

The Nexus of Financial Development, Macroeconomic Indicators, and Poverty in ASEAN Countries



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ABSTRACT: Poverty has always a concern of policy makers around the world, because it hinders the sustainable economic development. Poverty alleviation is one of the development goals that will be achieved, including in Southeast Asia. This study aims to analyze the determinants of poverty in ASEAN countries using the Vector Autoregression Model analysis, with an analysis period of 2017-2021. The results showed that the financial sector and macroeconomic variables of economic openness and inflation could influence poverty. In contrast, economic growth did not affect the poverty rate in ASEAN countries. The poverty rate was able to respond quickly since the shock in the financial sector and macroeconomic variables, except for the response to inflation which only emerged in the second year since the shock.

KEYWORDS: poverty, financial development, economic growth, inflation, economic openness

I. INTRODUCTION

One of the main goals of millennium development is to halve the poverty rate worldwide (Rewilak, 2015). In addition to several other policies, promoting the development of the financial sector (Aleemi & Azam, 2016; Zhuang et al., 2009) and macroeconomic stability (Inoue & Hamori, 2010) are the main strategies to achieve these results. In particular, policies were taken to strengthen financial deepening (Rewilak, 2015). Recently, greater attention has been paid to the inclusiveness of the financial sector and the stability of macroeconomic conditions (Singh & Huang, 2015; Okoye, 2017). A stable economy can encourage economic growth and reduce poverty.

An active and stable financial system characterizes successful development. Financial sector development will increase access and use of banking services through productive credit (Sarma & Pias, 2011; Park & Mercado, 2018). The financial inclusion strategy arises because of the low access to finance by the population as a result of low-income communities, the lack of public knowledge about finance and banking, bank administration fees, which are considered high, and the reach of banks is far from settlements (Ma'ruf & Aryani, 2019). The objective of the financial inclusion strategy is to develop the economic activities of the population who do not yet have access to financial services, overcome poverty, and encourage income distribution.

The relationship between the financial sector development and poverty reduction has been the subject of interest in economic literature. Theoretically, there are two related channels to the role of the financial sector in reducing poverty levels. First, the financial sector can directly impact poverty by facilitating transactions and enabling the poor to access credit and savings opportunities. Second, strengthening the financial development can benefit the poor indirectly through economic growth by improving conditions in this sector and the areas in which they live (Odhiambo, 2010; Keho, 2016).

Theoretical predictions suggest that financial development contributes directly to poverty reduction (Kheir, 2016; Muritala & Fasanya, 2013; Jalilian & Kirkpatrick, 2001): first, directly through savings, insurance services, and access to credit that can increase the asset productivity of the poor by enabling them to invest in new technology, or invest in education and health. Financial development can increase opportunities for the poor to have access to formal finance. Second, the financial system enables the poor to access financial services, particularly credit risk and insurance, increasing the productive assets of the poor by increasing productivity and increasing their potential for sustainable gains.

Economic growth is an economic problem of a country in the long term towards a better condition for a certain period. It can also be interpreted as a state of increasing the economy's production capacity, which is manifested in the form of an increase in national income (Todaro, 2020). Economic growth means the development of activities in the economy to increase goods and services produced and the level of prosperity of the community.

According to Kuznets, a classical economist stated that economic growth in developing countries initially tends to lead to high levels of poverty and inequality of income distribution. However, if these developing countries are more advanced, poverty and income distribution will decrease (*an inverse U-shaped pattern*). Harrod Domar's theory of economic growth states that the GDP growth rate is determined jointly by the national saving ratio and the national capital-output ratio. For a country's economy to

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proliferate, each must save and invest as much of its GDP as possible. The more saved and invested, the faster economic growth will be (Todaro, 2020).

Solow's neoclassical growth theory proposed by Robert Solow developed the Harrod-Domar theory by adding a second factor, namely labor, and introducing a third independent variable, namely technology, into the *growth equation*. Technological progress is determined as a residual factor to explain economic growth in the long term, and the high and low economic growth itself by Solow and other theorists is assumed to be exogenous or not influenced by other factors (Mankiw, 2010).

