Research article

Do Multifinance Institutions Matter for Poverty Reduction? Evidence from Indonesia

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Abstract: Microfinance Institutions (MFIs) can help reduce poverty by offering small loans to people who cannot get bank loans due to lack of collateral. However, in Indonesia, access to microfinance institutions is unequally distributed, as shown by the establishment of MFIs in Indonesia, which covers only 22 out of 34 provinces. This condition limits their impact on poverty reduction. This study examines how access to MFIs and the loans they provide affect poverty rates in Indonesia, using cross-sectional data from 22 provinces between 2016 and 2022. The results show that access to MFIs and the loans they provide do not significantly reduce poverty. This is due to poor infrastructure, low-quality MFI services, and insufficient loan amounts. The study also found that education lowers poverty, unemployment increases it, and agriculture helps reduce it. To improve poverty reduction, the government should improve infrastructure and extend MFI coverage to more provinces. Additionally, MFIs should increase their loan amounts to make a bigger impact.

Keywords: access, loan, microfinance, poverty, panel data.

JEL Classification: C33, G21, I32

Abstrak: Lembaga Keuangan Mikro dapat membantu mengurangi kemiskinan dengan menawarkan pinjaman kecil kepada masyarakat yang tidak dapat memperoleh pinjaman bank karena kurangnya agunan. Namun, akses terhadap lembaga keuangan mikro masih belum merata di Indonesia. Hal ini terlihat dari berdirinya LKM di Indonesia yang hanya mencakup 22 dari 34 provinsi. Kondisi ini membatasi peran lembaga keuangan mikro terhadap pengentasan kemiskinan. Studi ini mengkaji akses terhadap lembaga keuangan mikro dan pinjaman yang mereka berikan mempengaruhi tingkat kemiskinan di Indonesia dengan menggunakan data dari 22 provinsi antara tahun 2016 dan 2022. Hasilnya menunjukkan bahwa akses terhadap lembaga keuangan mikro dan pinjaman yang mereka berikan tidak mengurangi kemiskinan secara signifikan. Hal ini disebabkan oleh buruknya infrastruktur, rendahnya kualitas layanan lembaga keuangan mikro, dan jumlah pinjaman yang tidak mencukupi. Studi ini juga menemukan bahwa pendidikan dapat menurunkan kemiskinan, pengangguran meninhkatkan kemiskinan, dan pertanian menurunkan kemiskinan. Untuk meningkatkan pengentasan kemiskinan, pemerintah harus memperbaiki infrastruktur dan memperluas cakupan lembaga keuangan mikro ke lebih banyak provinsi. Selain itu, lembaga keuangan mikro perlu meningkatkan jumlah pinjaman mereka untuk memberikan dampak yang lebih besar.

Kata Kunci: akses, pinjaman, keuangan mikro, kemiskinan, data panel.

1. INTRODUCTION

Poverty is still one of the problems experienced by Indonesia, with a national poverty percentage of 9.54% or 26.16 million people below the poverty line in 2022 (Badan Pusat Statistik, 2022). Poverty reduction is more challenging as the government must deal with the economic impact of COVID-19, which is increasing the number of poor households. Hence, the current

condition of poverty is still far above the 2020-2024 National Medium Term Development Plan (RPJMN) target of 6-7% (Badan Perencanaan Pembangunan Nasional, 2020).

The problem of poverty is often associated with a lack of access to social needs such as health services, nutrition, shelter, clean water supply, and sanitation (Todaro & Smith, 2020). Poverty also causes households to have difficulty accessing education, not having savings or investments, getting a job, lacking social security, and increasing urbanisation. This condition follows the vicious circle of poverty theory, which states that low-income levels cause people's ability to save to be low, and there is a lack of capital for investment. This condition causes a decrease in people's productivity and income levels (Todaro & Smith, 2020)

