DETERMINANTS OF FEMALE LABOUR FORCE PARTICIPATION: PANEL DATA ANALYSIS

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Abstract

The growing participation of women in the labour market has been undoubtedly one of the main features of the evolution of the economies of the European Union (EU) during the last few decades. Nevertheless, maintaining this increase remains an important policy goal due to the existing population ageing and gender employment gap. This paper aims to analyse the main determinants of female labour force participation (FLFP) in the EU countries using panel data regression analysis covering the period from 2000 to 2021. By employing the fixed-effects regression analysis, an influence of dependent variables such as GDP per capita, presence of anti-discrimination laws, equal opportunities laws and affirmative action, women's participation in parliament work, total fertility rate, paid parental leave, retirement age with full pension benefits, women's education and annual net earnings are assessed on the female labour participation rate in the European Union. Moreover, the robust standard error procedure is performed for model estimation. The empirical results indicate that GDP per capita, total fertility rate, equal age of retirement for men and women, annual net earnings, female upper secondary and post-secondary non-tertiary education and tertiary education enrolment represent significant determinants of FLFP, where all the stated variables have a positive influence on the FLFP rates. Therefore, improvement in education levels, annual net earnings and gender equality policies influence women to participate more in labour markets. These findings demonstrate the significance of improving education and earnings levels and the necessity of the development of adequate policies that will provide that.

Implications for Central European audience: The results of this study provide insightful findings concerning the main drivers of female labour force participation in the European Union by taking into account the COVID-19 pandemic period labour market indicators.

Introduction

Recent studies indicate that closing the gender gap in labour force participation by increasing female labour force participation (FLFP) would increase GDP by between 10 and 80% (Ostry et al., 2019), bring greater financial stability (Sahay et al., 2018) and enhance countries' economic efficiency (World Bank, 2011). The positive effects of women's enrolment in the labour market are vast and concern the substitution of the negative trend on the labour market due to the phenomenon of an ageing population, prosperity of sectors such as child and elderly care, increasing consumption in some sectors, etc. (EIGE et al., 2017).

The participation of women in the labour force has recently been considered one of the important determinants of economic development by enhancing the overall quality and quantity of the workforce. Women are seen as the engine of sustainable human development, with women's work becoming an important determinant in shaping the economic and human development of countries (European Commission, Eurostat, 2022). For example, in the European Union (EU-27) countries, the women's employment rate has increased from 60.6% in 2009 to 67.7% in 2021, thus shrinking the gender employment gap from 13.4 to 10.8% respectively (Eurostat, 2023b). Therefore, Taşseven et al. (2016) considered that the identification of factors that have fuelled the rise in FLFP requires analysing both labour demand and supply. On the demand side, priority is given to the growth of production, part-time employment and employment in state-owned entities. On the supply side, education, the number of children and the social norms of women are defined as a prerequisite of FLFP (Taşseven et al., 2016). Additionally, women need to establish a balance between business and private life (Petković & Rapajić, 2021) because, otherwise, FLFP would create negative consequences for the female fertility rate.

Nevertheless, even when women's participation in the labour force is supported by the legal system and they are not discriminated against, social norms discourage them from actively engaging in the labour market (Dayıoğlu & Kırdar, 2010; Gonzales et al., 2015). Additionally, women's jobs are prone to automation more than men's because they perform more routine tasks, and they are therefore at greater risk of being replaced during technological progress (Brussevich et al., 2018).

Given the prevailing view that increasing FLFP can stimulate economic growth and that the COVID-19 pandemic brought decline and stagnation in economic activity, there is a need to identify determinants that affect women's labour market participation. Therefore, the main objective of this paper is to detect the key determinants of FLFP and their direction of influence. This main objective will be achieved through several sub-objectives. Firstly, this study will give new insight into identifying the determinants of FLFP in EU countries by observing a panel of data that also comprises the period of the pandemic (2000-2021). Secondly, this study will also fill the existing gap in the literature that has only analysed determinants of national FLFP rates (Milanović et al., 2022; Özen & Yalçinkaya Koyuncu, 2022) or datasets that do not include the pandemic period (González & Virdis, 2022). Moreover, because FLFP is promoted as the main driver of meeting Europe's 2030 target of 78% of the population aged 20-64 being employed (European Commission, 2021), there is a need to reveal the determinants that will boost employment from the perspective of women. Thirdly, the study provides adequate guidance for policymakers in defining a course and

implementing effective policies to increase female employment. To achieve the main objective and sub-objectives, we conduct a fixed-effects panel regression analysis using EU-27 level data for the period 2000-2021.

The paper is structured as follows: after the introduction, the paper presents the theoretical background of FLFP and its determinants. The next section defines data and the methodology applied in the analysis, and the following part is dedicated to the results of the research. The paper ends with concluding remarks, limitations of the research and recommendations for future research.

1 Theoretical Background

In this section, the trends of FLFP rates are observed, and afterwards, the most recent results of research focusing on the FLFP and its determinants are presented.

1.1 Shift in female labour force participation during COVID-19

According to the International Labour Office, the labour force participation rate represents "*a measure of the proportion of a country's working-age population that engages actively in the labour market, either by working or by looking for work*" (International Labour Organization, 2016, p. 14). Correspondingly, the FLFP rate represents a share of the female population aged from 20 to 64 that is economically active and thus comprises the supply side of the labour market (Eurostat, 2023a). Labour force rates provide an insight into the relative size of the working-age population available for involvement in the production of goods and services (International Labour Organization, 2016). For more than fifty years, countries have been trying to create motivating conditions and eliminate barriers to women entering the labour market (World Bank, 2020). Progress is seen through the Gender Equality Index for EU-27, which rose to 68.6 points in 2022, thus increasing by only 5.5 percentage points compared to 2010. Especially in its core domain of work, the equality of genders increased to 71.7 points, by 2 percentage points in the ten years (EIGE et al., 2022). Meanwhile, the pandemic brought a degression and destabilized labour markets while reducing these rises in the index even more.

When it comes to the gender employment gap, the European Commission has reported that its decline is empowered by changes in social norms and policies which enable women to handle both house and paid work such as paid maternity leave, fathers' involvement in raising children, pension reforms and flexible working conditions (European Commission, Eurostat, 2019). However, the stagnating or declining rate of the gender employment gap since 2014 is also obvious, which is most likely because of caring for a family member (European Commission, Eurostat, 2022). The size of the gap depends on the number of children that men or women have. In 2021, the gap in the employment rate between men and women without a child and with one child rose from 7 to 12 percentage points. The difference between the two groups is even higher – 17% – when having two children (Eurostat, 2023b). On the other hand, the pandemic caused a downturn in employment rates, whose size depends on the economic sector and gender. Women's employment was hit more than men's during the pandemic-caused labour market downturn, and its recovery is also lagging behind men's. Moreover, young females faced the negative influence of the world economy's slowing down, such as greater job losses than men (around twice more), and afterwards, this trend

translated to further economic inactivity of the same cohort (International Labour Organization, 2021).

