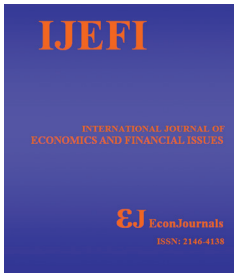

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The Role of Financial Development in Poverty and Income Distribution Dynamics in ASEAN Countries: A Panel Cointegration Analysis

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ABSTRACT

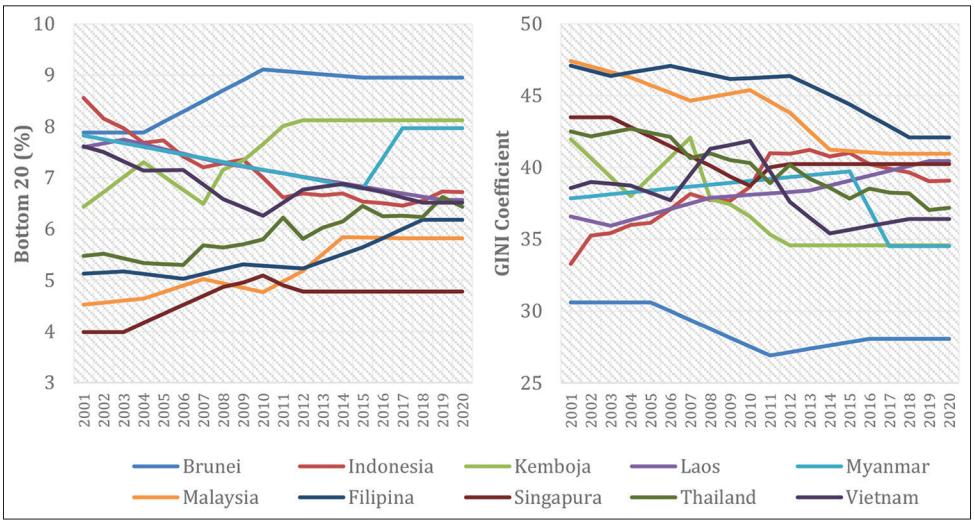
The objective of this study is to examine the impact of financial development on income equality and poverty reduction in selected Southeast Asian countries. This study utilizes the Panel Autoregressive Distributed Lag (Panel ARDL) method. In addition, the researcher also used the statistical descriptive method, the unit root test method to measure the stationarity of variables, and the cointegration panel method to measure the cointegration between the dependent variable and the independent variable. The results of the study obtained from the panel analysis found that financial development can reduce income inequality in selected ASEAN countries, but there is no implication for poverty. For the short run ARDL results in each country, financial development has a positive impact on poverty for Indonesia and Singapore and can reduce the income gap for Singapore and Thailand. However, the findings for Philippines show that financial development exacerbates income inequality and poverty. Finally, the role of the government and the central bank in each ASEAN country is very important in ensuring that financial development can have a positive impact on poverty reduction and income equality for ASEAN countries.

Keywords: Financial Development, Poverty, Inequality, ASEAN
JEL Classifications: G00, E44, D63, I32

1. INTRODUCTION

Over the past two decades, ASEAN has witnessed a significant reduction in poverty, with rates decreasing from 47% in 1990 to 15% in 2015. Despite these gains, rural areas continue to experience persistent poverty. Financial development plays a critical role in enhancing income equality and alleviating poverty by providing support to small and medium-sized enterprises, offering microfinance services, and expanding access to financial resources for underprivileged populations. Figure 1 illustrates the variable poverty trends among the Bottom 20% in ASEAN countries, indicating a complex pattern of poverty reduction across the region. Financial development initiatives in ASEAN aim to broaden access to financial services. This encompasses enhancing the capacities of financial institutions, extending microfinance options, and developing financial infrastructure in remote locations. The improvement of banking, capital markets, and insurance systems is also integral to ensuring comprehensive access to quality financial services across ASEAN. According to IGI Global, financial development reduces transactional costs and fosters the emergence of financial contracts, intermediaries, and markets, thereby supporting investment processes and economic growth.

