

DETERMINANTS OF FEMALE LFPR IN CENTRAL JAVA PROVINCE: A TWO STAGE LEAST SQUARES (2SLS) APPROACH

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Abstract

The female labour participation rate (LFPR) is closely linked to poverty. Increased female participation in the labor market is often driven by economic pressures as a survival strategy. This Study aims to analyze the simultaneous relationship between the female LFPR and poverty, as well as to examine the predictor variables suspected of influencing these two endogenous variables. The data used in this study are panel 35 districts/cities in Central Java Province for period 2021-2024. The method used in this study is Panel Two-Stage Least Squares (2SLS). The results show that (1) there is a dynamic simultaneous relationship between the endogenous and exogenous variable (women LFPR and poverty); (2) Average Years Schooling (AYS) and marital status have a negative and significant effect on women LFPR; (3) TPT and IDG do not affect female LFPR; (4) Marital status and dependency ratio have a positive effect on poverty; (5) Life expectancy and the minimum wage have a negative effect on poverty. The implications of study indicate the need for local governments to optimize women's empowerment through improved education, increased life expectancy, reduced dependency ratios, and the creation of jobs with higher productivity and decent wages for women, particularly those who are married, so that the issues of women's LFPR, and poverty can be addressed efficiently and effectively. This study is still limited to the observation period and the variable used.

Keywords: *Female LFPR; Poverty; Education; Wages; Marital status*

INTRODUCTION

Regional economic development cannot be separated from the optimization of human resources (Calista et al., 2024). Through classical economic theory, Adam Smith stated that the effective allocation of human resources is a prerequisite for economic growth. Individuals with productive capacity that is not absorbed into the labor market reflect inefficiency in human resource allocation, which ultimately hinders a country's economic growth (Dewi, 2024). Incomplete female participation in the labor market is viewed as a form of inefficiency in human resource allocation that directly suppresses regional economic growth.

Women's participation can be observed through the Female Labor Force Participation Rate (FLFPR). FLFPR is calculated as the percentage of the female labor force to the total female working-age population aged 15 and over. As one of the centers of national economic growth, the island of Java contributes more than half of the national Gross Domestic Product (GDP), reaching 57.05% in 2023. However, economic growth in Java does not necessarily correspond with the equitable distribution of welfare and women's empowerment across all its provinces.

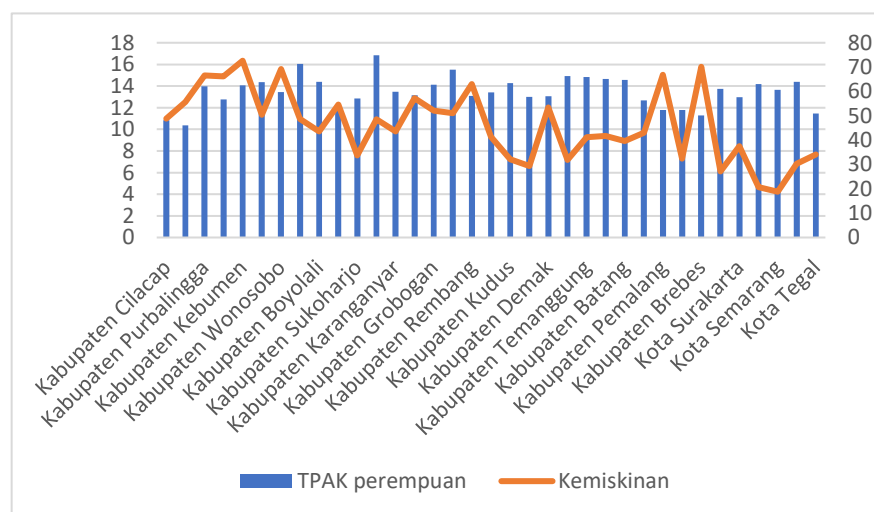
**Table 1. Female TPAK and GRDP by Province in Java Island 2023
(Percent)**

Province	Female LFPR (Percent)	PDRB (Thousand Rupiah)
East Java	59.46	25
West Java	47.98	22
Central Java	58.92	14.5
IN Yogyakarta	64.75	1.6
Jakarta	50.12	29
Banten	48.9	6.9

Source: Central Statistics Agency, 2023

Based on Table 1. Central Java Province is one of the provinces on Java Island with a relatively high Female Labor Force Participation Rate (FLFPR), reaching 58.92 percent in 2023. However, its Gross Regional Domestic Product (GRDP) growth of 14.5 percent is lower compared to several other provinces in Java that also have relatively high FLFPR. Central Java's economic structure, which relies heavily on labor-intensive industries such as textiles and garments, creates many job opportunities for women. Even so, women are often concentrated in low value-added sectors. The presence of industrial areas like Kendal Industrial Park (KIK) and Batang Integrated Industrial Estate (KITB), dominated by shoe and textile factories, means female workers are absorbed into jobs that generally do not require high education levels or special skills. As a result, their bargaining power to negotiate higher wages remains limited. Therefore, the high absorption of female labor in Central Java doesn't yet reflect an optimal contribution to the region's economic structure, which hinders efficient and sustainable economic growth (Anggitaningrum et al., 2024).

