

## The Impact of The Human Development Index and Unemployment on Economic Growth in West Papua Province

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### ABSTRACT

West Papua Province is one of the regions in Indonesia with relatively low economic growth. According to data from the Central Statistics Agency (BPS), the province recorded an economic growth rate of 3.73% in the third quarter of 2023. Several factors contribute to this condition, including the Human Development Index (HDI) and the unemployment rate, which are often associated with regional economic performance. This study aims to analyze the effect of HDI and unemployment on the economic growth of West Papua Province during the period 2011–2023. The research method used is multiple linear regression analysis. The t-test is used to examine the partial effect of each variable, the F-test is used for simultaneous testing, and the coefficient of determination ( $R^2$ ) is used to assess the model's explanatory power. The results show that: (1) the Human Development Index (HDI) has a significant positive effect on economic growth; (2) the unemployment rate also significantly affects economic growth; and (3) both variables simultaneously have a significant influence on economic growth in West Papua Province. These findings indicate that improvements in human development and employment conditions are essential to stimulate economic growth in the region.

**Keywords:** Economic Growth; Human Development Index; Unemployment; West Papua; Multiple Regression

## **INTRODUCTION**

Being a prosperous country is the desire of every nation. Welfare is often the central issue in various studies on development economics. In a broader context, the UNDP (United Nations Development Program) developed the Human Development Index (HDI) as a measure of human well-being. The HDI measures three main dimensions: life expectancy, knowledge and education, and quality of life. According to UNDP (2020), the HDI is a comprehensive measure that describes progress in human development and social well-being.

A low human development index can have a negative impact on labor productivity. Education, as one of the main components in HDI, serves as an investment to improve individuals' skills and abilities in the workforce. A study by Barro and Lee (2013) shows that every additional year of education can significantly increase an individual's income. Conversely, individuals who delay their education tend to have lower earnings, which in turn can contribute to higher unemployment rates. This suggests that low education has the potential to exacerbate the problem of unemployment, which is a major concern in the context of economic growth.

The Central Bureau of Statistics (BPS) defines unemployment as a situation in which individuals who are not working are looking for work or preparing a new business, as well as those who are not looking for work because they have been accepted but have not yet started working. According to Sukirno (2000), unemployment is a situation in which individuals want to work but have not had the opportunity. An increase in unemployment is often caused by a mismatch between the growth of the labor force and available jobs. This can lead to wider social and economic impacts, including increased poverty and crime.

Economic growth, on the other hand, is an important indicator of a country's progress. According to Sukirno (2010), economic growth is the development of economic activity that results in an increase in the production of goods and services and the prosperity of society. In the context of West Papua Province, economic growth is a significant challenge given the abundant potential of natural resources that have not been fully utilized. It was recorded that the economic growth of West Papua Province in the third quarter of 2020 only reached 3.73%, which shows the need for intervention to increase productivity and create jobs.

West Papua Province, which was formed through expansion from Papua Province in 2003, has tremendous potential in the agriculture, mining, forest products, and tourism sectors. With a total area of 64,134.66 km<sup>2</sup> and a population of approximately 520,740 in 2017, the province faces challenges in improving HDI and reducing the unemployment rate. Data from BPS shows that the open unemployment rate in West Papua fluctuates, with the highest rate reaching 8.94% in 2011 and decreasing to 5.53% in 2023. Despite the decline, the unemployment rate above 5% still indicates a problem in labor absorption.

Based on the background that has been described, this study aims to analyze the effect of the Human Development Index (HDI) and the unemployment rate on economic growth in West Papua Province. This research is expected to provide deeper insight into the relationship between these three variables and provide recommendations for policy makers to improve the welfare of the people in the province.

## **LITERATURE REVIEW**

This study focuses on the basic concepts that form the basis for analyzing the influence of the Human Development Index (HDI) and the unemployment rate on economic growth. Economic growth, as defined by Sukirno (2010), is the development of activities in the economy that lead to an increase in the amount of goods and services produced, as well as the prosperity of society. Economic growth is often measured through gross domestic product (GDP) or real income per capita, which reflects how much people's income has increased in a certain period. This increase in income is a key indicator in assessing the welfare of society.

The Human Development Index (HDI) is a measure introduced by the United Nations Development Program (UNDP) to assess the level of human well-being and development in a country. The HDI is constructed through three basic dimensions: health, education, and living standards. The health dimension is measured through life expectancy, education is measured through literacy rate and average years of schooling, while standard of living is measured through per capita expenditure. Low HDI is closely related to the quality of human resources, which in turn affects the productivity and capacity of the labor force.