Another macroeconomic indicator used to see or measure the stability of a country's economy is inflation. Changes in this indicator will have an impact on income and poverty levels. Inflation is one of the monetary phenomena in a country where the rise and fall of inflation tend to cause economic turmoil. In general, inflation is a symptom in which the general price level continues to rise. An increase in the price of one or two goods cannot be inflation unless the increase is widespread or results in an increase in the price of other goods. Inflation occurs due to an imbalance between the flow of goods and money caused by various factors. The high inflation rate will hamper economic development and economic activity for the community, reflected in decline in purchasing power. Conversely, if a country's inflation is low, it will encourage the economy's pace so that incomes increase and reduce poverty levels.

Factors that affect the poverty level apart from domestic factors can also come from external factors related to economic openness as reflected in international trade. According to Ricardo, specialization encourages countries to run a free trade system (Salvatore, 2007). Market expansion, technology exchange, and increased productivity are some trade advantages (Krugman, 2011). International trade can promote efficiency and market expansion (Sun & Heshmati, 2010). Efficiency will increase through research and development and encourage increased income and poverty reduction (Solomon & Tukur, 2019).

Research in many middle-income countries in Eastern Europe and Latin America and developing countries on the African continent for 2004-2015 (Rewilak, 2015). The study results found that financial deepening had the most significant poverty reduction effect, followed by increased access to finance. The results show that financial instability and efficiency of the banking sector do not affect poverty alleviation. In addition, an increasingly fragile financial sector could undermine the ability of the financial sector to extend credit to innovative individuals or small companies that could block the channel of poverty alleviation. This will happen when financial sector conditions are depressed, and banks can stockpile liquidity or increase their capital ratios by reducing the total amount of risk-weighted assets.

Research related to the impact of financial developments on poverty reduction was also conducted in 89 countries from 1990-2011, using the simultaneous equation model. The results show that financial development, through insurance channels, access to credit and savings services can reduce poverty (Dhrifi, 2013). A study of six African countries for the period 1970-2013 showed that the development of the financial sector did not directly reduce poverty in Nigeria and South Africa (Keho, 2016; Dandume, 2014). However, in Cameroon and Gabon, the development of the financial sector led to poverty reduction (Keho, 2016). Research on the impact of financial sector developments on poverty in middle-income countries, period 1980-2014 shows that the development of the banking system does not necessarily improve the conditions of the poor. However, the development of the stock market can reduce poverty (Kaidi & Mensi, 2018).

Several studies that have been conducted in many countries show that the financial development directly (Rewilak, 2015, 2017; Naceur & Zhang (2016) and indirectly through economic growth (Dhrifi, 2013; Aye, 2013) has an impact on poverty reduction. Other studies have shown that the financial development does not affect poverty levels (Kaidi & Mensi, 2018; Keho, 2017; Dauda & Makinde, 2014), as well as the impact of macroeconomic variables such as inflation and international trade, which have different impacts on poverty reduction (Inoue & Hamori, 2010). Given these conflicting results of the studies, further empirical studies are needed to determine whether the financial development and macroeconomic indicators can reduce poverty in ASEAN countries.

II. METHODS

This research uses *Vector Autoregressive* (VAR) to analysis the panel data from 10 ASEAN countries, namely: Indonesia, Philippines, Thailand, Singapore, Brunei Darussalam, Malaysia, Vietnam, Lao, Myanmar, Cambodia) in 2017-2021. This approach modifies or combines multivariate regression with time series analysis (Gujarati, 2012). The main difference between multivariate regression and multivariate time series is the follow-up test concerning time within or between the variables. VAR analysis can be compared with a simultaneous equation model because it considers several endogenous (dependent/bound) variables together in a model. In addition to being explained by its past value, each variable is also influenced by the past value of all other endogenous variables in the observed model. In addition, there are usually no exogenous (independent/independent) variables in the model in the VAR analysis. The general model of VAR with a lag of 1 is as follows (Gujarati & Porter, 2009):

$$Y_t = \alpha_{1i} + \sum \beta_{1i} Y_{t-1} + \sum \gamma_{1i} X_{t-1} + \varepsilon_t$$
$$X_t = \alpha_{1i} + \sum \beta_{1i} Y_{t-1} + \sum \gamma_{1i} X_{t-1} + \varepsilon_t$$

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Variables Y and X reflect all variables in this study. Poverty measured by the percentage of the poor population (%). Financial development measured by the ratio of broad money (M2) to GDP (%). Economic growth measured by real GDP growth (%). Inflation measured by the growth of the Consumer Price Index (%) and openness measured by the ratio of exports plus imports to GDP (%).