One effort to reduce poverty is through increasing the accessibility of microfinance institutions (MFIs) to allow households to access microfinance products such as loans, savings, and insurance that focus on low-income households that other formal institutions like banks underserve. Besides, microfinance institutions also provide microfinance services, business development, and community empowerment services that benefit the community. Data from the Indonesian Financial Services Authority (FSA) shows that microfinance institutions in Indonesia have experienced fluctuations in the number of units and loans provided since 2016. In 2016, there were 129 microfinance institutions with loans provided Rp.186.75 billion. By the end of 2022, there were 242 microfinance institutions units located in 22 out of 34 provinces and provided loans of Rp.945.63 billion.
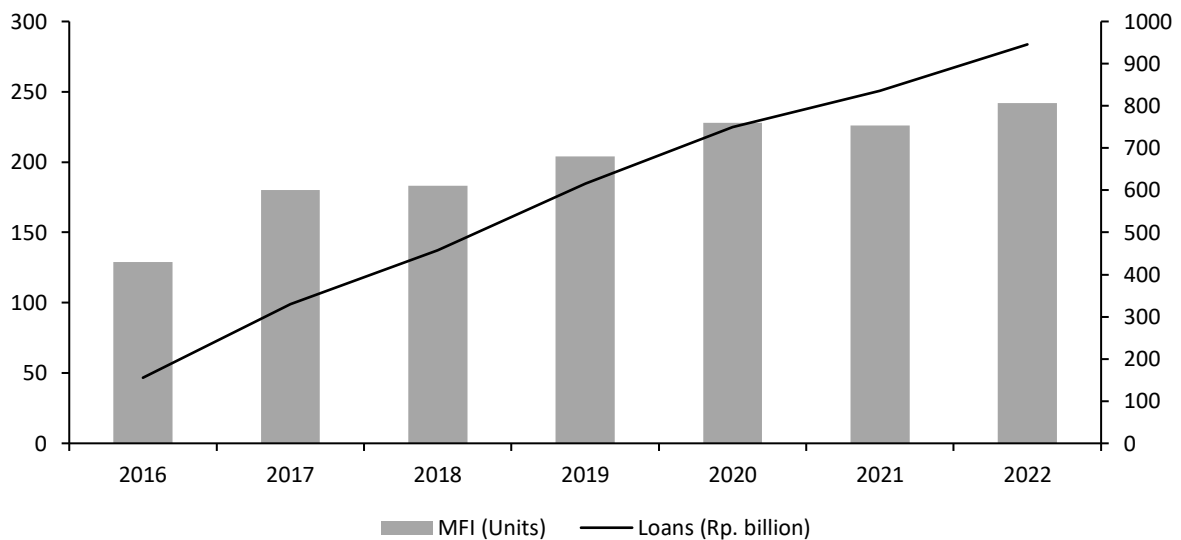

Figure 1. Total Microfinance Institutions Units and Loans Distributed, 2016-2022
Source: Financial Services Authority (2022b)

Even though the number of microfinance institutions has increased, access to microfinance institutions, which refers to the ability to use financial services by considering distance, cost availability, and feasibility, is still not evenly distributed throughout the province. For example, in 2022, the Province of DI Yogyakarta had 118 microfinance institutions, while Papua, the highest poverty rate in Indonesia at 26.8%, only had 1 microfinance institution. Limited access to microfinance institutions potentially drives poor households to work with minimal capital, hindering development and increasing poverty. Therefore, increasing access to financial institutions is important to allow them to access the products or services provided by microfinance institutions, leading them to increase their assets and productivity.

Previous studies found that increasing access to microfinance institutions can reduce poverty. Increased access to financial institutions allows households to get additional capital beneficial for their businesses and access savings services and consultation services at microfinance institutions, enabling people to increase their financial literacy and business knowledge (Arif et al., 2019; Onuka, 2021). Other studies show that microfinance institutions' services can empower women who act as

intermediaries between microfinance institution's services and poverty reduction efforts (Batinge & Jenkins, 2021; El-Nasharty, 2022). Besides access to microfinance institutions, loans provided by microfinance institutions can reduce poverty levels as they can serve poorer populations. Accessing formal credit from banks is difficult due to a lack of collateral. Some researchers found that easy access to microfinance institutions and productive loan funds has significantly affected poverty alleviation (Arif, et.al., 2019; Onuka, 2021; Khan, et.al., 2021). Loans provided by microfinance institutions allow households to set up or expand their businesses and create an additional source of income (Lacalle-Calderon et al., 2018; Bel Hadj Miled & Ben Rejeb, 2018; Félix & Belo, 2019; Suman et al., 2020; El Nasharty, 2022) 2022).

