BBVA
Research

N.º 22/13

Working Paper

Drivers of Low Female Labor Force Participation in Türkiye

Tuğçe Tatoğlu

December 2022

Drivers of Low Female Labor Force Participation in Türkiye

Tuğçe Tatoğlu (BBVA Research)

Abstract

The purpose of this study is to investigate main drivers of low labor supply of Turkish women, the lowest rate amongst OECD countries and almost half of the male labor force participation in Türkiye. First, we carry out an unbalanced panel data estimation for 38 OECD countries covering 1972-2021 to determine the main drivers on labor supply decision of women differing according to economic development and socio-cultural factors of countries. Second, we extend our analysis for Türkiye including country specific traditional norms and use a nationwide dataset for 26 regions from 2014 to 2021. We assess the impact of both family-oriented role of Turkish women and main economic factors on female labor force participation rate (FLFPR). Fixed-effect estimates indicate that affordability after marriage, schooling and housework become essential in addition to per capita income on Turkish women's decision to work. In line with the regional results of Türkiye, the significant negative impact of marriage on FLFPR we obtain for OECD countries might be due to increasing domestic burden of women in the household. Both tremendous amount of time spent by Turkish women on unpaid care work and discouraging effect of household chores on FLFPR prompt us to investigate further on traditional roles of Turkish women. Since regional results of the Family Structure Survey reveal that labor supply of women is significantly low especially in regions where women have higher domestic burden such as household chore and childcare, we compute a Conservatism Index for 11 regions and 3 big cities to determine the relationship between conservatism and FLFPR. Conservatism Index confirms that areas with higher conservatism have lower FLFPR, or vice versa. In addition to descriptive and methodological results, this finding presents that more conservative approach to women may increase their responsibility for unpaid care work, which is likely to account for the pattern of low labor supply of Turkish women.

1. Introduction: Labor Force Participation in Türkiye

The labor force participation rate is a measure of the proportion of a country's working-age population that engages actively in labor either by working or looking for work (ILO 2017). Therefore, the labor force participation rate is calculated as the percentage of persons who are employed and unemployed in the working-age population (15 and above). It provides an indication of the size of the available labor supply to engage in the production of goods and services, relative to the population at working age (ILO 2017). Labor force participation plays a crucial role in economic theory since both quality and quantity of human capital are the main drivers of the economic development and sustainable growth. In this context, determining the size and composition of the country's human capital and taking policy measures to eliminate the imperfections in labor market are key for long-term growth and development.
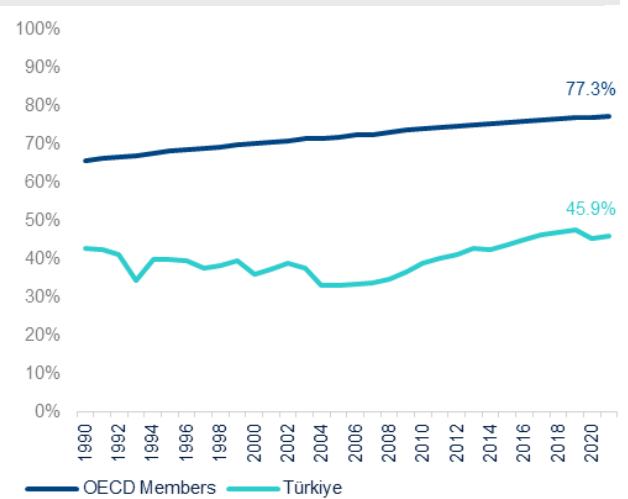
Female Labor Force Participation Rate (hereafter cited as FLFPR) in Türkiye is much lower than Male Labor Force Participation Rate (MLFPR). Furthermore, Türkiye ranks the last in FLFPR amongst OECD members according to the available latest data. Various measures have been taken over the years to increase the labor supply of Turkish women and reduce the gap between MLFPR and FLFPR, but the progress has not promoted gender equality in the labor market. Although women constituted almost half of the population (41.7 million) as of 2022, only 11.5 million women participated in the labor force, whereas labor force participation stood at 23 million for men in 2Q22. FLFPR was 35.3% in 2Q22, leading to a large gap (36pp) between MLFPR and FLFPR in Türkiye (Figure 1). The ratio of female to male labor force in Türkiye posted at 45.9% in 2020, approximately 31pp lower than OECD countries (Figure 2). Moreover, FLFPR in Türkiye constituted the lowest rate with 37.3% amongst OECD countries, where 64.8% of women participated in the labor force on average in 2021 (Figure 3). Therefore, in our analysis, we aim to elaborate about the main reasons behind the low labor force participation of Turkish women.

Figure 1. **LABOR FORCE PARTICIPATION RATE BY GENDER (%)**
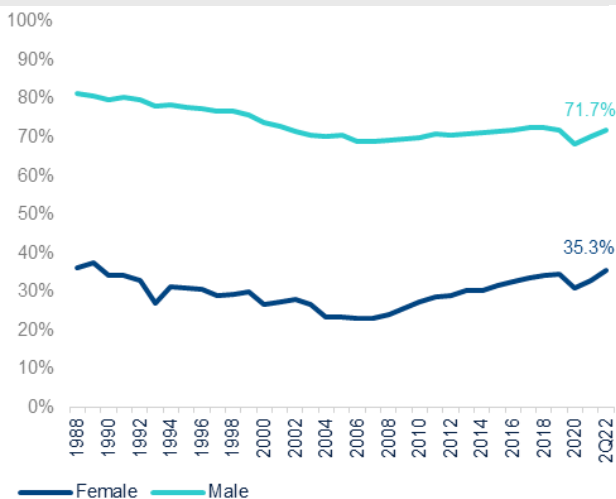

Source: World Bank, TURKSTAT

Figure 2. **RATIO OF FEMALE TO MALE LABOR FORCE PARTICIPATION RATE (%)**[1]

Source: World Bank, TURKSTAT

1: Ratio of female to male labor force participation rate is calculated by dividing female labor force participation rate by male labor force participation rate and multiplying by 100 (World Bank).

Figure 3. **FEMALE LABOR FORCE PARTICIPATION RATE (%) - OECD COUNTRIES (2021)**
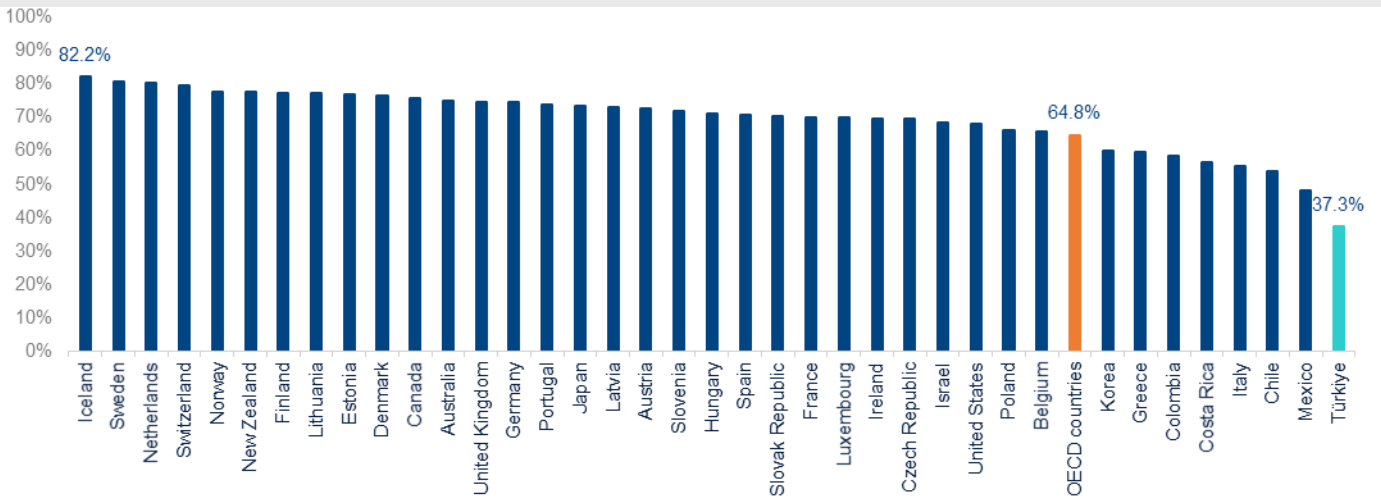


Source: OECD, Gender Statistics

According to the latest available data for Türkiye, unemployment rate of women was 14%, 5pp higher than the unemployment rate of men (Figure 4). Informality has remained at high levels and become one of the main reasons for high unemployment rate. Despite various measures taken by the government against the informal economy in recent years, informality is still very high, especially for women. Unregistered employment rate of women was approximately 34% in 2Q22, which had been as high as 70% at the start of 2000s (Figure 5).

Figure 4. **UNEMPLOYMENT RATE BY GENDER (%)**
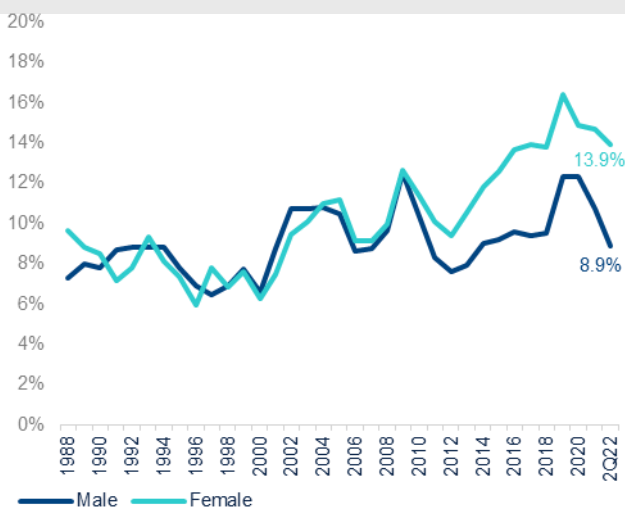
Source: World Bank, TURKSTAT

Figure 5. **UNREGISTERED EMPLOYMENT RATE BY GENDER (%)**
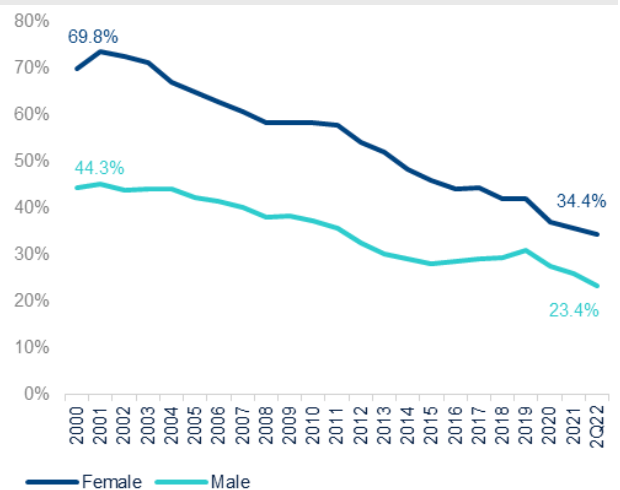
Source: TURKSTAT

The level of education is recognized as the most important factor on FLFPR as it sparks both higher wage levels and high skilled occupations (Dayıoğlu and Kırdar 2010; Acar 2007; İlkkaracan 2012). The gap between MLFPR and FLFPR decreases dramatically as the level of education increases in Türkiye (Figure 6). In 2Q22, FLFPR in higher

education was 68%, almost doubling the level among women graduated from high school. Accordingly, the gap between MLFPR and FLFPR in higher education stood at almost 17%, whereas it was 36% in high school.

