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Research Article

Beta and Sigma Convergence Analysis of Inclusive Economic Growth on National and Regional Economic Growth in Indonesia

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ABSTRACT

This study aims to determine the occurrence of convergence in inclusive economic growth at both the national and regional levels, as well as the factors that drive the increase in inclusive economic growth to reduce regional disparities. The analysis used is sigma convergence, absolute beta convergence, and conditional beta convergence. The data used is a panel consisting of 21 provinces in the Western Region of Indonesia (KBI), including Sumatra, Java and Kalimantan, 13 provinces in the Eastern Region of Indonesia (KTI), namely Sulawesi, Nusa Tenggara and Bali, Maluku and Papua, as well as national level consisting of 34 provinces in Indonesia from 2017 to 2021. This study shows that at the national level, KBI and KTI, there has been both sigma convergence and absolute beta convergence. Conditional beta convergence only occurs at the national level and KBI. Meanwhile, in KTI, there is no process of conditional beta convergence or what can be called divergence occurring. Variables that significantly affect the convergence process at the national level include government expenditure in the economic, health, and social protection sectors, domestic investment, and the open unemployment rate. At the KBI, significant factors include government expenditure in social protection sectors domestic investment and the unemployment rate. At the KTI, significant factors include government expenditures on the economic, health, and social protection sectors, foreign investment, and the unemployment rate.

Keywords: Beta and sigma convergence, Inclusive economic growth, Reducing inequality and poverty

Introduction

Economic growth is indicators that can be used to determine whether the economy of a region is experiencing expansion or contraction over time. According to Purwanti and Rahmawati (2021), efforts to promote economic growth can be realized through comprehensive economic development. Economic

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development aims to improve living standards and reduce social inequality in society. This goal is intended to achieve equal welfare for all members of society. The importance of welfare is not only focused on economic aspects, but also involves social aspects and the overall sustainability of human life.

Economic growth is seen as an important component in achieving welfare and the success of regional development. However, success in development depends not only on high economic growth but also on the region's ability to address various social problems, such as poverty, unemployment, and social inequality. Although high economic growth can occur, it does not guarantee that everyone will have equal opportunities. In fact, increasing income inequality can cause a decline in the poverty rate and potentially lead to a decrease in sustainable economic growth.

Indonesia is one of the countries that focuses on increasing economic growth accompanied by a decrease in poverty rates. Although there has been a decrease in the poverty rate, it is not accompanied by a decrease in the unemployment rate, and the Gini ratio only shows moderate fluctuations. The following are data on economic growth, the percentage of the population living in poverty, the Gini ratio, and the open unemployment rate in Indonesia from 2011 to 2022.

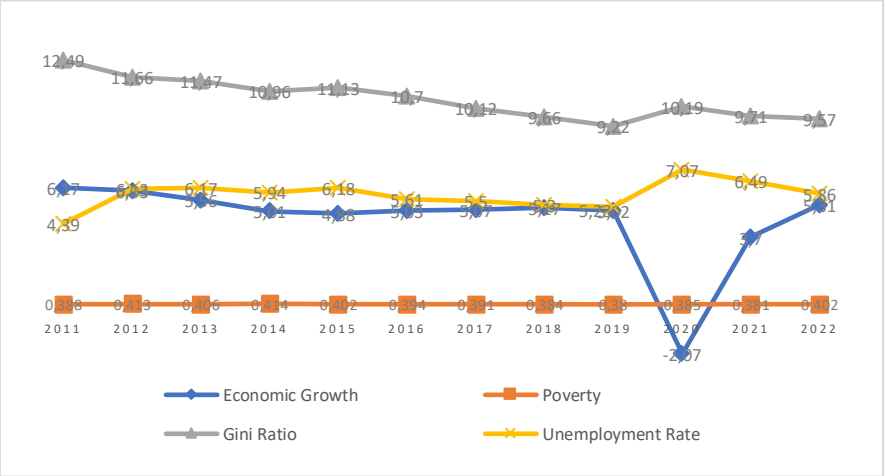


Figure 1. Economic growth, poverty, gini ratio, and open unemployment rate Indonesia
Source: BPS Indonesia, 2023

The economic growth in Indonesia shows a tendency of increasing economic growth and a declining poverty rate. However, the percentage of poor population and the Gini ratio are still relatively high, indicating that the condition in Indonesia is still not ideal and the impact of economic growth is not evenly distributed among the society. Based on the above facts, it can be concluded that although there is high economic growth, it does not guarantee the attainment of welfare in the society. Todaro & Smith (2015) stated that even if the economic growth reaches its highest level, when income distribution is unequal, it will result in high poverty rates. Conversely, even if income distribution is equal, but the growth rate in a region is still low, poverty will increase. Therefore, in order to reduce poverty and achieve a prosperous society, there needs to be a balance between economic growth and equal income distribution.

