



Analysis Of Factors Affecting The Labor Force Participation Rate (LFPR) In Central Java

Hira Davika^{1a*}, F.X. Sugiyanto²

^{1,2}Diponegoro University, Indonesia

^ahiradavika@gmail.com

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*Correspondence Address:

hiradavika@gmail.com

Abstract:

The number of working-age individuals who are actively engaged in economic activities, whether they are already employed or seeking employment, is known as the labor force participation rate. A high labor force participation rate indicates that a significant number of people have reached working age and can support the country's economy. Average years of education, minimum wage, and economic growth are some of the variables that influence the labor force participation rate. The aim of this research is to investigate how the minimum wage, average years of education, and economic growth affect the labor force participation rate in Central Java Province between 2017 and 2023. This study uses a quantitative approach with secondary data sources from BPS. The analysis model of this study employs multiple linear regression analysis (OLS), and the Fixed Effects Model (FEM) is used to estimate the model. The data in this research is processed using Stata 64 software. The R² value of this study is 0.1517, which means that the average years of education, minimum wage, and economic growth have an impact of 15.17% on the labor force participation rate (LFPR); other models outside of this model contribute the remaining 74.83%. The results of this study indicate that although the three variables used, namely average years of education, minimum wage, and economic growth, have a beneficial impact on the labor force participation rate (TPAK), they are not statistically significant. However, collectively, these three variables have an impact on the LFPR in Central Java Province from 2017 to 2023.

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Introduction (مقدمة)

All societal strata must participate in economic development. Every resident has unique and sufficient human resource capacities that allow them to be employed as workers, consumers

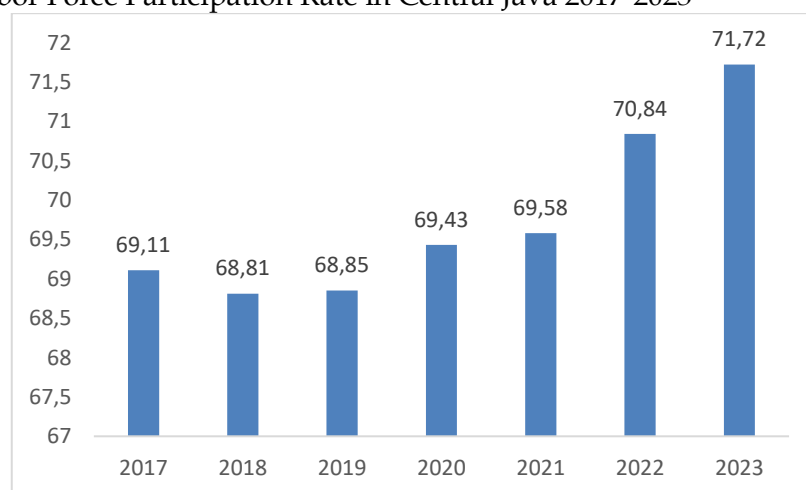
of development outcomes, and inputs for development itself. Since labor is a crucial component, the development process cannot continue without it.

Along with other elements like land production, capital, and skills, labor plays a big part in driving economic growth. Additionally, a large workforce will greatly boost output. A higher rate of population increase will expand the domestic market. According to David Ricardo's thesis, national output is influenced by labor, a factor of production. Therefore, an area or nation has the chance to propel its economic progress, particularly a developing nation with a sizable population (Ariesti et al., 2023).

A key factor in economic development is the availability of employment opportunities. New economic issues including rising unemployment and poverty rates will result from the shortage of available jobs. As a result, the unemployed, or working-age population without jobs, will only hinder the country's progress. Because a nation's economy can be improved by increasing the productivity of its working-age population (Ramadhan, 2023).

The workforce in the area will grow as more people on Java Island reach working age. The number of persons driving economic activity and affecting regional development will increase if the productive age workforce can be integrated into current job categories (Bonnerri, 2018). As seen by the annual rise in the Labor Force Participation Rate (LFPR), the group that has attained working age is anticipated to actively participate in economic activities. A higher LFPR % suggests that there are more work opportunities and that more residents are participating in economic activities.

Figure 1. Labor Force Participation Rate in Central Java 2017-2023



Source: Central Bureau of Statistic Central Java

With a labor force participation rate of 73.74% in 2024, Central Java leads the island of Java, followed by East Java (73.74%), DIY (73.18%), West Java (67.71%), Banten (66.17%), and DKI Jakarta (65.10%). The low labor force participation rate may be a sign that more people are reaching working age yet there aren't enough jobs to accommodate them, which raises unemployment. As a result, there is an imbalance between the growing labor force and high productivity in areas where human resources are skilled (Sasmitaningroh et al., 2026). The decline in the LFPR rate is also influenced by the working-age population that does not join the workforce.