Other important determinant factor on the FLFPR is age, especially childbearing age for women. FLFPR reaches its peak in 25-29 age group, but MLFPR has the highest rate in 30-34 age cohorts (Figure 7). It is noteworthy that women's age and FLFPR exhibit a U-shaped pattern for the age group of 25-45 although this is not observed for men. As discussed in the following sections, fertility rates are the highest among women in 30-39 age group. Therefore, childcare duties may be an important reason for Turkish women who drop out of the labor force.

Figure 6. **LABOR FORCE PARTICIPATION RATE BY EDUCATIONAL LEVEL (15+) – 2Q22**
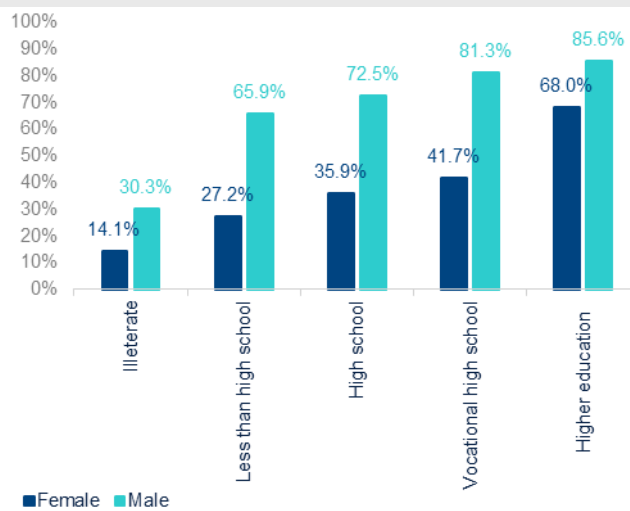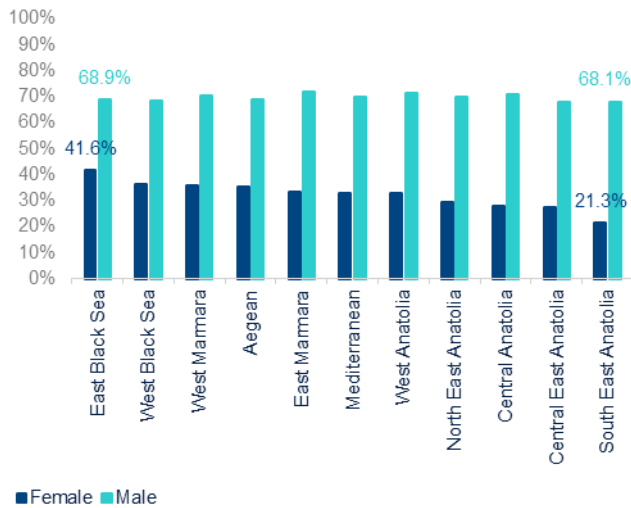

Source: TURKSTAT

Figure 7. **LABOR FORCE PARTICIPATION RATE BY AGE GROUPS (2Q22)**
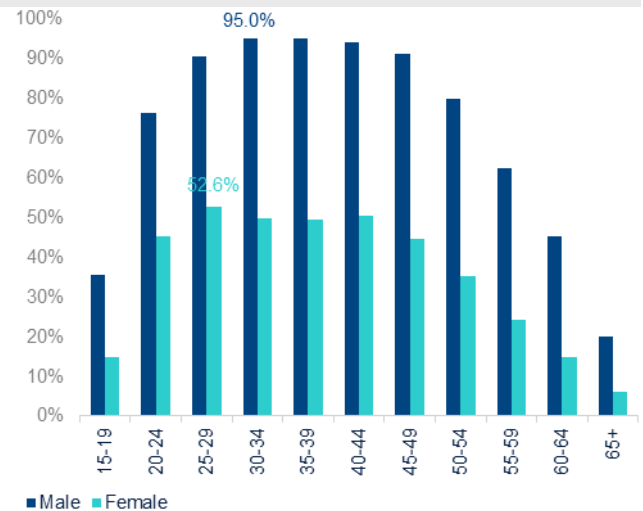
Source: TURKSTAT

Urbanization is also essential for FLFPR mainly due to regional differences and variation of socio-cultural factors among regions. In fact, the western part of Türkiye is more industrialized while agricultural production is more prevalent in the east. South East Anatolia posted the lowest FLFPR (21.3%) among all regions in 2021, resulting in the highest gap between MLFPR and FLFPR (47pp), whereas East Black Sea region showed the highest FLFPR with 41.6% (Figure 8). The lower levels of FLFPR mostly stem from the traditional gender roles rather than the differences in economic activity, as explained in more details in the following sections.

Figure 8. **LABOR FORCE PARTICIPATION RATE BY NUTS1 LEVEL (2021)**

Source: TURKSTAT

Figure 9. **FLFPR BY NUTS1 LEVEL ACROSS YEARS**
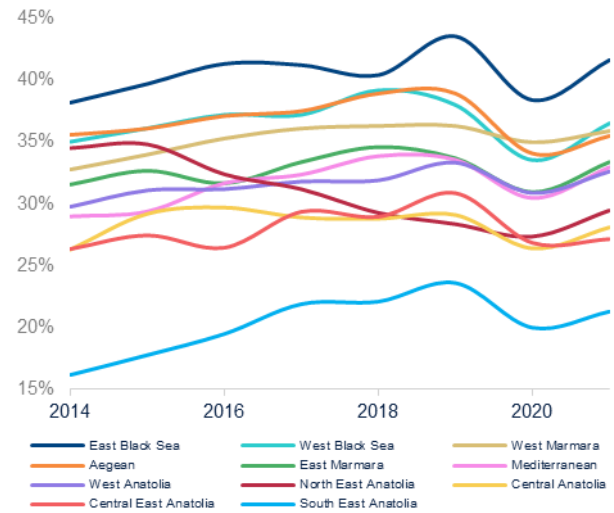
Source: TURKSTAT

# 2. Structural Problems in Labor Market for Turkish Women

As confirmed by different statistics, labor force participation of Turkish women is mostly affected by unpaid care work, which is defined as non-market work carried out by primarily women but also to varying degrees by girls, men and boys, including both direct care (of persons) and indirect care (such as cooking, cleaning, fetching water and fuel, etc., OECD 2019). According to nationwide Household Labor Force Survey in 2Q22, about half of the women respondents reported that household chores were the main reason for them not to be in labor force (Figure 10). On the other hand, none of the Turkish men in the survey stated the household chores as the reason of not participating in the labor force. In the same survey conducted in 2020, employment rate of women aged 25-49 with a child under age 3 stood at 25.2%, while the rate for whom with no children was 50.7% (Figure 11). Contrary to women, the employment rate of men with a child under age 3 (85.5%) was higher than the rate of those who have no children (71.5%). This may highlight that childcare responsibility keeps women out of the workforce, whereas child-related expenditures prompt the employment of men as a consequence of traditional family-oriented role.

Figure 10. **REASONS OF NOT BEING IN LABOR FORCE (15+) - 2Q22 (%)**
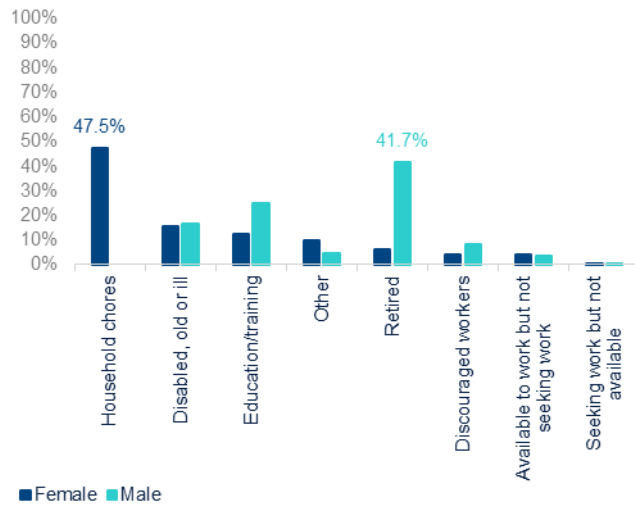
Source: TURKSTAT

Figure 11. **EMPLOYMENT RATE OF PERSONS AGED 25-49 - 2020**
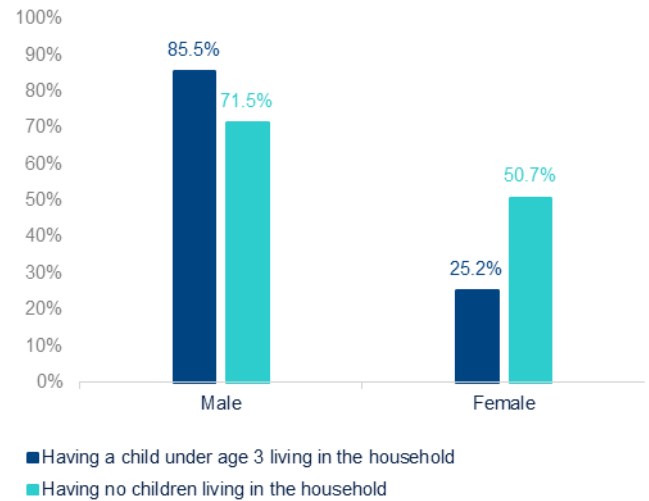
Source: TURKSTAT

Figure 12 presents the comparison of gender disparities in time devoted to unpaid care work in Türkiye and OECD countries. Türkiye was one of the leading countries where women devote longer time to unpaid care work with 305 minutes in a day (vs. 263 min. in OECD). On the other hand, Turkish men spend considerably less time to unpaid work compared to other OECD members (68 vs 137 min. in OECD). Accordingly, the unequal gender share of unpaid care work seems to be the most important barrier for Turkish women in terms of participating in the labor force.

Figure 12. **TIME SPENT IN UNPAID WORK BY GENDER (MINUTES PER DAY) - LATEST AVAILABLE YEAR**
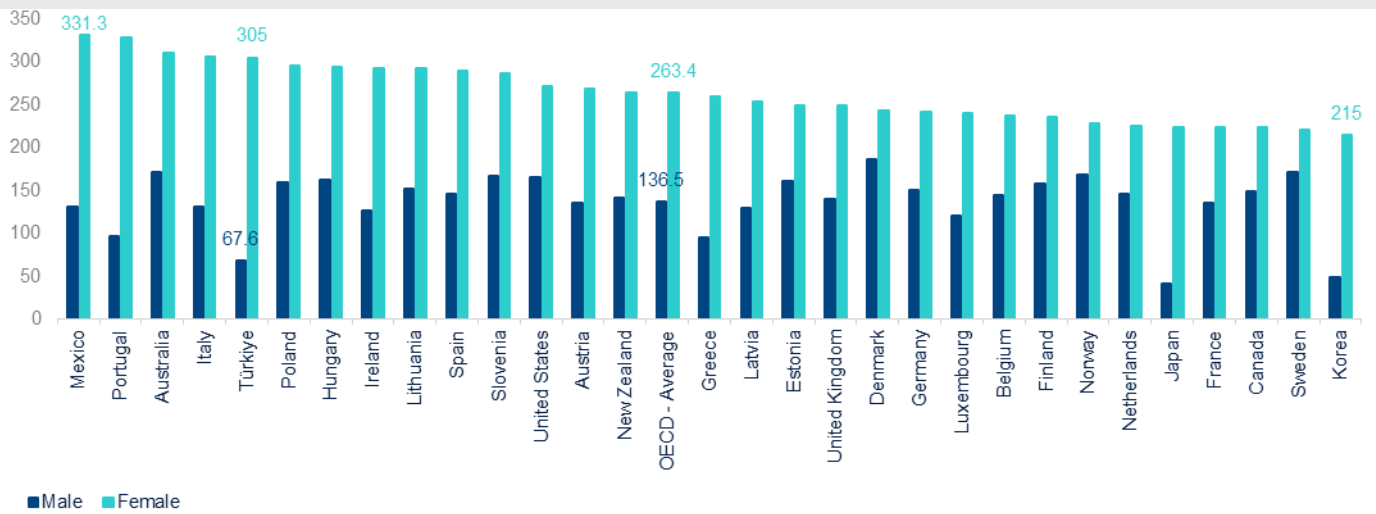
Source: OECD, Gender, Institutions and Development Database

Turkish women who are being in the labor force are more likely to encounter obstacles at work such as temporary and short-term employment, gender disparities in job opportunities, promotions and wage gap. In Türkiye, approximately twice as many women as men stated that it was a temporary job as a reason for leaving their last job (Figure 13). Similarly, three times more women than men reported that their last job was seasonal as a reason for leaving their job (Figure 14). On the other hand, proportion of employed women in temporary and short-term jobs in Türkiye was 3pp lower than OECD average (9% vs. 12% OECD), while the share of men was quite close to OECD average (12% vs. 11% OECD) in 2020 (Figure 15).

