



Financial Literacy and Inclusion on Consumption in Indonesian Rural Communities

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Article Information Abstract

History of Article

Received April 2022

Accepted June 2022

Published August 2022

Keywords:

Financial inclusion, financial literacy, rural communities, consumption, IFLS

Financial inclusion and literacy are government efforts to increase economic growth for the welfare of its people. The level of community welfare can be seen through household consumption expenditures. Rural communities in Indonesia have a larger number than those in urban areas. Based on these problems, this study aimed to determine the impact of rural community financial literacy and inclusion on consumption levels. The data used were based on the results of IFLS 5 in 2014 with a total sample of 1,585 individuals. The method used in the analysis was the Tobit regression model. The results showed that the variables had a significant effect on the consumption level of rural communities were ownership of savings, financial literacy, market access, income, ownership of assets in the form of houses and buildings, and age. Meanwhile, the insignificant variables were ownership of loans, poverty, and ownership of assets in the form of land. From these results, it can be seen that the consumption pattern of rural communities in Indonesia does not depend on loans, but on financial literacy, income, and market access.

INTRODUCTION

Economic development is a form of a country's efforts to reduce poverty through increasing economic growth. Roemer and Gugerty (1997) state that economic growth can reduce poverty and benefit society. This growth becomes the top priority in reducing poverty levels and efforts to improve people's quality of life, especially in developing countries (Son and Kakwani, 2004). Poverty and economic growth are the main factors in economic development in developing countries, including Indonesia. Economic growth and poverty reduction have varied values across all island groups, provinces and regencies in Indonesia (Asra, 2000; Tadjoeeddin, Suharyo and Mishra, 2001). Indonesia economic condition is unstable because it has gone through two financial crises, namely 1998 due to the Asian financial crisis and 2008 due to the American financial crisis.

Problems related to poverty are no longer the main focus in urban environments or big cities and rural areas of Indonesia. The number of poor Indonesians in rural areas continues to increase as evidenced by the number of poor people in rural areas in 2020 semester 1 of 15.26 million people to 15.37 million in semester 1 of 2021. Development of the financial sector can be used as one of the steps to reduce poverty. This is in accordance with the theory presented by Schumpeter (1934) that the financial sector plays a role in accelerating economic growth through productive investment funds.

Several studies have showed that households living in rural areas in developing countries lack access to bank credit (Nuryartono, 2007; Mpuga, 2010). The cause of this condition can be seen from various sides. Hermes, Lensink and Meesters (2011) state that the provision of credit services to low-income communities has high transaction and information costs. This condition is also supported by a study conducted by Wardhono, Modjo and Utami (2019), namely business actors in rural areas have less opportunity to access credit from formal institutions compared to those of in urban areas. In addition, with

Indonesia wide geographical conditions, the process of economic development has become uneven, resulting many regions in Indonesia have no access to financial institutions. This is an important foundation for rural communities to increase financial literacy and inclusion in order to encourage economic growth and community welfare. Financial inclusion and literacy are the combination to achieve economic growth for the welfare of society. The development of financial inclusion can be done by strengthening the financial sector, regulations, and creating public awareness through financial literacy. By doing so, this program can encourage the financial system and economic growth to overcome poverty (Wardhono, Qori'ah and Indrawati, 2016; Wardhono, Indrawati and Qoriah, 2018).

Mwangi and Atieno (2018) and Addury (2019) explain that financial inclusion is significantly positive in explaining household welfare. However, this is different from the study conducted by Hidayatinnisa et al. (2021) which concludes financial inclusion and literacy have no significant effect on economic growth in Indonesia. This shows that financial inclusion and literacy still require various development efforts to prove that those two can play a role in improving the welfare of rural communities in Indonesia. The welfare indicator used in this study was the level of household consumption. UNICEF explains through the study of Moratti and Natali (2012) that consumption indicators are more relevant than income to measure welfare levels. The concept of measuring consumption is clearer than income. In addition, it is relatively difficult to collect income data, especially for self-employed households or working in the informal sector. Their level of consumption is more stable, especially the ones who work in an agricultural sector because this sector always refines throughout the seasons, so that it can reflect the true standard of living (Deaton and Zaidi, 2002). Deaton (1998) explains that the income variable is sensitive when compared to consumption. The amount of household consumption in Indonesia shows a positive

trend, except in 2020 due to the Covid-19 pandemic. However, an increase in consumption does not always indicate growth. This is illustrated in Figure 1 that the growth of household consumption in Indonesia has fluctuated movements.

