

# GWPR Model on Indonesian Economic Growth: The Analysis of Spatially Varying Relationships

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## ABSTRACT

**Research Originality:** This research is original in examining the spatial varying relationship on economic growth in Indonesia.

**Research Objectives:** This study investigates the variability of Indonesia's economic growth model determinants.

**Research Methods:** This study uses the Geographically Weighted Panel Regression (GWPR) approach. Panel data was analyzed with 34 provinces in Indonesia from 2016 to 2022.

**Empirical Results:** This study found that the Revenue Sharing Fund (DBH) variable significantly influenced economic growth in 32 provinces. Meanwhile, the influence of DBH is not significant in only two provinces, namely Papua and West Papua. The variables of Labor and Gross Fixed Capital Formation did not have a significant effect on economic growth in 34 provinces.

**Implications:** These results show that Indonesia's economic growth rate is still not optimal, so the government is expected to design development programs that integrate various factors, such as maximizing Revenue Sharing Fund management, improving the quality of labor, and maximizing capital efficiency, to encourage economic growth in all provinces.

## Keywords:

regional economic growth; GWPR analysis; revenue sharing fund; gross fixed capital formation

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## INTRODUCTION

Economic growth is an important element in a country's economic development process because it shows its success. According to Todaro (2000), economic growth is an increase in per capita production that occurs continuously in the long term. Meanwhile, according to Sukirno (2016), economic growth is a physical development related to the production of goods and services that applies to a country consisting of additional quantities of industrial goods production, increased production of the service sector, infrastructure development, increased number of schools, and increased production of capital goods (Ng et al., 2018). Some studies have found that the economic growth of one region differs from one region to another. Dellink et al. (2017), Osiobe (2019), and Yuniarti et al. (2020) said that economic growth in the long term is influenced by population, physical capital, total factor productivity, human capital, and employment. However, in some studies, it was found that different results were found that economic growth was influenced by geographical location, variation of resources, and demographic conditions in each region (Adenola & Saibu, 2017; Raharti et al., 2021; Hadju et al., 2021). The geographical location of a region contributes significantly to its development process. The diversity of resources and demographic conditions affect each region's potential and development process (Benu & Sondakh, 2018).

Empirically, a region's economic conditions differ from those of other regions. According to Robert Solow, economic growth emphasizes the importance of production factors, such as capital accumulation, the number of workers, and technological advancements. In his perspective, capital is considered one of the main factors affecting economic growth, in addition to labor growth at the economic growth rate (Sari et al., 2016; Meiriza et al., 2023). Increasing the number of workers can increase economic output, but the impact will depend on the growth of capital and the efficiency of labor use. (Yu et al., 2024). In contrast to Samuelson's perspective, which explains the law of diminishing marginal productivity (Ellerman, 2021), where if one production input (e.g., labor or capital) is added gradually while the other input remains constant, at a certain point, the additional production resulting from one additional unit of input will decrease (Huerta, 2024; Storrie, 2020). In other words, this concept states that each additional input unit's marginal (additional) productivity will decline over time.

From 2016 until 2022, Indonesia had fluctuating economic growth that reflected the challenges and dynamics of the global and domestic economy. In 2016, Indonesia's economic growth was recorded at around 5.16%, which then increased in 2017 to 5.23%. In 2018, the Indonesian economy again showed better performance, with growth of around 5.32%. However, in 2019, there began to be an economic slowdown, where economic growth was around 5.32%, in line with the uncertainty of global economic conditions of around 5.0%. In 2020, the COVID-19 pandemic hit the global economy, causing a significant contraction, and Indonesia was no exception. Economic growth that year slowed to -2.07%, reflecting the significant challenges faced. Efforts to recover and adapt economic policies in 2021 improved performance, with economic growth reaching around 3.7% is still difficult. Until 2022 at 5.31, Indonesia's economic growth continues

to recover, but the exact figure for that period still requires more detailed data. These fluctuations reflect the complex dynamics of the economy and the efforts required to maintain stability and sustainable economic growth.

