Jejak Vol 17 (1) (2024): 12-26 DOI: https://doi.org/10.15294/jejak.v17i1.2627

JEJAK

Journal of Economics and Policy

https://journal.unnes.ac.id/journals/jejak

Financial Inclusion Measurement and Economic Growth: Evidence from Selected ASEAN Countries

Adhitya Wardhono[1]✉, Misbahol Yaqin[2], Yulia Indrawati[3], M. Abd. Nasir[4], Ciplis Gema Qori'ah[5]

[1,2,3,4,5]Faculty of Economics and Business, University of Jember, East Java, Indonesia

Permalink/DOI: https://doi.org/10.15294/jejak.v17i1.2627

Received: November 2023; Accepted: January 2024; Published: March 2024

Abstract

Financial inclusion is an important strategy in economic development. This study aims to measure the level of financial inclusion and examine the effect on economic growth in Selected ASEAN Countries. Empirically, the study uses panel data in the form of annual data during the years 2005-2021. Some of the variables used are financial inclusion, GDP, inflation, and unemployment. The method used in this research is Panel Vector Autoregressive (PVAR). The results of the calculation of the financial inclusion index find that Indonesia's financial inclusion is in the middle category, Malaysia is in the high category, Thailand is in the high category and the Philippines is in a low category. IRF results from PVAR analysis show that financial inclusion has a positive influence on economic growth. This indicates that there is a need for incentives to encourage the growth of financial inclusion so that it is expected to accelerate the pace of economic growth.

Key words : Financial Inclusion, Economic Growth, ASEAN.

How to Cite:. Wardhono, et al., (2024). Financial Inclusion Measurement and Economic Growth: Evidence from Selected ASEAN Countries. *JEJAK, 17*(1). Doi: https://doi.org/10.15294/jejak.v17i1.2627

✉ Corresponding author: Adhitya Wardhono
Address: Faculty of Economics and Business, University of Jember, East Java, Indonesia
E-mail: adhitya.wardhono@unej.ac.id

e-ISSN 2460-5123

INTRODUCTION

In the last decade, the development of financial inclusion (FI) has attracted worldwide attention (Erlando et al., 2020; Shihadeh & Liu, 2019; Yin et al., 2019). The role of financial institutions is not only as a financial intermediary institution but also plays a role in creating economic growth, financial system stability, individual disparities between regions, and economic efficiency (Dabla-Norris et al., 2015; Okoye et al., 2017). Countries in the world develop FI based on their own characteristics. The study of financial inclusion related to economic growth is still a subject of prolonged debate. Dabla-Norris et al., (2015) explains that through the supply and demand side, financial development can encourage economic growth performance. The growing financial system expands access to funding so that it is easier for economic agents to obtain such funding and minimizes risk by not turning to the informal sector (Dabla-Norris et al., 2015; Wang & Guan, 2017; Wardhono et al., 2019). Meanwhile, Fisher (1911) mentions that it is necessary to mitigate the acceleration of FI by increasing access to excessive credit so that it can have negative ext ernalities due to the vuln-

erability of financial risk. This is in line with Sahay et al. (2018) which explains that a rapid and moderate increase in credit can lead to large financial risks, especially to financial instituteions due to the vulnerability of the expansion. This implies that financial inclusion indirectly can also cause negative externalities to economic and inflation if it is not managed properly

The relationship between FI and Economic Growth is also interesting from the empirical setting, given the differences in results from previous studies (Dabla-Norris et al., 2015; Michael & Sharon, 2014; Okoye et al., 2017). Studies from (Erlando et al., 2020; Kim et al., 2018; Mwaitete & George, 2018) find that FI has a positive effect on economic growth. While studies from De Gregorio & Guidotti (1995); Naceur & Ghazouani (2007); Okoye et al. (2017) find that financial inclusion weakens economic growth. In that sense, the relationship between financial inclusion and economic growth is still inconclusive.

In the absence of a universally accepted definition and standard measure of the concept of FI, FI measures often vary across studies (Gadanecz & Tissot, 2017; Park & Mercado, 2018). Previous researchers measured financial inclusion in different ways. Sarma & Pais (2008) measures FI based on several dimensions. The three dimensions included are access, availability and use of financial services. Meanwhile, Cáamara & Tuesta (2014) developed the concept of FI by including financial access barriers. Amidžić et al. (2014) construct FI indicators as a combination of variables related to the dimensions of accessibility, used, and quality. Hung (2015) developed the concept of FI with a focus on the penetration dimension consisting of geographic, demographic, and banking penetration. Several measurements of financial inclusion above show that the measurement only focuses on the supply side (financial institutions), and ignores the importance of the demand side (public knowledge of financial access or financial literacy). Therefore, this study will measure financial inclusion by indexing from both sides to obtain more comprehensive results and examine its effect on economic growth. From the demand side, it will include aspects of financial literacy, because knowledge of finance is important in supporting financial inclusion in society.

One of the areas that are aggressively pursuing efforts to increase financial inclusion in ASEAN. ASEAN is a regional cooperation organization of Southeast Asian countries and countries within which have the same financial and economic features. Financial inclusion in ASEAN shows a positive trend from year to year. Although the financial inclusion program according to the World Bank survey if it is based on accessibility to financial institutions is still considered low. Based on the World Bank Survey 2017 shows that in Indonesia only 49% of people who have a financial institution account. The Philippines shows a lower performance compared to Indonesia, where only 35% of people who have a financial institution account. Meanwhile, Malaysia and Thailand show that the majority of their people already have good access to financial institutions. As much as 85% in Malaysia and 82% in Thailand people already have a financial account according to the World Bank Survey 2017. Constraints faced by countries in ASEAN in increasing financial inclusion come from the demand side (society) and supply-side (financial institutions). From the demand side, one of the causes of the slow acceleration of FI in ASEAN is the lack of public understanding of financial management (Bank Indonesia, 2015). Several other factors hindering the development of FI are the high administrative costs of opening a bank account. From the supply side (financial institutions), the limited number of financial service providers such as branch offices and ATMs for each region is also a factor that causes low financial inclusion in ASEAN.

In response to this condition, several programs have been taken by governments in ASEAN to encourage the development of financial inclusion. Programs such as financial education, providing innovative financial products, consumer protection like improving regulations and banking supervision issues are taken as steps to develop financial inclusion in ASEAN countries (Bangko Sentral ng Pilipinas, 2014; Bank Indonesia, 2014; Bank Negara Malaysia, 2015; Tambunlertchai, 2015; Wardhono et al., 2022). This is intended so that the momentum for the development of FI can encourage the economy through the intermediation function of financial institutions, considering that ASEAN countries are countries that are the axis of the global economy. The purpose of this study was to determine the level of FI and to see the effect of FI on economic growth in Selected ASEAN Countries.