Paradoxically, Central Java's Provincial Minimum Wage (UMP) is the lowest on the island of Java, ranking last at Rp 4.901.798 for DKI Jakarta, Rp 2.661.280 for Banten, Rp 2.040.224 for East Java, Rp 1.981.382 for DIY, and Rp 1.958.169 for Central Java.

The Labor Force Participation Rate (LFPR) in Central Java Province can be influenced by a number of factors, including the average length of education, earnings, and economic growth, according to the above definition. The research questions are as follows: 1) Does the mean years of education have an impact on the labor force participation rate? 2) Does wages have an impact

on the labor force participation rate? 3) Does economic growth have an impact on the labor force participation rate?

Labor Force Participation Rate (LFPR)

Sukirno (2004) defines the labor force as the overall workforce in the economy at any particular moment. The workforce includes both those who are employed and those who are unemployed but actively seeking employment. Workers, household managers, and other groups who receive income but are not employed are included in the non-labor force.

When assessing a region's economic potential and comparing the degree to which people of working age are engaged in employment or other productive activities, LFPR is a highly helpful tool. There are people who are people who are people who are people who are people who are thought of laborers who are thought of the labor. People who have given up looking for work are not included in the unemployment rate.

Education

Mean years of schooling (MYS), which is typically expressed in years, is the amount of time residents 15 years of age and older need to finish all levels of formal education. The Central Bureau of Statistics (BPS) computes this indicator to assess the degree and caliber of education in a certain area. The typical population's level of education increases with a higher RLS figure.

Minimum Wage (UMK)

The minimum wage for cities or regencies is a minimum standard that businesses or industry participants use to pay employees, workers, or laborers at their establishments. The amount of persons joining the workforce will be impacted by the minimum wage requirement for cities and regencies. The goal of setting a minimum wage for cities and regencies is to guarantee that employees are paid fairly for the labor they perform for their employers. Samuelson (2001).

Economic Growth

Capital, labor, and technology are the fundamental forces behind economic growth, which is a constant process of raising output and revenue. Both the quantitative (actual production) and qualitative (technological advancement, labor quality) aspects of economic growth are highlighted in this concept.

High economic growth produces more work opportunities, encouraging more productive-age citizens to enter the labor market and boosting the Labor Force Participation Rate (LFPR). On the other hand, a high LFPR indicates a labor pool. This will boost production capacity and productivity if it is balanced with high-quality resources, which will propel economic growth.



Method (منهج)

This study is quantitative and uses a descriptive methodology, which shows how the independent variable affects the dependent variable. The Central Bureau of Statistics (BPS) published secondary data that was used in this study. Ordinary Least Squares (OLS) analysis is the method employed. While the time series data covers the years 2017 to 2023, the panel data used in the study is cross-sectional data containing variables of Central Java regencies and cities. The Stata 64 program was used to process the data.

This study aims to explore the connections between the Labor Force Participation Rate (LFPR) and the Minimum Wage, Economic Growth, and Mean Years of Schooling Prior to doing many analyses, the best model to be used later is first determined using estimation techniques such as the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The Chow, Hausmann, and Lagrange Multiplier tests are used to determine which model yields the best and most accurate estimation results. Classical assumption testing and result interpretation are carried out to draw conclusions from the regression findings once the optimal and most accurate model has been identified.

Table 1. Operational Definition of Variables

Variable		Acronym	Operational Definition	Unit
Labor Force Participation Rate		LFPR	This percentage is the proportion of the working-age population (often those who are 15 years of age and older) who are either employed or actively looking for work.	%
Mean Years of Education		MYS	The average number of years residents spend pursuing formal education is displayed in this figure. The population 15 years of age and older is used to compute RLS (assuming that by this age, the formal schooling process is either ongoing or substantially completed). This number is also reserved especially for residents who are 25 years of age or older in various data collection tools.	Year
Minimum Wage		MW	the lowest monthly wage level that is applicable in specific regencies or cities and consists of a basic salary plus fixed allowances. The Governor determines UMK, which is typically greater than the Provincial Minimum Wage (UMP).	Rp