Figure 1: Bottom 20% and Gini Index in ASEAN countries



Source: UNU WIDER (2023)

Poverty, as defined here, is the condition where a household's monthly income falls below the poverty line (PGK), which measures the ability to meet basic food and non-food needs. Income inequality, on the other hand, refers to the disproportionate distribution of income across a population, often exacerbated by factors such as globalization, technological advancements, and discrimination based on gender and race. These disparities can hinder opportunities for improving living standards (Ma, 2023). Research by Tabash et al. (2023) suggests that financial development positively impacts income equality and poverty reduction. Effective financial systems provide crucial support in mitigating economic shocks, boosting investment, enhancing productivity, and sustaining income across generations. However, such developments are not alone sufficient to address widespread poverty and inequality, particularly when access to financial services remains limited for impoverished groups.

Gender inequality and discrimination also perpetuate poverty, disproportionately affecting women and girls (Han et al., 2022). Furthermore, Wong et al. (2023) argue that while financial innovation can increase income equality, its benefits are unevenly distributed, primarily favouring higher-income groups. This disparity arises because lower-income individuals are less likely to afford necessary technologies and more likely to be illiterate, hindering their ability to benefit from digital financial advancements. Although some Southeast Asian countries exhibit high-income levels, significant disparities persist, particularly between urban and rural areas. Limited financial access among the poorer segments worsens these inequalities, which can potentially result in social and political instability and hinder economic development (Zeeshan et al., 2022). The GINI index in ASEAN countries averaged 38 in 2019, reflecting notable income inequality (Tran et al., 2022). While countries like Singapore show lower poverty rates due to economic advancement, nations such as Myanmar, Cambodia, and Laos continue to struggle significantly with poverty (Intapan et al., 2023; Cole and Ingalls, 2020).

This study seeks to explore the extent to which financial development influences income equality and poverty in Southeast Asia and to identify policies that could effectively address these challenges. Understanding the impact of financial development is crucial for ASEAN researchers and policymakers to devise strategies that enhance economic stability and reduce inequality and poverty across the region. By identifying economic structures contributing to these issues, this research aims to support the development of targeted interventions that can harmonize the economic landscape of ASEAN, fostering a stronger global economic presence.

2. LITERATURE REVIEW

There are many studies proven that financial development is a key factor in poverty reduction. Asongu and Odhiambo (2023) highlight that economic prosperity resulting from financial development effectively mitigates poverty. Haan et al. (2022) found that this impact is more pronounced when institutional arrangements are robust. Bardi et al. (2022) suggest that the relationship between financial development and poverty is contingent on economic and financial development levels, indicating a complex interplay. Zhu et al. (2021) emphasize the importance of rural financial development in poverty reduction, particularly in China. On the other hand, Ofori et al. (2021) explore how information and communications technology (ICT) combined with financial development can address severe poverty in Sub-Saharan Africa.

Moreover, studies by Bayar (2023) and Qu and Hao (2022) examine the interaction between financial development, inequality, and poverty risk in specific regions, shedding light on how financialization, social exclusion, and the digital economy influence poverty outcomes. Gender inequality is another critical aspect intersecting with poverty and financial development, as evidenced by Kanat et al. (2023) in the context of Pakistan. Huang et al. (2021) emphasize the financial considerations of the energy-environment nexus in addressing energy poverty in G7 economies. In a global context, Zulher and Ratnasih (2021) delve into the relationship between financial development and

poverty reduction in developing countries, emphasizing the role of government policies in driving poverty alleviation efforts. These findings collectively highlight the multifaceted nature of poverty alleviation efforts and underscore the importance of tailored interventions to effectively address poverty challenges.

Overall, empirical evidence generally indicates that financial development positively affects income equality and poverty reduction (Acheampong et al., 2021; Shi et al., 2022; Tabash et al., 2023; Ullah et al., 2021; Zheng et al., 2020). For example, Tabash et al. (2023) found that financial development has varied effects across different World Bank income classification groups, significantly benefiting low-income, low-middle-income, and high-middle-income groups. This supports the view that the enhanced role of financial institutions can impact income dynamics, particularly in Sub-Saharan Africa. Additionally, Ratnawati (2020) and other studies (Dawood et al., 2019; Neaime and Gaysset, 2018) have observed that financial inclusion positively influences income equality and poverty reduction in Asia.