III. RESULTS AND DISCUSSION

A. Stationarity Test

The results of the stationarity test of level data or I(0) in table 1 show that the variables of poverty (POV), the financial sector (MS), economic openness (BOT), economic growth (G), and inflation (INF) not significant at the significance level of 5 percent. This is shown by the statistics ADF probability value greater than 0.05, meaning that these variables have a unit root, or it can be said that the data is not stationary. Thus, to find out the data will be stationary at what degree, the next test stage is needed, namely the degree of integration test at the level *first difference* or degree one, I(1). The degree of integration test results shows that all data are stationary at degree one, so that the data does not have a unit root, or it can be said that the data is stationary.

Table 1. Stationarity Test

Variable	Prob Level		Prob First Difference		Conclusion
	ADF-Fisher Chi-square	ADF-Choi Z-stat	ADF-Fisher Chi-square	ADF-Choi Z-stat	
POV	0.0164	0.0544	0.0000	0.0000	Stationary
MS	0.4615	0.2602	0.0000	0.0000	Stationary
BOT	0.0847	0.1701	0.0000	0.0000	Stationary
G	0.5206	0.3605	0.0000	0.0000	Stationary
INF	0.2372	0.1344	0.0000	0.0000	Stationary

B. Determination of Optimum Lag

The length test is *lag* optimum performed to eliminate autocorrelation problems. So that by performing the optimum lag test, it is hoped that there will be no autocorrelation problem. The determination of the optimum lag uses the following information criteria: *Likelihood Ratio* (LR), *Schwarz Criterion* (SC), *Final Prediction Error* (FPE), *Akaike Information Criterion* (AIC), *Hannan Quinn* (HQ). Following the optimum lag test results summarized in table 2, it shows that all criteria have a grace period of 2 at a significance level of 5%. So, this study will use *the lag* optimum2.

Table 2. Results of Determination of Optimum Lag

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-406.4624	NA	563298.0	27.43083	27.66436	27.50553
1	-283.2482	197.1426*	829.7763*	20.88322*	22.28441*	21.33147*
2	-260.8453	28.37710	1148.216	21.05635	23.62521	21.87815

C. Granger Causality Test

From the Granger causality test results in table 3, it can be seen that the financial sector variable is a factor that affects poverty, but not vice versa. The variables of economic openness and economic growth do not affect poverty. However, the macroeconomic variable of inflation affects poverty. Furthermore, poverty should be able to influence the inflation rate in 10 ASEAN countries. These results indicate that to reduce poverty levels in all 10 ASEAN countries, the government through the central bank must encourage the development of an efficient financial sector by paying attention to price stability. These results are in line with research by Erlando et al (2020) and Andrian et al (2021) in Indonesia, Ma'ruf & Aryani (2019) in ASEAN countries, Kheir (2018) in Turkey, Keho (2016) in Cameroon and Gabon.

Table 3. Granger Causality Test Results

Null Hypothesis:	Obs	F-Statistic	Prob.
MS does not Granger Cause POV	50	6.74976*	0.0134
POV does not Granger Cause MS		1.40989	0.2426
BOT does not Granger Cause POV	50	0.79180	0.3793
POV does not Granger Cause BOT		0.02454	0.8764

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G does not Granger Cause POV	50	0.21593	0.6449
POV does not Granger Cause G		1.25447	0.2699
INF does not Granger Cause POV	50	5.64665*	0.0228
POV does not Granger Cause INF		9.63742*	0.0036

The first step to enjoying formal financial services is savings products provided by banks and non-bank financial institutions. Saving will teach people to manage finances well while at the same time building a more organized personal financial record. Thus, the community can continue to the next level, namely investing in health, education, and business opportunities. For people who want to do business, having a good history of financial records will make it easier to access credit/financing, both program loans provided by the government with relatively low-interest rates and other business loans. All financial activities, whether saving, investing, and credit/financing, are expected to encourage an increase in people's income and an increase in people's welfare and reduce poverty.