Therefore, it is not enough to have high economic growth, but it is necessary to ensure that the entire society benefits from this economic growth, which is known as inclusive economic growth (Asian Development Bank, 2011). Inclusive economic growth refers to growth that not only creates economic opportunities, but also ensures equal access to economic opportunities for all members of the society. Thus, all members of the society can participate in utilizing the growth and economic development in

accordance with principles of equality, regardless of their socioeconomic backgrounds (Hill, Khan, Zhuang 2012).

The measurement of inclusive economic growth, in this case to assess the level of inclusiveness of development in Indonesia, can be done using the Inclusive Economic Development Index (IPEI), which measures economic growth, inequality and poverty, as well as access and opportunities. Based on the data from the Inclusive Economic Development Index (IPEI) from the National Development Planning Agency (BAPPENAS), the level of inclusiveness in Indonesia tends to increase. The following is the Inclusive Economic Development Index (IEDI) in Indonesia from 2017 to 2021.

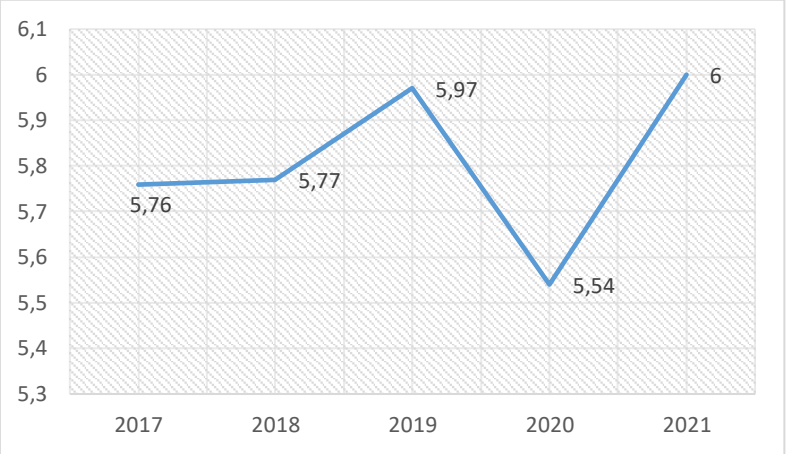


Figure 2. Inclusive Economic Development Index (IEDI) Indonesia
Source: Bappenas, 2023

The Inclusive Economic Development Index (IPEI) in Indonesia tends to increase from 2017 to 2021, but the level of inclusiveness in the 34 provinces still varies and tends to indicate disparities or imbalances in economic growth in Indonesia. This can be seen in figure 3, which shows that the average IPEI in most Eastern Indonesian regions cannot exceed the average IPEI in Indonesia, except for Bali, North Sulawesi, and South Sulawesi. Furthermore, Papua Province only receives an average IPEI of 3.61 and falls into the category of unsatisfactory.

