,95	45,26
	Not Employed (3)	150.510	54,74	100
<b>2017</b>	Registered (1)	75.374	27,24	27,24
	Unregistered (2)	49.510	17,89	45,13
	Not Employed (3)	151.831	54,57	100
<b>2018</b>	Registered (1)	105.209	28,12	28,12
	Unregistered (2)	65.031	17,38	45,5
	Not Employed (3)	203.932	54,5	100

Also, surprisingly, the number of women who is unemployed or not included in labor force has the highest proportion among them. When we look at the 2016, both the number of registered and unregistered women workers has risen while the proportion of

non-employed women decreased from 72,36 to 54,74%. In 2017 and 2018, more women workers had been employed informally than previous years (Figure 8).

**Figure 8: Changes in Employment of Women between 2015 and 2018**



Source: TurkStat HLFS, 2019

Between 2015 and 2018, both registered and unregistered employment of women increased similarly. Although in 2015, unregistered employment of women is lower than the number of registered workers, in 2018, registered employment has increased as expected. However, number of women who are not working is higher than others. It's the result of barriers, which are discussed in previous chapters, women faced while entering the labor market.

All independent variables summarized in the data and method section are used in the model. Multinomial logistic prediction results and marginal effects for the model in question are presented in Table 14, 15, 16 and 17 for each years.

Table 19: MLR Results for 2015

Multinomial logistic regression	Number of obs.	= 200,731
	LR chi2 (52)	= 188867.54
	Prob.> chi2	= 0.0000

Log likelihood = -62068.125

Dependent	Variables	Coefficients	RRR
Unregistered (2)	Age	0,0053231*** (0,0014449)	1,005337*** (0,0014526)
	Couple	0,1064297 (0,1279486)	1,1123 (0,1423172)
	Nuclear Family	0,0786362 (0,1260593)	1,081811 (0,1363723)
	Big Family	0,5516003*** (0,1284048)	1,73603*** (0,2229145)
	Western Marmara	0,5322682*** (0,0717276)	1,70279*** (0,1221371)
	Aegean	0,5635794*** (0,0626675)	1,75695*** (0,110104)
	Eastern Marmara	0,3597994*** (0,0697829)	1,433042*** (0,100002)
	Western Anatolian	0,7279664*** (0,0682164)	2,070865 (0,141267)
	Mediterranean	0,8410393*** (0,0669257)	2,318776*** (0,1551856)
	Central Anatolian	1,006862*** (0,0784486)	2,736998*** (0,2147137)
	Western Black Sea	0,9572527*** (0,0685452)	2,604531*** (0,1785281)
	Eastern Black Sea	1,327073*** (0,0822092)	3,769994*** (0,3099283)
	Northeast Anatolian	1,302386*** (0,0997259)	3,678061* (0,3667981)
	Middle Eastern Anatolian	1,392825*** (0,0994051)	4.026206*** (0,4002255)
	Southeastern Anatolia	1,358973*** (0,0900987)	3.892193*** (0,3506816)
	Primary education	-1.07585*** (0,0543068)	0,3410078*** (0,0185191)
	Secondary education	-2.34353*** (0,0646356)	0,0959882*** (0,0062043)
	University	-3.442997*** (0,076211)	0,0319687*** (0,0024364)
	Master or PhD	-4,110851*** (0,2477652)	0,0163938*** (0,0040618)
	Married	-0,2736778*** (0,0451404)	0,7605771*** (0,034333)
	Widowed	-0,228138*** (0,0716986)	0,7960144** (0,0570731)
	Part-time	1,40102*** (0,0462213)	4,059338*** (0,1876278)
	Medium Firm	-1,694551*** (0,0478403)	0,1836817*** (0,008788)
Big Firm	-2,838285*** (0,0659053)	0,058526*** (0,0038572)	
Public Sector	-3,47781*** (0,1341866)	0,0308748*** (0,004143)	
Permanent	-1,700065*** (0,0331429)	0,1826716*** (0,0060543)	

