

ADVANCED INTERNATIONAL JOURNAL OF
BUSINESS, ENTREPRENEURSHIP AND SMES
(AIJBES)www.aijbess.comINCLUSIVE GROWTH OR RISING GAPS? A
MACROECONOMIC PERSPECTIVE ON ASEAN INCOME
INEQUALITY

Roseziahazni Abdul Ghani^{1*}, Zuraida Mohamad¹, Noorhayati Yusof Ali¹, Zuriyati Ahmad¹, Ira Mazliana Mhd Atan¹

¹ Faculty of Business and Management, Universiti Teknologi MARA Cawangan Terengganu, Malaysia

Email: roseziah@uitm.edu.my

Email: zurai5312@uitm.edu.my

Email: noorhayatiy@uitm.edu.my

Email: zuriy271@uitm.edu.my

Email: iramazliana@uitm.edu.my

* Corresponding Author

Article Info:**Article history:**

Received date: 04.05.2025

Revised date: 24.05.2025

Accepted date: 11.06.2025

Published date: 30.06.2025

To cite this document:

Ghani, R. A., Mohamad, Z., Ali, N. Y., Ahmad, Z. & Atan, I. M. M. (2025). Inclusive Growth or Rising Gap? A Macroeconomic Perspective on ASEAN Income Inequality. *Advanced International Journal of Business Entrepreneurship and SMEs*, 7 (24), 431-440.

DOI: 10.35631/AJBES.724028

This work is licensed under [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)

**Abstract:**

This study explores the evolving landscape of income inequality across five key ASEAN nations comprising Indonesia, Malaysia, the Philippines, Singapore, and Thailand from 1990 to 2022. Using the Gini coefficient and a static panel data approach, the research investigates how major macroeconomic forces shape income distribution. The analysis reveals that increased government spending and lower inflation are powerful tools in narrowing income gaps. In contrast, rising agricultural value-added, greater female labor force participation, and expanded arable land are linked to widening disparities. Interestingly, unemployment growth and foreign direct investment (FDI) show no significant impact on inequality levels. These findings highlight the multifaceted nature of economic inequality and call for nuanced, evidence-based policy responses. To build a more inclusive future, ASEAN policymakers must prioritize strategic fiscal management, inflation control, and labor market reforms tailored to their unique national contexts.

Keywords:

Income Inequality, Gini Coefficient, Government Spending, FDI, ASEAN

Introduction

Income inequality has remained a persistent and evolving challenge across ASEAN countries for decades. While the region has undergone remarkable economic transformation from a group of developing nations into a dynamic and diverse economic bloc shows the fruits of this growth have not been equitably shared. This uneven distribution has led to varying degrees of income disparity among member states.

In the early 1990s, many ASEAN nations were still grappling with poverty and underdevelopment. Economic liberalization and globalization ushered in rapid growth, particularly in countries like Singapore, Malaysia, and Thailand, where living standards improved and poverty rates declined. However, the benefits of this growth were not uniformly distributed, resulting in widening income gaps.

The 1997–1998 Asian Financial Crisis further deepened these disparities, disproportionately affecting lower-income groups and stalling progress toward equality. The 2000s brought new dynamics with China's rise as a global economic force. While some ASEAN countries capitalized on increased trade and investment, others struggled to remain competitive, reinforcing existing inequalities. The 2008–2009 Global Financial Crisis added another layer of strain, with economic slowdowns again hitting the most vulnerable populations hardest.

More recently, the COVID-19 pandemic has laid bare and intensified these inequalities. Lower-income groups faced greater health risks, job losses, and economic instability. According to the United Nations, pre-pandemic forecasts estimated that 6% of the global population would live in extreme poverty by 2030. However, the pandemic has pushed over 70 million more people into extreme poverty, threatening decades of progress.

Today, income inequality remains one of ASEAN's most pressing challenges. It is a central concern in the region's medium- and long-term development agendas. Addressing this issue is not only a matter of economic policy but also of social cohesion and political stability. Understanding the root causes and consequences of inequality is essential for crafting effective, inclusive policies.

