**Financial inclusion strategy to increase the income of micro, small and medium enterprises through business credit in Indonesia**

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## ABSTRACT

**Purpose:** This study aims to analyze the financial inclusion strategy carried out by the government to help MSMEs improve their competitiveness. Financial inclusion as a dependent variable uses three dimensions, namely the usage dimension, the access dimension and the quality dimension.

**Design/Methodology/Approach:** This study uses MSMEs credit as a mediation variable. The sample studied was 61 MSMEs in the special region of Yogyakarta, Indonesia. The data analysis tool uses a path analysis model processed with Smart-PLS.

**Findings:** The results showed that the usage dimension has a significant positive effect on business credit while the access and quality dimensions do not affect business credit. Business credit has a significant and positive effect on increasing the income of MSMEs and mediate the usage dimensions to increase the income of MSMEs. Business credit is unable to mediate the access dimension and the quality dimension to increase the income of MSMEs.

**Conclusion:** The lack of optimization of the use of banking products by MSMEs is a factor that needs to be considered so that MSMEs can develop with the support of financial inclusion.

**Research Limitation:** There is no integrated MSME data, so we cannot see the condition of MSMEs in Yogyakarta Indonesia as a whole.

**Practical Implications:** The government must play an active role in addressing financial inclusion and financial literacy in MSMEs before facilitating the credit application process. MSMEs need to be taught about business productivity and how to manage finances.

**Contribution to the Literature:** This research can be used as a reference for future researchers.

***Keywords:*** *Access dimension, Financial inclusion, Income MSMEs, MSMEs loan, Quality dimension, Usage dimension.*

## 1. INTRODUCTION

MSMEs are profitable businesses that operate independently and are run by people or organisations that are not subsidiaries or branches of firms that are owned, controlled or that combine directly or indirectly with micro, small or large businesses. MSME business activities expand employment and provide broad economic services to the community. It also plays a role in the process of equitable distribution and increases in community income, encourages economic growth and realize national economic stability. The government is still developing strategies so that Micro, Small and Medium Enterprises (MSMEs) in Indonesia can continue to develop and catch up. One source of problems that hinder the development of MSMEs is the lack of access to business financing especially from banks. In fact, a small number of business actors, namely medium- and large-sized business groups receive more credit from banks than MSMEs. The purpose of this study is to analyze the financial inclusion strategy of MSME actors in Indonesia through business lending to increase their income. According to Mulyati (2017) the provision of credit to increase MSME income turned out to have a significant influence on MSME income. Fiaklou, Ntiamoah, Kwamega, and Egyiri (2014) and Martins (2023) in their research stated that there is a positive



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relationship between the provision of bank credit facilities and business growth. Financing or credit is closely related to financial inclusion. Research conducted by Fahmy, Rustam, and Asmayadi (2016) stated that financial inclusion in Indonesia has a positive influence on credit disbursed to MSMEs. On the other hand, based on the results of the 2016 National Survey and Financial Inclusion, recipients of financial inclusion in urban areas were 68.9 percent higher than in rural areas by 61.2 percent. This shows a gap in financial inclusion. Financial inclusion should be proclaimed evenly throughout Indonesia where one of the goals of financial inclusion is to reduce poverty. The Financial Services Authority (2017) states that the elements that play a role in financial inclusion are access, availability of financial products and services, use and quality. Access is a dimension used to measure the ability to use formal financial services so that the potential obstacles to opening and using bank accounts can be seen. The ability of customers to access banking anywhere and anytime is one of the most important elements of financial inclusion. The usage dimension is used to measure the actual ability to use financial products and services, including those related to regularity, frequency and duration of use. Meanwhile, the quality dimension is to determine whether the availability of financial products and services has met customer needs.

Formal financial services are a form of financial inclusion that is not accessible to all societal levels as a result of several significant obstacles. First, the infrastructure of formal financial institutions is still difficult to reach by some levels of society especially rural communities. The second problem is that people still do not fully trust formal financial institutions. This arises due to the low financial literacy in Indonesia. Riwayati, Salim, Maskie, and Indrawti (2020) revealed that financial inclusion affects the success of MSMEs in Indonesia, while according to Anwar, Purwanto, Suwaidi, and Anienda (2017), financial inclusion does not affect the success of MSMEs in Indonesia. The level of financial literacy of small and medium enterprises needs to be improved with an inclusive financial development model through three phases. Phase one is the phase to build trust. Phase two is the certainty that banks must provide certainty of easy, uncomplicated and proactive services to the demands of small and medium-sized businesses and phase three is education. The third problem is that formal financial institutions have preferences when it comes to selecting debtors or creditors in order to maintain the company's viability which means that it may be challenging for particular societal groups to prevail over banks and get credit. This is quite reasonable considering that formal financial institutions also have preferences for managing their risk and financial management. Ummah, Nuryartono, and Anggraeni (2015) in their research revealed that financial inclusion in Indonesia is still relatively low. The size of the economy and income inequality positively affects the level of financial inclusion. According to Tristiarto and Wahyudi (2022) and Mudjiarto and Vimesa (2020), widening income inequality has led to higher financial inclusion in Indonesia. Moreover, the number of mobile phones and internet users has a positive effect on the level of financial inclusion in Indonesia. Income inequality and financial inclusion have a one-way relationship; income inequality affects financial inclusion in Indonesia but not vice versa. A study conducted by Evans (2016) found that financial inclusion in Africa does not affect monetary policy. However, unlike Sujlana and Kiran (2018) financial inclusion is essential to inclusive economic development in India. In simple terms, financial inclusion seeks to address the challenge of poor access to financial services for rural communities in India.

