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Macroeconomic and Institutional Determinants of ASEAN Middle Income Trap: Evidence from 2014–2023

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Abstract
This study aimed to analyze the effect of Foreign Direct Investment (FDI), Human Development Index (HDI), Corruption Perception Index (CPI), and inflation on Gross National Income (GNI) per capita in 11 ASEAN countries during the period 2014–2023. In addition, this study evaluates the differences in GNI levels between countries that remain trapped in the Middle Income Trap (MIT) and those that have successfully escaped it. The method used was panel data regression with the Random Effect Model approach. The results showed that FDI and HDI have a significant positive effect on GNI per capita, whereas CPI has a significant negative effect. Inflation has no significant effect. The MIT dummy variable also has a significant negative effect, indicating that countries that remain in the MIT tend to have lower per capita income levels compared to countries that have successfully escaped. These findings reinforce the importance of the role of institutional quality and human development in increasing national income. This study contributes to the development economics literature by highlighting the importance of macroeconomic and institutional variables in explaining income disparities in the ASEAN region.

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Introduction

Gross National Income (GNI) is a key indicator in macroeconomics that describes a country's level of prosperity. GNI includes all income earned by citizens both domestically and abroad, which is an important measure in the classification of global development (Sahid & Purnomo, 2024). According to the World Bank classification, countries are divided into four categories based on the value of GNI per capita, namely low income, lower-middle income, upper-middle income, and high income. Indonesia, in 2023, had a GNI per capita of US$4,810, which placed it in the upper-middle income

category. However, despite the growth, Indonesia is in a critical phase of escaping the Middle Income Trap (MIT), which requires a more holistic and sustainable development strategy.

The MIT occurs when a country fails to make the transition from middle-income status to a high-income country. Countries trapped in the MIT typically experience economic stagnation, low productivity, and difficulty developing an economy based on innovation and technology (Ang & Dong, 2023). ASEAN countries such as Indonesia, Malaysia, Thailand, Vietnam, and the Philippines continue to face this challenge, while countries such as Singapore and Brunei have successfully exited MIT. MIT typically occurs due to dependence on the primary sector and low economic diversification that hinders the structural transformation needed to improve productivity and human resource quality (Putri & Purnamawati, 2024).

Recent empirical studies demonstrate that structural and institutional factors play a decisive role in determining whether a country can successfully transition out of the middle-income trap. Evidence from middle-income and developing economies shows that countries which escape the trap are characterized by sustained investments in human capital, innovation capability, and institutional quality, particularly governance effectiveness and regulatory capacity (Ang & Dong, 2023; Hamilton & de Vries, 2025). Conversely, continued dependence on primary and low value-added sectors, combined with weak institutional frameworks, significantly increases the risk of prolonged income stagnation and delayed structural transformation (Bahrami et al., 2023). In the ASEAN context, recent journal-based evidence emphasizes that middle-income countries must prioritize technology-driven economic transformation, improve the quality of human resources, and implement comprehensive institutional reforms to achieve productivity-led growth and successfully transition toward high-income status (Ang & Dong, 2023).

