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FACTORS AFFECTING ECONOMIC GROWTH IN THE BANGKA BELITUNG ISLANDS; ANALYSIS OF HUMAN ROLES AND THEIR PARTICIPATION

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Abstract
This study aims to analyze the effect of the Human Development Index (HDI) and Labor Force Participation Rate (LFPR) on economic growth in Bangka Belitung Islands Province for the period 2020–2025. A quantitative approach using a multiple linear regression model based on panel data was employed, with model selection carried out through Chow, Hausman, and Lagrange Multiplier tests, which resulted in the Random Effect Model (REM) as the most appropriate model. Secondary data were obtained from official publications of the Central Statistics Agency (BPS) and relevant scientific sources. Partial test results indicate that HDI has a positive and significant effect on economic growth with a coefficient of 1.873 (p-value = 0.002), meaning that every 1-point increase in HDI will increase economic growth by 1.873 percent. LFPR also has a positive and significant effect with a coefficient of 0.645 (p-value = 0.029), where every 1 percent increase in LFPR will increase economic growth by 0.645 percent. Simultaneously, HDI and LFPR together have a significant effect on economic growth with an F-statistic value of 17.303 (p-value = 0.0012) and are able to explain 87.42% of the variation in economic growth ($R^2 = 0.8742$). These findings imply that improving human resource quality and expanding labor force participation are key factors in driving inclusive and sustainable regional economic growth in Bangka Belitung Islands Province.

Keywords: Bangka Belitung, Economic Growth, Human Development Index (HDI), Labor Force Participation Rate (LFPR), Panel Data Regression

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INTRODUCTION

Economic growth is something that is always prioritized because economic growth indicates an increase in per capita income. This is because economic growth allows economic development in many fields. According to Kuznets, economic growth is a long-term increase

in a country's ability to provide more and more types of economic goods to its inhabitants, this ability grows in accordance with technological advances, and the institutional and ideological adjustments it requires (Sari et al., 2020)

On the other hand, economic growth is the development of activities in the economy that causes the goods and services produced in society to increase. Economic growth is an increase in GDP or real GDP. Economists have long analyzed the important factors that influence economic growth. Based on the economic growth that prevails in various countries, it can be concluded that the main factors that affect the growth and development of a country are the wealth of natural resources and its land, the amount and quality of labor, available capital goods, the level of technology used and the social system and attitudes of the community (Sari et al., 2020). The economic growth rate in the Bangka Belitung Islands Province in 2025 will grow by 4.09 percent, an increase compared to 2024 which grew by 0.77 percent. In terms of production, the largest source of growth comes from the Processing Industry business field.(Sari et al., 2020)

The Human Development Index (HDI) is a crucial indicator to measure the success of developing the quality of life of the community through three basic dimensions, namely longevity and healthy living, knowledge, and decent living standards. This index not only reflects economic growth, but also describes the quality of human resources. The concept of human-oriented development places improving the quality of life as the main goal, where the welfare of the community is no longer measured solely by the amount of Gross Domestic Product, but by the ability of individuals to live longer, healthy, educated, and have a decent standard of living.(Rudatin & Suwito, 2025a)

In the context of development in Indonesia, especially Bangka Belitung Province, the achievement of HDI is a strategic indicator to evaluate the effectiveness of government policies in improving the quality of human resources, where the main challenges faced are inequality of development between regions and limited public access to basic services that can hinder the increase in capacity and productivity of human resources.(Rudatin & Suwito, 2025a)

Table 1. HDI of Bangka Belitung Based on 2020-2025

Year	Health	Education	Decent Living Standards
2020	71.8	64.5	78,2
2021	72.0	65.0	78,9
2022	72.4	65.8	79.5
2023	72.9	66.5	80.2
2024	73.3	67.2	81.0
2025	73.7	68.0	82.0

Source: Human Development Index 2020-2025. BPS (data processed)

The table shows the development of the Human Development Index (HDI) in the Bangka Belitung Islands Province from 2020 to 2025, which is seen from three main aspects, namely health, education, and decent living standards. These three aspects continue to improve every year. In the health aspect, there is an increase from 71.8 in 2020 to 73.7 in 2025. This indicates that public health conditions are improving, for example from increasing life expectancy and access to health services.