In contrast, other studies state that microfinance institutions microloans can increase poverty; for example, Chikwira, et.al. (2022) show that poverty levels in Zimbabwe will increase as the number of microloans provided by microfinance institutions increases in the long term. Similarly, Santoso, et.al. (2020) and Yasin (2020) found that increasing micro-loans from microfinance institutions increased poverty in Indonesia. Those conditions are because people only use microfinance institutions' micro-loans to meet basic needs and ignore the primary purpose of loans, which is the productive activities that lead to new problems like the inability to repay loans, resulting in long-term poverty. In addition, education is closely related to poverty through its ability to enable individuals with higher skills, knowledge, and understanding in the workplace. Individuals with higher education levels are more likely to find higher-income jobs, thereby increasing the likelihood of leaving poverty (Chen & DesJardins, 2008). In addition, education will reduce the risk of poverty because it allows individuals to obtain information, find health services, and manage their finances. Education also plays an important role in improving worker productivity, developing product strategies, stimulating technological innovation, and supporting studies to identify key issues related to poverty and inequality (Arif et al., 2019). The agricultural sector contributes to poverty alleviation through its ability to provide food security for households and an income-generating sector for farmers and related individuals (Mkwambisi, et.al., 2011). Considering the important role of agriculture, Effendy (2017) found some determinants that can contribute to labor productivity in the agricultural sector. They are low level of technology, traditional farming methods, low level of farmers' competency, and low level of capital investment.

Considering the importance of increasing access to microfinance institutions, access to microfinance institutions should be expanded. However, the uneven distribution of microfinance institutions' locations across Indonesia can increase the pressure on microfinance institution's role in poverty alleviation. Hence, with the current uneven distribution of microfinance institutions in Indonesia, this study investigates how access to microfinance institutions and the loans provided by microfinance institutions affect poverty levels in Indonesia. The novelty of this study is its ability to capture the role of microfinance institutions and the loans provided by them, which are largely under-observed compared to formal institutions like banks but can have a high impact on individuals and households that cannot access those formal services due to a lack of collateral. The rest of this paper is structured as follows. The second section presents the method and data. The third section presents the estimation result and discussions. The fourth section offers the conclusion and recommendations for future studies.

2. RESEARCH METHODS

2.1. Data

This study used data from 22 provinces with microfinance institutions registered by the Indonesian Financial Services Authority from 2016 to 2022. The selection of 22 provinces in Indonesia from 2016 to 2022 implies *unbalanced panel* data. During that period, microfinance institutions continue to grow yearly, resulting in new data appearing at any observation time. The poverty variable uses percentages as it enables researchers to measure the poverty level over time and measure the success of poverty alleviation in a province (Zhou & Zhong, 2021; Adnan & Amri, 2021). Access to microfinance institutions is calculated using the ratio of the number of microfinance institutions in a province to 100,000 residents (Menteri Koordinator Bidang Perekonomian Republik

Indonesia, 2021). This variable measures how easily people can access microfinance institutions in their respective regions. By using indicators comparing the number of microfinance institutions with the population in the province, the impact of geographic access to financial services can be measured. It can provide an objective picture of community access to microfinance institutions financial services (Onuka, 2021). The variable of loans given by microfinance institutions uses the number of loans given by microfinance institutions to borrowers or debtors in a province (Obayagbona, 2018). The advantages of loans provided by microfinance institutions are easy requirements, no collateral required, and relatively short loan disbursement (Batinge & Jenkins, 2021; El-Nasharty, 2022).