D. Impulse Response Function

The poverty level has various responses from the turmoil in the financial sector and macroeconomic variables. The existence of a shock in the financial sector was responded positively to the poverty rate from the beginning of the period permanently. This means that the progress of the financial sector has not been able to reach the poor, or it can be said that the financial sector has not been able to alleviate poverty in the 10 ASEAN countries inclusively.

The existence of shocks in the variables of economic growth and economic openness responded negatively since the beginning of the period permanently. High economic growth can provide a trickle-down effect so that the poverty level can be reduced. An increasingly open economy means that a broader export market can increase national income, the impact of which is to increase people's welfare and reduce poverty levels. The inflation variable has a permanent positive response to the poverty rate starting in the second year. Inflation means a continuous increase in the price of general goods. An increase in prices will reduce people's purchasing power and reduce tangible assets to increase the poverty level.

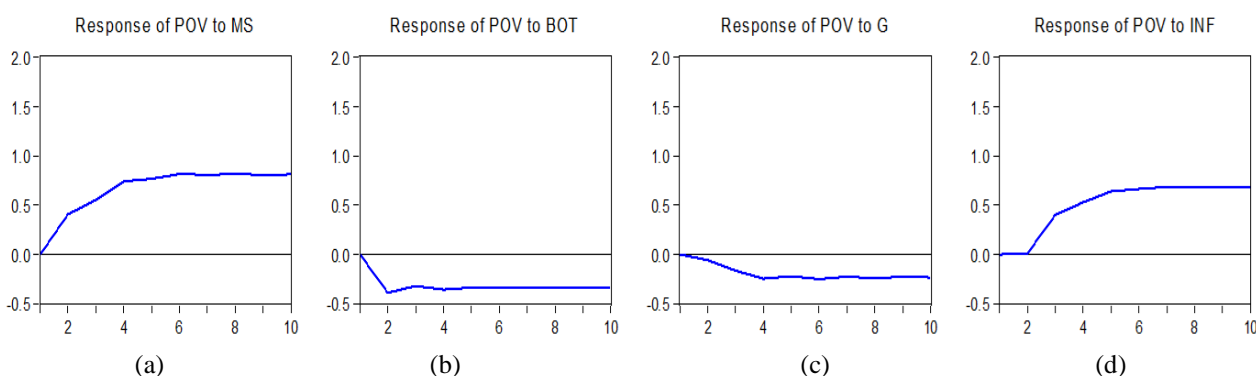


Figure 1. IRF VECM Model

IV. CONCLUSIONS

The financial sector can influence the poverty rate in ASEAN. The poverty rate was able to respond quickly from the start of the shock in the financial sector. Macroeconomic variables of economic openness and inflation can affect poverty, while economic growth does not affect the level of poverty. The poverty rate was able to respond quickly since the shock on macroeconomic variables, except for the response to inflation which only appeared in the second year since the shock.

The financial sector needs to be developed inclusively to improve access to finance for the poor. Increasing access can eliminate all obstacles that still arise, such as administrative requirements, low financial literacy, and financial infrastructure barriers. Together with the government, the central bank must be able to maintain price stability by the targets that have been set. Stable price levels can maintain people's purchasing power and maintain the competitiveness of domestic products in the international market to increase net exports. Higher foreign exchange can be used to finance development to improve people's welfare.

Economic activities must be directed at promoting inclusive economic growth to reduce poverty levels. Assistance and support for the poor must be carried out by both the government and the private sector to make efforts to empower the poor more optimal. Further research is expected to be able to conduct more micro research using primary data so that poverty problems can be analyzed more deeply and precisely according to the existing problems.

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