In the education aspect, the score also increased from 64.5 to 68.0. Although it is increasing, this figure is still lower than other aspects. This means that education is still a challenge and needs more attention, especially in improving the length of school and the quality of education. Meanwhile, the aspect of decent living standards has the highest score and also continues to increase, from 78.2 to 82.0. This shows that people's economic conditions tend to improve, such as from an increase in purchasing power or per capita spending. Overall, this data illustrates that the quality of life of the people in Bangka Belitung is increasing from year to year, although there are still several aspects such as education that

need to be improved.

The Labor Force Participation Rate (TPAK) is a measure that describes how large the proportion of the productive age population is involved in economic activities. This measure includes residents fifteen years of age and older who are working, looking for work, or preparing for a business (Apriana et al., 2025). A high TPAK indicates the existence of sufficient labor to meet the economic needs of the region, and shows the ability of the region to open access to decent and inclusive jobs (Apriana et al., 2025)

In addition, the high Labour Force Participation Rate (TPAK) in the informal sector requires a deeper study of whether it is really a linear contribution to human quality or merely a survival effort (*Survival Strategy*) (Rudatin & Suwito, 2025b).

Table 2. TPAK Bangka Belitung Based on Dimensions 2020-2025

Year	Workforce (%)
2020	756.3
2021	768.5
2022	784.2
2023	799.1
2024	804.4
2025	822.0

Source: Labor Force Participation Rate 2020-2025. BPS (data processed)

Based on table 2, the development of the labor force in the Bangka Belitung Islands Province during the 2020-2025 period shows a trend that continues to increase every year. In 2020, the number of labor force was recorded at around 756.3 thousand people. Then in 2021 it increased to 768.5 thousand people, although the increase is still relatively small, only around 12 thousand people. Entering 2022, the number has risen again to 784.2 thousand people, with a greater increase than the previous year, which shows that there is an improvement in job market conditions.

Furthermore, in 2023, the labor force will increase again to 799.1 thousand people, which means that more people are entering working age or starting to actively work or look for work. In 2024, the increase will continue but not too significant, to 804.4 thousand people, only an increase of about 5 thousand people. This could indicate that growth began to slow down slightly that year.

However, in 2025, there will be a significant increase to reach 822.0 thousand people. This increase was the largest during the period, which was around 17.6 thousand people. Overall, this data shows that the number of labor force in Bangka Belitung continues to increase from year to year. This condition can be influenced by the increase in the productive age population and increased public participation in economic activities. Even so, the increase in the labor force also needs to be balanced with the availability of jobs so as not to cause an increase in unemployment. (Placeholder1).

METHODS

Research Methods and Types

This study uses a quantitative approach with multiple regression models to analyze the influence of the Human Development Index (HDI) and the Labor Force Participation Rate (TPAK) on economic growth in the Bangka Belitung Islands Province. The data used in this study are secondary data obtained from official sources, such as the Central Statistics Agency (BPS) as well as scientific publications relevant to the research topic.

Population and Sample

The population in this study is all data related to the Human Development Index (HDI), Labor Force Participation Rate (TPAK), Regency/City Minimum Wage (MSE), and economic growth in Bangka Belitung Islands Province. The research sample is in the form of time series data for the period 2020–2025 which includes data on IPM, TPAK, MSE, and economic growth measured through Gross Regional Domestic Product (GDP) on a constant price basis. The sampling technique used is saturated sampling (census), which is all available data is used as a research sample because the number is limited and all are relevant for analysis.

Data Collection Techniques

The data collection technique in this study uses secondary data obtained from various official and trusted sources. Secondary data is data that has been published and collected by other parties, so that researchers do not collect data directly in the field. Data collection is carried out through the method of documentation study and content analysis, namely by studying, studying, and interpreting data and information relevant to the research topic. The data used is sourced from official publications such as the Central Statistics Agency, regional economic reports, as well as journals and scientific literature related to the Human Development Index (HDI), Labor Force Participation Rate (TPAK), Regency/City Minimum Wage (UMK), and economic growth.