Table 1. Distribution of Microfinance Institutions by Region

No	Province	No	Province
1.	Aceh	12.	Banten
2.	Bengkulu	13.	DI Yogyakarta
3.	DKI Jakarta	14.	Jambi
4.	West Java	15.	Central Java
5.	East Java	16.	South Kalimantan
6.	Central Kalimantan	17.	East Kalimantan
7.	Lampung	18.	Maluku
8.	West Nusa Tenggara	19.	Papua
9.	Riau	20.	West Sulawesi
10.	South Sulawesi	21.	West Sumatra
11.	South Sumatera	22.	North Sumatra

Source: OJK Statistical Report, 2016-2022

In the study, control variables are used for the indicators used in the control variables to represent educational, unemployment, and agricultural aspects (Table 2). The variable of the average length of schooling can be used to determine the quality of education of the population of that area (Ibrahim & Sampath, 2022; Andriansyah & Yulmardi, 2024). Education improves the quality of human resources to produce a productive workforce, allowing them to earn higher incomes and exit poverty (Effendy, 2017). We used the open unemployment rate to measure unemployment. This indicator describes the proportion of workers who have not found work in the workforce, providing information on employment opportunities and economic dynamics in a certain period (Onuka, 2021). The many unemployed people will reduce community welfare and increase the chances of poverty (Santoso, et.al., 2020; Yasin, 2020).

Lastly, agricultural productivity is used as an indicator of the agricultural aspect. This indicator was chosen because it measures how effective this sector is in creating added economic value relative to the number of workers involved in it in a given period (Winters, et.al. 1998; Montalbano & Nenci, 2022). Increasing the productivity of the agricultural sector can increase added value and absorb the workforce in rural areas so that agriculture becomes the main hope for poverty alleviation (Effendy, 2017). Data on the number of microfinance institutions and the number of loans provided by microfinance institutions is obtained from the Indonesian Financial Service Authority Statistical Reports. In contrast, data on average years of schooling, open unemployment rate, agricultural productivity, and poverty levels are accessed from the Indonesian Central Statistics.

Table 2 shows that the average poverty rate in 22 provinces in Indonesia during 2016-2022 was 10.642%, with the highest average in 2016 at 12.297% and the lowest average poverty rate in 2017 at 10.273%. The average access ratio for microfinance institutions in 22 provinces in Indonesia during 2016-2022 is 0.115. Access to microfinance institutions was highest in 2017, with a ratio of 0.217. Meanwhile, the lowest average microfinance institutions access ratio occurred in 2021, 0.090. The average value of loans provided by microfinance institutions in 22 provinces in Indonesia during 2016-2022 was Rp.32.865 billion, with the highest average loan disbursement occurring in 2022, namely Rp.42.983 billion and the lowest loan disbursement in 2016 amounting to Rp.22.219 billion. The average length of school in 22 provinces in Indonesia during 2016-2022 is 8.497 years.

The highest average length of school occurs in 2022, with the average length of schooling for the community being 8.75 years. Meanwhile, the community took the lowest length of schooling, 7.641 years, in 2016.

Table 2. Descriptive Statistics

year	Descriptive	POV	MFIAcc	MFIL	EDU	UNEMP	AGR
2016	Mean	12.29	0.09	22.21	7.64	5.50	4.06
	Std. Dev.	4.08	0.11	27,19	0.61	2.36	7.27
2017	Mean	10.27	0.21	30.01	8.01	5.09	4.85
	Std. Dev.	3.61	0.26	54.30	0.73	1.97	8.86
2018	Mean	10.41	0.17	33.32	8.24	4.91	5.43
	Std. Dev.	3.56	0.20	59.88	0.75	1.75	1.24
2019	Mean	10.72	0.09	32.41	8.48	4.87	6.44
	Std. Dev.	5.31	0.09	71.62	0.86	1.57	3.59
2020	Mean	10.87	0.09	34.06	8.68	6.22	6.16
	Std. Dev.	5.19	1.10	81.24	0.98	2.13	3.54
2021	Mean	10.47	0.09	35.03	8.87	5.14	7.10
	Std. Dev.	5.199	0.09	78.03	0.95	1.61	4.33
2022	Mean	10.31	0.09	35.03	8.87	5.14	7.10
	Std. Dev.	5.04	0.09	78.03	0.95	1.61	4.33

Source: Author's Calculation

The average value of unemployment rate in 22 provinces in Indonesia during 2016-2022 was 5.385%. The highest unemployment rate occurred in 2020 at 6.223%. Meanwhile, the lowest unemployment rate occurred in 2019 at 4.879%. The average productivity value for 22 provinces in Indonesia for the 2016-2022 period is Rp.61.4 million per agricultural worker. The highest agricultural productivity occurred in 2022, amounting to Rp.71 million per agricultural worker, while the lowest in 2016, namely Rp.40.6 million per agricultural worker.

