DETERMINANTS OF FEMALE LABOR FORCE PARTICIPATION RATE IN 2019-2023 IN 34 PROVINCES OF INDONESIA

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Abstract

This study examines the determinants of the Female Labor Force Participation Rate (FLFPR) across 34 provinces in Indonesia from 2019 to 2023, utilizing secondary panel data from the Indonesian Statistics Agency (BPS). Guided by relevant labor economics theories and prior empirical studies, this research considers key socioeconomic factors, including Female Labor Force Participation Rate (FLFPR), Average Years of Schooling (AYS), Life Expectancy of Women, Marital Status of Women, and Adjusted Per Capita Expenditure. Panel data regression analysis is conducted using the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM), with model selection based on Chow and Hausman tests. Diagnostic tests are applied to address potential issues such as autocorrelation and heteroskedasticity, ensuring the robustness of results. Findings indicate that the FEM is the most suitable model, explaining 98.05% of the variation in FLFPR. Women's education, life expectancy, and per capita expenditure significantly influence FLFPR, while the marital status of women aged 20-24 does not show a significant impact. This unexpected result suggests the need for further exploration of regional and cultural differences in marriage and labor participation. Policy recommendations emphasize expanding educational access, improving healthcare services, and promoting women's economic independence. Future research should incorporate additional explanatory variables and alternative econometric approaches for a more comprehensive analysis.

Keywords: Adjusted Per Capita Expenditure, Female Labor Force Participation Rate, Life Expectancy of Women, Marital Status of Women, Women's Education.

INTRODUCTION

Employment remains a crucial issue, particularly concerning the disparity between male and female labor force participation. The workforce is a fundamental driver of sustainable economic growth, and optimizing its potential requires ensuring social justice and equal opportunities for all individuals, regardless of gender. In Indonesia, gender-related barriers significantly impact women's ability to participate in the labor force, including social and cultural norms that prioritize women's roles in the domestic sphere over professional engagement.

Gender refers to the social and cultural roles, behaviors, and attributes associated with individuals based on their sex. In Indonesia, deeply rooted societal expectations often limit women's access to employment opportunities, particularly in certain sectors. Women continue to face structural barriers such as gender discrimination, limited access to higher-paying jobs, and cultural stigmas against working mothers. Understanding these challenges is essential for promoting gender equality and sustainable economic development.

Despite the increasing participation of women in the workforce, a significant gap between male and female labor force participation rates persists. While Indonesia's Central Bureau of Statistics recorded an increase in the female Labor Force Participation Rate (LFPR) over the past five years, women's participation remains lower than men's due to various constraints. Women are often underrepresented in higher-paying and leadership roles, and structural barriers such as unequal access to education, workplace discrimination, and cultural biases continue to hinder their full economic participation.

Education plays a pivotal role in shaping women's employment opportunities. However, the quality of education, accessibility to vocational training, and socioeconomic disparities significantly influence women's ability to enter the labor market. Women from rural areas or lower-income backgrounds often lack the same educational opportunities as their urban or wealthier counterparts, further restricting their employment prospects. Additionally, disparities in technical and professional training limit women's access to jobs in high-demand fields.

Beyond education, women's health conditions also impact their workforce participation. While life expectancy serves as an indicator of potential labor force

engagement, broader health factors such as maternal health, chronic illnesses, and access to healthcare services also determine women's ability to work. Limited healthcare access, particularly in rural areas, can hinder women's ability to sustain long-term employment. Moreover, gendered disparities in healthcare policies further exacerbate these challenges.

Household consumption and economic necessity significantly influence women's labor force participation. Rising household expenses and economic instability often compel women to seek employment to supplement family income. However, balancing work with domestic responsibilities remains a challenge, especially in environments where women are expected to prioritize caregiving and household duties over professional ambitions.

Marital status is another key determinant of women's employment participation. Married women often face lower workforce engagement due to societal expectations that emphasize their roles as primary caregivers. These cultural norms vary across regions and socioeconomic groups, with more conservative areas imposing greater restrictions on women's employment opportunities. However, shifting societal dynamics and growing economic pressures are gradually altering these traditional gender roles, leading to increased acceptance of women's participation in the workforce.

Addressing these structural barriers is crucial to achieving greater gender equality in employment. Enhancing access to quality education, improving healthcare services, challenging restrictive cultural norms, and creating policies that support working women can help bridge the gender gap in labor force participation. Indonesia can unlock its full economic potential and promote sustainable development by fostering an environment that enables equal opportunities for men and women.

