The Effect of GDP, Fertility Rate, and Female Education on Female Labor Force Participation Rate (LFPR) in ASEAN

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Abstract

Purpose: This research, employing a quantitative methodology, seeks to enhance the understanding of the Female Labor Force Participation Rate (LFPR) in ASEAN countries. By analyzing statistical data over an extended period beyond 2018-2021, the study aims to uncover the nuanced relationships between female LFPR as a dependent variable and GDP, fertility rate, and female education as independent variables.

Research Methods: This study applies quantitative research methods and utilizes secondary data published by the World Bank. The data that has been collected is then analysed using panel data and CEM, FEM, and REM regression techniques.

Results: GDP exhibits a significant and positive correlation. Meanwhile, fertility rate and female education also have a significant but each has a negative correlation with Female LFPR.

Aplication/Originality/Value: This study analyses economic issues in developing countries in ASEAN, to better understand the dynamics of female LFPR and can become the basis for policies to empower the female labor force in the sector of the region under study. These concise implications provide a strategic roadmap for policymakers and organizations striving to empower women and drive sustainable economic development in the region.

Introduction Section

Economic development can be influenced by various factors, one of which is employment development. The objective of this employment creation initiative is to enhance the caliber of personnel (Tyas Wandaweka & Purwanti, 2021). The high quality of human resources will increase the effectiveness of the production of goods and services produced. Besides that, employment can also contribute to the problem of a country's economic growth and development, where the large number of unemployed will have a bad impact on reducing state income. Therefore, employment development is an important factor that must be considered for the development of national economic growth. Economic growth is one of the indicators used to see the success of a country's development and is something that must be done as a solution to poverty alleviation (Nila Mustika et al., 2019). Labor and labor productivity can be important driving factors in economic growth.

Workers are individuals aged 15 years and older who are employed, have a job but are not working, or are actively seeking work (Central Statistic Agency, 2023). In a study by Yuniati & Mataram (2019), it is stated that in the labor law, namely "Law Number 13 of 2003 concerning labor, it is clear that workers are people who are able to do work to produce goods and services both to meet their own needs and those of the community". Countries that are undergoing economic development, such as developing countries, frequently experience employment problems. This problem occurs due to low education and low skills of the workforce, so labor productivity is still at a low level. Apart from that, this occurs because there is a difference between the skills of the available workforce and labor market demand, so labor absorption is still relatively low. These things cause the unemployment rate to increase. Unemployment is the result of an imbalance between population growth and the number of jobs available. In other words, there are more workers than available jobs (Zusen & Setyowati, 2022).

The Labor Force Participation Rate (LFPR) can be used to determine what percentage of the working-age population actively contributes to the economy of a region. The quality of a country and the quality of its production, especially human capital, have a significant influence on economic growth. Women constitute half of the entire working population in the world (Hakimzai, 2022). Thus, the role of women as workers has a significant influence on the rate of economic growth in a country or region (Murialti et al., 2022). The economic development of a country cannot be separated from the role of all levels of society, including women, because women make a substantial contribution to the economy and household income.

Economic growth is an activity aimed at developing the economy, resulting in an increase in the production of goods and services, thereby enhancing people's welfare. Economic growth is significantly correlated with population. If the population continues to increase, the workforce will also expand (Anifatul et al., 2022). Population growth leads to a

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rise in unemployment, but it also holds the potential to increase the labor force, thereby impacting the production of goods and services. Through the increase in the production of goods and services, state income in the form of Gross Domestic Product (GDP) will rise. Ultimately, the expansion of the labor force will drive economic growth. A higher GDP will increase household income and may motivate family members to pursue higher education, enabling women to participate more actively in the labor market (Lukitasari & Ismayani, 2021).

