The Moderating Role of Government Support on The Relationship between Owner Characteristic and E-Commerce Adoption by Micro Enterprises

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Abstract. Electronic commerce (e-commerce) is one of the ways for micro enterprises to compete in promoting and selling products. But, the use of internet to sell products online by micro enterprises is still low. This study aims to investigate those factors that influence micro enterprises in adopting e-commerce from owner characteristics and the moderating role of government support on the relationship between owner characteristics and e-commerce adoption. Data were obtained from 100 respondents in Jabodetabek Region which are taken by purposive sampling method. Data were analyzed using Partial Least Square (PLS). Based on the results, it was found that owner characteristics have positive effect to e-commerce adoption. The interaction between government support and owner characteristics has no significant effect on the e-commerce adoption. Thus it can be concluded that there is no moderating role of goverment support on the relationship between owner characteristics and e-commerce adoption.

Keywords: E-Commerce Adoption, Government Support, Micro Enterprises, Owner Characteristics

1 Introduction

Information technology plays an important role in human activities in the era of globalization. Rapid technological developments, such as the internet, have affected the trading system, transactions and money circulation. With the sophistication of information technology, all limitations of facilities, distance, and transaction time can be easily resolved (1),(2). One of the parties that can take advantage of the development of information technology to compete in a business context is micro enterprises.

Micro enterprises, along with small and medium enterprises (SMEs), play a crucial role in economic growth nationally and internationally because they are important contributors to economic performance (3). They give contribution to national development in various sectors, such as the largest numbers of total enterprise numbers and the job creators (4),(2). According to that important role, micro enterprises are required to develop and increase their competitiveness. One of the classic problems faced by micro enterprises is market access (5). The capability of business in the field of marketing is an effort to understand and utilize the market (6). This understanding is also followed by the ability to find the right way to serve consumers by providing economically effective and efficient.

One way of micro enterprises to compete in the tight competition in the globalization era is to utilize information technology through e-commerce adoption. E-commerce can be

interpreted as the process of buying and selling products, services and information which are done electronically by using internet (7). By adopting e-commerce, micro enterprises can develop their business without being constrained by distance and time. E-commerce succeeds in shortening the distance between customers and the firm through the use of new information, which is obtained by technology-based relationship, to create products based on customers' need (8). E-Commerce also gives benefit in the context of communicative functions that include promotion products and services as well as interaction with customers (9).

In 2017, 32.19% of internet users in Indonesia made online purchases (10). According to this data, the internet users in Indonesia can be targeted to become consumers by enterprises who adopt e-commerce. This shows that the opportunity to develop micro enterprises to promote and sell their products through e-commerce is quite large. But, in fact, enterprises in Indonesia including mirco enterprises, have not taken yet the advantages of this great opportunity. This is because the use of the internet to sell online in Indonesia is still low, which is 16.83% users (10).

The e-commerce adoption by micro, small, and medium enterprises (MSMEs) has always been associated with owners. Owners who have knowledge and ability of information technology, they will be more likely to adopt e-commerce (11). This is very reasonable because SMEs structurally has centralized management where owners have an important role in making decisions (4). Owner characteristics become a factor that has a significant and positive effect on e-commerce adoption (12),(13). However, Ghobakhloo & Tang (2013), Huy, Rowe, Truex, & Huynh (2012) found that owner characteristics did not significantly influence e-commerce adoption (14),(15),(16).

Beside owner characteristics, government support is part of the external factors that affect e-commerce adoption by SMEs (13). Government assistance in identifying and incorporating e-commerce technology in business would improve SMEs' competitiveness in the new digital economy (17). The government makes regulations and provides technical infrastructure in supporting e-commerce adoption for SMEs (11). The government can intervene SMEs in promoting the use of information technology as an innovation (Seyal et al., 2007) (18). The deployment of information technology knowledge has become one of the focuses of government intervention for them (19). The government can also support them through providing financial incentives or conducting low-cost or free training related to the use of online networks as a marketing channel (19),(20).

The studies involving government support factors in e-commerce adoption by SMEs provide inconsistent results. Seyal et al. (2007) (18) showed that government support has a positive and significant effect on e-commerce adoption by SMEs. The government support is reflected by government's role in promoting the use of information technology and providing telecommunications infrastructure. Sanayei & Rajabion (2009) also observed that government support has a significant impact on e-commerce adoption ini SMEs (21). SMEs who are already engaged in technological business spheres are quickly adapting to the change and accepting e-commerce as an emerging and supportive tool for their business. However, Rahayu & Day (2015) found that government support has no significant effect on e-commerce adoption (13).