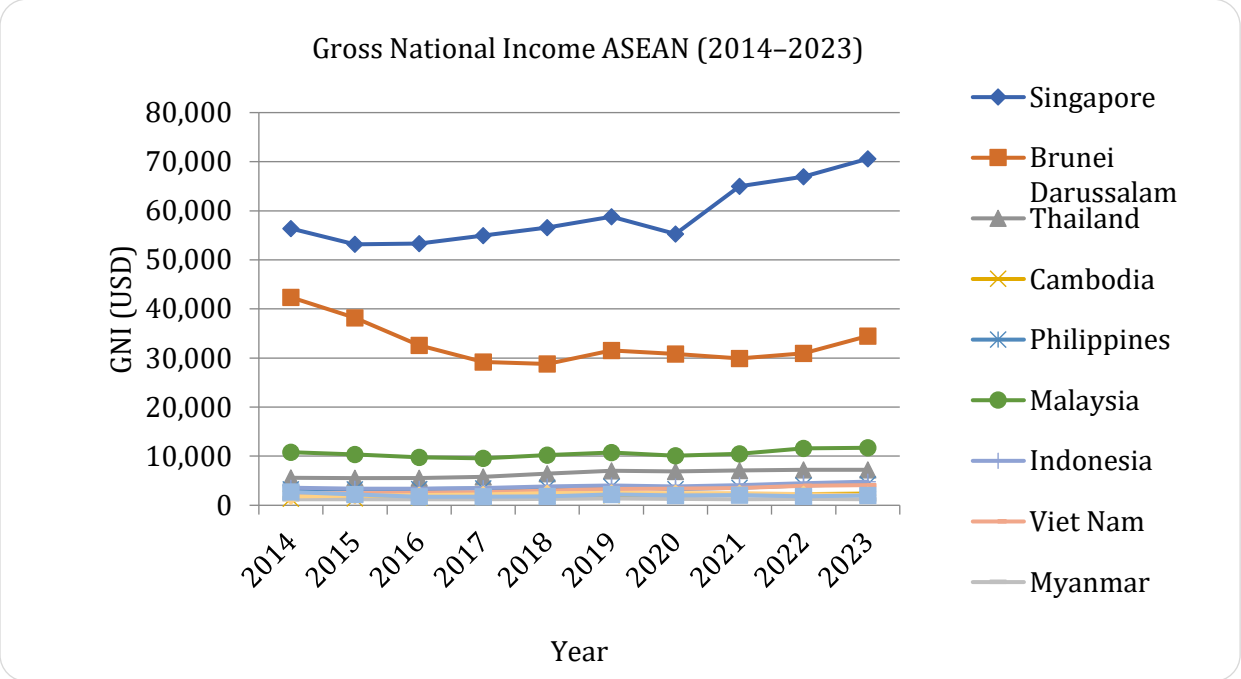

Fig. 1. ASEAN GNI Growth Trend of 2014-2023
Source: World Bank processed data (2023)

Based on ASEAN GNI data for 2014–2023, as illustrated in Figure 1, it is evident that Singapore and Brunei Darussalam have successfully moved beyond the MIT, supported by relatively stable GNI growth that surpasses the high-income threshold. Singapore has consistently maintained an upward

trajectory in its GNI, whereas Brunei, despite experiencing some fluctuations, remains in the high-income bracket. In contrast, countries such as Indonesia, Malaysia, Thailand, Vietnam, and the Philippines remain in the MIT, having insufficient economic growth to break through. These countries, therefore, require development strategies that place greater emphasis on innovation, technological advancement, and institutional reforms. Meanwhile, countries such as Myanmar, Laos, Cambodia, and Timor-Leste have even bigger structural challenges, as they remain within the lower-middle income category and struggle to achieve sustainable growth.

ASEAN nations have established long-term visions to escape MIT and attain developed country status. Indonesia, through its *Indonesia Emas 2045* blueprint, prioritizes human capital development, industrial downstreaming, digitalization, and green economic transformation. Malaysia's *Wawasan Kemakmuran Bersama 2030* prioritizes innovation, digital expansion, and inclusive economic equality as pathways to high-income status. Thailand, under the *Thailand 4.0* framework, promotes technology-driven growth and value-added industries, while Vietnam's 2045 Vision highlights the role of the digital economy, institutional reform, and innovation. The Philippines, through *AmBisyon Natin 2040*, focuses on productivity, infrastructure development, and competitiveness. At the same time, Myanmar, Laos, Cambodia, and Timor-Leste emphasize strengthening human resources, regional connectivity, and accelerated development programs. Having already escaped MIT, Singapore and Brunei are now focusing on sustaining their advanced economy status through innovation, environmental sustainability, and global competitiveness.