Additionally, women's employment status could be related to the changes made in the area of their legal rights assessed by the Women, Business and the Law Index. The report from 2022 implies that intense protection of women's rights leads to serious benefits for the country's prosperity due to its relations to productivity (World Bank, 2022). Of 190 countries, high-income OECD countries have the top scores on the list, thus indicating that women have equal legal rights as men. As the index is a compilation of indices measuring women's legal standing compared to men in mobility, workplace, pay, marriage, parenthood, entrepreneurship, assets and pension, an improvement in both parenthood and pay is needed, as those have the lowest average scores for all regions and compared to other indices (World Bank, 2020). The coronavirus caused even higher exposure of women to labour market inequalities. The cases of taking care of children and ill family members, women's job losses and pressures for those who work in sectors with high contacts or are exposed to domestic violence shed light on the phenomenon of working in the grey economy and without a formal working contract, which ultimately put them off emergency measures designed for curbing the effects of the pandemic, and on the need for protecting their rights (World Bank, 2022).

What is more, there are many studies the existing literature anchored in explaining determinants that significantly influence FLFP, and those findings could be beneficial for the government to mitigate gender labour force participation segregation. Therefore, the following section gives an overview of literature supporting the empirical research of the present study.

1.2 Empirical literature on FLFP determinants

The FLFP rates have been increasing recently in the EU, but male labour force participation rates are still significantly higher than women's. Ostry et al. (2019) stated that when women are highly included in the labour market, they urge gains in productivity, bring gender equality in society and enhance incomes for men. Contrarily, their inclusion in the labour force is, according to the same authors, hindered by high tax rates, discrimination, differential investments in human capital and maternity leave policy. Obviation of these factors is costly, but then again, it is vastly beneficial for both men and women.

Some studies relate FLFP with women's age, education, marital status, number of children, economic sector value added, GDP per capita, etc. For example, Verme (2015) conducted research to test the U-shape hypothesis in the context of the Middle East and North African (MENA) countries in the period 1990-2010. The U-shape hypothesis defines the breaking point when countries transition from declining to raising female participation rates depending on the achieved GDP per capita. The MENA region results confirm a nonparametric illustration of the GDP per capita–FLFP curve if all countries and the full working age population (15 years and older) are considered. On the other hand, the same research showed that not all world regions have consistent U-shapes across all age cohorts, especially the 30-34 year cohort, showing the nonexistence of the U-shape hypothesis. Women at the age of 25 exit the labour market because it coincides with the phase when women get married. Additionally, an inverted U-shape was identified for some regions. When it comes to fertility rates and the share of agriculture, manufacturing and service in value added as predictors of FLFP, the research points out that when fertility rate and agricultural value added

decrease, FLFP will increase. On the other hand, when manufacturing and service value added increase, FLFP will also increase (Verme, 2015).

In an extensive study of 117 countries, Besamusca et al. (2015) wanted to discover how economic conditions, families, education and gender ideologies determine women's labour force participation rates in eleven age cohorts. Using data from the International Labour Organization for 1990–2010, the logarithmic regression confirmed the U-shape hypothesis for the relationship between the level of economic development and the FLFP for younger and older women but not for women between 25 and 55 years of age (Besamusca et al., 2015). Even though the authors had expected a positive relationship between higher levels of education and the FLFP rate, they found a positive relationship between enrolment in primary education for women between 25 and 55 years of age and their participation in the labour force. Furthermore, if the paid maternity leave and care arrangements increase, the same-age cohort will stay in the labour force with higher probability. Religion is detected as the most influential factor in countries with stricter religious beliefs for women and consequently, they will have lower participation rates in the labour force.

Gonzales et al. (2015) gave an interesting insight into the gender gap in labour force participation rates. They conducted a comprehensive study on 143 OECD countries and developing countries using panel regression. It included fertility rates and numbers of children as demographic variables, years of schooling as an education variable, number of weeks of maternity leave provided as a policy variable and multiple legal restrictions as legal variables for more than fifty years (depending on the variable explored) (Gonzales et al., 2015). The gap narrows if female education is higher and it expands if family size increases. When it comes to policies, maternity leave was shown to be a contributor to lowering gender gaps in labour force participation in the sample of countries. Legal rights of women refer to the main rights defined by the World Bank, such as equal property rights, equal inheritance rights, joint titling for married couples, getting a job or pursuing a profession, opening a bank account, right to sign a contract and a right to be the head of a household (Gonzales et al., 2015). Lower gaps between male and female labour force participation will be triggered by equalizing all seven women's rights, but mainly the property right for married women, the right to open a bank account, sign a contract or initiate legal proceedings. In emerging and developing countries, legal rights are also the main drivers of hindering gaps between the two cohorts that make up the labour force. Likewise, guaranteed equality, equal property and inheritance rights and being head of household are those legal rights whose abatement with men would lead to a reduction in the gender gap in labour force participation. In light of previous research, Taşseven et al. (2016) tested the FLFP among 32 OECD countries using panel data analysis based on the data from 1990 to 2013. Although the FLFP has increased in these countries, it is important to know that it is highly and positively influenced by the unemployment rate, GDP per capita, fertility rate and number of waged and salaried workers. Among these variables, the fertility rate has the highest effect on the FLFP rate.

In addition to analyses conducted at a macro level, such as the regional level or level of international associations, there are numerous micro-level studies based on the data of the country's FLFP. One of them is the research of Dayıoğlu and Kırdar (2010), which confirmed the important role of education for FLFP in Turkey. Multivariate logit analyses were conducted

based on data for the period 1988–2006. The authors separated rural and urban areas and the results indicate that university education is positively related to the labour force participation of Turkish women. The education groups were as follows: no education, primary, secondary and higher education (Dayıoğlu & Kırdar, 2010). They also analysed how other factors relate to the level of education and how they together influence FLFP rates. Children are a momentous determinant much more for highly educated women and their FLFP rates, but not for women without any education. As the level of education decreases, the negative influence of household income becomes a stronger determinant in the FLFP rate but without conclusions for women with higher education. Additional determinants, such as demand, were included in this analysis and showed to be significant determinants of FLFP. Probably influenced by the social norms in Turkey, married women and women who have children younger than fifteen years have a lower probability of labour force participation in both rural and urban areas.