METHOD

In this study, the measurement of the FI index adopted from Sarma (2012) consists of three dimensions. That are accessibility (d1), availability (d2), and usage (d3). The access dimension describes how much the community has been served by banks, one of which is shown by the ownership of a banking account. Furthermore, the availability dimension is explained by the number of bank branches and ATMs. Meanwhile, the dimensions of use are explained by the volume of public deposits and credit at financial institutions. Given that the three dimensions presented by Sarma (2012) only describe financial inclusion from the supply side (financial institutions), this study modify the index by adding one dimension, namely the literacy dimension as one aspect of FI from the demand side. The literacy dimension describes how much people's financial knowledge is described in this study by the education index.

As with Sarma (2012). the financial inclusion index is calculated first by calculating the dimension index for each financial inclusion dimension. The dimension index for the i-th dimension is calculated by the following formula:

$$d_i = \frac{A_d - m_d}{M_d - m_d} \quad (1)$$

Where d_i is Giving weight to dimension, A_d Actual value on the dimension, m_d minimum value on the dimension, and M_d Maximum value on dimension. The above equation shows that the dimension weights are at 0 in 1. The higher the value of di, the higher the country's achievement in dimension i. In this study, the weights used for all dimensions are the same (wi = 1). Following the method used by Sarma (2012), this study assumes that all dimensions have the same priority so that the weight value is wi = 1 for all values of i. Sarma (2012) empirically observed the lowest minimum limit and the highest maximum limit.

After calculating the index for each dimension, it is continued by calculating the FI index with the following formula:

$$IFI_i = 1 - \frac{\sqrt{(1-d_1)^2+(1-d_2)^2+(1-d_n)^2+(1-d_n)^2}}{\sqrt{n}} (2)$$

In equation 2, the numerator of the second component is normalized by $\sqrt{n}$ and reducing it by 1 gives the inverse normalized distance. Normalization is done to make the value lie between 0 and 1 so that a higher IFI value corresponds to a higher FI.

After determining the above equation, each dimension is given a weighting. In this study, the weighting for each dimension refers to Sarma (2012). In this case, Sarma (2012) gives a weight of 1 for the penetration, 0.5 for the availability, and 0.5 for the usage. While the modification in this study for the literacy dimension was given a weight of 0.5. Giving a weight of 0.5 in the literacy dimension because the data or knowledge level measurement is still moderate. Public knowledge of finance described through financial literacy cannot fully explain

how the public with their knowledge can easily enter the financial sector, this is because, in addition to the level of financial knowledge possessed by the community, there are other factors or indicators such as religion that can also influence the community in using financial services such as those provided by banks.

After assigning weights to the dimensions, the final IFI is calculated as follows about the previous 2 equations.

$$IFI_i = 1 - \frac{\sqrt{(1-p_1)^2+(0.5-a_2)^2+(0.5-u_n)^2+(0.5-k_n)^2}}{1.75} \quad (3)$$

From the above formulation, the results of several categories of financial inclusion index calculations will be obtained with the following information: (1) 0.50 ≤ IFI ≤ 1 - *high financial inclusion*; (2) 0.32 ≤ IFI < 0.50 - *medium financial inclusion*; (3) 0.0 ≤ IFI < 0.32 - *low financial inclusion.*

Calculation of the category is calculated based on the results of the FI index adjusted for the calculation of the length of the class interval. In determining the class, it has been determined in advance, namely using three classes that are tailored to the needs of the financial inclusion index categorization such as Sarma (2012) but with different numbers. This is due to the addition of the literacy dimension to the calculation of the FI index. Financial literacy will determine how people access financial services (Bank Indonesia, 2014; Bank Negara Malaysia, 2015; Tambunlertchai, 2015; Tan, 2014; Wardhono et al., 2020)

The model specifications in this study were adopted from research conducted by Kim et al. (2018) which examines impact of FI to economic in Organized Islamic Cooperation (OIC) countries that use PVAR and GMM. Then Neaime & Gaysset (2018) linearity of FI with growth, poverty, and inequality in MENA countries. The research focused on the effect of financial inclusion on economic growth and poverty. Therefore, the specifications PVAR model in this study are as follows:

$$RGDP_{i,t} = \alpha_{i,t} + \alpha_{11}RGDP_{i,t-1} + \alpha_{12}IFI_{i,t-1} + \alpha_{13}INF_{i,t-1} + \alpha_{14}UNEMP_{i,t-1} + \varepsilon_{i,t} \quad (4)$$

i is the cross-section of the country. t describes the period, RGDP is real GDP at constant prices as a proxy for economic growth. The IFI variable describes the previously calculated financial inclusion index. Meanwhile, UNEMP and INF are variables of unemployment and inflation, which are proxied using the consumer price index. While is an error term.

This study uses secondary data with panel data types in s countries from 2005 to 2021. The determination of the timeframe used in this study is based on the 2005-2021 timeframe, ASEAN countries have experienced economic pressures to be precise, the global financial crisis in 2008 disrupted the economy. The focus of the research is only on four ASEAN countries, namely Indonesia, Malaysia, Thailand, and the Philippines, which are the areas affected by the 2008 global financial crisis in terms of the sharpest economic growth. Secondary data used in this study are financial inclusion index, real GDP, inflation, unemployment. These data were obtained from several sources, namely the World Bank, UNDP, IMF.

Financial inclusion data is obtained from the indexation of financial inclusion. The calculation of FI index in this study adopts the calculation of the FI index of Sarma (2012) and modifies it by adding one dimension from the demand aspect, namely the literacy dimension described by the education index. Some of the variables used in this study are the number of ATMs and bank branches per 100,000 adults (inventory dimension), the number of bank accounts per 1000 adults (accessibility dimension), the ratio of the number of loans and deposits in banking to GDP (use dimension), and index education (literacy dimension).

