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The Influence of Education Level and Economic Growth on the Labor Force Participation Rate in Indonesia

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ABSTRACT

The labor force participation rate plays an important role in addressing unemployment in Indonesia. The labor force participation rate in Indonesia continues to fluctuate annually. Increasing education levels and economic growth are needed to boost the labor force participation rate. This study aims to analyze the effect of education level and economic growth on the participation rate of the labor force in Indonesia. Education levels and economic growth play major roles in boosting the labor force participation rate in Indonesia. The data used in this study consist of annual secondary data for the period 2005–2024 from the Central Statistics Agency (Badan Pusat Statistik, BPS). The analysis tool used is multiple linear regression. The results show that education level has a positive and significant effect on the labor force participation rate, while economic growth does not have a significant effect. The findings suggest important policy implications: governments should prioritize educational development programs to enhance workforce participation, while economic growth strategies should be redesigned to create quality employment opportunities that effectively absorb the labor force. This study contributes to the literature by providing comprehensive empirical evidence on the differential impacts of education and economic growth on labor force participation in Indonesia, highlighting the critical role of human capital development in labor market dynamics. Future research should investigate the moderating effects of other socioeconomic factors and explore sector-specific variations in these relationships.

KEYWORDS *Educational Level; Economic Growth; Labour Force Participation; Multiple Linear Regression Techniques*

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INTRODUCTION

The progress of a country cannot be separated from the level of productivity of its human resources. The higher the level of human resource participation in the world of work, the greater the contribution made to national development (Aslam et al., 2014; Bohlander & Snell, 2023; Gerhart & Feng, 2021; Ployhart et al., 2014). In this case, the labor force participation rate is an important variable that can measure how much the productive age population is able to engage in economic activities, either as job seekers or as workers. The level of labor force participation can show the optimization of the use of human resources in supporting welfare and economic growth. Conversely, low labor force participation rates can indicate problems in ability, structural barriers and a lack of employment for individuals to engage in economic activities (Andlib & Khan, 2018; Chatterjee & Sircar, 2021; Samarakoon & Mayadunne, 2018; Solati et al., 2023). Therefore, the participation rate of the labor force not only measures the

extent of the available labor capacity and skills, but also reflects the underlying economic system (Pasuria & Triwahyuningtyas, 2022)

One of the factors that can affect the participation rate of the labor force is the level of education. Education level has a significant influence on labor force participation. The existence of education not only influences individuals to have the ability to access the world of work, but also provides breadth for individuals to choose and determine what type of work they want to access. The level of education has quite an effect on a person's job opportunities. The higher a person's level of education, the better the chances of getting a decent job (Rahayu et al., 2025) Individual education is actually the highest determinant for their success, both socially and economically. Education is not just about gaining knowledge, but a tool to develop human potential holistically. What is meant by developing human potential holistically is that this aspect of education also encourages humans in emotional, physical and spiritual terms. Thus, character formation builds empathy and self-awareness is also formed (Sadikin & Turnadi, 2022)

Based on data from the Central Statistics Agency (BPS), the average length of national schools in 2024 will reach 8.85 years. This is equivalent to the level of education in the third grade of junior high school (SMP). This reflects that the average level of education taken by individuals is only up to the junior high school level. This shows the need for efforts to improve access and quality of education, thereby increasing public interest in obtaining a higher level of education.

The level of education and economic growth are certainly expected to have an influence on the level of labor force participation. Education level has a significant effect on a person's job opportunities (Rahayu et al., 2025) Meanwhile, economic growth correlates with an increase in employment. However, most previous researchers tended to emphasize partial but not yet comprehensive analysis (Pasuria & Triwahyuningtyas, 2022) In addition, other research components that influence each other and contribute to increasing labor force participation in Indonesia only focus on one region (Wiguna, 2021) Despite the growing body of literature on labor market dynamics, there remains a significant research gap in understanding how education level and economic growth simultaneously influence labor force participation at the national level in Indonesia. While previous studies have examined these factors in isolation or within specific regional contexts, few have provided a comprehensive analysis using longitudinal national data spanning two decades. Furthermore, the contrasting theoretical predictions regarding the impact of economic growth on labor participation—where growth may either increase participation through job creation or decrease it through income effects—remain empirically unresolved in the Indonesian context.