Regarding analysis at the level of EU countries, the determinants of the increased female participation in the labour market were researched by Thévenon (2009) among women younger than 45 years over the period 1992–2005. They found that the reduction in family size and postponement of family formation were the main reasons for an increased employment rate of women in 14 European countries, while women would decide to have children only if they can make a balance between their work and life.

When Cipollone et al. (2014) investigated the changes in women's participation in the labour market across 15 EU countries from 1994 to 2009, they discovered that although countries differ in welfare and women have different individual and family characteristics, the participation has increased over time for women with children, while care for elderly people has decreased their participation in the labour market. As previously stated, many authors, such as Cipollone et al. (2014), have found that social policy and institutions have a significant effect on job opportunities for women and their opportunity costs of being employed or non-employed. Correspondingly, age, education and family programmes were shown to be influential factors for FLFP in this research. The positive effect of flexible employment is especially important for women at the beginning of their careers, and the effect of family programmes becomes stronger as the mothers' education increases. Almost 25% of the increase in FLFP of young women and 38% of FLFP of highly educated women was explained by institutional and policy changes (Cipollone et al., 2014).

A panel analysis by Gehringer and Klasen (2017) showed that family policies in 21 EU countries have a moderate effect on FLFP. On the other hand, the type of women's employment is significantly influenced by family policies in those countries. Family allowance and daycare measures were found to directly influence part-time employment and parental leave on full-time employment of females in the EU.

Additionally, Altuzarra et al. (2019) explored the relationship between FLFP and economic development in the EU using data from 1990 to 2016. Their estimation of static and dynamic models gave interesting results, confirming the U-shape hypothesis for EU-28 and that the FLFP rate has a tendency to fall in the early stages of development and increase when the country develops the service sector.

Regarding the research findings previously presented and additionally opted from the literature, Table 1 presents a summary overview of the most significant identified determinants of FLFP in EU countries.

Table 1 | Literature review of most significant determinants of FLFP in EU countries

Source	Sample	Period of analysis	Determinants of FLFP
Besamusca et al., 2015	117 countries (of which 24 EU members)	2010	GDP per capita, education, age
Gonzales et al., 2015	OECD countries (of which 19 EU members)	1950-2010 1970-2011	Education, fertility rate
Hosney, 2015	Germany	2012	Education, age, marital status, fertility rate
Taşseven et al., 2016	32 OECD countries (of which 19 EU members)	1990-2013	GDP per capita, potential earnings, fertility rate
Usman and Abdussamad, 2017	Cyprus	2011	Education, age
Altuzarra et al., 2019	28 European countries (of which 27 EU members)	1990-2016	Education, age, fertility rate
Nieuwenhuis et al., 2019	18 OECD countries (of which 13 EU members)	1981-2008	Potential earnings
Muller et al., 2020	22 European countries (of which 17 EU members)	2004-2013	Education, age, marital status, potential earnings, fertility rate

Source: Authors

It must be taken into consideration that determinants of FLFP could be both positive and negative, and the following empirical analysis will be focused on that phenomenon. The effect of the COVID-19 pandemic on the observed data has to be taken into consideration, even though numerous containment measures were introduced to hinder this effect on the labour market.

1.3 Hypothesis development

The above literature review revealed the existence of various determinants that affect the decision of females to engage in the labour market. In this paper, it is hypothesized that eight determinants have an influence on the FLFP rate in the EU (Table 2).

Firstly, gross domestic product (GDP per capita variable) represents an indicator of the contribution of each resident to the economic production value. When considering the impact of GDP on women's labour market participation, two situations need to be considered. On the one hand, the share of women whose work increases GDP per capita and contributes to total household income, while on the other hand, depending on GDP per capita, women can change their employment decisions if it does not significantly affect the household's existing financial sustainability (Verick, 2018). Some studies have suggested that FLFP rates are amongst the highest in low-income countries, while with a growth in GDP, some women who would have to work in countries with low income may instead choose not to work and devote their time to activities outside the labour market (Verick, 2018). This has been confirmed by several studies (Chapman, 2015; Tansel, 2001). However, it should be noted that some empirical research shows that in the early stages of economic growth, there is a decrease in the participation of the female workforce, while after reaching a certain level of GDP per capita, there is a positive relation and a gradual increase in the participation of women in the

labour market (Lechman & Kaur, 2015). Therefore, the relationship between the FLFP rate and GDP can be twofold.

The total fertility rate (FerRate variable) represents the average number of children per woman. There is evidence that the birth of a first child in many European countries is the main reason for women to leave the labour market and that although many of them return to the labour market after some time, this is often not the situation with low-educated women, who have difficulty returning to the market labour after childbirth (Vlasblom & Schippers, 2004). Numerous studies have shown that a decrease in the fertility rate has a positive effect on increasing the supply of female workforce since women are left with more free time when there is no need for childcare (Bloom et al., 2009; Chun & Oh, 2002; Mishra et al., 2010; Mishra & Smyth, 2010; Verme, 2015). Hence, we expect to discover a negative relationship between the FLFP rate and fertility rate in this study.

The annual net earnings indicator (Earnings variable) represents the earnings of a single person without children, namely 100% of the average earnings. The influence of earnings is expected to be positive because the opportunity for higher earnings will encourage women to make a shift from household and leisure to the labour market. Furthermore, earnings have a significant impact on women's motivation and productivity (Rakić et al., 2022). Several studies have proven the existence of a positive relationship between earnings and the FLFP rate (Macunovich, 1996; Mincer, 1962; Verick, 2014).

Regarding women's education (Education variable), we expect that there will be a positive impact on women's participation in the labour market. Numerous studies have pointed to the importance of the level of education in reaching higher levels of human development (Ježić et al., 2022). It is particularly noticeable that women with higher levels of education are more likely to participate in the labour market, primarily because of the high opportunity costs of not participating after having attained higher education (Sackey, 2005). When women have more than a secondary school education, their participation in the workforce is expected to increase because of the opportunity to acquire adequate earnings, especially in situations where suitable jobs are available (Verick, 2018). In other words, the possibility of earning higher wages with higher levels of education strengthens women's attachment to the labour market (Jaumotte, 2003). The positive relation between the FLFP rate and female education is revealed in several studies (Bratti, 2003; Faridi et al., 2009; Jaumotte, 2003; Nam, 1991; Vlasblom & Schippers, 2004). Therefore, we expect female upper secondary, post-secondary non-tertiary education and tertiary education to have a positive influence on the FLFP rate.