The expectations and perspectives of developing countries such as Indonesia about the implementation of financial inclusion differ. Indonesia really hopes that financial inclusion can improve people's living standards through the distribution of MSMEs. Currently, MSMEs are still far behind large businesses in terms of credit absorption and the development of loans provided. Judging from the financial inclusion being carried out by the government, the obstacles to MSMEs should be suppressed. Through this research, researchers answer and provide solutions to the problems of Indonesian MSMEs related to financial inclusion and credit distribution.

## 2. LITERATURE REVIEW

According to Herwiyanti, Pinasti, and Puspasari (2020) and Martins (2023) MSMEs contribute greatly to encouraging economic growth and employment. In some countries, this sector is able to move the real sector into various business fields to contribute to the formation of GDP. Various studies that have been conducted show that MSMEs have great potential if MSME actors clearly understand their financial perspective. The financial aspect that is most considered important for MSME players is access to credit. MSMEs without financial literacy will find it difficult to get access to credit.



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Wuisang, Runtuwarouw, and Korompis (2019) stated that the inhibiting factors and problems of micro businesses consist of 2 factors, namely internal and external factors. Internal factors are classic problems for MSMEs, including: 1) limited human resource capabilities; 2) product marketing constraints. Most small industry entrepreneurs prioritize the production aspect while marketing functions are less able to access it, especially in market information and market networks, so most only function as handymen; 3) the tendency of consumers who do not trust the quality of small industrial products; 4) business capital constraints. Most small industries use relatively small amounts of their own capital. External factors are problems that arise for the developers and coaches of MSMEs. For example, the solutions provided are not right on target, there is no monitoring and there is an overlapping program. The difference between internal and external factors results from these two elements. On the banking side, SOEs and other supporting institutions are willing to lend money but which MSMEs receive credit depends on the numerous requirements that MSMEs must meet. On the other hand, MSMEs also have difficulty finding and determining which institutions can help with their limitations and this condition is still ongoing even though various efforts have been made to make it easier for MSME actors to obtain credit. This has been going on for 20 years (Riwayati, 2017). Currently, state-owned firms, departments, NGOs, private companies, banks and other institutions that perform similar functions all operate independently without cooperation.
On the other hand, MSMEs are helping the economy and turning it into a reality despite their shortcomings.

*2.1. Financial Inclusion Strategy*
The problem of weak MSMEs in Indonesia gave birth to a strategy so that the problem could be resolved. According to David (2017) strategy management is the art and science of formulating, implementing, and evaluating cross-functional decisions that enable an organization to achieve its goals. Barney and Hesterly (2015) argue that strategic management emphasizes monitoring and evaluating external opportunities and threats with respect to the strengths and weaknesses of the entity. Indonesia launched a joint strategy carried out by various stakeholders, namely financial inclusion to achieve the goal of alleviating poverty. Financial inclusion has become a topic of interest in global development and is widely regarded as a policy tool that promotes growth and stability while reducing poverty (Soederberg, 2013).
According to the World Bank and European Commission, financial inclusion is a comprehensive activity that aims to eliminate all forms of barriers either in the form of price or non-price to public access to or use the financial services. Financial inclusion is closely related to financial intermediaries. Mishkin (2017) defines a financial intermediary (financial intermediaries) as an institution that borrows funds from the savings community and lends them to other parties. A financial intermediary plays an important role in encouraging efficient capital allocation in an economy.
According to Riwayati (2017) financial inclusion is all efforts aimed at eliminating all forms of barriers that are price and non-price to public access to financial services. Financial inclusion is a national strategy to stimulate economic growth through income equality, poverty alleviation and financial system stability. In the national strategy for financial inclusion, financial inclusion is defined as the right of everyone to have full access and services from financial institutions in a timely, convenient, informative and affordable manner with full respect for their dignity. Financial services are available to all segments of society with special attention to the poor, migrant workers and residents in remote areas.
A performance measure is needed to analyze the extent of development of inclusive financial activities. Bank Indonesia (2014) establishes the financial inclusion index (IKI) as an alternative way to measure financial inclusion using a multidimensional index based on macroeconomic data especially on the range of banking sector services. The measurement of the IPI is basically an effort made by bank of Indonesia to combine various indicators of the banking sector, so that in the end the IKI can combine some information on the various dimensions of an inclusive financial system, namely access, usage and quality of banking services.
The access dimension is a dimension used to measure the ability to use formal financial services. Through the access dimension, it can be seen that there are potential obstacles to opening and using bank accounts such as the cost or physical affordability of financial services (bank offices, ATMs, etc.). Indicators used in measuring access dimensions include: number of bank offices for 100,000 adult population, the number of ATMs for the 10,000 adult population, number of bank offices for 1,000 $km^2$ and the number of ATMs for 1,000 $km^2$. The usage dimension is a dimension used to measure the actual ability to use financial products and services, including those related to


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regularity, frequency and duration of use. Indicators used in measuring access dimensions include: 1) the number of Third Party Fund (DPK) accounts consisting of deposits, current accounts and savings accounts for the 1,000 adult population; 2) the number of credit accounts for the 1,000 adult residents. The quality dimension determines whether the availability of financial products and services has met customer needs. Quality dimension indicators consist of the financial literacy index, the number of financial service complaints and the percentage of complaint service completion. In general, The Alliance of Financial Inclusion (2013) has agreed on the principles used in compiling indicators from the quality dimension, including conciseness, specificity, simplicity, the presence of improvements ) and client perspective (Financial Services Authority, 2017).

Capital support is needed, including increased access to credit or financing from banks to MSMEs to strengthen the role of MSMEs in the national economic structure. Bank Indonesia stipulates PBI No. 14/22/PBI/2012 concerning the provision of credit or financing by commercial banks and technical assistance in the context of MSME development. The issuance of this PBI is intended to encourage the achievement of increased access to credit or financing for MSMEs. It is necessary to strengthen the provision of technical assistance by BI to increase the capacity and capability of banks and business actors (Wuryandani, Harefa, Meilani, & Silalahi, 2019).