Not Employed (3)	Age	0,0112446*** (0,0014532)	1,011308*** (0,0014696)
	Couple	-0,5673949***(0,1342955)	0,5670006***(0,076146)
	Nuclear Family	-0,6620728*** (0,1326526)	0,5157811***(0,0684197)
	Big Family	-0,5763144*** (0,1349769)	0,5619657***(0,0758524)
	Western Marmara	-1,027483*** (0,0821788)	0,3579068***(0,0294123)
	Aegean	-1,40949*** (0,0731384)	0,2442678***(0,0178654)
	Eastern Marmara	-0,9410306*** (0,0803244)	0,3902255***(0,0313446)
	Western Anatolian	-0,0465179 (0,0818426)	0,9545475 (0,0781226)
	Mediterranean	-0,5327729*** (0,078505)	0,5869751***(0,0460805)
	Central Anatolian	-0,8564617*** (0,0872663)	0,424662*** (0,0370587)
	Western Black Sea	-1,304221*** (0,078339)	0,2713838***(0,0212599)
	Eastern Black Sea	-1,593118*** (0,0902798)	0,2032908*** (0,018353)
	Northeast Anatolian	-0,2858856*** (0,1083364)	0,7513486* (0,0813984)
	Middle Eastern Anatolian	0,5289239*** (0,1117805)	1,697105*** (0,1897033)
	South Eastern Anatolia	0,556182*** (0,1013706)	1,744001*** (0,1767904)
	Primary education	-1,092062*** (0,055759)	0,335524*** (0,0187085)
	Secondary education	-1,320249*** (0,0675719)	0,2670688***(0,0180463)
	University	-2,150941*** (0,0742044)	0,1163746***(0,0086355)
	Master or PhD	-3,550091*** (0,1602963)	0,028722*** (0,004604)
	Married	-1,079923*** (0,0484936)	0,3396217***(0,01647)
	Widowed	-0,2071068** (0,0800762)	0,8129328** (0,06510)
	Part-time	-25,46296 (1707,966)	8,74e-12 (1,49e-08)
	Medium Firm	-25,66483 (1949,627)	7,14e-12 (1,39e-08)
	Big Firm	-25,32231 (1947,504)	1,01e-11 (1,96e-08)
	Public Sector	-24,35023 (1741,094)	2,66e-11 (4,63e-08)
	Permanent	-26,75399 (1039,526)	2,40e-12 (2,50e-09)

Values in parentheses are standard errors. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The likelihood ratio chi-square of 188867.54 with a p-value  $< 0.0001$  shows that the model as whole fits significantly better than an empty model. Some variables like manner of work (part time), number of employee (medium and big firm), status of work (public or private) and continuity of work (permanent or temporary) for women who are



(3)	Nuclear Family	-0,4865566** (0,1424171)	0,6147396** (0,08755)
	Big Family	-0,4375354** (0,1458092)	0,6456257** (0,094138)
	Western Marmara	-0,7008345 *** (0,0952671)	0,4961711 *** (0,047269)
	Aegean	-1,272871 *** (0,0817874)	0,2800265*** (0,022903)
	Eastern Marmara	-0,6131343 *** (0,0930917)	0,5416505*** (0,050423)
	Western Anatolian	-0,1996109** (0,0937586)	1.220928** (0,114476)
	Mediterranean	-0,4681511*** (0,0879964)	0,6261589*** (0,05510)
	Central Anatolian	-0,6723674 *** (0,0993321)	0,5104986*** (0,050709)
	Western Black Sea	-1,122877*** (0,0888203)	0,3253423*** (0,0289)
	Eastern Black Sea	-1.395434 *** (0,101916)	0,2477255*** (0,025247)
	Northeast Anatolian	-0,1949089*** (0,1212279)	0,8229096*** (0,09976)
	Middle Eastern Anatolian	0,8157993*** (0,1296632)	2.260982*** (0,2931662)
	South Eastern Anatolia	0,940553*** (0,1203272)	2.561397*** (0,3082058)
	Primary education	-1.254548*** (0,06797)	0,2852048*** (0,019385)
	Secondary education	-1.536874*** (0,080568)	0,2150522*** (0,017326)
	University	-2.304014*** (0,0877144)	0,0998572*** (0,008759)
	Master or PhD	-3.638803*** (0,182146)	0,0262838*** (0,004788)
	Married	-1.183846*** (0,0576577)	0,3060994*** (0,01765)
	Widowed	-0,544037*** (0,0935896)	0,5804005*** (0,054319)
	Part-time	-24.7782 (1561.608)	1.73e-11 (2.71e-08)
	Medium Firm	-24.9066 (1454.953)	1.52e-11 (2.22e-08)
	Big Firm	-24.55144 (1549.186)	2.17e-11 (3.37e-08)
	Public Sector	-23.76623 (1364.862)	4.77e-11 (6.51e-08)
	Permanent	-25.84246 (810.8988)	5.98e-12 (4.85e-09)