However, there are notable exceptions. Inoue (2018a) reported that financial development did not significantly affect income equality and poverty reduction in 120 developing countries, although some individual countries showed positive outcomes. Furthermore, studies such as those by Inoue (2018b) and Alam and Alam (2020) have found that in India, increases in financial development correlate with increases in poverty, suggesting a complex relationship influenced by local factors. Sethi et al. (2021) also found a negative impact of financial development on income equality in India. In contrast, research in Pakistan (Kousar et al., 2019) and the Asia Pacific region (Zheng et al., 2020) demonstrated that financial development significantly enhances poverty reduction, with specific benefits observed among fishermen in China. Ullah et al. (2021) further confirmed that financial development positively influences poverty reduction and income equality across Asia, Africa, and Europe, primarily by creating more job opportunities for small traders.

In the African region, where poverty rates remain among the highest globally, several studies have examined the impact of financial development on poverty reduction and income equality (Thebuho et al., 2022). Tabash et al. (2023) found that financial development significantly and positively affects income equality and poverty reduction in select African countries, highlighting the critical role of sound financial policies to support households and small businesses. Acheampong et al. (2021) echoes this, arguing that governmental involvement is essential for disseminating financial knowledge and reducing poverty. However, contrasting findings in MENA countries show no significant impact of financial development on poverty reduction (Neaime & Gaysset, 2018). Similarly, while Goyal et al. (2022) that observed a positive effect of financial development on poverty and income equality in developing countries, Inoue (2018a) reported no significant effects across 120 developing nations. In Southeast Asia, the situation varies. In Indonesia, financial development has shown positive effects on poverty reduction (Erlando et al., 2020). Dawood et al. (2019) further noted that financial inflows significantly reduce household poverty and suggested that policymakers address urbanization pressures on low-income migrants to mitigate urban poverty. In Vietnam, Tran et al. (2022) found that financial inclusion positively influences multidimensional poverty and recommended expanding banking infrastructure to further enhance these benefits.

Several studies have demonstrated mixed impacts of financial development on income equality and poverty using the same analytical methods. Ratnawati (2020) utilized the Generalized Method of Moments (GMM) and confirmed a positive relationship between financial development and poverty reduction. However, the efficacy of financial development in ten other developing countries appeared limited, underscoring the complexity of financial impacts across different regions (Acheampong et al., 2021; Ullah et al., 2021). These findings suggest that while financial development can be a potent tool for reducing poverty and enhancing income equality, its effectiveness is highly context-dependent. On the other hand, Mbona (2022) and Khan and Khan (2022), employing the GMM and observed that financial development negatively impacts income equality and exacerbates poverty. This outcome suggests that while financial institutions may provide access that appears to reduce inequality in both linear and non-linear models, such benefits do not extend broadly to the general public. Similarly, Inoue (2018a) utilized the GMM method to show that in India, financial development has a negative impact on poverty, whereas no significant effects were observed across 120 developing countries.

Using the Quantile Regression Approach, in study reported by Altunbas and Thornton (2019) found that financial development significantly increases income inequality, with the effects varying according to the income class of the country. Moreover, analysis via the Autoregressive Distributed Lag (ARDL) method indicated that financial development is positively associated with worsening income equality, as the benefits do not sufficiently reach the low-income population (Sethi et al., 2021). Alam and Alam (2020), applying both ARDL and Error Correction Model (ECM) methods, noted a negative and insignificant short run relationship between financial development and poverty, but a significant positive long run impact, suggesting that structural economic changes are necessary for sustained poverty reduction. This indicates that financial growth tends to favor the high-income group initially. In contrast, a study in Pakistan found that financial development increases inequality and poverty, potentially due to high unemployment rates during the period of study (Kousar et al., 2019). Further, studies by Zheng et al. (2020) and Erlando et al. (2020), using Vector Autoregression (PVAR) and Weighted Least Squares (WLS) methods, established that the impact of financial development on poverty reduction and income equality is highly country-specific, generally showing positive results.

This study aims to bridge the research gap concerning the impact of financial development on income equality and poverty reduction in the Southeast Asian region. Unlike Europe, predominantly composed of high-income developed countries, or the African region, largely consisting of low-income countries, Southeast Asia presents a unique mix of economic environments. The region includes developed countries like Singapore, developing nations

like Malaysia, Thailand, and Indonesia, and low-income countries like Laos and Timor Leste. This diverse economic landscape in Southeast Asia results in a variegated relationship between financial development and socio-economic outcomes, distinct from other global regions.