REVIEW OF LITERATURE

Labor Force

The labor force comprises individuals aged 15 years and older who are either engaged in work or capable of working. According to Law No. 13 of 2003, the labor force includes individuals producing goods or services to fulfill societal needs. Labor is classified into two categories: the workforce, encompassing individuals aged 15–64 who are capable of working regardless of employment status, and the non-workforce, which includes those

under 15 or over 64, such as children and the elderly, who are generally not engaged in economic activities. In the context of Indonesia, structural and cultural factors, including gender norms and access to employment, further influence labor force dynamics.

Labor Force Participation Rate for Women

The female labor force participation rate (LFPR) reflects the proportion of women aged 15–64 who are actively employed or seeking employment. In Indonesia, this rate is shaped by multiple factors, including cultural expectations, economic necessity, and human capital accumulation. Human capital theory, as proposed by Gary Becker, suggests that women are more likely to participate in the workforce when the financial returns outweigh the costs of education and time. However, gender-specific barriers such as traditional family roles, restricted access to certain job sectors, and workplace discrimination often limit female labor force participation. Addressing these structural barriers through policy interventions, such as childcare support and anti-discrimination laws, could enhance women's workforce engagement in Indonesia.

Average Years of Schooling for Women

The average years of schooling for women measures the duration of formal education completed by females aged 15 and above and is a crucial indicator of human capital development. In Indonesia, disparities in educational access, particularly in rural and underprivileged areas, continue to impact women's labor market opportunities. Higher educational attainment enhances employability, increases income potential, and shifts women's economic roles from domestic responsibilities to formal labor market participation. However, societal norms that prioritize marriage and caregiving over career advancement for women can still hinder this progress, necessitating targeted policies that encourage female education and workforce integration.

Life Expectancy for Women

Female life expectancy is a critical indicator of health and overall well-being, influencing long-term economic participation. While higher life expectancy theoretically allows women to contribute to the workforce for a longer duration, its direct impact on labor force participation in Indonesia remains complex. Health improvements reduce absenteeism and enhance productivity, but social factors, such as retirement norms and care

responsibilities for elderly family members, can offset these benefits. Further research is needed to explore how improvements in healthcare and longevity translate into sustained economic engagement for women.

Adjusted Per Capita Expenditure for Women

Adjusted per capita expenditure for women assesses their average economic spending and serves as a measure of financial independence and gender equality in economic participation. In Indonesia, lower expenditure levels among women often indicate limited access to financial resources, employment, and capital. Economic disparities between men and women persist due to wage gaps, job segregation, and limited entrepreneurship opportunities. Strengthening women's financial inclusion, through microfinance initiatives and equal pay policies, can enhance their economic standing and encourage higher labor force participation.

Marital Status of Women

A woman's marital status significantly shapes her labor force participation. In Indonesia, cultural expectations regarding caregiving and household responsibilities often restrict married women's employment opportunities, particularly in traditional communities. However, economic pressures may compel married women to seek employment, particularly in urban areas where dual-income households are becoming more common. The intersection of marital status, class, and economic necessity warrants further investigation to understand its broader implications on female workforce participation in Indonesia.

Gaps in Existing Literature and Future Research Directions

While this review outlines key determinants of female labor force participation, significant gaps remain. The interplay of race, class, and gender in shaping employment opportunities in Indonesia is underexplored, as is the role of informal labor markets, where many Indonesian women are employed. Future research should examine these dimensions to provide a more comprehensive understanding of female labor dynamics. Additionally, policies addressing structural barriers, including gender-based job restrictions and unequal access to career advancement, require further scrutiny to enhance female workforce participation in Indonesia.

RESEARCH METHOD

Operational Definition

Table 1.
Operational Definition of Variables

No	Variable	Definition	Unit	Source
1	Female Labor Force Participation Rate (FLFPR)	The percentage or measure of the number of individuals working or seeking work in a country.	Percent	Statistics Indonesia (BPS)
2	Average Years of Schooling for Women (AYS)	The average duration of formal education attained by female individuals is measured in years.	Years	Statistics Indonesia (BPS)
3	Life Expectancy for Women (LEM)	The average number of years a female individual is expected to live from birth.	Years	Statistics Indonesia (BPS)
4	Women Aged 20-24 Years Who Are Married (WWAM)	The marital status of women indicates the degree of dependency on a husband's income, which affects women's decision to work.	Percent	Statistics Indonesia (BPS)
5	Adjusted Per Capita Expenditure for Women (CONS)	The expenditure by female individuals on goods and services aimed at fulfilling their needs.	Thousand Rupiah/Year	Statistics Indonesia (BPS)