Values in parentheses are standard errors. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The likelihood ratio chi-square of 267950,76 with a p-value < 0.0001 shows that the model as whole fits significantly better than an empty model. Some variables like manner of work (part time), the number of employee (medium and big firm), status of work (public or private) and continuity of work (permanent or temporary) for women who are not employed are statistically insignificant because those women are not in the labor force.

Table 21: MLR Results for 2017

Multinomial logistic regression	Number of obs.	= 142,908
	LR chi2 (52)	= 135727.4
	Prob.> chi2	= 0.0000

Log likelihood = -44635.912

Dependent	Variables	Coefficients	RRR
Unregistered (2)	Age	0,01124*** (0,0017035)	1.011303*** (0,0017228)
	Couple	0,6238283** (0,1357272)	1.866058** (0,2532748)
	Nuclear Family	0,5616031*** (0,1341393)	1.753481*** (0,2352107)
	Big Family	1.020771*** (0,1375687)	2.775335*** (0,3817992)
	Western Marmara	0,6241067*** (0,0851623)	1.866578*** (0,1589621)
	Aegean	0,3998981*** (0,0723977)	1.491673*** (0,1079937)
	Eastern Marmara	0,2550648** (0,0828856)	1.290545** (0,1069677)
	Western Anatolian	0,6924887*** (0,0794951)	1.998683*** (0,1588855)
	Mediterranean	0,6541608*** (0,0766267)	1.923528*** (0,1473936)
	Central Anatolian	0,9158291*** (0,0946098)	2.498846*** (0,2364153)
	Western Black Sea	0,9787142*** (0,0794388)	2.661033*** (0,2113891)
	Eastern Black Sea	1.220657*** (0,0938808)	3.389414*** (0,318201)
	Northeast Anatolian	1.245796*** (0,1182996)	3.475701*** (0,4111738)
	Middle Eastern Anatolian	1.161588*** (0,1107665)	3.195004*** (0,3538995)
	South Eastern Anatolia	1.512179*** (0,1023042)	4.536604*** (0,4641135)
	Primary education	-1.016388*** (0,0647549)	0,3618997*** (0,023435)
	Secondary Education	-2.322441*** (0,0756208)	0,098034 *** (0,0074134)
	University	-3.160562*** (0,0854317)	0,0424019*** (0,0036225)
	Master or PhD	-4.060829*** (0,2433304)	0,0172347*** (0,0041937)
	Married	-0,2917794*** (0,053187)	0,7469333*** (0,0397271)
	Widowed	-0,2681383** (0,0845861)	0,764802*** (0,0646917)
	Part-time	1,542644*** (0,0568606)	4.676941*** (0,2659336)
	Medium Firm	-1.785097*** (0,0574323)	0,1677807*** (0,009636)
Big Firm	-2.789901*** (0,0745145)	0,0614273*** (0,0045772)	
Public Sector	-2.958368*** (0,1264828)	0,0519036*** (0,0065649)	
Permanent	-1.80154*** (0,0391079)	0,1650446*** (0,0063452)	