Within this framework, this study aims to examine the extent to which macroeconomic and institutional factors, such as Foreign Direct Investment (FDI), Human Development Index (HDI), Corruption Perception Index (CPI), and inflation, affect Gross National Income (GNI) and contribute to the persistence of the middle-income trap (MIT) in ASEAN countries. Uneven and low-quality FDI flows can limit technology and skills transfer, hindering productivity growth despite high capital inflows, while a stagnant HDI reflects a lack of human resource capacity that restricts innovation and technological adoption. Poor governance and high corruption (low CPI) undermine the effectiveness of investment and investor confidence, while high or unstable inflation damages the investment climate and purchasing power, all of which constrain GNI growth. By incorporating a dummy variable (1 = countries still trapped in MIT, 0 = countries that have exited), this study not only estimates the direct effects of FDI, HDI, CPI, and inflation on GNI, but also captures the differing interactions of these factors across countries, offering sharper insights into policy strategies to escape the trap. The novelty of this study lies in integrating macroeconomic and institutional–development indicators within a unified analytical framework and employing a panel logistic regression model (logit(P(MIT=1))) to identify the probability of ASEAN countries remaining in or escaping the MIT. This approach extends beyond previous studies that focused on single determinants or used linear estimation by highlighting the interdependence between human capital, institutional quality, and macroeconomic stability, thereby filling an important gap in empirical research and providing actionable policy implications for sustainable economic transformation in ASEAN.

Literature Review

Previous studies have found that human resource quality, macroeconomic stability, institutional quality, and the nature of foreign direct investment (FDI) all play a central role in determining a country's ability to increase its Gross National Income (GNI) and escape the MIT. Recent cross-country evidence in Asian economies also employs dynamic panel approaches to examine macroeconomic determinants across countries. For instance, Abasimi et al. (2025) apply a Sys-GMM framework to analyze determinants of residential property prices in selected Asian countries, demonstrating the relevance of panel-based macroeconomic analysis in capturing cross-country heterogeneity.

Human development is widely recognized as a key driver of income and economic performance. Eldeib et al. (2025) incorporate HDI in regional economic analysis, highlighting its relevance in

explaining variations in economic outcomes. Gülcemal (2020) found that the Human Development Index (HDI) has a positive and significant effect on economic growth in developing countries, emphasizing the importance of improving education and health capacity in boosting national income. Similarly, inflation has been demonstrated to have a negative impact on growth, suggesting that price stability is a fundamental prerequisite for creating a conducive investment climate. Spyromitros & Panagiotidis (2022) confirmed that corruption reduces economic growth in developing countries, while Moiseev et al. (2020) highlighted the close relationship between governance quality and welfare levels (GDP per capita), implying a bidirectional link between income and institutional integrity. In contrast, recent findings revealed that FDI is insufficient to ensure a transition to high-income status. Hidayat and Yusuf (2024) also reported that FDI and empowerment indicators contribute positively to GDP, although inflation continues to have an adverse effect.

More recent studies have enriched this discussion. According to research conducted on four ASEAN economies (Malaysia, Thailand, Indonesia, and the Philippines), the persistence of the MIT is closely linked to a "middle-technology trap", in which limited technological upgrading constrains productivity and income growth. Similarly, FDI and Human Capital Development in Southeast Asia found that FDI's impact on human capital varies across countries and industries, depending on the quality of investment and the depth of local linkages. A 2025 study on higher education in ASEAN found that expanding tertiary enrollment contributes positively to per capita income, yet the gains are restricted when digital infrastructure and skill relevance are weak. Complementarily, recent panel threshold analysis (Financial Development, FDI, and Economic Growth in Low- and Middle-Income Countries, 2025) revealed that the positive effect of FDI on growth emerges only when supported by sound financial and institutional development. A regional study of eight ASEAN middle-income countries (Hidayat & Yusuf, 2024) further confirmed that FDI, HDI, and service sector expansion have a considerable influence on the MIT index, while the manufacturing sector's contribution remains limited. Southeast Asian countries may accelerate growth through comprehensive reform packages that combine institutional strengthening, human capital development, and regulatory modernization, according to policy insights from the International Monetary Fund (2020).