The Female Labor Force Participation Rate (LFPR) is closely related to poverty, in addition to its contribution to economic productivity. The Poverty Trap theory, developed by Amartya Sen through the added worker effect mechanism, explains that poverty acts as a major driving factor for women to enter the labor market. Women's participation in the workforce is often driven by economic pressure, which often places them in informal sector jobs characterized by poor working conditions, low productivity, low wages, and limited social protection. Women's limited access to decent employment opportunities ultimately creates a poverty trap that is hard to break.



Source: Central Java Statistics Agency (BPS, 2023)

Figure 1. Inverse Relationship Pattern Between Women's TPAK and Poverty (%) in 35 Regencies/Cities in Central Java Province

Figure 1 illustrates the relationship between the Female Labor Force Participation Rate (LFPR) and poverty levels in 35 regencies/cities in Central Java Province in 2023. Wonogiri Regency, which recorded the highest female LFPR at 74.8 percent, still experienced a relatively high poverty

rate of 10.94 percent. On the other hand, Brebes Regency, which had the highest poverty rate in 2023 at 15.78 percent, recorded a relatively low female LFPR of 50.08 percent. This pattern shows that high female labor force participation does not always mean lower poverty levels, suggesting that job quality and the economic opportunities available to women can also play an important role in determining poverty outcomes.

The negative pattern seen in Brebes Regency is caused by its economic structure, which still heavily relies on traditional agriculture. Brebes Regency depends a lot on the agricultural sector, which absorbed 32.94 percent of the workforce in 2024 (Badan Pusat Statistik, 2024). However, workers in the agricultural sector often earn relatively low incomes. Low income limits households' ability to properly meet basic needs, leading to low human resource quality and decreased labor productivity, which then contributes to the persistently high poverty rate (Firdaus et al., 2025).

Kebumen Regency shows an opposite condition, displaying a positive pattern that supports the labor supply theory through the added worker effect mechanism. Kebumen Regency is described as a coastal area dominated by the informal sector. In 2024, workers in the informal sector accounted for 68.83 percent of the workforce in Kebumen Regency, while the rest work in the formal sector (BPS Kebumen Regency, 2024). Most women working in the informal sector in Kebumen tend to have low productivity and earn relatively low wages. Economic pressure has pushed many women into the labor market, not to improve the quality of their work opportunities, but more as a survival strategy. As a result, the high Female Labor Force Participation Rate (FLFPR) in Kebumen Regency has not been able to directly reduce poverty levels.

The differences seen in Central Java highlight the importance of poverty alleviation efforts that also focus on economic productivity and human capabilities. Gary Becker (1975) argued that education, skills, and health are important forms of investment that determine a person's productivity in the labor market. Improvements in these aspects of human capital can boost female labor force participation and help reduce poverty.

According to Jacob Mincer (1962) in the Household Labor Supply Theory, besides economic productivity and the quality of human capital, marital status can influence women's decisions to participate in the labor market due to household responsibilities and the income provided by their partner. Furthermore, Thomas Robert Malthus argued that the more dependents in a household, the lower the level of welfare. When most of a household's income is used for the consumption needs of non-productive members, the capacity to save and invest decreases. This situation can hinder economic progress and eventually contribute to persistent poverty.

Based on the discussion above, reliance on labor-intensive industrial activities and traditional agricultural structures in Central Java has led to the absorption of millions of female workers whose marginal productivity is still relatively low. The limited demand for special skills and higher education in these sectors weakens workers' bargaining power in the labor market (Astutiningsih et al., 2024). Moreover, the dominance of low-value-added industries creates structural barriers to improving welfare, especially for married women. In addition, the labor market's inability to adequately absorb available workers often limits households' ability to earn sufficient and sustainable income, thereby restricting opportunities for economic advancement.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

Labor Theory

The Classical Economic Theory proposed by Adam Smith (1776) states that the effective allocation of human resources is a basic prerequisite for economic growth. Smith explained that the value of a commodity is determined by the amount of labor required to produce it. In other words, the greater the effort and working time needed to produce a good, the higher its value.

Poverty Theory

The Theory of the Vicious Circle of Poverty proposed by Ragnar Nurkse in 1953 states that poverty is a series of interrelated factors that influence each other. Poverty occurs due to an unequal distribution of resources, which creates inequality in income distribution, backwardness, and differences in the quality of human resources, especially low levels of education. Poverty is also caused by imperfect markets and a lack of capital, which leads to low productivity and consequently low income, both of which are influenced by investment and savings. Amartya Sen (1999) explains that poverty is not merely a condition of low income or material consumption, but rather a form of lack of basic human capabilities.

Human Capital Theory

Gary Becker (1975) stated that investment in education, health, and skills can improve the quality of human resources and increase individual's productive abilities, thereby making them more competitive in the labor market. Education is an early form of human capital that can provide benefits for society, the state, and individuals who pursue education in the future (Peya et al., 2025). Theoretically, the higher the level of education attained by women, the greater their motivation and ability to participate in the formal labor market, which offers higher wages and better job protection.

Household Economics Theory

The Household Labor Supply Theory developed by Jacob Mincer (1962) states that marital status can influence a woman's decision to work due to household responsibilities and their partner's income. The Time Allocation Theory proposed by Gary Becker (1965) states that women's decisions to participate in the labor market are based on the level of utility or benefits they obtain, whether they choose to work or not. Women consider the value or benefits gained from allocating their time to labor market activities compared to not participating in the labor market.