Figure 13. **REASON FOR LEAVING THE LAST JOB-TEMPORARY JOBS BY GENDER (2Q22)**
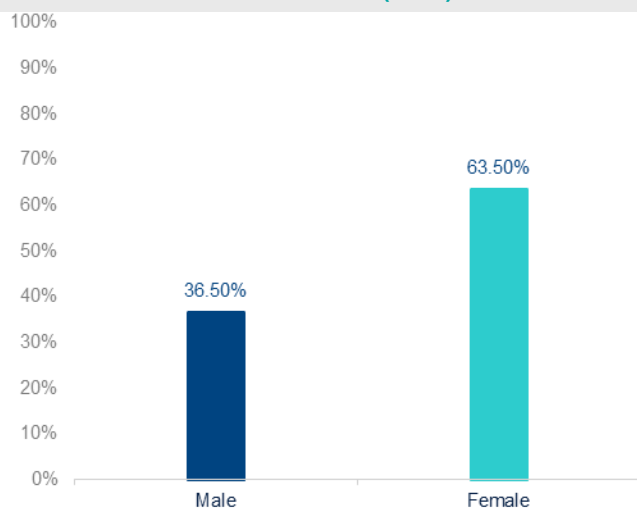
Source: TURKSTAT

Figure 14. **REASON FOR LEAVING THE LAST JOB-SEASONAL JOBS BY GENDER (2Q22)**
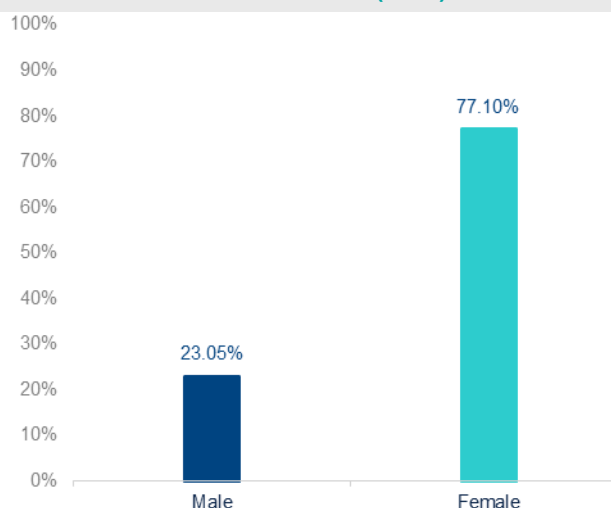
Source: TURKSTAT

Figure 15. **TEMPORARY & SHORT-TERM EMPLOYMENT BY GENDER (2020)**

Source: OECD

Part-time working of women is also an important aspect that should be addressed for female employment in Türkiye. Part-time employment of women is more remarkable in recent years, especially in advanced economies, in order to encourage the l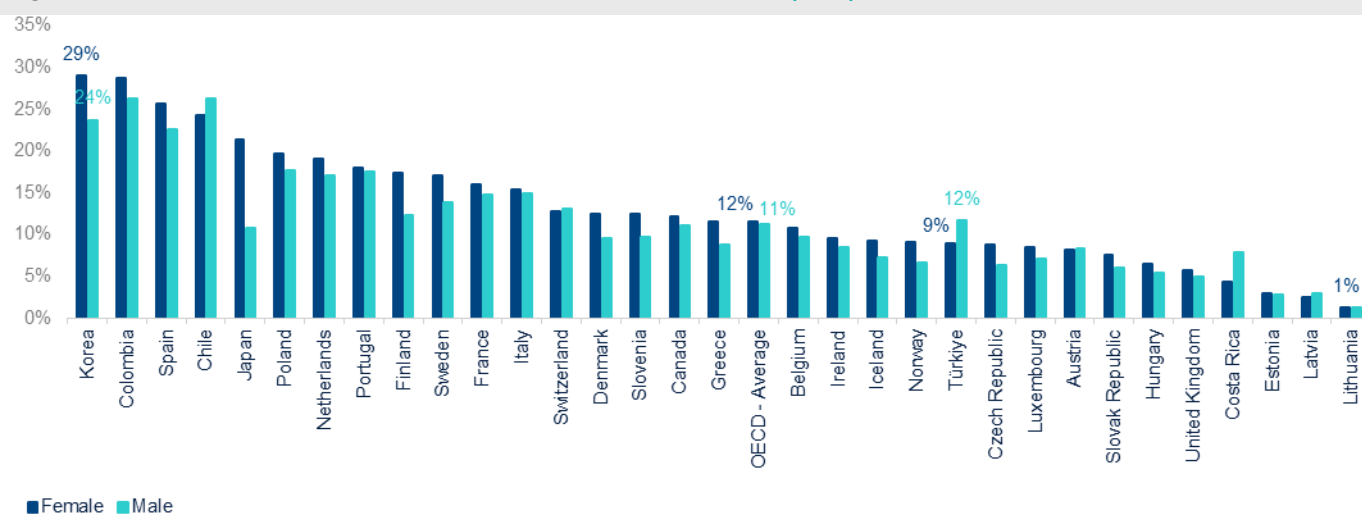abor force participation of women who are not being in labor force mainly due to responsibilities such as housework and childcare. Part-time jobs allow more flexibility in managing working time, enable the access to formal labor market to a wide range of workers that otherwise would be unemployed or engaged in the informal economy or undeclared work. It also facilitates working conditions for special vulnerable groups (e.g., older workers, workers with disabilities, workers undergoing education or training, workers with family responsibilities, pregnant workers, workers who have recently given birth or are breastfeeding) and eases the work-life balance. However, part-time employment is relatively less common in Türkiye with 15% for women, compared to OECD (25% on average) in 2021 (Figure 16). Therefore, creating more part-time career opportunities for women may encourage higher number of women to participate in the labor force.

Figure 16. **SHARE OF EMPLOYED IN PART-TIME EMPLOYMENT (%) - 2021**
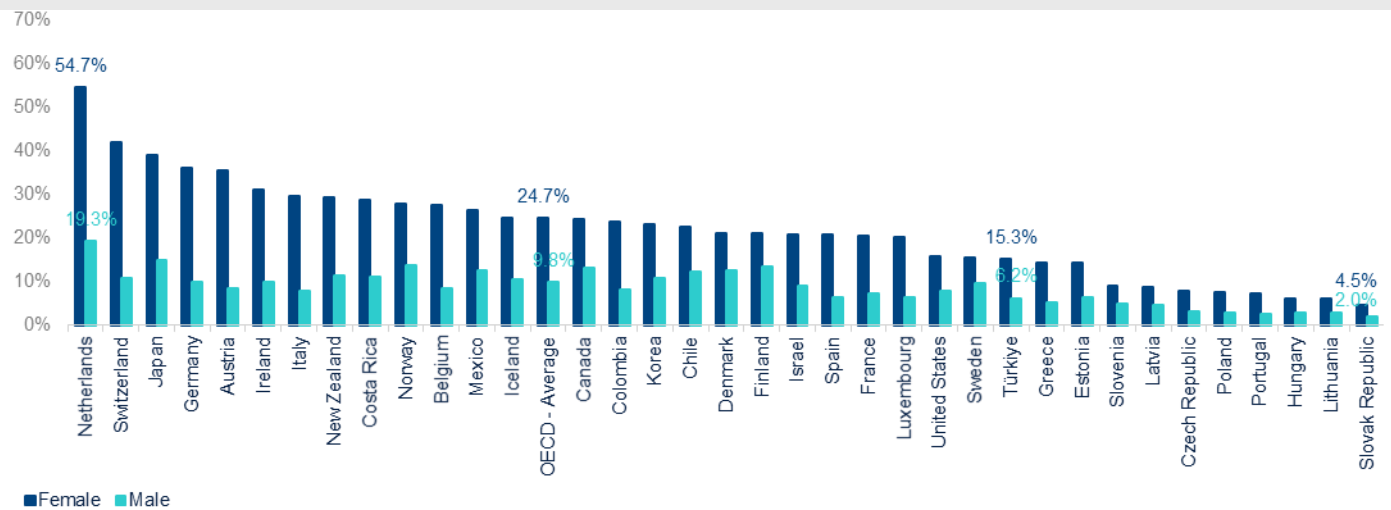
Source: OECD

In recent years, gender wage gap has received increasing attention in order to promote gender equality in labor market. OECD measures[2] the gender wage gap as the difference between median earnings of men and women as a proportion of the median earnings of men based on full-time earnings of employees. Gender wage gap in Türkiye was slightly lower than OECD average in 2018 (Figure 17). Moreover, Cudeville and Gurbuzer (2007) found that Türkiye is not doing so bad compared to other European countries in terms of gender wage discrimination, in particular compared to the Southern European countries (i.e. Spain, Greece, Italy and Portugal).

Figure 17. **MEDIAN EARNINGS GAP IN OECD COUNTRİES - 2018**

Source: OECD

Education is one of the important factors that causes deviation of wages between men and women. Although higher education promotes to higher earnings, income inequality between genders is wider with higher education levels in Türkiye, compared to those with lower education degrees. Structure of Earnings Survey in 2018 revealed that the gap between men and women's earnings was wider among vocational high school and higher education levels although female workers with higher educational degree earned near twice of their co-workers with primary education (Figure 18). OECD report[3] shows that gender wage gap is linked to gender inequalities in unpaid care work. Accordingly, one substantial reason for gender wage gap in Türkiye may be unequal gender division of unpaid care work, given that time devoted to unpaid work of Turkish women is significantly high.