The inconsistency results of previous studies shows that there is a possibility of the moderating role of government support in e-commerce adoption. The moderation role of government support is based on the inconsistency of direct relationship between government support and e-commerce adoption. Hernando (2017) stated that government support which is part of the external environment is uncontrolable, if viewed through the MSME angle as a unit of analysis (22). This means that government policies cannot be managed directly by MSMEs.

Basically, e-commerce adoption can occur among three main participation parties, i.e. business, government and consumers (23). To business parties, the impacts of governmental policies and initiatives have been shown to have direct and indirect stimulation to the supply of information that produces faster technology (Seyal et al., 2007).

Government support greatly determines the success of e-commerce adoption by MSMEs in Indonesia. Fahruzzaman & Subriadi (2015) showed that government support can help MSMEs to increase the use of information technology so that the contribution of MSMEs in the economy can increase (7). In general, SMEs are highly dependent on their owners so that the decision-making process is carried out centrally (4). Therefore, the use of information technology in MSMEs will depend on the owners as the initiator and business decision maker.

Based on the description above, this study aims to investigatet the influence of the owner characteristics factor to e-commerce adoption. Furthermore, this study looks at the possibility of the moderating role of government support on the   relationship between owner characteristics and e-commerce adoption. This study is more focused on discussing e-commerce adoption by micro enterprises.

2 Literature Reviews

2.1 E-commerce Adoption

E-commerce can be interpreted as the purchase and sale of goods and services on the internet and provides the ability to conduct transactions involving goods or services between two or more parties using electronic devices (24). The three main categories of e-commerce include B2C, B2B and C2C (O'Brien & Marakas, 2017) (25). Adoption is the decision of the business owner to fully utilize the new idea of e-commerce as the best way to act (1). There are factors that influence users in adopting a system. One model that can be used to analyze the factors that influence the adoption of a system is the Technology-Organization-Environment (TOE) framework where there are three aspects that influence the adoption of information technology, namely technology, organization and external environment (26).

2.2 Owner Characteristics

The business owner is an individual who has a very large influence on e-commerce adoption (12),(13). This is because owners of SMEs play an important role in making decision (4). Owners who have knowledge and ability of information technology, they will be more likely to adopt e-commerce (11). Successful enterprises that embrace IT and internet technologies are often those whose owners have knowledge and ability in information technology (16),(2).

2.3 Government Support

Government support is part of the external environment aspect that influences e-commerce adoption by MSME actors (13). Goverment support for e-commerce adoption may include establishing policies for SMEs operation, providing financial and technological assistance, improving e-commerce infrastructure and enacting favorable e-commerce laws (17). Government assistance in identifying and incorporating e-commerce technology in

business would improve SMEs' competitiveness in the new digital economy. The government can also support them through conducting low-cost or free training related to the use of online networks as a marketing channel (20).

3 Research Model, Hypotheses, and Methodology

3.1 Research Model

The inconsistency results of previous studies regarding the direct effect of government support on e-commerce adoption shows that there is a possibility of a moderating role from government support in e-commerce adoption. Government support greatly determines the success of e-commerce adoption by MSMEs in Indonesia. Fahruzzaman & Subriadi (2015) showed that government support can help MSMEs to increase the use of information technology so that the contribution of MSMEs in the economy can increase (7).

In general, SMEs are structurally very dependent on their owners so that the decision-making process is carried out centrally (4). Similarly, the use of information technology in MSMEs is highly dependent on the owner as the initiator and business decision maker. The government can intervene in promoting the use of information technology as an innovation for owners (Seyal et al., 2007) (18). The deployment of information technology knowledge is one of the focuses of government intervention to SMEs (19). In addition, this research model also refers to the proposed research model on MSMEs by Hernando (2017) where external supporting factors have a moderating role between the relationship of mastery of information technology by owners and e-commerce adoption (22). Following is the model of this research which can be seen in Figure 1.
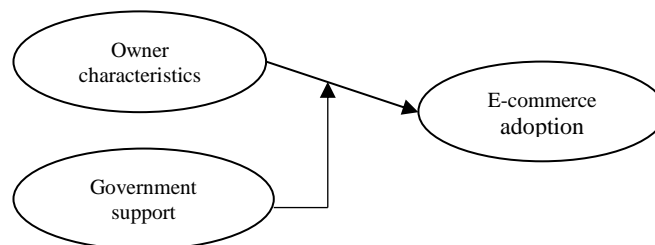