RESULT AND DISCUSSION

The development of financial inclusion (FI) is an important of achieving the welfare of the people of a country (Estrada et al., 2010; Vo

et al., 2020; Wardhono & Nasir, 2022). These principles provide an understanding of how people can easily get access to financial services and provide education about managing their finances wisely (Demirguc-Kunt et al., 2017; Van et al., 2021). In fact, in several countries in the world, access to finance used by the community is still not evenly distributed. Likewise with the case in ASEAN countries, although financial inclusion increases every year there is 30% of the people who have not enjoyed access to financial services. Access to services is an important issue in supporting the stability and economic growth of a country, therefore policies that can build financial inclusion are carried out, including in Selected ASEAN Countries (Lerohim et al., 2015; Levine et al., 2000; Merton, 1995).

Table 1 shows the descriptive statistics of the 4-dimensional FI Index from the selected ASEAN countries that have been calculated previously. The results implied in Table 1 show several indicators such as minimum, maximum, average, and SD values. On average, the financial inclusion index in Selected ASEAN Countries was 0.38 in 2010 and 0.54 in 2021. From the proportion of the 4-dimensional FI index, the accessibility dimension is the highest, followed by the literacy, use, and availability dimensions. These results show that FI in Selected ASEAN Countries is largely determined by the availability dimension and other dimensions (literacy, use, and accessibility) which have a smaller proportion. Moreover, this finding suggests that most people still have low access to the use of financial products (Sethi & Acharya, 2018; Sun & Cui, 2018).

Table 1. Financial Inclusion Index 4 Dimensions of Financial Inclusion in Selected ASEAN Countries

Stat	*Year*											
	2010	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*2021*
Financial Inclusion Index												
Min	0.178	0.195	0.183	0.197	0.204	0.214	0.224	0.231	0.243	0.269	0.287	0.300
Max	0.659	0.667	0.678	0.684	0.683	0.671	0.663	0.652	0.651	0.653	0.653	0.644
Avg	0.383	0.394	0.412	0.434	0.442	0.448	0.457	0.487	0.494	0.503	0.525	0.537
S.D	0.232	0.226	0.228	0.218	0.214	0.206	0.195	0.183	0.180	0.169	0.166	0.162
Accessibility Index												
Min	0.192	0.215	0.195	0.207	0.211	0.222	0.231	0.235	0.254	0.290	0.306	0.328
Max	0.870	0.890	0.924	0.987	0.978	0.912	0.897	0.881	0.873	0.864	0.849	0.841
Avg	0.465	0.477	0.494	0.532	0.538	0.530	0.542	0.595	0.607	0.620	0.652	0.690
S.D	0.319	0.314	0.331	0.342	0.335	0.301	0.285	0.267	0.258	0.240	0.238	0.244
Availability Index												
Min	0.061	0.063	0.066	0.070	0.076	0.080	0.084	0.089	0.090	0.091	0.092	0.091
Max	0.162	0.175	0.184	0.197	0.209	0.223	0.226	0.229	0.228	0.222	0.214	0.204
Avg	0.104	0.110	0.130	0.139	0.147	0.152	0.153	0.153	0.152	0.151	0.147	0.142
S.D	0.052	0.054	0.049	0.052	0.056	0.061	0.061	0.061	0.059	0.055	0.052	0.049
Usage Index												
Min	0.092	0.094	0.094	0.108	0.113	0.119	0.124	0.123	0.123	0.122	0.131	0.130
Max	0.345	0.356	0.365	0.371	0.367	0.364	0.354	0.337	0.343	0.339	0.374	0.363
Avg	0.184	0.192	0.202	0.211	0.213	0.214	0.213	0.209	0.210	0.210	0.236	0.233
S.D	0.118	0.122	0.125	0.123	0.120	0.117	0.109	0.100	0.103	0.101	0.112	0.109

Stat	*Year*											
	2010	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*2021*
	Literacy Index											
Min	0.293	0.299	0.304	0.307	0.308	0.311	0.317	0.319	0.321	0.325	0.330	0.333
Max	0.344	0.347	0.348	0.351	0.354	0.357	0.359	0.362	0.360	0.363	0.375	0.379
Avg	0.315	0.319	0.322	0.323	0.327	0.330	0.333	0.336	0.338	0.342	0.346	0.350
S.D	0.021	0.020	0.019	0.020	0.021	0.020	0.018	0.018	0.016	0.016	0.020	0.020

Source: Secondary Data (Processed), 2023

As discussed earlier, the FI Index is divided into three categories: low for countries with an IFI of less than 0.32; medium for countries that have an IFI score of 0.32-0.50; and the last category is high for countries that have an IFI score of more than 0.50. Figure 1 presents the FI Index Value in 2021 which is the end of the research period.

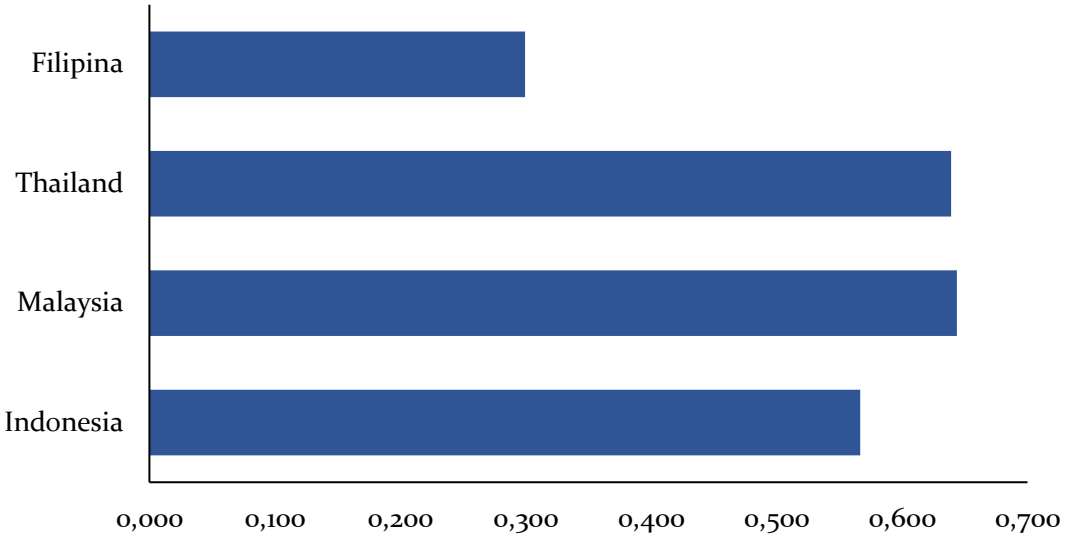

Figure 1. Financial Inclusion Index in Selected ASEAN Countries 2021

Source: Secondary Data (Processed), 2019

The results of calculating FI index show that Indonesia is categorized as a country with a medium FI index, namely 0.57 in 2021. During that period, Indonesia ranked third among the 4 ASEAN countries that were the object of research. The results of this study also found that Malaysia had the highest FI index in 2021 among three other countries with an index of 0.64. This means that around 64% of Malaysians have access to financial services. Meanwhile, this study also found that Thailand's financial inclusion index was 0.63 which means that Thailand's financial inclusion is in the high category. Furthermore, at the end of the research period, the country that has the lowest IFI is the Philippines with an index of 0.30 which is still classified as low in FI. The low FI in the Philippines is due to banking conditions which are only concentrated in the City Center (Bangko Sentral ng Pilipinas, 2014; Llanto, 2015; Safuan et al., 2021).