According to Bank Indonesia Regulation No.14/22/PBI/2012, MSME credit or financing is credit or financing provided to business actors who meet the criteria for MSMEs. In its application, there are still obstacles to lending or financing MSMEs. Urata and Jigyodan (2000) stated that there are several obstacles experienced by MSMEs in Indonesia in obtaining credit, including: 1) discrepancies in available funds that can be accessed by SMEs. 2) There is no systematic approach to SME funding. 3) High transaction costs caused by credit procedures that are complicated enough to take a long time while the amount of loans disbursed is small. 4) Lack of access to formal sources of funds, either due to the absence of banks in remote areas or a lack of adequate information. 5) Interest on loans for investment and working capital is quite high. 6) Many SMEs are not yet bankable due to the absence of transparent financial management and a lack of managerial and financial capabilities.

Anwar and Amri (2017) revealed that the increasing number of accounts as a dimension of use can increase business sector income, one of which is credit accounts that can be used by MSMEs to support MSMEs to develop their business and increase income. Sanistasya, Raharjo, and Iqbal (2019), Riwayati (2017) and Terzi (2015) stated that financial inclusion including usage dimensions can influence and determine business success. The World Bank (2019) affirms the need to increase access to financial services to reduce poverty and increase economic growth is boost MSME productivity. Ibor, Offiong, and Mendie (2017) in their research found the importance of access factors in financial inclusion to support the success of MSMEs in using banking facilities. Okello Candiya Bongomin, Mpeera Ntayi, Munene, and Akol Malinga (2017) affirm that in developing countries access to finance has a significant and positive influence on the growth of SMEs. Sanistasya et al. (2019), Terzi (2015) and Riwayati et al. (2020) use access indicators in financial inclusion research and find that they have an impact on business performance. Anwar and Amri (2017) revealed that the large number of bank offices has a positive and significant influence on increasing income, one of which is MSMEs. The more access, the greater the amount of credit disbursed, thereby increasing the number of credit users. Muzdalifa, Rahma, and Novalia (2018) revealed that financial literacy as a quality dimension of financial inclusion needs to be improved so that the community has a good financial management plan to increase income, one of which is MSME income. Sanistasya et al. (2019); Terzi (2015) and Okello Candiya Bongomin et al. (2017) stated that financial inclusion, including the dimensions of use can influence and determine business success. The quality dimension of financial literacy is a factor that can affect business success. According to Fahmy et al. (2016), there is a positive and significant influence between the dimensions of use and MSME lending. According to Eniola & Entebang, (2016), loans to small and medium-sized businesses are positively impacted by savings as a use dimension. Fahmy et al. (2016) in their research revealed that the dimension of banking access has a positive and significant effect on credit disbursed to the MSME sector in Indonesia. This relationship arises from the fact that MSMEs will find it easier to use the facilities offered as a result of increased access to banking particularly office networks and financial services. Anyieni (2014) and Syamsulbahri (2018) also revealed that access is still an obstacle for the public to obtain formal banking facilities, one of which is credit.

The quality dimension uses indicators of the level of financial literacy. Anwar et al. (2017) expressed the importance of improving financial literacy so that MSMEs can understand the use of credit and measure their



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ability to use credit which will have an impact on lending from banks to MSMEs. Oktavianti and Hakim (2017) also state that financial literacy has a significant positive effect on formal credit access.

Fiaklou et al. (2014) stated that the provision of credit can affect business growth. Wibowo and Wijaksana (2016) and Mulyati (2017) also revealed the same thing, namely, the provision of credit has an influence on the development of micro and small enterprises. Previous research indicates that MSMEs will find it easier to develop their businesses and generate more income sources in the context of greater loan distribution.

Research conducted by Kisaka and Mwewa (2014) found that micro savings and microcredit contribute positively to the growth of SMEs. Microfinance services such as loans and savings facilities enhance the financial capabilities of SMEs which will lead to the effective performance of their operations and their growth (Maengwe and Otuya (2016). Adegboye and Iweriebor (2018) found that the ease of accessing bank credit has a positive effect on encouraging SMEs to innovate in Nigeria. Empirical results from the study (Giang, Trung, Yoshida, Xuan, & Que, 2019) show that improving financial accessibility can directly increase a company's productivity. It is stated that the business has access to bank loans. These findings suggest that the government should put more effort into assisting SMEs in producing projects that are bankable and creating a healthy financial environment to stimulate companies' access to finance which will ensure their sustainability and growth. It will facilitate the optimal selection of funding sources by analyzing the costs, benefits and risks associated with potential funds with good financial literacy (Mabula & Ping, 2018). According to Eniola and Entebang (2016), there is a positive correlation between financial literacy and company performance. A major obstacle to the sustainable growth of small managers and SMEs performance across developing countries is the lack of knowledge, skills, attitudes, and awareness to cope with and manage finances. The following research hypotheses can be formulated based on the theory and results of previous research:

*$H_1$: The usage dimension has a significant positive effect on increasing MSME income.*

*$H_2$: The access dimension has a significant positive effect on increasing MSME income.*

*$H_3$: The quality dimension has a significant positive effect on increasing MSME income.*

*$H_4$: The usage dimension has a significant positive effect on MSME loans.*

*$H_5$: The access dimension has a significant positive effect on MSME loans.*

*$H_6$: The quality dimension has a significant positive effect on MSME loans.*

*$H_7$: MSME loans have a significant positive effect on increasing MSME income.*

*$H_8$: The usage dimension mediated by MSME loans has a significant positive effect on increasing MSME income.*