This study analyzes secondary data from 2019 to 2023, sourced from Indonesia's Statistics Agency (BPS), covering the Female Labor Force Participation Rate (FLFPR), Average Years of Schooling (AYS), Marital Status of Women, and Adjusted Per Capita Expenditure across 34 provinces. Using a quantitative approach, panel data regression was conducted with Eviews 12 to assess how AYS, Life Expectancy of Women, Married Women, and Adjusted Per Capita Expenditure influence FLFPR. Three models—Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM)—were

tested, with the best model selected via Chow and Hausman tests. Statistical significance was evaluated using F-tests for overall effects and t-tests for individual variables, while R^2 measured how well independent variables explained variations in FLFPR.

RESULTS AND DISCUSSION

Table 2.
Estimation Results of the Panel Data Econometric Model – Cross-Section

Variable	Regression Coefficient		
	CEM	FEM	REM
C	288.4882	-420.1014	12.57651
LogLEM	-44.82033	143.6486	16.34336
LogAYS	-34.48992	13.34145	-2.163812
WWAM	-0.638374	0.007949	-0.213458
LogCONS	3.981487	-18.76701	-2490897
R^2	0.660174	0.982113	0.066619
Adjusted. R^2	0.651936	0.977099	0.043992
F-Statistik	80.13576	195.8849	2.944188
Prob. Statistik F	0.000000	0.000000	0.022004
Model Selection Test			
Chow			
Cross-Section F(33,132) =159.310169 ; Prob. F(33,132) = 0.0000			
Hausman			
Cross-Section random χ^2 (4) = 41.931079; Prob. χ^2 = 0.0000			

Source: Data processed, 2024

Estimated Model Selection Test

Chow Test

Table 3.
Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	159.310169	(33,132)	0.0000

Source: Data processed, 2024

In Table 3, the p-value (probability or empirical significance) for the F-statistic is 0.0000 (< α 0.01), which leads to the rejection of H_0. Thus, it can be concluded that the selected estimated model is FEM (Fixed Effect Model).

Hausman Test

The Hausman test is used to determine the best-estimated model between FEM and REM.

Table 4.
Hausman Test Results

Effects Test	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section F	41.931079	4	0.0000

Source: Data processed, 2024

In Table 4, the Chi-Square value is 41.951140 with a probability of 0.0000 (< α 0.01), so H_0 is rejected. Therefore, it can be concluded that the selected estimated model is FEM (Fixed Effect Model).

Table 5.
Fixed Effect Model (FEM) Estimation

$$\underset{}{\text{FLFPR}_{it}} = \underset{}{-420.101} + \underset{(0.063)***}{13.341\text{LogAYS}_{it}} + \underset{(0.001)*}{143.649\text{LogLEM}_{it}} + \underset{(0.898)}{0.008\text{WWAM}_{it}} - \underset{(0.000)*}{18.767\text{LogCONS}_{it}} + \varepsilon_{it}$$

R^2 = 0.982; DW-Stat = 2.202; F-Stat = 195.884; Sig. F-Stat = 0.000

Source: Data processed, 2024

Notes:*Significant at α = 0.01, **Significant at α = 0.05, ***Significant at α = 0.1, the numbers in parentheses are the probabilities for the t-statistics.

Model Goodness of Fit Test

Existence Test of the Estimated Model

The estimated model can be considered valid if at least one variable in the model significantly affects the dependent variable. The existence test is conducted using the F-test (simultaneous test).

In Table 5, it can be seen that the p-value for the F-statistic in the estimated model is 0.0000, which is less than α (0.01), so H_0 is rejected. Therefore, it can be concluded that the FEM (Fixed Effect Model) estimated model exists. This means that, collectively, variables such as the Average Length of Schooling for Women, Life Expectancy for Women, Adjusted Per Capita Expenditure for Women, and Married Women Aged 20 to 24 significantly influence the Female Labor Force Participation Rate across 34 provinces in Indonesia.

Interpretation of the Coefficient of Determination (R^2)

The predictive power of the estimated model is shown by the coefficient of determination. From Table 5, it can be seen that the R^2 value for the Fixed Effect Model is 0.9805, meaning that 98.05% of the variation in the Female Labor Force Participation Rate can be explained by the Average Length of Schooling for Women, Life Expectancy for Women, Adjusted Per Capita Expenditure for Women, and Married Women Aged 20 to 24. The remaining 1.95% is influenced by other variables or factors not included in the estimated model.