This study revisits the issue of income inequality in ASEAN using the Gini coefficient as a key measure. By analyzing macroeconomic determinants such as government expenditure, inflation, unemployment growth, female labor force participation, arable land, agricultural value-added, and foreign direct investment (FDI), this research aims to provide timely insights into the structural factors driving inequality. The findings are intended to inform policy strategies that promote equitable and sustainable development across the region.

Literature Review

Government Spending

Government spending is widely recognized as a critical instrument for addressing income inequality, though its effectiveness depends significantly on the composition and allocation of expenditures. Numerous studies underscore the importance of targeted government spending in reducing income disparities. For instance, Munir and Sultan (2017) demonstrated that increased public expenditure in India and Pakistan contributed to narrowing income gaps. Similarly, Turnovsky and Erasuskin (2021), in a comprehensive study spanning 80 countries

over 35 years, found that productive government spending particularly in education and healthcare have enhances human capital and provides essential safety nets, thereby reducing inequality. In the ASEAN context, Andari (2020) emphasized the importance of increasing government spending in rural Indonesia to bridge the rural-urban income divide. Amanda (2020) further supported this view, showing that a 1% increase in infrastructure investment could reduce the urban Gini index by 0.0049 points on average. However, not all forms of government expenditure yield equal benefits. Spending on defense or non-social sectors tends to have limited impact on income distribution, highlighting the need for strategic prioritization of pro-poor investments. Sidek (2021) added that the effectiveness of government spending varies between developed and developing countries, with education and development expenditures being more impactful in the latter.

Inflation

Building on the fiscal dimension, inflation emerges as another macroeconomic factor with significant implications for income distribution. Siami and Hudson (2019) found that while inflation and inequality are interrelated over the long term, they are not causally linked in the short term. Their findings suggest that stable and moderate inflation, achieved through sound monetary policy, can help mitigate inequality, especially when complemented by fiscal interventions.

Unemployment

In addition to inflation, unemployment has also been a focal point in inequality research, though findings remain mixed. Deyshappriya (2017) reported a positive correlation in Asian countries, where rising unemployment tends to increase inequality. Conversely, Esquivias, Sethi, and Iswanti (2021) observed a negative relationship in Indonesia, suggesting that improving job quality rather than merely increasing employment may be more effective in reducing inequality. This highlights the importance of labor market reforms that focus on job security, wages, and skill development.

Female Labor Force Participation

Closely related to labor dynamics is the role of female labor force participation in shaping income distribution. Maxwell (1990) found that increased participation by women helps equalize income among male-headed and dual-income households by reducing the income share of the top quintile. Kuhn and Ravazzini (2017), using data from the Swiss Household Panel, confirmed that higher female participation continues to reduce inequality, even in countries with already high female employment rates. Thevenon (2013) and Klasen (2019) emphasized that female labor participation is influenced by a range of factors, including cultural norms, industry composition, and policy frameworks. In Malaysia, Jaapar, Chukari, and Hisham (2022) found that increased female labor participation significantly narrowed the income gap from 1970 to 2019, driven by improvements in education and employment opportunities for women.

Land

Beyond labor market factors, arable land use and agricultural development also play a significant role in influencing income inequality. Dib, Alamsyah, and Qaim (2018) found that land use changes in Indonesia particularly the expansion of oil palm and rubber plantations boosted incomes for non-farm households and contributed to more equitable income distribution. However, Li et al. (2024) observed that while land reform in Vietnam reduced urban inequality, it increased rural disparities due to uneven benefits across land types. Yandri

(2014) further highlighted that residential areas, especially suburban regions with diverse employment opportunities, tend to exhibit higher income inequality compared to agricultural zones.

Agricultural Value Added

Complementing the discussion on land, the adoption of agricultural value added or improved agricultural technologies has also been shown to influence income distribution. Wordofa et al. (2021) argued that such technologies enhance food security and reduce poverty. Ding et al. (2011) found that in Yunnan, China, households adopting upland rice technology experienced 14–16% higher incomes, with no significant increase in local inequality, as adoption rates were similar across income groups. This suggests that agricultural innovation can benefit all income segments when access is equitable.