*$H_9$: The access dimension mediated by MSME loans has a significant positive effect on increasing MSME income.*

*$H_{10}$: The quality dimension mediated by MSME loans has a significant positive effect on increasing MSME income.*

The conceptual framework for this research can be seen in Figure 1 based on the review of previous theories and research described above:

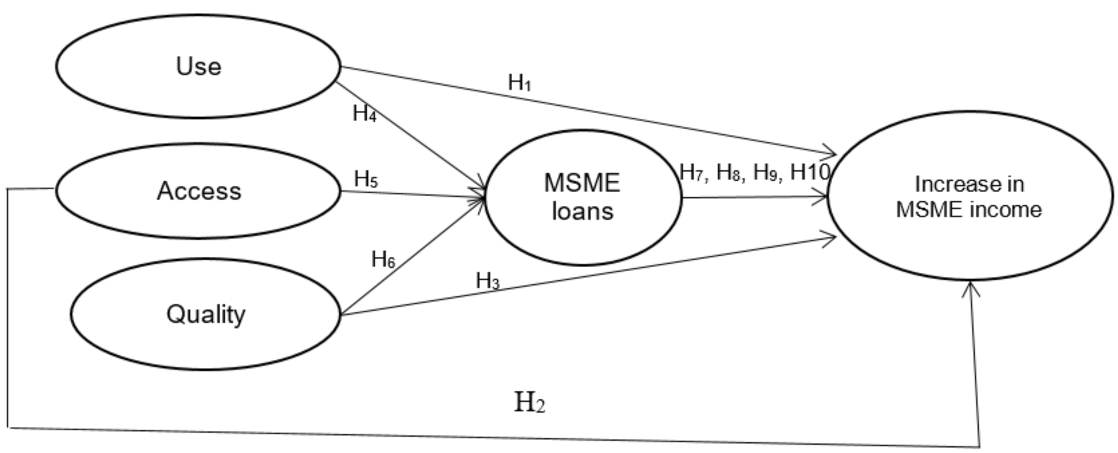


**Figure 1.** Conceptual framework.



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## 3. RESEARCH METHODOLOGY

### *3.1. Sample Selection*

This type of research is a quantitative method of causality research. According to Sugiyono (2022) the quantitative research method of causality is a study that examines the influence between variables. The population in this study is MSMEs in the special region of Yogyakarta, Indonesia which amounted to 152 MSMEs based on the calculation of the sample size of 61 respondents. The object of the study is described based on demographic aspects consisting of gender, age, education, type of business and income.

The focus of this research based on problem formulation and research hypothesis is the relationship between variables which shows complex and tiered causal relationships. This relationship involves an independent variable, namely financial inclusion including dimensions of use, access, quality and a dependent variable, namely MSME income as well as an intervening variable, namely MSME loan. In this study, researchers carried out data processing and calculations with the help *of* quantitative data processing software in the form of SPSS version 21 and SmartPLS 3.0 programs. This study uses 2 data analysis methods, namely descriptive statistical analysis methods and inferential analysis.

### *3.2. Variable Operationalization*

This study used one dependent variable, one intervening variable and three independent variables. The dependent variable used in this study is MSME income, the intervening variable will be MSME credit and the independent variable is the dimensions of use, access and quality. The operational definition of each variable in this study is described in Table 1.

**Table 1.** Operational variables.

| Variable | Definition and source | Indicators | Scale |
|---|---|---|---|
| Usage dimensions | The dimensions used to measure the actual ability to use financial products and services, among others are related to regularity, frequency and duration of use (Bank Indonesia, 2014). | Product utilization | Likert |
| Access dimension | The dimension used to measure the ability to use formal financial services is so that the potential obstacles to opening and using bank accounts can be seen (Bank Indonesia, 2014). | 1. The existence of the bank<br>2. Existence of ATMs<br>3. Ease of obtaining banking products | Likert |
| Quality dimensions | The quality dimension is to determine whether the availability of financial product and service attributes has met customer needs (Bank Indonesia, 2014). | 1. Banking product is concise, specific and simple.<br>2. The existence of repair | Likert |
| MSME loans | Credit to debtors of micro, small and medium enterprises that meet the definition and criteria of micro, small and medium enterprises (PBI No.14/22/PBI/2012, 2012; Urata & Jigyodan, 2000). | 1. Suitability of funds<br>2. Fees charged<br>3. Fund management period | Likert |
| MSME income | The value obtained by MSMEs from the sale of goods and services or money received as compensation for labor, services or business activities carried out (Baridwan, 2011). | Source income costs incurred | Likert |



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## 4. RESULTS

The population in this study is MSMEs in the special region of Yogyakarta which totaled 152 MSMEs based on the calculation of *the sample size of* 61 respondents. The object of the study was to describe demographic aspects consisting of gender, age, education, type of business and income as well as behavioral aspects regarding credit sources obtained by MSMEs.