Wage Theory

The Efficiency Wage Theory proposed by Alfred Marshall explains that higher wages can increase productivity, work motivation, and worker welfare, thereby potentially reducing poverty. The increase in the Minimum Wage of Regencies/Cities (UMK) tends to raise workers' income, especially for low-wage workers, thereby enhancing households' ability to meet their basic needs and potentially reducing poverty levels (Febrianica, 2015). The Efficiency Wage theory proposed by Alfred Marshall (1984) explains that higher wages can increase productivity, work motivation, and worker welfare, thus potentially reducing poverty.

Unemployment Theory

John Maynard Keynes (1936), through Keynesian Economic Theory, stated that the level of employment in an economy is determined by the size of aggregate demand. A decrease in

aggregate demand will cause companies to reduce production, which leads to lower labor absorption and increased unemployment. The increase in the labor force faster than job opportunities causes part of the population to experience unemployment or underemployment. The rise in unemployment directly reduces household income, decreases the community's purchasing power, slows down economic growth, and increases the risk of poverty and income inequality.

Population Theory

Thomas Robert Malthus (1798) argued that uncontrolled population growth would change the demographic structure and trigger per capita resource shortages. A high dependency ratio directly reflects a large proportion of the unproductive population group that must be supported by the working-age population. The dependency burden forces the working-age population to allocate their limited income to support the non-productive age groups in order to meet basic consumption needs. As a result, there is no income surplus available for investment and savings. A higher dependency ratio depresses real wages to the lowest level, just enough to survive, causing society to be trapped in a cycle of poverty that is difficult to escape due to the absence of capital accumulation.

Gender Empowerment Index

Amartya Sen, through the Capability Approach in 1999, stated that sustainable development is development that expands human freedoms, namely the real ability of each individual to live according to the values they hold and the goals they independently choose. The Gender Empowerment Index (GEI) is evidence that women are empowered and have valuable potential that must be recognized. GEI is considered important because countries that do not fully utilize the potential of women, who make up half of their population, are considered to be underestimating their economic potential (Salsabila & Hendrawan, 2021). Here are the assessment categories of the Gender Empowerment Index:

Table 2. Gender Empowerment Index Rating Categories (0-100)

Kategori	Skor
Rendah	< 50
Sedang	50 – 59,99
Tinggi	60 – 80
Sangat Tinggi	> 80

Source: Central Statistics Agency, 2023

The Effect of Poverty on Female Labor Force Participation Rate (FLFPR)

In line with Classical Economic Theory through the human capital mechanism, Adam Smith emphasized that labor productivity depends on an individual's self-investment, where poverty can limit women's access to education and training, thereby reducing the quality of human capital, which is a prerequisite for active labor force participation in the formal labor market.

H_{1a} : Poverty has a negative effect on the Female Labor Force Participation Rate (LFPR) in regencies/cities in Central Java Province.

The Effect of Education on Female Labor Force Participation Rate (FLFPR)

In line with Human Capital Theory, an increase in the level of formal education can strengthen the bargaining power of the workforce in the labor market and increase wage levels. Research conducted by Putri & Anas (2026) also shows that the average years of schooling for women have a positive and significant effect on the Female Labor Force Participation Rate (FLFPR).

H_{1b} : The average length of schooling has a positive effect on the Labor Force Participation Rate (LFPR) of women in regencies/cities in Central Java Province.

The Effect of Marital Status on Female Labor Force Participation Rate (FLFPR)

In line with the Household Labor Supply Theory, marriage and the presence of children theoretically increase women's reservation wages due to higher household production needs, thereby creating a tendency towards role specialization where women allocate more of their time to the domestic sector. This is supported by research conducted by Sari, (2023) and Septiawan & Wijaya, (2020), which found that marriage has a negative effect on the Female Labor Force Participation Rate (FLFPR), where a greater number of women being involved in household activities can reduce women's labor force participation.

H_{1c} : The number of marriages has a negative effect on the Female Labor Force Participation Rate (LFPR) in regencies/cities in Central Java Province.

The Effect of the Gender Empowerment Index (GEI) on Female Labor Force Participation Rate (FLFPR)

In line with the Capability Approach, the increase in the Gender Empowerment Index (GEI) reflects a reduction in structural and institutional barriers, which can encourage an increase in the Female Labor Force Participation Rate (FLFPR) through expanded access to formal employment opportunities. Research conducted by D. P. Sari et al., (2024) shows that the Gender Empowerment Index (GEI) has a positive effect on the Female Labor Force Participation Rate (FLFPR).

H_{1d} : The Gender Empowerment Index (IDG) has a positive effect on the Female Labor Force Participation Rate (LFPR) in regencies/cities in Central Java Province.

The Effect of Open Unemployment Rate (OUR) on Female Labor Force Participation Rate (FLFPR)

According to Keynesian Economic Theory, a high unemployment rate in a region often pushes wages down, making market wages less attractive and encouraging women to withdraw from the labor force.

H_{1e} : The Open Unemployment Rate (TPT) has a negative effect on the Female Labor Force Participation Rate (LFPR) in regencies/cities in Central Java Province.

The Effect of Female Labor Force Participation Rate (FLFPR) on Poverty

In line with the Poverty Trap Cycle Theory through the additional worker effect mechanism, women working in the informal sector with low wages contribute less significantly to poverty alleviation compared to those working in the formal sector. Several studies by Kurniasih et al., (2022) and Ashari & Athoillah, (2023) found that the Female Labor Force Participation Rate (FLFPR) has a negative and significant effect on poverty. An increase in the Female Labor Force Participation Rate (FLFPR) is associated with a decrease in the poverty rate.

