

Analysis of Factors Influencing Economic Growth in Middle Income Trap Asean

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Abstract

The success of a country and the welfare of its population can be assessed through economic growth as the main indicator, for developing countries, equitable and stable economic growth is a priority for the transition to a developed country even though each country has different natural, economic, social, and cultural conditions, so that stability and sustainability of economic growth are needed to encourage sustainable development with one of its efforts through convergence economics. This study analyzes the convergence between ASEAN upper middle-income countries in 2013-2023 and variables that can accelerate the convergence of economic growth. The variables used include Foreign Direct Investment (FDI), trade openness, and corruption, which are suspected to affect economic growth. The approach used is a quantitative method with secondary data from the World Bank and Transparency International. The analysis methods used are sigma convergence, absolute beta convergence, and conditional beta convergence. The calculation of sigma convergence used the value of the coefficient of variation of GDP per capita, while the absolute beta and conditional beta convergence were analyzed using panel data regression with a selected fixed effect model. The results of the study show that there is a convergence of sigma, absolute beta and conditional beta convergence between ASEAN upper middle-income countries. It is known that the FDI variable has a positive and significant effect, while trade openness has a negative and insignificant effect, and corruption has a positive but insignificant effect on economic growth.



Keywords: Economic Growth, Middle Income Trap, Sigma Convergence, Absolute Beta Convergence, Conditional Beta Convergence

INTRODUCTION

The global economy faces various challenges such as crises, geopolitical conflicts, and climate instability, which hinder the achievement of the 2030 Sustainable Development Goals (SDGs). The SDGs are global goals set by the United Nations to address economic, social, and environmental issues, with a focus on human rights and equality for a sustainable future (United Nations, 2024). The 8th SDGs emphasize the importance of inclusive and sustainable economic growth as the basis of global development, so many countries make it a major focus in economic development studies (Hossain et al., 2022).

Many countries still struggle to achieve sustainable growth because they are trapped in the "Middle Income Trap" (MIT), which is a condition in which developing countries fail to transition from middle to high incomes, thus hindering long-term economic progress (Maryanti et al., 2023). According to Felipe, a country is considered stuck in MIT if it does not manage to rise to the next income level within a certain time limit: 28 years for lower-middle-income countries to become upper-middle-middle, and 14 years for upper-middle-income countries to achieve high-income (Pensaengon, 2022).

Based on the World Bank classification (2018), countries are divided into four income categories according to GNI per capita. The Asian region, despite contributing significantly to global GDP, faces the risk of being trapped in the Middle-Income Trap due to challenges such as inequality, low innovation, and productivity, including in ASEAN countries (Simanjuntak, 2024). ASEAN, as a forum for Southeast Asian economic cooperation, is experiencing rapid growth thanks to its economic diversity and natural resources. The World Bank groups the 10 ASEAN countries into three income categories: lower middle, upper middle, and high. Lower Middle-Income (Cambodia, Laos, Myanmar, Vietnam), Upper Middle-Income (Indonesia, Malaysia, Philippines, Thailand), and High-Income (Singapore, Brunei Darussalam).

Upper-middle-income ASEAN countries are in focus because they are at a crucial stage towards developed country status. Challenges such as slow technology adoption, limited economic reforms, and institutional weaknesses are hampering this transition. Four countries of Indonesia, Malaysia, the Philippines, and Thailand are trapped in the Middle-Income Trap and face major obstacles to achieving high incomes.