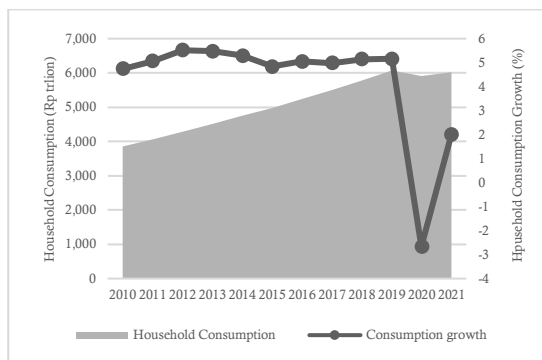


Figure 1. Household consumption in Indonesia
Source: World Bank, 2021

The existence of empirical and theoretical differences is supported by the phenomenon of household consumption in Indonesia. Regarding the previously mentioned discussion, this study aimed to determine the impact of financial inclusion and financial literacy on the level of consumption of rural communities in Indonesia. Several novelties are given here. First, the proxy used to represent household welfare is the level of consumption for both food and non-food consumption. This is different from previous studies that used human development index proxies (Ofori-Abebrese, Baidoo and Essiam, 2020), wealth index (Nanziri, 2016), poverty and income inequality (Zia and Prasetyo, 2018; Omar and Inaba, 2020; Zulfa Sari and Falianty, 2021). Second, this study added a market access variables in determining the level of household welfare. Stifel and Minten (2017) state that market access is one of the indicators in developing countries that can be developed to boost economic performance. Increasing market access can also be used as an effort to improve the welfare of rural communities in a country (World Bank, 2012).

Household consumption can be modeled with several frameworks. Based on the Fisherian, it is known that household representatives must make consumption and

saving decisions at time t . There are three individual and institutional behaviors that lead to the study of consumption, namely 1) control and guidance on economic activities, 2) choice problems in determining and evaluating, and 3) welfare. If the market is well informed, a shock will not affect individual consumption.

The concept of financial inclusion was developed after the concept of financial exclusion (Leyshon and Thrift, 1995; Adewale, 2014). Leyshon and Thrift (1995) explain that financial exclusion is the process of preventing individuals or social groups from accessing services from the formal financial system. In general, these community groups can be indicated by their low and uncertainty income levels, living in the periphery, and being unbanked. Meanwhile, financial inclusion is the process of formulating rules to assist the fulfillment of financial services at a fair price level, in an appropriate place, and without any form of discrimination for all members of society (Sarma and Pais, 2008; Aduda and Kalunda, 2012). Financial inclusion is closely related to the human development process because financial inclusion in its concept is directly related to efforts to equalize poverty and economic growth.

Financial inclusion can be measured through the Financial Inclusion Index (IFI) with three dimensions, namely access, use, and quality (Sarma and Pais, 2011). The access dimension is used to measure potential barriers to opening and using bank accounts. The usage dimension is used to measure the actual use of financial products and services related to the regularity, frequency, and duration of use. The dimension of quality or availability is used to determine the availability of financial products and services that are following customer needs. The above indicators can be seen through the availability of bank branches.

Mason (2000) defines financial literacy as a decision-making process by individuals using a combination of skills, resources, and contextual knowledge to process information and make decisions based on the financial risks of those decisions. Financial literacy plays an important

role in life because it is a basic need for everyone to avoid financial problems (Dwiastanti, 2015).

Hung, Parker and Yoong (2009) explain that financial literacy is the ability to use knowledge and skills to achieve financial well-being. Therefore, the concept of financial literacy presented by Hung, Parker and Yoong (2009) require indicators of financial knowledge, skills, and behavior where each indicator has a reciprocal relationship (Figure 2a). Meanwhile, the concept of financial literacy presented by Huston (2010) not only requires a knowledge dimension, but also an additional dimension, namely the application dimension which requires the ability and confidence in financial knowledge which will later be used in financial decision making (Figure 2b).