**Table 2.** Characteristics of respondents.

| Characteristics | Group | Sum | Percentage |
|---|---|---|---|
| Gender | Man | 35 | 57 |
| | Woman | 26 | 43 |
| Age (Years) | < 25 | 12 | 20 |
| | 25 - 35 | 11 | 18 |
| | >35 - 45 | 15 | 25 |
| | >45 - 55 | 14 | 22 |
| | > 55 | 9 | 15 |
| | Fashion | 3 | 5 |
| Business type | Merchant | 2 | 3 |
| | Food | 29 | 48 |
| | Craftsmen | 14 | 23 |
| | Basic needs | 5 | 8 |
| | Livestock | 7 | 11 |
| | Beauty shop | 1 | 2 |
| Education | High school | 48 | 79 |
| | D3 | 4 | 6 |
| | S1 | 9 | 15 |
| Average yield | < 1 million | 15 | 25 |
| | >1 – 5 million | 32 | 52 |
| | >5-10 million | 6 | 10 |
| | > 10 million | 8 | 13 |
| Credit source | Bank | 11 | 18 |
| | Non-bank | 3 | 5 |
| | Mix | 4 | 7 |
| | No credit | 43 | 70 |

**Source:** Data processed.

Many MSMEs in the special region of Yogyakarta are owned by men with (57 percent or 35 people) and the rest are women (43 percent or 26 people) based on Table 2. While judging by the age of respondents, the majority are aged 36 to 45 with a total of 15 people or 25 percent and the least are respondents over the age of 55, which is only 9 people or only 15 percent. Judging by the level of education, the majority of respondents as many as 48 people or 79 percent had a final education in high school. This is because of the low opportunity to continue to a higher level due to barriers of both distance and cost. MSMEs in the special region of Yogyakarta are dominated by food processing businesses and knife craftsmen. The food processing in question is the manufacture of cassava opaque chips and cassava tape based on observations and interview results from the heads of MSMEs in the special region of Yogyakarta. The average monthly income of respondents is still below one million rupiah which is as much as 25 percent while many respondents have income in the range of one million to five million rupiah. This shows that there is still a low income of MSMEs in the special region of Yogyakarta where there are not many whose income is above the UMR of Yogyakarta Regency. The results of the study also obtained information on the sources of credit facilities obtained by MSMEs. Of the 61 respondents, only 18 percent or 11 people have credit facilities at banks and 5 percent or 3 of them only have credit at non-banks. In addition, there is 7 percent of respondents or 4 people who have credit facilities from both banks and non-banks. This shows that the source of



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credit facilities owned by MSMEs is mostly obtained from banks while the rest do not have credit or get credit from non-banks meaning that the role of banks as a distributor of funds is still relied on by MSMEs.

The relationship between latent variables based on substantive theory is described in the inner model. Testing of this structural model can be done by looking at the R-square value which is a goodness-fit test of the model. The structural model was evaluated using R-square for the dependent construct and a t-test as well as the significance of the structural path parameter coefficients. The structural model can be seen in Figure 2.

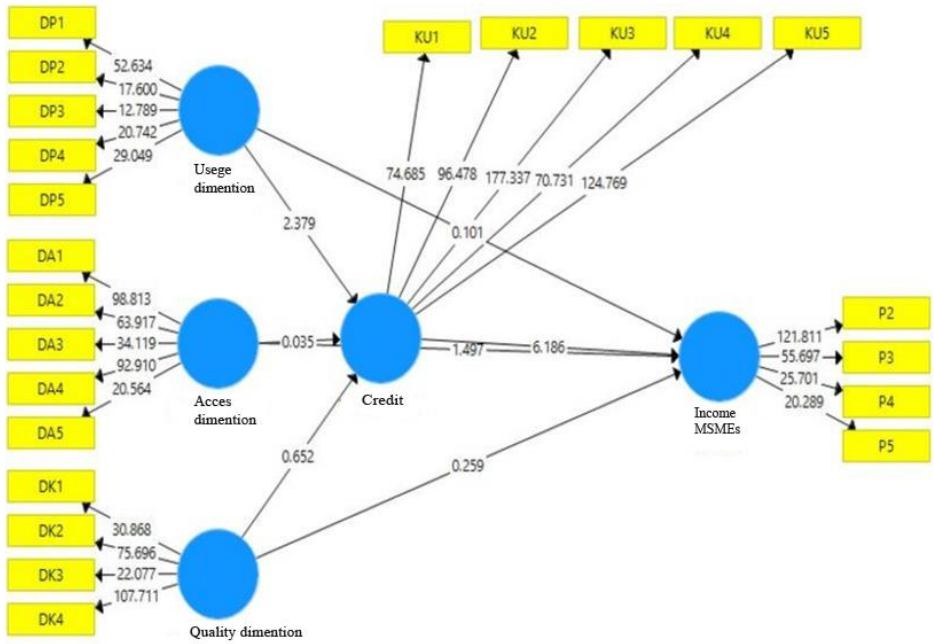

**Figure 2.** Final PLS model after bootstrapping.

Convergent validity can be seen based on the relationship between the indicator score and the construct score calculated with SmartPLS software. A reflexive measure is said to be reliable or high if it has a correlation value above 0.70 with the construct you want to measure. The outer loading value is obtained above 0.70 so it can be said that the relationship between the indicators and the construct in the model is valid. One of the convergent validity parameters can be seen from the value of Average Variance Extracted (AVE) must be above 0.50 in addition to being assessed from outer loadings. There are two parameters used, namely Cronbach's alpha value and Composite reliability (CR). The variable is said to be reliable if the values of Cronbach's alpha and composite reliability are above 0.70, respectively. Table 3 shows the results of the convergent validity of this research model.