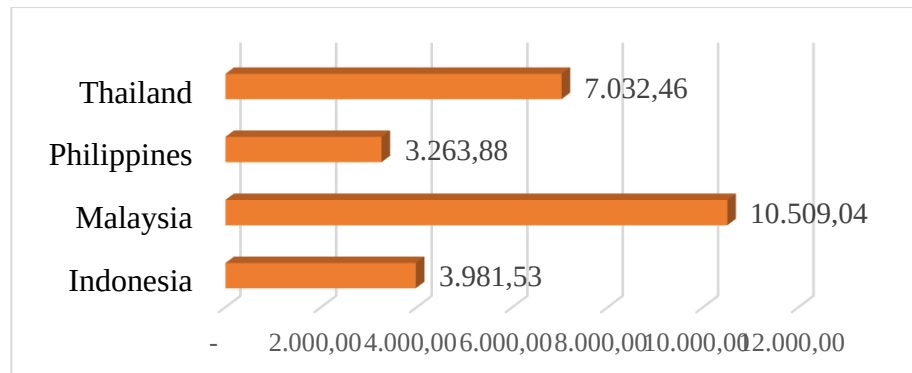
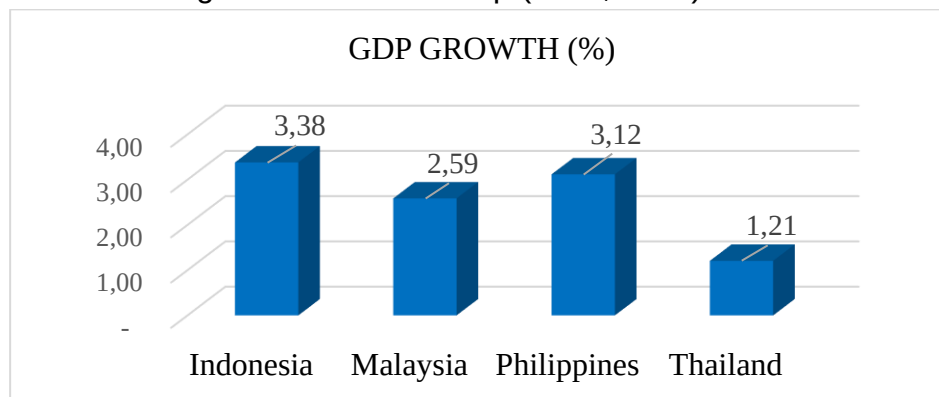


Figure 1 Graph of Average GDP Per Capita of MIT Countries in the "Upper Middle-Income" category of ASEAN in 2017-2021 (US\$)

Source: Word Bank, data processed

Figure 1 shows the difference in per capita income in the four upper-middle-income ASEAN countries trapped by MIT. Malaysia has the highest income, followed by Thailand, Indonesia, and the Philippines. This gap reflects differences in welfare levels, and despite its superiority, Malaysia still faces structural challenges to becoming a high-income country. High-income countries generally experience slow growth because they have approached full employment. However, upper-middle-income ASEAN countries still have room for growth, as long as they are able to overcome structural barriers and increase productivity and innovation to get out of the MIT trap (Aulia, 2017).



Picture 1 Chart of the average economic growth of MIT countries in the "Upper Middle-Income" category of ASEAN in 2017-2021 (Percent)

Source: Word Bank, data processed

The graph shows that despite lower incomes, Indonesia and the Philippines recorded the highest average economic growth among ASEAN countries that are stuck in MIT. This opens up opportunities for acceleration of convergence, as long as the growth can be maintained consistently. Malaysia and Thailand experience slowing economic growth despite having the highest per capita income. This reflects structural barriers such as low technology adoption, productivity, and foreign investment. Economic reforms are needed to increase competitiveness, diversify sectors, and strengthen innovation to encourage convergence.

Convergence is a theory that states that developed and developing countries tend towards the same level of well-being (Barro, 2015). There are two types of convergence: sigma (σ), which measures the reduction of income gaps, and beta (β), which shows the ability of poor countries to grow faster than developed countries (catch-up effect). Beta convergence can be analyzed by considering factors that affect the economic growth of underdeveloped countries.

The catching up effect states that developed countries have limited growth potential because their incomes are already stable, while developing countries still have a great opportunity to increase incomes and reach a break-even point through investments that drive economic growth (Apridar Et al. 2019). The difference in economic outcomes between countries is influenced by various factors such as natural resources, quality of human resources, technology, and productivity. The role of government, economic policy, and the level of openness and global integration also determine a country's chances of achieving economic progress.

Upper-middle-income ASEAN countries are vulnerable to global turmoil, so they need wise policies and governance. Strategies such as economic diversification, increased competitiveness, infrastructure development, and technological innovation are needed to encourage economic convergence and sustainable and inclusive growth, in line with the SDGs 2030 targets. Success in getting out of MIT depends on a variety of growth factors in each country.

According to neo-classical and endogenous theories, Foreign Direct Investment (FDI) can drive economic growth by increasing capital accumulation and bringing in new technologies, especially in developing countries that have higher investment and technology needs than developed countries (Iman & Wahyudi, 2024). Foreign Direct Investment (FDI) is a cross-border flow of capital carried out by companies, individuals, or governments (Purnomo & Mudakir, 2019). FDI plays an important role in encouraging economic development and growth by creating new capital and increasing output, and



has been proven to have a significant positive impact on economic growth presented in publications. Yuliana et al. (2023).

Although FDI is generally considered positive, studies Andrawina et al. (2024) show that FDI can have a negative impact on economic growth, especially if it is focused on extractive sectors that cause natural resource exploitation and environmental degradation. In addition, competition from foreign companies in the domestic market can depress local players and negatively impact long-term growth.