2.2. Model Specification

This study uses panel data regression, the model used refers to the study by Onuka (2021), Santoso, et.al. (2020), and Yasin (2020), and uses a linear-log model, which is caused by differences in values for agricultural variables that are too extreme compared to other variables (Equation 1).

$$POV_{it} = \beta_0 + \beta_1 MFIAcc_{it} + \beta_2 MFIL_{it} + \beta_3 EDU_{it} + \beta_4 UNEMP_{it} + \beta_5 lnAGR_{it} + e_{it} \qquad (1)$$

where: POV denote poverty rate (percentage); $MFIAcc$ denote access to microfinance institutions (units); $MFIL$ denote loans provided by microfinance institutions (loans number distributed); EDU denote education (average length of schooling using year); $UNEMP$ denote open unemployment rate (percentage); and AGR denote agriculture productivity (workers number).

Panel data analysis has three approach models, namely Common Effect Model (CEM) with an Ordinary approach Least Square (OLS), Fixed Effect Model (FEM) with an Ordinary approach Least Square, and Random Effect Model (REM) with a Generalized Least Square (GLS). To select the best model, we conduct some tests. First, to determine the Partial Least Square and REM, we use an F-restricted test by comparing the probability of F-stat on the FEM output with a significance level α of 5%. If the probability value is greater than the significance level (p-value> 0.05), then the model used is the CEM. On the other hand, the FEM is more appropriate if the probability value is smaller than the significance level (p-value <0.05). Next, the Hausman test is carried out if the FEM is selected to compare whether the REM is better than the FEM. If the probability value from the Hausman test is less than the significance level (p-value <0.05), then the best model is the FEM. In contrast, the REM is used if the probability value exceeds the significance level (p-value > 0.05). The next test is Lagrange Multipliers (LM), which is used to select the appropriate model between the

CEM and the REM. If the probability value of the LM test exceeds the significance level of 5% (p-value > 0.05), then the model selected is the CEM. On the other hand, the LM test results show a value less than the 5% significance level (p-value <0.05), indicating that the appropriate model is the REM.

Additionally, the model selection test and residual diagnostic tests will be carried out in this model. The classical assumption test is carried out to produce BLUE parameters (Best Linear Unbiased Estimator). The tests that will be carried out include normality, multicollinearity, heteroscedasticity, and autocorrelation. The normality test is done to evaluate the error in the regression model, which has a normal distribution. Ghozali & Ratmono (2013) stated that data is normally distributed if the probability value is greater than alpha 0.05. On the contrary, data is not normally distributed if the probability value is smaller than alpha 0.05. Next, multicollinearity refers to a situation where there is a correlation between two or more independent variables in a regression model. In an ideal regression model, there should not be multicollinearity between independent variables. A correlation test is carried out to detect multicollinearity. If the correlation value between variables freedom exceeds 0.80, this indicates the presence of multicollinearity in the model.

Meanwhile, heteroscedasticity occurs when a model's residual values do not show stable or constant variations. This is due to changes in conditions not included in the model, so each observation has a certain level of reliability. Heteroscedasticity often occurs in cross-section data, which is possible in panel data (Gujarati, 2009). Therefore, it is necessary to carry out tests of heteroscedasticity to detect these problems. The following classical assumption tests involve autocorrelation, and hypothesis testing, including t-test, F-test, and Coefficient of Determination. The autocorrelation test evaluates whether there is a correlation between variables in the prediction model against changes over time. An autocorrelation in the prediction model shows a correlation between the disturbance values pair. This autocorrelation test assumes that the dependent variable within regression has no relationship with its values in the previous period or afterward (Gujarati, 2009).