Foreign Direct Investment

Finally, foreign direct investment (FDI) has been a subject of considerable debate in the context of income inequality. Rezk et al. (2022) and Yuldashev et al. (2023) found that FDI can reduce inequality, particularly when supported by strong human capital. However, Gam, Oanh, and Dang (2023) identified a non-linear relationship, where FDI initially increases inequality before reducing it at higher levels of investment. Wang and Lee (2023) further noted that the effect of FDI depends on a country's political and economic stability thus FDI tends to exacerbate inequality in high-risk environments but mitigates it in more stable contexts.

In summary, the literature reveals that income inequality is shaped by a complex interplay of fiscal, monetary, labor, agricultural, and investment-related factors. The effectiveness of policy interventions depends not only on the type of measure but also on the socio-economic context in which it is implemented. This underscores the need for nuanced, evidence-based policymaking tailored to the specific conditions of each ASEAN country.

Methodology and Data

To examine the impact of macroeconomic variables on income inequality as measured by the Gini coefficient, this study utilizes annual panel data from 1990 to 2022 for five ASEAN countries: Indonesia, Malaysia, the Philippines, Singapore, and Thailand. The data were sourced from the World Development Indicators (WDI) and the World Inequality Database (WID), ensuring consistency and international comparability.

The dependent variable, income inequality ($Ineq_{it}$), is represented by the Gini coefficient. The independent variables include:

- GovE*: Government expenditure as a percentage of GDP
- Inf*: Inflation rate, measured by the consumer price index
- Unemp*: Growth in unemployment
- Fem*: Female labor force participation rate
- Land*: Arable land as a percentage of total land area
- AVA*: Agricultural value-added as a percentage of GDP
- FDI*: Foreign direct investment as a percentage of GDP

The estimation model for income inequality is structured as follows:

$$Ineq_{it} = \alpha + \beta_1 GovE + \beta_2 Inf + \beta_3 Unemp + \beta_4 Fem + \beta_5 Land + \beta_6 FDI + \epsilon_{it} \quad (1)$$

To estimate the model, three-panel static models were employed using Stata 14: the Pooled Ordinary Least Squares Model (POLS), the Random Effect Model (REM), and the Fixed Effect Model (FEM). The equation for the Pooled Ordinary Least Squares Model is:

$$Y_{i,t} = \alpha + \beta_1 X_{i,t} + \varepsilon_{i,t} \quad \text{-----} \quad (2)$$

To decide between the Pooled Ordinary Least Squares Model and the Random Effect Model, the Breusch-Pagan Lagrangian multiplier test is used. The hypotheses for this test are as follows:

H0: Choose the Pooled Ordinary Least Squares Model

H1: Choose the Random Effect Model

Alternatively, the Random Effect Model is expressed as:

$$Y_{i,t} = \alpha + \beta_1 X_{i,t} + (\varepsilon_{i,t} + \mu_{i,t}) \quad \text{-----} \quad (3)$$

If the probability of Chi² is less than 0.05, H0 is rejected, and the Random Effect Model is chosen. The study can also be extended by employing the Fixed Effect Model, represented by the equation:

$$Y_{i,t} = \alpha_i + \beta_1 X_{i,t} + \varepsilon_{i,t} \quad \text{-----} \quad (4)$$

This methodological framework enables a robust analysis of how macroeconomic variables influence income inequality across ASEAN countries over time.

Empirical Results

Descriptive Analysis

Table 1 presents the descriptive analysis of income inequality of 5 selected ASEAN countries. The result reveals a moderate income inequality, with an average Gini coefficient of 0.548. Government spending averages 11.14% of GDP, while inflation shows high variability at 4.28%. Unemployment growth is 3.82%, and female labor force participation averages 50.61%. Arable land and agricultural value-added are relatively low, averaging 8.68% and 7.78% respectively. FDI varies widely, averaging 5.53% of GDP. The high standard deviations and coefficients of variation across variables highlight the region's economic diversity, emphasizing the need for tailored, country-specific policy interventions to effectively address income inequality.