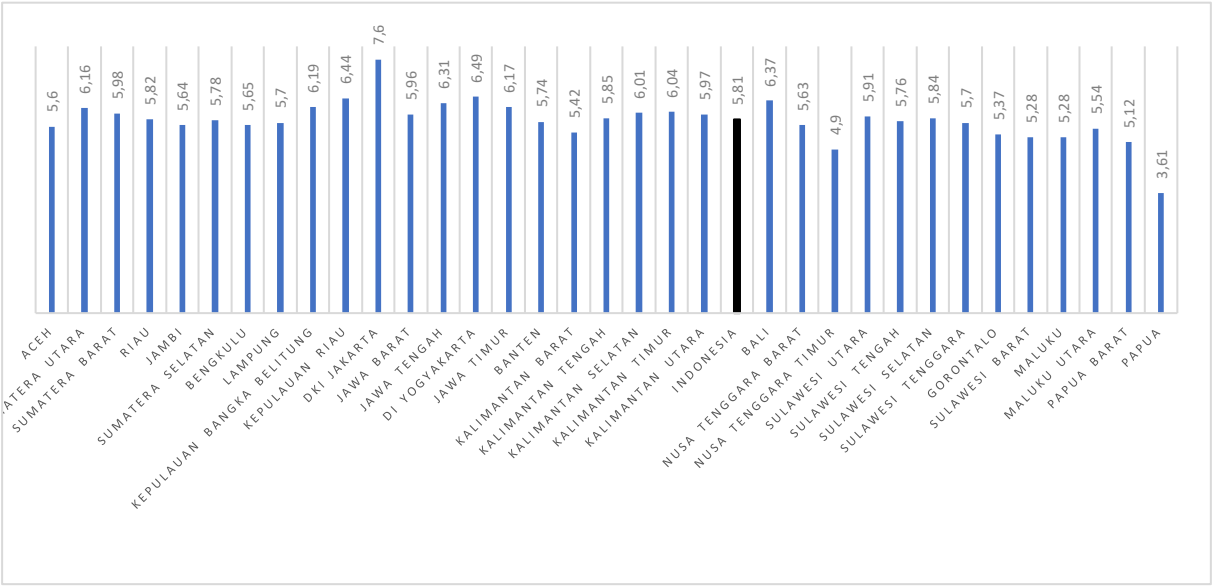


Figure 3. Average Inclusive Economic Growth Index (IPEI) of 34 provinces in Indonesia
Source: Bappenas, 2023

Based on the data, it shows that there are differences in the level of inclusive economic growth in the 34 provinces of Indonesia from 2017 to 2021. The data from the Inclusive Economic Development Index shows that DKI Jakarta Province has the highest average compared to other provinces, with 7.6 points in the very satisfactory category, while the province with the lowest average is Papua Province with 3.61 points in the less satisfactory category. The West Indonesia region tends to support inclusive economic growth in Indonesia more than the East Indonesia region, which tends to have inclusive economic growth below the national average.

According to the Solow theory, in the neoclassical growth model, the gap or imbalance in economic growth in a country or region is only temporary. This model assumes that capital growth will experience diminishing returns and that constant returns to scale will occur. These assumptions indicate that economic growth will eventually reach a stable state (steady state). Thus, economic growth convergence can occur in that country or region.

The neoclassical growth model was further developed by Robert J. Barro and Salla I Martin, which resulted in the concept of convergence. Convergence is a phenomenon in which regions with lower economic conditions tend to grow faster than regions with higher economic conditions, so that poor regions can catch up with rich regions. The results of this empirical research, convergence occurs when regions with lower inclusive economic growth can catch up with regions with higher inclusive economic growth.

The Indonesian government has played an important role in improving the economy through interventions and policies that support private investment. John Maynard Keynes argued that the government should intervene in fiscal areas to balance the economic market. One form of intervention proposed by Keynes is through Government Spending, which aims to increase output and reduce unemployment. The government can also provide incentives and policies that support private investment, which will create jobs and increase people's income. Private investment can also improve productivity, competitiveness, access to technology, and overall quality of life for the people. Government spending and investment must be managed well to achieve inclusive and sustainable economic growth.

Inclusive Economic Growth

Inclusive growth can be defined as growth that does not discriminate, reduces disparities between communities, and ensures fair access to services and opportunities for the entire society (Sholihah, 2014; Zia and Prasetyo, 2018). According to Sabir (2019), inclusive growth is growth that upholds equality and justice in income distribution. It also creates employment opportunities and often provides better indicators of a country's progress. The concept of inclusive economic growth arose due to problems in the economy since the 1950s, where there was an increasingly imbalanced relationship between growth and income (Soares et al., 2013). The urgency of research on this imbalance becomes a problem for sustainable economic development because the opportunity to achieve future well-being will be diminished. The measurement of inclusive growth in this study uses the Inclusive Economic Development Index issued by the National Development Planning Agency (Bappenas) to measure the level of inclusivity in national, provincial, and district development. This index is designed to measure inclusivity based on several factors such as economic growth, inequality, poverty, access, and opportunities.