The participation of the female workforce can also be influenced by the environment in which women live and seek potential employment. Women's participation in parliament work (Parliament variable) contributes to strengthening and improving women's position in society, while at the same time, the existence of "strong" women motivates other women, primarily younger, to be active on the labour market. Female politicians may serve as true role models and motivate other women and girls to be more active (Wolbrecht & Campbell, 2007). Countries that have a higher percentage of female participation in politics are associated with higher levels of FLFP (Lv & Yang, 2018; Priyanka, 2020). Therefore, greater engagement of women in legislative governance proxied by the proportion of seats held by women in national parliaments is expected to have a positive influence on the FLFP rate.

Table 2 | Definitions of variables and data sources

Variable	Description	Expected impact	Source
FLFP	Females in the labour force (active persons) from 20 to 64 years (percentage of total population)	n/a	Eurostat (2023a)
GDP per capita	Gross domestic product at market prices (percentage of EU-27 (from 2020) total per capita)	+/-	Eurostat (2023a)
FerRate	The average number of children who would be born to a woman during her fertility period (between 15 and 49 years)	-	World Bank (2023a)
Earnings	Earnings of a single person without children, 100% of the average earnings	+	Eurostat (2023a)
Education	Percentage of females aged 25-64 who have successfully completed at least upper secondary education	+	Eurostat (2023a)
Parliament	The proportion of seats held by women in national parliaments (in %)	+	World Bank (2023)
Discrimination	Law prohibits discrimination in employment based on gender (1 = yes; 0 = no)	+	World Bank (2023)
ParLeave	There is paid parental leave (1 = yes; 0 = no)	+/-	World Bank (2023)
Pension	The age at which men and women can retire with full pension benefits is the same (1 = yes; 0 = no)	+	World Bank (2023)

Source: Authors

The supply of female labour may be affected by the presence of anti-discrimination laws, equal opportunities laws and affirmative action (Vlasblom & Schippers, 2004). Legal differences in the treatment of men and women have an impact on the participation rate of the female workforce and widen the gap between female and male labour force participation (Gonzales et al., 2015). Such asymmetrical treatment could be the result of an outdated but still present attitude about male superiority in the business sphere (Janovac et al., 2021). Differences in wages and opportunities for promotion based on gender tend to reduce the supply of female labour (Jaumotte, 2004). Therefore, we expect that the existence of anti-discrimination laws (Discrimination dummy variable) positively influences the FLFP.

Additionally, family-friendly policies may also influence the FLFP. One of the main components of the institutional environment that could affect women's participation in the labour market is parental leave policies (Vlasblom & Schippers, 2004). Parental leave policies are considered to contribute to a modest reduction in the gap in employment between mothers and childless women (Erhel & Guergoat-Larivière, 2013). However, the impact of parental leave can be twofold. On the one hand, the possibility of reconciliation between work and family stimulates women to enter the labour market (Pena-Boquete, 2016), while on the other hand, longer parental leave may reduce labour market skills and harm future career paths and incomes (Jaumotte, 2004). The influence of parental leave is examined through the ParLeave dummy variable, where 1 means that there is paid parental leave, while 0 means that there is no paid parental leave.

In recent years, the analysis of women's participation in the labour market has been additionally encouraged by the ageing population problem. The population ageing problem may harm public finances and an increasing workforce is seen as a solution to this problem. An increase in the labour force can occur, on the one hand, by increasing the participation of the female labour force and, on the other hand, by extending and equalizing the years required for the retirement of men and women. However, it should be kept in mind that ageing is often associated with lower labour force participation due to poorer health status and, of course, age discrimination (Hill, 2002). Nevertheless, older individuals who can work tend to have higher-than-average earnings and are therefore motivated to stay in employment (Vlasblom & Schippers, 2004). Therefore, we expect that when the retirement age with full pension benefits is the same for women and men (Pension dummy variable), the FLFP rates will be higher.

The importance of FLFP has been seen through literature and practice and researchers are making considerable efforts to explain the positive and negative determinants of FLFP. In the context of the presented literature review, the aim of the paper is – as mentioned – to investigate the main determinants of FLFP in EU countries. The basic assumption is that different previously hypothesized socio-economic determinants influence women's decision to enter the labour market (Table 2). Therefore, the following part of the paper will present the research methodology and the obtained results supporting the authors' research hypothesis on determinants of FLFP in the EU.

2   Data and Methodology

To reveal the determinants of female labour force participation in the EU, multiple data sources were used such as the Eurostat database (Eurostat, 2023a) and the World Bank database (World Bank, 2023). The research was based on panel data during the period 2000–2021 and a multiple regression analysis was conducted using panel data. Panel data, which combine time series and cross-sectional data, provide a comprehensive understanding by capturing both temporal and cross-sectional dimensions simultaneously (Biørn, 2016). In this study, the panel data represent a unique form of pooled data in which the same cross-sectional unit is observed over time (Stanković et al., 2021). This characteristic of panel data enables the utilization of all pertinent information from the sample to estimate regression parameters accurately (Baltagi, 2008). The analysis was conducted via multiple regression analysis on panel data and the Stata software (version 13.0) was used for computation.

To test the influence of the stated variables on the FLFP rate, the following regression model with panel data was formed:

$$FLFP_{it} = \beta_0 + \beta_1 GDPpc_{it} + \beta_2 Discrimination_{it} + \beta_3 Parliament_{it} + \beta_4 FerRate_{it} + \beta_5 ParLeave_{it} + \beta_6 Pension_{it} + \beta_7 Education_{it} + \beta_8 Earnings_{it} + \varepsilon_{it} \tag{1}$$

where

Yit / Xit represents a value of the particular indicator for the country i in the year t;

β_0, β_1,..., β_8 represent the intercept and slope coefficients;

ε_{it} represents the error term, $i = 1,...,28$, t = 1,...,19.

To determine an appropriate model specification, it is crucial to assess the variability of regression parameters (heterogeneity), which entails examining the existence and significance of individual and/or temporal effects. Various tests, such as variance decomposition tests (F-tests) or Lagrange multiplier tests (Breusch-Pagan test), can be utilized for this purpose. The null hypothesis of the F-test posits that all fixed effects are collectively equal to zero. Rejecting the null hypothesis leads to the selection of a model with fixed effects. On the other hand, the null hypothesis of the Breusch-Pagan Lagrange multiplier test assumes that all individual-specific variance components are zero. Rejecting the null hypothesis suggests that a model with random effects is more appropriate than a pooled OLS model. To choose between a model with fixed effects and a model with random effects, the Hausman test can be employed. The null hypothesis of the Hausman test assumes that both estimators are consistent and should produce similar results (Cameron & Trivedi, 2009). The rejection of the null hypothesis suggests that the random effect estimator is inconsistent and the use of a fixed-effects estimator is recommended. Conversely, if the null hypothesis is not rejected, it concludes that the random effect estimator is consistent and more efficient (Stanković et al., 2021). The descriptive statistics of the variables are provided in Table 3.