Table 1: Statistical summary

	Ineqit	GovE	Inf	Unemp	Female	Land	Ava	FDI
Mean	0.54769	11.135	4.2814	3.8160	50.609	0.0868	7.7803	5.5262
Minimum	0.3997	5.6935	-1.1387	0.249	41.272	0.0001	0.0265	-2.7674
Maximum	0.67193	18.231	58.451	11.189	66.943	0.3168	19.260	31.621
Std Dev	0.05798	2.5345	5.4274	2.1953	7.6050	0.0965	5.1674	7.2476
Coeff. of Variation	0.10586	0.2276	1.4204	0.5753	0.1503	1.1123	0.6642	1.3115
No of Obs	204	204	204	204	204	204	204	204

Correlations**Table 2: Correlation**

	Ineqit	GovE	Ava	Unemp	Female	Land	FDI	Inf
Ineqit	1.0000							
GovE	0.3536	1.0000						
Ava	0.6526	0.3099	1.0000					
Unemp	-0.1082	-0.4928	0.1708	1.0000				
Female	0.3443	0.3600	-0.2075	-0.4839	1.0000			
Land	0.6723	0.4334	0.2308	-0.4468	0.7183	1.0000		
FDI	-0.5148	-0.1312	-0.6244	-0.0141	0.2257	-0.3944	1.0000	
Inf	-0.0185	-0.3953	0.0866	0.3158	-0.1617	0.0241	-0.2018	1.0000

The correlation matrix shows the relationships between various independent variables. Most variables have low to moderate correlations, indicating varied degrees of association, with no extremely high correlations that might suggest multicollinearity issues. To confirm again the presence of the multicollinearity issue, a variance inflation factor (VIF) analysis is performed.

Multicollinearity Test**Table 3: VIF**

Variable	VIF	1/vIF
GoE	2.08	0.480711
Inflation	1.45	0.720306
Unemp	1.88	0.533077
Female	5.97	0.167533
Land	6.91	0.144818
AVA	2.25	0.443480
FDI	3.64	0.274821
Mean VIF	3.43	

Table 3 summarizes the findings for VIF and tolerance level. The Variance Inflation Factor (VIF) test was conducted to assess multicollinearity among the independent variables. All VIF values were below the critical threshold of 10, with an average VIF of 3.43, indicating no serious multicollinearity concerns. This suggests that the independent variables are sufficiently independent of one another, ensuring the reliability of the regression estimates. Additionally, the 1/VIF values were within acceptable ranges, further supporting the model's validity.

To test for heteroscedasticity, the Breusch-Pagan and Cook-Weisberg tests were applied. The results showed a Chi-squared probability of 0.000, which is below the 0.05 significance level, indicating the presence of heteroscedasticity. This suggests that the variance of the error terms is not constant across observations, which could affect the efficiency of the estimates. As a result, robust standard errors should be used in subsequent analyses to correct for this issue and ensure accurate statistical inference.

*Multiple Regression Analysis***Table 4: Results POLS, REM and FEM**

	POLS	REM	FEM
C	0.41959 0.000***	0.41594 0.000***	0.3554 0.000***
GoE	-0.00290 0.031**	-0.00290 0.029**	0.00166 0.401
Inf	-0.001065 0.007***	-0.001065 0.007***	-0.0074 0.049**
UnEmp	0.001913 0.192	0.001913 0.190	0.00167 0.319
Female	0.00178 0.019**	0.00178 0.018**	0.0010 0.019**
Land	0.25884 0.000***	0.25884 0.000***	1.2279 0.000***
AVA	0.00672 0.000***	0.00672 0.000***	0.01141 0.468
FDI	-0.000522 0.398	-0.000522 0.398	0.00052 0.482
Inf	-0.001065 0.007***	-0.001065 0.007***	-0.0074 0.049**
R-squared	0.7443	0.7443	0.4705
Prob > F	0.0000	0.0000	0.0000

Notes: ***Significant at 1%, ** Significant at 5%

Table 4 compares the outcomes of three econometric models to identify the most suitable one for analyzing income inequality. The Breusch-Pagan Lagrangian Multiplier test, used to assess the appropriateness of Pooled OLS (POLS) versus the Random Effects Model (REM), yielded a significant Chi-square p-value, indicating that REM is preferred. The Hausman test was then applied to compare REM and the Fixed Effects Model (FEM). However, the test produced an insignificant p-value, suggesting that FEM is not suitable. Therefore, REM is selected as the final model for panel data analysis.