Generally, women who choose to work have the desire to increase family income, given the large number of dependents and family consumption. However, the decision for working women is often influenced by the consideration of additional wages they would receive (Anifatul et al., 2022). Therefore, education and skills are crucial factors for women contemplating joining the workforce. Research findings indicate that women whose husbands do not work are 13% more likely to enter the workforce. In essence, challenging economic conditions within households drive married women to seek employment opportunities more actively (Khan, 2023). The enrollment of females in primary and tertiary education is favorable as it contributes to the country's progress by educating the next generation (Sarfraz et al., 2021). In Indonesia, women and men have equal opportunities to participate in the development process across various spheres of life. This aligns with the 5th Sustainable Development Goal (SDG), namely gender equality, which is also enshrined in the 1945 Constitution. Article 27, paragraph 2, asserts that 'Every citizen has the right to work and a living that is worthy of humanity,' while Article 28 D states that 'Everyone has the right to work and receive fair and appropriate compensation and treatment in employment relationships."

In the era of globalization and economic progress, women's participation in the labor market serves as a crucial indicator of a country's economic development and growth. The female labor force participation rate (LFPR) mirrors a nation's capacity to harness the full potential of its workforce, encompassing the capabilities of women. In Southeast Asia, ASEAN member countries play pivotal roles in regional economic advancement. Nonetheless, the female labor force participation rate in ASEAN remains a pressing concern that demands attention. While some ASEAN countries have witnessed an uptick in female labor force participation, a significant disparity persists between female and male labor force participation rates across these nations.

Table 1. Labor Force Participation Rate in ASEAN 5 in 2021

No.	Country	Female LFPR	Male LFPR
1	Indonesia	52,04%	79,69%
2	Thailand	59,23%	75,24%
3	Malaysia	55,25%	78,16%
4	Philippines	44,05%	69,13%
5	Vietnam	68,21%	77,85%

Source: (World Bank, 2023)

Data sourced from the World Bank for five ASEAN countries—Indonesia, Thailand, Malaysia, the Philippines, and Vietnam—in 2021, reveals that female labor force participation rates (LFPR) are lower than those of males. Vietnam exhibits the highest LFPR for women at 68.24%, whereas Indonesia records the highest LFPR for men at 79.69%. This data underscores the lower LFPR for women compared to men in each country, indicating that the labor market in these ASEAN countries remains male-dominated. Given that most ASEAN members are developing nations, the formal sector workforce is primarily male-dominated, with a preference for male workers, particularly in roles such as unskilled labor (Al Faizah et al., 2022).

Despite comprising nearly half of the world's population, the contribution and role of women in economic activity still lag significantly behind their potential (Ustabas & Gulsoy, 2017). While Gross Domestic Product (GDP) and female education rates continue to rise, female workforce participation remains stagnant. Contextual factors such as unpaid and precarious work, low wages, lack of social safeguards, and employment uncertainty require urgent rectification. Globally, women often encounter the issue of receiving comparatively lower earnings than men, further perpetuating gender disparities in the workforce.

On the other hand, fertility levels, household income in Gross Domestic Product, education, and culture also contribute to this unfavorable condition (Pal & Chaudhuri, 2020). The composition of the female workforce varies from one country to another. Therefore, in every country, especially in developing and underdeveloped nations, governments are required to implement gender-specific approaches and solutions to address these challenges. The female labor force participation rate (LFPR) serves as a crucial indicator for measuring the level of equality of all roles in society and a country's progress. In ASEAN, the largest economic region in Southeast Asia, women's labor force participation still encounters significant barriers. Hence, this research aims to investigate the impact of Gross Domestic Product (GDP), fertility rate, and female education on the female labor force participation rate in ASEAN.

In response to the need for a deeper understanding of the factors influencing the female labor force participation rate (LFPR) in the ASEAN region, this study aims to address a significant knowledge gap. Previous research, such as that

conducted by Divya Sai & Kameswari (2022), examined the relationship between female labor force participation and economic growth in India from 1990 to 2020. Similarly, Lari et al. (2022) focused on the determinants of female labor force participation and related policies in Qatar, with a specific focus on women's individual characteristics, during the period December 2019 to January 2020. Additionally, a recent study analyzed the determinants of female labor force participation in Central Sulawesi Province from 2016 to 2020, emphasizing variables such as the Provincial Minimum Wage (UMP), average years of schooling, and provincial economic growth (Djirimu et al., 2023).