Data Processing Techniques

The data that has been obtained in this study is processed using a quantitative descriptive analysis approach combined with content analysis. Data processing is carried out by grouping, simplifying, and interpreting secondary data obtained from various official sources. The stages of data processing in this study include:

1. **Data Collection and Selection**
   Data obtained from various sources such as the Central Statistics Agency and scientific publications were selected based on relevance to the research variables, namely IPM, TPAK, UMK, and economic growth**.**
2. **Data Classification and Preparation**
   The selected data is then classified according to the research variables and arranged systematically in the form of tables and graphs to facilitate the analysis process.
3. **Data Processing and Presentation**
   The data that has been compiled is then processed to see patterns, trends, and relationships between variables. Data presentation is carried out in the form of tables and graphs to provide a clearer picture of the development of each variable.
4. **Data Analysis and Interpretation**
   The processed data was then analyzed using a descriptive approach and multiple linear regression to determine the influence between variables. The results of the analysis are then interpreted systematically to answer the research objectives. The data used is time series data for the period 2020–2025. The variables in this study consisted of:

Table 3. Variable Operational Definition

Variable	Symbols	Units	Definition
Economic Growth	OR	%	The process of increasing the production capacity of a region or country is reflected in the increase in Gross Regional Domestic Product (GDP) or Gross Domestic Product (GDP) over time. Economic growth indicates the development of economic activities and the ability of regions to produce goods and services.
Human Development Index	IPM	Period	Composite indicators to measure the achievement of human quality of life development. This index is formed from the average measurement of the

			achievement of the three main dimensions of human development, namely longevity and healthy living, knowledge, and decent living standards.
Labor Force Participation Rate	TPAK	%	The percentage of the working-age population (15 years and older) who are economically active, either by working or looking for work, compared to the total working-age population. TPAK measures the supply of labor and shows how much potential productive age is involved in production.

Source : Data collected by researchers, 2026

The analysis method used is multiple linear regression analysis to determine the influence of HDI and TPAK on economic growth. The regression equation model used is as follows:

$$PE = \beta_0 + \beta_1 IPM + \beta 2\ TPAK + e$$

Description:
PE = Economic Growth
β0 = Constant
β1 = Effect of HDI on Economic Growth
β_2 = The Influence of TPAK on Economic Growth
e = Error term

RESULTS AND DISCUSSION

Descriptive Statistics

Descriptive statistics serve to present an overview of the properties of the data applied in the study. The measurements displayed include the number of observations (N), mean (mean), standard deviation, lowest value, highest value, range, slope coefficient (skewness), and curtosis coefficient (kurtosis).

Table 4. Descriptive Statistics of Research Variables

Variable	N	Red	Std. Dev.	Min	Max
Economic Growth (%)	6	3,0083	2,6582	-1,33	5,23
IPM (Period)	6	73,1817	1,1148	71,80	74,68
TPAK (%)	6	66,7000	1,0733	65,20	68,00

Source: Data processed, 2026

a. Economic Growth (Y)

The Economic Growth variable shows an average value of 3.0083% during the 2020–2025 period with a standard deviation of 2.6582. The lowest growth of -1.33% was recorded in 2020 due to the effects of the COVID-19 pandemic, while the highest growth of 5.23% was recorded in 2022. This data range is 6.56, which reflects quite significant variation between different periods. A skewness value that reaches -0.6361 (negative) indicates that the distribution of the data is pointing to the left, indicating that most of the economic growth values are above average. The kurtosis number -1.5980 indicates that this distribution has platicurtic properties, which is flatter than the normal distribution.

b. Human Development Index / HDI (X1)

The HDI variable shows an average value of 73.1817 with a standard deviation of 1.1148 In 2020, the lowest HDI value was recorded at 71.80, while the highest value was reached in 2025 with 74.68. The difference of 2.88 points indicates a fairly small and stable variation, which shows that human development in Bangka Belitung is increasing gradually and consistently.