Figure 18. **ANNUAL AVERAGE GROSS EARNINGS BY EDUCATION LEVELS - 2018**
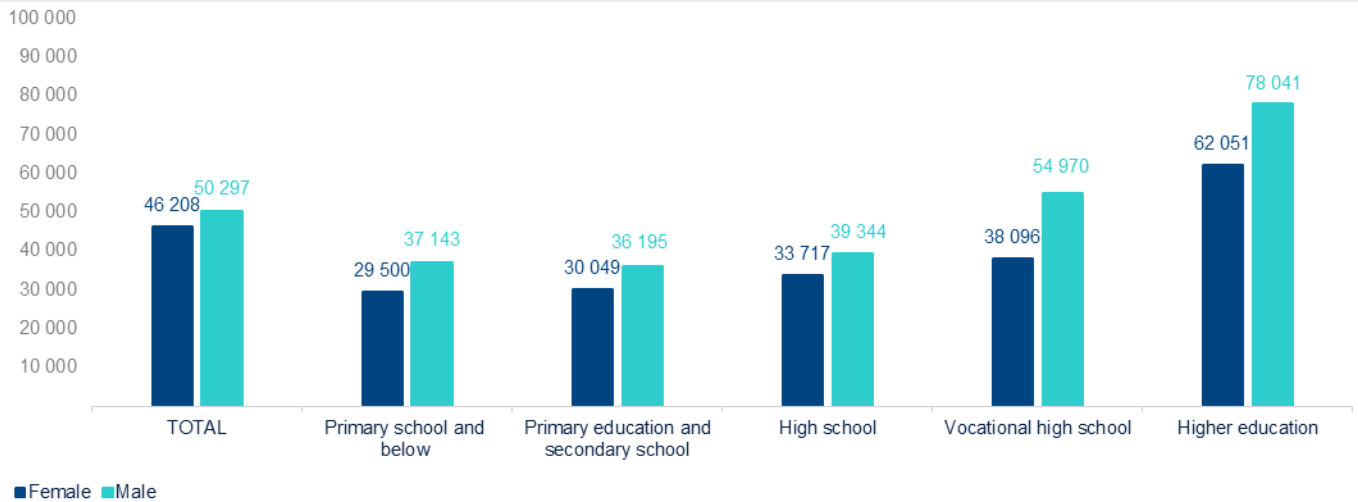
Source: TURKSTAT

Gender inequality is not limited to gender wage gap, but also opportunities for career development and promotion at work. Turkish men are occupied with most of the leadership and upper management positions even though there is very little recovery in the proportion of female managers over the past years. In 2Q22, the ratio of male managers posted at 83%, whereas females constituted 17% of total managers (Figure 19). 18% of seats were held by women on boards for the largest publicly listed companies in 2021 despite some improvement since 2010 (Figure 20).

Figure 19. **SHARE OF MANAGERS (%)**
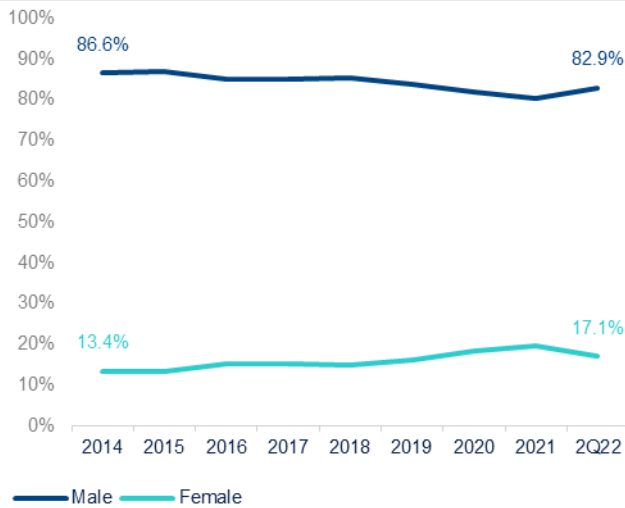
Source: TURKSTAT

Figure 20. **FEMALE SHARE OF SEATS ON BOARDS OF THE LARGEST PUBLICLY LISTED COMPANIES (%)**
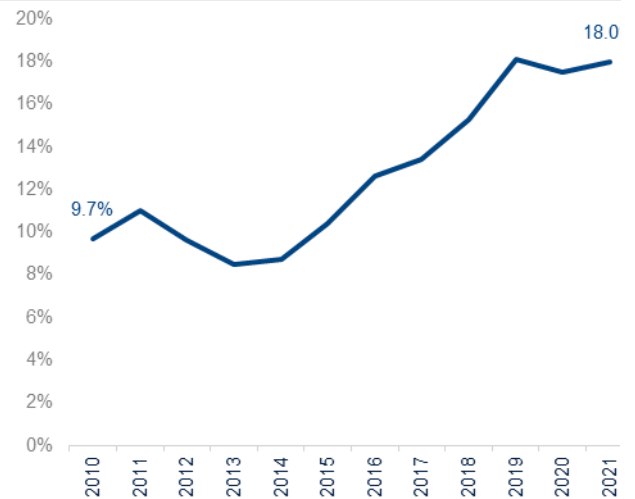
Source: OECD

Moreover, Figure 21 and 22 show that proportion of Turkish women for higher paying occupations such as managers and women on boards in the largest companies remained significantly low amongst OECD countries. In 2020, women's access to managerial positions was the lowest in Japan, Korea and Türkiye with around 13%-18% of managers (vs. OECD 34%). Similarly, less women had seats on boards in the largest publicly listed companies, the ratio was 10pp lower than the rate on average of OECD members in 2021 (18% vs. 28%).

Figure 21. **SHARE OF FEMALE MANAGERS IN OECD COUNTRIES (%) - 2020**
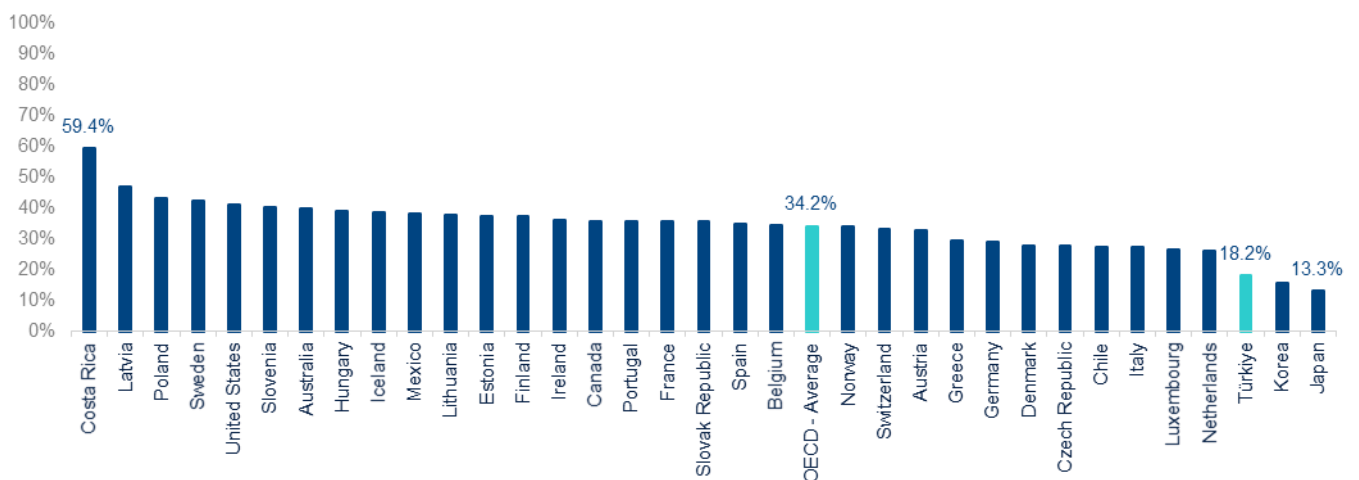
Source: OECD

Figure 22. **FEMALE SHARE OF SEATS ON BOARDS OF THE LARGEST PUBLICLY LISTED COMPANIES IN OECD COUNTRIES (%) - 2021**
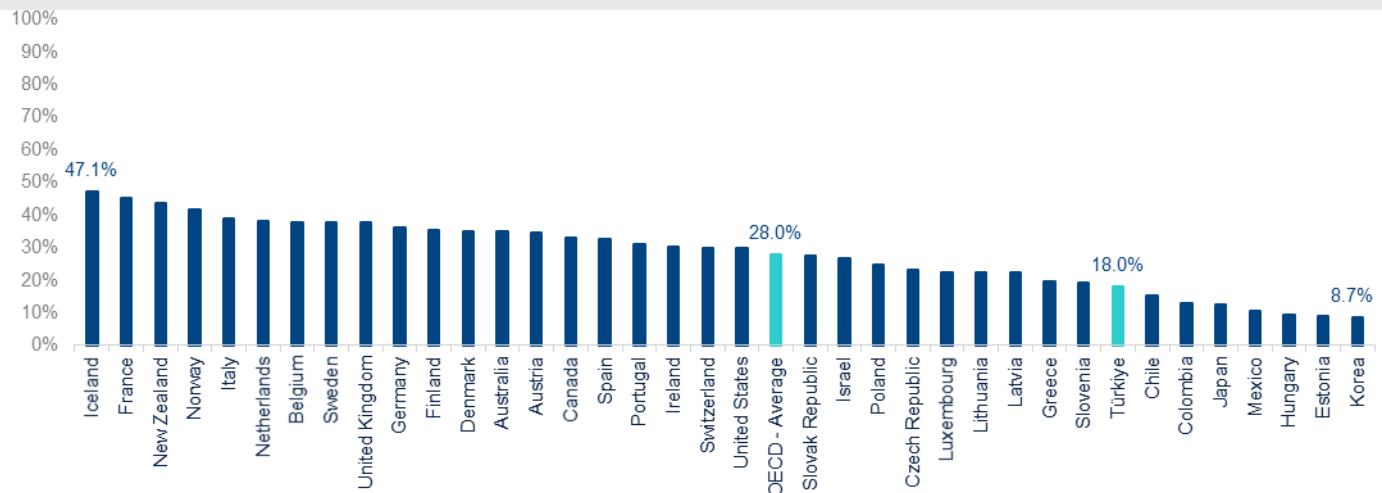
Source: OECD

3. Empirical Analysis: OECD countries

We start our analysis by evaluating the role of various factors that can affect FLFPR in OECD countries. Among all factors, we mainly focus on investigating the relation between marriage and FLFPR since previous empirical studies on OECD countries found relationship mostly between GDP per capita, unemployment rate, education and FLFPR. However, highlighting the traditional gender roles have become very substantial for FLFPR, especially in recent years. Theoretical framework shows that marriage can be one of the obstacles making it less likely for a woman to participate in the labor market (Tumsarp & Pholphirul, 2020). Therefore, domestic and caregiving responsibilities of women increase more with marriage compared to men. For this reason, marriage is included in our specification as a proxy for traditional gender roles of women. To shed light on the impact of marriage, we control for GDP per capita, female unemployment rate, years of schooling, maternity leave and fertility rates in our analysis, which is consistent with the relevant literature for FLFPR. Therefore, we aim to compare the main findings for OECD countries and Türkiye since relationship between marriage and labor supply of women differ according to economic development and socio-cultural factors of countries.

Our panel dataset for analysis covers 38 OECD countries[4] from 1972 to the most recent available data in 2021. FLFPR for each of the country is included as a dependent variable. The explanatory variables we use are GDP per capita, female unemployment rate, schooling, maternity length, fertility rate and marriage (Table 1).

4: World Bank and OECD data are obtained for Australia, Austria, Belgium, Canada, Switzerland, Chile, Colombia, Costa Rica, Czech Republic, Germany, Denmark, Spain, Estonia, Finland, France, United Kingdom, Greece, Hungary, Ireland, Iceland, Israel, Italy, Japan, Republic of Korea, Lithuania, Luxembourg, Latvia, Mexico, Netherlands, Norway, New Zealand, Poland, Portugal, Slovak Republic, Slovenia, Sweden, Türkiye, United States.

Table 1. **DEFINITIONS AND ABBREVATIONS OF THE VARIABLES**

Variables *Abbrevations*	Definition	Source
Female Labor Force Participation Rate *FLFPR*	Female Labor Force Participation Rate (% of female population ages 15+) (modeled ILO estimate)	World Bank
GDP per capita *LOG(GDPPC)*	Logarithm of GDP per capita (constant 2010 US$)	World Bank
Unemployment Rate *UR*	Female Unemployment Rate (% of female labor force) (modeled ILO estimate)	World Bank
Schooling *LOG(SCHOOLING)*	Expected years of schooling, female	World Bank
Maternity Length *LOG(MATERNITY)*	Length of paid maternity leave (calendar days)	World Bank
Fertility Rate *(FERTILITY)*	Fertility rate, total (births per woman)	World Bank
Marriage *MARRIAGE*	Crude marriage rates (Marriages per 1000 people)	OECD

Table 2 presents our pooled OLS and Fixed-Effects (FE) estimation results. Panel data allows us to control unobserved country characteristics. Therefore, FE regression model is preferred after Hausman Test is employed to model (Appendix-A1).