While previous studies have offered valuable insights into the factors impacting female labor force participation, this research underscores the lack of specific exploration into the influence of Gross Domestic Product (GDP), fertility rates, and female education on LFPR in the ASEAN region. Furthermore, it emphasizes a knowledge gap concerning the regional context, suggesting the necessity to examine these factors within a more specific timeframe. Therefore, this research gap serves as the foundation for more comprehensive investigations that can offer specific insights into the determinants of female LFPR in the ASEAN region.

The main issue highlighted in this study is the persistent stagnant trend in the Female Labor Force Participation Rate (LFPR) and the dominance of male workers in the labor market, posing a significant global economic challenge. Through this research, the author aims to analyze the factors influencing the dynamic trend of LFPR in five ASEAN countries (Indonesia, Malaysia, Thailand, Philippines, and Vietnam) during the period from 2018 to 2021. These countries were selected due to their status as developing nations with the largest GDP and population within the ASEAN region.

Literature Review

Labor Force Participation Rate
The Labor Force Participation Rate measures the proportion of the population aged 15 and older that is employed or actively seeking employment. This LFPR shows the proportion of the working population involved in the labor force, both at the national and regional levels. Meanwhile, the labor force is a group of people aged between 15 and 64 years and is considered productive while people aged under 15 years and over 64 years are not considered as the labor force. This workforce consists of residents who are currently working or who are actively looking for work (Djirimu et al., 2023). Labor Force Participation Rate (LFPR) is a measure of the country's working age population, which is actively involved in the labor market, either by working or looking for work (Ul Haque et al., 2019). So, from the explanation above it can be concluded that a LFPR is a person between the ages of 15 and 64 years working in the economic market who is able to process goods and services in daily activities to obtain additional income and improve community welfare.

Gross Domestic Product (GDP)
Economic growth is the process of consistently and steadily expanding the quantity of products and services that are being produced over an extended period of time. The experience of developed countries shows that female participation in the labor market plays an important role in the growth, progress, and development of the country's economy (Hakimzai, 2022). At the level of life in the household, the income earned by the household is the factor that most influences female decisions about whether they will work in the labor market or not (Kiani, 2013). Economic growth is often associated with the process of increasing the production capacity of an economy which is realized in the form of increasing national income (Narendra Bagaskara & Setyowati, 2023). Economic growth is measured through Gross Domestic Product (GDP). The level of Gross Domestic Product shows a country's ability to utilize and manage existing resources (S. D. Sari & Setyowati, 2022). A country's economic development can be analyzed through economic growth, which indicates an increase in the production of goods and services within an economic region over a period of time. This output is measured as the value added created by the various economic sectors in the region. Therefore, the total amount of value added, also known as gross domestic product (GDP) is the value added of goods and services produced by a country in a period of time. services produced by a country over a period of time (Directorate of Production Account, 2023)

This Labor Force Participation Rate can play an important role in influencing and maintaining the upward trend and growth of GDP (Ul Haque et al., 2019). Economic development is expected to increase demand for labor force participation. Based on previous research conducted by Anifatul et al., (2022), it is stated that the economic growth variable has a positive impact on the level of female labor force participation. Labor Force Participation is important for economic growth and development. The supply of labor will increase income from the demand for labor and will increase economic income (Li Li & Aznin Abu Bakar, 2021).

Fertility Rate
Controlling population growth can be done by controlling the number of births through the Family Planning program, the aim of which is to improve the quality of health and welfare of mothers and children (Harsoyo & Sulistyaningrum, 2018). In simple terms, the fertility rate can be defined as the average number of children born to each woman (Li Li & Aznin Abu Bakar, 2021). According research by Ong Li Li and Aznin Abu Bakar N (2021), the fertility level is the most significant factor that can influence the Labor Force Participation Level (LFPR) of women in Malaysia. The child being born will influence the mother's activities, causing the mother to have a low attachment to labor (Nazah et al., 2021).

The relationship between female Labor Force Participation Rate (LFPR) and fertilization rates differs between countries. Female labor force participation and fertility rates depend on the country's social policies. In some countries there is a positive relationship between the LFPR variable and fertilization, but in some developing countries there is an inverse relationship between these two variables (Ally Simba & Güneş, 2023). Meanwhile, Khan (2023) states that the number of children has a negative influence on the number of female labor force participation.