3. METHODOLOGY

This section outlines the methodologies employed to collect and analyze data, aiming to evaluate the impact of financial development on income equality and poverty reduction. The study is structured into two main components: data collection and data analysis. Results and evidence from the data analysis will be systematically presented through tables and figures.

The study utilizes panel data from five ASEAN countries: Malaysia, Thailand, Indonesia, Singapore, and Philippines, covering the period from 2004 to 2020. This selection is based on the availability and relevance of the data. The data includes import and export figures sourced from the World Bank Development Indicators to assess the effects of trade openness. Additional control variables such as the inflation rate, gross domestic product (GDP) per capita, and foreign direct investment are also derived from the World Bank Development Indicators. Inflation is considered due to its differential impact on various income groups, while GDP per capita is analysed for its significant influence on income equality and poverty (Tabash et al., 2023). Gross capital formation data is included to explore the influence of investment changes on income distribution and poverty levels in the selected Southeast Asian countries.

The Panel Autoregressive Distributed Lag (Panel ARDL) method is employed for the analysis. This approach allows for the examination of long run relationships between the selected variables. The financial sector development is gauged using data from the Global Financial Development Database (GFDD), following the World Bank's classification into four dimensions: access, depth, efficiency, and stability. Income equality and poverty are quantified using specific indices, with the share of total income earned by the bottom 20% of the population (BOTTOM 20) serving as a measure of relative poverty. Governance quality is incorporated as a control variable through the use of government effectiveness indicators. These are analysed using Principal Component Analysis (PCA) to calculate average values for the data set. Employing PCA is crucial as it helps prevent potential biases and inaccuracies in the study results that could arise from using raw variables (Tabash et al., 2023). The following table 1 summarizes the variables used in this study and its sources.

The research model developed for this study focuses on analysing the impact of financial development on income equality and poverty within ASEAN countries. The independent variable in this model is financial development, while the dependent variables are income equality and poverty. Income equality is measured by the Gini Index, a widely recognized metric that quantifies income disparities within a population. Poverty is assessed using the Bottom 20% metric, which represents the share of total income earned by the poorest 20% of the population, providing insight into the relative poverty levels in the region. The following equation represents the basic model adapted from Tabash et al., (2023), and modified to fit the specific needs of this study:

Table 1: Variables description

Variables	Table description	Source
GINI	Indicates inequality in income distribution, from 0 indicating perfect results to 100 indicating unequal results	UNU WIDER
Bottom20	Shows the average income of the bottom 20%: It describes relative poverty	UNU WIDER
GDP	GDP annual growth rate (%)	WDI
Inflation	Consumer price index (%)	WDI
Trade openness	Summation of imports and exports to GDP; measures trade openness (%)	WDI
Governance	Measuring PCA	WGI
Investment	Foreign direct investment (net inflow, % of GDP)	WDI
Bank branches for 100,000 adults	Bank access: Bank branches per 100,000 people	GFDD
Private Credit by DMB to GDP	Depth: Private credit by GDP scale (%)	GFDD
Return on Bank Equity	Efficiency: Measures the amount of firm earnings that is returned as shareholder equity	GFDD
Bank Z Score	Stability: Measuring the probability of banking errors in the economy	GFDD
Financial Development	Financial development variables obtained from principal component analysis comprise of financial variables from WGI and GFDD	Author's calculation

WDI: World Bank Data Indicators, GFDD: Global Financial Development Database, WGI: World Governance Index, PCA: Politics, economics, and institutions, GDP: Gross domestic product

$$Y_{it} = \alpha + \beta_1 FD_{it} + \beta_2 INF_{it} + \beta_3 OPEN_{it} + \beta_4 FDI_{it} + \beta_5 GDP_{it} + \beta_6 WGI_{it} + \varepsilon_{it} \quad (1)$$