The REM regression results show an R-squared value of 0.7443, meaning that 74.43% of the variation in income inequality is explained by the independent variables. Land, agricultural value added (AVA), and inflation are statistically significant at the 1% level, while female labor force participation and government expenditure are significant at the 5% level. In contrast, foreign direct investment (FDI) and unemployment are not significant at conventional levels. Notably, government expenditure, inflation, and FDI have negative coefficients, indicating a potential role in reducing income inequality.

Conclusion

This study successfully identifies key macro-economic factors influencing income inequality across five selected ASEAN countries. The empirical findings underscores the critical need for targeted policy interventions to address income inequality. The study highlight that enhancing agricultural productivity, managing inflation, and increasing female labor force participation are among the most effective strategies. Specifically, land ownership, agricultural value added (AVA), and inflation demonstrate strong significance at the 1% level, while female labor force

participation and government expenditure are significant at the 5% level. The negative coefficients associated with government expenditure, inflation, and foreign direct investment (FDI) further emphasize the importance of well-structured fiscal policies in reducing inequality.

To translate these findings into actionable policy, governments should prioritize the modernization of agricultural practices and invest in rural infrastructure to boost productivity and income distribution. Modernizing agriculture involves adopting precision farming, automation, and climate-resilient techniques to enhance productivity and sustainability. By using improved seeds and suitable technologies, farmers could optimize yields and reduce costs. Thus, increased productivity and efficiency lead to higher incomes. On the other hand, investing in rural infrastructure, such as better roads, irrigation, and electricity, facilitates market access and economic opportunities, ensuring a more balanced income distribution and improved livelihoods for rural communities. Fiscal policies should be designed to channel government spending toward inclusive growth and social welfare initiatives. Moreover, promoting gender equality in the labor market through supportive legislation and career development programs can enhance economic equity.

Future research should examine the role of education in shaping income distribution by addressing access disparities, especially in marginalized communities, to understand their economic effects. Analyzing the link between educational attainment and earnings can highlight opportunities for upward mobility. Additionally, assessing the impact of vocational and technical training can offer valuable insights into enhancing employment outcomes and reducing income inequality.

Acknowledgements

The authors sincerely thank the dedicated team members for their valuable contributions to this research paper. Every member's unique skill and contribution have strengthened the depth and quality of this work. The authors deeply appreciate their time, expert, and unwavering support.

References

- Alamanda, A. (2020). The Effect of Government Expenditure on Income Inequality and Poverty in Indonesia. *INFO ARTHA*, 4(1), 1-11.
- Andari, Y. (2020). Analysis of Financial and Income Disparity between Rural-Urban Areas in Indonesia. *Eko-Regional: Jurnal Pembangunan Ekonomi Wilayah*, 15(1), 12-24.
- Berisha, E., Gupta, R., & Meszaros, J. (2020). The Impact of Macroeconomic Factors on Income Inequality: Evidence from the BRICS. *Economic Modelling*, 91, 559-567.
- Deyshappriya, N. P. (2017). Impact of Macroeconomic Factors on Income Inequality and Income Distribution in Asian Countries. *ADB Working Paper No. 696*. Tokyo, Japan.
- Dib, J. B., Alamsyah, Z., & Qaim, M. (2018). Land-Use Change and Income Inequality in Rural Indonesia. *Forest Policy and Economics*, 94, 55-66.
- Ding, S., Meriluoto, L., Reed, W. R., Tao, D., & Wu, H. (2011). The Impact of Agricultural Technology Adoption on Income Inequality in Rural China: Evidence from Southern Yunnan Province. *China Economic Review*, 22(3), 344-356.
- Doumbia, D., & Kinda, M. T. (2019). Reallocating Public Spending to Reduce Income Inequality: Can It Work? *International Monetary Fund Working Paper*, 19/188.