The PVAR analysis looks at the behavior of financial inclusion (FI) that has an impact on economic growth in Selected ASEAN Countries. There are several important tests in PVAR estimation, including stationarity test, cointegration test, optimum lag test, Impulse Response Function (IRF), and Variance Decomposition (VD). The stationarity test of the data in this study used the Philip Perron Fisher test. The stationarity test in this study are shown in Table 2.

From the estimation results it is known that all data is stationary at the first difference level.

The next step in PVAR estimation is conducting a cointegration test. Cointegration test was conducted to determine whether there is a long-term relationship between variables in the study. Cointegration testing is carried out using the Pedroni Residual Cointegration Test method. The results of Pedroni Residual Cointegration Test on variables in Selected ASEAN Countries are presented in Table 3.

Table 2. Unit root test results for using Fisher's PP Test

Variable		Level	First Difference
GDP rill	Statistic	0.01946	-3.22091
	(Prob)	(0.5078)	(0.0006)***
Financial Inclusion	Statistic	1.16513	-2.61394
Index	(Prob)	(0.8780)	(0.0045)***
Inflation	Statistic	-2.94718	-2.44196
	(Prob)	(0.0016)*	(0.0073)***
Unemployment	Statistic	-1.40724	-1.48499
	(Prob)	(0.0797)	(0.0688)*

Note: *, **, ***stationer 1%; 5% dan 10%

Source: Secondary Data (Processed), 2023

Table 3. Pedroni Residual Cointegration Test results for variables in Selected ASEAN Countries

Method	Statistic	Probability	Explanation
Panel v-Statistic	-0.8699	0.8078	Not Cointegrated
Panel rho-Statistic	1.3561	0.9125	Not Cointegrated
Panel PP-Statistic	1.1585	0.8767	Not Cointegrated
Panel ADF-Statistic	2.0890	0.9817	Not Cointegrated

Source: Secondary Data (Processed), 2023

Table 3 shows the results of the cointegration test using the Pedroni Residual Cointegration Test. The equation is said to be cointegrateed if the probability value is less than alpha. The results of data processing show that there is no long-term relationship between variables in Selected ASEAN Countries. This is evidenced by the P-value of more than 5% alpha.

The next test is the Optimum Lag test. This test is used to determine the duration of a variable in influencing other variables. this is to get maximum results. Several cases show that there is a variable time lag in influencing other variables. In other words, a change or movement of a variable is not directly responded to by other variables, but there is still a time lag, namely lag.

Table 4. Optimum Lag Test Results in Selected ASEAN Countries

Lag	LogL	LR	FPE	AIC	SC	HQ
0	81.656	NA	4.62e-07	-3.235	-3.079	-3.176
1	159.01	138.599*	3.60e-08*	-5.792*	-5.012*	-5.497*
2	171.399	20.127	4.24e-08	-5.641	-4.238	-5.1113
3	183.06	17.007	5.28e-08	-5.460	-3.433	-4.694
4	200.641	22.707	5.32e-08	-5.526	-2.875	-4.524

Source: Secondary Data (Processed), 2023

Based on the results of the lag test in Table 4, using the Akaike Information Criteria (AIC) information, it is found that the optimum lag is at lag 1. This criterion is because the minimum value of the Akaike Information Criterion (AIC) is at lag 1. Table 4 can also be seen that for Selected ASEAN Countries the minimum AIC value is at lag 1, which has a value of -8,515.

The next step in estimating the PVAR model is the impulse response function (IRF) test to see how shocks from endogenous variables affect other endogenous variables. IRF estimation in this study uses 10 periods and the result is shown in Figure 2. Figure 2 is the result of PVAR estimation with impulse response function (IRF). More specifically, Figure 2 (b) shows the results of impulses from GDP to shocks that occur in financial inclusion in Selected ASEAN Countries. From the Figure, it can be seen that shocks that occur in financial inclusion are responded to positively by economic growth as proxied by GDP. The positive response occurred from peri--od 1 to period 6. This explains that when this period 6 convergence has occurred or in other words, the equilibrium point has been reached again. From the positive response of GDP to financial inclusion, it can be concluded that when there is an increase in financial inclusion, it will also encourage economic growth in Selected ASEAN Countries.