Table 3 | Descriptive statistics of variables

	Observations	Minimum	Maximum	Mean	Std. deviation
FLFP	594	35.10	81.20	64.7901	8.0051
GDP per capita	594	9.60	347.80	96.6308	65.9855
Discrimination	594	.00	1.00	.9276	0.2594
Parliament	562	7.14	47.28	24.5183	10.5010
FerRate	567	1.14	2.06	1.5219	0.2084
ParLeave	594	.00	1.00	.6919	0.4621
Pension	594	.00	1.00	.5572	0.4971
Education	588	20.50	96.90	71.2264	13.8415
Earnings	547	2941.32	74584.55	30716.52	18548.51

Source: Authors

It can be observed that the dependent variable, the FLFP rate indicator, varies between 35.10 and 81.20, while the average value of the FLFP rate indicator over the examined period is 64.7901, meaning that more than half of the female population of working age in the European Union is economically active. Once an appropriate model specification is selected, several assumptions for panel data models need to be considered due to the presence of common violations in standard assumptions concerning panel data structures. Therefore, it is essential to test assumptions regarding autocorrelation, multicollinearity, cross-sectional correlation and homoscedasticity.

3 Empirical Results

The first step in the analysis is testing the assumptions of the panel data model. Because of the nature of the data, a stationarity test is needed before performing the regression analysis. The results of the panel data unit root test indicate that all the variables are stationary; therefore, the next step is the selection of a suitable model using the appropriate statistical tests. The results of the F-test and Breusch-Pagan Lagrange multiplier test reject the pooled OLS assumption; therefore, the Hausman test is conducted to select a model with random or fixed effects. The results of the Hausman test indicate that the null hypothesis can be rejected at a 1% significance level (Table 4). Therefore, a model with fixed effects is selected.

Table 4 | Hausman test results

Hypothesis	Chi-square statistic	Probability
H_0: Difference in coefficients not systematic	42.75	<0.001

Source: Authors

The obtained results should be tested for multicollinearity, cross-sectional dependence, heteroscedasticity and autocorrelation. The multicollinearity of explanatory variables is tested using the variance inflation factor (VIF) values. A VIF value lower than 10 indicates that there is no multicollinearity in the model, while higher VIF values indicate that the model has multicollinearity issues. The results indicate that there is no multicollinearity in the explanatory variables since all VIF values are less than 10 (Table 5).

Table 5 | Variance inflation factor values

Variable	VIF
Earnings	4.55
GDP per capita	3.43
Parliament	2.26
Pension	1.76
FerRate	1.47
ParLeave	1.37
Education	1.30
Discrimination	1.27

Source: Authors

The results of the cross-sectional independence test indicate that the results may be biased since cross-sectional dependence is revealed (Table 6).

Table 6 | Friedman's test of cross-sectional independence

Value	Probability
15.504	0.9474

Source: Authors

A Wooldridge test for autocorrelation in panel data indicates the existence of serial correlation in the idiosyncratic error term (Table 7) since the null hypothesis of no first-order autocorrelation is strongly rejected.

Table 7 | Wooldridge test for autocorrelation in panel data

Value	Probability
44.629	<0.001

Source: Authors

The results of the modified Wald test for groupwise heteroscedasticity in the fixed-effects regression model indicate that the model suffers from heteroscedasticity (Table 8).

Table 8 | Results of modified Wald test

Chi-square	Probability
2647.91	<0.001

Source: Authors

Therefore, the existence of heteroscedasticity and the serial correlation should be taken into consideration and an estimation procedure with robust standard errors should be performed. Robust standard errors retain their validity even in cases where the error terms are not independently and identically distributed but instead exhibit heteroskedasticity or autocorrelation (Croux et al., 2003). They provide reliable estimates of the true standard error, even when the assumption of independently and identically distributed error terms is violated. The results of the estimated model are shown in Table 9. The results of the estimated fixed-effects model are presented in Table 3. The regression is statistically significant (the value of the F statistic is 24.89 at the 1% significance level).

Table 9 | Regression with robust standard errors

	Coefficient	Robust std. err.	t	P>|t|	[95% conf. interval]	
GDP per capita	0.0202884	0.0048093	4.22	<0.001	0.0108382	0.0297386
Discrimination	-0.6071586	0.5844947	-1.04	0.299	-1.755667	0.5413502
Parliament	0.0375547	0.0277722	1.35	0.177	-0.017017	0.092126
FerRate	2.09857	1.056319	1.99	0.048	0.022946	4.174194
ParLeave	1.135804	0.6959877	1.63	0.103	-0.231784	2.503392
Pension	3.351896	0.4333048	7.74	<0.001	2.500469	4.203322
Education	0.0630927	0.0261004	2.42	0.016	0.0118064	0.114379
Earnings	0.0003677	0.0000322	11.42	<0.001	0.0003044	0.000431
Cons	41.23117	1.980794	20.82	<0.001	37.33899	45.12335

Source: Authors

The obtained results indicate that per capita GDP, total fertility rate, equal age of retirement for men and women, annual net earnings and female upper secondary and post-secondary non-tertiary education and tertiary education enrolment represent significant determinants of FLFP (at the 5% significance level). To control for the endogeneity, a robustness analysis is performed. For that purpose, the procedure using lagged explanatory variables is performed (Table 10), which is used to mitigate the endogeneity problem (Wang & Bellemare, 2019).