**Table 3.** Measurement model.

| Category | Code | Loading | Cronbach's alpha | CR | AVE |
|---|---|---|---|---|---|
| Usage dimension | UD1 | 0.940 | 0.945 | 0.961 | 0.859 |
| | UD2 | 0.854 | | | |
| | UD3 | 0.778 | | | |
| | UD4 | 0.878 | | | |
| | UD5 | 0.889 | | | |
| Access dimension | AD1 | 0.967 | 0.965 | 0.973 | 0.879 |
| | AD2 | 0.948 | | | |
| | AD3 | 0.929 | | | |
| | AD4 | 0.968 | | | |


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| Category | Code | Loading | Cronbach's alpha | CR | AVE |
|---|---|---|---|---|---|
| | AD5 | 0.872 | | | |
| Quality dimension | QD1 | 0.893 | 0.918 | 0.939 | 0.756 |
| | QD2 | 0.962 | | | |
| | QD3 | 0.881 | | | |
| | QD4 | 0.969 | | | |
| MSMEs loan | LM1 | 0.967 | 0.987 | 0.989 | 0.949 |
| | LM2 | 0.972 | | | |
| | LM3 | 0.983 | | | |
| | LM4 | 0.969 | | | |
| | LM5 | 0.979 | | | |
| MSMEs income | IM2 | 0.974 | 0.954 | 0.967 | 0.88 |
| | IM3 | 0.952 | | | |
| | IM4 | 0.927 | | | |
| | IM5 | 0.898 | | | |

The parameters used are cross loadings where cross loadings must be above 0.70 for each variable and the resulting correlation of the construct with the measurement item is greater than the size of other constructs, hence indicating that the latent construct predicts the size of the block better than the size of other blocks to measure discriminant validity. Table 4 shows the cross- loading values of all variables above 0.70 and the correlation of the construct with the indicator is greater than the size of other constructs, thus showing that the latent construct predicts the size of the block better than the size of other blocks.

**Table 4.** Cross loadings.

| Variable | Code | Access dimension | Quality dimension | Usage dimension | MSMEs loan | MSMEs income |
|---|---|---|---|---|---|---|
| Access dimension | AD1 | 0.967 | 0.898 | 0.887 | 0.772 | 0.803 |
| | AD2 | 0.948 | 0.887 | 0.886 | 0.800 | 0.863 |
| | AD3 | 0.929 | 0.804 | 0.802 | 0.710 | 0.794 |
| | AD4 | 0.968 | 0.912 | 0.888 | 0.732 | 0.788 |
| | AD5 | 0.872 | 0.839 | 0.776 | 0.604 | 0.606 |
| Quality dimension | QD1 | 0.832 | 0.893 | 0.762 | 0.718 | 0.674 |
| | QD2 | 0.936 | 0.962 | 0.917 | 0.789 | 0.843 |
| | QD3 | 0.756 | 0.881 | 0.796 | 0.655 | 0.701 |
| | QD4 | 0.894 | 0.969 | 0.889 | 0.723 | 0.797 |
| Usage dimension | UD1 | 0.886 | 0.913 | 0.940 | 0.758 | 0.757 |
| | UD2 | 0.821 | 0.755 | 0.854 | 0.675 | 0.687 |
| | UD3 | 0.627 | 0.686 | 0.778 | 0.741 | 0.745 |
| | UD4 | 0.769 | 0.795 | 0.878 | 0.651 | 0.675 |
| | UD5 | 0.830 | 0.797 | 0.889 | 0.749 | 0.742 |
| MSMEs loan | LM1 | 0.736 | 0.760 | 0.817 | 0.967 | 0.858 |
| | LM2 | 0.777 | 0.782 | 0.808 | 0.972 | 0.864 |
| | LM3 | 0.753 | 0.747 | 0.791 | 0.983 | 0.861 |
| | LM4 | 0.730 | 0.739 | 0.807 | 0.969 | 0.816 |
| | LM5 | 0.735 | 0.770 | 0.799 | 0.979 | 0.854 |
| MSMEs income | IM2 | 0.803 | 0.811 | 0.817 | 0.883 | 0.974 |
| | IM3 | 0.787 | 0.765 | 0.773 | 0.843 | 0.952 |
| | IM4 | 0.783 | 0.762 | 0.745 | 0.821 | 0.927 |
| | IM5 | 0.784 | 0.763 | 0.789 | 0.722 | 0.898 |


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A study assessing models with SmartPLS software begins by looking at its R-square for each independent latent variable. According to Ghozali and Latan (2019) changes in R-square values can be used to assess the influence of certain independent latent variables on dependent latent variables and whether they have a substantive influence. This R-square value can be classified into three, namely 0.67, 0.33 and 0.19 for endogenous variables. This structural model indicates that it is "strong", "moderate" and "weak".

**Table 5.** R- square.

| Variable | R square | R square adjusted |
|---|---|---|
| MSME loans | 0.687 | 0.67 |
| MSME revenue | 0.852 | 0.812 |

It can be seen that the R-square value of MSME income is 0.852 based on Table 5. This shows that the influence of access, use and quality dimensions on MSME income gives an R-square value of 0.852 or 85.2 percent. It can be interpreted that MSME income variables can be explained by variables of use, access and quality dimensions of 85.2 percent while 14.8 percent are influenced by other variables. This means that the variable income of MSMEs is included in the strong category. Meanwhile, the R-square value for MSME credit variables is 0.687 and is included in the strong category. This shows that 68.7 percent of MSME loans can be explained by variables in the dimensions of use, access and quality while the remaining 32.3 percent is explained by other variables outside of this study.
Hypothesis testing is carried out to determine the influence of each independent variable on the dependent variable. Testing hypotheses can be seen from the t-statistical value and probability value. To find out this influence, one can look at the output of bootstrapping in the original sample section which indicates a positive or negative influence while to find out the level of significance, one can look at the p-value, with a significance level of 0.10. All variables have positive original sample values, meaning that the relationship between independent and bound variables has a positive relationship based on Table 6. However, the p-value that shows a value below 0.10 shows only three relationships out of ten relationships studied, namely the effect of the use dimension on MSME credit, the effect of MSME credit on MSME income and the effect of the use dimension on MSME income mediated by MSME credit.