Fig. 1. Research Model

3.2 Hypotheses

3.2.1 Owner Characteristics and E-Commerce Adoption

The business owner is an individual who has a very large influence on e-commerce adoption. In the context of SMEs, owner plays an important role in making decision (4). Successful enterprises that embrace IT and internet technologies are often those whose owners have knowledge and ability in information technology (16),(2). Owner characteristics have a significant and positive effect on e-commerce adoption carried out by SMEs (2),(16),(12),(13). Owners who have the knowledge and ability of information technology, they will be more likely to adopt e-commerce (11). Therefore, this study formulated the following hypotheses:

H1: Owner characteristics positively influence the e-commerce adoption

3.2.2 Interaction of Government Support and Owner Characteristics to E-Commerce Adoption

Government support greatly determines the success of e-commerce adoption by MSME players in Indonesia. Fahruzzaman & Subriadi (2015) showed that government support can help MSMEs to increase the use of information technology so that the contribution of MSMEs in the economy can increase (7). In general, SMEs are structurally very dependent on their owners so that the decision-making process is carried out centrally (4). Similarly, the use of information technology in MSMEs is highly dependent on the owner as the initiator and business decision maker. The government can intervene in promoting the use of information technology as an innovation for owners (Seyal et al., 2007). The deployment of information technology knowledge is one of the focuses of government intervention to SMEs (19).

Government support, which is part of the external environment, is uncontrolable if it is reviewed through the MSME angle as a unit of analysis (22). This means that government policies in this case cannot be managed directly by MSMEs so it is possible that government policy which is part of external supporting factors has a moderating role between the relationship of mastering information technology by owners and e-commerce adoption. Basically, e-commerce adoption can occur among three main participation parties, i.e business, government and consumers (23). The relationship among the three parties has a direct and indirect relationship. Therefore, this study formulated the following hypotheses:

H2: Government support positively influence the relationship between owner characteristics and e-commerce adoption.

3.3 Methodology

The type of this study is causality study, which is a type of study that wants to find explanations in the form of causal relationships (cause-effect) between several concepts or several variables developed in management (27). The independent variable used in this study is owner characteristics with two indicators, i.e (13). IT knowledge and IT ability (12),(16),(13). The dependent variable is e-commerce adoption (Yulimar 2011) with two indicators, i.e. general marketing activities and B2C transactions. This study also uses the moderating variable, which is an independent variable that will strengthen or weaken the relationship between other independent variables to dependent variable (28). The moderating variable in this study is government support which is can strengthen or weaken the relationship between owner characteristics and e-commerce adoption. Government support is reflected by three indicators, i.e. infrastructure, regulation and socialization (11).

The respondents in this study were micro enterprises owners who adopt e-commerce using social media in Jabodetabek Region. The sampling method used was purposive sampling with sample criteria are (1) micro enterprises located in Jabodetabek Region, (2) micro enterprises who have been running e-commerce through social media for minimum of 3 months, (3) micro enterprises who run B2C transactions. Data were obtained from 100 respondents in 2017 where this number is still included in the sample size of SEM analysis which requires minimum sample of 5 times the number of indicator variables to be analyzed (27). Data were collected using an online questionnaire. The questionnaire was developed by reference of previous studies and has been tested for the validity and reliability.

Data were analyzed using Component-Based or Variance-Based Structural Equation Modeling which is known as Partial Least Square (PLS). According to Ghozali (2014), PLS can be used in the study that aims to develop theory (predictive orientation) (28). PLS is an analytical method that is not based on many assumptions, for example data must be normally distributed and the sample does not have to be large. PLS is used to causal predictive analysis in situations of high complexity and low theoretical support.

4 Results and Discussion

4.1 Partial Least Square (PLS)

4.1.1 Evaluation of Measurement Model (Outer Model)

Evaluation of measurement model can be seen from the results of indicator validity (convergent validity) and the results of the validity of construct reliability. Convergent validity is seen from the value of the outer loading. According to general rule (rule of thumb), the value of the outer loading of indicator which is greater than 0.7 is valid. Based on PLS output, all indicator variables have an outer loading value greater than 0.7, i.e. IT ability (0.857), IT knowledge (0.900), infrastructure (0.878), regulation (0.763), socialization (0.835), marketing activities (0.924) and B2C transactions (0.903). It means that all indicator variables are valid so there are no indicator variables that must be eliminated.