Globalization is driving increased FDI and trade openness, which allows countries to expand market access and drive economic growth. WTO policies also support by reducing international trade barriers such as tariffs, quotas, and administrative procedures (Hossain et al., 2022). According to the World Bank (2024), trade openness is measured by the ratio of total exports and imports to GDP (% of GDP). The higher this value, the greater a country's participation in international trade.

According to Dominick (2014), trade openness is believed to encourage economic development by allowing countries to export products based on resource superiority and import goods that are difficult to produce efficiently. Based on Heckscher-Ohlin's theory, trade openness helps countries overcome resource limitations through international trade (Setiawan, Darmawan, et al., 2023).

Thus, the H-O theory provides a strong understanding of how trade openness leads to high economic growth, through the efficient use of factors of production and the utilization of specialization in the production of profitable goods and services. The publication Duong et al. (2022) dan Iman & Wahyudi (2024) support of the idea that trade openness has a positive effect on economic growth. However, research and found the opposite result Nova et al. (2019) and Elfaki et al. (2021) namely trade openness is negatively correlated with economic growth, where trade openness actually reduces economic growth.

Studies show that FDI and trade openness play an important role in driving economic growth, but still require the support of governments and non-governmental institutions. Corruption is a major obstacle because it slows down capital accumulation, reduces the efficiency of resource utilization, and reduces investor interest. Therefore, the eradication of corruption is an important key in achieving the goals of the SDGs and sustainable economic development (Ichvani & Sasana, 2019). The Corruption Perception Index (GPA) Transparency Internasional (2023) measures the level of corruption of a country on a scale of 0–100, where a high score indicates low corruption. Corruption is seen as a major challenge in economic development and growth. However, the link



between corruption and economic growth is still a debate among researchers and policymakers, with two different views on its impact (Amoh Et al., 2022).

There are two views on the impact of corruption on economic growth. The first view, "sands the wheels", Damanik & Marta (2023) and Alfada (2019) states that corruption stifles investment, lowers productivity, and distorts the allocation of resources, thereby worsening economic growth. On the other hand, the second view, "grease the wheels", Darmawati et al. (2021) and Saha & Sen (2021) argues that corruption can speed up bureaucratic processes and support the efficiency of private projects, thereby actually encouraging economic growth.

Previous studies have shown different results regarding the convergence of economic growth in ASEAN. Siahian et al. (2023) found the existence of σ -convergence and β -convergence, while Atmasari et al. (2020), concluded the opposite. These differences in findings are the basis for the importance of further research on convergence and factors that affect economic growth.

This study aims to evaluate whether in the long term the gap between ASEAN's upper middle-income countries will narrow (convergence), as well as whether these countries are able to catch up with high-income status. In addition, this study also examines the influence of FDI, Trade Openness, and Corruption on the convergence process, considering that there are still limited similar studies on the same object, location, and time period.

LITERATURE REVIEW

Economic Growth Theory

The Neo-Classical theory of economic growth by Robert Solow explains that growth is influenced by capital stocks, labor, and technology (as exogenous variables). Although this model shows how these factors interact to increase output, it is considered less comprehensive because it does not integrate technological developments into the growth process as an endogenous variable (Mankiw, 2010).

The endogenous growth theory pioneered by Paul Romer and Robert Lucas states that economic growth is driven by internal factors, such as investment in human resources, technology, and innovation. This theory also emphasizes the importance of the role of government in supporting long-term growth through economic policies, infrastructure, political stability, as well as support for innovation and market openness (Dritsaki & Dritsaki, 2020).



The convergence theory put forward by Robert Solow in 1956 highlights the opportunities of lagging countries to catch up with them through faster economic growth. If developing countries grow more rapidly, the income gap between countries could narrow, thus encouraging long-term economic stability (Ramadhana et al., 2023).

Foreign Direct Investment (FDI) Theory

The Neo-Classical theory of economic growth emphasizes that long-term growth is influenced by the accumulation of capital, labor, and technology as exogenous factors, where FDI plays an important role in strengthening production through funding and technology transfer, especially for developing countries. However, the downside is that it does not explain the innovation process internally. In contrast, endogenous growth theory emphasizes the role of internal factors such as technology, human resources, and governance, and sees FDI as a driver of growth through technology transfer that is effective if supported by healthy and low-corruption institutions. (Supriadi, 2015)

Heckscher-Ohlin Production Factor Theory (H-O)

The modern international trade theory of Heckscher-Ohlin (1933) explains that trade between countries occurs due to differences in opportunity costs, which are influenced by variations in the proportions of factors of production. The state will focus on producing goods that use abundant and cheap production factors, thereby creating a competitive advantage (Ibrahim, 2021).