**Table 6.** Path coefficient.

| Influence | Original sample | Sample mean | Standard deviation | t- statistics | P values |
|---|---|---|---|---|---|
| Access dimension -> MSME credit | 0.01 | 0.065 | 0.277 | 0.035 | 0.972 |
| MSME access > Income dimension | 0.328 | 0.321 | 0.219 | 1.497 | 0.135 |
| Quality dimension -> MSME credit | 0.159 | 0.126 | 0.243 | 0.652 | 0.514 |
| Quality dimension -> MSME income | 0.061 | 0.05 | 0.237 | 0.259 | 0.796 |
| Dimensions of use -> MSME loans | 0.672 | 0.653 | 0.283 | 2.379 | 0.018 |
| Dimensions of use -> MSME income | 0.018 | 0.02 | 0.174 | 0.101 | 0.92 |
| MSME loans -> MSME income | 0.56 | 0.577 | 0.09 | 6.186 | 0 |
| Access dimension -> MSME credit -> MSME income | 0.005 | 0.044 | 0.172 | 0.032 | 0.975 |
| Quality dimension -> MSME credit | 0.089 | 0.074 | 0.141 | 0.629 | 0.53 |
| Dimensions of use -> MSME loans | 0.376 | 0.37 | 0.163 | 2.302 | 0.022 |

The income of MSMEs is not impacted by using a dimension as a component of financial inclusion. The results of this study are in line with the results of the study by Ibenta, Akpunonu, and Alajekwu (2021) but different from the results of research conducted by Terzi (2015), Anwar and Amri (2017), Sanistasya et al. (2019) and Riwayati et al. (2020). The unsuccessful influence of the usage dimension on MSME income is caused by the low utilization of banking products to conduct business transactions, for example, facilitating payments by transfer from the customer. From the questionnaire distributed, 51 percent of respondents answered that they did not agree to



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make transaction payments via bank transfer. In addition, there are still MSMEs that do not use savings to manage their funds meaning they still use traditional methods to manage the money obtained from the results of the business they run. This makes it difficult for MSMEs to distinguish income from business results from personal money because there is no separation. The lack of optimization of the use of banking products by MSMEs is a factor that needs attention. MSMEs or the community need to be socialized that using banking products can help them run and manage their businesses. One of the strategies for obtaining banking credit is to use banking products such as savings accounts.

MSME income is not influenced by the access dimension as a component of financial inclusion. The results of this study are in line with the results of research conducted by Long, Morgan, and Tran (2020). In contrast to the results of the study Terzi (2015); Anwar and Amri (2017), Ibor et al. (2017), Okello Candiya Bongomin et al. (2017), Sanistasya et al. (2019) and Riwayati et al. (2020). Conditions where financial access cannot affect MSME income occur because most MSMEs in the special region of Yogyakarta do not use banking products as a transaction medium or support in their business. The role of the access dimension becomes neglected when the intensity of use is not so high, so that even though access to financial products is low, it is not the main obstacle for them to run their business. On the other hand, this will be a trigger for the difficulty of obtaining bank credit.

Revenue for MSMEs is not influenced by the quality component of the financial inclusion component. The results of this study are supported by the results of research conducted by Fahmy et al. (2016), Eniola and Entebang (2016) and Ibenta et al. (2021). The quality dimension is basically to find out whether the availability of financial products and services has met customer needs. Looking at the behavioral characteristics of MSMEs in carrying out their transactions, it turns out that they do not pay much attention to the quality dimension when using banking products. Moreover, the use of banking products in transactions is not the main support. In contrast to the results of the research conducted by Okello Candiya Bongomin et al. (2017), Sanistasya et al. (2019) and Terzi (2015) which states that the quality dimension has a significant positive effect on MSME incomes. This is related to the low financial literacy of MSMEs. They still do not understand the benefits that can be taken from banking products for the business they run. Therefore, the business conditions of MSMEs will not be affected by the government's attempts through banks to increase quality. The higher the use of banking products, the more MSMEs can use credit. When MSMEs can use actual financial products and services well, meaning high regularity, frequency and duration of use, they are accustomed to using banking products, so they tend to make credit from banks as a solution to increasing capital. The high use of banking products by MSMEs will give them the opportunity to get credit. One form of using banking products is storing funds. The bank will easily see cash inflow owned by MSMEs as the basis for bank decision making in providing credit.

The access dimension has no effect on MSME credit. This is not in line with the research of Anyieni (2014), Fahmy et al. (2016) and Syamsulbahri (2018). The results of this study are in line with research conducted by Sanistasya et al. (2019). There are still MSMEs that use loans from non-banks based on the results of interviews from respondents. Although based on the results of the questionnaire, it is stated that only 7 MSMEs that have loans from non-banks in this case are cooperatives but those who do not have loans will choose to apply for loans to cooperatives because the process is easier and faster. This is also related to the behavior and way of thinking of respondents, most MSMEs ignore the characteristics of every loan product offered by banks. The interest offered by the bank is lower than that of cooperatives. However, this is their first option when applying for loans since cooperatives make it easier and process loans more quickly. Although the government is trying to improve access for the public to make it easier for them to get credit facilities, their way of thinking is still difficult and this will not affect credit decisions.

The quality dimension does not affect MSME loans for business actors in the special region of Yogyakarta. The results of this study are in line with research conducted by Efriyenty and Janrosl (2017). The lack of influence on the quality dimension of MSME credit is triggered by low financial literacy. The quality dimension is neglected because few MSMEs are aware of how to use loans. This is influenced by the need for transactions. It can be said that people who are not well educated in finance do not pay much attention to the advantages of bank credit. So that quality cannot trigger them to use credit from the bank. The results of this study are different from those of Anwar et al. (2017) and Oktavianti and Hakim (2017) which state that the quality dimension affects MSME loans.