The T-statistic value for each indicators is also greater than 1.96, i.e. IT ability (17.986), IT knowledge (33.467), infrastructure (21.295), regulation (11.822), socialization (14.069), marketing activities (52.338) and B2C transactions (37.151). The T-statistic value which is greater than 1.96 means that the variable is significant on 5%. It can be concluded that the construct has good convergent validity. Based on the results, all indicators have T-statistic value greater than 1.96 so that all constructing indicators are valid and can be used to test hypotheses at the structural measurement step.

Besides seeing the value of indicator validity, evaluation of the measurement model is also seen in the results of reliability and construct validity. The reliability of a construct can be assessed from the value of Composite Reliability and Cronbach's Alpha, while construct validity is assessed from the value of Average Variance Extracted (AVE) and compares the square root value of AVE with the correlation between respective laten constructs in the model. Constructs have good reliability if the value of Composite Reliability is above 0.8, and the value of Cronbach's Alpha is above 0.7 (28). Constructs have good validity if the AVE value is above 0.5 (28).

PLS output shows that all constructs (exogenous, moderating and endogenous) are very reliable. This is because all constructs have Composite Reliability values above 0.7, i.e. owner characteristics (0.871), government support (0.866), government support*owner characteristics (0.853) and e-commerce adoption (0.910). All constructs also have Cronbach's Alpha values above 0.7, i.e. owner characteristics (0.706), government support (0.771), government support*owner characteristics (0.844) and e-commerce adoption (0.802). Besides being reliable, all constructs (exogenous, moderating and endogenous) are valid. This can be seen from all constructs that have the AVE values above 0.5, i.e. owner characteristics (0.772), government support (0.684), government support*owner characteristics (0.516) and e-commerce adoption (0.835).

The next evaluation of construct validity is evaluating discriminant validity by comparing the square root value of AVE with the correlation between constructs. If the AVE square root value of each construct is greater than the correlations between respective laten constructs, it is said that the model has good discriminant validity. The comparison of AVE square root results with inter-construct correlations can be seen through The Fornell-Larcker Criterium. The Fornell-Larcker Criterium is a common and conservative approach to asses dicriminant validity and it can be applied in PLS-SEM (29). The diagonal value is the square root of AVE, while other values are the correlations between the respective latent construct. The discirminant validity is achived when a diagonal value is higher than the values in its row and column. Referring to PLS output, it can be concluded that discriminant validity for all constructs are achieved. The square root of AVE of e-commerce adoption (0.914), government support (0.827), government support*owner characteristics (0.719) and owner characteristics (0.879) is higher than the values in each row and column.

4.1.2 Evaluation of Structural Model (Inner Model)

Evaluation of the structural model looks at the relationship between constructs and their significance values indicated by the value of T-statistics based on PLS output. The magnitude of the influence between constructs and interaction effects (moderation) is measured by the path coefficient. The path coeffisient that has a T-statistic value ≥ 1.96 is significant.

Based on PLS output, owner characteristics construct has a positive effect on e-commerce adoption with a parameter coefficient of 0.387 and significant on 5% because of T-statistics > 1.96 (4.458 > 1.96). Government support construct has a positive effect on e-commerce adoption with coefficient of 0.309 and significant on 5% because of T-statistics (4.119) > 1.96. The interaction construct between government support and owner characteristics does not affect e-commerce adoption eventhough it has positive parameter coefficient (0.072). This can be seen from the significance value of the interaction (moderation) effect which is T-statistic (0.526) < 1.96.

Besides looking at the significance values by T-statistics, evaluation of the structural model is also looks at the R-Square value which is a goodness of fit test. The R-Square value of this research model is 0.325. It means that the construct variability of e-commerce adoption which can be explained by the constructs of owner characteristics, government support and their interaction to e-commerce adoption is only 32.5%. While the remaining 67.5% is explained by other variables outside the model.

4.1.3 The Influence of Owner Characteristics on E-commerce Adoption

Owner characteristics have a positive influence on e-commerce adoption with a construct coefficient of 0.387. The positive influence of the owner characteristics on e-commerce adoption proved to be significant with the T-statistic value (4.458) which is greater than 1.96. Owner characteristics are reflected through the owner's knowledge and ability of information technology. This shows that business owners who have knowledge and ability of information technology are more likely to adopt e-commerce (11).