Where Y_{it} represents the dependent variables (either the Gini index or bottom 20% for country i at time t) FD_{it} denote the financial development variable (*finance access, depth, efficiency and stability)*; INF_{it} denote the inflation rate; $OPEN_{it}$ denote the trade openness; FDI_{it} denote the foreign direct investment; GDP_{it} denote the gross domestic product; WGI_{it} denote the governance effectiveness index; ε_{it} denote the error term; and subscript i and t denote country i and time t, respectively. The basic model are transformed into Panel ARDL model as follow:

$$\Delta Y_{it} = \alpha_0 + \sum_{i=1}^{p} \phi_1 \Delta FD_{t-i} + \sum_{i=0}^{q} \phi_2 \Delta INF_{t-i} + \sum_{i=0}^{r} \phi_3 \Delta OPEN_{t-i} + \sum_{i=0}^{s} \phi_4 \Delta FDI_{t-i} + \sum_{i=0}^{t} \phi_5 \Delta GDP_{t-i} + \sum_{i=0}^{u} \phi_6 \Delta WGI_{t-i} + \delta_1 \Delta FD_{it-1} + \delta_2 \Delta INF_{it-1} + \delta_3 OPEN_{it-1} + \delta_4 FDI_{it-1} + \delta_5 \Delta GPI_{it-1} + \delta_6 \Delta WGI_{it-1} \quad (2)$$

Where parameter ϕ is for the short run coefficient while the parameter δ is for the long run coefficient. This method allows researchers to test long run and short run effects between variables in a panel model, as well as researchers can also check the presence

of cointegration relationships between variables through the panel cointegration test. Prior to checking the cointegration, we check the stationarity of the variables using the panel unit root test.

The research hypothesizes that financial development exerts a positive influence on income equality and poverty reduction in several developing and developed countries. However, in less developed nations, the impact of financial development may be less efficient. In these contexts, existing disparities might be exacerbated due to unequal access to financial knowledge and technology, potentially enabling the rich to further increase their wealth while the poor remain disadvantaged. Inflation is expected to significantly impact income equality and poverty. During periods of inflation, rising prices may reduce the purchasing power and net income of individuals, disproportionately affecting the poor across all ASEAN countries. Conversely, high-income earners might not feel the effects of inflation as acutely.

The openness of trade and investment, alongside GDP growth, is anticipated to positively influence poverty reduction and income equality. Increased trade and investment openness is expected to enhance economic efficiency and elevate national income, enabling governments to boost welfare spending for low-income populations, thereby aiding in poverty alleviation and narrowing income disparities. Lastly, the variable of governance is also expected to influence poverty and income equality, though its impact might not be as pronounced as that of economic factors. Effective governance could potentially support better implementation of policies aimed at reducing inequality and poverty.

4. RESULTS

The descriptive statistics for the variables used in this study are presented in Table 2. The BOTTOM 20, indicating income share of the lowest 20%, has a median of 5.6420 with a slight positive skewness and moderate kurtosis. The GINI coefficient shows moderate inequality with a median of 40.9430 and low skewness. Financial development (FD) and foreign direct investment (FDI) exhibit significant variability and positive kurtosis, indicating the presence of outliers. GDP and inflation (INF) show negative skewness, reflecting a concentration of lower values, while openness (OPEN) reveal varied distributions with notable kurtosis

Next this study proceeds with unit root test from Levin, Lin and Chu (LLC) and Im, Pesaran and Shin (IPS) tests, as shown in Table 3 which check for stationarity. Overall the findings shows mixed variables of I(0) and I(1). Results from Pedroni and Kao's cointegration tests are shown in Table 4. Pedroni's (2001) cointegration test, establishes a statistical test to evaluate the null hypothesis that there is no cointegration in a stationary panel. Kao's cointegration panel test, on the other hand, shows that both dependent variables are stationary at the 10% significance level. Overall, the results show cointegration between the seven variables in the model, at least as indicated and proven in the statistical panel PP Pedroni and ADF Kao at the 10% level of significance, although the majority of statistical cointegration tests are not significant. Therefore, we can still conclude that Bottom 20%, FD, FDI, GDP, INF, OPEN, and WGI have a long run relationship in the five selected ASEAN countries.