Corruption

The problem of the impact of corruption on economic growth gives rise to two different views: grease the wheels, which considers corruption to facilitate business and overcome bureaucracy, and sand the wheels, which considers corruption to actually hinder efficiency, damage policies, reduce the quality of public services, and worsen economic inequality.

RESEARCH METHODS

Research Location

The object of this research is 10 ASEAN countries that are included in the Upper Middle-Income category and are trapped in the Middle-Income Trap (MIT), with the time in the research process taken from 2013 to 2023.



Data Sources and Data Types

This study uses secondary data in the form of a time series (2013–2023) and a cross section covering four ASEAN countries that are included in the Upper Middle-Income category and are trapped in the Middle-Income Trap (MIT), namely Indonesia, Malaysia, the Philippines, and Thailand. Data is obtained through documentation methods from reliable sources such as the World Bank, Transparency International, as well as other literature such as journals, theses, dissertations, and written reports. The data used are economic growth, Foreign Direct Investment (FDI), Trade Openness, corruption.

Data Analysis

This study uses sigma convergence (σ -convergence) and beta convergence (β -convergence) as the established analysis method. In addition, the panel data regression method was applied to analyze the influence of FDI, Trade Openness and Corruption on economic growth in ASEAN Upper Middle-Income countries:

a. Sigma Convergence

Sigma convergence is measured by the coefficient of variation in per capita income between regions/countries. Sigma convergence occurs when the per capita income disparity between countries gradually narrows over time. The following method is used to calculate the coefficient of variation as a measuring tool, using the formula below:

$$CV = \frac{\sqrt{\frac{\sum(Y_i - \bar{Y})^2}{n}}}{\bar{Y}} \times 100\%$$

Source: (Ramadhana) Et Al. , 2023)

Information:

- CV : Coefficient of variation over a given period
 y_i : GDP per capita of each country in a given period
 $\bar{Y}$: Average of GDP per capita
 N : Number of Upper Middle-Income countries in ASEAN

There are categories to explain the results of CV calculation as follows:

- The CV value < 0.3 illustrates low inequality between countries.
- The CV value is between 0.3-0.7, illustrating moderate inequality between countries.



- c. The CV value > 0.7 illustrates inequality between countries.

b. Beta Convergence

1. Absolute Beta Convergence

Absolute convergence analysis assesses whether countries with low initial per capita income can grow faster than high-income ones, resulting in convergence. Beta convergence is reflected in a regression coefficient of less than one (<1), indicating the direction towards a steady state. This test uses panel data with the dependent variable of per capita income growth and the independent variable of initial per capita income. The absolute convergence equation is:

$$\ln\left(\frac{Y_{it}}{Y_{it-1}}\right) = \beta_0 + \beta_1 \ln(Y_{it-1}) + e_{it}$$

Source: (Ramadhana) Et Al. , 2023)

Where:

$\ln\left(\frac{Y_{i,t}}{Y_{i,t-1}}\right)$	: Per capita income growth
$(Y_{i,t-1})$	: Initial GDP per capita
Y_i	: GDP per capita at the end of the year
β_1	: Regression Coefficient
e_{it}	: Error term

2. Conditional Beta Convergence

Conditional beta convergence involves additional variables in addition to initial income, such as FDI, trade openness, and corruption, which are thought to affect economic growth. This convergence occurs if the regression coefficient is <1, which indicates that the country is moving towards a steady state according to its respective characteristics. To explain the concept of conditional convergence, the following equation can be used:

$$\ln\left(\frac{Y_{it}}{Y_{it-1}}\right) = \beta_0 + \beta_1 \ln(Y_{it-1}) + \beta_2 \ln(X_{1it}) + \beta_3 \ln(X_{2it}) + \beta_4 \ln(X_{3it}) + e_{it}$$

Source: (Ramadhana) Et Al. , 2023)

Where:

$\ln\left(\frac{Y_{i,t}}{Y_{i,t-1}}\right)$	: Per capita income growth
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$(Y_{i,t-1})$	: Initial per capita income (previous year)
X_1	: Foreign Direct Investment (FDI)
X_2	: Trade Openness (TO)
X_3	: Corruption
$\beta_1, \beta_2, \beta_3$	: Constant
i	: Cross section
t	: Time series
e_{it}	: Error term

Once the beta convergence has been successfully estimated, the next step is to calculate the approximate speed of convergence, using the following equation:

$$\lambda = \frac{-\ln(1 + \beta)}{T}$$

Where, λ is the coefficient of the predictor variable and T is the duration of the time period. Then, when the convergence speed can be estimated, the next stage is to determine the time with the half-time convergence model. Here are the equations: β

$$HL = \frac{-\ln(2)}{\lambda}$$

Half-time indicates the time it takes for an area to reduce the gap to half of the initial value towards a steady state.