From 2016 to 2022, Indonesia's gross fixed capital formation (PMTB) investment sector has played a central role in boosting economic growth. Gross fixed capital formation positively affects economic growth (Amri & Aimon, 2017; Nweke et al., 2017; Meyer & Sanusi, 2019). Increasing capital formation can directly increase national production, ultimately encouraging economic growth. Increased investment in infrastructure, manufacturing, and other sectors positively impacts the productivity and competitiveness of the national economy (Aulia et al., 2024). With the condition of PMTB increasing, the development of strategic projects is also visible, including the construction of roads, ports, and industrial facilities. In the global context, the growth of PMTB investment also reflects the resilience of the Indonesian economy amid global market dynamics. This increase has contributed significantly to sustainable economic growth, created jobs, and stimulated economic activity in various sectors. According to Sunny (2016), capital formation is an important determinant for increasing economic growth. However, a different study was found by Asbiantara et al. (2016) that PMTB has a negative effect on economic growth. This is because the formation of fixed capital only focuses on specific sectors, such as government expenditure, which is still more focused on direct financing transfers from the state to the community rather than on spending for economic growth (Gajurel, 2022). It was found that in OECD countries, the composition of public spending focused on public subsidies, pensions, and family benefits will have a negative impact on decreasing economic growth (Fournier & Johansson, 2016).

One of the factors that can contribute to the emergence of economic activities and the rate of economic growth is the presence of labor (Raleva, 2014). Research by Korkmaz and Korkmaz (2017), Indana and Mulyani (2021), and Supratiyoningsih and Yuliarmi (2022) show that labor has a positive effect on economic growth. In OECD countries, labor productivity is better when countries prioritize economic development. In Indonesia, the workforce is the central pillar in driving the country's economic growth. The increase in education and skills of the workforce during this period has boosted productivity and efficiency in various sectors, from the manufacturing industry to the service industry (Supratiyoningsih & Yuliarmi, 2022). Government policies that support skills training and human resource development have created an environment in which the workforce can adapt to technological changes and global market demands. In addition, sectors such as tourism, IT, and services have benefited from the growth of the workforce. However, different studies found (Nguyen, 2021; Alvaaro, 2021; LoPalo, 2023) that the workforce has a negative effect on economic growth. In Nigeria, high temperatures negatively impact labor productivity, which affects the country's economic growth. In the short term, labor productivity has a negative impact on economic growth in Vietnam. This condition happens because domestic private investment still does not fully utilize the existing workforce (Nguyen, 2021).

The driving force of the Indonesian economy is also inseparable from the decentralization of the budget from the central government to the regions. This decentralization is in the form of revenue-sharing funds (DBHs), which are an effective instrument in boosting economic growth in each province and contributing to overall national economic growth. Research by Batubara and Gunarto (2024) said that through a fair and equitable allocation of income to local governments, DBH provides the resources needed to encourage economic development at the local level. The importance of DBH is not only limited to the local level but also positively impacts overall national economic growth. DBH creates a mechanism that strengthens synergy between the central and local governments, encouraging cooperation in achieving national development goals (Muryawan, 2014). The income received by local governments through DBH can also significantly contribute to national economic growth by creating a healthy and sustainable investment ecosystem. In this way, DBH is an instrument for wealth distribution and a catalyst for inclusive and sustainable economic growth throughout Indonesia. However, the research of Arina et al. (2019) and Iskandar et al. (2023) found that Revenue Sharing Funds have a negative effect on economic growth. The allocation of revenue-sharing funds is not optimal for government spending, such as the construction of public facilities and infrastructure that can only be guaranteed by the community in the short term. Thus, realizing the Revenue Sharing Funds received as a whole does not contribute to the development and increase of regional economic growth (Kusumawati & Wiksuana, 2018).