This study addresses this gap by examining the dual effects of education level and economic growth on Indonesia's labor force participation rate using a comprehensive dataset from 2005 to 2024. The novelty of this research lies in three key aspects: first, it provides a holistic analysis at the national level rather than focusing on specific regions; second, it employs rigorous econometric methods including classical assumption tests to ensure robust findings; and third, it offers policy-relevant insights by distinguishing between the differential impacts of human capital development and macroeconomic growth. This research is expected to contribute to increasing labor force participation in Indonesia. With this research, it can have a positive and empirical influence in formulating employment policies and human resource development in the future.

RESEARCH METHOD

This study used a quantitative research method using secondary data sourced from the Central Statistics Agency (BPS). The use of secondary data was chosen because it is considered more efficient in terms of data collection and processing time, and has a wider temporal scope

to allow a more comprehensive analysis of the phenomenon being studied. Some of the data sourced from the Central Statistics Agency (BPS) used in this study:

1. Labor Force Participation Rate
   The labor force participation rate is the working-age population over 15 years old who in this case have been involved as a workforce absorbed in the world of work.
2. Education Level
   The level of education in this study is the length of time of education taken by individuals during the education period. In this study, the level of education was measured based on the average frequency of school years taken by individuals for the period from 2005 to 2024.
3. Economic Growth
   Economic growth in this study uses the rate of Gross Regional Domestic Product (GDP) at a constant price of 2000.

The variables in this study include two independent variables and one dependent variable. The independent variable is the level of education and economic growth, while the dependent variable is the level of labor force participation. The explanation of each variable in this study can be described as follows:

1. Labor Force Participation Rate
   The labor force participation rate is a percentage of the total labor force to the working-age population. In this study, the labor force participation rate was measured based on the percentage of the labor force to the working-age population aged 15 years and above.
2. Education Level
   The level of education in this study is the length of time of education taken by individuals during the education period. In this study, education level was measured based on the average frequency of school years taken by individuals for the period from 2005 to 2024 expressed in years.
3. Economic Growth
   Economic growth is the improvement of the economy through the production of goods and services, which is measured through an increase in Gross Domestic Product (GDP) (Sadikin & Turnadi, 2022) Economic growth in this study is the rate at which the Gross Regional Domestic Product (GDP) rate is assessed at constant prices (2000 = 100), expressed in percent.

RESULTS AND DISCUSSION

The classical assumption test

Table 1. Description of Research Variables

No.	Variabel	Description	Unit	Data Source
1.	TPAK	The labor force participation rate in Indonesia is measured based on the percentage of the labor force to the working-age population	Percent	Central Statistics Agency (BPS)
2.	TP	Education level is measured based on average length of schooling	Percent	Central Statistics Agency (BPS)
3.	GROWTH	Economic growth, measured by the rate of GDP growth based on constant prices (2000=100)	Percent	Central Statistics Agency (BPS)

The classical assumption test is used to evaluate the regression model, whether the regression model meets the basic assumptions required, so that the test results are unbiased and valid. The classical assumption test is an analysis carried out to assess whether there are classical assumption problems in an OLS linear regression model. Thus, the OLS regression assumes that there is a linear relationship between the two variables (Mardiatmoko, 2020) In the classic assumption test, there are tests that must be met to test whether the data is valid or not, including:

1. Normality Test
   The normality test is a regression test that aims to find out whether the residual regression is normally distributed or not (Meilinna et al., 2023) The normality test is the result of research that can be analyzed with Jarque-Bera, Kolmogrov-Smirnov, or Shapiro-Wilk (Sabihi et al., 2021)
   In the normality test, there is a basis for decision-making, namely:
   a. If the probability > 0.05, then the test results are normally distributed.
   b. If the probability < 0.05 then the test results are not normally distributed.
2. Multicollinearity Test
   The multicollinearity test is used to see if there is a high correlation between the independent variables. In multicollinearity testing, what is usually used is *the Variance Inflation Factor* (VIF), where the VIF value of < 10 can only be said to be non-multicollinearity in the regression results (Mardiatmoko, 2020)
3. Heteroscedasticity Test
   The Heteroscedasticity test is one of the test models of the classical assumption test where this model is the determinant if in a study there are residual variants in the regression analysis. If there is heteroscedasticity, then the model estimation can be considered less efficient. If the residual is constant, then there is no heteroscedasticity but homoscedasticity so that the research is considered efficient. The heteroscedasticity test using *White* can be measured as follows:
   a. If the probability value < 0.05, then the test results do not meet the homoskedasticity.
   b. If the probability value > 0.05, then the test results meet the homocedasticity.
4. Autocorrelation Test
   Autocorrelation test is a statistical method used to detect whether in a regression model there is a residual relationship between one and another. The Wooldridge autocorrelation test is used to detect whether there is an autocorrelation in the regression results. To test whether or not there is a correlation in the regression model, the condition for the autocorrelation test using Breusch-Godfrey is to have a decision-making basis, namely if the *prob. Chi-Square* > 0.05 then there is no autocorrelation problem, but if *prob. Chi-Square* < 0.05, then there is an autocorrelation problemMENDELEY CITATION PLACEHOLDER 11