Not Employed (3)	Age	0,0157639*** (0,0017188)	1.015889*** (0,0017462)
	Couple	-0,0192306*** (0,1390028)	0,9809531 (0,1363552)
	Nuclear Family	-0,1214494** (0,1376121)	0,8856359 (0,1218743)
	Big Family	-0,055548** (0,1411984)	0,9459666 (0,133569)
	Western Marmara	-0,750676*** (0,0958879)	0,4720474 *** (0,0452636)
	Aegean	-1.345123*** (0,0823576)	0,2605076*** (0,0214548)
	Eastern Marmara	-0,5788295*** (0,09401)	0,5605541 *** (0,0526977)
	Western Anatolian	-0,1311685 (0,0938662)	1.14016 (0,1070225)
	Mediterranean	-0,5886885*** (0,0879298)	0,5550548*** (0,0488058)
	Central Anatolian	-0,5195332*** (0,1032148)	0,5947981*** (0,061392)
	Western Black Sea	-1.242887*** (0,0889598)	0,2885498*** (0,0256693)
	Eastern Black Sea	-1.555622*** (0,1021005)	0,211058*** (0,0215491)
	Northeast Anatolian	-0,1790457 (0,1287346)	1.196075 (0,1539763)
	Middle Eastern Anatolian	0,4439633*** (0,1233232)	1.558873*** (0,1922453)
	South Eastern Anatolia	0,8043548 *** (0,1146219)	2.235254*** (0,256209)
	Primary education	-1.163801 *** (0,0669465)	0,3122968*** (0,0209072)
	Secondary education	-1.453566*** (0,0793061)	0,2337353*** (0,0185366)
	University	-2.170777*** (0,0853796)	0,1140889*** (0,0097409)
	Master or PhD	-3.907009*** (0,1607961)	0,0201005*** (0,0032321)
	Married	-1.178897*** (0,05726)	0,307618*** (0,0176142)
	Widowed	-0,2639682*** (0,0944195)	0,7679979* (0,072514)
	Part-time	-24.23271 (1211.126)	2.99e-11 (3.62e-08)
	Medium Firm	-24.3548 (1152.813)	2.65e-11 (3.05e-08)
Big Firm	-24.0782 (1195.484)	3.49e-11 (4.17e-08)	
Public Sector	-22.88949 (1026.664)	1.15e-10 (1.18e-07)	
Permanent	-25.38051 (598.8845)	9.49e-12 (5.68e-09)	

**Values in parentheses are standard errors. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1**

The likelihood ratio chi-square of 135727.44 with a p-value < 0.0001 shows that the model as whole fits significantly better than an empty model. Some variables like manner of work (part time), the number of employee (medium and big firm), status of work (public or private) and continuity of work (permanent or temporary) for women who are not employed are statistically insignificant because those women are not in the labor force.

Table 22: MLR Results for 2018

Multinomial logistic regression	Number of obs.	= 194,065
	LR chi2 (52)	= 186307.8
	Prob.> chi2	= 0.0000

Log likelihood = -61505.471

Dependent	Variables	Coefficients	RRR
Unregistered (2)	Age	0,0157226*** (0,0013352)	1.015847*** (0,0013563)
	Couple	0,2245079** (0,1075216)	1.251707** (0,1345855)
	Nuclear Family	0,062245 (0,1057299)	1.064223 (0,1125202)
	Big Family	1.3821882*** (0,1084501)	1.465488*** (0,1589323)
	Western Marmara	0,5103324*** (0,0664357)	1.665845*** (0,1106716)
	Aegean	0,4239375*** (0,0573491)	1.527966*** (0,0876275)
	Eastern Marmara	0,2640094** (0,0649612)	1.30214*** (0,0845885)
	Western Anatolian	0,5384193*** (0,062429)	1.713297*** (0,1069594)
	Mediterranean	0,723212*** (0,0598347)	2.061043*** (0,1233218)
	Central Anatolian	0,6591746*** (0,0725192)	1.933196*** (0,140194)
	Western Black Sea	0,6232986*** (0,0616527)	1.86507*** (0,1149867)
	Eastern Black Sea	1.318422*** (0,076258)	3.737519*** (0,2850156)
	Northeast Anatolian	1.004272*** (0,0898298)	2.729919*** (0,245228)
	Middle Eastern Anatolian	1.124732 *** (0,085174)	3.07939*** (0,262284)
	South Eastern Anatolia	1.289055*** (0,0795805)	3.629356 *** (0,288826)
	Primary education	-0,9618194*** (0,049957)	0,3821969*** (0,0190934)
	Secondary Education	-2.083543*** (0,0588636)	0,1244884*** (0,0073278)
	University	-2.889544*** (0,0664388)	0,0556016*** (0,0036941)
	Master or PhD	-3.780398*** (0,1936039)	0,0228136*** (0,0044168)
	Married	-0,2917794*** (0,053187)	0,645861*** (0,0272534)
	Widowed	-0,2681383** (0,0845861)	0,6648101*** (0,04345)
	Part-time	1,542644*** (0,0568606)	3.422241*** (0,1398954)
	Medium Firm	-1.785097*** (0,0574323)	0,1773349*** (0,0082999)
Big Firm	-2.789901*** (0,0745145)	0,0727581*** (0,0042902)	
Public Sector	-2.958368*** (0,1264828)	0,0594299*** (0,0059784)	
Permanent	-1.80154*** (0,0391079)	0,239695*** (0,0073883)	