H_{2a} : The Female Labor Force Participation Rate (LFPR) has a negative effect on poverty in regencies/cities in Central Java Province.

The Influence of the Number of Marriages on Poverty

In line with Human Capital Theory, women who marry, especially before completing their education, lose the opportunity to develop the intellectual capacity and skills needed in the labor market. Women with low levels of education can only access low-paying jobs or may not work at all. Marriage also contributes to poverty through the reproductive burden, where each additional child in a poor household increases financial pressure, causing expenses to exceed income and eventually leading to poverty.

H_{2b} : The number of marriages has a positive effect on poverty in regencies/cities in Central Java Province.

The Effect of Life Expectancy on Poverty

In line with Human Capital Theory, health is considered an investment, along with education, in enhancing an individual's productive capacity. A higher Life Expectancy Rate (LER) indicates better population health conditions. Good health conditions ultimately increase labor productivity. Research by Anggadini, (2015) shows that the Life Expectancy Rate (LER) has a negative relationship with poverty.

H_{2c} : Life Expectancy Rate (LER) has a negative and significant effect on poverty in the regencies/cities in Central Java Province.

The Effect of Dependency Ratio on Poverty

In line with the Population Theory, low income allocated for the consumption needs of non-productive household members results in low levels of investment and savings, which ultimately triggers persistent poverty. Research conducted by Okowali et al., (2025) shows a positive relationship between the dependency ratio and poverty.

H_{2d} : The Dependency Ratio has a positive and significant effect on poverty in the regencies/cities in Central Java Province.

The Effect of Regency Minimum Wage (RMW) on Poverty

In line with Wage Theory, wage increases can improve workers' living conditions because higher income allows workers to meet basic needs, maintain health, increase productivity, and work more efficiently. The higher the Regency/City Minimum Wage (UMK) set proportionally, the lower the poverty rate tends to be because the community has more adequate income to meet the minimum living standards. Research by Ashari & Athoillah, (2023) found that the minimum wage has a negative and significant effect on poverty.

H_{2e} : Regency Minimum Wage (UMK) has a negative effect on poverty in the regencies/cities in Central Java Province.

RESEARCH METHODS**Research Design**

This research can be categorized as quantitative research with an explanatory research approach. The data used in this study are quantitative secondary data obtained from various sources relevant to the research. Primary data were obtained from the Indonesian Central Statistics Agency in the form of data on the Female Labor Force Participation Rate (FLFPR) in Central Java for

the period 2021–2024, poverty data in Central Java for 2021–2024, the Average Length of Schooling (ALS) in Central Java for 2021–2024, the number of marriages in Central Java for 2021–2024, the Gender Empowerment Index (GEI) in Central Java for 2021–2024, the Open Unemployment Rate (OUR) in Central Java for 2021–2024, Life Expectancy (LE) data in Central Java for 2021–2024, the dependency ratio in Central Java for 2021–2024, and the Regency Minimum Wage (RMW) in Central Java for 2021–2024.

Data Analysis Techniques

The method used in this study is panel data regression analysis through the Two-Stage Least Squares (2SLS) approach because the variables studied have a reciprocal relationship, particularly between the Female Labor Force Participation Rate (FLFPR) and poverty. Considering the possibility of a two-way relationship among endogenous variables, the Two-Stage Least Squares (2SLS) estimation method is used to address potential simultaneity bias that may arise in Ordinary Least Squares (OLS) linear regression. This method is considered more consistent and efficient for estimating reciprocal relationships among endogenous variables in panel data. The following is the simultaneous equation model used in this research.

Equation 1: Female LFPR Model (Y1)

$$TPAKP_{it} = \alpha_0 - \alpha_1 KM_{it} + \alpha_2 RLS_{it} - \alpha_3 SP_{it} + \alpha_4 IDG_{it} - \alpha_4 TPT_{it} \varepsilon_{1i}$$

Equation 2: Poverty Model (Y2)

$$Kemiskinan = \beta_0 - \beta_1 TPAKP_{it} - \beta_2 RLS_{it} - \beta_3 AHH_{it} + \beta_3 DR_{it} - \beta_4 UMK_{it} + \varepsilon_{2i}$$

In panel data analysis, the use of an appropriate regression model is required. There are three estimation models in panel data regression, namely the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM). Therefore, to determine the best research model, the Chow test, Hausman test, and Lagrange Multiplier test are used (Widarjono, 2018). In addition, according to Widarjono (2018), testing is necessary to determine whether the regression model meets the classical assumption requirements. Elasticity testing is used to determine the percentage change of a variable as a result of a 1% change in the independent variable, thereby identifying which variable has the most dominant influence on the dependent variable.

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

Equation 1: Female LFPR (Y1)

Table 3. Descriptive Statistical Analysis of LFPR

	KM	RLS	Ln_JP	IDG	TPT	TPAKP
<i>Mean</i>	10,62493	7,802714	8,741278	70,60936	5,151000	59,90300
<i>Median</i>	10,59500	7,405000	8,841075	70,53000	4,955000	59,82500
<i>Maximum</i>	17,83000	11,29000	9,722026	84,80000	9,970000	74,80000
<i>Minimum</i>	4,030000	5,550000	6,505784	48,68000	1,760000	46,08000
<i>Std Dev.</i>	3,326854	1,324984	0,679445	7,394421	1,875406	5,544940

Source: Analysis results, 2026

Based on Table 3. all the variables in the first equation are within a reasonable range and meet the assumptions set by economic theory. So, this empirical data can be considered valid, free from extreme values, and suitable for use in model estimation and hypothesis testing.