Multiple linear regression is a statistical method used to analyze the influence between dependent variables and independent variables. Multiple linear regression is a regression analysis that involves more than one independent variable in relation to the dependent variable. This method supports researchers to review the influence of several independent variables on dependent variables simultaneously (Yuliara, 2024) Multiple linear regression has the following equations:

$$\mathrm{TPAK}_t = \beta_0 + \beta_1 \mathrm{TP}_t + \beta_2 \mathrm{GROWTH}_t + e_t$$

Information: (Kuncoro, Nugroho Hepi; Bambang, 2022)
TPAK: Labor Force Participation Rate
TP: Education Level
GROWTH: Economic Growth
β0: Constant
β_1, β_2: Regression Coefficient
Q: Time
e: Error

Descriptive Statistical Test

Table 2. Descriptive Statistical Test

	TPAK	TP	GROWTH
Mean	67,50000	7,950000	5,140500
Median	67,00000	7,785000	5,200000
Maximum	71,00000	8,800000	6,160000
Minimum	66,00000	7,300000	2,070000
Std. Dev	1,192079	0,498334	0,913746
Skewness	1,243180	0,462498	-2,001587
Kurtosis	4,835391	1,782865	7,685950
Jarque-Bera	7,958870	1,947529	
Probability	0,018696	0,377659	31,65294
Sum	1350,000	159,0000	0,000000
Sum Sq. Dev.	27,00000	4,718400	15,86370
Observations	20	20	20

Source: Processed Data

Based on the results of descriptive statistical data processing in table 1, it is known that the average value of the labor force participation rate is 67.5 percent and the middle value is 67 percent. The maximum value of the labor force participation rate is 71 percent which will occur in 2024 while the minimum value of the labor force participation rate in Indonesia is 66 percent in 2006. The standard deviation value of the labor force participation rate is 1.192 percent.

The average education level is 7.95, which means that the average length of school for residents is at the beginning of junior high school (SMP). The median value of education level is 7.78 years. The maximum value of the education level is 8.8 years which will occur in 2024, while the minimum value of the education level is 7.30, namely in 2005. The standard deviation value of education level is 0.50 years.

The average economic growth is 5.14 percent, and the middle value of economic growth is 5.2 percent. The maximum value of economic growth is 6.16 percent which occurred in 2011 and the minimum value of economic growth is 2.07 percent which occurred in 2020. The standard value of economic growth deviation is 0.91 percent.

Normality Test

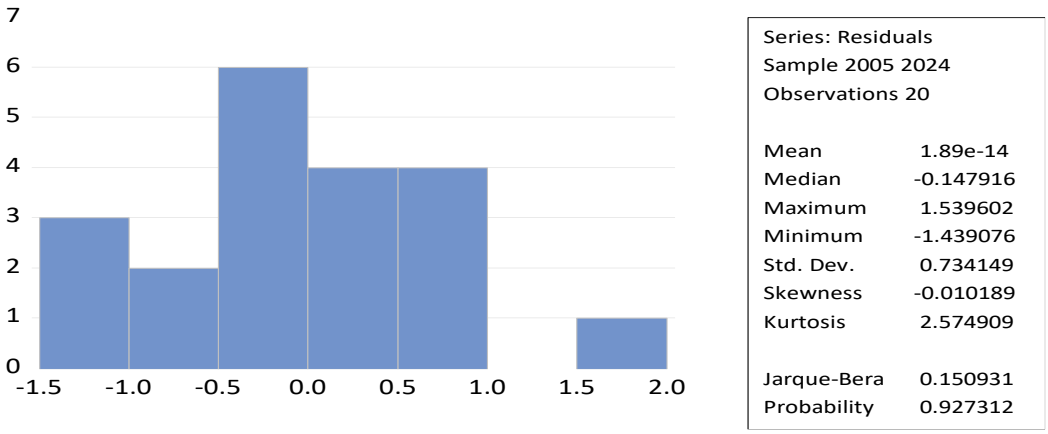

Figure 1. Normality Test
Source: Processed Data

Based on the normality test using Jarque-Bera, a value of 0.150931 and a Prob value were obtained. As much as 0.927312, where from the results of the normality test seen based on the results of Prob. > 0.05, it can be concluded that the results of the normality test are normally distributed. Therefore, the regression model meets the requirements of the normality test, thus the regression normality test can be performed.