Government Expenditure

Dimensions of Government expenditure, in general, refers to the efforts made by the government to control the entire economy by determining the amount of government expenditure each year. This is reflected in the national budget document (APBN) and regional budget document (APBD). In practice, government expenditure can serve as an indicator of the extent of activities financed by the government. The larger and more numerous the activities carried out by the government, the greater the corresponding expenditure. National income can be explained by the formula $Y = C + I + G + X - M$, which is the main reference for

Keynesians in explaining the role of the government in the economy. This formula shows that an increase or decrease in government expenditure will affect national income. Government expenditure is one component of aggregate demand.

Investment

Investment or capital investment is an expenditure that involves various types of capital goods, such as buildings, capital equipment, and inventories. The goal of investment is to increase the capacity of producing goods and services and enhance labor productivity. In the long run, investment is expected to generate beneficial output increases for the overall society. The investment studied in this research includes two types: Foreign Direct Investment (FDI) and Domestic Direct Investment (DDI). FDI is governed by the Indonesian government through Law No. 1 of 1967 concerning foreign direct investment and has been refined by Law No. 11 of 1970. The aim of this regulation is to attract foreign investment to meet financing needs for development. Some types of FDI that receive government approval include new projects, expansions, and changes in ownership status involving Indonesian participants. Meanwhile, DDI is a form of domestic investment for development carried out by domestic investors from the private and government sectors. Policies regarding DDI plans are determined by the government through Law No. 6 of 1968 and have been refined by the implementation of Law No. 12 of 1970. DDI plans that obtain government approval include new investment, expansions, and changes in ownership status involving own capital and loan capital.

Unemployment

Unemployment can be defined as individuals who are jobless and actively seeking employment, individuals who are jobless and preparing to start a business, individuals who are not seeking employment because they believe they cannot find a job, and individuals who are employed but have not yet started working (BPS, 2023). John Maynard Keynes developed a Keynesian theory that emphasizes the importance of government intervention in addressing unemployment and achieving inclusive economic growth. According to this theory, high unemployment rates can cause instability in the economy by reducing the level of consumer spending. In such situations, the government can implement fiscal policies (such as increased public spending) to stimulate aggregate demand, create jobs, and reduce unemployment.

Keynesian Theory of Economic Growth

Keynes identified that aggregate demand, which is the total amount of output demanded in the economy, consists of four main components from four different sectors. First, household sector expenditures reflect the level of consumer spending (C); then, business sector expenditures reflect investments made by companies (I); government sector expenditures reflect government spending (G); and finally, international trade expenditures reflect the difference between exports and imports of the country, known as net exports (NX = X - M). With this equation, the total output demanded, or aggregate demand, can be calculated as follows: Y = C + I + G + (N - X). This model illustrates that increases in consumption, investment, government spending, and net exports will result in increased production of goods and services, which in turn will increase Gross Domestic Product (GDP). Higher GDP will, in turn, yield positive economic growth.

The Concept of Convergence

The concept of convergence, which is at the core of the neoclassical growth model, can be explained based on two related hypotheses. Firstly, the catch-up hypothesis indicates that countries with low productivity have great potential for achieving rapid economic growth. The catch-up process will occur when the coefficient of variation of average productivity in these countries declines over time, due to the acceleration of growth in previously lagging countries. Secondly, Barro and Sala-i-Martin (2004), in using the neoclassical growth model for a closed economy, predict that per capita income growth is negatively related to the initial level of per capita income. Assuming similar preferences and technology across all countries, poorer countries tend to experience

faster economic growth compared to wealthier countries.

Research Method

This research uses a dependent variable in the form of the Inclusive Economic Development Index and independent variables including government expenditure in the economic sector, healthcare, social protection, foreign direct investment, domestic investment, and open unemployment rate.

