

Financial inclusion in MSME: the role of technology adoption and digital economy

Ce Gunawan^{1✉}, Bambang Somantri²

Institut Manajemen Wiyata Indonesia, Sukabumi.

Abstract

This study aims to determine the effect of the digital economy on the financial inclusion of MSME and try to examine the technology adoption variable in mediating the impact of the digital economy on the financial inclusion of MSME. A conceptual framework was developed and hypotheses were tested through a survey conducted on 100 MSMEs in Sukabumi. Data was collected through a structured questionnaire and was subjected to confirmatory factor analysis. Structural equation modeling (second-order) was used to validate the measurement model and to test the mediating effect. The measurement model is a confirmatory factor analysis and measures the reliability of the observed variables in relation to the latent constructs and indices shows the overall model fit. Structural model results indicate a mediation and a reflective impact of the extended technology acceptance model on digital economy and financial inclusion relationship. The role of the digital economy and technological adaptation has significant implications for financial inclusion. The digital economy is a sign of future economic development and growth which is marked by the rapid development of business transactions. The world's economies have harnessed the potential of technology-based inclusion through a combination of financial products and services. Technology adoption plays a role in reducing the digital economy gap towards financial inclusion in Sukabumi MSMEs. This study proposes the concept of the digital economy as an independent variable and technology adoption as a mediating variable on the financial inclusion of MSME actors. This research is empirical and has a wider application.

Key words: Digital economy; financial inclusion; technology adoption

INTRODUCTION

Micro, Small and Medium Enterprises (MSMEs) play an important role in increasing economic growth in Indonesia. Based on data from the Ministry of Cooperatives and SMEs (2021), the number of MSMEs currently reaches 64.2 million with a contribution to GDP of 61.07% or a value of 8,573.89 trillion rupiahs (Limanseto, 2021). The contribution of MSMEs to the Indonesian economy includes the ability to absorb 97% of the total existing workforce and can collect up to 60.4% of the total investment. However, the high number of MSMEs in Indonesia is also inseparable from the existing challenges. To encourage quality economic growth while overcoming poverty is by increasing financial inclusion. Financial inclusion is an effort to encourage the financial system to be accessible to all levels of society. The Ministry of Finance (2021) MSME financial inclusion is still relatively low. 70% of MSMEs are not included in businesses with good financial inclusion, so they have difficulty accessing financial assistance from the government (Intan, 2021). Financial inclusion can be used as a sub-pillar of policy direction in order to increase economic added value in 2020-2024.

Financial inclusion is the availability of access to various financial institutions, products and services according to the needs and capabilities of the community in order to improve people's welfare (OJK Regulation No. 76/POJK.07/2016). The problem in designing an inclusive financial ecosystem is the high financial cost of opening and maintaining a large number of accounts, remote locations, which translates into affordability and financial inability (Karpowicz, 2016). Aggarwal and Klapper (2013) suggest taking a hybrid approach, namely regulatory policies in improvising, institutional innovation, and accelerating the adoption of digital technology (Demirguc-Kunt et al., 2018).

Financial inclusion is a process to ensure the provision of sustainable financial products and services to low-income groups at affordable costs, fair and transparent (Bhaskar, 2013). The problem in designing an inclusive financial ecosystem is the high financial cost of opening and maintaining a large number of accounts, remote locations, which translates into affordability and financial inability (Karpowicz, 2016). As a solution, Aggarwal and Klapper (2013) suggest adopting a hybrid approach, namely regulatory policies in improvising, institutional innovation, and accelerating digital technology adoption (Demirguc-Kunt et al., 2018). This will create a need for financial innovation (Błach, 2011) and application of technology-based frameworks (Njenga, et al., 2015) to accelerate the financial inclusion movement (Radcliffe and Voorhies, 2012). This transformation process has changed business models (e-business) and changed government practices and policies (Weill and Woerner, 2013). As digitalization progresses, e-government initiatives are implemented by most governments, however, significantly varying in level and scale of implementation between countries (Nograšek and Vintar, 2014)

Digitalization has penetrated all segments and reshaped the non-digital economy into a digital economy. The digital economy is something that indicates future economic development and growth which is marked by the rapid development of business transactions. Economies in the world have utilized the potential of technology-based inclusion through a combination of digital remote financial products and services such as mobile banking, internet banking, e-money, smart card payments and electronic fund transfers (Baako, 2016; Behl et al., 2015; Muralidharan et al. al., 2016; Al-Jabri and Sohail, 2012). Everything has changed the situation and is able to encourage inclusion (Callen et al., 2015; Aker et al., 2014). This study aims to determine the effect of the digital economy on the financial inclusion of MSME actors and tries to examine the technology adoption variable in mediating the impact of the digital economy on financial inclusion of MSME actors.