Multiple Linear Regression Results

Table 3. Multiple Linear Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob
C	48,91182	4,155842	11,76941	0,0000
TP	2,049884	0,425432	4,818358	0,0002
GROWTH	0,425368	0,232020	1,833325	0,0843
R-squared	0,586210	**Mean dependent var**		67,39500
Adjusted R-squared	0,537529	**S.D dependent var**		1,141285
S.E. of regression	0,776133	Akaike info criterion		2,468496
Sum squared resid	10,24051	Schwarz criterion		2,617856
Log likelihood	-21,68496	Hannan-Quinn criterion		2,497652
F-statistic	12,04184	Durbin-Watson stat		0,887787

Prob(F-statistic)	0,000000

Based on the regression results in the table, the following calculation regression equation can be produced:

$$TPAK_t = \beta_0 + \beta_1 TP_t + \beta_2 GROWTH_t + e_t$$

$$TPAK = 48{,}91182 + 2{,}049884\,TP + 0{,}425368\,GROWTH$$

Based on the calculation regression equation, the analysis can be described as follows:

1. The constant in the regression result has a positive value with a value of 48.91182, which means that if the level of education and economic growth is zero, it will result in a labor force participation rate of 48.91 percent.
2. The coefficient at the education level has a positive value and a regression result coefficient of 2.049884, which means that every one year of increase in the level of education, it will result in an increase in the labor force participation rate of 2.05 percent assuming economic growth is in constant conditions. This means that the higher a person's level of education, the greater the chance of that person participating in the world of work.
3. The coefficient of economic growth has a positive value of 0.425368, which means that every increase in economic growth of 1 percent will result in a labor force participation rate of 0.43 percent, assuming that the level of education is in constant condition.

Discussion

The findings of this study reveal important insights into the determinants of labor force participation in Indonesia. The positive and significant effect of education level (p = 0.0002) strongly supports human capital theory, which posits that higher educational attainment enhances individuals' productivity, employability, and labor market participation. This result aligns with previous research by Rahayu et al. (2025) and Sadikin & Turnadi (2022), who found that education serves as a critical pathway to better employment opportunities. The coefficient of 2.049884 indicates that each additional year of schooling increases labor force participation by approximately 2.05 percentage points, highlighting the substantial impact of educational investment on workforce engagement.

However, the insignificant effect of economic growth on labor force participation (p = 0.0843) presents an intriguing paradox that warrants deeper examination. Several theoretical explanations may account for this finding. First, the income effect hypothesis suggests that during periods of economic expansion, household income rises sufficiently to allow some members—particularly secondary earners such as women or youth—to withdraw from the labor market to pursue education or household activities. Second, the quality versus quantity of growth matters: if economic growth is concentrated in capital-intensive sectors or fails to generate labor-intensive opportunities, it may not effectively absorb additional workers despite GDP expansion. Third, structural barriers such as skills mismatches, geographic disparities, and informal sector dominance may prevent economic growth from translating into increased formal labor force participation.

This finding contrasts with conventional economic theory, which typically predicts a positive relationship between economic growth and employment. However, it resonates with recent empirical studies in developing economies where growth has been characterized as "jobless growth"—economic expansion that fails to create proportionate employment

opportunities. The Indonesian context, with its dualistic labor market structure comprising both formal and informal sectors, may exhibit unique dynamics where GDP growth does not automatically lead to increased labor force participation, particularly in formal employment.

The adjusted R-squared value of 0.537529 indicates that education level and economic growth together explain approximately 53.75% of the variation in labor force participation, suggesting that other factors—such as demographic changes, labor market policies, cultural norms regarding work, and technological disruption—also play significant roles. The significant F-statistics ($p = 0.000000$) confirms that the overall model is statistically robust and provides meaningful explanatory power.

CONCLUSION

This study concludes that education level exerts a positive and significant partial influence on labor force participation in Indonesia, as higher education enhances job prospects and motivates working-age individuals to join the workforce, thereby increasing participation rates. In contrast, economic growth shows no significant partial effect, failing to substantially absorb labor into employment. Simultaneously, education level and economic growth together positively impact labor force participation, with both variables contributing to greater involvement in economic activities. Future research should investigate moderating and mediating effects of other socioeconomic variables, explore sector-specific and regional variations, examine gender-disaggregated impacts, and conduct longitudinal studies to capture dynamic changes in labor market participation patterns over time.

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