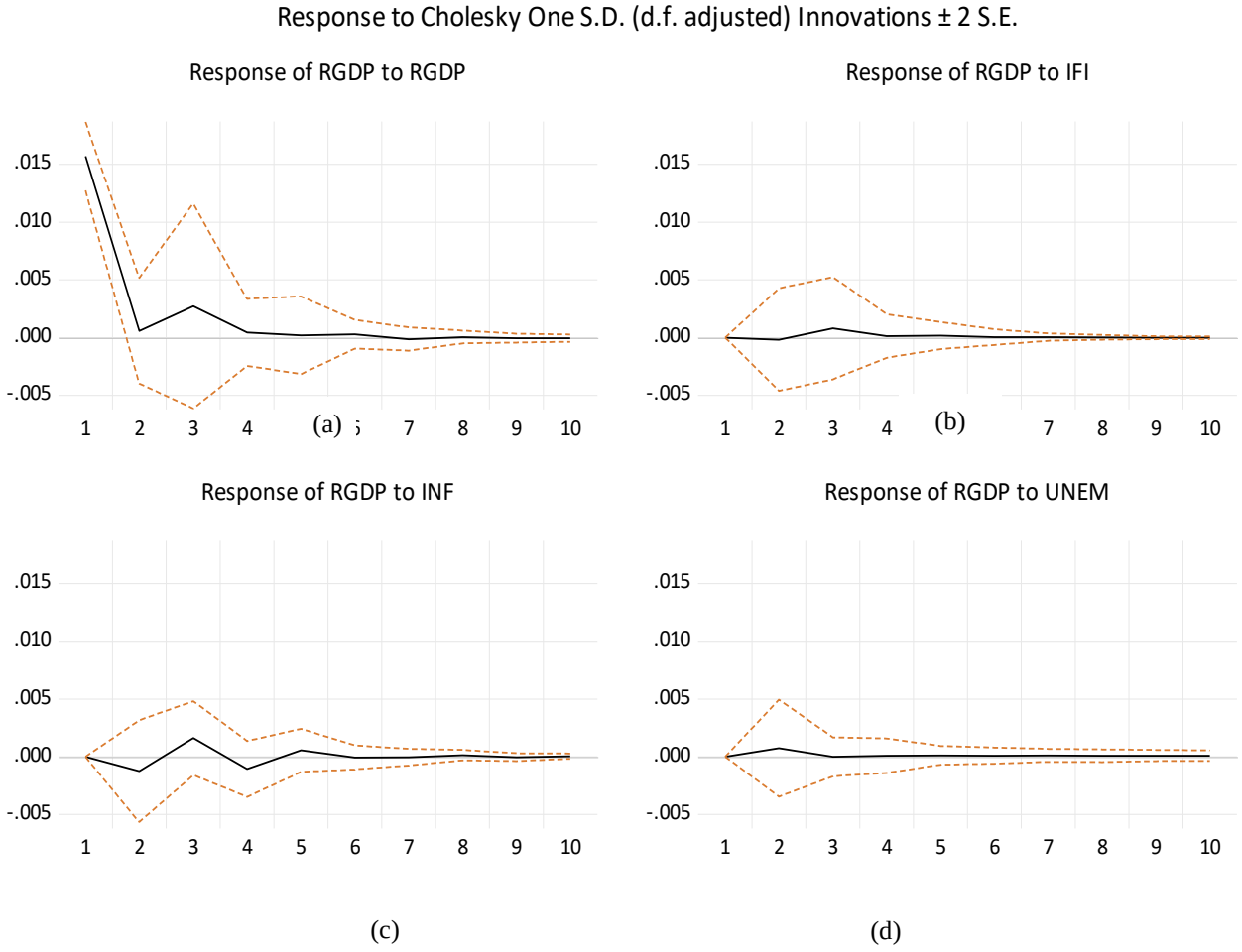

Figure 2. Impulse Response Function (IRF) Results in Selected ASEAN Countries

Source: Secondary Data (Processed), 2023

In addition to estimating IRF, this study is also described in the form of Variance Decomposition (VD). VD analysis aims to determine the magnitude of the shock contribution of each variable, both the relationship between other variables and the variables themselves. The following are the results of the analysis of VD.

Table 5. Results of Analysis of Variance Decomposition (VD)

Period	S.E.	GDP	IFI	Inflation	Unemployment
1	0.015707	100.0000	0.000000	0.000000	0.000000
2	0.015786	99.13679	0.013126	0.631769	0.218316
3	0.016121	97.92246	0.261386	1.606765	0.209385
4	0.016163	97.49357	0.266154	2.029317	0.210958
5	0.016175	97.36271	0.277903	2.144608	0.214775
6	0.016177	97.35820	0.278420	2.145747	0.217638
7	0.016178	97.35267	0.278768	2.146495	0.222070
8	0.016179	97.34376	0.278753	2.152924	0.224562
9	0.016180	97.33975	0.278819	2.153692	0.227738
10	0.016180	97.33670	0.278817	2.154442	0.230042

Source: Secondary Data (Processed), 2023

Variant decomposition results in Table 5 show that in period 1, financial inclusion does not affect GDP. But in the next period, his contribution began to appear. As in period 5, financial inclusion contributed 0.277% to GDP formation. Furthermore, its influence gets stronger as the period goes on. Where in period 10, financial inclusion contributed 0.278% to the formation of GDP.

This study aims to examine the level of financial inclusion and see the impact of financial inclusion (FI) to economic growth in Selected ASEAN Countries. The results of calculating FI by indexing indicate that during the study period from 2005-2016 FI in Selected ASEAN Countries had varying results. FI Indonesia was in the low category in 2005-2014, but in 2015-2016 there was a change in financial inclusion in the medium category. Malaysia's financial inclusion during the 2005-2006 period was relatively high, this was due to easy access to financial services. In Thailand, financial inclusion falls into two categories, wherein 2005-2009 the financial inclusion of Thailand was classified as medium, while in the following year's financial inclusion was classified as. In contrast to the other three countries, during the research period, the Philippines' financial inclusion was relatively low, because banks in the Philippines tend to be located in urban centers (Llanto, 2015; Tan, 2014). Overall, the FI index in each of the Selected ASEAN Countries has increased every year, this indicates that the policies taken by these countries in increasing financial inclusion in each country are quite effective.

The results of this study found that FI was responded to positively by economic growth in Selected ASEAN Countries. This indicates that along with the increase in FI in Selected ASEAN Countries, economic growth will be followed. This condition is following the concept of the relationship between FI and development. The ease with which the community can access financial services can improve the performance of an inclusive economic and financial system, especially to achieve economic growth (Babajide et al., 2015; Kpodar & Andrianaivo, 2011; Le et al., 2019). The use of micro-scale financial services can help the community to improve the quality of life (Hassan et al., 2011; Fungáčová & Weill, 2015; Indrawati et al., 2020). In addition, (Dabla-Norris et al. (2015) mention that through supply

and demand channels, financial development can encourage economic growth performance. The growing financial system expands access to funding so that it is easier for economic agents to obtain such funding and minimizes risk by not turning to the informal sector which usually charges high-interest rates and is vulnerable to risks both from the aspect of saving and borrowing money (Wangui, 2013; Purnawan & Nasir, 2015; Erlando et al., 2020). Thus the estimation results between FI and economic growth are in contrast to Lucas (1988) which states that all activities in economic transactions are not related to the role of the financial sector in it, and the study from Meier & Seers (1986) which argues that the financial system has a relatively small role in economic development.

Financial inclusion has a substantial impact on economic growth in two ways. First, by providing individuals and small and medium enterprises (SMEs) with wider access to financial services, financial inclusion drives economic growth through increased investment. This is because people can easily get access to the capital and credit, they need to start new businesses, expand existing operations, or invest their money in productive projects. With more capital available, the SME sector, which is often the backbone of the economy, can grow more quickly, create new jobs and increase their contribution to overall economic output.