The digital economy is something that indicates future economic development and growth which is marked by the rapid development of business or trade transactions that use the internet as a medium of communication, collaboration and cooperation between companies or individuals. The concept of the digital economy was first introduced by "(Tapscott, 1997), which is a socio-political and economic system that has the characteristics of intelligence space, including information, various information access instruments, information capacity, and information processing. The components of the digital economy that were first identified were the ICT industry, e-commerce activities, digital distribution of goods and services. The concept of the digital economy, according to (Bolwijn et al., 2018), according to him, this concept is often used to explain the global impact of information and communication technology, not only on the internet but also in the economic field. Be a picture of the interaction between the development of innovation and technological advances that have an impact on the macro

and micro economy. It is recognized that this digital transformation can encourage inclusivity (Bansal, 2014) and accelerate global economic development (Beck et al., 2014). It has emerged as a powerful platform for the development of new markets and for enhancing service delivery in key sectors. The financial sector is no longer an exception in recognizing the widespread digitalization and trying to improve the status of financial inclusion by utilizing technological interventions as a key variable (Singh, 2017)

The world's economies have taken advantage of the potential for technology-based inclusion through a combination of digital remote financial products and services such as mobile banking, internet banking, e-money, smart card payments and electronic fund transfers (Baako, 2016)). All of which have changed circumstances and are capable of driving inclusion (Callen et al., 2015; Aker et al., 2014), to some extent through reduced costs, convenience, and expanding reach across the length and breadth of countries (Karlan et al., 2016). These models (TRA, TPB and TAM) provide a theoretical framework that is considered a reliable and valid model in this research literature. However, TAM (Davis, 1989) is one of the most widely used models in the literature to predict the determinants of user behavior intention especially towards the adoption and acceptance of new technology regardless of the environment (rural or urban).

METHOD

The research method in this study is a quantitative method using Path Analysis. The measurement model was validated and tested for mediating effects with the Structural Equation Model using Smart-PLS. Data was collected using a questionnaire that had been tested for validity and reliability. The population in this study were SMEs in Sukabumi City. The sample taken was 100 using the Isaac & Michael formula with the following calculations.

$$s = \frac{\lambda^2 \cdot N \cdot P \cdot Q}{d^2(N - 1) + \lambda^2 \cdot P \cdot Q}$$

s = sample

$\lambda^2 = 3,841$

N = Population

P = 0,5

Q = 0,5

d2 = 0,52

Data Collection

This research used a cross-sectional method in which the data were gathered using a structured quantitative survey to measure and verify the effect of digital economic on financial inclusion through technology adoption in SMEs in Sukabumi. The sampling technique in this study used purposive sampling, based on the criteria of MSME actors who had been running their business for at least 2 years. After obtaining the list of respondents from selected, they were approached for participating in the study. The period of data collection was between September and October 2022, and the next procedures were followed: (a) The questionnaires designed were adopted from previous study; (b) respondents were called before sending the questionnaire to explain the purpose of the study and confirm their willingness in participating and answering the survey; (c) Respondent identity and their data are confidentiality; (d) Guidelines regarding the completion of the survey were provided to minimize all possible errors.

Measurement

The questionnaire was developed after referring to the previously published studies on the selected constructs. The proposed model is based on three-dimensional aspects, namely digital economy (DE), technology adoption model (TAM) and financial inclusion (FI). Digital Economy variables will be measured by several indicators, those are Business Models, Awareness, Customer Value Profession, Infrastructure (Aniqoh, 2020; Vyas & Jain, 2021) for technology adoption variables will be measured by the following indicators Perceived Easy of Use, Perceived Usefulness, Perceived Credibility, Perceived Self Efficiency, Attitudes (Khattak et al., 2021; Ozili, 2018; Vyas & Jain, 2021). Financial inclusion is measured by 3 measurement dimensions, namely access to financial services; Use of financial services; Product quality and service delivery (The World Bank, 2017) and (Ambarkhane et al., 2016). The whole items which were adapted from the stated previous studies were measured on a five Likert scale type

which ranges from 1 ‘strongly disagrees’ to 5 ‘strongly agree’. To analyse the collected data, PLS-SEM software was used.