The use of credit can help MSMEs increase their income. The results of this study are in line with research conducted by Fiaklou et al. (2014); Wibowo and Wijaksana (2016) and Mulyati (2017). One of the obstacles for



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MSMEs in increasing their business is capital problems. When an MSME gets a credit facility to increase its business, they have a higher opportunity to increase in income than MSMEs that only use modest capital. According to a banking point of view, MSMEs that get credit facilities are usually MSMEs that are feasible and have good prospects in the future. So, credit distribution should indeed be an important factor for MSMEs to support the progress of their businesses. MSME loans are able to mediate the influence of the usage dimension as a dimension of financial inclusion on MSME income. This shows that the more MSMEs use banking products as seen from their regularity, frequency and duration of use, the more likely it will be for them to get and use credit facilities from the bank.

The credit facility they get aims to support their business operations. The funds obtained from the credit are capital for them to develop their business and obtain increased income. The results of this study are in line with research conducted by Kisaka and Mwewa (2014) and Maengwe and Otuya (2016).

MSME loans are unable to mediate the effect of the access dimension as a dimension of financial inclusion on MSME income. Ease of financial access may not necessarily help MSMEs increase their income through MSME credit. The results of this study are not in line with Adegboye and Iweriebor (2018) and Giang et al. (2019). As explained earlier, the way of thinking of the majority of MSMEs in the special region of Yogyakarta still considers that loans from non-banks are easier than from banks. So they tend to ignore the ease of access from banks to get credit. Non-bank parties that provide loans do not conduct an in-depth analysis of business feasibility, so when MSMEs get credit but it cannot be managed properly, it will not increase their business productivity and have an impact on their income.

A lack of knowledge, skills, attitudes and awareness to cope with and manage finances can overlook the function of the quality dimension. The existence of characteristics in financial products and services that have satisfied customers is the quality dimension. The good quality dimension of banking products or banking facilities may not necessarily be able to make MSMEs interested in using banking products in managing their finances. This is influenced by the need for transactions. Most MSMEs do not transact through banking products, so the quality dimension does not affect the increase in their income. This also causes MSMEs to be less interested in credit from banks. The results of this study are different from the results of Eniola and Entebang (2016) and Mabula and Ping (2018) which state that MSMEs are highly dependent on banking credit.

## 5. CONCLUSION AND RECOMMENDATIONS

The usage dimension which is a proxy for financial inclusion in this research has no effect on MSME income.

This condition occurs due to the low utilization of banking products by MSMEs in conducting business transactions. The lack of optimization of the use of banking products by MSMEs is a factor that needs to be considered so that MSMEs can develop with the support of financial inclusion.

The access dimension is not able to affect MSME income. The inability of access to affect MSME income occurs because most MSMEs in the special region of Yogyakarta do not use banking products as a transaction medium or support for their businesses. Large or small barriers to access to banking are not obstacles for them to run their business. The quality dimension cannot affect the income of MSMEs. In the special region of Yogyakarta, MSMEs do not pay much attention to the quality dimension when using banking products. This is related to low financial literacy. They still do not understand the benefits that can be taken from banking products for the business they run. The usage dimension has an influence on MSME lending. When MSMEs can use actual financial products and services well, they will tend to get credit from banks as a solution to increasing capital. The use of banking products can also provide an opportunity for them to obtain credit facilities. The access dimension has no influence on MSME credit. It is also related to behavior, ways of thinking and information obtained. Most MSMEs ignore the characteristics of every loan product offered by the bank. Many MSMEs still think that it is difficult to apply for credit from banks. Therefore, it will not affect their decision to apply for credit despite the fact that the government is attempting to make credit facilities more accessible to the public. The quality dimension has no effect on MSME loans. Not many MSMEs understand the use of credit, so the quality dimension is neglected. This is their trigger for using credit from the bank.

MSME loans have an influence on MSME income. When an MSME gets a credit facility to increase its business, they have a higher opportunity to increase their income than MSMEs that only use modest capital. MSME loans are able to mediate the influence of the usage dimension as a dimension of financial inclusion on MSME income.



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MSMEs that have high intensity product usage provide opportunities for them to obtain and use credit facilities. The credit facility they get aims to support their business operations. When the money from the credit is used as capital to grow their company and create more revenue. MSME loans are unable to mediate the effect of the access dimension as a dimension of financial inclusion on MSME income. Most MSMEs ignore the ease of access from banks to get credit because of their way of thinking that the credit application process is more difficult at banks than at non-banks. Therefore, MSMEs are more inclined to apply for credit from non-bank sources than from banks. The credit they obtain from non-bank sources will not increase their company's performance or affect their revenue if it isn't managed correctly. MSME loans are unable to mediate the effect of the quality dimension as a dimension of financial inclusion on MSME income. Most MSMEs do not transact through banking products, so the quality dimension does not affect the increase in their income. This also causes MSMEs to be less interested in credit from banks.

For the government, it should be able to pay more attention to the condition of MSMEs both in the special region of Yogyakarta and elsewhere. The main obstacle for MSMEs in their business development is the difficulty of capital. However, the government must play an active role first in addressing financial inclusion and financial literacy in MSMEs before facilitating the credit application process. On the other hand, MSMEs also need to be taught about business productivity and how to manage finances so that the funds obtained from credit can be used properly. Banks need to consider establishing new branches or smart practices so that all MSMEs can easily get banking products or use bank facilities. Furthermore, researchers should add other variables beyond a financial point of view so that it can be reflected in what factors actually greatly influence the success of MSMEs.

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**INSTITUTIONAL REVIEW BOARD STATEMENT**

The Ethical Committee of the Perbanas Institute, Indonesia has granted approval for this study on 8 January 2023 (Ref. No. 9).

**TRANSPARENCY**

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

**COMPETING INTERESTS**

The authors declare that they have no competing interests.

**AUTHORS' CONTRIBUTIONS**

Both authors contributed equally to the conception and design of the study. Both authors have read and agreed to the published version of the manuscript.

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