Table 10 | Dynamic regression results

	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
L.GDP per capita	0.0167658	0.0048346	3.47	0.001	0.007266	0.0262655
L.Discrimination	-0.3257046	0.5875597	-0.55	0.580	-1.480236	0.8288268
L.Parliament	0.0196786	0.0279178	0.70	0.481	-0.0351788	0.0745361
L.FerRate	2.498508	1.061858	2.35	0.019	0.412	4.585017
L.ParLeave	1.54317	0.6996373	2.21	0.028	0.16841	2.917929
L.Pension	3.706973	0.435577	8.51	<0.001	2.851082	4.462865
L.Education	0.0625104	0.0262373	2.38	0.018	0.0109552	0.1140656
L.Earnings	0.000368	0.0000324	11.39	<0.001	0.0003052	0.0004324
Cons	41.18571	1.991181	20.68	<0.001	37.27312	45.0983

Source: Authors

The results of the dynamic regression model confirm the results of the estimated fixed-effects model, with the influence of the ParLeave variable becoming statistically significant. Hence, the introduction of paid parental leave through changes in government policies could generate positive consequences for FLFP in the long run. Regarding the direction of the influence, all the variables have a positive influence on the FLFP rates. These findings are mostly in accordance with our expectations, with only the influence of the total fertility rate being contrary to expectations. Nevertheless, it is necessary to consider the influence of the total fertility rate more appropriately. The impact of fertility on FLFP is a complex issue that depends on various socio-economic, cultural and institutional factors. Although declining fertility rates may create an incentive for women to enter the workforce, this may not necessarily occur if there are other barriers to participation, such as discrimination in the workplace (Channar et al., 2011), lack of affordable childcare (Kingsbury, 2019) and limited access to education and training (McBride, 2011). Furthermore, the relationship between fertility rates and female labour force participation may be influenced by different cultural, economic and political contexts (Humphries & Sarasúa, 2012; Keck & Saraceno, 2013; Khattab et al., 2017). Although high fertility rates are expected to lead to increased pressure on women to stay at home and care for children (Dillaway & Pare, 2008) while reducing their participation in the labour force, high fertility rates may also coincide with government policies and cultural norms that support women's participation in the workforce, thus causing their increased participation in the labour market (Gauthier, 2007; Lee & Lee, 2014).

Several implications can be made based on the obtained results. Firstly, the implementation of incentive wage policies can create an additional stimulus for women's inclusion in the

labour market, which will provide efficient labour force utilization. Secondly, prolonging women's employment increases the participation of women in the labour market while reducing pressure on public finances. Thirdly, encouraging women to pursue higher education leads to their higher productivity on the labour market since women will be able to get more accessible, better-paid jobs, leading to an improvement in women's economic position and empowerment. Fourthly, women's participation in the legislature stimulates other women to be active on the labour market, as on the one hand, these women are role models, while on the other hand, there is a belief that they work and advocate for greater women's rights. Fifthly, encouraging greater participation of women in the labour market may improve the economic growth of the country and have various social and economic effects. Regarding social effects, it leads to a reduction in gender disparities, providing equal opportunities for women and men, while economic effects point to enhancement of the country's overall economic efficiency.

Conclusion

Interest in female workforce participation has intensified recently due to the increasing perception that women are the basis of sustainable human development. An increase in the participation of women in the labour market has multiple effects. In addition to enabling women's economic independence and strengthening the economic position of families, the engagement of women in the labour market also creates preconditions for greater gender equality, increases the economic value added and reduces poverty through income generation from work. Discovering the main determinants of women's participation in the labour market is of interest to policymakers worldwide. Therefore, the aim of this paper was to determine the basic determinants of FLFP in EU countries.

Determining the precise influence of each indicator on FLFP is demanding, but the evidence is solid when it comes to GDP per capita, the proportion of seats held by women in national parliaments, equal age of retirement for men and women, annual net earnings, and female upper secondary and post-secondary non-tertiary education and tertiary education enrolment and FLFP cross-country and longitudinally. The results indicate that higher GDP per capita, higher levels of education and higher annual net earnings have a positive effect on FLFP. Additionally, gender equality policies also have an impact on women's participation in the labour market.

Future studies could be extended in various directions and these recommendations are, at the same time, limitations of our research. One possible direction is to examine the relationship between FLFP and explanatory variables for other panels of countries, particularly countries of Central and Eastern Europe or Western Balkans. A second direction for future research may be the introduction of more explanatory variables, especially those related to childcare. Lastly, the influence of part-time employment on FLFP could be examined.

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References

Altuzarra, A., Gálvez-Gálvez, C., & González-Flores, A. (2019). Economic Development and Female Labour Force Participation: The Case of European Union Countries. *Sustainability 2019, Vol. 11, Page 1962*, *11*(7), 1962. https://doi.org/10.3390/SU11071962

Baltagi, B. H. (2008). *Econometric Analysis of Panel Data*. John Wiley & Sons.

Besamusca, J., Tijdens, K., Keune, M., & Steinmetz, S. (2015). Working Women Worldwide. Age Effects in Female Labor Force Participation in 117 Countries. *World Development*, *74*, 123–141. https://doi.org/10.1016/J.WORLDDEV.2015.04.015

Biørn, E. (2016). *Econometrics of Panel Data: Methods and Applications*. Oxford University Press.

Bloom, D. E., Canning, D., Fink, G., & Finlay, J. E. (2009). Fertility, female labor force participation, and the demographic dividend. *Journal of Economic Growth*, *14*(2), 79–101. https://doi.org/10.1007/s10887-009-9039-9

Bratti, M. (2003). Labour force participation and marital fertility of Italian women: The role of education. *Journal of Population Economics*, *16*, 525–554. https://doi.org/10.1007/s00148-003-0142-5

Brussevich, M., Dabla-Norris, E., Kamunge, C., Karnane, P., Khalid, S., & Kochhar, K. (2018). Gender, Technology, and the Future of Work. *Staff Discussion Notes*, *18*(07), 1. https://doi.org/10.5089/9781484379769.006

Cameron, A. C., & Trivedi. (2009). Cross-Sectional and Panel Regression Methods. In *Microeconometrics Using Stata Volume I: Vol. I* (pp. 1–40).

Channar, Z. A., Abbassi, Z., & Ujan, I. A. (2011). Gender Discrimination in Workforce and its Impact on the Employees. *Pakistan Journal of Commerce and Social Sciences*, *Vol 5(1)*, 171–191. http://adapt.it/adapt-indice-a-z/wp-content/uploads/2013/08/zaadi_abbassi_ujan_11.pdf

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*(3). https://cupola.gettysburg.edu/ger/vol8/iss1/3

Chun, H., & Oh, J. (2002). An instrumental variable estimate of the effect of fertility on the labour force participation of married women. *Applied Economics Letters*, *9*(10), 631–634. https://doi.org/10.1080/13504850110117850

Cipollone, A., Patacchini, E., & Vallanti, G. (2014). Women Labor Market Participation in Europe: Novel Evidence on Trends and Shaping Factors. *IZA Journal of European Labor Studies*, *3*(18). https://doi.org/10.2139/ssrn.2363197

Croux, C., Dhaene, G., & Hoorelbeke, D. (2003). Robust Standard Errors for Robust Estimators. *Katholieke Universiteit Leuven*, *December*, Working Paper.