Data Analysis

The measurement model uses confirmatory factor analysis (CFA) and measures the reliability of the observed variables associated with latent constructs. It is used to examine the degree of relatedness and covariation (or lack thereof) among latent constructs. Path analysis is a statistical technique used to examine a causal relationship between two or more variables. The parameters of the structural model are the variance, regression coefficient and covariance between variables. Structural modeling focuses on estimating the relationship between hypothesized latent constructs. SEM also allows researchers to test theoretical propositions about how constructs are theoretically related and the direction of significant relationships.

RESULTS AND DISCUSSION

Measurement Model Evaluation

Analysis of reflective measurement model used two approaches. First, calculate the composite reliability (Fornell & Larcker, 1981), which must be higher than 0.70 (or at least not less than 0.60). Then, analyzing the standardized factor loading to assess the reliability of each item for each indicator, it must be above 0.70 (or at least not less than 0.40 , Henseler, Ringle, & Sinkovics, 2009: 299). If one or several items are found that have a standardized loading factor of less than 0.4 then a composite reliability evaluation is performed first, if the composite reliability value is less than 0.600 then the item is appropriate to be excluded from the analysis. However, if the composite reliability value is still greater, items with a value of less than 0.400 can still be maintained.

As shown in the table 1 below, the reflective construction exhibits relatively good internal reliability with a composite reliability value of more than 0.70 and a standard loading factor of 0.718 to 0.817, all highly significant. This table also displays the measurements of all variables, including standard loading and composite reliability (CR) for reflective indicators as well as extracted average variance (AVE) for each research variable.

Tabel 1.

Statistic Measurement Model

| Construct | Item | Factor Loading | Cronbach’s Alpha | Composite Reliability | AVE |
|---------------------|------|----------------|------------------|-----------------------|-------|
| Digital Economy | AWR | 0.783 | 0.718 | 0.842 | 0.640 |
| | CVP | 0.768 | | | |
| | INF | 0.846 | | | |
| Technology Adoption | EOU | 0.724 | 0.855 | 0.897 | 0.636 |
| | PU | 0.738 | | | |
| | PC | 0.771 | | | |
| | PSE | 0.827 | | | |
| | ATT | 0.913 | | | |
| Financial Inclusion | UPS | 0.854 | 0.817 | 0.892 | 0.734 |
| | FS | 0.921 | | | |
| | PQS | 0.790 | | | |

Discriminant validity can be achieved when the square root value of the average extracted variance (AVE) of each construct exceeds the correlation between constructs. At tabel 2 show that the discriminant validity assumptions are fulfilled.

Tabel 2.

Discriminant Validity

| | DE | FI | TAM |
|-----|-------|-------|-------|
| DE | 0.800 | | |
| FI | 0.913 | 0.857 | |
| TAM | 0.969 | 0.927 | 0.798 |

In addition, confirmatory factor analysis (CFA) was performed using the PLS Algorithm. CFA analysis was carried out to ensure that the items to measure each variable were free from error. In addition, CFA was performed to test the unidimensionality of the items for each construct and estimate the measurement model before proceeding to the structural model and hypothesis testing. This process

is carried out by ensuring that the factor loading of the measurement items exceeds a threshold value of 0.5 (see Figure 1).