After determining the best approach model and carrying out residual diagnostic tests, the next step is to carry out hypothesis testing on the regression coefficients and carry out a coefficient of determination test to understand the extent of the influence generated by the independent variable on the dependent variable. The tests carried out were partial, simultaneous, and coefficient of determination tests. The t-test is a single-direction test that determines the presence and influence of one independent variable on the dependent variable. If the p-value is less than the significance level (p-value <0.05), then there is a significant effect from the independent variable to the dependent variable. On the other hand, if the p-value is greater than the significance level (p-value> 0.05), then the independent variable does not significantly influence the dependent variable. In contrast, the F-test (simultaneous) is used to find out the influence of the independent variable on the dependent variables together. This study uses error rates of 5% or 0.05. If the resulting p-value is greater than 0.05 (p-value> 0.05), the independent variable does not significantly influence the dependent variable simultaneously. Conversely, a p-value smaller than 0.05 (p-value < 0.05) indicates that the independent variables significantly influence the dependent variables. Lastly, the coefficient of determination test is carried out to measure variations in the dependent variables that the independent variable can explain. The range of coefficient value determination is between 0 to 1. When the coefficient of determination value is low or approaching 0, the independent variable only explains variation in the dependent variable. On the other hand, the coefficient of determination value is high or close to 1, which shows that the independent variable strongly explains the variation in the dependent variable.

3. RESULTS AND DISCUSSION

3.1. Results

The first attempt to determine the impact of multifinance institutions on poverty reduction in Indonesia is through a model selection test. Using F-restricted test results in a probability value of

0.0000 with a value smaller than 5% implies that the preferred model used is the Fixed Effect Model. The Hausman test produces a Prob value >chi2 0.119 and is more significant than the alpha of 5%, reflects the preferred model will use the Random Effect Model. In contrast, the Lagrange Test produces a Prob >chi2 value of 0.0000 and is smaller than 5%, which states that the suitable model to use is the Random Effect Model. Based on those tests, the Random Effect Model is the most appropriate model with more efficient estimates. The next test is the classical assumption test, a normality test using the skewness-kurtosis test (sk-test). The test results show a probability value of 0.948 and higher than 0.05 (0.948 > 0.05), implying that this study model's data is normally distributed. The multicollinearity test was carried out using the Correlation Matrix test.

Table 3. Correlation matrix results

	MFIAcc	MFIL	EDU	UNEMP	AGR
MFIAcc	1.000				
MFIL	0.334	1.000			
EDU	-0.249	-0.207	1.000		
UNEMP	-0.218	0.330	0.490	1.000	
lnAGR	-0.177	-0.111	0.538	0.282	1.000

Source: Authors calculation (STATA output)

The correlation matrix results show that no variable has a correlation value of more than 0.80, implying no multicollinearity in the model. The heteroscedasticity test was carried out using the Glejser test. The results of this test show the existence of heteroscedasticity in the model, indicated by the result that gives a p-value > Chi2 of 0.000, smaller than alpha of 5%. The autocorrelation test was carried out using the Wooldridge test. The results of this test indicate that the study model experiences autocorrelation problems, indicated by a prob. value >F of 0.000, smaller than alpha of 0.05 or 5%. Based on the analysis above, the model experiences heteroscedasticity and autocorrelation problems. However, even though the model has those problems, the results of the classical assumption test can be ignored because the model used is a random effect model with a Generalized Least Square where one advantage of GLS is that it does not need to meet classical assumptions (Gujarati and Porter, 2009). Table 4 shows the results of the classical assumption test and the results of panel data regression estimation using the Random Effect Model.

Table 4. Regression Estimation with Random Effect Model

Dependent variable = POV				
Variables	**Coefficient**	**Std. Error**	**z-stat**	**P > |z|**
Intercept	42.138	10.740	3.92	0,000
MFIAcc	-1.338	0.695	-1.92	0.054
MFIL	-1.215	0.619	-1.96	0.050
EDU	-0.002	0.002	-1.16	0.247
UNEMP	-1.018	0.432	-2.35	0.019
lnAGR	0.237	0.088	2.68	0.007
Simultaneous Test				
Wald Chi-square (5)	45.91			
Prob > Chi-square	0.000			
R- Squared				
Within	0.313			
Between	0.312			
Overall	0.247			

Source: Authors calculation (STATA output)

The study results show a Wald-chi-square value of 45.91 with a prob. > chi-square value of 0.000. This value is smaller than the 5% level. Therefore, one or all independent variables (MFIAcc, MFIL,

EDU, UNEMP, AGR) significantly affect the independent variable (POV). The coefficient of determination of this study model is shown by the R-squared value of 0.312. The variables of microfinance institutions access; microfinance institutions loans; education; unemployment rate; and agriculture influence the poverty rate by 31.2%. At the same time, 68.8% of the changes in the poverty variable are influenced by other unknown variables.