Research using multivariate estimator states that the number of children reduces labor force participation and income. The results of this study show that women who have more than three children have a 3.5% higher rate of leaving work compared to women who have two children or fewer (Tiwari et al., 2022). The negative relationship between fertility rate and female labor arises due to the tension in the relationship between female roles as mothers and employees (Skadsen, 2017). Different from research conducted by Oshio (2019) states that in developed countries the relationship between female employment and fertility levels has a positive relationship, even after considering the heterogeneity of each country.

Education
The level of education is a process for students to improve their education according to the level they will take in continuing their education. The most effective means of improving people's welfare and quality of life is education (Gustiara et al., 2022). Good-quality labor will have a big influence on a person's employment opportunities, so if the supply of labor increases, the percentage of labor force participation rate will also increase (Rodiah et al., 2019). Based on Human Capital theory, it assumes that education determines labor productivity, which will determine income. Human capital theory is the widely accepted view that education, training, and other forms of learning are investments that will pay off in the future. Like other capital investments, tuition is paid first and profits are realized later (Deming, 2022). The importance of female education in reducing poverty and accelerating long-term progress is visible in developing countries (Hasan, 2023). Individuals who have higher abilities tend to contribute more to productive activities and have better earnings(Listiani & Supramono, 2020). Increasing female productivity by increasing their capabilities and labor market opportunities is critical to driving economic growth (Tanaka et al., 2020).

The better the quality of the workforce, the better the quality of goods and services produced. So that the ability and quality of the workforce become important qualifications in absorbing the workforce. To increase human resources, appropriate efforts are needed, including investment in human capital. The quality of a country's human capital resources depends on its education (Nurrachmi, 2019). Highly educated people often have a variety of skills and expertise to increase employment opportunities and reduce unemployment (Suhadi & Setyowati, 2023)

In research conducted by Gustiara et al., (2022) stated that the average length of schooling for women has a positive and significant effect on LFPR in Riau province, this shows that the higher the average length of schooling for women, the higher the participation rate. Based on study by Backhaus & Loichinger (2022) it shows that the female labor force participation rate (LFPR) has a positive relationship with female education level, which is in accordance with previous research using data from Sub-Saharan African (SSA) countries to study the link between education and female employment, including in evaluating the causal impact of (quasi-experimental) educational interventions on economic outcomes. Research indicate that the relationship between household income, wages, mobility, child care, and type of work needs to be analyzed. The results of this research show that the higher the level of education, the greater the number of women who change jobs and work and are involved in regular work contracts, and earn higher wages (Iftekhar, 2021).

Research Methods

This research uses a quantitative approach and uses secondary data sourced from the Worldbank and UNESCO websites to determine the relationship between the independent variable and the dependent variable (World Bank, 2023) (UNESCO, 2023). This research aims to determine the influence of GDP, fertility rate, and female education variables on female labor force participation rate in 5 ASEAN countries during the 2018-2021 period. These data were analyzed using the panel data regression method which presents time series data and cross-section data.

Panel data is a research method that involves surveys conducted on the same cross-sectional unit (such as families, companies, or countries) at several different times. In simple terms, panel data provides information in the form of space and time dimensions (Gujarati & Porter, 2008). The analytical methods used are the Fixed Effect Model (FEM), Common Effect Model (CEM), and Random Effect Model (REM), as well as the Chow Test and Hausman Test to select the best estimator model (Djirimu et al., 2023). After selecting the best model, the next step is to carry out a *t* test or influence validity test to determine the influence relationship between each independent variable and the dependent variable. Then carry out an F Test (Zahidalutfa, 2020).

The econometric model is as follows:

$$LFPR_{it} = \beta_{0it} + \beta_{1it}Log(GDP) + \beta_{2it}FERTIL + \beta_{3it}Log(EDU) + \mu_{it} \qquad (1)$$

Based on the econometric equation above, it can be explained that LFPR is Female Labor Force Participation Rate (%), GDP is Gross Domestic Product (constant LCU), FERTIL is fertility rate (%), EDU is female education (people), $\beta_{1,2,3}$ which are independent coefficients.