According to our results, a rise in GDP per capita increases significantly FLFPR in OECD countries. Positive relation is consistent with the U-shaped hypothesis suggesting that there is a sort of trade-off between women's career choices and economic development during a country's development (Chapman, 2015). Particularly, in later stages of economic development, female education increases, fertility rates decline and socio-cultural attitudes evolve, which all together contribute to increase the labor force participation rate (Goldin, 1994). Therefore, the positive impact of GDP per capita on FLFPR is expected since most of the OECD members are at the later stages of economic development. On the other hand, female unemployment rate negatively affects labor supply decision of women in OECD countries. In this respect, discouraged worker effect, which is defined as individuals who would like to work, but are not seeking work because they feel no suitable job is available (OECD, 1995), dominates the need to work for women. Consistent with the expectations, an increase in the expected years of schooling of women encourages more women to participate in the labor force in OECD countries.

Maternity leave is defined as leaving granted only to mothers for a limited period of time around the time of childbirth (OECD, 1995). All OECD countries, except the US, offer nationwide paid maternity leave for at least 12 weeks when a baby arrives (OECD, 2016). Maternity leave is an important childcare support provided by most governments and helps women to reconcile work and family life. In our analysis, pooled OLS and FE estimation results confirm the increasing effect of maternity length on FLFPR (Table 2).

Fertility rate is another important factor that may affect domestic tasks of women. Economic theory indicates the negative correlation between fertility rates and FLFPR due to the fact that the increase in female earnings raises the cost of the time allocated to childbearing, which, in turn, induces women to participate in the labor market and to have fewer children (Da Rocha & Fuster, 2006). Contrary to this, the recent literature also revealed that increasing fertility rates leads to more women to participate in labor force in OECD countries. Ahn and Mira (2002) showed that the correlation between total fertility rates and FLFPR for OECD countries had become positive and equally significant by the late 1980's although the correlation was negative and significant during the 1970's and up to the early 1980's. The main reason is that high unemployment rate in OECD countries since mid-1980s induces a strong income effect

for households in which the husband is unemployed and the wife being employed starts to substitute. When the female participation rate is low, income effects due to the loss of the husband's income should be relatively more important. In this sense, the effect of high unemployment on fertility is devastating, especially in countries where wages and female participation rates are low. Similarly, Da Rocha and Fuster (2006) establish that cross-country differences in female employment rates can generate a positive correlation between fertility and employment rates of females in OECD countries when the job-finding rate is low. Therefore, our empirical findings support this observation suggesting the positive relationship between fertility rate and FLFPR in OECD countries.

As explained before, marital status is one the key factors influencing women's decision to work. This can be part of social norms that define women's major duties as running a household and caring for children and others at home while men's major duties are to work and earn income to feed the family (Tumsarp and Pholphirul, 2020). To investigate the validity of this concern, we include marriage rates in our specification by controlling rest of the variables. Our results show that the increase in marriage rates reduces the labor supply of women in OECD countries. However, the coefficient of marriage rate is negative but statistically non-significant in pooled OLS. One possible reason is that it can be biased in the presence of time-invariant unobserved heterogeneity among countries (Altuzarra et al., 2019). Since the use of the FE model controls for the potential endogeneity problems emerging from the correlation between the set of independent variables and the time-invariant country-specific, FE estimator results are more reliable. Therefore, we can confirm that marriage increases women's domestic burdens in the household, thus negatively affecting their labor supply decisions. Another crucial result obtained from the panel data analysis is that the key factors related to traditional roles of women are at least as important as the main economic factors in OECD countries.

Table 2. **PANEL DATA ANALYSIS RESULTS FOR OECD COUNTRIES**

VARIABLES	Pooled OLS FLFPR	Pooled OLS FLFPR	FE FLFPR	FE FLFPR
LOG(GDPPC)	1.117**	1.966***	1.725*	2.202**
	(0.446)	(0.451)	(0.904)	(0.868)
UR	-0.426***	-0.506***	-0.124***	-0.156***
	(0.0521)	(0.0517)	(0.0401)	(0.0388)
LOG(SCHOOLING)	25.41***	24.47***	11.54***	7.772***
	(2.171)	(2.306)	(1.756)	(1.898)
LOG(MATERNITY)	0.778	2.067**	1.317**	1.213*
	(0.937)	(0.926)	(0.667)	(0.628)
FERTILITY	1.640**	0.541	3.383***	5.257***
	(0.643)	(0.659)	(0.673)	(0.729)
MARRIAGE		-0.0397		-1.711***
		(0.236)		(0.167)
Constant	-33.28***	-43.05***	-9.437	2.418
	(7.029)	(8.167)	(6.417)	(6.175)
Observations	763	713	763	713
R-squared	0.355	0.390	0.255	0.390

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

3. Empirical Analysis: Türkiye

After analyzing the factors on FLFPR in OECD countries in general, we dive deeper to check country specific norms in the case of Türkiye. Studies for Türkiye mostly use the nationwide Turkey Household Labor Force Survey (e.g. Dayıoğlu and Kırdar, 2010; Cudeville and Gurbuzer, 2007; Tansel, 2001; Uraz et al., 2010) and Time Use Survey to analyze the impact of unpaid care work (e.g. Kaya Bahçe and Memiş, 2013). The main limitation is that micro-level data could not be obtained, since these surveys have not been made public. Therefore, we carry out an unbalanced panel estimation by using the data for 26 regions in Türkiye (NUTS2 level) for the period of 2014-2021.

We construct regional FLFPRs in female population with ages 15 and over to define as a dependent variable. We check the relevant literature and decide on the explanatory variables. GDP per capita and unemployment rate are mostly used in order to measure the level of economic development and overall economic conditions (Karaoğlan and Ökten, 2012). As previously explained, higher education levels play crucial role for participation of more women to labor force. In addition, greater job availability through education increases women's bargaining power and results in higher wages for women in the labor market. In this sense, we also add schooling rate of Turkish women in regions as a proxy for education in our model.

In order to assess the family-oriented role of Turkish women, household size, marriage and housework are added separately to our specifications. However, we can't analyze the impact of fertility rate as a measurement for child birth mainly due to high correlation rate (90%) between household size and fertility (Appendix-A3). Table 3 shows the definitions and abbreviations of variables included in our analysis.

Table 3. **DEFINITIONS AND ABBREVATIONS OF THE VARIABLES**

Variables Abbrevations	Definition	Source
Female Labor Force Participation Rate *FLFPR*	Female Labor Force Participation Rate (% of female population ages 15+)	TURKSTAT (Labor Force Statistics)
GDP per capita *LOG(GDPPC)*	Logarithm of regional GDP per capita (current prices, 2009 US$)	TURKSTAT (Regional GDP)
Unemployment Rate *UR*	Regional female unemployment rate (15+, %)	TURKSTAT (Labor Force Statistics)
Schooling Rate of Female SCHOOLING	Regional percentage of female population ages 15 and older that had attained at least high school education	TURKSTAT (National Education Statistics)
Household Size HHSIZE	Average size of households	TURKSTAT (Adress Based Population Registration System)
Marriage *MARRIAGE*	Crude marriage rates (per thousand)	TURKSTAT (Marriage Statistics)
Housework HOUSEWORK	The percentage of women declared "busy with housework" in the total number of female respondents	TURKSTAT (Regional Results of Labour Force Statistics)

Pooled OLS and FE estimations are applied to elaborate on the main determinants of regional labor supply decisions of Turkish women (Table 4). In order to make a full use of the panel structure of our data, we construct a FE regression model in order to control unobserved regional characteristics. In line with the result of the Hausman Test, FE regression is preferred for our main specification (Appendix-A2).

FE estimation results present that labor supply of women is positively associated with regional GDP per capita. Higher GDP per capita levels create higher labor market opportunities for women (Karaoğlan and Ökten, 2012). Therefore, obtaining positive relation between them is consistent with our expectations. FE results also show that there is no significant relation between female unemployment rate and FLFPR at regional level. On the other hand, pooled OLS results confirm that unemployment rate has a significant negative impact on FLFPR in line with the previous studies in the literature (Tansel, 2001; Karaoğlan and Ökten, 2012). Tansel (2001) found that discouraged-worker effect for women is substantial on labor force supply. Discouraged worker effect implies that, in an economic downturn, women are more likely to withdraw themselves from the labor force after failed job searches or when facing a gloomy prospect of finding jobs (Gong, 2010). However, Başlevent and Onaran (2003) could not affirm a significant impact of unemployment rate on FLFP. They explain that labor force participation of Turkish women depends on long-term factors rather than short-term effects caused by the business cycles and emphasized that the correlation between unemployment and GDP growth rates could not be as expected, especially in cross-sectional provinces of Türkiye.

There is a consensus in most of the studies about the significant and positive impact of education on FLFPR (İlkkaracan, 2012; Dayıoğlu and Kırdar, 2010; Göksel, 2013; Uraz et al., 2010). Our FE results confirm the positive impact of education for women on labor market in terms of higher wages, finding jobs more easily and achieving upper management job positions at work. Göksel (2013) emphasized two channels for crucial role of education on Turkish women's decision to work: higher education both facilitates finding a job and also weakens the influence of conservatism, which increases their labor supply.

Some studies established the causal impact of household size on FLFPR. Family size differs significantly between regions in Türkiye. Larger family size is mostly observed in the eastern part of Türkiye, whereas western regions have lower average household size. According to the latest available data, the provinces with the highest average household size were Mardin, Batman, Şırnak and Siirt (South East Anatolia) with 4.89 persons. On the other hand, Balıkesir and Çanakkale (West Marmara) were the lowest with 2.62 persons. Taking into account this variation in regions, we add household size in our specification to check the relation between FLFPR and household size. Pooled OLS results present that labor supply of women decreases significantly as household size increases when controlled for GDP per capita, unemployment rate and schooling. One theoretical argument related to the negative effect of household size is that time spent in production of household goods is positively related with household size, leading the participation rate to fall as household size increases (Groesbeck and Israelsen, 1994). Another approach is that routine household tasks of women (e.g. cooking, cleaning, laundry and other domestic activities) raise as the number of persons in the household increases, thus FLFPR decreases. However, FE estimation results indicate a significant and positive relation between household size and FLFPR by excluding marriage and housework as more family-oriented factors. One possible explanation is that women's responsibilities such as childcare, housework etc. may be undertaken by another member of the family (e.g. grandmother) in the house as family size increases, which positively affects FLFPR. Furthermore, rising household expenditures related to the extended-families may promote more women to enter labor force. In Türkiye, living with family elders is a more common practice, especially in rural regions since traditional norms are more apparent in rural areas than urban areas. In this regard, positive impact of household size on FLFPR is comprehensible on regional basis.

Marriage is another factor that affects FLFPR through women's domestic tasks and constraints on managing the family interaction and work. The rise in women's domestic responsibilities such as housework and childcare induces an increase in demand on leisure time. İlkkaracan (2012) shows that less than half of the married Turkish woman participates in the labor market relative to their unmarried counterparts. Our pooled OLS results confirm the negative effect of marriage on women's decision to work. Contrary to pooled OLS, highly significant and positive relation between marriage and FLFPR is obtained in FE estimation. In this sense, increasing domestic needs and expenditures after marriage such as housekeeping, childbearing and childrearing activities are also the main factors that positively affect women's decision to work.