Studies related to financial inclusion on consumption levels have been carried out by several previous researchers, such as Seck, Naiya and Muhammad (2017), Mwangi and Atieno (2018), Addury (2019). Seck, Naiya and Muhammad (2017) conducted a study related to the effect of financial inclusion on household welfare through consumption in Indonesia. Their study found that access to finance has a positive impact on household consumption. Seck, Naiya and Muhammad (2017) mention that Islamic finance can be useful for increasing financial access by attracting segments of the population voluntarily. The same study was also conducted by Mwangi and Atieno (2018). However, the only difference is in the sites. Mwangi and Atieno (2018) conducted a case study in Kenya. The results are also in line with the study conducted by Seck, Naiya and Muhammad (2017) that financial inclusion is positive and significant in explaining household welfare. Recommendations that can be made are to reduce transaction costs through increasing formal financial products in order to increase competition in the financial market. The significant relationship between financial inclusion and household consumption is also illustrated by a study conducted by Addury (2019) in Indonesia. Financial inclusion is described by the amount of credit and savings/investment.

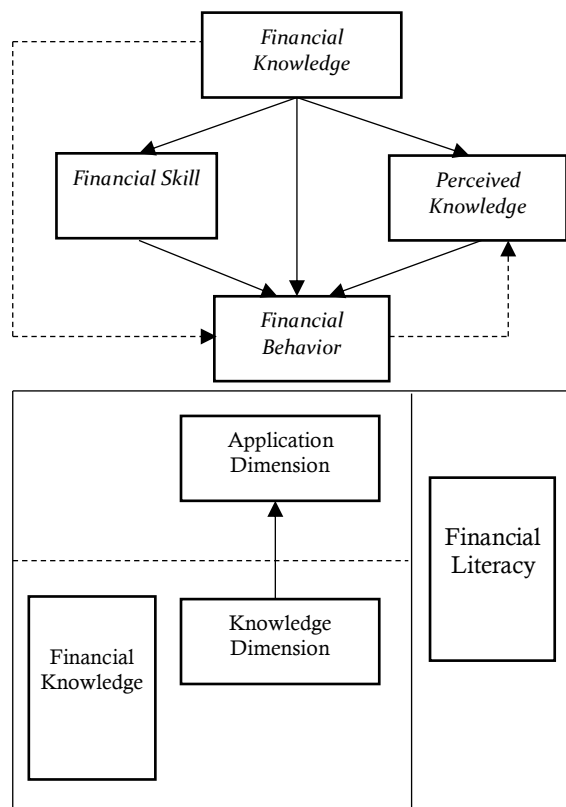


Figure 2. The concept of financial literacy according to a) Hung, Parker and Yoong (2009) and b) Huston (2010)

Source: Dwiastanti, 2015

Financial literacy variable also has an important role in the creation of community welfare. However, the study by Dinkova, Kalwij and Alessie (2021) found that there is no evidence to support the relationship between consumption growth and financial literacy. A positive relationship is still found between consumption of non-durable goods (especially food consumption) and financial literacy. Shahe Emran and Hou's study (2008) argues that household consumption can also be influenced by market access. Better access to domestic and international markets has a significant positive effect on the per capita consumption of rural households. Domestic and international markets also show complementary relationships in determining household consumption.

RESEARCH METHODS

The data used in this study were secondary data obtained from the Indonesia Family Life Survey (IFLS) 5 in 2014. The data used were the result of the last survey conducted by RAND and Survey Meter. The use of this survey was to obtain the latest released data. The IFLS sample has represented 83% of the population in Indonesia spread across 13 provinces, namely North Sumatra, West Sumatra, South Sumatra, Lampung, Jakarta, West Java, Central Java, East Java, Yogyakarta, Bali, West Nusa Tenggara, South Kalimantan and South Sulawesi. It used a sample of 15,000 households and 50,000 individuals. However, the samples used in this study were 1,585 individuals. This was because the focus of this study was only on rural communities. The data used in this study included household consumption, financial inclusion, financial literacy, market access, income, poverty, assets, and age. Financial inclusion indicators were represented by using data on ownership of loans and savings, while financial literacy used the data on knowledge related to loans. Then, market access was proxied using road conditions and electricity access in the village.

This study model referred to several research models, namely models from Bostic, Gabriel and Painter (2009) and Bhuiya et al. (2016). The models can be written as equations (1) and (2).

$$\log NF = \alpha + \beta_1 m + \beta_2 x_i + \beta_3 \log x_2 + \beta_4 \log y + \varepsilon \quad (1)$$

$$\log F = \alpha + \beta_1 m + \beta_2 x_i + \beta_3 \log x_2 + \beta_4 \log y + \varepsilon \quad (2)$$