Validity Test of the Independent Variables' Effect on the Estimated FEM Model

The validity test is used to examine the significance of the effect between the independent and dependent variables on a partial or individual basis.

Table 6.
Results of the Validity Test of the Independent Variable Effects

Variable	Sig.t	Criteria	Conclusion
LEM	0.0012	< 0.01	Significant at α = 0.01
AYS	0.0628	< 0.01	Significant at α = 0.1
WWAM	0.8982	> 0.01	Not Significant
CONS	0.0000	< 0.01	Significant at α = 0.01

Source: Data processed, 2024

Interpretation of the Effects of Independent Variables

According to the validity test in Table 6, three variables significantly influence the Female Labor Force Participation Rate. These variables are the Average Length of Schooling for Women, Life Expectancy for Women, and Adjusted Per Capita Expenditure for Women. However, Women aged 20 to 24 years who are married do not have a significant influence on the Female Labor Force Participation Rate in 34 Provinces in Indonesia.

The Average Length of Schooling for Women variable has a regression coefficient of 13.341, with a linear-logarithmic relationship pattern. Therefore, if the Average Length of Schooling for Women increases by 1%, the Female Labor Force Participation Rate will increase by 0.13341%. Conversely, if the Average Length of Schooling for Women decreases by 1%, the Female Labor Force Participation Rate will decrease by 0.13341%.

This finding is supported by research by Menelek Asfaw (2022), which shows that the Average Length of Schooling, as an aspect of human capital, has a positive and significant effect on real wages, which in turn increases female labor force participation.

The Life Expectancy for Women variable has a regression coefficient of 143.649, with a linear-logarithmic relationship pattern. Therefore, if the Life Expectancy for Women increases by 1%, the Female Labor Force Participation Rate will increase by 1.43649%. Conversely, if the Life Expectancy for Women decreases by 1%, the Female Labor Force Participation Rate will decrease by 1.43649%. This finding is supported by research by Adiansyah (2021), which states that Life Expectancy for Women has a positive and significant effect on the Female Labor Force Participation Rate, as longer life expectancy gives women more time to pursue careers or higher education, thus contributing to increased labor force participation.

The Adjusted Per Capita Expenditure for Women variable has a regression coefficient of -18.767, with a linear-logarithmic relationship pattern. Therefore, if the Adjusted Per Capita Expenditure for Women increases by 1%, the Female Labor Force Participation Rate will decrease by 0.18767%. Conversely, if the Adjusted Per Capita Expenditure for Women decreases by 1%, the Female Labor Force Participation Rate will increase by 0.18767%. This can happen because women tend to depend on their family's income. Research by Septiawan & Wijaya (2021) supports this, indicating that when more women are involved in managing households, the Female Labor Force Participation Rate decreases. Cultural factors influence the perception that men are the primary breadwinners, and women are responsible for domestic tasks. This dependency on the husband's income reduces women's direct participation in the labor market despite increased consumption.

This study also shows that Married Women aged 20 to 24 do not have a significant impact on the Female Labor Force Participation Rate in 34 Provinces in Indonesia. This may occur because married women can make decisions based on personal desires regarding their participation in the labor market. They can choose to spend their time working or not. The desire for some married women to work is often driven by the need to support their households financially. Research by Das (2019) explains that women seek to join the labor market to share the financial burdens of their households and meet daily needs.

CONCLUSION

The research on factors influencing the Female Labor Force Participation Rate (FLFPR) in 34 provinces of Indonesia identified the Fixed Effect Model (FEM) as the most suitable regression model, as it accounts for unobserved heterogeneity across provinces. With an R^2 value of 0.9805, the model explains 98.05% of the variation in FLFPR, influenced significantly by women's education, life expectancy, and per capita expenditure, while the marital status of women aged 20-24 is not significant. This finding may reflect shifting cultural norms, delayed marriage trends, or other economic factors not captured in the study. To enhance FLFPR, the government should focus on expanding access to quality education through targeted scholarships, school infrastructure improvements, and vocational training for women. Addressing social and cultural barriers requires policies that promote gender equity in workplaces, childcare support, and community engagement programs. Investments in healthcare, particularly in family planning and nutrition, are essential for empowering women economically. Future research should consider additional variables and alternative methods for a more comprehensive analysis

This study's limitation is that it only covers 34 provinces in Indonesia, as there were challenges in accessing data from newer provinces during the time the research was conducted. This limitation provides an opportunity for future studies to expand by collecting more comprehensive and representative data.