Results And Discussion

This study employs panel data regression to estimate the direction and magnitude of the influence of Gross Domestic Product (GDP), fertility rate, and female education on the Female Labor Force Participation Rate (LFPR) in five ASEAN countries (Indonesia, Malaysia, Thailand, Vietnam, and the Philippines) from 2018 to 2021. Table 2 presents the regression findings using Common Effects Model (CEM), Fixed Effects Model (FEM), and Random Effects Model (REM).

Table 2. Panel Data Rehression Results

Variable	Regression Coefficients		
	CEM	FEM	REM
C	189,62	163,71	193,62
Log (GDP)	4,96	1,51	5,079
FERTIL	-11,75	11,25	-10,228
Log (EDU)	-19,04	-12,62	-19,789
R^2	0,956	0,989	0,650
Prob F-statistics	0,000	0,000	0,001
(1) Chow Test			
Cross-section F (4, 12) = 8.76; Prob. F = 0.,0015			
(2) Hausman test			
Random cross-section χ^2 (3) = 4,102; Prob χ^2 = 0,2506			

Source: eviews

Chow Test Results

The Chow test aims to determine which model is more suitable for estimating panel data in a study between CEM and FEM. The condition is that if the F-statistic probability value is $> \alpha$ (0,05), H_0 is not rejected, which indicates that the CEM model is more appropriate. Conversely, if the probability value $< \alpha$ (0,05), H_0 is rejected, indicating that the FEM model is a more appropriate model to use. The Chow Test results in Table 2 show that the Cross-section F probability value is 0,0015 $< \alpha$ (0,05). Therefore, H_0 is rejected, it can be concluded that the FEM model is a more appropriate model to use.

Hausman Test Results

The Hausman test is a statistical test used to determine which model is more suitable for use in estimating panel data between the FEM and REM models. The condition is that if the statistical probability value $\chi2 > \alpha$ (0,05), H_0 is not rejected, which indicates that FEM is a more suitable model to use. Conversely, if the statistical probability value $\chi2 < \alpha$ (0,05), H_0 is rejected, which indicates that FEM is a more suitable model to use. Based on table 2, it is known that the probability χ^2 is 0,2506 $> \alpha$ (0,05). Thus, H_0 is not rejected, it can be concluded that the REM model is the most appropriate model to use.

Selected Test Regression Results

Based on the results of the Chow Test and Hausman Test, it can be concluded that the Random Effect Model (REM) is the most appropriate model to use to estimate panel data in this research.

Table 3. Econometric Random Effect Model

$LFPR_{it}= 193,629 + 5,079Log (GDP)_{it} - 10,228FERTIL_{it} - 19,789Log (EDU)_{it}$			
(0,0005)*	(0,0006)*	(0,0023)*	(0,0029)*
$R^2= 0,650$; DW-Stat = 1,55; F-Stat = 9,943; Sig.F-Stat = 0,0015			

Note: *Significant for α (0.05)

source: eviews

Simultaneous Significance Test of the Effect of Independent Variables (F Test)

The F test is carried out to find out whether the independent variable and dependent variable have an effect simultaneously or concurrently. H_0 F test is $\beta_{1-3} = 0$ or together the GDP, fertility rate, and female Education variables have no effect on female LFPR. H_0 rejected if the F-statistical probability $< \alpha$. Based on Table 3, it is known that the F-statistic probability value is $0,0015 < \alpha$ (0,05); which means it H_0 is rejected, so it can be concluded that the GDP, fertility rate, and female Education variables influence female LFPR together.

Interpretation of the Coefficient of Determination

Coefficient of determination (R^2) used to measure the extent to which variations in the data can be explained by the regression model used in the research. Based on table 2, the R^2 value is 0,65. Thus, 65% of the variation in female LFPR is explained by variations of GDP, fertility rate, and female Education, the remaining 35% is explained by other variations outside the model.