In the above equations, $\log NF$ is the log of non-food consumption, $\log F$ is the log of food consumption, m is a microfinance dummy variable (1: members and 0: reverse), x is a vector of household characteristics, namely the number of family members and total assets, and y is income. α is a constant; β_1 , β_2 , β_3 are parameters and ε is an error term. This study model modified the model in equations (1) and (2) by adding aspects of financial inclusion and literacy, market access, poverty, and age. The equation written in

equation (3) was then transformed into an econometric model as in equation (4).

$$C = f(FI, FL, m, wage, p, x, age) \quad (3)$$

$$C_i = \alpha_0 + \beta_1 FI_i + \beta_2 FL_i + \beta_3 m_i + \beta_4 wage_i + \beta_5 p_i + \beta_6 x_i + \beta_7 age_i + \varepsilon \quad (4)$$

Furthermore, the operational definition of each variable used in equation (3) is described in Table 1.

Table 1. Operational Definition

Variable	Description
Consumption	It is the amount of food and non-food consumption obtained from book 1 section KS on questions KS07a and KS04b
Financial Inclusion	This variable explains the respondents' financial access to ownership of loans and savings. The data were obtained from Book 2 section BH on question BH07 by grouping the answers, namely: <ul style="list-style-type: none"> Category (0) does not have a loan Category (1) has a loan And the HR section on HR01 questions with Hrtype G. The data are grouped into two, namely: <ul style="list-style-type: none"> Category (0) has no savings Category (1) has savings
Financial Literacy	The financial literacy variable covered the respondent's understanding of financial products. The data were obtained from Book 2 section BH on question BH00 and grouped into two, namely: <ul style="list-style-type: none"> Category (0) does not know about loans Category (1) know about loans
Market Access	The market access variable describes the condition of roads and access to electricity in the village. The data obtained from the Minikamades Book Part A on question A8 and the data were then grouped into two, namely: <ul style="list-style-type: none"> Category (0) unpaved roads Category (1) asphalt road and part B on question B1 by grouping, namely: <ul style="list-style-type: none"> Category (0) does not have access to electricity Category (1) has access to electricity
Income	The income variable is approximately net income for the past month. The data were obtained from Book 3A of the TK section on questions TK25A1
Poverty	The poverty variable was explained through the ownership of the Social Protection Card (KPS). The data were obtained from Book 2 of the KS section on the KS27i question. The data were grouped into two, namely: <ul style="list-style-type: none"> Category (0) does not have KPS Category (1) has KPS
Asset Ownership	The asset ownership variable is the ownership of the type of house and land occupied, other houses/buildings (including

Variable	Description
	land), and land/land that is not used for farming/non-farming. The data were obtained from Book 2 of the HR section on HR01 questions with HRtypes A, B, C. The data were grouped into two, namely: <ul style="list-style-type: none"> • Category (0) has no assets • Category (1) has assets
Age	The age variable explains the age of the respondent obtained from book 3A, the COV section on the COV3 question

Soyrcer: RAND Corporation, 2014

This study used a tobit regression model. The tobit model is a type of econometric technique considered a censored regression model (Wooldridge, 2002). Censored data in the economic field are often found in household consumption/expenditure surveys where some households do not consume certain types of commodities (Soediono, Virgantari and Rahmawati, 2005). This condition will affect the censored dependent variable which will then have an impact on the estimation method used to estimate the parameters in the model. Deaton (1998) states that the tobit model has differences with the OLS model, namely the tobit model tends to be biased upwards, while the OLS model tends to be biased downwards. The method used in estimating the regression coefficient of the research model was the maximum likelihood (ML) method.

Based on the research model, the hypotheses used in this study are: H_0 when the variables of financial literacy and financial inclusion have no significant effect on the consumption variables of rural communities and H_a when the variables of financial literacy and financial inclusion have a significant effect on the consumption variable of rural communities. To find out the results of hypothesis testing, the p-value approach was used. The null hypothesis is rejected if the p-value is less than the critical value ($p \leq \alpha$).

In addition to using ML in the tobit model, the study model also identified descriptive statistics to determine the central tendency in the model. Thompson (2009) explains that descriptive statistics can be useful for identifying sample characteristics that can later influence conclusions. To produce the Best Linear Unbiased Estimator (BLUE) model, the

classical assumption stage was carried out, consisting of multicollinearity, heteroscedasticity, and normality tests. The method used in the multicollinearity test was the correlation value. If the correlation value is more than 0.8, it indicates a multicollinearity problem in the model (Gujarati and Porter, 2009). Following the test, heteroscedasticity test using the Breusch Pagan test method with the null hypothesis in the form of homoscedasticity data was carried out. The null hypothesis is accepted if the chi-square probability value is more than the critical value. Then, normality test was performed using the Jarque-Berra test method. The null hypothesis in the normality test, namely normally distributed data, can be accepted if the probability value of the Jarque-Berra is greater than the critical value. Here, statistical testing cannot be carried out if the assumption of normality cannot be met (Wardhono, 2004).