The unemployment rate is one of the important indicators in labor and economic analysis. According to the Central Bureau of Statistics (BPS), unemployment is a condition in which individuals included in the labor force do not have a job, but are looking for work or are preparing a new business. High unemployment is often correlated with low economic growth and can lead to social problems such as poverty and crime. Sukirno (2000) explains that the high unemployment rate is caused by a mismatch between the number of available workers and the existing jobs.

Empirical studies on the relationship between HDI, unemployment, and economic growth have been conducted by many researchers. Rindiyan and Abd. Mubaraq (2023) showed that health and education levels positively affect economic growth. Another study by Kristina and Angeliani (2022) also confirmed that unemployment has a significant effect on economic growth, highlighting the importance of creating jobs to boost growth.

The purpose of this study is to identify and analyze the effect of HDI and unemployment rate on economic growth in West Papua Province. This research is expected to contribute to a better understanding of the factors that influence economic growth in the region, as well as provide recommendations for the development of more effective policies in improving people's welfare.

## **RESEARCH METHOD**

The research was conducted in April - July 2023, the object of this research is West Papua Province, with reference to data from the Central Statistics Agency (BPS). The type of data collected in this study is secondary data. This research data uses secondary data from the Central Bureau of Statistics (BPS). In accordance with the research approach used, the data collected is quantitative data. The main methods of data collection used include the documentation method and the literature study method.

The data analysis used in this research is multiple linear regression analysis. In addition, Classical Assumption Model Testing will be carried out, model testing of classical assumptions includes tests of normality, multicollinearity, heteroscedasticity, and autocorrelation.

The equation of this study is, the general form model equation of multiple regression with a number of k independent variables (Widarjono, 2018) is:

$$Y_t = \beta_0 + \beta_1 IPM_t + \beta_2 TP + e_t$$

Y = Economic Growth (dependent variable)

$\beta_0$  = Constant/Intersep

$\beta_1$  and  $\beta_2$  = Partial regression coefficient

X1 = Human Development Index (Independent variable 1)

X2 = Unemployment Rate (Independent variable 2)

e = Disturbance/Error Variable

t = In time series data the subscript t indicates time

## RESULTS

In this study, time series data from 2011 to 2023 were analyzed to examine the relationship between selected macroeconomic variables. The dependent variable (Y) is economic growth, measured by the Gross Regional Domestic Product (GRDP) of West Papua Province. The independent variables consist of the Human Development Index (HDI) ( $X_1$ ) and the unemployment rate ( $X_2$ ), which are hypothesized to influence regional economic performance.

### Multicollinearity Test

According to Imam Ghozali (2011; 107-108), there are no symptoms of Multicollinearity if the Tolerance value > 0.100 and the VIF value < 10.00. So, it can be seen that the Multicollinearity Test results show that the Tolerance value is greater than 0.1 and the VIF value is less than 10. So it can be said that the data in this study are free from multicollinearity problems.

**Table 1.** Multicollinearity Test Results (Coefficients<sup>a</sup>)

Unstandardized Coefficients			Standardized Coefficients	t	Sig.	Collinearity Statistics	
Model	B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-448740.393	18578.890	-24.153	0.000		
	IPM	8015.656	277.029	1.016	0.000	<b>0.933</b>	<b>1.072</b>
	Unemployment	1441.071	501.789	0.101	0.017	<b>0.933</b>	<b>1.072</b>

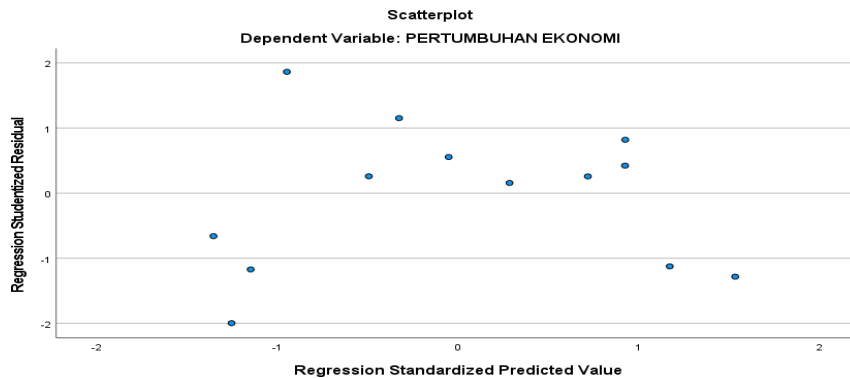
a. Dependent Variable: Economic Growth

Source: Data processed by the author (2024)

### Heteroscedasticity Test

According to Imam Ghozali (2011; 139), Heteroscedasticity does not occur, if there is no clear pattern (wavy, widening then narrowing) in the scatterplots image, and the points spread above and below the 0 axis number on the Y axis. So, it can be seen that the results of the Heteroscedasticity Test show the results of No Heteroscedasticity Symptoms.