RESULTS AND DISCUSSION

Sigma Convergence Test Analysis and Results

Sigma convergence aims to measure economic inequality between countries in a certain period through the coefficient of variation (CV). The CV value indicates the dispersion rate of per capita income, with the categories of low ($CV < 0.3$), medium ($0.3 - 0.7$), and high ($CV > 0.7$). The smaller the CV, the smaller the economic gap, which indicates the occurrence of sigma convergence.



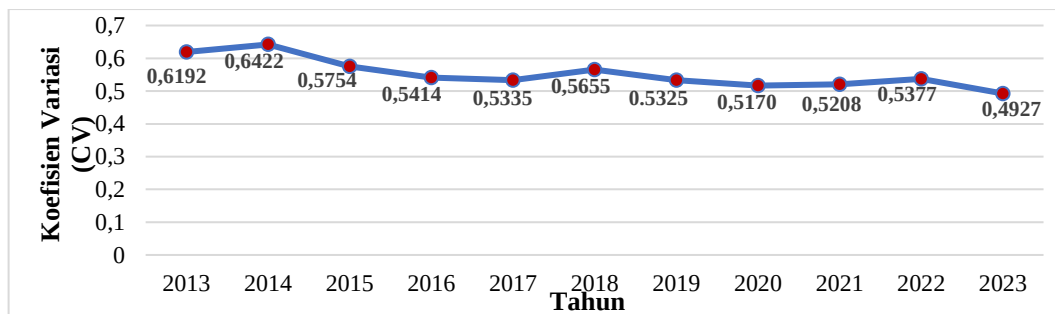


Figure 3 Graph of the Value of the Coefficient of Variation (CV) of Convergence Sigma of Economic Growth in 4 Upper Middle-Income ASEAN Countries for the Period 2013-2023

Source: data processed, Author

The graph shows that the value of the coefficient of variation (CV) between ASEAN Upper Middle-Income countries fluctuated during 2013–2023, from 0.6129 in 2013, rose to 0.6422 in 2014, and then tended to decrease to 0.4927 in 2023. This downward trend indicates the occurrence of sigma convergence, where economic inequality between countries is narrowing. All CV values were in the category of moderate inequality (0.3–0.7), reflecting the efforts of these countries to catch up with High-Income countries. The average GDP per capita also increased from US\$5,769.90 in 2013 to US\$6,810.57 in 2023. The highest economic growth was achieved by the Philippines (5.03%), followed by Indonesia (4.34%) and Malaysia (4.14%), while Thailand had the lowest (1.87%). The Philippines' growth was driven by the services sector, especially trade. Overall, these results show that ASEAN Upper Middle-Income countries are getting closer to equitable prosperity and potentially getting out of the Middle Income Trap.

Analysis of Absolute Beta Convergence and Conditional Beta Convergence Test Results

Absolute Beta Convergence Analysis

Panel Data Model Selection

Table 1 Chow Test Results and Hausman Test

Effects Test	Chi-Square Statistic	Prob.
Chow Test	9.192111	0.0268

Hausman Test	9.022668	0.0027
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Source: processed data, *Eviews 12*

Based on the results of the Chow test and the Hausman test from the table above, the probability value of the Chow test is 0.0268 and the probability value of the Hausman test is 0.0027. Both values were smaller than the significance level of 0.05, indicating that the Fixed Effect Model (FEM) was more suitable than the Common Effect Model (CEM) and the Random Effect Model (REM). Therefore, in this study, the FEM model was chosen as the most suitable approach for panel data regression analysis, so that a Lagrange Multiplier (LM) test is not needed because the FEM model is proven to be superior.