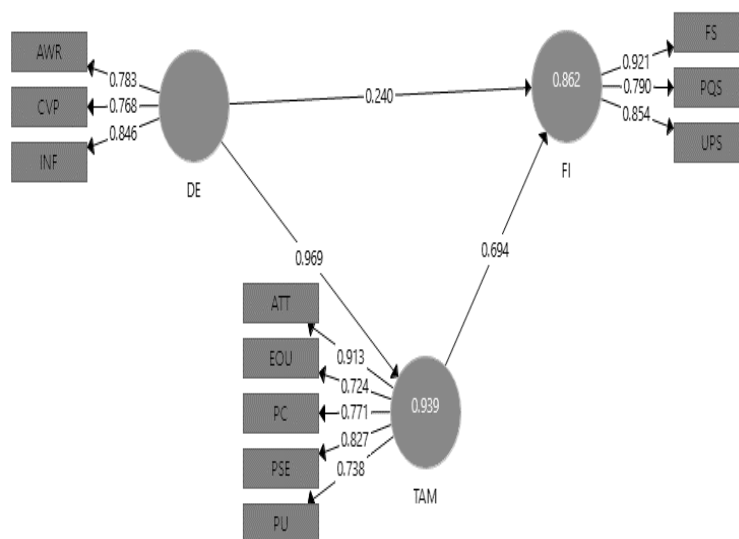


Figure 1.
Measurement Model

Structural Model

To find out the percentage of variance that can be explained by exogenous latent variables that predict endogenous latent variables, the coefficient of determination (R²) is calculated. As a measure of predictive power, the value of R² can be interpreted in the same way as it was obtained. in multiple regression analysis. Values of 0.859 and 0.939 for the full model indicate a "strong" model (Chin, 1998: 323).

Table 3.

Predictability

| | R Square | R Square Adjusted |
|-----|----------|-------------------|
| FI | 0.862 | 0.859 |
| TAM | 0.939 | 0.939 |

Referring to the predictability test results according to the table above, it can be concluded that, all endogenous latent variables can be predicted well through the research model developed, all endogenous variables produce positive R² values, which provides evidence that the model has at least some predictive relevance. To determine the extent to which each predictive variable contributes to the variance described about the endogenous variables, evaluation of the significance, magnitude and sign of the individual path coefficient β can be interpreted in the same way as ordinary standard beta. To verify the proposed hypothesis, statistical results were obtained from the structural model through Smart PLS-SEM. As mentioned above, hypothesis verification is carried out after ensuring adequate factor loading values for the items in the measurement model. The results are as can be seen in Table 4.

Table 4.

Result of Hypothesis

| Hypothesis | T Statistic | P Values | Hypothesis Support |
|--|-------------|----------|--------------------|
| Digital Economic (DE) -> Financial Inclusion (FI) | 47,036 | 0.000 | Yes |
| Digital Economic (DE) -> Adaption Tecnology (TAM) | 163,814 | 0.000 | Yes |
| Adaption Tecnology (TAM) -> Financial Inclusion (FI) | 4,550 | 0.000 | Yes |

Discussion

This research is directed to test whether the digital economy has an effect on technology adoption and its impact on the financial inclusion of MSME in the city of Sukabumi. The results of this study indicate that the digital economy has an effect on financial inclusion; Digital Economy influences Technology Adoption; and Technology adoption has an effect on financial inclusion. The digital economy is growing rapidly around the world as the biggest driver of innovation, competition and growth. Financial inclusion is a process to ensure the provision of sustainable financial products and services to low-income groups at affordable costs, fair and transparent (Bhaskar, 2013).

It is recognized that this digital transformation can encourage inclusivity (Bansal, 2014) and accelerate global economic development (Beck et al., 2014). . the need for financial innovation (Błach, 2011) and the adoption of technology-based frameworks (Njenga, et al., 2015) to accelerate the financial inclusion movement (Radcliffe and Voorhies, 2012). The rapid development of technology has affected business behavior and the global economy so that the digital economy was born. Now the world of the internet has developed very rapidly, banking, fintech, and even the financial industry have moved on the internet platform.

To encourage quality economic growth while overcoming poverty, one of which is by increasing the financial inclusion of MSME . The digital economy is something that indicates future economic development and growth which is marked by the rapid development of business transactions. Therefore, MSME actors must begin to lead to digitalization by adapting technology that allows them to assist in transforming towards digital. So that this can encourage financial inclusion of MSME so that MSME can run a business in a sustainable manner.

CONCLUSION

This research is directed to test whether the digital economy has an effect on technology adoption and its impact on the financial inclusion of MSME in the city of Sukabumi.. The results of this study indicate that the digital economy has an effect on financial inclusion; Digital Economy influences Technology Adoption; and Technology adoption has an effect on financial inclusion

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