Equation 2: Poverty (Y2)

Table 4. Descriptive Statistical Analysis of Poverty

	TPAKP	Ln_JP	AHH	DR	Ln_UMK	KM
<i>Mean</i>	59,90300	8,741278	75,20171	44,41793	14,57292	10,62493
<i>Median</i>	59,82500	8,841075	75,00000	44,16000	14,55967	10,59500
<i>Maximum</i>	74,80000	9,722026	78,26000	54,61000	14,99231	17,83000
<i>Minimum</i>	46,08000	6,505784	69,54000	37,00000	14,40607	4,030000
<i>Std Dev.</i>	5,544940	0,679445	1,810811	2,757736	0,105733	3,326854

Source: Analysis results, 2026

Based on Table 4. it is known that all the variables in the second equation are within a logical range and meet the limits of economic theory assumptions. Therefore, the characteristics of the empirical data are considered valid, free from extreme values, and can be used for model testing.

Simultaneous Equation Identification Test

Table 3. Identification of Variables in Simultaneous Equations

Structural Equation	Order Condition (K-K)....(M-m)	Rank Condition M=1	Decision
The Function of Female LFPR	(5-3) > (2-1)	2-1=1	<i>Overidentified</i>
Poverty Function	(5-3) > (2-1)	2-1=1	<i>Overidentified</i>

Source: Analysis results, 2026

Based on Table 4.1, it is known that this study uses the Two-Stage Least Squares (2SLS) method for estimation. The results show that the structural equation model is overidentified (Gujarati & Porter, 2004)

Panel Data Regression Analysis 2SLS

Female LFPR Model

Widarjono, (2018) explained that before conducting simultaneous equation testing on panel data, it is necessary to first determine the best model among the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Based on the Chow Test and Hausman Test, it was found that the best model for the first equation is the Fixed Effect Model (FEM). However, the regression output must also pass the classical assumption tests, which consist of multicollinearity tests and heteroscedasticity tests. In this study, the regression output has been declared to have passed the classical assumption tests; therefore, the regression output can be used for further analysis.

Table 4. TSLS Panel Data Regression of Female LFPR (FEM)

Variable	Coefficient	P-value
C	316.2498	0.0000
Poverty	-2.3312	0.0200
Average years of schooling	-6.1089	0.0048
Number of marriages	-19.6839	0.0006
Gender Empowerment Index	-0.1963	0.1072
Open unemployment rate	-0.1534	0.6428
R-Squared		0.8354

Source: Analysis results, 2026

$$LFPR_{it} = 316,2498 - 2,331213 KM_{it} - 6,108958 RLS_{it} - 19,68397 JP_{it} - 0,196385 IDG_{it} - 0,153474 TPT_{it}$$

The poverty variable has a regression coefficient of -2.331213 with a probability value of 0.0200. This indicates that poverty has a negative and significant effect on the Female Labor Force Participation Rate (FLFPR). The Average Years of Schooling (MYS) variable has a regression coefficient of -6.108958 with a probability value of 0.0048. This indicates that MYS has a negative and significant effect on the Female Labor Force Participation Rate (FLFPR). The JP variable has a regression coefficient of -19.68397 with a probability value of 0.0006. This indicates that the JP variable has a negative and significant effect on the Female Labor Force Participation Rate (FLFPR). The Gender Empowerment Index (GEI) variable has a regression coefficient of -0.196385 with a probability value of 0.1072. This indicates that the GEI variable does not have a significant effect on the Female Labor Force Participation Rate (FLFPR). The Open Unemployment Rate (OUR) variable has a regression coefficient of -0.153474 with a probability value of 0.6428. This indicates that the OUR variable has no significant effect on the Female Labor Force Participation Rate (FLFPR).

Poverty Model

Widarjono, (2018) explained that before conducting simultaneous equation testing on panel data, it is necessary to first determine the best model among the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Based on the Chow Test and Hausman Test, it was found that the best model for the first equation is the Random Effect Model (REM). However, the regression output must also pass the classical assumption tests, which consist of multicollinearity and heteroscedasticity tests. In this study, the regression output has been declared to have passed the classical assumption tests; therefore, the regression output can be used for further analysis.

Table 5. TSLS Panel Data Regression on Poverty (REM)

Variable	Coefficient	P-value
C	133.4036	0.0000
Female LFPR	0.1115	0.0068
Number of marriages	1.3225	0.0205
Life expectancy	-0.7001	0.0010
Dependency Ratio	0.1741	0.0000
Regency Minimum Wage	-6.5946	0.0000
R-Squared		0.5088

Source: Analysis results, 2026

$$KM_{2it} = 133,4036 + 0,111556 TPAKP_{1it} + 1,322540 JP_{2it} - 0,174124 AHH_{3it} + 0,174124 DR_{4it} - 6,594647 UMK_{5it}$$

The female labor force participation rate (FLFPR) variable has a regression coefficient of 0.111556 with a probability value of 0.0068. This indicates that the FLFPR variable has a positive and significant effect on poverty. The employment variable (JP) has a regression coefficient of 1.322540 with a probability value of 0.0205. This indicates that the JP variable has a positive and significant effect on poverty. The Life Expectancy Rate (LER) variable has a regression coefficient of -0.700156 with a probability value of 0.0010. This indicates that the LER variable has a negative and significant effect on poverty. The Dependency Ratio (DR) variable has a regression coefficient of 0.174124 with a probability value of 0.0000. This indicates that the DR variable has a positive and significant effect on poverty. The District Minimum Wage (RMW) variable has a regression coefficient of -6.594647 with a probability value of 0.0000. This indicates that the RMW variable has a negative and significant effect on poverty.