Second, financial inclusion also allows people to manage their finances more efficiently, including through better savings and investments. This can increase capital accumulation in society, which in turn can support long-term economic growth. With easier access to financial instruments such as savings accounts, stocks, or bonds, individuals can better allocate their funds, reduce risk, and create profitable investment opportunities. In addition, financial inclusion also helps reduce poverty by providing access to those who previously did not have access to financial services, thereby increasing people's purchasing power and encouraging consumption, which is one of the main drivers of economic growth. Thus, financial inclusion has a very positive impact on economic growth through these various mechanisms.

The results of this study are in line with research from Michael & Sharon (2014) which examined the relationship between FI and economic development in Nigeria. The study found FI make economic development increases. This study also confirms studies from Dabla-Norris et al. (2015); Kim et al. (2018); Mwaitete & George (2018) who find that FI drive economic growth. Van et al. (2021) explained that the more people who are accessed by financial institutions, the makes it is possible to utilize more efficient resources which will ultimately support economic performance. The efficiencies created by financial inclusion are also reflected by the reduced costs compared to borrowing from the informal sector which is more expensive (Bist, 2018; Fritzer, 2004; Hajilee et al., 2017; Na'im et al., 2021). Furthermore, this study rejects the results of studies from De Gregorio & Guidotti (1995; Naceur & Ghazouani (2007); Okoye et al. (2017) found that FI is negatively correlated with the economy. Unlike that described by Sahay et al. (2018) that rapid and excessive credit increases can lead to large financial risks, but the existence of financial inclusion in Selected ASEAN Countries creates better capital productivity and encourages economic growth as a result of financial intermediation.

In addition, the results of this study linier with the directions and objectives of the FI program implemented by the government in ASEAN. One of the objectives of promoting FI is to achieve inclusive growth (Bangko Sentral ng Pilipinas, 2014; Bank Indonesia, 2014; Bank Negara Malaysia, 2015; Llanto, 2015; Tambunlertchai, 2015). Various programs were carried out to increase FI. Some of the steps taken by Indonesia to support FI are increasing financial education, improving services, information, and protecting financial services (Bank Indonesia, 2014). As for Malaysia, several policy strategies

implemented in increasing its financial inclusion are banking agents, technology-based channels, microfinance flexibility, savings services, micro-insurance development, the capability of financial institutions in financial inclusion, structured training programs, financial inclusion measurement frameworks, cooperation with non-governmental organizations for capacity building, and finally by implementing a structured training program in financial inclusion (Bank Negara Malaysia, 2015). As for Thailand, the strategies used in developing financial inclusion include microfinance payment, regulatory and supervisory issues, financial literacy, and consumer regulation (Asian Development Bank, 2013; Tambunlertchai, 2015). Meanwhile, FI policy in the Philippines is reflected in the FI framework which includes FI data and measures, policies, regulations and supervision, financial education and consumer protection and finally financial inclusion advocacy (Bangko Sentral ng Pilipinas, 2014; Llanto, 2015; Tan, 2014). All of the above policies are important to implement in the development of FI because FI is a prerequisite for a country's economic growth.

CONCLUSION

Financial inclusion (FI) can be described by how much society is accessible to financial institutions, especially banks. There is a lot of empirical evidence that shows that better financial inclusion can boost a country's economy. The reason is, the more people have access to financing, the easier it will be to get funding so that it can be used to move towards productive sectors.

So far, the measurement of FI levels does not have a core measurement. Therefore, this study measures the level of FI and examines its influence on specific economies in the economic growth of Selected ASEAN Countries. The FI Index results show that from the Selected ASEAN Countries, Indonesia's financial inclusion is in the medium category, Malaysia and Thailand are in the high category, and the Philippines is in the low category. Furthermore, regarding the relationship between Financial Inclusion and Economic Growth in Selected ASEAN Countries, this research found a positive relationship. This means that increasing financial inclusion will increase the level of economic growth in certain ASEAN countries. This shows that the existence of a program to increase financial inclusion in Selected ASEAN Countries is quite an effective factor as a driver of economic growth in Selected ASEAN Countries.

From this research, it appears that FI is the right step in achieving inclusive growth. From this study, steps can also be taken to develop FI ASEAN in the future, namely (i) developing or diversifying financial service products that suit the needs of society, (ii) increasing financial literacy in society and (iii) increasing the quantity and quality of infrastructure. financial services. It should also be noted that increasing financial inclusion will increase public access to financial services, thereby increasing credit risk. Therefore, it is important for the government to focus on this by increasing regulations related to consumer protection, payment system regulateons and financial competition. Strict supervision of banks needs to be carried out to minimize risks along with increasing financial inclusion and to maximize the benefits provided, especially for economic growth.

One limitation of this research is that the financial inclusion measurements used are limited. In the future, it is necessary to expand the FI index calculation by using a more complete FI index, so that the FI index used can better describe actual conditions. In addition, this case study research only focuses on countries in ASEAN. Next, you can consider comparing it with developed countries.

REFERENCE

Amidžić, G., Massara, A., & Mialou, A. (2014). Assessing Countries' Financial Inclusion Standing—A New Composite Index. In *IMF Working Paper: Vol. WP/14/36*. https://www.imf.org/external/pubs/ft/wp/2014/wp1436.pdf

Asian Development Bank. (2013). Technical Assistance Consultant ' s Report Kingdom of Thailand : Development of a Strategic Framework for Financial Inclusion (Financed by the Japan Fund for Poverty Reduction) Thailand Financial Inclusion Synthesis Assessment Report. *Asian Development Bank*, *45128*(September).

Babajide, A. A., Adegboye, F. B., & Omankhanlen, A. E. (2015). Financial inclusion and economic growth in Nigeria. *International Journal of Economics and Financial Issues*, *5*(3), 629–637. https://doi.org/10.38157/business-perspective-review.v2i2.149

Bangko Sentral ng Pilipinas. (2014). Financial Inclusion in the Philippines : A Regional Assessment. *Bangko Sentral Ng Pilipinas*, *1*(1), 1–8.