The skewness of 0.0524 is almost zero, indicating that the distribution of the data is almost symmetrical. Meanwhile, the kurtosis value of -1.8740 indicates a relatively flat distribution (platykurtic).

c. Labor Force Participation Rate / TPAK (X2)

The TPAK variable showed an average of 66.70% with a standard deviation of 1.0733. TPAK had the lowest value of 65.2% recorded in 2020, while its highest value of 68.0% appeared in 2025. The range of 2.80 indicates a not too large variation and a consistent pattern. A skewness value of -0.1512 that is close to zero indicates an almost symmetrical distribution. The kurtosis value of -1.8373 indicates a flat distribution.

Classic Assumption Test

Before testing a hypothesis, it is important to perform a classical assumption test to ensure that the regression model meets the BLUE (Best Linear Unbiased Estimator) criteria. The tests carried out included normality, multicollinearity, heteroscedasticity, and autocorrelation tests.

Table 5. Classical Assumption Test Results

Classic Assumptions	Tests	Criteria	Results	Verdict
Normality	Shapiro-Wilk W test	Prob > Z	0,0659	Passed
Multicollinearity	VIF	Mean VIF	1,186	Passed
Heteroscedasticity	Glejser	P>|t|	0,697	Passed
Autocorrelation	Durbin-Waston	Prob > |z|	2,104	Passed

Source: Data Processed Eviews, 2026

The classical assumption test is carried out to ensure that the regression model used meets the statistical requirements, so as to produce correct and unbiased estimates. The test includes four stages, namely the normality test, the multicollinearity test, the heteroscedasticity test, and the autocorrelation test. The Normality Test was carried out using the Shapiro-Wilk method because the number of samples used was quite small, which was as many as 6. The test results showed that all variables had a significance value of more than 0.05, namely Economic Growth of 0.487, HDI of 0.612, and TPAK of 0.523. Thus, the residual model has a normal distribution and the assumption of normality is met. The multicollinearity test was carried out by looking at the values of Variance Inflation Factor (VIF) and Tolerance.

The test results showed that the two independent variables had a Tolerance value of 0.843 which was greater than the minimum limit of 0.1, and a VIF value of 1.186 which was much smaller than the maximum limit of 10. This shows that there is no symptom of multicollinearity among the independent variables, so the assumption is met. The heteroscedasticity test is carried out by testing Glejser, which is by regressing the absolute value of the remainder or residual to independent variables. The test results showed that the significance value of HDI was 0.697 and TPAK was 0.792, both greater than 0.05. There are no signs of heteroscedasticity, so the residual variance is the same and the assumption is met. The autocorrelation test was performed using Durbin-Watson (DW) statistics. With the value of dL = 1.1441 and dU = 1.8762 at n = 6, k = 2, and α = 5%, a DW value of 2.104 was obtained which was in the range of dU < DW < 4 - dU, which was 1.8762 < 2.104 < 2.1238. These results show that there is no positive or negative autocorrelation in the model, so the main assumptions regarding autocorrelation have been met.

Panel Data Model Selection Test

Three stages of model selection tests were carried out to determine the best model between Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM).

Table 6. Model Selection Test Results

Model Selection	Testing	Statistics	Results	Verdict
Chow	Cross-section Chi-square	12,476	0,031	EMF > EMF
Hausman	Cross-section random	5,263	0,072	REM > FEM
Lagrange Multiplier	Breusch-Pagan LM	7,214	0,007	REM > EMC

Source: Data Processed Eviews, 2026.

Based on Table 6 of the results of the model selection test, in the Chow test, the p-value for Cross-section F was 0.024 and Cross-section Chi-square was 0.031, where both values were less than 0.05. This means that H0 is rejected, so the model is more suitable for use than the Common Effect Model (CEM). Furthermore, in the Hausman test, a probability value of 0.072 was obtained which was greater than 0.05, so the null hypothesis was not rejected. Therefore, the random-effect (REM) model is better than the fixed-effect (FEM) model. To ensure the best model, the test was carried out using the Lagrange Multiplier (LM) method and obtained an LM value of 7.214 and a probability of 0.007 which is smaller than 0.05. These results show that the zero hypothesis is rejected, meaning that REM is better than CEM. Based on all the trials conducted, the most suitable panel regression model for use in this study is the Random Effect Model (REM).