Elasticity Test

Table 6. Elasticity Test Results of Female LFPR

Variable	Coefficient (y)	Average X (xy)	Average Y (y)	Elasticity
KM	-2.3312	10.624	59.903	-0.41
RLS	-6.1089	7.80	59.903	-0.795
LnJP	-19.6839	8.90	59.903	-2.92
IDG	-0.1963	70.85	59.903	-0.23
TPT	-0.1534	5.15	59.903	-0.013

Source: Analysis results, 2026

Based on the elasticity results of each independent variable, the poverty variable (KM) has the largest elasticity value compared to the other independent variables, which is -0.41. This indicates that the poverty variable is the variable that most influences the Female Labor Force Participation Rate (FLFPR) in Central Java during the 2021–2024 period.

Table 7. Poverty Elasticity Test Results

Variable	Coefficient (y)	Average X (xy)	Average Y (y)	Elasticity
TPAKP	0.1115	59.903	10.625	0.628
LnJP	1.3225	8.90	10.625	1.10
AHH	-0.7001	75.20	10.625	-1.23
DR	0.1741	44.47	10.625	0.728
LnUMK	-6.5946	15	10.625	-9.31

Source: Analysis results, 2026

Based on the elasticity results of each independent variable, the JP variable has the largest elasticity value compared to the other independent variables, which is 1.10. This indicates that the JP variable is the most influential variable on poverty in Central Java during the 2021–2024 period.

The Influence of Poverty on Female LFPR in Central Java Province

The analysis results on the influence of poverty on the Female Labor Force Participation Rate (FLFPR) show a negative coefficient of -2.331215 with a p-value of 0.0200. This indicates that poverty has a negative and significant effect on the Female Labor Force Participation Rate (FLFPR) in regencies/cities in Central Java. The increase in poverty levels in several areas in Central Java is related to the low participation of women in the labor force. Limited access to education, skills, business capital, and decent work opportunities for women in poor households are factors that make it difficult for women to enter the labor market.

Theoretically, these findings are consistent with the Poverty Trap Theory proposed by Ragnar Nurkse, which states that poverty leads to low-quality human resources and low labor productivity. However, these findings are not consistent with previous research conducted by Tribilanti, (2025) which found that poverty has a positive but not significant effect on the Female Labor Force Participation Rate (FLFPR).

The Influence of RLS on Female LFPR in Central Java Province

The analysis results show that the Mean Years of Schooling (MYS) has a negative coefficient of -6.108964 with a p-value of 0.0048. This indicates that the Mean Years of Schooling (MYS) has a negative and significant effect on the Female Labor Force Participation Rate (FLFPR) in regencies/cities in Central Java. The negative relationship between MYS and FLFPR suggests that highly educated women tend to delay entering the labor market to continue their education or wait for more selective jobs that match their competencies.

Theoretically, these findings are not consistent with the Human Capital Theory, which views education as an investment that can improve workforce quality, productivity, and opportunities to obtain better jobs. The economic structure in Central Java, which is still dominated by the agricultural sector and large-scale labor-intensive industries that require more low- to medium-skilled workers, results in the demand for highly educated and highly skilled labor remaining suboptimal. This condition often occurs in several regencies with an economic structure based on agriculture and traditional industries.

The Effect of the Number of Marriages on Female LFPR in Central Java Province

The analysis results show that the number of marriages has a negative coefficient of -19.68397 with a p-value of 0.0006. This indicates that the number of marriages has a negative and significant effect on the Female Labor Force Participation Rate (FLFPR) in regencies/cities in Central Java. This condition shows that the higher the number of marriages, the lower the Female Labor Force Participation Rate (FLFPR) in regencies/cities in Central Java. After marriage, women generally face increased domestic responsibilities such as managing household activities, taking care of children, and looking after family members. For many women, this domestic burden becomes a major factor influencing their decision to leave the labor market and become inactive in seeking employment.

The negative relationship between the number of marriages and the Female Labor Force Participation Rate (FLFPR) is consistent with the Household Labor Supply Theory proposed by Jacob Mincer (1962), which states that marital status can influence women's decision to work due to household responsibilities and spousal income factors. This finding is also consistent with previous research conducted by Sari, (2023) and Septiawan & Wijaya, (2020), who found that marriage has

a negative effect on the Female Labor Force Participation Rate (FLFPR), where a greater number of individuals involved in household responsibilities can reduce women's labor force participation.

The Influence of IDG on Female LFPR in Central Java Province

The analysis results show that the Gender Empowerment Index (GEI) has a negative coefficient of -0.153475 with a p-value of 0.1072. This indicates that the Gender Empowerment Index (GEI) does not have a significant effect on the Female Labor Force Participation Rate (FLFPR) in regencies/cities in Central Java. The GEI reflects women's involvement in politics, decision-making, and professional work rather than women's direct participation in economic activities. In general, this condition causes an increase in the Gender Empowerment Index (GEI) to not necessarily be accompanied by an increase in the number of women who are working or actively participating in the labor market.