In order to gain insight on the traditional role of women, we add housework in our specification to investigate whether engaging in housework for women has an impact on FLFPR. Nationwide Household Labor Force Survey in 2Q22 presents that "housework" was the main reason for not participating in the labor force for women. The survey in 2021 indicates that 97% of women in South East Anatolia declared that they did not enter the labor force because they were engaged in housework. Both pooled OLS and FE results make clear that housework has a significantly negative impact on regional FLFPR in line with our expectations. All in all, our results highlight that three factors mainly affect labor supply decision of Turkish women: schooling, marriage and housework. Therefore, the key factors on FLFPR we found for OECD countries in general are parallel to the results we obtain in regional panel data estimation for Türkiye where traditional roles deserve more attention.

Table 4. **PANEL DATA ANALYSIS RESULTS FOR TÜRKIYE**

| VARIABLES	Pooled OLS FLFPR	Pooled OLS FLFPR	Pooled OLS FLFPR	Pooled OLS FLFPR	FE FLFPR	FE FLFPR	FE FLFPR	FE FLFPR
LOG(GDPPC)	2.801**	0.394	2.312	3.886***	6.160	8.075*	6.027*	6.185*
	(1.241)	(1.180)	(1.497)	(1.335)	(3.977)	(4.092)	(3.604)	(3.566)
UR	-0.500***	-0.264***	-0.273***	-0.267***	0.0377	0.0892	0.0247	0.0457
	(0.0555)	(0.0620)	(0.0616)	(0.0542)	(0.0734)	(0.0784)	(0.0694)	(0.0694)
SCHOOLING	0.395***	0.109	0.0395	0.0265	0.318**	0.511***	1.189***	1.165***
	(0.0621)	(0.0714)	(0.0785)	(0.0691)	(0.150)	(0.184)	(0.190)	(0.188)
HHSIZE		-4.700***	-3.895***	-2.880***		4.120*	1.401	1.292
		(0.728)	(0.821)	(0.736)		(2.306)	(2.063)	(2.041)
MARRIAGE			-1.166**	-0.722			4.373***	4.554***
			(0.568)	(0.504)			(0.643)	(0.642)
HOUSEWORK				-0.228***				-0.0691**
				(0.0316)				(0.0330)
Constant	0.404	44.97***	35.34***	27.93**	-34.28	-73.10	-96.34**	-94.19**
	(10.05)	(11.39)	(12.23)	(10.81)	(39.90)	(45.18)	(39.81)	(39.38)
Observations	182	182	182	182	182	182	182	182
R-squared	0.498	0.593	0.603	0.694	0.064	0.084	0.299	0.318

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

4. Traditional Roles of Turkish Women: Family Structure Survey

As discussed earlier, division of household labor is one aspect associated with the traditional gender role in the society. The main findings of the Family Structure Survey[5] may be important to highlight the relationship between social and demographic factors affecting family size and the composition of families and households. In this regard, we present the most relevant results of the Survey with our analysis in order to highlight the close relation between the distribution of routine household tasks by gender (e.g. cooking, childcare) and labor supply of women.

Survey results show that women are mainly responsible for cooking and childcare in Türkiye and reflect the expected negative correlation between household work and FLFPR across the regions. For example, cooking responsibility of women is more pronounced in South East Anatolia, where FLFPR posted the lowest rate with 21.3%. Similarly, negative impact of childcare responsibility on FLFPR is evident in some regions. Though, the impact of childcare responsibilities of women on FLFPR is not as pronounced as housework when all regions are considered. For instance, South East Anatolia has the second highest childcare responsibility of women and shows the lowest FLFPR.

Figure 23. **PERSONS RESPONSIBLE FOR COOKING (%) 2021**
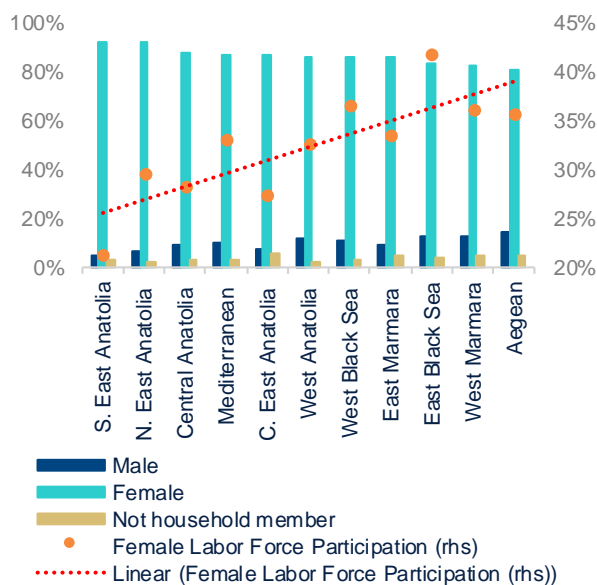
Source: TURKSTAT

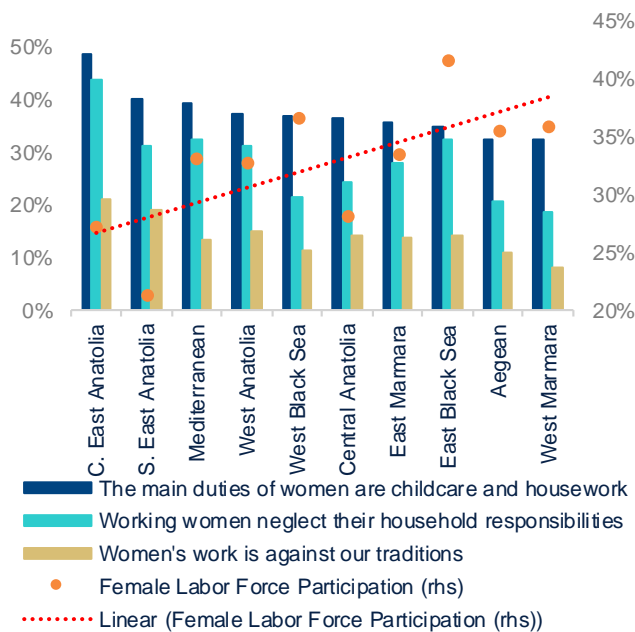Figure 24. **PERSONS RESPONSIBLE FOR CHILDCARE (%) - 2021**
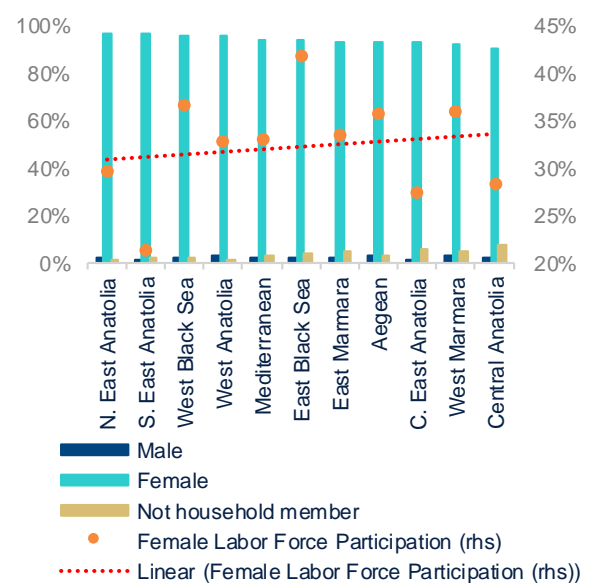
Source: TURKSTAT

Figure 25 and 26 illustrate the perception of the society on traditional gender roles, particularly women's work and expectations from women on household chores. Approximately 50% of respondents in East Anatolia agreed that the main duties of women are childcare and housework. Similarly, the average rate of those who stated "working women neglect their household responsibilities" stood at almost 30%. The rate of respondents who said "women's work is against our traditions" was high, especially in the eastern part of Türkiye. Accordingly, regional FLFPR increases as perception about women's main duties of childcare and housework decreases.

5: A survey repeated in 2021 for 11 regions and 3 big cities (Istanbul, Ankara, Izmir) in Türkiye by Turkstat after the surveys of 2006 and 2016
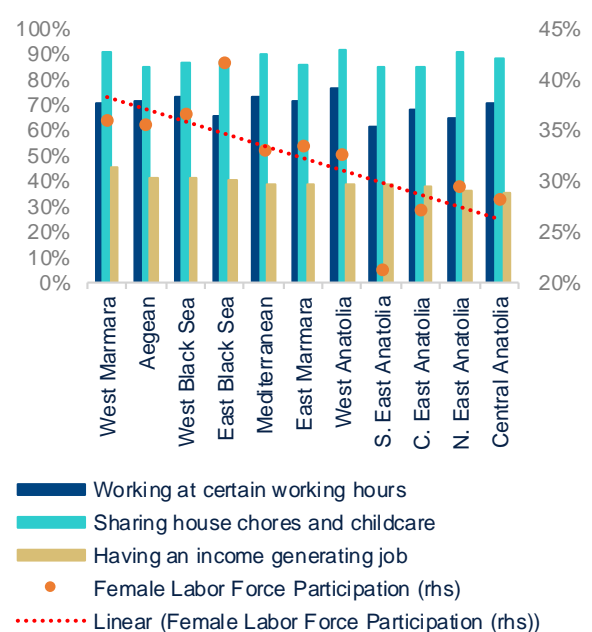
Figure 26 reflects men's perceptions about the role of their spouse in housework and working life. The breadwinner role of men in Türkiye is much more evident while their perceptions about their wife are mainly based on housework and childcare. Less than half of the male respondents agreed with the opinion that their future spouse should have an income generating job, whereas answers relating household chores are more than half. Among regions, especially in eastern parts, regional labor supply of women increases significantly as the rate of giving importance to household chores decreases. All in all, traditional gender roles in household chores and "conservative" approaches against women's work are mostly seen in eastern regions, which may be an important reason for quite low FLFPR.

Figure 25. **PERCEPTIONS ABOUT WOMEN'S WORK (%) - 2021**

The main duties of women are childcare and housework
Working women neglect their household responsibilities
Women's work is against our traditions
● Female Labor Force Participation (rhs)
⋯⋯⋯ Linear (Female Labor Force Participation (rhs))

Source: TURKSTAT

Figure 26. **CHARACTERISTICS THAT MEN LOOK FOR IN A WOMEN TO MARRY (%) – 2021**

Working at certain working hours
Sharing house chores and childcare
Having an income generating job
● Female Labor Force Participation (rhs)
⋯⋯⋯ Linear (Female Labor Force Participation (rhs))

Source: TURKSTAT

Figure 27 and 28 show the distribution of answers regarding the responsible person/institution for day care of kids in Family Structure Survey conducted in 2016[6]. Mothers bear the brunt of childcare and their responsibility is much higher in the eastern part of the country. It is obvious that reducing women's childcare responsibility encourages more women to participate in the labor force. On the other hand, few households prefer kindergartens for day care of kids (Figure 28). This ratio varies considerably among regions (7.6% in West Marmara vs. 0.4% in South East Anatolia). The positive correlation between kindergartens for childcare and FLFPR is observed, which can be explained by the need of caregiving the kid. On the other hand, it is also possible that childcare in kindergartens is not be affordable for parents since labor supply of female is low. Considering the overall figures, regional differences in economic indicators play a crucial role but regional differences in socio-cultural factors seem to be main driver for the reason why there exist few Turkish women in labor force.
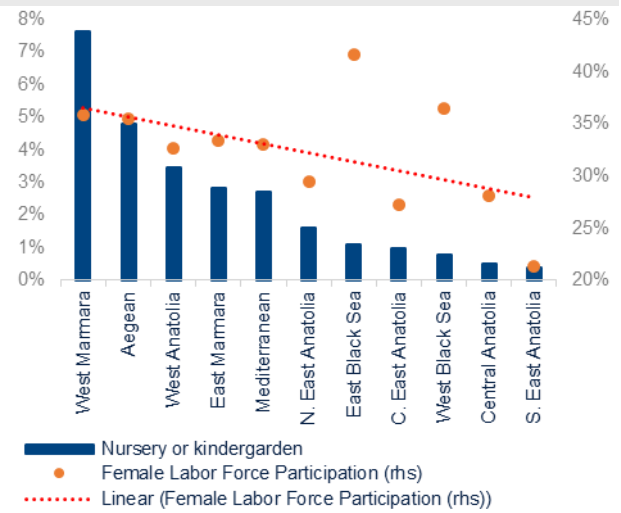

6: The latest Survey in 2021 did not include the question about day care of kids.