3.2. Discussion

The access to microfinance institutions has a negative and insignificant effect on poverty. This finding aligns with Nabil & Herianingrum (2022), which states that access to microfinance institutions has a negative but insignificant effect on poverty. One of the reasons access to microfinance institutions insignificant effect is that the number of microfinance institution units registered and supervised by the Indonesian Financial Services Authority is not evenly distributed in Indonesia (Santoso, et.al. 2020; Yasin, 2020). This unequal number of microfinance institutions means that people in other provinces with higher poverty levels cannot access maximum microfinance institutions' services (Nabil & Herianingrum, 2022). In addition, as many as 142 of the 242 microfinance institutions in Indonesia only cover business areas at the sub-district level (Otoritas Jasa Keuangan, 2022a). Poorer populations with few microfinance institutions and limited coverage must travel long distances to reach microfinance institutions, incurring additional costs such as opportunity costs from lost time and transportation costs (Basu & Srivastava, 2005, Gibbons & Meehan, 1999).

The quality of microfinance institutions also influences the services of microfinance institutions in alleviating poverty because microfinance institutions must increase their role as microfinance distribution institutions, increase customer knowledge and skills, and provide assistance and training so that customers can manage the financing provided efficiently. An increase in customers without adequate assistance and training causes people to access loans for consumptive purposes, leading them not to repay loans and be trapped in poverty (Banerjee & Jackson, 2017). This condition can be prevented by basic training in financial management before being given a loan. This training and assistance will increase the average customer income with a complete sense of responsibility and customer commitment to develop their business and be free from poverty (Gudjonsson, 2020). Although the effect of access to microfinance institutions on poverty is not significant, the increasing number of microfinance institutions shows that microfinance institutions are still needed by society (Santoso, et.al. 2020; Yasin, 2020). In 2022, 18 new and registered microfinance institutions were mainly covered at the sub-district level (Otoritas Jasa Keuangan, 2022b). Increasing access to microfinance institutions services has increased household expenditure, household assets, labor, and children's school participation (Arif, et.al., 2019). In addition, access to microfinance institutions also increases gross domestic product per capita growth, reduces income inequality, and results in higher incomes. Further, high access to microfinance has a *spillover effect* on the local economy. Local communities benefit from microfinance institutions even though the area does not have direct access to microfinance institutions (Onuka, 2021). Apart from that, services from microfinance institutions also empower women; therefore, increasing access to microfinance institution's services will increase family income and reduce poverty levels (Batinge & Jenkins, 2021; El-Nasharty, 2022).

The study found a negative but insignificant relationship between microfinance institutions' loans and poverty variables. These results are consistent with Bel hadj Miled & Ben Rejeb (2018), Lacalle-Calderon, et.al. (2018), Arif, et.al. (2019), Félix & Belo (2019), and El-Nasharty (2022) who state that microloans can negatively reduce poverty. Loans provided by microfinance institutions can be accessed without fees and collateral, so the poorer population can access loans without worrying about high costs (Lacalle-Calderon, et.al., 2018). Apart from that, the convenience of loans provided by microfinance institutions is that credit is easy to obtain and practical, and they offer relatively low interest and consumer-friendly service (Batinge & Jenkins, 2021; El-Nasharty, 2022). With micro-loans, people's productivity levels increase so that their income increases. People can use the loans provided as activity capital, especially for Micro, Small, and Medium Enterprises (MSMEs) (Arif, et.al. 2019).