We used the ARDL Panel method with the Pooled Mean Group (PMG) method to estimate the relationship between various factors and poverty in ASEAN countries, focusing on the bottom 20% of the population. The results are shown in Table 5. In the long term, financial development (FD) is negatively related to poverty, meaning it can help reduce poverty, although this effect is not significant. Foreign direct investment (FDI) is significantly related to poverty reduction at the 5% significance level, where a 1% increase in FDI reduces poverty by 0.022%. GDP growth is positively related to poverty reduction and is significant at the 10% level, with a 1% increase in GDP increasing the income of the bottom 20% by 0.079%. This indicates that while FDI tends to benefit the richer population more, it still helps reduce poverty among the poor. On the other hand, GDP growth benefits everyone, increasing the income of the low-income population and reducing poverty.

For the OPEN (trade openness) and WGI (World Governance Indicators) variables, both are significant and positively related to reducing poverty at the 5% significance level. A 1% increase in trade openness can increase the income of the bottom 20% by 0.0325%, and a 1% increase in WGI can increase their income by 0.773%. This indicates that improving governance and trade openness positively impacts reducing poverty and increasing income. In the short term, the error correction term (ECT) is significant at the 10% level and negatively impacts the bottom 20%, suggesting it takes about 10 years to return to equilibrium. For income equality in selected ASEAN countries, the Gini Index shows that in the long term, financial development (FD) and GDP significantly impact income equality at the 1% significance level. A 1% increase in FD reduces income inequality by 6.213%, highlighting its importance in reducing inequality. Similarly, a 1% increase in GDP reduces the income gap by 0.506%, as GDP growth raises per capita income and reduces the income gap.

Table 2: Descriptive statistics results

Statistics	Bottom 20	GINI	FD	FDI	GDP	INF	OPEN	WGI
Min	5.6881	41.4973	0.0000	6.0132	4.4700	3.1023	152.5887	−0.0381
Median	5.6420	40.9430	0.1217	2.7128	5.0331	2.8532	124.8397	−1.1404
Maximum	7.7270	47.0610	2.3623	29.7605	14.5198	13.1087	437.3267	4.2648
Minimum	4.1670	35.9870	−2.8267	−0.9886	−9.5183	−1.1387	32.9722	−2.9780
SD	0.8352	2.8596	1.3281	7.9556	3.4175	2.6249	116.3991	2.2234
Skewness	0.4875	0.3692	−0.4466	1.7141	−1.4208	1.0647	1.1385	0.9516
Kurtosis	2.4296	2.2556	2.5086	4.3944	7.3055	4.9267	2.9825	2.4767

SD: Standard deviation, WGI: World Governance Index, GDP: Gross domestic product, FD: Financial development, FDI: Foreign direct investment

Table 3: Unit root test results

Variables	LLC		IPS	
	Level	First difference	Level	First difference
GINI	−1.5758*	−1.6995**	−0.3815	−2.0988**
Bottom 20%	−2.2503*	−2.1721*	−0.8693	−3.0022**
FD	1.4793	−0.4006	1.1361	−3.0316**
FDI	−2.6964**	−6.2999***	−2.5101**	−6.2411***
GDP	6.9212	2.1055	0.7029	−2.5073**
INF	−1.6488*	−6.7904***	−1.2778	−7.2368***
OPEN	−1.7668*	−3.7723***	−0.2947	−3.9046***
WGI	−2.6128**	−0.3971	−1.4579*	−2.4181**

*, **, ***Significance levels at 10%, 5% and 1%, respectively. LLC: Levin, Lin and Chu, WGI: World Governance Index, GDP: Gross domestic product, IPS: Im, Pesaran and Shin, FD: Financial development

Table 4: Panel cointegration test results

Pedroni	Bottom 20%		GINI	
	Statistics	P	Statistics	P
Modified Phillips–Perron T	3.1846***	0.0007	3.2808***	0.0005
Phillips–Perron T	0.3612	0.3590	0.3758	0.3535
Augmented Dickey–Fuller T	0.1548	0.4385	0.5896	0.2777