Partial Significance Test of the Effect of Independent Variables (t Test)

Table 4. *t* Test Result

Variable	Coefficient	Sig. *t*	Information	Conclusion
Log (GDP)	5,079	0,0006	α= 0,05	β_1 is significant
FERTILE	-10,228	0,0023	α= 0,05	β_2 is significant
Log (EDU)	-19,789	0,0029	α= 0,05	β_3 is significant

Source: eviews

The *t* test was carried out to determine whether each independent variable influenced the dependent variable individually. H_0 *t* test is $\beta_{1-3} = 0$ or individually the variables GDP, fertility rate, and female education have no effect on female LFPR. Meanwhile Ha *t* test $\beta_{1-3} > 0$ or individually the variables GDP, fertility rate, and female education have a positive effect on female LFPR. H_0 rejected if probability $t < \alpha$.

From Table 4 it is known that based on the *t* probability value of each independent variable, it shows that GDP, fertility rate, and female education have a significant effect on female LFPR. Meanwhile, based on the coefficient value of each variable, it shows that GDP *(β_1)* has a positive effect on female LFPR, fertility rate *(β_2)* and female education *(β_3)* each have a negative effect on female LFPR. Thus, the coefficients of GDP, fertility rate, and female education can be interpreted.

The coefficient of GDP *(β_1)* is 5,079 with a linear-logarithmic relationship pattern, which means that an increase in GDP of 1 percent will increase female LFPR by 0,05079 percent. Meanwhile, the fertility rate coefficient *(β_2)* is -10,228 with a linear-linear relationship pattern, which means that an increase in fertility rate of 1 percent will reduce LFPR by 10,228 percent, and conversely a decrease in fertility rate of 1 percent will increase LFPR by 10,228 percent. Then, the coefficient of female education rate *(β_3)* is -19,789 with a linear-logarithmic relationship pattern, which means that every 1 percent increase in female education rate will reduce female LFPR by 0,1979 percent, and conversely a decrease in female education rate by 1 percent will increase female LFPR by 0,1979 percent.

The *t* test results show that GDP has a positive and significant effect on female LFPR in 5 ASEAN countries during 2018-2021, so the results of this research are in accordance with the research hypothesis. Countries with higher GDP tend to absorb more labor, which leads to greater opportunities for women to find work. With strong economic growth, there will be more new jobs and business opportunities. This can increase female participation in the workforce because there are more opportunities for them to work. Production of goods and services increases along with the growth of a country's GDP. As a result, labor absorption increases because of the process of increasing the production of goods and services.

The results of this research are supported by research conducted by Murialti (2022) showing the results that GRDP has a positive and significant relationship with Female LFPR in Rokan Hilir Regency This research states that increasing economic activity will increase employment opportunities for society, including the female workforce. Then, research conducted by C. P. Sari & Susanti (2018) also supports the results of this research, they stated that economic growth has a significant influence and has a positive relationship on Female LFPR.

The results of this research are also supported by research conducted by Anifatul (2022) which states that economic growth has a positive effect on female LFPR in Bali in the 2016-2020 period. In this research, it is stated that along with the efficiency of female participation in economic activities, entrepreneurial regulations are one of the considerations, when opportunities between men and women are balanced, it shows an increase in entrepreneurial outcomes. The results of the same research conducted by Suherman et al., (2022), stated that GDP spatially has a positive influence but is not significant. Suherman stated that the increase in GDP value shows that the goods and services produced are increasing, thereby absorbing more workers.

Meanwhile, the results of the fertility rate *t* test showed significant results and had a negative influence on female LFPR in ASEAN countries during the 2018-2021 period. The decline in female LFPR is influenced by an increase in fertility levels. The processes of pregnancy, giving birth, and caring for children, along with other household responsibilities, make working outside the home more difficult for women and making it difficult for them to contribute to the labor market. In addition, most people in developing countries are still stigmatized by the idea that women must spend time and participate in activities at home because of their duties as mothers and housekeepers (Zou, 2022). Therefore, female participation in the workforce will decline.

This result is in accordance with research conducted by Aggarwal (2023) which states that the birth rate and female participation in the workforce have a negative relationship. This result indicates that increasing female fertility rate will reduce female participation in work. The same results were also found in another research which stated that the relationship between female fertility rate had a negative relationship in the short term at the level of five percent to female LFPR (Ayuningtyas & Islami, 2022). When women become more active in economic activities, women tend to have fewer children. These results are also supported by research conducted in China, where researchers stated that mothers should withdraw from work and focus on raising children, thereby reducing female labor force participation rates (Zou, 2022). The other research had the same results, they explained that the supply of female labor decreased significantly after women gave birth to their first child. Research concludes that high fertility levels will increase the vulnerability and risks of female workers (Tumen & Turan, 2023).