Not Employed (3)	Age	0,017075*** (0,0013528)	1.017222*** (0,0013761)
	Couple	-0,3495233*** (0,1152281)	0,7050241*** (0,0812386)
	Nuclear Family	-0,604452*** (0,1136751)	0,5463738*** (0,0621091)
	Big Family	-0,5380169*** (0,1163201)	0,5839051*** (0,0679199)
	Western Marmara	-0,8234196*** (0,0770358)	0,4389281*** (0,0338132)
	Aegean	-1.195979*** (0,0674775)	0,3024077*** (0,0204057)
	Eastern Marmara	-0,4529602*** (0,0769366)	0,6357434*** (0,0489119)
	Western Anatolian	-0,01439 (0,075512)	0,985713 (0,0744332)
	Mediterranean	-0,580147*** (0,0709251)	0,559816*** (0,039705)
	Central Anatolian	-0,7352507*** (0,080369)	0,4793853*** (0,0385277)
	Western Black Sea	-1.391035*** (0,0708534)	0,2488176*** (0,0176296)
	Eastern Black Sea	-1.32759*** (0,0842099)	0,2651153*** (0,0223253)
	Northeast Anatolian	-0,2116634** (0,1011944)	1.235732** (0,1250491)
	Middle Eastern Anatolian	0,0766709 (0,0947104)	1.079687*** (0,1022575)
	South Eastern Anatolia	0,6745349*** (0,0913976)	1.96312*** (0,1794244)
	Primary education	-1.074438*** (0,0518234)	0,3414897*** (0,0176971)
	Secondary education	-1.189433*** (0,062455)	0,3043938*** (0,0190109)
	University	-1.810323*** (0,0676607)	0,1636013*** (0,0110694)
	Master or PhD	-3.637081*** (0,1302623)	0,0263291*** (0,0034297)
	Married	-1.220975*** (0,0461472)	0,2949425*** (0,0136108)
	Widowed	-0,3361719*** (0,0756057)	0,7145002*** (0,0540203)
	Part-time	-26.39589 (2647.195)	3.44e-12 (9.10e-09)
	Medium Firm	-25.54936 (2128.668)	8.02e-12 (1.71e-08)
Big Firm	-25.28097 (2069.314)	1.05e-11 (2.17e-08)	
Public Sector	-24.27317 (1988.726)	2.87e-11 (5.71e-08)	
Permanent	-26.65093 (1042.648)	2.66e-12 (2.78e-09)	

Values in parentheses are standard errors. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The likelihood ratio chi-square of 186307.83 with a p-value < 0.0001 shows that the model as whole fits significantly better than an empty model. Some variables like manner of work (part time), number of employee (medium and big firm), status of work (public or private) and continuity of work (permanent or temporary) for women who are not employed are insignificant because those women are not in labor force.

When the household type is analyzed for every years, compared to a single adults, women in couples, nuclear family or big family households are more likely to choose to work informally. However, as the number of households grows, women do not prefer not to work. This situation can be interpreted as the fact that the salary earned by the household responsible man is not enough for the crowded families and requires women to work and earn extra income.