REFERENCES

Abebe, W., & Kasa, A. (2021). Constraints to Women Participating in Public Works for Improving Income-Generating Activities in Selected Districts Vis-a-vis Productive Safety Net Program of Ethiopia. *Global Social Welfare*, *8*(2), 181–185. https://doi.org/10.1007/s40609-020-00184-2

Abraham, A. Y., Ohemeng, F. N. A., & Ohemeng, W. (2017). Female labour force participation: Evidence from Ghana. *International Journal of Social Economics*, *44*(11), 1489–1505. https://doi.org/10.1108/IJSE-06-2015-0159

Adiansyah, N. (2021). Pengaruh PDB, Angka Harapan Hidup Perempuan, dan Tingkat Fertilitas terhadap Tingkat Partisipasi Angkatan Kerja Perempuan di Indonesia, Malaysia, Singapura, dan Brunei Darussalam Tahun 1990-2018. *Universitas Islam Negeri Syarif Hidayatullah Jakarta*, *1*(69).

Das, R. (2019). The determinants of women workforce participation among the rabha women in Rabha Hasong Autonomous Council area of Assam. *International Journal of Innovative Technology and Exploring Engineering*, *9*(1), 795–799. https://doi.org/10.35940/ijitee.A4293.119119

Fatima, G. (2013). Gender inequality in human capital accumulation and economic growth: A comparative analysis of Pakistan and Sri Lanka. *Asia Pacific Journal of Social Work and Development*, *23*(4), 242–252. https://doi.org/10.1080/02185385.2013.778786

Hidayat, M., Hadi, M. F., & Sutrisno, S. (2017). Analisis Tingkat Partisipasi Angkatan Kerja (Tpak) Perempuan Antar Kabupaten Di Provinsi Riau. *Media Trend*, *12*(1). https://doi.org/10.21107/mediatrend.v12i1.2541

Intan, N. R., & Sulistiyawan, E. (2018). Spatial Autoregressive Model untuk Pemodelan Angka Harapan Hidup (AHH) di Provinsi Jawa Timur. *J Statistika: Jurnal Ilmiah Teori Dan Aplikasi Statistika*, *11*(2), 37–42. https://doi.org/10.36456/jstat.vol11.no2.a2178

Karamollaoglu, N., & Soybilgen, B. (2020). Determinants of Turkish female labour force participation: an analysis with manufacturing firm-level data. *Applied Economics Letters*, *27*(19), 1607–1610. https://doi.org/10.1080/13504851.2019.1707757

Menelek Asfaw, D. (2022). Woman labor force participation in off-farm activities and its determinants in Afar Regional State, Northeast Ethiopia. *Cogent Social Sciences*, *8*(1). https://doi.org/10.1080/23311886.2021.2024675

Mulugeta, G. (2021). The role and determinants of women labor force participation for household poverty reduction in Debre Birhan town, North Shewa zone, Ethiopia. *Cogent Economics and Finance*, *9*(1). https://doi.org/10.1080/23322039.2021.1892927

Mulugeta, S. S., Gebremichael, S. G., Fenta, S. M., & Getahun, B. E. (2022). Geographical variation and determinants of women unemployment status in Ethiopia; A multilevel and spatial analysis from 2016 Ethiopia Demographic and Health Survey data. *PLoS ONE*, *17*(7 July). https://doi.org/10.1371/journal.pone.0270989

Septiawan, A., & Wijaya, S. H. (2021). Determinan Tingkat Partisipasi Angkatan Kerja Perempuan Di Indonesia Tahun 2015-2019 Menggunakan Model Regresi Data PaneL. *Seminar Nasional Official Statistics*, *2020*(1). https://doi.org/10.34123/semnasoffstat.v2020i1.387

Setiani, S. A., Saleh, S. E., & Payu, B. R. (2024). Analisis Indeks Pembangunan Gender Di Kawasan Teluk Tomini Dan Faktor-Faktor Yang Mempengaruhinya. *Jurnal Studi Ekonomi Dan Pembangunan*, *1*(3). https://doi.org/10.37905/jsep.v1i3.23842

Tesfaye, D., Sintayehu, S., Netsanet, A., & Eyasu, A. (2023). Youth unemployment and its main determinants in Ethiopia. *EQA*, *55*, 23–32. https://doi.org/10.6092/issn.2281-4485/16710