Meanwhile, based on the results of the *t* test for the female education variable, it shows that female education has a significant and negative effect on female LFPR. This is not in accordance with the theory in this research about human capital that female education will improve their skills, so that they can become skilled workers and find work easily. However, the *t* test showed the opposite result, where female education continued to increase, while female LFPR decreased. Female LFPR continues to decline, which can be influenced by factors outside of education, such as regulations protecting female workers, the difference in wages for female workers and male workers, and social cultural factors that can influence female decisions about working (Pal & Chaudhuri, 2020). So, even though a female's education level is high, it does not necessarily mean that women choose to work due to other factors outside of education. Apart from that, the factor of female high level of education can also influence female decisions and timing in choosing work, where the higher the education level, the higher the standard of work desired, while the availability of job offers is still low for women in these developing countries.

These results are in accordance with research conducted by Pal & Chaudhuri (2020) which indicates that it isi known that female LFPR has witnessed a large drop around the globe when education is growing, as shown by the findings from the panel data analysis that was carried out. This situation creates a paradox that deviates from human capital theory, where increased education is expected to help women acquire better skills that will ultimately help them participate in the workforce. However, this research also found that other factors such as the quality of regulations, government efficiency, wages and salaries, and life expectancy also have a big influence in determining the extent to which female participation in the workforce increases.

Based on research conducted by Lukitasari & Ismayani (2021), it is stated that educational achievement is not enough to increase female participation in the workforce. Many female workers work in vulnerable and dangerous areas due to low protection for women, therefore affirmative policies are needed that support and encourage female education and skills. The government and parliament must actively contribute to the process of enforcing the protection of women workers. Other research conducted by Verick (2018) also states that evidence shows a non-linear correlation between female participation in the labor market and female education. In poor countries, most women tend to work in the informal sector and subsistence sector, while women with upper secondary education tend to choose to stay at home and not work. Moreover, a study conducted by Divya Sai & Kameswari (2022) also support the results of this study, stating that women's academic advancement is often not accompanied by an increase in female LFPR.

Conclusion

This research shows the results that the variables GDP, fertility rate, and female education have a significant effect on female LFPR in 5 ASEAN countries. Based on the research results, the main conclusion is that GDP has a positive influence on the female labor force participation rate (LFPR) in 5 ASEAN countries during the 2018-2021 period. This suggests that countries with higher GDP tend to offer more employment opportunities for women, thereby increasing female participation in the workforce. Meanwhile, fertility rate have a significant negative influence on female LFPR, because the process of pregnancy, birth, and child care as well as social stigma still limit female participation in the workforce. However, female education although expected to increase female participation, shows results that are contrary to expectations, perhaps because other factors outside education influence female employment decisions (Zou, 2022).

This conclusion suggests that economic factors such as GDP and fertility rates significantly influence female participation in the labor force, while the role of female education may vary. To enhance female workforce participation, affirmative policies supporting female education and skills development are essential, alongside improved protection for women workers, particularly in vulnerable and hazardous sectors. Empowering women in their workplaces not only promotes inclusivity and diversity but also enhances productivity and contributes significantly to economic growth.

Therefore, ensuring and upholding the rights of female workers is not only a matter of justice but also a strategic investment in cultivating a more resilient and efficient labor force.

A weakness of this study lies in its limitation to quantitative research and statistical data, overlooking qualitative aspects such as norms, socio-culture, and the availability of facilities supporting women's labor force participation, which can also influence the dynamics of the Female Labor Force Participation Rate (LFPR) in ASEAN. Furthermore, the study's timeframe from 2018 to 2021 may not capture evolving economic dynamics, norms, and socio-cultural shifts. Longitudinal and continuous analysis, along with broader exploration, could offer a deeper understanding of the dynamics of female LFPR. Additionally, examining the impact of workplace policies, gender-based discrimination, and societal attitudes towards female labor could provide valuable insights into the changing dynamics of female LFPR in ASEAN.

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