Figure 27. **DAY CARE OF KIDS - MOTHER (%, 2016)**
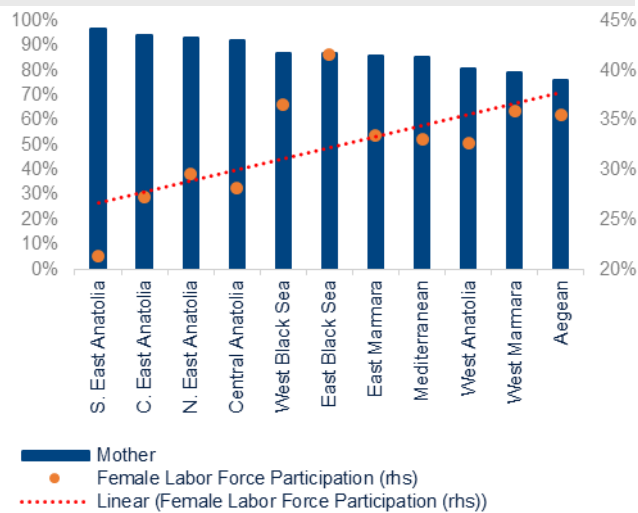
Source: TURKSTAT, BBVA RESEARCH

Figure 28. **DAY CARE OF KIDS – NURSERY OR KINDERGARTEN (%, 2016)**

Source: TURKSTAT

In order to shed light on the relationship between conservatism and regional labor supply decision of women, we also build a conservatism index (CI) for regions. Selecting the most relevant questions in Family Structure Survey and Marriage Statistics dataset in 2016[7] enables us to compute CI. One limitation is that we couldn't make an impact analysis as the number of observations was quite low due to publicly available survey data covers only Nuts1 level (11 regions and 3 cities).
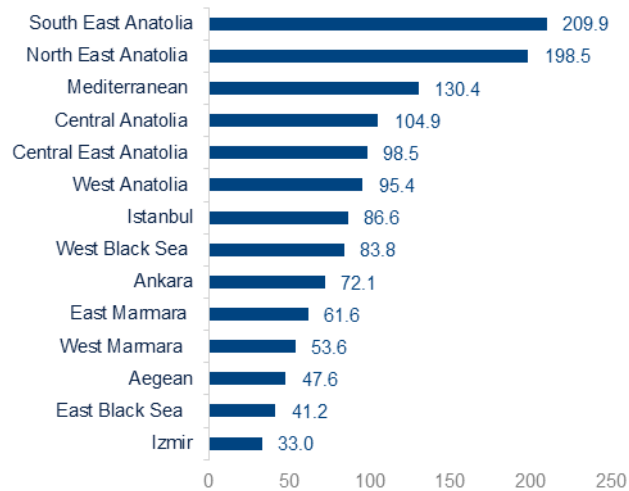
Relevant questions with CI are explained below:

- Punishments given to children by their mothers and fathers (Beating him/her up)
- Attitudes towards women in the workforce (It is not appropriate for women in the workforce)
- Persons responsible for household chores (Paying monthly bills by female)
- Proportion of first marriage of women aged 16-19 (in total number women for first marriages)
- Form of solemnization (Only religious solemnization)
- Bride price application (Yes)

In the second step, we make a standardization with a reference value at 100 by computing the sample mean and standard deviation for each of the variables. Figure 29 and 30 present our calculation results of CI by regions. Based on our measurement for conservatism, South and North East Anatolia are the most conservative among all regions, whereas East Black Sea and Aegean regions are the least conservative.

7: CI has been calculated by using the 2016 survey data. Although the latest data was available for 2021, the dataset is more comprehensive for 2016 since some of the questions related to conservatism were missing in 2021 survey.

Figure 29. **CONSERVATISM INDEX (BASE=100)**

Region	Value
South East Anatolia	209.9
North East Anatolia	198.5
Mediterranean	130.4
Central Anatolia	104.9
Central East Anatolia	98.5
West Anatolia	95.4
Istanbul	86.6
West Black Sea	83.8
Ankara	72.1
East Marmara	61.6
West Marmara	53.6
Aegean	47.6
East Black Sea	41.2
Izmir	33.0

Source: TURKSTAT, BBVA RESEARCH

Figure 30. **CONSERVATISM AND FLFPR - 2016**

Source: TURKSTAT

As discussed earlier, there is a consistency between calculated CI and perceptions about housework and childcare duties of women. For instance, according to results of the Family Structure Survey, traditional roles of women are most prominent in South East Anatolia. Since the highest CI is calculated for South East Anatolia, this consistency implies that selected variables for CI are robust.

Figure 30 exhibits the negative relationship between conservatism and FLFPR, confirming the existing literature which supports the idea that the increase in conservatism reduces substantially the labor supply of women. Göksel (2013) points out that in conservative and traditional regions in Türkiye, where men have a greater decision-making power, and there is greater gender inequality, women tend to stay at home and become housewives. In this regard, one of the most striking findings from our measurement for CI is that South East Anatolia has the lowest FLFPR and the highest CI. In contrast, Izmir, considered as one of the most modern cities in Türkiye, is characterized by the lowest CI and quite high FLFPR. Among all regions, the highest FLFPR belongs to East Black Sea, which also has the second lowest CI, following Izmir. Consequently, conservative approach against women increases their burden on unpaid care work, resulting quite low labor supply decision of Turkish women.

5. Discussions and Policy Suggestions

Labor supply of Turkish women is significantly low compared to both international standards and MLFPR in Türkiye. According to descriptive statistics based on the official figures, low FLFPR is mainly due to domestic and caregiving responsibilities of Turkish women, especially household chores and childcare. Panel data analysis for 26 regions in Türkiye highlights that housework has significantly negative impact on labor supply decision of Turkish women. According to our results, the most significant factors on FLFPR are education, marriage and housework. Furthermore, we extend our work with a panel analysis for OECD countries in a longer period of time. We analyze the impact of marriage on FLFPR since domestic and caregiving responsibilities of women increase with marriage compared to men. The impact of marriage in OECD countries is significantly negative, whereas it is the opposite for regions in Türkiye. One possible reason for the positive relationship is that increasing domestic needs and expenditures after marriage such as housekeeping, childbearing and childrearing activities are the main factors affecting positively

women's decision to work. On the other hand, the significant negative impact of marriage in OECD countries might be due to increasing domestic burden of women in the household.

Both tremendous amount of time spent by Turkish women on unpaid care work (305 minutes in a day) and, as our results suggest, discouraging effect of household chores on FLFPR prompted us to investigate further on domestic roles of Turkish women. Regional results of the Family Structure Survey reveal that labor supply of women is significantly low, especially in regions where women have higher domestic burden such as household chore and childcare. Results regarding the perceptions about women's work show that traditional role of women is more prominent in eastern part of Türkiye, Central and South East Anatolia in particular, where almost half of the respondents declared that the main duties of women are childcare and housework. Eventually, survey results on perceptions about women suggest that traditional gender roles or conservative approach towards women are key factors for women's domestic duties in household. Therefore, we try to determine the relationship between conservatism and FLFPR by computing a conservatism index for 11 regions and 3 big cities (Istanbul, Ankara, Izmir). Conservatism Index confirms that areas with higher conservatism have lower FLFPR, or vice versa. More conservative approach to women may increase their responsibility for unpaid care work, this is likely to account for the pattern of low FLFPR in Türkiye.

Our findings therefore suggest that the most important policy measures to increase the labor supply of Turkish women are mostly related to reducing the conservative perspective on traditional gender roles. Therefore, improving the quality and increasing the accessibility of education for both men and women are key policy items that directly and indirectly affect women's labor supply. Higher levels of education for women will directly lead to higher opportunity cost for mothers who decide not to work outside the home, especially in eastern part of Türkiye where women generally engage in household tasks. This is because the opportunity cost of forgoing job opportunities to stay at home will be higher if the amount of earnings of the women are higher. Additionally, a higher level of education weakens the influence of conservatism and encourages Turkish women to participate more in the labor force as shown by Göksel (2013). Similarly, building training programs related to the contribution of women being in labor force to the society and household income can be very important steps, especially in rural areas. It may help to remove the conservative barriers to women's work and contribute enormously to women's economic empowerment.

Affordable and accessible childcare services are vital policy measures to enhance FLFPR, allowing mothers to be full-time employed and promoting female labor supply by reducing childcare responsibilities of mothers. Increasing public expenditures for both preschool facilities and kindergartens is one of the most important ways to remove barriers to women entering the labor force. The government may provide subsidies, especially for children whose parents are in full-time employment. However, in 2020, public expenditure for pre-primary education was the lowest with 6% among different education levels in Türkiye (Figure 31). The government may incentivize investments on both pre-primary education and children day-care facilities. For instance, providing public incentives (e.g. tax benefits, income supports) reduces the cost of childcare centers and makes childcare facilities more affordable for parents. To encourage childcare facilities at workplaces, nursery rooms and child care centers should be more widely provided in workplaces, especially for private companies. This may be regulated with law by the government and obliged for both public institutions and private companies. Therefore, one of the most important obstacles to women's participation in labor supply stemming from childcare responsibilities can be eliminated.

BBVA
Research

Figure 31. **PUBLIC EDUCATION EXPENDITURES (% SHARE IN TOTAL) - 2020**
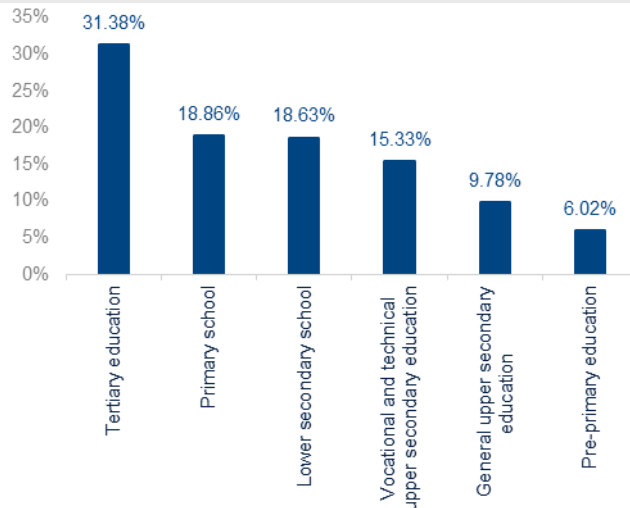
Source: TURKSTAT, BBVA RESEARCH

Figure 32. **PUBLIC EDUCATION EXPENDITURES ACROSS YEARS (% SHARE IN TOTAL)**
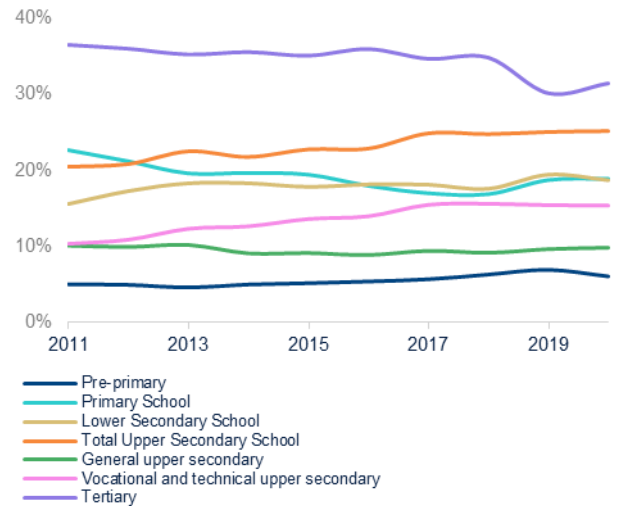
Source: TURKSTAT, BBVA RESEARCH

Length of paid paternity leave is an important objective of gender equality measures for taking an equal responsibility of fathers when a baby arrives. The total length granted for maternity leave is much more higher than the length of paternity leave in Türkiye, putting a disproportionate care responsibility of newly born child on women in the household. Fathers are allowed to take up to 5 days for workers and 10 days for civil servants, whereas women are granted a total of 16 weeks of paid maternity leave. This results in a reluctance among employers to hire women of childbearing-age. Longer paternity leaves should be offered so that both parents can take on an equal of the childcare burden.