**Figure 1.** Heteroscedasticity Test



Source: Data processed by the author (2024)

### Autocorrelation Test

According to Imam Ghozali (2011; 111), there is no autocorrelation if the Durbin Watson value lies between  $du$  and  $(4-du)$ . The results show that the DW value is between  $du$  and  $(4-du)$ .

**Table 2.** Autocorrelation Test – Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.994	0.989	0.986	2088.32102	1.232

<sup>a</sup> Predictors: (Constant), Unemployment, Human Development Index (HDI)

<sup>b</sup> Dependent Variable: Economic Growth

Source: Data processed by the author (2024)

### Multiple Linear Regression

After calculating using multiple linear regression analysis with the help of the SPSS version 27.0 program, the results of the research calculations were obtained as follows:

**Tabel 3.** Multiple Linear Regression

Unstandardized Coefficients				Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	-448740.393	18578.890		-24.153	0.000
	IPM	8015.656	277.029	1.016	28.934	0.000
	Unemployment	1441.071	501.789	0.101	2.872	0.017

Source: Data processed by the author (2024)

Based on the results of the regression analysis in the table above, the multiple linear regression model can be formulated as follows:

$$\hat{Y} = -448,740 + 8,015X_1 + 1,441X_2$$

The estimation results indicate that the constant value is -448,740, which means that if the Human Development Index (HDI) ( $X_1$ ) and the unemployment rate ( $X_2$ ) are held constant or equal to zero, the economic growth would decrease by 448,740 units. This suggests that in the absence of both independent variables, the baseline level of

economic growth is significantly negative.

### T Test (Partial)

Based on SPSS data processing in table 4.3 above, it shows that partially the results of testing the HDI variable hypothesis have a significant effect on the Economic Growth of West Papua Province during the 2011-2023 period, with a significant value of  $0.000 < 0.05$ . The unemployment variable (X2) also shows the same thing, which has a significant effect on economic growth in West Papua Province during the 2011-2023 period, with a significant value of  $0.017 < 0.05$ .

### F Test (Simultaneous)

Based on the results from SPSS version 27.0, the significance value is less than the alpha level ( $0.001 < 0.05$ ). This indicates that the independent variables—Human Development Index (HDI) and Unemployment—jointly have a statistically significant effect on Economic Growth in West Papua Province during the period from 2011 to 2023.

**Table 4.** ANOVA F-Test Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3750998412.688	2	1875499206.344	430.053	0.000 <sup>b</sup>
	Residual	43610846.662	10	4361084.666		
	Total	3794609259.351	12			

a. Dependent Variable: ECONOMIC GROWTH

b. Predictors: (Constant), UNEMPLOYMENT, HUMAN DEVELOPMENT INDEX (HDI)

Source: Data processed by the author (2024)

### Coefficient of Determination Test ( $R^2$ )

The correlation coefficient is used to assess the influence and the strength of the relationship between the independent variables and the dependent variable.

**Table 5.** Coefficient of Determination ( $R^2$ ) – Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.994 <sup>a</sup>	0.989	0.986	2088.32102	1.232

a. Predictors: (Constant), UNEMPLOYMENT, HDI

b. Dependent Variable: ECONOMIC GROWTH

Source: Data processed by the author (2024)

Based on the table above, the calculation result of the coefficient of determination is 0.986. This means that it can be said that the percentage value of the variation in Economic Growth (Y) can be shown by the results of the variation of the two independent variables, namely HDI (X1) and Unemployment (X2) of 0.986 or 98.6%. The remaining 1.4% is influenced by other variables other than this study. The result of the R value is 0.994, it can be interpreted that the multiple correlation is so strong.

## DISCUSSION



### **Effect of Human Development Index (HDI) on Economic Growth of West Papua Province.**

Based on the calculation results of the regression analysis run with the t test, the HDI variable (X1) has a t-statistic value of 28.934. With a significant level of  $0.000 < 0.05$  percent, thus the result  $H_01$  is rejected  $H_{a1}$  is accepted. There is a positive influence of HDI on Economic Growth. So it can be interpreted that every increase obtained by HDI increases by 1%, it can increase economic growth in West Papua Province. The results of this study are in line with research conducted by Alkhoiriyah and Sa'roni (2021), where HDI affects Economic Growth in Banjarmasin City. HDI is an indicator that shows development, especially in the development of human resources. HDI describes how the population distributes the results of development in getting a decent life, health and education. A low HDI will have an impact on the quality of human productivity itself. Education is an investment for a person in getting a job. It can be illustrated that every additional year of schooling means that a person increases his ability to work so that his income can also increase. Likewise, the quality of health, if considered and improved, will have an impact on improving the quality of education and potential that can stimulate economic growth (Prasetyoningrum and Sukmawati 2017).