These findings in Central Java are not consistent with the Capability Approach proposed by Amartya Sen, which states that the Gender Empowerment Index (GEI) functions as an instrument to expand women's 'choice space.' Furthermore, these findings are not consistent with previous research conducted by D. P. Sari et al., (2024), which showed that an increase in the Gender Empowerment Index (GEI) can improve the Female Labor Force Participation Rate (FLFPR).

The Influence of TPT on Female LFPR in Central Java Province

The analysis results show that the Open Unemployment Rate (OUR) has a negative coefficient of -0.196385 with a p-value of 0.6428. This indicates that the Open Unemployment Rate (OUR) does not have a significant effect on the Female Labor Force Participation Rate (FLFPR) in regencies/cities in Central Java. Increases or decreases in the Open Unemployment Rate (OUR) are not necessarily followed by significant changes in the Female Labor Force Participation Rate (FLFPR). Women's decisions to work are influenced not only by unemployment conditions but also by other factors such as household economic needs, education levels, culture, family conditions, and informal employment opportunities.

Most women in Central Java continue to participate in economic activities to support household income even though formal job opportunities are limited. Differences in economic characteristics between regencies and cities in Central Java cause the influence of the Open Unemployment Rate (OUR) on the Female Labor Force Participation Rate (FLFPR) to be statistically weak.

The Influence of Female LFPR on Poverty in Central Java Province

The analysis results on the effect of the Female Labor Force Participation Rate (FLFPR) on poverty show a positive coefficient of 0.111567 with a p-value of 0.0068. This indicates that the Female Labor Force Participation Rate (FLFPR) has a positive and significant effect on poverty in regencies/cities in Central Java. This condition shows that the higher the Female Labor Force Participation Rate (FLFPR), the higher the poverty level in regencies/cities in Central Java.

Limited access to education, skills, capital, transportation, and decent job opportunities for poor households causes women to be unable to enter the labor market optimally. The positive relationship between Female Labor Force Participation Rate (FLFPR) and poverty is consistent with the Household Labor Supply Theory proposed by Jacob Mincer (1962) through the additional worker effect mechanism. According to the Household Labor Supply Theory, in poor households, a higher Female Labor Force Participation Rate (FLFPR) can actually increase the level of poverty.

The Influence of the Number of Marriages on Poverty in Central Java Province

The analysis results show that the number of female marriages has a positive coefficient of 1.322582 with a p-value of 0.0205. This indicates that the number of female marriages has a positive and significant effect on poverty in regencies/cities in Central Java. This condition shows that the

higher the number of female marriages, the higher the poverty level in regencies/cities in Central Java.

Limited access to education and formal employment opportunities in poor households increases the risk of poverty. Cultural factors in society also influence the relationship between the number of marriages and the level of poverty. The findings from this study are consistent with Ragnar Nurkse's Theory of the Vicious Circle of Poverty, which states that low-income households tend to experience persistent poverty due to limitations in education, health, and productivity.

The Influence of AHH on Poverty in Central Java Province

The analysis results show that Life Expectancy Rate (LER) has a negative coefficient of -0.174129 with a p-value of 0.0010. This indicates that the Life Expectancy Rate (LER) has a negative and significant effect on poverty in regencies/cities in Central Java. This condition shows that the higher the Life Expectancy Rate (LER), the lower the poverty rate in regencies/cities in Central Java.

The negative relationship between Life Expectancy Rate (LER) and poverty is theoretically consistent with the Human Capital Theory proposed by Gary Becker. Becker views health as a form of human capital investment that can increase labor productivity. Individuals with better health conditions tend to have greater work capacity, higher productivity, and better opportunities to earn higher income. This finding is consistent with research conducted by Anggadini, (2015), which shows that an increase in Life Expectancy Rate (LER) can reduce poverty levels through increased productivity, income, and human capital accumulation.

The Influence of DR on Poverty in Central Java Province

The results of the analysis show that the dependency ratio has a coefficient of 0.174129 with a p-value of 0.0000. This indicates that the dependency ratio has a positive and significant effect on poverty in the regencies and cities of Central Java. This suggests that the higher the dependency ratio, the higher the poverty rate in the regencies and cities of Central Java.

The positive relationship between the dependency ratio and poverty is theoretically consistent with the Population Theory proposed by Thomas Robert Malthus (1798), which states that a high dependency burden implies that a larger non-productive population must be supported by the working-age population. This finding is also consistent with previous research conducted by Okowali et al., (2025) which showed that the dependency ratio has a positive and significant effect on poverty.

The Influence of Minimum Wage on Poverty in Central Java Province

The analysis results show that the District/City Minimum Wage (UMK) has a negative coefficient of -6.594945 with a p-value of 0.0000. This indicates that the District/City Minimum Wage (UMK) has a negative and significant effect on poverty in districts/cities in Central Java. This condition shows that the higher the District/City Minimum Wage (UMK), the lower the poverty rate in districts/cities in Central Java.

The negative relationship between the Regency Minimum Wage (UMK) and poverty is theoretically consistent with Efficiency Wage Theory. Wage increases can boost workers' real income, thereby enhancing the purchasing power of the community. Higher household income allows families to meet their basic needs more adequately. Therefore, an increase in the Regency Minimum Wage (UMK) helps improve welfare and reduce the poverty rate. These findings are also consistent with research conducted by Ashari & Athoillah, (2023), which shows that the minimum wage has a negative and significant effect on poverty.