Although previous literature has helped inform the dynamics of economic growth, some existing studies have not considered the variation in relationships between variables in different geographic locations. Therefore, this study uses the Geographically Weighted Panel Regression (GWPR) method to understand the variation of relationships between variables that change over time and spatially. This research contributes to providing literature related to economic growth dynamics by considering the temporal and spatial dynamics in Indonesia. Each region has unique characteristics, such as the level of infrastructure development, local government policies, main economic sectors, natural resource potential, and geographical conditions. When one region experiences rapid economic growth, its positive impacts cannot always be directly spread to other regions with different challenges or potentials. In a diversified region, differences in economic growth across regions can create complex dynamics. Therefore, this study aims to determine the variability of the economic growth model of each province in Indonesia.

## METHODS

This research covers 34 provinces in Indonesia from Sabang to Merauke. In this study, the data used is spatial panel data. The study used 7-year time series data in the 2016-2022 range. The type of data used in this study is secondary data obtained through official publication by the Central Statistics Agency (BPS) and other institutions related to the research topic. The dependent variable in this study is economic growth. Meanwhile, the independent variables include Revenue Sharing Fund (DBH), Number of Labor (LABOR), and Investment (PMTB). The definition of variables is as follows: (1)

Economic growth (GROWTH) is a change in economic conditions from time to time in percent; (2) The Revenue Sharing Fund (DBH) is the decentralization of the central government's budget for regions with a unit of billions of rupiah; (3) Labor (LABOR) is an individual who has involvement in economic activities directly or indirectly in the percentage unit; (4) Gross Fixed Capital Formation (PMTB) is an expenditure used for capital goods for the use of capital in billions of rupiah.

The analysis method in this study uses a spatial panel data model. Spatial panel data models often emphasize the coordinates of each observation location (Ananda et al., 2023). One of the spatial panel data models that uses coordinates is the Geographically Weighted Panel Regression (GWPR). The Geographically Weighted Panel Regression (GWPR) model is a statistical method that combines two concepts: Geographically Weighted Regression (GWR) and Panel Regression (Rusgiyono & Prahutama, 2021). GWR is a regression method that allows the regression coefficient to depend on the geographical location of the observation. At the same time, the Regression Panel is used to analyze panel data, including temporal and spatial observations (Bruna & Yu, 2016). The GWPR model considers spatial variation (regression coefficients vary across different geographical spaces at each observation location) and temporal variation (adjustment of the regression coefficient to changes in time) in the relationship between the dependent and independent variables. Spatial variation and temporal variation are caused by Weighted Least squares (WLS), which are given a specific weighting (Wati, 2020). Weighting is needed in the GWPR model to give different emphasis to observations that refer to geographical distance and time to capture variability that can change over time and space. Consideration of the selection of weighting can be varied to handle the assumption of heteroscedasticity (non-constant variation of the regression residuals along the values of the independent variables).

The advantages of using the GWPR method are (1) being able to take into account spatial variations. GWPR considers spatial homogeneity in the relationships between the variables analyzed; (2) combining temporal and spatial aspects. This method effectively handles data involving temporal and spatial aspects simultaneously; (3) more flexible coefficients. Through GWPR, the regression coefficient is not fixed at zero but rather varies depending on the specific spatial location so that it can provide a deeper picture of the influence of variables in a region-specific context (Ananda et al., 2023).

In this study, the variables that affect economic growth (GROWTH) include Revenue Sharing Funds (DBH), number of workers (LABOR), and investment (PMTB). From the variables used above, the design model formed in this study is:

$$GROWTH = f(DBH, LABOR, PMTB) \quad (1)$$

The spatial panel data model in this study uses the Geographically Weighted Panel Regression (GWPR) approach, the equation form of GWPR is as follows:

$$GROWTH_{it} = \beta_0(u_i, v_i) + \beta_1(u_i, v_i)DBH_{it} + \beta_2(u_i, v_i)LABOR_{it} + \beta_3(u_i, v_i)PMTB_{it} + \varepsilon_{it} \quad (2)$$

Where  $(u_i, v_i)$  are the geographical coordinates (longlat) in province (i) in period (t),  $\beta_0$  is the intercept in province (i) in period (t),  $\beta_k$  is the parameter in province (i) in period (t), t is the time series, i is the cross section,  $\varepsilon$  is an error term.