Bank Indonesia. (2014). Booklet Financial Inclusion. In *Bank Indonesia*. https://www.bi.go.id/id/fungsi-utama/stabilitas-sistem-keuangan/keuangan-inklusif/default.aspx

Bank Negara Malaysia. (2015). Measuring Financial Inclusion in Malaysia : Unlocking Shared Benefits for All through Inclusive Finance. *Bank Negara Malaysia*, 1–37. www.bnm.gov.my

Bist, J. P. (2018). Financial development and economic growth: Evidence from a panel of 16 African and non-African low-income countries. *Cogent Economics and Finance*, *6*(1). https://doi.org/10.1080/23322039.2018.1449780

Cáamara, N., & Tuesta, D. (2014). Measuring Financial Inclusion: A Multidimensional Index. *BBVA Research Working Paper, (14/26), September*, 1–40. www.bbvaresearch.com

Dabla-Norris, E., Ji, Y., Townsend, R., & Unsal, D. F. (2015). Identifying Constraints to Financial Inclusion and Their Impact on GDP and Inequality: A Structural Framework for Policy. *IMF Working Papers*, *15*(22), 1. https://doi.org/10.5089/9781498381598.001

De Gregorio, J., & Guidotti, P. E. (1995). Financial development and economic growth. *World Development*, *23*(3), 433–448. https://doi.org/10.1016/0305-750X(94)00132-I

Demirguc-Kunt, A., Klapper, L., & Singer, D. (2017). Financial Inclusion and Inclusive Growth: A Review of Recent Empirical Evidence. *Financial Inclusion and Inclusive Growth: A Review of Recent Empirical Evidence*, *April*. https://doi.org/10.1596/1813-9450-8040

Erlando, A., Riyanto, F. D., & Masakazu, S. (2020). Financial inclusion, economic growth, and poverty alleviation: evidence from eastern Indonesia. *Heliyon*, *6*(10), e05235. https://doi.org/10.1016/j.heliyon.2020.e05235

Estrada, G., Donghyun, P., & Ramayandi, A. (2010). Financial Development and Economic Growth in Developing Asia. *Asian Dev. Bank*, *233*(233), 1–63. www.adb.org/economics

Fisher, I. (1911). The Purchasing Power of Money, its Determination and Relation to Credit, Interest and Crises. *Royal Economic Society*, *21*(83), 393–398. https://doi.org/https://doi.org/10.2307/2222328

Fritzer, F. (2004). Financial Market Structure and Economic Growth : A Cross-Country Perspective. *Monetary Policy and The Economy*, *February 2004*, 72–87.

Fungáčová, Z., & Weill, L. (2015). Understanding financial inclusion in China. *China Economic Review*, *34*, 196–206. https://doi.org/10.1016/j.chieco.2014.12.004

Gadanecz, B., & Tissot, B. (2017). Measures of Financial Inclusion – A Central Bank Perspective. *International Statistical Institute*, *2015*(March), 20–24.

Gwalani, H., & Parkhi, S. (2014). Financial Inclusion – Building a Success Model in the Indian Context. *Procedia - Social and Behavioral Sciences*, *133*, 372–378. https://doi.org/10.1016/j.sbspro.2014.04.203

Hajilee, M., Stringer, D. Y., & Metghalchi, M. (2017). Financial market inclusion, shadow economy and economic growth:

New evidence from emerging economies. *Quarterly Review of Economics and Finance*, *66*, 149–158. https://doi.org/10.1016/j.qref.2017.07.015

Hassan, M. K., Sanchez, B., & Yu, J. S. (2011). Financial development and economic growth: New evidence from panel data. *Quarterly Review of Economics and Finance*, *51*(1), 88–104. https://doi.org/10.1016/j.qref.2010.09.001

Hung, B. D. (2015). Financial inclusion and the effectiveness of monetary policy in Vietnam: An empirical analysis. *Banking Academy*, 1–15. http://veam.org/wp-content/uploads/2017/12/48.-Bui-Duy-Hung.pdf

Indrawati, Y., Wardhono, A., Qori'ah, C. G., & Nasir, M. A. (2020). The Impact of E-Money Diffusion on the Monetary Policy Effectiveness: Evidence from Indonesia. *Advances in Economics, Business and Management Research*, *144*, 237–241. https://doi.org/10.2991/aebmr.k.200606.040

Karpowicz, I. (2016). Financial Inclusion, Growth and Inequality: A Model Application to Colombia. *Journal of Banking and Financial Economics*, *2016*(2), 68–89. https://doi.org/10.7172/2353-6845.jbfe.2016.2.4

Kim, D. W., Yu, J. S., & Hassan, M. K. (2018). Financial inclusion and economic growth in OIC countries. *Research in International Business and Finance*, *43*, 1–14. https://doi.org/10.1016/j.ribaf.2017.07.178

Kpodar, K., & Andrianaivo, M. (2011). ICT, Financial Inclusion, and Growth Evidence from African Countries. *IMF Working Papers*, *11*(73), 1. https://doi.org/10.5089/9781455227068.001

Le, T. H., Chuc, A. T., & Taghizadeh-Hesary, F. (2019). Financial inclusion and its impact on financial efficiency and sustainability: Empirical evidence from Asia. *Borsa Istanbul Review*, *19*(4), 310–322. https://doi.org/10.1016/j.bir.2019.07.002

Lerohim, S. N. F. E., Affandi, S., & Wan Mahmood, W. M. (2015). Financial development, institutions and economic growth in ASEAN: Evidence from panel data. *Munich Personal RePEc Archive*, *6224*, 1–9.

Levine, R., Loayza, N., & Beck, T. (2000). Financial intermediation and growth: Causality and causes. *Journal of Monetary Economics*, *46*(1), 31–77. https://doi.org/10.1016/S0304-3932(00)00017-9

Llanto, G. M. (2015). Financial Inclusion, Education, and Regulation in the Philippines. In *Asian Development Bank Institute* (Issue 541). https://doi.org/10.1007/978-1-349-67278-3_116

Lucas, R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, *22*(1), 3–42. https://doi.org/10.1016/0304-3932(88)90168-7

Meier, G. M., & Seers, D. (1986). Pioner in Development. *Economic Development and Cultural Change*, *35*(1), 197–202. https://doi.org/10.2307/1524788

Merton, R. C. (1995). Financial innovation and the management and regulation of financial institutions. *Journal of Banking & Finance*, *19*(4), 461–481. https://doi.org/https://doi.org/10.1016/0378-4266(94)00133-N

Michael, O. B., & Sharon, O. O. (2014). Financial System, Financial Inclusion and Economic development in Nigeria. *International Journal of Management Sciences*, *2*(3), 139–148. http://www.rassweb.com

Mwaitete, C. P., & George, L. A. (2018). Finaancial inclusion and economic growth a regression analysis. *Imperial Journal of Interdisciplinary Research (IJIR)*, *4*(1), 265–288.