Hypothesis Test

Hypothesis testing was carried out based on the results of the Random Effect Model (REM) estimate. Hypothesis tests include Partial Test (t-test), Simultaneous test (F-test), and Coefficient of Determination (R^2).

Table 7. Random Effect Model (REM) Regression Estimation Results

Variable	Coefficient (β)	Std. Error	t-Statistics	Prob.
C (Constant)	-142,637	18,432	-7,739	0,001
IPM (X1)	1,873	0,253	7,402	0,002
TPAK (X2)	0,645	0,214	3,014	0,029
R-squared	0,8742			
Adjusted R-squared	0,8237			
F-statistic Prob(F-statistic)	17,303 0,0012			

Source: Data Processed Eviews, 2026

Based on the results of the REM estimation in Table 10, the regression equations formed are:

$$Y = -142.637 + 1.873\ X1 + 0.645\ X2 + \varepsilon$$

1. **Partial Test (t-test)**
   The t-test is used to analyze the impact of each independent variable separately on the dependent variable. Criteria: |t-count| > t-table (3,182) or p-value. The HDI variable obtained t-calculation = 7.402 > t-table = 3.182 with p-value = 0.002 < 0.05. H0 is rejected. HDI has a positive and partially significant effect on economic growth. Every increase in HDI by 1 point will increase economic growth by 1.873%, ceteris paribus. Meanwhile, the

TPAK variable gets a t-count value = 3.014 and p-value = 0.029 which is less than 0.05. H0 is rejected. TPAK has a positive and partially significant impact on economic growth. Any increase in TPAK by 1 percent will increase economic growth by 0.645 percent, as long as other factors remain unchanged.

2. **Simultaneous Test (F Test**
   The F test is used to examine the influence of all independent variables simultaneously. Criteria: F-count is greater than F-table (9.552) or p-value is smaller than 0.05 (df1=2, df2=3). Obtained F-statistics = 17.303 which is greater than F-table = 9.552 with p-value = 0.0012 which is smaller than 0.05. H0 is rejected. HDI and TPAK simultaneously significantly affect economic growth in the Bangka Belitung Islands Province.

3. **Coefficient of Determination (R^2)**
   The R-squared value of 0.8742 (87.42%) shows that the HDI and TPAK variables are able to explain 87.42% of the variation in economic growth in the Bangka Belitung area. The adjusted R-squared of 0.8237 (82.37%) indicates that the model has an excellent ability to explain the outcome variables after considering the number of variables used. The remaining 12.58% is explained by other variables outside the model, such as investment, government spending, inflation, and other external conditions.

The Influence of HDI on Economic Growth

The Human Development Index (HDI) has a positive and significant impact on economic growth in the Bangka Belitung Islands Province. The coefficient value is $\beta = 1.873$ and p-value = 0.002, which is smaller than 0.05. The t-calculated value of 7.402 is much greater than the t-table of 3.182, so the H0 hypothesis is rejected. This means that every increase in HDI by 1 point will make economic growth increase by 1.873 percent, other assumptions remain unchanged. For five years from 2020 to 2025, the Human Development Index (HDI) in Bangka Belitung increased from 71.80 to 74.68. The average HDI during this period was 73.18, with a deviation rate of 1.1148. This increase was driven by improvements in three main aspects, namely health which increased from 71.8 to 73.7, education which increased from 64.5 to 68.0, and decent living standards which increased from 78.2 to 82.0. The R-squared value of 0.8742 indicates that the model is able to explain 87.42 percent of the changes in economic growth in the area.

These findings are in line with various previous studies. The postitive effect of the Human Development Index (HDI) on economic growth in Bangka Belitung can be explained through the human capital accumulation mechanism. Improvemnets in education, health, and living standads enchance wirkers' productivity, increase their adaptability to technological change, and improve their capacity to generate higher value-added output. better educational attainment enables workes to adopt new production technologies more efficiently, while improved health conditions reduce absenteeism and increase labor productivity. Consequently firms experience higher production efficiency, which ultimately contributes to regional economic growth. (Rahim et al., 2021)

The transmission mechanism is particularly relevant in Bangka Belitung because the province has gradually shifted from relying solely on natural resource extraction toward developing processing industries and service activities. As production systems become more knowledge-intensive, the quality of human resources becomes increasingly important. Therefore, improvements in HDI do not merely reflect better social welfare but also represent productive investments that strengthen regional competitiveness and long-term economic performance.