Economic Growth	EG	the long-term process of boosting an economy's productive capacity, which shows up as an increase in national income. Its primary focus is quantitative, i.e., calculating the overall annual growth in a region's or nation's production of goods and services.	GDP
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Panel Regression Model Estimation Model

$$LFPR_{it} = \alpha_{it} + \beta_1 MYS_{it} + \beta_2 MW_{it} + \beta_3 EG_{it} + \mu_{it}$$

$$LFPR_{it} = \alpha_{it} + \beta_1 \text{Log}MYS_{it} + \beta_2 \text{Log}MW_{it} + \beta_3 \text{Log}EG_{it} + \mu_{it}$$

Describe:

LFPR = Labor Force Participation Rate

LogMYS = Mean Years of Education

LogMW = Minimum Wage

LogEG = Economic Growth

α = Constanta

$\beta_1, \beta_2, \beta_3$ = Coeficient variable 1,2,3

i = districts and cities in Central Java

t = 2017, 2018, 2019, 2020, 2021, 2022, 2023

Result (نتائج)

Model determination is used in this analysis to determine the most correct model. Three tests were used to determine the model: Chow Test, Hausman Test, and Lagrange Multiplier Test. Data that has been processed with Stata is the outcome of this study. Following data processing, the research findings were as follows:

Table 2. Model Estimation

Test	Result	Desicion
Chow test	0,0000	<i>Fixed Effect Model</i>
Haussman test	0,0000	<i>Fixed Effect Model</i>
LM test	0,0000	<i>Random Effect Model</i>

Source: Data proceed, 2026

Chow Test and Hausman Test findings with a significance level of $0.0000 < 0.05$ were obtained from the data processed using the three tests. As a result, the Fixed Effect Model was employed in this investigation.

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Regression Analysis of Panel Data

The Fixed Effect Model used in this panel regression analysis is used to make the study's decision. The following is an explanation of the data derived from the test results:

Table 3. Regression with *Fixed Effect Model* (FEM)

Variable	Regression Coefficient	t-statistic	Sig.
C	52,01515	7,02	0,000
LogEducation	2,06e-06	1,41	0,16
LogMinimum Wage	9,04e-06	1,23	0,219
LogEconomic Growth	1,728864	0,28	0,780
R-square	0,1517		
Prob (F-statistic)	0,0000		

Source: Data proceed, 2026

The estimated model for the variables Mean Years of Schooling, Minimum Wage, and Economic Growth on the Labor Force Participation Rate in Central Java is as follows, based on the regression results in Table 2:

$$\text{LFPR}_{it} = 52,01515_{it} + 2,06e-06\text{MYS}_{it} + 9,04e-06\text{MW}_{it} + 1,728864\text{EG}_{it} + \mu_{it}$$

According to the resulting equation, the constant value is 52.01515, which indicates that the labor force participation rate will rise by 52.01515% if the province's mean years of education, minimum wage, and economic growth all have constant values. The mean years of schooling variable has a positive coefficient of 2.06e-06, which means that a 1% increase in the variable will result in a 2.06e-06% rise in the labor force participation rate. Because the minimum wage variable's coefficient is positive at 9.04e-06, a 1% rise in the minimum wage variable will result in a 9.04e-06% increase in the labor force participation rate. Because the economic growth variable's coefficient is positive at 1.728864, 1% rise in the economic growth variable will result in a 1.728864% increase in the labor force participation rate.

Statistical Significance Test

t-test (partial)

Each variable's impact on the dependent variable is examined using the t-test. This test's reference employs a t-statistic value of 1.969774 and a significance alpha value of 5% ($\alpha = 0.05$). Table 2 shows that the mean years of schooling t-statistic value is $1.41 < 1.969774$; therefore, H_a is rejected and H_0 is accepted, indicating that the mean years of schooling variable has no effect on the TPAK in Central Java. This is consistent with Bonerri's (2018) study, "The Influence of Education and Wages on the Labor Force Participation Rate (LFPR) in Manado City," which found that the TPAK is not significantly impacted by the mean of years of schooling.

It can be inferred that the UMK variable has no effect on the LFPR in Central Java because its t-statistic value is $1.23 < 1.969774$. This is consistent with the study "The Influence of Education, Minimum Wage, and Foreign Direct Investment on the Labor Force Participation Rate of Women in Indonesia," conducted by Sasmitaningroh et al. (2026), which found that the minimum wage had a favorable but insignificant impact on the LFPR.