Sigma Convergence

The measurement of sigma convergence is conducted using the coefficient of variation of inclusive economic growth. In the case of sigma convergence, the coefficient of variation should show a decreasing trend over time. Sigma convergence in this study can be determined using data on inclusive economic growth, specifically the Index of Inclusive Economic Development (IPEI). The formulation used for calculating the coefficient of variation is as follows:

$$CV = \frac{\sqrt{\frac{\Sigma(Y_i - \bar{Y})^2}{N}}}{\bar{Y}}$$

CV = Coefficient of Variation
Yi = Inclusive Economic Growth
$\bar{Y}$ = Average inclusive economic growth
N = Number of provinces

Absolute Beta Convergence

Absolute beta convergence occurs when there is a negative correlation between the rate of economic growth in the initial period and the rate of economic growth. The concept used in measuring absolute beta convergence is the equation from Barro and Salla-i-Martin, which is:

$$\left(\frac{IEDI_{it}}{IEDI_{i,t-1}}\right) = \beta_0 + \beta_1 ln\left(IEDI_{i,(t-1)}\right) + +\varepsilon_i$$

$\left(\frac{IEDI_{it}}{IEDI_{i,t-1}}\right)$ = Average inclusive economic growth rate

$IEDI_{it}$ = Inclusive economic growth in year t for each province
$IEDI_{i,t-1}$ = Initial inclusive economic growth in the previous year
β_0 = Constant / intercept
β_1 = Slope for inclusive economic growth or convergence coefficient.

The hypothesis of the occurrence of absolute beta is when the estimation of β has a negative and significant value.

Conditional beta convergence

Conditional beta convergence is a method used to evaluate the impact of each variable on inclusive economic growth. The aim of this method is to determine whether the variable contributes to enhancing inclusive economic growth or hampers it. The equation used to test conditional/conditional beta convergence in this study is as follows:

$$\left(\frac{IEDI_{it}}{IEDI_{i,t-1}}\right) = \beta_0 + \beta_1 \left(IEDI_{i,(t-1)}\right) + ln(GEE_{it}) + ln(GHE_{it}) + ln(GSPE_{it}) + ln(FDI_{it}) + ln(DDI_{it}) + ln(UER_{it}) + \varepsilon_i$$

$\left(\frac{IEDI_{it}}{IEDI_{i,t-1}}\right)$ = Average inclusive economic growth rate

$IEDI_{it}$ = Inclusive economic growth in year t for each province
$IEDI_{i,t-1}$ = Initial inclusive economic growth in the previous year
β_0 = Constant / intercept
β_1 = Slope for inclusive economic growth or convergence coefficient.
GEE = Government Economics Expenditure
GHE = Government Health Expenditure
GSPE = Government Social Protection Expenditure
FDI = Foreign Direct Investment
DDI = Domestic Direct Investment
UER = Unemployment Rate

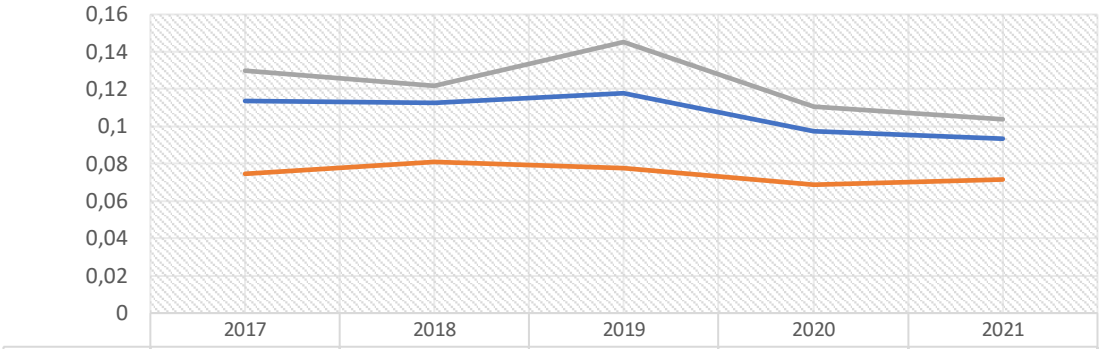
Then, in calculating the convergence rate denoted by s in this study, it is obtained from the equation s = ln (1+|β_1|)/T, where T is the number of years of observation used in this study. Furthermore, in calculating the time to eliminate half of the existing disparity, the half-

life time is used with the equation $\tau = \ln 2/\ln (1 + |\beta_1|)$ (Paas, T et al., 2007).

Result and Discussion

Sigma Convergence Analysis

The measurement of sigma convergence in inclusive economic growth disparities in each region can be done by calculating the coefficient of variation. Sigma convergence in inclusive economic growth occurs when the coefficient of variation decreases over the research period, while if the coefficient of variation increases, it is called divergence in inclusive economic growth in that region. The larger the coefficient of variation, the greater the inequality in that region (Akai and Sakat, 2002).