If the education level is analyzed for 2015, 2016, 2017 and 2018, as the level of education increases, women prefer registered works more than unregistered works, as expected. Also, as the level of education increases, women prefer to work with insurance rather than not working. It's the result of the desire of women with high educational level to turn their knowledge into producing more systematic, high added values.

When the marital status of women is investigated, in every years, it is more likely that both married and widowed and divorced women would prefer to work registered rather than working informally. In other words, married, widowed or divorced women do not prefer not to work or to work informally. In addition, widowed and divorced women prefer to stay unemployed more rather than work as registered and unregistered compared to married women. We can link this to the fact that the alimony they receive from their ex-spouses is sufficient for themselves and therefore they do not need to work while married women may have to take care of whole family.

When we also look at the choices made by women according to their working hours in 4 years, they prefer part-time informal jobs to full time informal works. So that, women can devote their remaining time from working part time to responsibilities such as house works and child care etc.

Women are more likely to choose workplaces with fewer employees in order to work informally. In other words, as the number of employee increases, the probability of working of women informally decreases. In addition, women are more likely to work

informally in the private sector. Women prefer to work more with insurance in the public sector, as expected since the government generally does not employ any workers informally but of course there are some exceptions. Moreover, women are less likely to work informally in permanent jobs than in temporary jobs. The fact that most of the people working as seasonal workers in the agriculture sector are women confirms this result.

When we examine the regions of Turkey (NUTS1) for each year in this research, women from eastern regions such as Northeast Anatolian, Middle Eastern Anatolian and Southeastern Anatolian, compared to women who live in west of the country such as Aegean or Marmara, are more likely to involve in informal works. However, women living in Middle Eastern Anatolia and Southeastern Anatolia are more likely to not to be employed, while women from Aegean, Marmara, Black Sea, Mediterranean, West and Central Anatolia tend to work with insurance more.

The RRR helps us to investigate the impacts of variables on dependent variables more. Accordingly, it is seen that the biggest impact is due to the manner of work variables in each years. Part time variable affects the decision of working informally the most compared to other variables. In other words, women tend to work unregistered when employment is part time. As mentioned before, it may arise from that women may use extra time remaining from part time jobs in house works or child care. So that, women both fulfill their responsibilities at home and earn money by working informal by giving up social rights and health insurance.

The second effective variable on preferences of women on informal employment is regions where women lives in. According to RRR, From the Eastern regions to Western regions, of Turkey, the probability of involvement of women in informal sectors goes up. In 2018, women in Southeastern Anatolia are 3,63 times more likely to be employed in informal jobs, and 1,96 times more likely to choose not to be employed while women in Eastern Marmara are 1,30 times more likely to work informally over formal jobs, and 0,64 times for not being employed.

As a result of examining the relative risk ratios the third most effective variable on the decision of working informally of women is number of household. The RRR for a one-woman increase in the big family is .1,4655 for working unregistered vs. working registered in 2018. In other words, the expected risk of working informally is higher for women who are in crowded families. It is observed that women in larger households prefer to work without insurance over other options. Accordingly, women in larger households are 0,15 times more likely to prefer informal work than insured works, and 0,06 times more likely to choose not to work.

### **3.4. DISCUSSION**

Variables which have the greatest power to explain the risk of working informally and the model established are the manner of work (which is part time or full time), regions (NUTS1), and the number of households. As seen in the literature review part, there are not many studies empirically examining the factors affecting women's unregistered work. When looking at a few studies, the findings obtained from the MLR analysis are significant and shows parallelism to other researches' findings. There are some similarities between other researches' results that household structure and individual socio-economic factors affect woman's preferences on employment and informal employment. Therefore, focusing on factors obtained from MLR analysis in policy implication to prevent informal employment will yield more effective results in reducing informal employment of women.