RESULTS AND DISCUSSION

Based on the results of descriptive statistical analysis (Table 2), it is known that the majority of the sample had a consumption amount of Rp37,969. The financial inclusion variable on the loan ownership indicator shows that the mean was 0.966562. Meanwhile, the average savings ownership was 0.324921. This illustrates that the level of financial inclusion of rural Indonesians was higher in terms of loan ownership. This condition is also linear with the loan literacy of rural communities in Indonesia which managed to reach an average of 0.965300. The majority of villages in Indonesia already have market access which can be seen by using indicators of road conditions and access to electricity in the village. Market access that is fulfilled in rural areas was supported by the mean of road conditions of 0.893375 and access to electricity of 0.997476. The mean income of rural communities in Indonesia was Rp1,313,112, and the mean of age of the population was 33 years.

Other control variables such as the poverty rate gained the mean of 0.100946 indicating that

the majority of rural communities in Indonesia were not at the poverty line. Ownership of Social Protection Cards (KPS) is used as a proxy for the poverty variable. Then for asset ownership, the majority of village communities had assets in the form of houses as evidenced by the mean value of 0.666877. Meanwhile, building and land assets were still not owned by the majority of the people in the village. This can be seen from the mean values which were 0.144479 and 0.141325 respectively.

Table 2. Summary of Descriptive Statistics

Variables	Obs.	Mean	Min	Max
Consumption	1585	37969.46	0	1000000
Loan ownership (1=yes)	1585	0.966562	0	1
Savings holdings (1=yes)	1585	0.324921	0	1
Loan understanding (1=yes)	1585	0.965300	0	1
Road conditions (1=asphalt)	1585	0.893375	0	1
Electricity access (1=yes)	1585	0.997476	0	1
Wage	1585	1313112.	0	9000000
Poverty (1=yes)	1585	0.100946	0	1
Home ownership (1=yes)	1585	0.666877	0	1
Building ownership (1=yes)	1585	0.144479	0	1
Land ownership (1=yes)	1585	0.141325	0	1
Age	1585	33.31735	15	85

Source: Data Processed, 2021

Based on the results of the regression analysis using the tobit model, it is known that there were three variables that had no significant effect on the consumption level of rural communities (Table 3). The three variables included ownership of loans, poverty, and assets in the form of land. Meanwhile, other variables such as ownership of savings, financial literacy, market access, income, ownership of assets in the form of houses and buildings, and age had significant effects on people's consumption in rural areas. The variable of ownership of savings had a significant positive effect on household consumption. These explain that when there is an increase in savings ownership, the level of

consumption will increase. The finding of this study is not in accordance with the consumption and savings functions presented by Keynes (1936) through the general theory of employment, interest, and money. When some of the income has been allocated to savings, consumption expenditure will decrease so that the relationship between consumption and saving is negative. Nayak et al. (2017) explain that rural communities have a Marginal Propensity to Consume (MPC) greater than the Marginal Propensity to Save (MPS). This condition is supported by the research results of Gonosa (2020) that households with low incomes save to meet their daily needs. It proves that when rural people save, consumption levels will also increase or these two variables have a positive relationship. This condition also illustrates that rural households in Indonesia have low MRS with relatively low-income levels. Therefore, the savings funds held will be allocated for consumption. Efforts to increase MRS can be done by increasing household income, so the savings owned are not used to meet daily needs, but for future needs.

Table 3. Tobit model regression results

Variables	Coefficient	Probability
FI1	-71619.21	0.0071
FI2	2738.668	0.8053*
FL1	-3606.826	0.8966*
Road	22356.24	0.1908*
Listrik	-80113.10	0.3640*
Wage	0.000865	0.4887*
P	-37001.99	0.0323
Home	10515.58	0.3484*
Building	8452.434	0.5696*
Tanah	35198.22	0.0151
Age	-381.3902	0.4170*