Since the Economic Growth variable's t-statistic value is $0.28 < 1.969774$, it can be said that the TPAK in Central Java is unaffected by economic growth. According to Ramadhan's (2023) study, "Analysis of the Influence of Population, Minimum Wage, Economic Growth, and Human Development Index on the Labor Force Participation Rate in Banten Province from 2017-2021," economic growth has a favorable but not statistically significant impact on the TPAK. Therefore, the Labor Force Participation Rate in Central Java is not significantly affected by changes in the three variables of average years of schooling, minimum pay, and economic growth.

F-statistic

Table 2 illustrates that the issue. The sig. value is $0.0000 < 0.05$ and the F-statistic value is $12.34 > 2.641902$. As a result, H_0 is rejected and H_a is approved, indicating that the Central Java Province's labor force participation rate is influenced by the variables of average years of schooling, UMK, and economic growth.

Godness of Fitness (R2)

15.17%, or 0.1517, is the corrected R square value. According to this coefficient of determination, the independent variables—Mean Years of Schooling, Minimum Wage, and Economic Growth—can account for 15.17% of the TPAK in Central Java, with other factors not covered by this research model accounting for the remaining 74.83%.

Multikolinearity Test

Table 4. Multikolinearity Test

Variable	RLS	UMK	PE
LogMYS	1.0000		
LogUMK	0.3885	1.0000	
LogEG	0.2987	0.5462	1.0000

The model has no multicollinearity problems because the coefficient values are 0.3885 and 0.5462 < 0.85.

Heteroskedasticity Test

The Chi-square probability value of a model can be used to determine if it is heteroskedastic. Heteroskedasticity is present in this model, as indicated by the Chi-square probability value of $0.0166 < 0.05$. In order to address heteroscedasticity, a White test was performed. The chi-square value that was achieved was 0.0747, indicating that there are no heteroscedasticity problems with this model.

Autokorelation Test

The autocorrelation test is used to ascertain whether past and future errors in a variable are related. The Durbin-Watson technique is employed in this study's regression equation model to investigate the correlation inside the model. The test's findings show that autocorrelation is not present in the employed model. This is evident from the estimation findings' Durbin-Watson value of 1.675, which falls between the dL and dU values and, if it falls between $dL = 1.1601$ and $dU = 1.8029$, indicates no autocorrelation.



Discussion (مناقشة)

Table 2 shows that the TPAK in Central Java is unaffected by the average mean years of school. This is consistent with Bonerri's (2018) study, "The Influence of Education and Wages on the Labor Force Participation Rate (TPAK) in Manado City," which concluded that the mean years schooling has no discernible impact on TPAK. The Labor Force Participation Rate (LFPR) is unaffected by the average length of education for a number of reasons. The first is that highly educated people would rather wait for a job that aligns with their skills than start working right away in a position that does not. This is commonly known as "educated unemployment." Second, the longer people stay in school, the longer they stay out of the workforce, which can reduce the TPAK for age groups that are still in school. Third, highly educated women would rather not work in occupations that do not align with their skills or pay. In addition, despite having more education, women are nonetheless constrained by gender conventions and the weight of family duties.

The TPAK was not impacted by the wage variable from the regression results. This is the result of multiple variables. First, workers' decisions to work are unaffected by the increase in the minimum wage because the majority of the workforce is employed in the unregulated informal sector and is not protected by minimum wage laws. The TPAK was not impacted by the wage variable from the regression results. This is the result of multiple variables. First, workers' decisions to work are unaffected by the increase in the minimum wage because the majority of the workforce is employed in the unregulated informal sector and is not protected by minimum wage laws.

The TPAK in Central Java is unaffected by the variable of economic growth. This is due to the fact that supply-side factors (personal choices) have a greater influence on the economic

structure and TPAK than do macroeconomic circumstances alone. Additionally, capital-intensive industries that don't employ a lot of people might spur economic growth. This can lead to a lack of high-quality job creation, which deters people from joining the workforce. However, when women are employed, a rise in GDP per capita may have a negative effect on the labor force participation rate (TPAK) by creating an income effect that makes households feel more fortunate and eliminates the need for women to work.



Conclusion (خاتمة)

The three variables (mean years of school, minimum wage, and economic growth) indicate that none of these factors have an effect on the Labor Force Participation Rate (LFPR), according to the research findings regarding the factors influencing the LFPR in Central Java Province. This indicates that increases in the minimum wage, mean years of school, and economic growth have no impact. This is influenced by a number of variables, such as those with higher education who would rather not enter the labor if it does not fit with their field and many workers who are engaged in the unregulated informal sector.

It is believed that future researchers will be able to enhance the study on labor force participation rates by incorporating more variables. were able to locate studies on the variables affecting the TPAK.

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