According to results of MLR analysis, one of the most important point is that manner of work affects participation of women in informal employment, remarkably. Women prefer to work in part time jobs informally more than full time ones. In society, the most crucial social roles of women can be listed as individual responsible for house works and child care. When women get married, society expects a suitable status and behavior from them. Women who try to exist in working life with multiple identities and responsibilities such as mothers, housewives and spouses face various problems like

working full time at the same time fulfilling responsibilities at home. To cope with these responsibilities, women are more likely to work part time in informal sectors.

One of the most important findings obtained is the relationship between education and informal work. Accordingly, as the education level increases, women prefer work with insurance to not to work and prefer not to work to work without insurance, as expected. This result emphasizes the importance of education on informal employment of women. In Turkey, according to TurkStat (2018), there are 1.872.537 women who are unable to read and write while there are 325.551 illiterate men. In other words, men are 6 times more likely to get education than women. Statistics shows that gender inequality in terms of education still continue for long years. Thus, to decrease informal employment of women in Turkey, the employment policies should focus on education of women. According to Sarsilmaz (2018), although females and males attend the basic educational levels at the same rate, this rate decreases in terms of high school and higher education levels since females are less likely to attend the higher educational institutions than males. While the higher education level makes it easier for women to find a job with insurance, it is not as important for men. In order to increase the participation of women in working life formally, equal opportunities should be provided in education for women while the consciousness that women must be educated need to get place in society. In addition, there are groups of women who graduated from university but don't want to work because her department she graduated from may affect the decision of work of women. Some government projects such as Uni-Veri<sup>3</sup> guide to help university candidates to pick a right department for themselves. These kinds of projects should be popularized in society. So that, more women would be willing to get education and so to join labor force. Also, policies increasing the educational opportunities that will ensure the professional development of women, making practices to change the traditional

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<sup>3</sup> Uni-Veri is a national study that reveals the employment rates of the universities in Turkey on the basis of their departments, and employment rates in the first year, average wages, sectoral distribution of employment and quality mismatch. It is a resource that can be directly benefited from by university graduates, current and future students and professionals (retrieved from <https://www.cbiko.gov.tr/en/projects/uni-veri>).

perspective of the sexist, making the working conditions suitable for women, expanding flexible working practices, tax incentives, legal arrangements for sharing the domestic responsibilities of working women, etc. should be applied.

The effect of number of households is also observed significantly within the MLR model in terms of decision of working informally. When number of households increases women are more likely to work informally because there are many children or family members that women are obliged to take care of. This situation can push women completely out of the labor markets or direct them to jobs that can be earned by making them at home. If women with children access childcare opportunities such as free or subsidized nursery facilities, easily, then more women would participate in formal employment. To afford the nursery or babysitter costs, if the state provides an additional payment to women working informally in the crowded family with a wage under the minimum wages, there will be a certain increase in the tendency of registered employment of women. Also, while incentives for the first-time recruiters to enter the business life as registered enable women to choose to work as registered in their business life; on the other hand, it will have a positive effect on the employment of formal workers that are hired by businesses.

According to the results of the analysis, one of the most crucial variable is the "number of employees". Compared to the risk of unregistered work in micro enterprises with a low number of employees (1-9), medium-sized (50-249) and large-sized (250+) enterprises are less likely to be preferred by women to work informally. In Turkey, micro enterprises has the large share in total employment so every informal employment in small businesses may cause the highest loss of income to Social Security Administration. In this context, the difficulty of using credit, which is one of the important problems of small businesses, should be eliminated. In order to encourage institutionalization, in parallel with the increase in the number of employees, a premium reduction can be provided gradually.

At the end of the analysis, we understand that the regions also plays an important role on women's decision of work informally. Such regions like Middle Eastern Anatolia and Southeastern Anatolia has women who are more willing to work informally than those who lives in Aegean or Mediterranean. The main difference between these regions are people's level of conscious and knowledge. One of the most important factors in informal work is the lack of knowledge of employees on social security. Low level of consciousness causes informal work and problems caused by people not knowing their rights and duties against public institutions and organizations. For this reason, there is a need for employees to be constantly informed about the labor and social security legislation. However, in order to spread the awareness of insurance among informal women employees, trainings should be given in areas such as organized industrial zones. With the benefits of working as an insured in these trainings for the women employee to both her relatives and the government; It should be explained that the workers can benefit from Unemployment Insurance during their periods of unemployment, they can manage their own lives by getting a pension in their older ages, and the necessary medical expenses for their illnesses will be covered within the scope of social security. Employees should be directed to be insured employee by explaining the benefits of working formally.