Last but not least, media tools (i.e. public service announcements) may be used to raise awareness about the importance of women's participation in the labor force and also encourage more to enter the workforce.

Appendix

A1. Hausman Test Statistics for OECD

chi2=(b-B)' [(V_b-V_B)^(-1)] (b-B)	211.07
Prob > chi2	0.0000
FE or RE	FE

*H_0: Difference in coefficients not systematic

A2. Hausman Test Statistics for Türkiye

chi2=(b-B)' [(V_b-V_B)^(-1)] (b-B)	352.78
Prob > chi2	0.0000
FE or RE	FE

*H_0: Difference in coefficients not systematic

A3. Correlation Table

	FLFPR	LOG(GDPPC)	UR	SCHOOLING	FERTILITY	MARRIAGE	HHSIZE	HOUSEWORK
FLFPR	1.00							
LOG(GDPPC)	0.46	1.00						
UR	-0.41	0.01	1.00					
SCHOOLING	0.47	0.66	0.18	1.00				
FERTILITY	-0.68	-0.59	0.20	-0.71	1.00			
MARRIAGE	-0.44	-0.03	0.06	-0.50	0.60	1.00		
HHSIZE	-0.75	-0.64	0.31	-0.68	0.90	0.53	1.00	
HOUSEWORK	-0.39	0.01	0.04	-0.34	0.34	0.35	0.31	1.00

References

Acar, S. (2007). *An analysis of female labor force participation in Turkey from a gender perspective* (Master's thesis, Sosyal Bilimler Enstitüsü).

Ahn, N., & Mira, P. (2002). A note on the changing relationship between fertility and female employment rates in developed countries. *Journal of population Economics*, *15*(4), 667-682.

Altuzarra, A., Gálvez-Gálvez, C., & González-Flores, A. (2019). Economic development and female labour force participation: The case of European union countries. *Sustainability*, *11*(7), 1962.

Bailon, C. (2019). The Traditional Individual in Society: A Study on Traditional Gender Roles and Mental Health.

Başlevent, C., & Onaran, Ö. (2003). Are married women in Turkey more likely to become added or discouraged workers?. Labour, 17(3), 439-458.

Chapman, K. A. (2015). Economic development and female labor force participation in the Middle East and North Africa: A test of the U-shape hypothesis. *Gettysburg Economic Review*, *8*(1), 3.

Cudeville, E., & Gurbuzer, L. Y. (2007). Gender Wage Discrimination in the Turkish labor market. halshs-00188745.

Da Rocha, J. M., & Fuster, L. (2006). Why are fertility rates and female employment ratios positively correlated across OECD countries?. *International Economic Review*, *47*(4), 1187-1222.

Dayıoğlu, M., & Kırdar, M. G. (2010). Determinants of and trends in labor force participation of women in Turkey.

Ferrant, G., Pesando, L. M., & Nowacka, K. (2014). Unpaid Care Work: The missing link in the analysis of gender gaps in labour outcomes. Boulogne Billancourt: OECD Development Center.

Frondel, M., & Vance, C. (2010). Fixed, random, or something in between? A variant of Hausman's specification test for panel data estimators. *Economics Letters*, *107*(3), 327-329.

Goldin, C. (1994). The U-shaped female labor force function in economic development and economic history.

Gong, X. (2010). The added worker effect and the discouraged worker effect for married women in Australia. https://treasury.gov.au/sites/default/files/2019-03/Tsy_Working_Paper_2010-01.pdf

Göksel, I. (2013). Female labor force participation in Turkey: The role of conservatism. In Women's Studies International Forum (Vol. 41, pp. 45-54).

Groesbeck, J. D., & Israelsen, L. D. (1994). The relationship between household size, real wages, and labor force participation rates of men and women. *Economics Research Institute Study Paper*, *94*(13), 1.

İlkkaracan, İ. (2012). Why so few women in the labor market in Turkey?. Feminist Economics, 18(1), 1-37.

International Labour Office (ILO). 2017. Key indicators of the labour market. International Labour Office, Geneva, Switzerland. https://www.ilo.org/global/statistics-and-databases/research-and-databases/kilm/lang--en/index.htm

ILO. 2017. Labour force participation rate. International Labour Office, Geneva, Switzerland. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_422090.pdf

ILO. 2020. Part-time Work. Geneva, Switzerland. https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---lab_admin/documents/genericdocument/wcms_750920.pdf

ILO. 2022. Labour Force Statistics, ILOSTAT Database Description. International Labour Office, Geneva, Switzerland. https://ilostat.ilo.org/resources/concepts-and-definitions/description-labour-force-statistics/

ILO. 2022. Promoting Gender Equality in the World of Work. Ankara, Türkiye. https://www.ilo.org/ankara/projects/gender-equality/lang--en/index.htm

Karaoğlan, D., & Ökten, C. (2012). Labor force participation of married women in Turkey: Is there an added or a discouraged worker effect?.

Kaya Bahçe, S. A., & Memiş, E. (2013). Estimating the impact of the 2008–09 economic crisis on work time in Turkey. *Feminist Economics*, *19*(3), 181-207.

McCabe, J. L., & Rosenzweig, M. R. (1976). Female labor-force participation, occupational choice, and fertility in developing countries. *Journal of Development Economics*, *3*(2), 141-160.

OECD. 1995. Long-term leave for parents in OECD countries. *Employment Outlook*, *1995*, 171-202.

OECD. 1995. Supplementary measures of labour market slack: an analysis of discouraged and involuntary part-time workers. *Employment Outlook*, 1995, 43-97.

OECD. 2016. *Parental leave: Where are the fathers?*. Paris, France. https://www.oecd.org/policy-briefs/parental-leave-where-are-the-fathers.pdf

OECD. 2019. *Enabling Women's Economic Empowerment New Approaches to Unpaid Care Work in Developing Countries*. OECD Publishing. Paris, France.

OECD. 2022. "Temporary employment" (indicator), https://doi.org/10.1787/75589b8a-en (accessed on25 November 2022).

Tansel, A. (2001). Economic development and female labor force participation in Turkey: Time-series evidence and cross-province estimates. METU/ERC Working Paper, (02/3).

Tumsarp, P., & Pholphirul, P. (2020). Does marriage discourage female labor force participation? Empirical evidence from Thailand. *Marriage & Family Review*, *56*(7), 677-688.

Uraz, A., Aran, M. A., Hüsamoğlu, M., Okkalı Şanalmış, D., & Çapar, S. (2010). Recent Trends in female labor force participation in Turkey. State Planning Organization of the Republic of Turkey And World Bank Welfare and Social Policy Analytical Work Program Working Paper, (2)

Working Papers

2022

22/13 **Tugce Tatoglu:** Drivers of Low Female Labor Force Participation in Türkiye.

22/12 **Amparo Castelló-Climent and Rafael Doménech:** Converging to Convergence: The Role of Human Capital.

22/11 **Gül Yücel, Mert Zobi:** Positioning of Türkiye in Global Value Chains (GVCs)

22/10 **Ángel de la Fuente:** La evolución de la financiación de las comunidades autónomas del régimen común, 2002-2022.

22/09 **Luis Antonio Espinosa Carrasco, Juan José Li Ng:** México | ¿El confinamiento por COVID-19 redujo la contaminación del aire?

22/08 **Ángel de la Fuente:** La liquidación de 2020 del sistema de financiación de las comunidades autónomas de régimen común.

22/07 **Ángel de la Fuente y Pep Ruiz Aguirre:** Series largas de VAB y empleo regional por sectores, 1955-2020. Actualización de RegData-Sect hasta 2020.

22/06 **Guillermo Jr. Cárdenas Salgado, Juan José Li Ng, Héctor Ortega Rosas, Susana Ramos Villaseñor, Carlos Serrano Herrera, Elmer Solano Flores:** ¿Los SMS nudges promueven la salud financiera?

22/05 **Shulin Shen, Le Xia, Yulin Shuai, Da Gao:** Measuring news media sentiment using Big Data for Chinese stock markets.

22/04 **Ángel de la Fuente:** Las finanzas autonómicas en 2021 y entre 2003 y 2021.

22/03 **José E. Boscá, José Cano, Javier Ferri:** Covid-19 in Spain during 2021: what have vaccines achieved and what is the health cost of vaccine hesitancy?.

22/02 **Adriana Haring and Mario Iparraguirre:** Argentina. Futuro de los sectores post pandemia.

22/01 **Ángel de la Fuente:** Series largas de algunos agregados económicos y demográficos regionales: actualización de RegData hasta 2020 (RegData y RegData Dem versión 6.1-2020).

2021

21/11 **Ángel de la Fuente and Rafael Doménech:** Cross-country data on skills and the quality of schooling: a selective survey.

21/10 **Ángel de la Fuente:** La evolución de la financiación de las comunidades autónomas de régimen común, 2002-2019.

21/09 **Ángel de la Fuente:** La liquidación de 2019 del sistema de financiación de las comunidades autónomas de régimen común.

21/08 **Rodolfo Méndez-Marcano:** A global vector autoregressive model for banking stress testing.

21/07 **Ali B. Barlas, Seda Guler Mert, Berk Orkun Isa, Alvaro Ortiz, Tomasa Rodrigo, Baris Soybilgen and Ege Yazgan:** Big Data Information and Nowcasting: Consumption and Investment from Bank Transactions in Turkey.

21/06 **Ángel de la Fuente y Rafael Doménech:** El nivel educativo de la población en España y sus regiones: actualización hasta 2019.

21/05 **Saidé Salazar, Jaime Oliver, Álvaro Ortiz, Tomasa Rodrigo and Ignacio Tamarit:**
   ESP/ Patrones de Consumo de Efectivo vs Tarjeta en México: una aproximación Big Data.
   ING / Cash Vs Card Consumption Patterns in Mexico: A Machine Learning Approach.

21/04 **Ángel de la Fuente:** La financiación autonómica en 2020: una primera aproximación y una propuesta de cara a 2021.

21/03 **Ángel de la Fuente:** Las finanzas autonómicas en 2020 y entre 2003 y 2020.

21/02 **Joxe Mari Barrutiabengoa, J. Julián Cubero and Rodolfo Méndez-Marcano:** Output-side GHG Emissions Intensity: A consistent international indicator.

21/01 **Ángel de la Fuente y Pep Ruiz:** Series largas de VAB y empleo regional por sectores, 1955-2019 Actualización de *RegData-Sect* hasta 2019.

CLICK TO ACCESS THE WORKING PAPERS PUBLISHED IN
Spanish and English

DISCLAIMER