Note: *) significant at alpha 0.05

Sorce: Data Processed, 2021

Financial literacy related to loans had a significant negative effect on consumption levels, so that when there is an increase in financial literacy, people in rural areas will reduce their consumption. When people already have good financial literacy, people will use financial products correctly. The negative relationship between financial literacy and consumption of

rural communities found in this study showed that when rural communities have good financial literacy, the funds obtained from several financial products are allocated for productive activities or not used for consumption. This is not in accordance with a study conducted by Jappelli and Padula (2017) and Dinkova, Kalwij and Alessie (2021). Jappelli and Padula (2017) succeeded in finding a positive relationship between financial literacy and consumption growth. However, Dinkova, Kalwij and Alessie (2021) only found a positive relationship between financial literacy and consumption of non-durable goods (food consumption). These results describe the characteristics of households in Indonesia that are different from households in China, the Netherlands, and Italy. Indonesian households, especially in rural areas, are trying to increase their income by allocating credit to the productive sector. This is done to increase the MRS so that the savings will be used for future needs.

The welfare of rural households can be affected by market access. Market access is described through road conditions and electricity access. These variables had a significant effect on consumption. However, the two variables had different directions, better road conditions will encourage increased consumption or can be called positive. The better road conditions will make it easier for people to carry out economic activities including household consumption activities. This is in line with a study conducted by Gichohi (2015). In the short term, infrastructure development can affect consumption because its activities require labor. The costs given to labor will increase household income, which in the end the income is allocated for consumption. Meanwhile, in the long term, infrastructure can improve the business environment in the region. Market access as described by access to electricity showed a negative relationship to household consumption. This was because electricity is a durable material that is not a routine expense, so it does not affect household consumption in the majority. The results of this study are relevant to a study by Ikhsan and Amri (2022). Electrification does not

have a significant impact on income-generating activities because electricity is only able to encourage increased use of electronic devices (Wamukonya and Davis, 2001; Bensch, Kluge and Peters, 2011).

Apart from aspects of financial literacy and inclusion, income levels also positively affected the consumption level of rural communities. It has also been empirically proven by (Đikanović, 2018) (Tokoya et al., 2022). Income is one of the important factors in household consumption. Keynes (1936) through the Absolute Income Hypothesis (AIH) from The General Theory supports the statement that income and consumption have a linear and positive relationship. Moreover, asset ownership control variables, namely houses and buildings, had a positive direction on the level of consumption so that when people in rural areas have house and building assets, the level of consumption will increase. This can happen because rural communities who already have assets no longer use their income to save to buy assets so that the amount of household consumption can increase. A positive relationship between asset ownership and household consumption was also found in the Pan and Xing (2020) study of Chinese households. Then, the age variable had a significant negative effect on the level of public consumption. This is relevant to the Life Cycle Hypothesis (LCH) expressed by Ando and Modigliani (1963). People at a young age will tend to save to prepare for their retirement needs so that when they are older, they are more likely to consume, especially for health financing. Old people run their lives depending on the savings when they were young, while young people depend on loans.

Table 4. Classical Assumption Test

Steps	Type of test	Score	Description
Multicol-linearity	Correlation	<0.8	There was no multicollinearity
Heteroscedasticity	Breusch Pagan	0.1650	There was homoscedasticity
Normality	Jarque Bera	0.0000	Not normally distributed

Source: Data Processed, 2021

When tested for classical assumptions to meet the basic assumptions in the linear regression model, namely the Best Linear Unbiased Estimator (BLUE), it was known that all stages of tobit model have met (Table 4). In the multicollinearity stage, the value was less than 0.8 in each variable. With this value, the regression model did not have multicollinearity problem. Then, at the heteroscedasticity test stage, it was known that the chi-square probability value was 0.1650. Since the value was greater than the alpha value (0.05), so the regression model was homoscedastic. At the stage of normality test using Jarque-Berra, it was known that the probability value was 0.0000. This illustrated that the data were not normally distributed because the probability value was smaller than the alpha value.

CONCLUSION

Financial inclusion and financial literacy of rural communities with the proxy of ownership of savings and knowledge related to loans provide significant results on the level of consumption. However, financial inclusion with loan ownership indicators still has an insignificant effect. These show that rural communities do not rely on loans/credits to meet their household needs so that the variable ownership of loans does not significantly affect the welfare level of rural communities. Then, market access shows a significant influence on the level of consumption because the condition of good facilities and infrastructure will facilitate people's economic activities to meet their needs.

In the control variables, it is known that there are three variables that have a significant effect on the consumption of rural communities, namely income, ownership of assets in the form of houses and buildings, and age of the population. However, the level of poverty and ownership of assets in the form of land do not have a significant effect.

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