Absolute Beta Convergence Results

Table 2 Absolute Beta Convergence Results

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	-1.996853	0.719727	-2.774459	0.0084
GDP_T_1_	0.234799	0.083699	2.805269	0.0078

Source: processed data, *Eviews 12*

Based on table 2, the absolute beta convergence equation in the Upper Middle-income ASEAN countries is formed, as follows:

$$\ln\left(\frac{Y_{it}}{Y_{it-1}}\right) = -1.996853 + 0.234799(Y_{it-1}) + e_{it}$$

The variables in the equation above represent the previous year's GDP per capita (initial GDP per capita). Based on a series of tests to select the panel data regression model, the correct model is FEM. The value of the initial GDP per capita coefficient of 0.234799 is less than 1 ($0.234799 < 1$) and statistically significant at the level of 5%. This reflects the absolute beta convergence in ASEAN Upper Middle-Income countries during the 2013-2023 period. GDP_{t-1}

Absolute beta convergence occurs when countries with low initial GDP per capita grow faster than countries with higher incomes, reflecting a catching-up effect. These results support the absolute convergence hypothesis and suggest that low-income



countries in the Upper Middle-Income ASEAN region have the potential to catch up with more developed countries.

Conditional Beta Convergence Analysis

Panel Data Model Determination

The determination of the panel data regression model is carried out through several stages of testing, starting from the Chow Test to determine the best model between *the Fixed Effect Model* (FEM) or *the Common Effect Model* (CEM). This test hypothesis states that FEM is chosen if the probability of Cross-section Chi-square is less than the significance level of $\alpha = 0.05$. On the other hand, CEM is chosen if the probability exceeds the level of significance.

Table 3 Chow Test Results

Effects Test	Statistics	Prob.
Cross-section Chi-square	8.461794	0.0374

Source: processed data, *Eviews 12*

The results of the Chow test showed a probability value of 0.0374 (< 0.05), so the appropriate model for panel data regression analysis is the Fixed Effect Model (FEM). The Hausman test could not be performed because the number of cross-sections (4 countries) was less than the total independent variables or study period, so it did not meet the test requirements. In addition, the addition of observation units is not possible due to the limitations of research objects in ASEAN Upper Middle-Income countries and the availability of data, especially on corruption variables. Therefore, FEM was chosen as the most suitable estimation model.

Conditional Beta Convergence Results

Table 4 Conditional Beta Convergence Results

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	-2.513504	1.375332	-1.827562	0.0759
GDP_T_1_	0.262546	0.083730	3.135639	0.0034
FDI	0.035023	0.016677	2.100001	0.0428



YOUR	-0.008208	0.118101	-0.069504	0.9450
Corruption	0.075664	0.204843	0.369374	0.7140

Source: processed data, *Eviews 12*

The variables are GDP per capita the previous year (initial GDP per capita), FDI is a foreign direct investment variable, TO is a trade openness variable, and a corruption variable. Based on the table above, the conditional beta convergence equation in Upper Middle-Income ASEAN countries can be stated as follows: GDP_{t-1}

$$\ln\left(\frac{Y_{it}}{Y_{it-1}}\right) = -2.602630 + 0.266913(Y_{it-1}) + 0.032925(FDI_{it}) + 0.003781(TO_{it}) + 0.076166(KORUPSI_{it}) + e_{it}$$

From the results of the above estimate, the initial per capita income coefficient of 0.266913, which is smaller than 1 ($0.266913 < 1$), shows that there is a conditional beta convergence between Upper Middle-Income countries in ASEAN. A probability value smaller than $\alpha = 0.05$ indicates that it has a significant effect on economic growth. The coefficient of this initial GDP per capita is larger than the absolute convergence calculation, which means that variables other than the conditional beta convergence model have contributed to the acceleration of economic growth convergence in ASEAN's Upper Middle-Income countries during the 2013-2023 period. This condition is in line with the conditional beta convergence hypothesis and is supported by publications and . Holifah Et Al. (2024) Squirting Et al. (2017).

Analysis of Panel Data Test Results and Factors Influencing the Acceleration of Economic Growth Convection

1. Classic Assumption Test

Table 5 Multicollinearity Test Results

	GDP_T_1_	FDI	YOUR	CORRUPTION
GDP_T_1_	1.000000	0.066143	0.813056	0.795327
FDI	0.066143	1.000000	0.095771	0.212685
YOUR	0.813056	0.095771	1.000000	0.543889



CORRUPTION	0.795327	0.212685	0.543889	1.000000
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Source: processed data, *Eviews 12*

From the table above, it shows that all correlation values between independent variables are below 0.90, which means that there is no evidence of multicollinearity in the regression model used.

Table 6 Heterokedasticity Test Results

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	0.398157	0.421312	0.945042	0.3509
GDP_T_1_	-0.027609	0.025649	-1.076388	0.2889
FDI	0.000389	0.005109	0.076046	0.9398
YOUR	-0.031266	0.036178	-0.864205	0.3932
Corruption	-0.001363	0.062750	-0.021724	0.9828

Source: processed data, *Eviews 12*

Based on the results of the Glejser test, all variables have a probability value above the significance level of $\alpha = 0.05$. This shows that there is no evidence of heteroscedasticity problems because the residual variance in the regression model is constant, or homoscedasticity.