This is also in line with (Maharani K, 2014) found that HDI has a positive and important impact on economic growth in Indonesia. They explained that improving the quality of people can help increase productivity in a sustainable manner. As is the case (Romer, 1990) In endogenous growth theory, he emphasizes that human capital is a key factor driving

innovation and long-term growth. (Rudatin & Suwito, 2025b) in his research in Bangka Belitung also stated that changes in the Human Beat Index (HDI) have a close relationship with regional economic results. However, there are also studies that show different results, as researched by (Cahyanti et al., 2021) which found the phenomenon of economic growth without unemployment, in some regions, where economic growth is not always accompanied by an equitable improvement in the quality of life. This difference may be due to different economic structures and unequal levels of inequality between regions. Hanushek, E. A., & Woessmann, L. (2021)

The economic structure of Bangka Belitung also explains why HDI exhibits a relatively large coefficient. According to regional GDP statistics, the province's economy is primarily supported by the manufacturing sector, followed by mining and quarrying, agriculture, fisheries, and trade. The manufacturing sector, particularly tin smelting and food processing industries, increasingly requires a workforce with better educational attainment and technical skills. Therefore, improvements in human capital have a stronger multiplier effect on productivity than would be expected in regions whose economies rely exclusively on primary resource extraction.

In the economic growth situation of the Bangka Belitung region, the increase in the Human Development Index (HDI) has a real impact in restoring and maintaining economic stability after the pandemic. In 2020, economic growth fell to a record low of -1.33% due to the impact of the COVID-19 outbreak. However, along with the increase in HDI, economic growth managed to recover to 4.51% in 2021 and reached a high level of 5.23% in 2022. (BPS, 2025). This shows that investments in the quality of human resources, such as improving health services, education, and well-being, have a major impact on regional economic growth. The Provincial Government of the Bangka Belitung Islands must continue to strengthen various human development programs as the basis for inclusive and sustainable economic growth, especially by increasing access to good education and health services in all districts and cities (Ismail et al., 2025)

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The Influence of TPAK on Economic Growth

Based on the findings, the Labor Force Participation Rate (TPAK) has a good and real impact on economic growth with a β coefficient value of 0.645 and a p-value of 0.029 which is smaller than 0.05. The t-count value of 3.014 is smaller than the t-table of 3.182, so H0 is rejected at a significance level of 5%. This means that if TPAK increases by 1 percent, economic growth will increase by 0.645 percent, as long as other variables remain unchanged. Descriptively, the average TPAK for the period 2020 to 2025 is 66.70% with a standard deviation of 1.0733. This figure increased from 65.2% in 2020 to 68.0% in 2025. The number of workers also increased from 756,300 people to 822,000 people, thus increasing the region's production capacity quite largely. Although the TPAK rate (0.645) is smaller than the HDI rate (1.873), its influence is still important in encouraging economic growth in the Bangka Belitung region.

This study shows that TPAK has an impact on economic progress in the Bangka Belitung Islands Province, in accordance with the findings that have been reported by the (Apriana et al., 2025). In theory, a high Labor Use Rate (TPAK) figure indicates that there are many workers who are ready and able to produce, as well as encourage the running of production activities. As explained by (Statistik, 2023) TPAK is an indicator that shows the potential of

the workforce in an area. But there are also studies that convey different opinions (Siswara, H. N., Erwanto, Y., & Suryanto, 2020) said that the impact of TPAK on economic growth is not always obvious, because it depends on the condition of the economic structure and the ability of the labor market to absorb workers. (Rudatin & Suwito, 2025b) It also said that high levels of TPAK in the informal sector do not always have a direct impact on economic growth, as most of these activities are more strategic in nature for survival than reflect real productivity increases. The difference in the results of this finding shows that the influence of TPAK on economic growth depends on local conditions and is strongly influenced by the type of work that exists in an area.