Building on this body of literature, the present study fills a significant research gap by integrating both macroeconomic (FDI, inflation) and institutional-developmental (HDI, CPI) indicators into a unified analytical framework to analyze the probability of ASEAN countries remaining in or escaping the middle-income trap. Unlike most prior studies, which focus on single determinants or linear estimation, this research employs a panel logistic regression model with a dummy variable (1 = countries still trapped in MIT, 0 = countries that have exited) to simultaneously assess direct effects, interaction mechanisms, and institutional moderation. This approach contributes new empirical evidence and sharper policy insights on the combination of macroeconomic, institutional, and human development strategies required for ASEAN countries to sustain GNI growth and achieve high-income status.

Method

This study employed a mixed-methods approach, combining quantitative and qualitative techniques, to explore the preferences of property developers for constructing landed housing within the Yogyakarta Urban Agglomeration and to compare them to those of millennial consumers.

Panel data regression analysis combines cross-sectional and time-series data, with cross-sectional units (countries) observed throughout multiple time periods. The dataset for this study consists of annual data from 2014 to 2023, with each observation representing one ASEAN country in a particular year. Thus, the panel considers both inter-country (cross-sectional) and inter-temporal (time-series) variations in macroeconomic and institutional indicators. The use of annual data is appropriate because macroeconomic variables such as Foreign Direct Investment (FDI), Human Development Index (HDI), Corruption Perception Index (CPI), Inflation (INF), and Gross National

Income (GNI) are typically reported and updated every year by international institutions such as the World Bank, UNDP, and Transparency International. Panel data regression is then employed to analyze the influence of these independent variables (FDI, HDI, CPI, and inflation) along with a country dummy variable on the dependent variable GNI. This structure enables a more comprehensive examination of both cross-country differences and within-country dynamics over time, allowing the study to identify how variations in macroeconomic and institutional factors affect the probability of escaping or remaining in the MIT across ASEAN countries between 2014 and 2023.

In this study, dummy variables are used to code countries in the MIT and those that have successfully escaped it. The number 1 in the dummy variable represents a country trapped in the MIT, while the number 0 represents a country that has successfully exited the MIT. Panel data regression, which uses dummy variables, can provide a clearer picture of the differences in characteristics between the two groups of countries. Therefore, the panel data regression equation in this study can be expressed as follows:

The panel data regression equation model, is:

$$GNI_{it} = \beta_{it} + \beta_1 FDI_{it} + \beta_2 HDI_{it} + \beta_3 CPI_{it} + \beta_4 INF_{it} + \beta_5 D_{it} + \varepsilon_{it} \quad (1)$$

Where GNI_{it} represents the Gross National Income of country i at time t, FDI_{it}denotes Foreign Direct Investment, HDI_{it} refers to the Human Development Index, CPI_{it} represents the Corruption Perception Index, and INF_{it} is the inflation rate, and D_{it} is the dummy variable where value of 1 for countries that remain trapped in the middle-income trap and 0 for those that have successfully escaped it. The term ε_{it} denotes the error component, capturing unobserved factors that may affect GNI across countries and over time. This specification enables the analysis of both macroeconomic and institutional factors influencing national income while accounting for the structural differences among ASEAN countries in terms of their MIT status.

Results and Discussion

The descriptive statistics in Table 1 indicate substantial variation across ASEAN countries over the period 2014–2023. FDI flows are highly volatile, with an average of 5.05% and a standard deviation of 8.58. The minimum value of –32.96 and maximum value of 34.95 point to wide cross-country disparities, capturing episodes of severe divestment as well as periods of exceptionally strong inflows. The average inflation rate of 3.15% also exhibits considerable heterogeneity, ranging from –1.47 to 31.23, suggesting that some economies faced episodes of extreme inflationary pressure. Income disparities are further evident from the *ln_GNI* distribution, with a mean of 8.53 and a range between 7.11 (minimum) and 11.16 (maximum), indicating significant gaps in income levels across ASEAN members. In terms of human development, the average HDI score of 0.72 varies between 0.557 and 0.948, reflecting differing levels of social progress. Governance indicators also differ widely, as the CPI ranges from 20 to 85, with an average of 40.69 and a standard deviation of 17.26, highlighting substantial variation in institutional quality across the region.