2. Hypothesis Test

Table 7 Determination Coefficient Test Results

Category	Value
R-squared	0.314224

Source: processed data, *Eviews 12*

The table above shows the R-squared value of 0.314224. This indicates that the independent variables, namely initial per capita income, FDI, Trade Openness, and Corruption, contributed 31.4% in explaining changes in economic growth as tied variables. Meanwhile, the remaining 68.6% is explained by other variables in this research model.

Table 8 Test Results F

F-statistics	2.356471
Prob(F-statistic)	0.043359

Source: processed data, Eviews 12

Based on the F-statistical probability value of $0.043359 < 0.05$, it was rejected and accepted. This means that independent variables (FDI, Trade Openness, and Corruption) have a simultaneous effect on dependent variables (economic growth) in ASEAN Upper Middle-Income countries for the 2013-2023 period. H_0H_a

Table 9 T Test Results

Variable	t-statistic	Prob.	Curiosity
GDP_T_1_	3.135639	0.0034	Significant
FDI	2.100001	0.0428	Significant
YOUR	-0.069504	0.9450	Insignificant
Corruption	0.369374	0.7140	Insignificant

Source: processed data, Eviews 12

From the results of the T test, it can be concluded that the results of each variable can be described as follows:

1. The initial per capita income variable (GDP_T_1_) has a probability value of 0.0034 where the value is $< \alpha = (0.05)$, so it is rejected and accepted. This means that H_0H_a *initial per capita income* has a significant effect on *economic growth*.
2. The variable Foreign Direct Investment (FDI) has a probability value of 0.0428 where the value is $< \alpha = (0.05)$, so it is rejected and accepted. This means that FDI has a significant effect on H_0H_a *economic growth*.
3. The variable Trade Openness (TO) has a probability value of 0.9450 where the value is $> \alpha = (0.05)$, so it is accepted and rejected. This means that H_0H_a *trade openness* does not have a significant effect on *economic growth*.



4. The Corruption variable has a probability value of 0.7140 where the value is $> \alpha = (0.05)$, so it is accepted and rejected. This means that $H_0 H_a \text{corruption}$ has no significant effect on *economic growth*.

3. Factors Influencing the Acceleration of Economic Growth Convergence

The Influence of Direct Investment (FDI) on Economic Growth

The results of the conditional beta convergence model estimate show that FDI has a positive and significant effect on economic growth in Upper Middle-Income ASEAN countries, with a coefficient of 0.262546 and a probability of 0.0034. FDI plays an important role in overcoming domestic capital constraints through technology transfer, innovation, and improved production efficiency. The positive impact includes job creation, increased productivity and quality of human resources, as well as expanding global market access that increases the competitiveness of recipient countries in the international arena.

These findings are in line with neo-classical theory, which highlights the role of FDI in driving economic development through increased productivity and job creation. These contributions come from technology transfer, adoption of more efficient production methods, product innovation, and strengthening research and development (R&D) activities. Therefore, FDI is particularly relevant for developing countries that need investment and technology to accelerate their economic growth (Iman & Wahyudi, 2024). The effectiveness of FDI depends on the recipient's internal factors such as stability, infrastructure, and workforce skills. The government plays an important role in directing FDI to strategic sectors to support sustainable development. Without good management, FDI can be detrimental to domestic industries. Therefore, developing countries need to create a healthy investment climate through transparent policies and strong law enforcement. With proper management, FDI can boost economic growth and strengthen domestic investment (Wang et al., 2022).

According to CNBC Indonesia Research (2023), Southeast Asia is an attractive region for foreign investors due to its large population and high economic growth amid global uncertainty. In ASEAN's Upper Middle-Income countries, FDI promotes industrial competitiveness through technology transfer and innovation, as well as increasing exports, economic diversification, and infrastructure development. This accelerates economic transformation towards developed country status and out of the middle-income trap. These findings are in line with



studies Yuliana et al. (2023) dan Shara & Khoirudin (2024) which show the significant influence of FDI on economic growth.

4 The Effect of Trade Openness on Economic Growth

The results of the conditional beta convergence model estimate show that trade openness has a negative and insignificant effect on economic growth in Upper Middle-Income ASEAN countries, as reflected by the coefficient of -0.069504 and the probability of 0.9450. These findings contradict Heckscher-Ohlin's theory that trade openness is supposed to drive economic growth. The unpreparedness of these countries in the face of global competition and the dominance of primary commodity exports with low added value are the main causes. Exports of raw materials do not create significant jobs, while the export-import imbalance triggers trade deficits, currency weakness, inflation, and a decline in people's purchasing power.