Dayıoğlu, M., & Kırdar, M. G. (2010). *Determinants of and Trends in Labor Force Participation of Women in Turkey* (Working Paper Number 5). https://doi.org/10.1596/27853

Dillaway, H., & Pare, E. (2008). Locating mothers: How cultural debates about stay-at-home versus working mothers define women and home. *Journal of Family Issues*, *29*(4), 437–464. https://doi.org/10.1177/0192513X07310309

EIGE, E. I. for G. E., Barbieri, D., Fiore, A., Linkevičiūtė, J., Mollard, B., Nahrgang, M., Peciukonis, V., Ptak, C., Reingardė, J., Lestón, I. R., & S., L. (2022). *Gender Equality Index 2022 The COVID-19 pandemic and care*. European Institute for Gender Equality. https://doi.org/10.2839/035888

EIGE, E. I. for G. E., Grinza, E., Gonzalez-Martinez, A., Villosio, C., & Al., E. (2017). Economic benefits of gender equality in the European Union - Publications Office of the EU. *Publications Office*. https://op.europa.eu/en/publication-detail/-/publication/8ccc8269-3f61-11e7-a08e-01aa75ed71a1/language-en

Erhel, C., & Guergoat-Larivière, M. (2013). Labor Market Regimes, Family Policies, and Women's Behavior in the EU. *Feminist Economics*, *19*(4), 76–109. https://doi.org/10.1080/13545701.2013.842649

European Commission. (2021). *The European Pillar of Social Rights Action Plan*. 149–153. https://doi.org/10.2767/45

Eurostat. (2019). Indicators to Support the Europe 2020 Strategy. In *Smarter, greener, more inclusive*. Publications Office of the European Union. https://doi.org/10.2785/297814

Eurostat. (2022). Sustainable development in the European Union: Monitoring report on progress towards the SDGs in an EU context. *Publications Office of the European Union*. https://doi.org/10.2785/313289

Eurostat. (2023a). *Database*. Retrieved on 25 January 2023, https://ec.europa.eu/eurostat/data/database

Eurostat. (2023b). *The life of women and men in Europe*. Interactive Publications. https://doi.org/10.2785/10023

Faridi, M. Z., Malik, S., & Basit, A. B. (2009). Impact of Education on Female Labour Force Participation in Pakistan: Empirical Evidence from Primary Data Analysis. *Pakistan Journal of Social Sciences*, *29*(1), 127–140.

Gauthier, A. H. (2007). *The impact of family policies on fertility in industrialized countries: a review of the literature*. https://doi.org/10.1007/s11113-007-9033-x

Gehringer, A., & Klasen, S. (2017). Labor Force Participation of Women in the EU – What Role do Family Policies Play? *Labour*, *31*(1), 15–42. https://doi.org/10.1111/LABR.12085

Gonzales, C., Jain-Chandra, S., Kochhar, K., & Newiak, M. (2015). Fair Play: More Equal Laws Boost Female Labor Force Participation. *Staff Discussion Notes*, *15*(2), 1. https://doi.org/10.5089/9781498354424.006

Gonzales, C., Jain-Chandra, S., Kochhar, K., Newiak, M., & Zeinullayev, T. (2015). Catalyst for Change: Empowering Women and Tackling Income Inequality. *Staff Discussion Notes*, *15*(20), 1.

González, F. A. I., & Virdis, J. M. (2022). Global development and female labour force participation: evidence from a multidimensional perspective. *Economic Affairs*, *42*(1), 70–86. https://doi.org/10.1080/09589236.2021.1949581

Hill, E. (2002). Monthly Labor Review Older Women in the Labor Force The labor force participation of older women: retired? working? both? *Monthly Labor Review*, *9*, 39–48.

Humphries, J., & Sarasúa, C. (2012). Off the Record: Reconstructing Women's Labor Force Participation in the European Past. *Feminist Economics*, *18*(4), 39–67. https://doi.org/10.1080/13545701.2012.746465

International Labour Organization. (2016). *Key Indicators* (9th ed.). International Labour Organization. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_498929.pdf

International Labour Organization. (2021). *An uneven and gender-unequal COVID-19 recovery: Update on gender and employment trends 2021*. *1*(03). https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_824865.pdf

Janovac, T., Jovanović, V., Radanov, P., & Jovanović, S. V. (2021). Woman's entrepreneurship – female participation in loss-making SMEs. *Zbornik Radova Ekonomskog Fakulteta u Rijeci*,

39(1), 39–58. https://doi.org/10.18045/zbefri.2021.1.39

Jaumotte, F. (2003). Female Labour Force Participation : Past Trends and Main Determinants in OECD Countries. *OECD Economic Studies*, Article 367. https://www.oecd-ilibrary.org/economics/female-labour-force-participation_082872464507

Jaumotte, F. (2004). Labour Force Participation of Women. *OECD Economic Studies*, *2003*(2), 51–108. https://doi.org/10.1787/ECO_STUDIES-V2003-ART9-EN

Ježić, Z., Zaninović, P. A., & Škulić, R. (2022). How does the ICT affect human development? Evidence from developing vs. developed countries. *Zbornik Radova Ekonomskog Fakulteta u Rijeci*, *40*(1), 9–27. https://doi.org/10.18045/zbefri.2022.1.9

Keck, W., & Saraceno, C. (2013). The impact of different social-policy frameworks on social inequalities among women in the European Union: The labour-market participation of mothers. *Social Politics*, *20*(3), 297–328. https://doi.org/10.1093/SP/JXT005

Khattab, N. ., Johnston, R. ., & Manley, D. . (2017). Human capital, family structure and religiosity shaping British Muslim women's labour market participation. *Journal of Ethnic and Migration Studies*. https://doi.org/10.1080/1369183X.2017.1334541

Kingsbury, M. A. (2019). Expanding Understanding of Motherhood Penalty: How Gaps in Family Policies Contribute to Gaps in Old-Age Earnings in Russia. *Frontiers in Sociology*, *4*, 67. https://doi.org/10.3389/FSOC.2019.00067/BIBTEX

Lechman, E., & Kaur, H. (2015). ECONOMIC GROWTH AND FEMALE LABOR FORCE PARTICIPATION-VERIFYING THE U-FEMINIZA-TION HYPOTHESIS. NEW EVIDENCE FOR 162 COUNTRIES OVER THE PERIOD. *Economics and Sociology*, *8*(1), 246–257. https://doi.org/10.14254/2071-789X.2015/8-1/19