Table 1. Statistical Descriptive

Variable	Obs	Mean	Std. Deviation	Min	Max
ln_GNI	110	8.5337	1.1778	7.1148	11.1646
FDI	110	5.054	8.5849	-32.96	34.95
HDI	110	0.7226	0.1097	0.557	0.948
CPI	110	40.6909	17.2657	20	85
INF	110	3.1531	4.0458	-1.47	31.23
Dummy	110	0.8182	0.3876	0	1

The MIT dummy variable further shows that approximately 82% of the observations fall into the middle-income-trap category (Dummy = 1), while the remaining 18% represent countries that have successfully escaped. This distribution underscores the importance of human capital, governance quality, and macroeconomic stability as determinants of successful transition toward high-income status.

Before estimating the panel regression, a series of model specification tests were conducted to determine the most appropriate model. The results are presented in Table 2. The Chow test reports a p-value of 0.0000 (< 0.05), indicating that the Fixed Effects Model (FEM) is preferred over the Common Effects Model (CEM). Subsequently, the Hausman test yields a p-value of 0.9710 (> 0.05), which implies that the Random Effects Model (REM) is more efficient and consistent than the FEM. Therefore, the REM was selected as the most suitable model for this study.

Table 2. Model Specification Tests

Test	p-value	Decision	Selected Model
Chow Test	0.0000	Reject CEM → FEM preferred	FEM
Hausman Test	0.9710	Fail to reject REM → REM preferred	REM

As shown in Table 2, the Chow test supports the use of the Fixed Effects Model, but the Hausman test indicates that the Random Effects Model is the most appropriate estimator because its p-value exceeds the 5% significance level. This suggests that the unobserved country-specific effects are uncorrelated with the explanatory variables (FDI, HDI, CPI, and inflation). The REM is consistent with the characteristics of ASEAN economies, which share similar macroeconomic structures but differ in institutional and policy environments. Thus, adopting the REM enhances the robustness and efficiency of the estimation results used in this study.

Table 3. Regression Result

Variable	Coefficient (β)	t-statistic	t-table	Description
FDI	0.0046602	2.23	1.65	Positive
HDI	8.278623	13.78	1.65	Positive
IPK	-0.0073907	-3.25	-1.65	Negative
Inflation	-0.0005231	-0.23	-1.65	Negative
Dummy MIT	-1.18806	-4.45	-1.65	Negative
Constanta	3.802732	6.69	1.65	Positive

According Table 3, the positive and significant impact of FDI on GNI per capita reflects not only the role of investment as a growth driver but also the relevance of cross-country institutional heterogeneity in explaining income disparities and the persistence of the middle-income trap across ASEAN economies. This finding is in line with the Harrod-Domar economic growth theory, which states that investment, including foreign investment, is the main driver of capital accumulation and increasing a country's production capacity. Every 1% increase in FDI has the potential to increase GNI by around 0.47%.

Economically, FDI contributes through capital accumulation, technology transfer, and knowledge spillovers, all of which improve productivity and industrial upgrading (Demena & van Bergeijk, 2019; Le-Bao, 2025). However, the impact of FDI varies depending on institutional quality, the type of investment (greenfield vs. merger and acquisition), and the depth of domestic linkages. In this context, the effectiveness of FDI in increasing Gross National Income (GNI) and facilitating structural transformation is heavily reliant on domestic policy frameworks, including education, R&D, and industrial linkages to ensure that foreign investments do not remain enclave-based but instead stimulate broad-based economic upgrading. Therefore, ASEAN countries must adopt policies that

strengthen investment climates, enhance local absorptive capacity, and promote institutional integrity—key conditions for maximizing FDI's contribution to sustainable growth and escaping the middle-income trap (Demena & van Bergeijk, 2019). In addition, external-sector performance also matters for investment dynamics, using an ARDL approach for Indonesia, Kurniawan & A'yun (2022) found a long-run linkage between exports and FDI.