	2017	2018	2019	2020	2021
Nasional	0,11343	0,11276	0,11778	0,09756	0,09341
KBI	0,07481	0,08098	0,07776	0,06876	0,07179
KTI	0,12967	0,12182	0,1452	0,11071	0,10382

Figure 4. Coefficient of Variation Calculation at the National Level, KBI, and KTI
Source: Data processed

Based on the data above, it shows that the coefficient of variation tends to decline each year at both the national and regional levels during the period 2017-2021. With the downward trend in the coefficient of variation, it indicates the occurrence of sigma convergence in inclusive economic growth at the national and regional levels in Indonesia from 2017 to 2021. This can be interpreted as areas with relatively lower levels of inclusive economic growth being able to catch up with areas with higher levels of inclusive economic growth. And the inequality in inclusive economic growth between regions has decreased over time.

Akai and Sakat (2002) argue that the larger the coefficient of variation, the greater the inequality that occurs in a region. Therefore, based on the coefficient of variation at the national level, the highest coefficient of variation was 0.11778 in 2019. In the Western Indonesian Region (KBI), the highest coefficient of variation occurred in 2018, with a value of 0.08098, while in the Eastern Indonesian Region (KTI), the highest coefficient of variation occurred in 2019, with a value of 0.14520. It can be concluded that the greatest inequality occurs in the Eastern Indonesian Region because it has the highest coefficient of variation. On the other hand, the Western Indonesian Region tends to experience lower inequality compared to the national level and the Eastern Indonesian Region.

Absolute Beta Convergence Analysis

The hypothesis of the occurrence of absolute beta convergence is when the estimation of inclusive economic growth rate towards the initial inclusive economic growth rate shows a negative and significant relationship. If absolute beta convergence occurs, it indicates that inclusive economic growth in poor regions tends to grow faster compared to regions with higher levels of inclusive economic growth, without considering influencing factors. This causes poor regions to be able to catch up with the inclusive economic growth of wealthier regions (Barro & Salla-i-Martin, 2004).

Table 1 Absolute Beta Convergence Estimation at the National Level, KBI, and KTI.

Variabel	Coefficient		
	Nasional	KBI	KTI
Constant	7,908085	10,36781	5,650447
$l\boldsymbol{PEI}_{i,(t-1)}$)	-0,371715	-0,73024	-0,045780
R-Squared	0,885020	0,90242	0,835342
Adjusted R-Squared	0,856062	0,877736	0,793370
β	-0,371715	-0,73024	-0,045780
Speed of Convergence	0,0632123	0,109652	0,008952
Half-Time	10,965374	6,321281	77,42408

Source: data processed, 2023

The estimation results of absolute beta convergence show that both at the national and regional levels, negative slope values are obtained for the previous year's Inclusive Economic Development Index (IPEI). Therefore, it can be concluded that absolute beta convergence has occurred at the national and regional levels in Indonesia from 2017 to 2021, which means that inclusive economic growth in poor areas tends to grow faster compared to regions with higher levels of inclusive economic growth. Based on the calculation of convergence rate and half-time convergence, the absolute inequality of inclusive economic growth at the national level can decrease by 6.32 percent per year and require 11 years to reach half-convergence condition. Meanwhile, in the KBI, it can decrease by 10.96 percent per year and require 6 to 7 years to reach half-convergence condition. And in the KTI, it can decrease by 0.89 percent per year and require 77 to 78 years to reach half-convergence condition.

Conditional Beta Convergence

The hypothesis for the occurrence of conditional beta convergence is that if the estimation of inclusive economic growth rate towards inclusive economic growth rate initially shows a negative and significant relationship. If conditional beta convergence occurs, it indicates that inclusive economic growth in poor regions tends to grow faster compared to regions with higher levels of inclusive economic growth, considering influencing factors.