*, **, ***Significance levels at 10%, 5% and 1%, respectively

Table 5: Panel autoregressive distributed lag regression results

Bottom 20%		GINI	
Variables	Coefficient	Variables	Coefficient
Short run			
ECT_{t-1}	−0.0375*	ECT_{t-1}	−0.0601
ΔFD_t	0.0182	ΔFD_t	0.0609
ΔFDI_t	−0.0078	ΔFDI_t	0.0046
ΔGDP_t	0.0050	ΔGDP_t	0.0014
ΔINF_t	−0.0042	ΔINF_t	0.0455
$\Delta OPEN_t$	0.0009	$\Delta OPEN_t$	−0.0129
ΔWGI_t	−0.1015	ΔWGI_t	−0.6630***
Constant	−0.6074	C	1.0101
Long run			
FD	−0.6664	FD	−6.2130***
FDI	−0.0225**	FDI	0.0783
GDP	0.0795*	GDP	−0.5064***
INF	−0.0957	INF	−0.1204
OPEN	0.0352***	OPEN	0.0092
WGI	7.7352***	WGI	−0.8170

*, **, ***Significance levels at 10%, 5% and 1%, respectively. WGI: World Governance Index, GDP: Gross domestic product, FD: Financial development, FDI: Foreign direct investment

In the short term, WGI is negatively and significantly related to income equality at the 5% level, with a 1% increase in WGI reducing the income gap by 0.663%. Overall, FD can reduce income inequality, while FDI worsens poverty. WGI positively impacts poverty reduction and income equality. Variables like FD and FDI may benefit the middle class and the rich more than the low-income group. According to Altunbas and Thornton (2019), financial development benefits economies that are not poor, but in poor economies, it may increase inequality and poverty. FDI may also only benefit certain groups, leaving the poor unaffected. WGI shows a positive effect on reducing poverty and improving income equality, supported by Tabash et al. (2023) and Claessens and Perrotti (2007), who argue that strong governance structures ensure equal access and opportunities, reducing disparity.

Table 6 shows the short run regression results for each country. For the Bottom 20% income group, all Error Correction Terms (ECTs) are negatively related and significant at the 1% level. Financial development (FD) is negatively related in the Philippines but positively related in Indonesia and Singapore, indicating that financial development in these two countries helps reduce poverty. Foreign direct investment (FDI) significantly affects all selected ASEAN countries at the 1% level. FDI in Indonesia and Singapore is positively related to the Bottom 20%, while in three other countries, it negatively impacts poverty. GDP has a significant positive effect on the Bottom 20% at the 1% level in Indonesia, Singapore, and Thailand, but is negatively related in the other countries.

Inflation (INF) shows a negative relationship with the Bottom 20% in Indonesia and Thailand, worsening poverty. However, in Malaysia, the Philippines, and Singapore, it is positively related, likely due to government welfare protecting low-income groups. Trade openness (OPEN) significantly affects the Bottom 20% at the 1% level in all selected ASEAN countries. It is negatively related in Indonesia and Singapore, as the benefits of international trade are not evenly distributed. In Malaysia, the Philippines, and Thailand, trade openness positively affects the Bottom 20%. Governance (WGI) is positively related to the Bottom 20% in Indonesia and Malaysia at the 10% level, while in the Philippines and Singapore, it is significant at the 1% level but negatively related.

Regarding income equality measured by the Gini Index, each country's ECT is significant at the 1% level. FD significantly affects the Gini Index in the Philippines, Singapore, and Thailand at the 1% level. In Singapore and Thailand, FD is negatively related to the Gini Index, while in the Philippines, it is positively related, suggesting financial services are less accessible to the poor. FDI is negatively related to the Gini Index in Indonesia and Malaysia but positively related in the Philippines and Singapore. GDP reduces inequality in Indonesia, Malaysia, and Singapore but increases it in the Philippines, where GDP growth benefits the rich more than the poor.

Inflation significantly affects the Gini Index at the 1% level in Indonesia, the Philippines, Singapore, and Thailand. Only in Thailand is the relationship negative, while in the other three countries, it is positive. Trade openness significantly impacts the Gini Index at the 1% level in all selected ASEAN countries. It worsens the income gap in Malaysia and Indonesia but reduces inequality in the Philippines, Singapore, and Thailand. Governance (WGI) significantly affects the Gini Index only in the Philippines and Singapore, where it is negatively related, indicating that good governance reduces income inequality.