## RESULTS AND DISCUSSION

Table 1 explains the statistical analysis of the variables used in this study. These statistics include mean, minimum, maximum, and standard deviation, which provide an overview of the data distribution of each variable. The average economic growth was 4.17, with a standard deviation of 3.6, which indicates that the data is less varied. Meanwhile, the minimum value is 15.72, and the maximum value is 22.94, which indicates that the lowest economic growth is 15.72% and the highest is 22.94%. The Revenue Sharing Fund has an average value of 600.39 with a standard deviation of 1337.88, indicating that the data varies because the average value is smaller than the standard deviation value. The minimum value is 0.03, meaning that the lowest DBH is 0.03 billion rupiah, and the highest DBH is 11759.14 billion rupiah.

Table 1. Descriptive Statistics

| Variables | Observation | Mean   | Min   | Max      | Std.Dev |
|-----------|-------------|--------|-------|----------|---------|
| Growth    | 238         | 4.179  | 15.72 | 22.940   | 3.604   |
| DBH       | 238         | 600.39 | 0.03  | 11759.14 | 1337.88 |
| LABOR     | 238         | 67.75  | 6.30  | 79.11    | 6.249   |
| PMTB      | 238         | 713671 | 2679  | 94548206 | 6124668 |

The labor variable had an average value of 67.75, with the lowest value of 6.3% and the highest of 79.11%. The standard deviation of 6,249 indicates that the data is less varied. Meanwhile, the PMTB variable has an average value of 713671 billion rupiah. The minimum value is 2679 billion rupiah; the highest is 94548206 billion rupiah, with a standard deviation of 6124668. The next step is to test the selection of the best model in global regression, where the best model is REM compared to the CEM and FEM models. Based on Table 2, it is known that this researcher's global regression model is REM.

Table 2. Global Regression Results (REM)

| Variables      | Coefficient | Std.Error     | t-statistic | p-value   |
|----------------|-------------|---------------|-------------|-----------|
| DBH            | -0.00066024 | 0.00017814    | 3.7062      | 0.0002104 |
| LABOR          | -0.040489   | 0.037192      | 1.0887      | 0.2763029 |
| PMTB           | 0.000000026 | 0.00000003609 | 0.7046      | 0.4810575 |
| Constants      | 7.611166    | 2.838579      | 2.68        | 0.008     |
| R <sup>2</sup> | 6.19%       |               |             |           |

Table 2 shows that of the three independent variables that are significant to economic growth in 34 provinces in Indonesia, only the Revenue Sharing Fund (DBH) variable has a p-value of less than 0.05. From the table above, the value of R<sup>2</sup> or the determination coefficient is 6.19%, which can be illustrated when there is an increase in the economic growth of one unit at the ith observation, and independent variables influence the tenth time range. Meanwhile, 93.81% of economic growth was influenced by other variables

not included in the model. After obtaining the best global regression model, the next step is to estimate the Geographically Weighted Panel Regression (GWPR) model by selecting the optimal bandwidth. The optimum bandwidth is obtained from the weighting function's minimum cross-validation (CV) value.