- Esquivias, M. A., Sethi, N., & Iswanti, H. (2021). Dynamics of Income Inequality, Investment, and Unemployment in Indonesia. *Journal of Population and Social Studies [JPSS]*, 29, 660-678.
- Gam, T. T. H., Oanh, D. L. K., & Dang, N. M. B. (2023). The Impact of Foreign Direct Investment on Income Inequality in Developing Countries: The Bayesian Approach. *Jurnal Ekonomi & Studi Pembangunan*, 24(1), 127-143.
- Husain, S., Sohag, K., Hasan, R., & Shams, S. R. (2020). Interest Rate and Income Disparity: Evidence from Indonesia. *Strategic Change*, 29(6), 665-672.
- Jaapar, A. M., Chukari, N. A., & Hisham, H. Z. H. (2022). Female Participation in Labour Force: The Success in Reducing Income Disparity in Malaysia. *International Journal for Studies on Children, Women, the Elderly and Persons with Disabilities*, 15, 82-93.
- Klasen, S. (2019). What Explains Uneven Female Labor Force Participation Levels and Trends in Developing Countries? *The World Bank Research Observer*, 34(2), 161-197.
- Kuhn, U., & Ravazzini, L. (2017). The Impact of Female Labour Force Participation on Household Income Inequality in Switzerland. *Swiss Journal of Sociology*, 43(1), 115-136.
- Lee, H. Y., Kim, J., & Cin, B. C. (2013). Empirical Analysis on the Determinants of Income Inequality in Korea. *International Journal of Advanced*, 53, 97-110.
- Li, J., Tran, T. B., La, H. A., & Nguyen, M. X. T. (2024). Land Allocation Policy and Income Inequality: Evidence from Vietnam. *Review of Income and Wealth*, 70(2), 440-465.
- Maxwell, N. L. (1990). Changing Female Labor Force Participation: Influences on Income Inequality and Distribution. *Social Forces*, 68(4), 1251-1266.
- Munir, K., & Sultan, M. (2017). Macroeconomic Determinants of Income Inequality in India and Pakistan. *Theoretical & Applied Economics*, 24(4).
- Rezk, H., Amer, G., Fathi, N., & Sun, S. (2022). The Impact of FDI on Income Inequality in Egypt. *Economic Change and Restructuring*, 55(3), 2011-2030.
- Sheng, Y. (2011). Unemployment and Income Inequality: A Puzzling Finding from the US in 1941-2010. Available at SSRN 2020744. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2020744
- Siarni-Namini, S. and Hudson, D. (2019), Inflation and Income Inequality in Developed and Developing Countries, *Journal of Economic Studies*, 46(3), 611-632, <https://doi.org/10.1108/JES-02-2018-0045>
- Sidek, N. Z. M. (2021). Do Government Expenditure Reduce Income Inequality: Evidence From Developing and Developed Countries, *Studies in Economics and Finance*, 38(2), 447-503.
- Thevenon, O. (2013). Drivers of female labour force participation in the OECD. *OECD Publishing*, Working Papers No. 145. <http://dx.doi.org/10.1787/5k46civrngnms6-en>, OECD Social, Employment and Migration
- Turnovsky, S. J., & Erauskin, I. (2021). Productive Government Expenditure and Its Impact on Income Inequality: Evidence from International Panel Data. *Review of World Economics*, 1-34.
- Wordofa, M. G., Hassen, J. Y., Endris, G. S., Aweke, C. S., Moges, D. K., & Rorisa, D. T. (2021). Adoption of Improved Agricultural Technology and Its Impact on Household Income: A Propensity Score Matching Estimation in Eastern Ethiopia. *Agriculture & Food Security*, 10, 1-12.
- Yandri, P. (2014). Residential Area and Income Inequality in Suburban Indonesia. *The Indonesian Journal of Geography*, 46(1), 69-77.

- Yuldashev, M., Khalikov, U., Nasriddinov, F., Ismailova, N., Kuldasheva, Z., & Ahmad, M. (2023). Impact of Foreign Direct Investment on Income Inequality: Evidence from Selected Asian Economies. *Plos One*, 18(2), e0281870.
- Zandi, G., Rehan, R., Hye, Q. M. A., Mubeen, S., & Abbas, S. (2022). Do Corruption, Inflation and Unemployment Influence the Income Inequality of Developing Asian Countries?, *International Journal of Applied Economic, Finance and Accounting*, 14(2), 118-128.