Na'im, H., Subagiarta, I. W., Wibowo, R., & Wardhono, A. (2021). An Empirical Study of Financial Inclusion and Financial System Stability in ASEAN-4. *Journal of Asian Finance, Economics and Business*, *8*(7), 139–150. https://doi.org/10.13106/jafeb.2021.vol8.no7.0139

Naceur, S. Ben, & Ghazouani, S. (2007). Stock markets, banks, and economic growth: Empirical evidence from the MENA region. *Research in International Business and Finance*, *21*(2), 297–315. https://doi.org/10.1016/j.ribaf.2006.05.002

Neaime, S., & Gaysset, I. (2018). Financial inclusion and stability in MENA: Evidence from poverty and inequality. *Finance Research Letters*, *24*(September 2017), 199–220. https://doi.org/10.1016/j.frl.2017.09.007

Okoye, L. U., Adetiloye, K. A., Erin, O., & Modebe, N. j. (2017). Financial Inclusion As a Strategy for Enhanced Economic Growth and Development. *Journal of Internet Banking and Commerce*, *22*(S8), 14. http://www.icommercecentral.com

Park, C.-Y., & Mercado, R. V. (2018). Financial inclusion: New Measurement and Cross-Country Impact Assesment. In *Asian Development Bank* (Vol. 539). https://doi.org/10.4018/ijabe.2020100103

Purnawan, M. E., & Nasir, M. A. (2015). the Role of Macroprudential Policy To Manage Exchange Rate Volatility, Excess Banking Liquidity, and Credits. *Buletin Ekonomi Moneter Dan Perbankan*, *18*(1), 21–44. https://doi.org/10.21098/bemp.v18i1.511

Safuan, S., Habibullah, M. S., & Sugandi, E. A. (2021). Mitigating the shadow economy through financial sector development in Indonesia: some empirical results. *Heliyon*, *7*(12), e08633. https://doi.org/10.1016/j.heliyon.2021.e08633

Sahay, R., Cihak, M., N'Diaye, P., Barajas, A., Mitra, S., Kyobe, A., Mooii, Y. N., & Yousefi, S. R. (2015). Financial Inclusion: Can It Meet Multiple Macroeconomic Goals? Monetary. In *IMF Staff Discussion Note* (Vol. 15, Issue 9).

Sarma, M. (2012). Index of Financial Inclusion – A measure of financial sector inclusiveness. In *Berlin Working Papers on Money, Finance, Trade and Development* (Vol. 7). https://finance-and-trade.htw-berlin.de/fileadmin/HTW/Forschung/Money_Finance_Trade_Development/working_paper_series/wp_07_2012_Sarma_Index-of-Financial-Inclusion.pdf

Sarma, M., & Pais, J. (2008). Financial Inclusion and Development: A Cross Country Analysis. *In Annual Conference of the Human Development and Capability Association, New Delhi*, *168*(10–13), 1–30. https://doi.org/10.1002/jid

Sethi, D., & Acharya, D. (2018). Financial inclusion and economic growth linkage: some cross country evidence. *Journal of Financial Economic Policy*, *10*(3), 369–385. https://doi.org/10.1108/JFEP-11-2016-0073

Shihadeh, F., & Liu, B. (2019). Does financial inclusion influence the banks risk and performance? Evidence from global prospects. *Academy of Accounting and Financial Studies Journal*, *23*(3), 1–12.

Sun, Y., & Cui, Y. (2018). Analyzing urban infrastructure economic benefit using an integrated approach. *Cities*, *79*(February), 124–133. https://doi.org/10.1016/j.cities.2018.03.001

Tambunlertchai, K. (2015). Financial Inclusion, Financial Regulation, and Financial Education in Thailand. In *ADBI Working Paper Series* (Issue 537). https://doi.org/10.2139/ssrn.2650235

Tan, T. B. (2014). Financial Inclusion in the Philippines : A Regional Assessment. In *The University of Tokyo* (Issue 1). http://www.pp.u-tokyo.ac.jp/graspp-old/courses/2014/documents/graspp2014-5140143-7a.pdf

Van, L. T. H., Vo, A. T., Nguyen, N. T., & Vo, D. H. (2021). Financial Inclusion and Economic GROWTH: An International Evidence. *Emerging Markets Finance and Trade*, *57*(1), 239–263. https://doi.org/10.1080/1540496X.2019.1697672

Vo, D. H., Vo, A. T., & Ho, C. M. (2020). Does financial integration enhance economic growth in China? *Economies*, *8*(3). https://doi.org/10.3390/ECONOMIES8030065

Wang, X., & Guan, J. (2017). Financial inclusion: measurement, spatial effects and influencing factors. *Applied Economics*, *49*(18), 1751–1762. https://doi.org/10.1080/00036846.2016.1226488

Wangui, E. W. (2013). the Relationship Between Financial Inclusion and Economic Development in Kenya. *University of Nairobi*, *October*, 81. https://chss.uonbi.ac.ke/

Wardhono, A., Modjo, M. I., & Utami, E. W. (2019). Role of credit guarantee for financing MSMEs: Evidence from rural and urban areas in Indonesia. In *Unlocking SME Finance in Asia: Roles of Credit Rating and Credit Guarantee Schemes* (Issue 967). https://doi.org/10.

4324/9780429401060-9

Wardhono, A., & Nasir, M. A. (2022). Do Household Financial Behaviors affect Poverty in Indonesia?: Evidence from Indonesian Family Life Survey. *Jurnal Ekonomi Dan Studi Pembangunan*, *14*(1), 15. https://doi.org/10.17977/um002v14i12022p015

Wardhono, A., Nasir, M. A., Indrawati, Y., & Qori'ah, C. G. (2020). Identification and Strategy for Improving Financial Literation and Inclusion of Rural and Urban Communities in Banyuwangi Regency, Indonesia. *Advances in Economics, Business and Management Research*, *144*(Afbe 2019), 399–406. https://doi.org/10.2991/aebmr.k.200606.068

Wardhono, A., Nasir, M. A., Qori'ah, C. G., & Sari, K. I. (2022). *Financial Literacy and Inclusion on Consumption in Indonesian Rural Communities*. *3*, 370–380.

Yin, X., Xu, X., Chen, Q., & Peng, J. (2019). The sustainable development of financial inclusion: How can monetary policy and economic fundamental interact with it effectively? *Sustainability*, *11*(9). https://doi.org/10.3390/su11092524