This is very reasonable because structurally SMEs have centralized management where owners have a strong influence in decision making process (4). Similarly, the use of information technology in SMEs that will depends on the owner as the initiator and decision maker. Owner is decision makers related to the problem of adopting the internet and e-commerce for business operations.

The positive significant influence of the owner characteristics on e-commerce adoption is the same as the results shown by Hanum and Sinarasri (2017), Olatokun & Bankole (2011) and Rahayu & Day (2015) (12),(16),(13). The higher the knowledge and skills of information technology possessed by the owner, the higher the level of e-commerce adoption in micro enterprises. If owner has greater information technology konowledge and ability, owner will be confident in adopting information technology and this will reduce uncertainty and risk in adopting technology. It is also believed that owner characteristics as technology users can help and increase the speed of adopting technology (30). Owners who have knowledge and ability in information technology will understand the functions and benefits of e-commerce adoption so that they will be more likely to adopt e-commerce.

4.1.4 The Interaction of Government Support and Owner Characteristics to E-Commerce Adoption

The interaction between government support and owner characteristics has a positive construct coefficient on e-commerce adoption, which is 0.309. But, the interaction construct between government support and owner knowledge has no significant effect on e-commerce adoption. This can be seen from the significance value of the interaction (moderation) effect which is T-statistic (0.526) < 1.96. Thus it can be concluded that government support doesn't moderate the relationship between owner characteristics and e-commerce adoption. In other words, the high and low level of government support does not affect the influence of the owner characteristics on e-commerce adoption by micro enterprises.

The government generally took the initiative to foster the development of e-commerce in SMEs because it was considered important to prevent digital gaps between SMEs and large businesses. The government can intervene SMEs in promoting the use of information technology as an innovation (Seyal et al., 2007). The deployment of information technology knowledge has become one of the focuses of government intervention for them (19). However, the results of the study indicate that government support reflected through regulation, infrastructure and socialization to micro enterprises has not had a real impact.

This result is different from the findings of Fahruzzaman & Subriadi (2015) which stated that government support can help MSMEs to increase the use of information technology so that the contribution of MSMEs in the economy can increase (7). According to the results of this study, micro enterprises who have information technology knowledge and ability adopted e-commerce without being influenced by government support. Even though the government has regulations which support MSMEs to adopt e-commerce, such as the programs of the Ministry of Communications and Informatics Republic of Indonesia, this is not felt by micro enterprises as a factor that increase the owner characteristics to adopt e-commerce.

Infrastructure facilitated by the government, such as telecommunications networks and electricity, to support MSMEs to adopt e-commerce, does not significantly affect the owners characteristics to adopt e-commerce. The socialization of information technology to trade online for MSMEs, especially micro enterprises, has also not significantly affected the owner characteristics to adopt e-commerce. Therefore, it can be said that every form of government support, such as regulation, infrastructure and socialization, which aim to increase the influence of owner characteristics on e-commerce adoption, does not have a real impact in micro enterprises.

Based on the description above, government support doesn't have moderating role on the relationship between owner characteristics and e-commerce adoption in micro enterprises.

However, Oyelakin and Kandi (2017) showed that government policies has moderating role on the relationship between innovation, technology and entrepreneurship development. Government policies affect entrepreneurship development directly and indirectly (29),(31). Thus, to be able to influence the owner characteristics towards e-commerce adoption, government support cannot moderate the owner characteristics directly but can moderate innovation and technology towards owner characteristics and then looks at the influence of owner characteristics towards e-commerce adoption.

5 Conclusion

According to the explanation above, e-commerce adoption by micro enterprises in Jabodetabek is influenced by owner characteristics. Owner characteristics, that are reflected by IT knowledge and IT ability of owners, significantly influence e-commerce adoption. Micro enterprises who have high IT knowledge and IT ability have a high level of e-commerce adoption. This is very reasonable because structurally micro enterprises are centralized where owners have an important role in making decisions.

The interaction between government support and owner characteristics has no significant effect on e-commerce adoption. Thus it can be concluded that there is no moderating relationship between government support and owner characteristics to e-commerce adoption. It can be said that government support doesn't have moderating role on the relationship between owner characteristics and e-commerce adoption. In the other words, the high and low level of government support does not affect significantly the influence of owner characteristics to e-commerce adoption by micro enterprises.

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