CONCLUSION

Condusion

This study provides several conclusions based on the results of the analysis conducted, namely:

1. There is a simultaneous relationship between the Female Labor Force Participation Rate (FLFPR) and poverty in regencies/cities in Central Java Province.
2. Poverty, Mean Years of Schooling (MYS), and the number of marriages have a negative and significant effect on the Female Labor Force Participation Rate (FLFPR) in 35 regencies/cities in Central Java during the 2021–2024 period. The Gender Empowerment Index (GEI) and the Open Unemployment Rate (OUR) do not have a significant effect on the Female Labor Force Participation Rate (FLFPR) in 35 regencies/cities in Central Java during the 2021–2024 period.
3. The Female Labor Force Participation Rate (FLFPR), the number of marriages, and the Dependency Ratio (DR) partially have a positive and significant effect on poverty in 35 regencies/cities in Central Java during the 2021–2024 period. The Life Expectancy Rate (LER) and Regency Minimum Wage (RMW) partially have a negative and significant effect on poverty in 35 regencies/cities in Central Java during the 2021–2024.
4. Poverty is the most influential variable on the Female Labor Force Participation Rate (FLFPR) in 35 regencies/cities in Central Java during the period 2021–2024.
5. The number of marriages is the most influential variable on poverty in 35 regencies/cities in Central Java during the period 2021–2024.

Implication

Here are some implications that can be used based on the conclusions that have been outlined:

1. Lower poverty levels have been proven to increase women's labor force participation. Lower poverty in an area allows households to allocate more resources for investments in human capital, which improves women's skills, qualifications, and competitiveness in the formal labor market. Therefore, local governments should develop strategies to reduce poverty by encouraging investment in human capital, expanding job opportunities, ensuring fair wages, and providing social assistance programs for low-income households to improve overall well-being.
2. A higher Average Years of Schooling (MYS) can boost women's participation in the workforce. Higher education improves women's skills, productivity, and competitiveness in the formal job market. However, increasing MYS should go hand in hand with adequate job opportunities so that educated women can be fully absorbed. Therefore, local governments should encourage equal access to education and improve educational infrastructure, provide education assistance programs, and expand job opportunities in sectors that require highly educated women, such as healthcare, education, finance, and information technology.
3. Lower marriage rates in a region have been shown to boost women's participation in the workforce, because women who delay marriage tend to have more time and opportunities to be active in the labor market. Therefore, local governments should make sure that the decision to postpone marriage isn't due to financial difficulties, but rather reflects women's autonomy, independence, and conscious choice. Additionally, local governments also need to strengthen programs aimed at preventing early marriage, especially in Central Java, which still has relatively high rates of child and early marriage. These efforts can help expand education and job opportunities for women while also improving their long-term socio-economic well-being.
4. A lower Open Unemployment Rate (OUR) can increase women's labor force participation. A low unemployment rate indicates a higher absorption of labor in an area, including job opportunities for women. However, a low unemployment rate does not always mean that women get high-quality jobs, as many female workers are still concentrated in the informal sector, which is usually characterized by low wages and limited job protection. Therefore, local governments should design and implement policies that not only aim to reduce overall

unemployment but also improve the quality, security, and sustainability of women's participation in the labor market. These policies should focus on promoting access to decent work, fair wages, and better working conditions for women.

5. A higher Gender Empowerment Index (GEI) can boost women's participation in the workforce. A high GEI reflects greater involvement of women in political and economic decision-making processes, creating a more supportive environment for women to be active in the labor market. So, local governments should carry out a thorough evaluation of existing gender empowerment programs to see how effective they are in improving women's access to work opportunities. Such evaluations can help identify successful initiatives, address existing obstacles, and ensure that gender empowerment policies genuinely contribute to increasing women's participation and advancement in the workforce.
6. A Higher female labor force participation can reduce poverty. Having more earning members in a household directly boosts purchasing power and economic resilience. That's why local governments should create more productive job opportunities with fair wages, strengthen protection programs for women working in the informal sector, and encourage a fairer sharing of household chores. These steps can help maximize the economic benefits of women's participation in the workforce while also supporting sustainable poverty reduction and better household well-being.
7. A low number of marriages in an area has been shown to reduce poverty because early marriages tend to limit women's access to education and jobs, thereby increasing long-term household economic vulnerability. Local governments need to create programs to prevent early marriage, strengthen family financial literacy, and consistently implement the Marriage Law to help reduce poverty in Central Java.
8. A high life expectancy (LE) has been proven to help reduce poverty. Good health supports work productivity and households' ability to earn income, which can help lower poverty. Local governments need to expand equal access to healthcare services, improve nutrition, and promote healthy living environments to boost women's productivity.
9. A low dependency ratio has been shown to reduce poverty in an area. A low dependency burden reflects the small number of non-working age people compared to the working-age population, which can directly boost a household's ability to escape poverty. Local governments need to implement Family Planning programs in areas with high dependency ratios, along with programs to empower the elderly and expand job opportunities for the working-age population to reduce the dependency burden.
10. A higher minimum wage has been proven to reduce poverty in a region. Bigger wages directly boost workers' purchasing power and reduce household economic vulnerability. Local governments need to set the minimum wage realistically and take into account the decent living needs of the community, followed by strict monitoring of companies to make sure they pay wages according to regulations, especially in the informal sector, which employs the largest number of workers in Central Java.

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