Lee, G. H. Y., & Lee, S. P. (2014). Childcare availability, fertility and female labor force participation in Japan. *Journal of the Japanese and International Economies*, *32*, 71–85. https://doi.org/10.1016/j.jjie.2014.01.002

Lv, Z., & Yang, R. (2018). Does women's participation in politics increase female labor participation? Evidence from panel data analysis. *Economics Letters*, *170*, 35–38. https://doi.org/10.1016/j.econlet.2018.05.013

Macunovich, D. (1996). Relative Income and Price of Time: Exploring their effects on U.S. Fertility and Female Labor Force Participation, 1963-1993. *Population and Development Review*, *22*, 223–257. https://econpapers.repec.org/RePEc:wil:wileco:174

McBride, A. (2011). Lifting the Barriers? Workplace Education and Training, Women and Job Progression. *Gender, Work & Organization*, *18*(5), 528–547. https://doi.org/10.1111/J.1468-0432.2011.00574.X

Milanović, S., Đorđević, B., & Marjanović, I. (2022). Determinants of Women's Employment in the Region of Southern and Eastern Serbia: An Econometric Approach. *Teme*, *XLVI* (December), 903–924. https://doi.org/10.22190/TEME210529048M

Mincer, J. (1962). Labor Force Participation of Married Women: A Study of Labor Supply. *NBER Chapters*, 63–105. https://ideas.repec.org/h/nbr/nberch/0603.html

Mishra, V., Nielsen, I., Smyth, R., Mishra, V., Nielsen, I., & Smyth, R. (2010). On the relationship between female labour force participation and fertility in G7 countries: evidence from panel cointegration and Granger causality. *Empirical Economics*, *38*, 361–372. https://doi.org/10.1007/s00181-009-0270-1

Mishra, V., & Smyth, R. (2010). Female labor force participation and total fertility rates in the OECD: New evidence from panel cointegration and Granger causality testing. *Journal of Economics and Business*, *62*(1), 48–64. https://ideas.repec.org/a/eee/jebusi/v62y2010i1p48-64.html

Nam, S. (1991). Determinants of female labor force participation: A study of Seoul, South Korea, 1970-1980. *Sociological Forum*, *6*(4), 641–659. https://doi.org/10.1007/BF01114405/METRICS

Ostry, J. D., Alvarez, J., Espinoza, R., Papageorgiou, C., Ostry, J. D., Alvarez, J., Espinoza, R., &

Papageorgiou, C. (2019). Economic Gains from Gender Inclusion: New Mechanisms, New Evidence. *IMF Staff Discussion Note*, *18*(6), 1–28.

Özen, E., & Yalçinkaya Koyuncu, J. (2022). Employment, FLFP, and Productivity: A Long-run Analysis for Turkey. In Ş. Karabulut (Ed.), *Economic and Financial Analysis of Global and National Developments* (pp. 29–40). Ekin.

Pena-Boquete, Y. (2016). Further developments in the dynamics of female labour force participation. *Empirical Economics*, *50*(2), 463–501. https://doi.org/10.1007/S00181-015-0931-1

Petković, N. M., & Rapajić, M. M. (2021). The Influence of Internal Communication on Employees Motivation in Organizations in Serbia. *Economic Themes*, *59*(4), 515–523. https://doi.org/10.2478/ETHEMES-2021-0029

Priyanka, S. (2020). Do female politicians matter for female labor market outcomes? Evidence from state legislative elections in India. *Labour Economics*, *64*. https://doi.org/10.1016/j.labeco.2020.101822

Rakić, M., Radosavljević, M., & Janković Milić, V. (2022). Analysis of Motivation Factors: Dependance on Personal and Professional Characteristics of Employees. *Economic Themes*, *60*(1), 77–94. https://doi.org/10.2478/ETHEMES-2022-0005

Sackey, H. A. (2005). Female labour force participation in Ghana: The effects of education. In *The African Economic Research Consortium* (September).

Sahay, R., Čihák, M., & IMF Staff, O. (2018). Women in Finance: A Case for Closing Gaps. *IMF Staff Discussion Note*, *18*(05), 1–42.

Stanković, J. J., Marjanović, I., & Drezgić, S. (2021). Urban Magnetism in the Global City Framework: Exploring the Link Between Urban Functions and Population Growth. *Ekonomie a Management*, *24*(4), 4–21. https://doi.org/10.15240/tul/001/2021-4-001

Tansel, A. (2001). Economic Development and Female Labor Force Participation in Turkey: Time-Series Evidence and Cross-Province Estimates. *ERC Working Papers*. https://ideas.repec.org/p/met/wpaper/0105.html

Taşseven, Ö., Altaş, D., & Ün, T. (2016). The Determinants of Female Labor Force Participation for OECD Countries. *International Journal of Economic Studies*, *2*(2), 27–38.

Thévenon, O. (2009). Increased women's labour force participation in Europe : progress in the work-life balance or polarization of behaviours? *Population*, *64*(2), 263–303. https://doi.org/10.3917/popu.902.0263

Verick, S. (2014). Female labor force participation in developing countries. *IZA World of Labor*, *September*, 1–10. https://doi.org/10.15185/izawol.87

Verick, S. (2018). Female labor force participation and development. *IZA World of Labor*, *September 2014*, 1–11. https://doi.org/10.15185/izawol.87.v2

Verme, P. (2015). Economic development and female labor participation in the Middle East and North Africa: a test of the U-shape hypothesis. *IZA Journal of Labor and Development*, *4*(1). https://doi.org/10.1186/s40175-014-0025-z

Vlasblom, J. D., & Schippers, J. J. (2004). Increases in Female Labour Force Participation in Europe: Similarities and Differences. *European Journal of Population*, *20*, 375–392.

Wang, Y., & Bellemare, M. F. (2019). *Lagged Variables as Instruments*.

Wolbrecht, C., & Campbell, D. E. (2007). Leading by example: female members of parliament as political role models. *American Journal of Political Science*, *51*(4), 921–939. https://doi.org/10.1111/J.1540-5907.2007.00289.X

World Bank. (2011). *World Development Report 2012: Gender Equality and Development*. https://doi.org/10.1596/978-0-8213-8810-5

World Bank. (2020). *Women, Business and the Law 2020*. International Bank for Reconstruction and Development/The World Bank. https://doi.org/10.1596/978-1-4648-1532-4

World Bank. (2022). *Women, Business and the Law 2022*. International Bank for Reconstruction and Development/The World Bank. https://doi.org/10.1596/978-1-4648-1817-2

World Bank. (2023). *Database*. Retrieved on 25 January 2023, https://databank.worldbank.org/home.aspx