The policies should be gender sensitive, considering the activities and responsibilities of women and men in the informal economy. In most countries of the world, a higher amount of the female than of the male workforce is in the informal economy and, within the informal economy, women tend to be concentrated in lower return segments than men (Chen, Vanek & Carr, 2004: 143). Therefore, there is a remarkable gender gap in wages and in the rights and protection afforded by work or government, even in the informal economy. Understanding the men's and women's different situations in the informal employment and their access to social rights and resources is very important to understanding the structure of informal economy and to prevent women from working in informal works. If policies and government are on women's side against informality, this will lead to support for poor and disadvantaged women and children, effectively.

Some governments have adopted progressive labor legislation that addresses the insecurity and disadvantages of specific categories of informal or non-standard wage workers, as below (Chen, Vanek & Carr, 2004:135-136):

Home-based workers: An act in Canada implies that homeworkers should be paid a 10% premium on the minimum wage to compensate for the costs of production they have to bear by working at home. Since most of the homeworkers are women, this legislation provides opportunity to women work formally.

Temporary workers: A law in France mandates that workers in what is called non-standard or seasonal employment must gain the same wages as those doing the same work in permanent employment. Considering that most of women are working in agriculture sector as temporary workers, this kind of regulation made in France is certainly necessary for Turkey, as well.

## CONCLUSION

In this research, the concept of female labor force participation rate (FLFPR) and informal economy was defined at second chapter. Furthermore, a general literature review –both national and international- were provided in detail. In addition, TurkStat statistics between 2014 and 2018 and Household Labour Force Surveys (HLFS) was used to investigate the defined research question, statistically. This study contributes literature on women in Turkey to be directed towards working registered. In Turkey, the position of women in informal employment and factors pushes them to work were analyzed by using micro data, which is of great importance for this research, given the lack of studies that analyze it in detail. A different perspective was gained on the role of women's labor on this issue and how they face the disadvantages of informal employment, and strategies and policies was suggested to prevent this problem. According to MLR analysis, manner of work, region and number of household affect the decision of working informally of women more than other variables. Also, education and marital status play important role on informal employment of women. It is known that women are exposed to discriminatory and sexist policies in addition to the problems such as wage inequality in business life and discrimination during promotion process. In addition, gender inequality and domestic responsibilities that are seen as specific to women have a negative impact on female labor force participation. However, with various policy implications, these problems faced by women in work life are aimed to decrease. First of all, the equality between men and women in education should be provided since women are in disadvantaged group while accessing education in Turkey. More educated women means more employed women. Also, women have some struggles with childcare. If women with children access childcare opportunities such as free or subsidized nursery facilities, easily, then more women would be employed in labor market instead of staying at home and looking after children. The alternative costs of women's paid work are high in terms of family and society. Jobs are partially decomposed into "women's work" and "men's work" in patriarchal societies. To deal with it, adequate public service should be provided in this area. In these trainings, the benefits of working with insurance for women employees' relatives and the government

should be explained and be clarified that workers can benefit from Unemployment Insurance during unemployment periods, they can manage their own lives by getting a pension in their old age, and the health expenses of their illnesses will be covered within the scope of social security. Employees should be formally referred to the insured employee by explaining the benefits of working. In addition, every informal employment in small businesses can lead to the highest loss of income to the Social Security Administration. In this context, the difficulty of using credit, one of the important problems of small businesses, should be eliminated. In order to encourage institutionalization, a premium reduction can be provided gradually in parallel with the increase in the number of employees. Furthermore, in order to spread the awareness of insurance among informal women employees in less developed regions, trainings should be given in areas such as organized industrial zones because low level of consciousness causes informal work and problems caused by people not knowing their rights and duties against public institutions and organizations.

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