Recent panel evidence suggests that foreign direct investment contributes positively to income growth only when supported by strong institutional frameworks and sufficient absorptive capacity. In the absence of adequate human capital and governance quality, FDI inflows may fail to generate meaningful productivity spillovers (Wang et al., 2022). The Human Development Index (HDI) variable has been found to have a very significant positive effect on GNI per capita in ASEAN countries. An increase in HDI of 0.1 points is estimated to increase GNI by 82.78%. This finding shows that the quality of human resources, as measured by the HDI, contributes greatly to labor productivity, economic efficiency, and national growth. A development approach that prioritizes improving the quality of human life through education, health services, and a decent standard of living, as expressed by Puttitanun (2025), is the main foundation for achieving sustainable economic growth. Beyond schooling quantity, recent evidence highlights that improvements in human capital quality, particularly skills and productivity-enhancing competencies, play a decisive role in raising long-run income levels. Countries with stronger human capital accumulation exhibit higher productivity growth and greater capacity to escape the middle-income trap (Islam, 2020; Le-Bao, 2025).

On the other hand, the Corruption Perception Index (CPI) shows a significant negative effect on GNI per capita. This result contradicts the classical view that a decrease in the level of corruption will improve bureaucratic efficiency and the investment climate. However, in the context of ASEAN countries, this finding can be explained by the disparities in institutional structures and governance capacity among countries, which significantly affect their ability to achieve sustainable growth and escape the middle-income trap. In nations with weak governance, anti-corruption reforms that are not accompanied by productivity and competitiveness improvements may inadvertently increase transaction costs and policy uncertainty, thereby discouraging investment and slowing economic performance (Anjarsari, 2025; Gründler & Potrafke, 2019; Suhardi et al., 2024;). This condition reflects an institutional trap, where formal reforms fail to produce real efficiency gains due to limited institutional capacity and weak market coordination (Shaari et al., 2022).

Similarly, Rehman et al., (2023) highlight that the corruption–growth nexus is nonlinear, as governance quality and institutional effectiveness determine whether anti-corruption efforts yield productive outcomes. Therefore, consistent with Grabowski et al. (2020) and Bianchi et al., (2024), institutional strengthening in ASEAN must go beyond reducing corruption to fostering credible governance, regulatory quality, and innovation incentives—conditions essential for translating institutional reforms into higher Gross National Income (GNI) and sustainable progress beyond the middle-income trap. Recent empirical evidence confirms that weak institutional quality and ineffective governance can lock countries into a development trap by reducing investment efficiency and innovation incentives. In middle-income economies, improvements in corruption control and regulatory quality are critical for translating economic growth into sustained income convergence (Ibrahim, 2021).

Although inflation shows a negative but statistically insignificant relationship with GNI per capita in ASEAN countries during 2014–2023, this result can be explained by the region's stable macroeconomic conditions and effective monetary policy coordination. The relative uniformity of inflation rates across ASEAN, maintained within low and moderate levels, reduces their variability and consequently their explanatory power in panel regression models. Recent studies confirm inflation's nonlinear effect on economic performance: only high or volatile inflation significantly suppresses investment and productivity by distorting price signals and increasing uncertainty