Table 2 Conditional Beta Convergence Estimation at the National Level, KBI, and KTI

Variabel	Coefficient		
	Nasional	KBI	KTI
C	-6.5654*	2.3528	-17.243*
l$\boldsymbol{n\ IPEI}_{i,(t-1)}$)	-0.1049	-0.4974*	0.0312
GEE	0.1761*	0.0293	0.2544*
GHE	0.1285***	0.1098	0.2475***
GSPE	0.1827**	0.1143***	0.3510***
FDI	0.0458	-0.0389	0.0866***
DDI	0.0518**	0.0786*	0.0486
UER	-0.1007*	-0.0926*	-0.0767
R-Squared	0.9356	0.9339	0.9323
Adjusted R Squared	0.9156	0.9107	0.9038
β	-0.1049	-0.4974	0.0312
Speed of Convergence	0.0199	0.0807	0.0061
Half-Time	34.7222	8.5831	112.5211

Source: data processed

The results of the estimation of conditional beta convergence in table 4.2 show that at the national level and Western Indonesia Region (KBI), negative slope values are generated for the Inclusive Economic Development Index (IPEI) of the previous year. It can be concluded that conditional beta convergence has occurred at the national level and in KBI, which means that inclusive economic growth in poor regions tends to grow faster compared to wealthy regions, allowing these poorer regions to catch up with the higher levels of inclusive economic growth in other areas. As for the Eastern Indonesia Region (KTI), the slope value is positive, indicating that there is no conditional beta convergence in this region and it can be referred to as divergence. This means that inclusive economic growth in poor regions cannot catch up with the growth in wealthy regions. Based on the calculation of convergence rate and half-time convergence, the conditional reduction of inequality in inclusive economic growth at the national level is estimated to be 1,99 percent per year and would take 35 years to reach half-convergence condition. In KBI, the conditional reduction of inequality in inclusive economic growth is estimated to be 8,07 percent per year and would take 8 to 9 years to reach half-convergence condition. Meanwhile, in KTI, the reduction of inequality in inclusive economic growth is estimated to be 0.61 percent per year and would take up to 113 years to reach half-convergence condition.

Discussion

The results of this empirical research shows that government expenditure in the economic sector contributes to inclusive economic growth. Government expenditure in the economic sector can promote inclusive economic growth by providing equitable infrastructure. The impact of infrastructure development in Indonesia is very important in creating a conducive environment for inclusive economic growth. The Indonesian government has allocated allocating sufficient funds to build and improve infrastructure such as roads, bridges, and airports, the government can enhance accessibility and connectivity throughout Indonesia. This allows people in remote and rural areas to easily access markets, public services, and job opportunities. As a result, the economic gap between urban and rural areas can be reduced. The findings of this research are consistent with the theory proposed by Keynes, which states that government expenditure has an effective role in enhancing output and combating unemployment (Deliarnov, 2014). The results of this study support previous research by Kolawole (2016) on the impact of government expenditure on inclusive economic growth in Nigeria, which found that government expenditure on the economy has a significant positive impact on inclusive growth.

The results of this empirical research found that; government expenditure in the healthcare sector in KBI has not significantly contributed to inclusive economic growth. However, when examined nationally and at the KTI level, government expenditure in the healthcare sector has had a significant impact with a confidence level of 10%. This phenomenon can be explained by the indirect impact of government expenditure in the healthcare sector on inclusive economic growth. Government expenditure in the healthcare sector initially affects the overall health of the population. Then, improved health conditions contribute to increased productivity of the population, which ultimately affects national output. With increased productivity, there will be an increase in Gross Domestic Product (GDP), more stable economic growth, reduced unemployment rates, poverty reduction, and ultimately the creation of inclusive economic growth as a whole. This is in line with Wagner's theory, which states that government expenditure increases when there is interaction within society, including improving health. Government expenditure in healthcare is also considered an investment in human development because health is a basic human need. Improved public health can also increase productivity and drive economic growth.

Government expenditure in the social protection sector, both at the regional and national levels, has a significant impact on inclusive economic growth. Government policies in social protection efforts are generally carried out through social assistance programs and social security programs. Some programs implemented by the government from 2017 to 2021

include the Family Hope Program (PKH), Direct Cash Assistance (BLT), Non-Cash Rice Assistance / Non-Cash Food Assistance, National Health Insurance (JKN-KIS), and others. However, with the many programs provided by the government, there are still inaccuracies in determining the recipients of these programs and a lack of integration in the implementation of these programs at both the central and regional levels, which is one of the reasons why government expenditure in the social protection sector has not maximally contributed to inclusive economic growth. This is in line with the research conducted by Handani et al. (2019) in Bungo Regency, which states that some recipients of the PKH social protection program are classified as households in the Prosperous II category.