Table 3. Bandwidth and CV Values

| Kernel Weighting Function | Bandwidth  | CV Value |
|---------------------------|------------|----------|
| <i>Bisquare</i>           | 0.08890673 | 1218.463 |
| <i>Gaussian</i>           | 0.06987555 | 1220.02  |
| <i>Tricube</i>            | 0.08700531 | 1218.526 |

Table 3 contains each weighting function's bandwidth and cross-validation (CV) values. The bisquare weighting is considered the best because it has an optimal CV value compared to the Gaussian and Tricube weighting functions. The selection of this bisquare weighting function results in variations in bandwidth values in each province. Different bandwidth values are useful for determining parameter estimates of the GWPR model at each observation location. Although bandwidth varies between locations, these values remain consistent yearly because GWPR uses panel data. From the previous explanation, the bandwidth value of each province will be different. The difference in bandwidth applied in each province shows the variation in the GWPR model in 34 provinces of Indonesia, as shown in Table 4.

Table 4. Bandwidth Value at Each Observation Location

| Province                | Bandwidth | Province           | Bandwidth |
|-------------------------|-----------|--------------------|-----------|
| Aceh                    | 248.7521  | West Nusa Tenggara | 141.3159  |
| North Sumatra           | 234.2571  | East Nusa Tenggara | 166.8009  |
| West Sumatra            | 223.7045  | West Kalimantan    | 162.7522  |
| Riau                    | 216.8910  | Central Kalimantan | 148.2559  |
| Jambi                   | 210.1667  | South Kalimantan   | 135.7547  |
| South Sumatra           | 201.2086  | East Kalimantan    | 132.7972  |
| Bengkulu                | 211.8106  | North Kalimantan   | 138.0734  |
| Lampung                 | 196.0738  | North Sulawesi     | 161.7233  |
| Bangka Belitung Islands | 187.6025  | Central Sulawesi   | 144.7013  |
| Riau islands            | 197.1275  | South Sulawesi     | 143.1078  |
| Jakarta                 | 185.7339  | Southeast Sulawesi | 154.3850  |
| West Java               | 181.5189  | Gorontalo          | 149.7219  |
| Central Java            | 166.6021  | West Sulawesi      | 136.3191  |
| In Yogyakarta           | 165.5633  | Maluku             | 198.7125  |
| East Java               | 152.2100  | North Maluku       | 179.8943  |
| Banten                  | 190.0285  | West Papua         | 213.1245  |
| Bali                    | 138.8844  | Papua              | 248.7521  |

The following is an example of a GWPR model used for observation locations in DKI Jakarta Province:

$$GROWTH_{11} = 0.141749539 - 0.000955472DBH_{11} - 0.025222803TK_{11} + 4680000PMTB_{11} + \varepsilon_{it}$$

The model formed for each province needs to be tested partially to determine the GWPR model's goodness of fit. Table 5 shows that the P-value is less than 0.05, thus rejecting the null hypothesis (H0) at a significance level of 5%. This result shows that the GWPR model has better goodness of fit than the global regression model.

Table 5. GWPR Model Suitability Test

| <i>F</i> | <i>F</i> <sub>table</sub> | <i>P</i> -value | Results   |
|----------|---------------------------|-----------------|-----------|
| 5.669    | 2.410222                  | 9.155e-04       | Reject H0 |

After the model Geographically Weighted Panel Regression (GWPR) is determined as the best model, a parameter significance test is conducted to determine which predictor variables affect the response variables in 34 provinces in Indonesia. Significance is determined based on the p-value at each observation location (uit, vit), which must be less than 0.05 or 5%. The last step in the analysis is to compare the global regression model with the GWPR model to determine the most effective model in analyzing the influence of predictor variables on economic growth in 34 provinces in Indonesia.

Table 6 Comparison of Global and GWPR Regression Models

| Regression Model  | R <sup>2</sup> |
|-------------------|----------------|
| GWPR              | 0.088906       |
| Global Regression | 0.061909       |

As shown in Table 6, the analysis results show a comparison between the two models. The table illustrates the advantages of each model, allowing the selection of the model that best suits the characteristics of the data and the objectives of the economic growth analysis in 34 provinces in Indonesia. Table 6 shows that the GWPR model is superior in analyzing the influence of independent variables on economic growth. This result is evidenced by the higher R<sup>2</sup> value, which is 0,088906 or 8,89%, compared to the global regression model, which only has an R<sup>2</sup> value of 0,061909 or 6,19%.