Although microfinance institutions' loans reduce poverty, their impact on poverty in Indonesia is not significant, which is also in line with Yasin (2020). According to data from the Otoritas Jasa Keuangan (2022b), the total loans provided by microfinance institutions in 2022 was 945.63 billion rupiah, which is relatively small compared to the total credit provided by commercial banks of 6.423 trillion rupiah. As the nominal loans provided by microfinance institutions are smaller than those provided by other formal financial institutions, loans from microfinance institutions alone are insufficient to reduce poverty significantly (Yasin, 2020). At the same time, providing loans that are not accompanied by adequate financial skills can cause the loans to be ineffective in increasing productivity or reducing poverty (Chikwira, et.al., 2022). People can use the micro-loans they receive for consumptive activities, giving rise to bad credit, which worsens the performance of microfinance institutions. In addition, the loan amounts are smaller than loans in banks with relatively high interest rates, making it difficult for people to use loans effectively and productively (Chikwira, et.al., 2022). Therefore, strong entrepreneurial skills and social capital are needed, and more significant loan amounts are provided so that the loans provided are effective and people can exit poverty (El-Nasharty, 2022).

The study results show that education negatively and significantly affects poverty. This result follows study by Effendy (2017). Education is an essential tool for increasing worker productivity, improving product strategies, increasing innovations in the technology field, and increasing studies to find out the main problems of poverty and inequality in society (Arif, et.al., 2019). For Micro, Small, and Medium Enterprise workers, education is a basic need, resulting in their willingness to invest in their children's education, leading to increased financial literacy and reduced poverty rates (Félix & Belo, 2019). The increasing average number of years of schooling indicates higher participation and better access to education facilities. Hence, it will improve the quality and productivity of human resources, increase income, and alleviate poverty in the area (Soseco, et.al., 2022). Apart from that, people with higher education can access information well to access capital and have good financial knowledge compared to people with low education (Soseco, et.al., 2023).

Unemployment has a positive and significant effect on poverty. This result follows study by Onuka (2021); Santoso, et.al. (2020); and Yasin (2020) state that an increase in the unemployment rate will also increase poverty. Their study shows that low or lack of income during the unemployment period will lead to financial difficulties, which causes them to be unable to fulfill their basic needs, making them vulnerable to poverty. Unused skills during unemployment can decrease productivity as individuals lag behind their counterparts in the labor market to utilize their skills and adapt to the new technology, limiting individual contributions in the economic sector (Fietz & Lay, 2023). For society, unemployment is harmful as it will lead to political and social instability and potentially increase crime (Triatmanto & Bawono, 2023; Saputra & Widodo, 2023). The negative impact of unemployment on the economy is shown by the decline in average income per capita, decreasing tax revenues, increasing social costs borne by the government, and soaring state debt (Sulistyani, et.al., 2023).

The study results show that agriculture negatively and significantly influences poverty. This finding follows study by Effendy (2017), which states that increasing agricultural productivity reduces poverty levels in Central Java, where the agricultural sector is a development lever (engine of growth) regarding workforce, production preparation, and purchasing power. Increasing productivity in the agricultural sector will create new jobs, encourage local industries, and increase the purchasing power of local people. The agricultural sector also contributes to food security, which is beneficial in maintaining household expenditure for food at a low level. Besides, it is a source of income, a labor-intensive sector, and a basis for developing new businesses (Mkwambisi, et.al., 2011). Data from Badan Pusat Statistik (2022) shows that agricultural households dominate poverty in Indonesia at 49.89%. Therefore, increasing agricultural productivity impacts the purchasing power and welfare of the poor population in the agricultural sector.

4. CONCLUSIONS

Access to microfinance institutions and microfinance institutions' micro-credits are required to reduce poverty levels in Indonesia. Our study shows that the influence of access to microfinance

institutions is not significant due to microfinance institution units not yet registered and not evenly distributed in Indonesia, which is caused by the lack of infrastructure and transportation access to access microfinance institutions and the low quality of microfinance institutions services. On the other hand, loans provided by microfinance institutions negatively and do not significantly affect poverty in Indonesia due to the lack of entrepreneurial skills and social capital. Based on those findings, the government needs to increase infrastructure access as it benefits economic activities and enables households to access microfinance institutions easily. Lastly, an increase in microfinance institutions' performance is needed in the form of the number of micro-loans provided to have a higher impact on the population. Owing to the data availability, this study cannot claim to provide a comprehensive picture of the effect of microfinance institutions on the poverty level on the regional level. Some improvements can be made for future studies, including focusing on the regional level, for example, province or regency/city levels. Alternatively, future researchers should consider the geographical aspect, like a group of islands. Second, future researchers should consider estimating the impact on a specific population that ignores the geographical borders.

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