Foreign Direct Investment has a non-significant negative impact on inclusive economic growth in the Western Indonesian Region (KBI), most likely due to the potential income inequality caused by foreign investment. However, at the national and Eastern Indonesian Region (KTI) levels, Foreign Direct Investment (FDI) has a positive and significant impact on inclusive economic growth. Increased FDI encourages job creation and expands opportunities for the entire workforce. With increased employment opportunities, unemployment can be reduced, ultimately leading to a decrease in poverty levels and inequality in society. This will drive long-term inclusive economic growth. Equitable increase in Foreign Direct Investment at the national level can enhance the inclusiveness of economic growth in Indonesia.

Domestic investment has a positive impact on inclusive economic growth at both the national and regional levels. This is because through domestic investment, domestic companies can develop various economic sectors, which in turn create new job opportunities. With increased employment opportunities, overall income of the population, especially those who were previously unemployed or earned low wages, will increase. This will directly improve the well-being of the people and reduce income inequality among social groups. In addition, domestic investment also promotes the development of small and medium-sized industries (SMIs) in Indonesia. With an increase in the quantity and quality of SMIs, micro, small, and medium-sized enterprises (MSMEs) have the opportunity to actively participate in enhancing the country's economy. Domestic investment can also strengthen the competitiveness of MSMEs in facing global competition, thus playing a role as a source of inclusive economic growth.

The level of open unemployment has a negative impact on inclusive economic growth, meaning that if there is an increase in unemployment in a region, it will reduce inclusive economic growth in that region. The high level of open unemployment can have a negative impact on overall economic growth, especially inclusive economic growth. Inclusive economic growth refers to equal and beneficial economic growth for all segments of society, including those with lowincome levels and those in open unemployment conditions. One theory that can explain the impact of the level of open unemployment on inclusive economic growth is the human capital theory. This theory states that quality human resources are one of the important factors in achieving inclusive economic growth.

Conclusion

In conclusion, the findings suggest that there has been sigma and beta convergence in inclusive economic growth at both the national and regional levels in Indonesia from 2017 to 2021. The coefficient of variation has decreased over time, indicating a decrease in inequality in inclusive economic growth between regions. Specifically, the Western Indonesian Region tends to experience lower inequality compared to the national level and the Eastern Indonesian Region, which has the highest coefficient of variation and the greatest inequality. Furthermore, absolute beta convergence has also occurred at both the national and regional levels, with inclusive economic growth in poor areas growing faster compared to regions with higher levels of inclusive economic growth. However, specifically conditional beta convergence differs among regions, with the Eastern Indonesian Region experiencing divergence instead of convergence. These findings provide

insights into the dynamics of inclusive economic growth and the reduction of inequality in Indonesia.

Government expenditure in the economic sector plays a significant role in promoting inclusive economic growth, particularly by investing in infrastructure. By allocating funds to build and improve infrastructure, such as roads, bridges, and airports, the government can enhance access to markets, public services, and job opportunities in remote and rural areas, reducing the economic gap between urban and rural areas. This research is consistent with Keynes' theory, which emphasizes the effective role of government expenditure in enhancing output and combating unemployment. Additionally, government expenditure in the healthcare sector indirectly impacts inclusive economic growth by improving the overall health of the population, leading to increased productivity and economic output. Government expenditure in the social protection sector also contributes to inclusive economic growth through social assistance programs and policies. However, inaccuracies in determining program recipients and a lack of integration in program implementation limit the maximum contribution of government expenditure in this sector. Foreign direct investment has a positive impact on inclusive economic growth at the national and Eastern Indonesian Region (KTI) levels by creating job opportunities and reducing poverty and inequality. Domestic investment also promotes inclusive economic growth by creating new job opportunities, increasing overall income, and promoting the development of small and medium-sized industries. On the other hand, the open unemployment rate has a negative impact on inclusive economic growth, highlighting the importance of reducing unemployment and investing in human capital to achieve inclusive economic growth.

The contribution of the results of this research is that it is able to provide an understanding of the convergence of sigma and beta, inclusive economic growth is able to mitigate inequality and reduce poverty. The limitation of this research is that it is still regional in developing countries which tend to be densely populated, so the results could be different in developed countries which are not densely populated. The results of this research recommend that a comparative analysis of convergence in developed countries that are not densely populated is necessary.

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