Table 6: Short run regression results for each country

Dependent variable: Bottom 20%					
Variables	**Indonesia**	**Malaysia**	**Philippines**	**Singapore**	**Thailand**
ECT_{t-1}	−0.0210***	−0.0301***	−0.0232***	−0.1048***	−0.0084***
ΔFD_t	0.1853***	−0.0042	−0.1712***	0.1278***	−0.0468
ΔFDI_t	0.0566***	−0.0196***	−0.0071***	0.0017***	−0.0705***
ΔGDP_t	0.0117***	−0.0043***	−0.0047***	0.0112***	0.0110***
ΔINF_t	−0.0026***	0.0120***	0.0124***	0.0127***	−0.0554***
$\Delta OPEN_t$	−0.0139***	0.0044***	0.0027***	−0.0015***	0.0129***
ΔWGI_t	0.1902*	0.0936*	−0.2629***	−0.5636***	0.0350
Constant	0.2437***	−0.0198*	0.4744***	−3.8977***	0.1624
Dependent Variable: GINI index					
Variables	**Indonesia**	**Malaysia**	**Philippines**	**Singapore**	**Thailand**
ECT_{t-1}	−0.2663***	0.0735***	−0.2928***	0.3257***	0.0735***
ΔFD_t	−0.0375	−0.1376	1.1900***	−0.8199***	−0.2977***
ΔFDI_t	−0.2708*	−6.6195***	0.0958***	0.0246***	−0.0012
ΔGDP_t	−0.0373***	−5.1155*	0.1910***	−0.1565***	−0.0031
ΔINF_t	0.0036***	0.9363	0.0707***	0.0415***	−0.0622***
$\Delta OPEN_t$	0.0660***	35.7235***	−0.0950***	−0.0005***	−0.0039***
ΔWGI_t	−0.8461	−1.2608	0.2281**	−1.0840*	−0.5858
Constant	7.6787	1.6740	13.0940	−17.0651	−3.8716

*, **, ***Significance levels at 10%, 5% and 1%, respectively

5. CONCLUSIONS

This study primarily investigates the impact of financial development on income equality and poverty reduction in Southeast Asian countries. It is crucial for aiding researchers and ASEAN economists in formulating policies aimed at mitigating income inequality and alleviating poverty in these nations. The research utilizes panel data from five ASEAN countries: Malaysia, Thailand, Indonesia, Singapore, and the Philippines, covering the period from 2004 to 2020. The Autoregressive Distributed Lag (ARDL) panel method was employed for analysis. The selection of countries was based on the availability of relevant data. Additionally, import and export data from the World Bank Development Indicators were used to assess the effects of trade openness.

The findings reveal that financial development can decrease income inequality in the selected ASEAN countries; however, it does not significantly impact poverty reduction. In the short run ARDL analysis for individual countries, financial development positively influences poverty reduction in Indonesia and Singapore and narrows the income gap in Singapore and Thailand. Conversely, in the Philippines, financial development appears to exacerbate both income inequality and poverty. This aligns with the theory posited by Altunbas and Thornton (2019) that financial development yields positive outcomes in economically stable environments, whereas, in poorer economies, it tends to only modestly address or even worsen inequality and poverty. This could be due to financial development benefiting primarily the middle and upper classes, rather than being inclusive of the poor.

The study suggests several policy implications. Firstly, governments should integrate financial policies that are inclusive and beneficial to all societal groups, particularly the low-income segment. This can be achieved by expanding financial access at all societal levels, ensuring equitable availability of essential financial services like banking, loans, insurance, and investments. Such measures can safeguard vulnerable populations, particularly those facing significant economic hardships. Furthermore, easing financing conditions for small and medium enterprises through commercial banks or governmental interventions could support low-income and young entrepreneurs. This would help elevate them from poverty and narrow the income disparities between the affluent and the poor.

However, the study faces limitations, including the unavailability of comprehensive data from other ASEAN countries such as Vietnam, Myanmar, Cambodia, Brunei, and Laos, which restricts the analysis to just five nations. Data limitations also include a lack of comprehensive annual data and insufficient data on some of the study's key variables. Future researchers are encouraged to expand the dataset to include more ASEAN countries and extend the study period, which could potentially enhance the robustness and applicability of the findings to broader contexts.

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