Based on the analysis's results, the Revenue Sharing Fund (DBH) variable shows varying levels of significance in each province. Figure 1 visualizes the distribution of the significance of the DBH variable to facilitate understanding of the differences in significance between the provinces. The green color on the map shows that the Revenue Sharing Fund (DBH) variable significantly influences economic growth, but the effect is negative. This result means that the high DBH in the provinces in Indonesia has not yet encouraged growth. This study is in line with the research of Arina et al. (2019)

and Iskandar et al. (2023) that DBH shows a negative influence due to the suboptimal allocation of Revenue Sharing Funds, such as the construction of public facilities and infrastructure that can only be ensured by the community in the short term. Thus, the Revenue Sharing Fund received as a whole does not contribute to the development and increase of regional economic growth (Kusumawati & Wiksuana, 2018). The significant DBH variable was spread across 32 provinces, while the yellow color represented the provinces with insignificant DBH, namely Papua and West Papua Provinces. This condition is due to the dependence on the mining and natural resources sectors (Pasaribu, 2020).

**Figure 1. Map of the Significance of Revenue Sharing Fund Variables on Economic Growth in Indonesia**



The DBH variable negatively and significantly influences economic growth due to several factors. First is the high dependence of DBH on oil, mining, and natural gas. Second, some provinces have DBH dependence on plantations, agriculture, and fisheries, such as the provinces of Lampung, West Nusa Tenggara, East Nusa Tenggara, Southeast Sulawesi, West Sulawesi, Maluku, and North Maluku, which rely on the agriculture and fisheries sector for their primary income (Nugroho & Setijaningrum, 2024). This condition can limit economic diversification, making the province's economy less resilient to global economic changes, as the agriculture and fisheries sectors are highly influenced by weather conditions, global market prices, and other external factors, making DBH revenues unstable and high risk. The study's results do not match Wagner's theory, which explains that fiscal policy instruments can influence the economy through budget regulation. Revenue Sharing Funds (DBH) have a negative and significant effect on economic growth in line with research from Indriyani & Wahyudi (2021), Karampuan et al. (2023), Rusyda (2024) that the increase in Revenue Sharing Funds will have a negative impact on gross domestic product which will ultimately result in a decline in economic growth. The results of this study are also supported by research from Onifade

et al. (2020) that the Revenue Sharing Fund allocated for government spending has a negative and significant effect on economic growth.

Based on the analysis results, it was found that the workforce variable did not show significance in all provinces in Indonesia. The interpretation of these results can be visualized in the form of Figure 2. The yellow color on the map above illustrates that the labor variable is insignificant to economic growth in 34 provinces. Based on reality, Indonesia has an abundant workforce, but the contribution of the workforce to economic growth is not yet significant. Although the workforce in Indonesia continues to increase, the productivity and quality of the workforce are still major challenges. Based on data from the Central Statistics Agency (BPS), the population working in the informal sector in Indonesia in 2022 reached 59.31%. Based on their last education, elementary school graduates (SD) are in first place with a percentage of 80.32. as many as 139.85 million people. In this case, informal sector workers still dominate many economic sectors. Informal workers also have lower productivity than formal jobs, so their contribution to economic growth is also lower. In addition, low worker education levels can result in a lack of skills and knowledge and hinder productivity efficiency.

Figure 2. Map of Significance of Labor Variables on Economic Growth in Indonesia



The mismatch between the workforce's skills and the industry's needs is a serious obstacle in driving economic growth (Nguyen, 2021). As a result, even though the workforce is abundant, it has not been able to contribute significantly to sustainable and quality economic growth in Indonesia. The results of this study do not match the theory put forward by Robert Lucas that human resources are one of the key factors influencing long-term economic growth. However, this study is based on the results of research from Asrinda (2022), Nugraha and Hendrati (2023), and Azzahra (2022) that labor does not have a significant effect on economic growth.