(Yahya et al., 2024). In contrast, low and predictable inflation can coexist with stable output growth, as documented in studies by Maulana & Suprapti (2025). Thus, the insignificant effect found in this study suggests that most ASEAN economies have successfully contained inflation within an optimal range that supports macroeconomic stability, while other structural factors—such as institutional quality, human capital, and FDI inflows—play a more dominant role in explaining variations in GNI. These findings are consistent with ASEAN+3 Macroeconomic Research Office (2025), which emphasize that once inflation expectations are anchored, marginal changes in inflation have little influence on long-run income dynamics. Therefore, the insignificance of inflation in this model reflects policy success in maintaining monetary credibility rather than the absence of economic relevance. In conclusion, the Middle Income Trap (MIT) dummy variable shows a significant negative effect on GNI per capita. Countries trapped in MIT have a lower average GNI than countries that successfully exit MIT.

According to Palma & Pincus (2024), countries that fail to transform their economic structures and continue to rely on traditional or commodity-based sectors tend to remain trapped in the middle-income trap (MIT). This stagnation arises because reliance on low-value-added industries limits productivity growth and innovation capacity. In contrast, ASEAN countries such as Singapore and Brunei have successfully escaped MIT by promoting structural transformation through institutional reform, investment in human capital, and the development of technology-driven industries (Palma & Pincus, 2024; Masatoshi, 2024).

Empirical evidence supports this, demonstrating that economic slowdowns typically occur when industrial diversification and innovation capacity stagnate (Palma & Pincus, 2024). Recent studies emphasize that the persistence of the middle-income trap is primarily driven by weak structural transformation and limited upgrading toward high-productivity activities. Countries that fail to strengthen state capacity, industrial coordination, and skill formation tend to experience prolonged income stagnation despite macroeconomic growth (Ricz, 2021; Bianchi et al., 2024).

Therefore, to escape the trap, ASEAN economies must shift from factor-driven growth to productivity-led growth by enhancing research and development, strengthening governance and institutional quality, and fostering knowledge-intensive sectors that sustain long-term increases in Gross National Income (Bresser-Pereira et al., 2020; Behuria and Sumner, 2025).

Conclusion

Based on the panel data regression using the random effects model, this study discovers that Foreign Direct Investment (FDI) and the Human Development Index (HDI) have a significant positive impact on Gross National Income (GNI) per capita among ASEAN countries. FDI enhances industrial performance, stimulates technology transfer, and promotes market integration, while HDI, which measures human capital quality, strengthens labor productivity and innovation capacity. Conversely, the Corruption Perception Index (CPI) has a negative effect on GNI, indicating that anti-corruption reforms without parallel improvements in institutional quality and competitiveness may fail to provide economic gains. Inflation is found to be insignificant, reflecting ASEAN's relatively stable macroeconomic environment during the 2014–2023 period. The dummy variable for the Middle-Income Trap (MIT) has a significant negative relationship with GNI, underscoring that structural rigidities continue to constrain growth in several member states. In order to understand ASEAN's uneven progress in avoiding MIT, this research is novel in that it integrates institutional and macroeconomic data within a panel framework. By highlighting the combined role of investment, human capital, governance, and price stability, this study contributes to the regional policy discourse on sustainable pathways toward high-income status. The findings further provide crucial policy implications: ASEAN countries should strengthen efforts to attract high-quality, technology-intensive FDI while simultaneously investing in education, skills development, and innovation systems to enhance absorptive capacity. Moreover, anti-corruption initiatives must be accompanied by comprehensive institutional reforms that improve transparency, regulatory efficiency, and

competitiveness to ensure that governance progress results in measurable economic gains. Although inflation remains constant, maintaining macroeconomic resilience is critical for preserving investment confidence. Finally, the significant effect of the MIT dummy emphasizes the need for structural transformation through industrial diversification, technological upgrading, and institutional modernization to accelerate progress toward high-income status across the ASEAN region.

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Declarations

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Ethics declaration	:	This study relies exclusively on secondary macroeconomic data obtained from publicly accessible international sources. No human participants were involved; therefore, ethical approval was not required. All analytical procedures followed academic and research ethics guidelines
Additional information	:	No additional information is available for this paper.

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