The results of this study are in line with the findings of Anindynta (2023), who stated that trade openness does not have a significant impact on economic growth in developing countries. Dependence on primary commodity exports makes these countries vulnerable to global price fluctuations. Falling commodity prices can lead to a decline in export receipts and a deterioration in the trade balance, which ultimately hinders economic growth. Therefore, policies that encourage the strengthening of domestic value-added products are needed to reduce dependence on raw commodities and optimize the benefits of trade openness.

5. The Influence of Corruption on Economic Growth

Corruption shows a positive but insignificant influence on economic growth in ASEAN Upper Middle-Income countries, with a coefficient of 0.369374 and a probability of 0.7140. This indicates that corruption control has not been strong enough to drive growth, as well as that there are other factors outside of the research variables that affect the results. These findings support the (Asante Et Al. , 2022) "*Sand the Wheels*" theory, which states that corruption hinders economic growth through decreased efficiency and resource leakage. Even so, the impact is not significant due to the weak effectiveness of anti-corruption policies in ASEAN Upper Middle-Income countries. The region's Corruption Perception Index shows a fluctuating trend, while GDP per capita remains increasing, indicating that



other factors are more dominant in driving growth. Efforts to eradicate corruption are hampered by political intervention, complicated bureaucracy, and weak legal systems, so a more effective and careful corruption control policy is needed so as not to hinder economic development.

Convergence Speed and Half-Time Convergence

The measurement of the convergence velocity and the time to halve the gap towards the steady state is based on the coefficients of absolute and conditional beta convergence analysis. This reflects the ability of the lagging countries in ASEAN to catch up with developed countries.

Table 10 Results of Speed Convergence and Half-life Convergence

Convergence	Convergence Speed (%)	Half-life (Years)
Absolute Beta Convergence	1,9%	36 years old
Conditional Beta Convergence	2,1%	32 years old

Source: processed data, author

The results of the estimates show that at absolute beta convergence, countries with low GDP per capita need a minimum of 1.9% growth per year and 36 years to halve the economic gap. Meanwhile, in conditional beta convergence, with the influence of FDI, trade openness, and corruption, the convergence speed increased to 2.1% per year, so the time needed was reduced to 32 years. This can be compared to the study Squirting Et al. (2017), which found that the absolute beta convergence rate in ASEAN Plus Three countries (APT) is 2 percent per year and it takes 33 years for a country with low GDP per capita to approach a *half-steady state*. The study in ASEAN Plus Three (APT) countries showed an absolute beta convergence rate of 2% per year with a time of 33 years, slightly faster than the results of this study which was only 1.9% and took 36 years. Meanwhile, the APT conditional beta convergence rate was also 2% per year (33 years), almost the same as this study's 2.1% per year (32 years). This shows that the independent variables in this study help accelerate the process of economic convergence in Upper Middle-Income ASEAN countries.



CONCLUSION

This study analyzes the convergence of per capita income growth in 4 ASEAN Upper Middle-Income countries for the period 2013–2023 and finds that there is economic convergence in the region. This is reflected in the downward trend of coefficient of variation (CV) which shows sigma convergence as well as the results of absolute and conditional beta convergence estimates which show the value of the coefficient <1 . Conditional beta convergence estimates reveal that FDI has a positive and significant effect on economic growth, while trade openness and corruption are insignificant. In terms of velocity, it takes 36 years to reach a half-steady state at absolute beta convergence (1.9% growth per year) and 32 years at conditional beta convergence (2.1% growth per year).

SUGGESTION

The results of this research analysis produced several important suggestions for ASEAN Upper Middle-Income countries. First, the downward trend of sigma convergence shows a reduction in inequality that needs to be maintained to encourage equitable development and exit the middle-income trap. Second, absolute and conditional convergence emphasizes the importance of the government's role in optimizing sustainable development policies, including strengthening the export-import sector, increasing transparency, and investing in infrastructure, education, and technology. Third, creating a conducive investment climate, improving regulations, and strengthening public governance and accountability are key to encouraging FDI, increasing trade openness, and minimizing corruption. Finally, based on the calculation of beta convergence, it takes 36 years to reach a semi-steady state with a growth of 1.9% (absolute convergence), and 32 years with a growth of 2.1% (conditional convergence). This reflects the importance of optimizing factors such as FDI, trade openness, and good governance to accelerate the convergence process and encourage economic growth towards high-income country status.

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