In the economic development of Bangka Belitung, the increase in TPAK which continues to increase every year is related to the economic situation that is starting to recover after the pandemic. The increase in the number of workers from 756,300 people in 2020 to 822,000 people in 2025 shows an increase in the participation of the working-age population in various economic activities. This condition provides a good basis for regional economic growth, especially in sectors that require a lot of labor. However, the main challenge that must be considered is the quality of such participation: whether the growing workforce is actually engaged in formal work that produces goods or services, or whether they are only working in the informal sector. Therefore, policies are needed that not only encourage an increase in the number of workers, but also the quality of the workforce through vocational training programs, increasing the minimum wage, and developing various types of jobs outside the tin mining sector which has been the main producer of the economy of the Bangka Belitung region (Sapitri, 2021).

Simultaneous Influences and Policy Implications

Refer to the results of the simultaneous test (F test) in table 7. shows that HDI and TPAK together significantly affect economic growth in the Bangka Belitung Islands Province. The F-statistical value obtained is 17.303, which is much greater than the F-table value of 9.552. In addition, the p-value is 0.0012 which is smaller than 0.05. The R^2 value of 0.8742 shows that the two variables together are able to explain 87.42% of the change in economic growth. Meanwhile, the Adjusted R squared of 0.8237 shows that the model's ability to explain these changes is still good even though it has been adjusted for the number of variables used.

These findings are in accordance with the theoretical framework created by (Sari et al., 2020) which emphasizes that economic growth is jointly influenced by the quality of labor and the amount of its participation in activities that produce goods or services. Research (Maharani K, 2014) and (Romer, 1990) It also supports the opinion that a combination of a good quality workforce and a high level of labor participation are essential conditions for achieving sustainable economic growth. Meanwhile,(Sari et al., 2020) in a study conducted in the Bangka Belitung area, it was found that economic growth in the region is highly dependent on the condition of local human resources and workforce. Even so, some studies such as (Cahyanti et al., 2021) reminding that the relationship between the two variables does not always run straight in all regions, especially in regions that are still highly dependent on one primary sector. The findings in this study are very relevant to the local area and must be understood in the special context of Bangka Belitung, where the economy is still dominated by the tin mining sector.

Bangka Belitung possesses unique regional characteristics because its economy has historically been dominated by tin mining. This economic structure creates both opportunities and challenges in interpreting the relationship between HDI, labor participation, and economic growth. During periods of favorable global tin prices, regional economic growth can increase rapidly even without substantial improvements in human development indikators (Delfirman & Hilmy M. Dzaki, 2025; Sapitri, 2021). Conversely, fluctuations in global commodity prices often expose the vulnerability of a resource-dependent economy. Under such conditions, improvements in HDI become increasingly important because they

facilitate economic diversification beyond mining activities .

Better human capital enables workers to transition into alternative sectors such as manufacturing, tourism, fisheries, digital services, and other value-added industries (Arkum et al., 2025). Therefore, the positive coefficient of HDI observed in this study suggests that investments in human development contribute not only to higher productivity but also to reducing regional dependence on volatile mining activities, thereby supporting more sustainable economic growth.

Overall, the findings indicate that human capital quality exerts a stronger influence on economic growth than labor force participation alone. This suggests that the future economic development strategy of Bangka Belitung should prioritize improving educational attainment, health services, and workforce skills while simultaneously accelerating economic diversification beyond the tin mining sector. Such a strategy would enhance regional resilience against commodity price fluctuations and promote more inclusive and sustainable long-term economic growth.

CONCLUSION

In general, the cooperation between increasing the Human Growth Index (HDI) and the Labor Force Development Rate (TPAK) has proven to be the main factor that drives economic recovery and growth in Bangka Belitung after the COVID-19 virus pandemic. However, the continued increase in HDI and TPAK that remained stable managed to mitigate the impact of the slowdown and encourage a faster recovery. The implications of the policy show that the Bangka Belitung Islands Provincial Government must combine strategies to improve the quality of the workforce through investments in education and health with strategies aimed at expanding access to income-generating jobs. Shifting the economy from dependence on the tin mining sector to labor-based sectors such as tourism, fisheries, and creative industries is an important priority to ensure fair, resilient, and sustainable economic growth in the long term.

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