The analysis results also determined that the variable Gross Fixed Capital Formation (PMTB) did not show significance in all provinces in Indonesia. Figure 3 interprets and visualizes these results to provide an overview of the distribution of the PMTB variable's insignificance in each province. PMTB is often considered one of the main drivers of economic growth. However, the results of the analysis show that its impact is insignificant for several reasons. First, the distribution of investment is uneven, with most investments concentrated in several large provinces such as Java and Sumatra, while other regions receive much less allocation (Haidar, 2021). This imbalance results in minimal economic spillover in provinces with low investment levels. Second, the quality of investment also plays an important role. Suppose PMTB is more directed at less productive sectors or has low added value. In that case, its contribution to economic growth will be limited (Asbiantara, 2016), such as investment in the mining sector, which has not been integrated with the processing industry. The resulting added value is low if investment only focuses on extracting raw materials without further processing. Third, caused by the high value of the Incremental Output Ratio (ICOR). A high ICOR indicates that each additional investment unit produces a relatively small additional output, indicating low investment efficiency.

Figure 3. Map of the Significance of Gross Fixed Capital Formation to Economic Growth



The Central Statistics Agency (BPS) noted that Indonesia's Incremental Output Ratio (ICOR) has only experienced a slight decline in the last five years but has increased drastically in 2021. 2016 ICOR was recorded at 6.73% and increased in 2017 to 6.95%. Then, in 2018, it fell slightly to 6.72% but increased again in 2019 to 6.88%. 2020 recorded a drastic decline of -15.09% but increased again in the range of 8% in 2021, and in 2022 it was recorded at 6.2%. The fluctuating and relatively high ICOR value

indicates that the investment made has not been able to increase efficiency and productivity consistently. As a result, despite the increase in PMTB, its contribution to economic growth remains limited because the investment is not matched by adequate increases in productivity (Asbiantara, 2016).

The results of this study do not match Harrod Domar's theory that investment affects economic growth. However, this study follows the results of research from Asbiantara et al. (2016), Dinarjito (2020), Haidar (2021), and Hutami & Riani (2022) that investment does not have a significant effect on economic growth. This is because the formation of fixed capital only focuses on specific sectors, such as government expenditure, which is still more focused on direct financing transfers from the state to the community rather than on spending for economic growth. This finding is also supported by research from (Shabbir et al., 2021) that the gross capital formation factor in foreign investment is not significant to economic growth, especially in Pakistan.

## CONCLUSION

The Revenue Sharing Fund (DBH) variable significantly influences economic growth in 32 provinces. This condition is due to the high dependence of DBH on oil, mining, and natural gas. In addition, some provinces have DBH dependence on plantations, agriculture, and fisheries, such as Lampung, West Nusa Tenggara, East Nusa Tenggara, Southeast Sulawesi, West Sulawesi, Maluku, and North Maluku, which rely on the agriculture and fisheries sectors. Meanwhile, the influence of the Revenue Sharing Fund is not significant only in 2 provinces, namely Papua and West Papua Provinces. This fact is due to the dependence on the mining sector and natural resources. The labor variable did not significantly affect economic growth in 34 provinces. The contribution of the workforce has not been optimally absorbed. In addition, despite the abundant number of workers, productivity and quality of labor are still the main problems for Indonesia. The gross total capital formation variable does not significantly affect economic growth in all provinces. The distribution of investment is uneven, and investment is directed more to less productive sectors, such as the mining sector, which has not been integrated with the processing industry.

These results show that Indonesia's economic growth rate is still not optimal. Therefore, the government is expected to design development programs that integrate various factors, such as maximizing DBH management, improving the quality of labor, and maximizing the use of capital to encourage economic growth in all provinces.

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