### **Effect of Unemployment on Economic Growth**

Based on the calculation results of the regression analysis run with the t test, the Unemployment Variable (X2) has a t-statistic value of 2.872. With a significant level of  $0.017 < 0.05$  percent, thus the result  $H_02$  is rejected  $H_{a2}$  is accepted. There is a significant effect of Unemployment on Economic Growth in West Papua Province. This is in line with research conducted by Kristina, Angeliani, et al (2022) that unemployment has a significant effect on economic growth in Bali Province. However, the results of this study differ from research conducted by Mataheurilla (2021), that unemployment has no significant effect on economic growth in Malang Regency. According to Sukrino (2020), the adverse effects of unemployment can be divided into two aspects, namely: First, adverse effects on economic activities (Unemployment causes not maximizing the level of prosperity that may be achieved, Unemployment causes reduced government tax revenues, Unemployment does not promote economic growth) and Second, adverse effects on individuals and society (Unemployment causes loss of livelihood and income, Unemployment can cause loss of skills, Unemployment can cause social and political instability). A relatively high level of unemployment does not allow society to achieve resilient economic growth. Based on BPS data for the third quarter of 2023, the economic growth of West Papua Province was included in the lowest economic growth category with a value of 3.73 percent. Seeing that there is a significant influence between unemployment and economic growth, it is therefore an important concern for the government to overcome the high unemployment rate in Papua Province because this will have an impact on economic growth.

### **Effect of HDI and Unemployment on Economic Growth**

The results of simultaneous calculations show that the sig value is  $0.001 < 0.05$ , thus the result of  $H_03$  is rejected  $H_{a3}$  is accepted. There is a significant effect of HDI and Unemployment on Economic Growth in West Papua Province. A strong relationship is also shown by the results of the coefficient of determination test where the percentage value of the variation in Economic Growth (Y) can be shown by the results of the variation of the two independent variables, namely HDI (X1) and Unemployment (X2) of 0.986 or 98.6%. This is in line with research conducted by Kristina, Angeliani, et al (2022) that HDI and unemployment have a significant effect on economic growth in Bali Province. HDI in this case education and health are positioned as a means to improve welfare through the utilization of existing employment opportunities. In other words, the ultimate goal of the education program for people who use education services is to achieve the

expected employment. Employment is an important indicator of the level of community welfare, and employment obtained by the community can increase income and have an impact on economic growth. According to Sadono Sukirno (2008) economic growth is defined as the development of activities in the economy that cause the goods and services produced in society to increase and the prosperity of society to increase.

Based on this study, the two variables jointly affect Economic Growth, so that the West Papua Provincial Government can explore the potential that can be used as a means of driving growth, in order to create more jobs and absorb labor which is expected to reduce the unemployment rate in West Papua Province. However, the opening of employment is not enough, because it must be supported by quality human resources. facilities and infrastructure are needed in the education and health process so that the quality and quality of human resources will be good so that resources are easy and can be used in the labor market so as to increase economic growth. According to the percentage distribution of the Gross Regional Domestic Product (GRDP) of West Papua Province by business sector (BPS West Papua Province, 2023), the Processing Industry sector contributes the largest share, accounting for 35.69% of the total. This is followed by the Mining and Quarrying sector, which represents 23.41%. The Agriculture, Forestry, and Fisheries sector ranks third with an 8.26% contribution, followed by several other business sectors. Although West Papua Province is rich in land and natural resources, improving the quality of its population and workforce is essential to further stimulate economic growth.

### **CONCLUSION**

This study finds that the Human Development Index (HDI) has a significant positive effect on economic growth in West Papua Province, indicating that improvements in health, education, and living standards contribute substantially to the region's economic development. In addition, the unemployment rate also significantly affects economic growth, suggesting that fluctuations in labor market conditions play an important role in shaping economic performance. The simultaneous analysis of both variables confirms that together, HDI and unemployment have a meaningful influence on economic growth in West Papua over the 13-year period from 2011 to 2023. These findings highlight the importance of social development and employment policies in fostering sustainable economic growth in the province. Policymakers should therefore consider integrated strategies that improve human development indicators while addressing unemployment challenges to support long-term economic progress.

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### **DECLARATION OF CONFLICTING INTERESTS**

The authors have declared no potential conflicts of interest concerning the study, authorship, and/or publication of this article.

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