INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 12, Issue 11, (2022) E-ISSN: 2222-6990

Challenges for Adopting E-Commerce in Agriculture among The Farmers: Case Study in Pasir Mas, Kelantan

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To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v12-i11/14872 DOI:10.6007/IJARBSS/ v12-i11/14872

Published Date: *16* November 2022

Abstract

These days, many people have adopted e-commerce to increase sales and profit, but the adoption of e-commerce has come out with challenges. This research focuses on the challenges of adopting e-commerce in agriculture among the vegetable farmers in Pasir Mas Kelantan. In this research, two objectives will be evaluated, to investigate the relationship between the independent variables and dependent variable. Thisresearch has used simple random sampling to collect the sample size. Moreover, the respondents for the study are 59 respondents, which are calculated using Daniel 1999. Three types of analysis have been carried out to analyse the results of the study. The first data analysis used is descriptive data analysis, which examines the demographic variables of respondents. Besides, the second method for data analysis is correlation analysis, which is to observe therelationship between independent and dependent variables. Last but not least, the third data analysis is multiple linear regression which is to identify the most significant factor that influence the adoption of e-commerce among farmers. The challenge and factors used for these studies are the internet connectivity, cost implementation, delivery risk and platform fraud and adaption e-commerce platforms among farmers. The results show that the internet connectivity , delivery risk and platform fraud have significant relationship with the adoption of e-commerce among the farmers and As a recommendation, this research needs further investigation to observe more factors that will be the challenges for the farmers to adopt e-commerce in their agriculture farms.

Keyword*:* Challenges, E-commerce, Farmers, Agriculture

Introduction

Adoption of e-commerce in the agriculture farm is an advantage for the farmers which it can increase the farmer's income, broaden their marketplace and increase the potential customers. However, in adopting the e-commerce, there are several challenges for the farmers to adopt the e-commerce in the agribusiness such as internet connectivity, cost implementation, delivery risk and platform fraud. E-commerce has benefited the farmers, allowing them to graft numerous services onto the countryside via network platforms by creating three farming information service stations that serve all countries, towns, and villages (Li & Dahai, 2017). This is where e-commerce assisted the farmers to boost their sale.

Factors ThatAffecting E-Commerce Adoption among The Farmers

Internet Connectivity

According to the UNCTAD (2020), the United Nations Conference on Trade and Development, the e-commerce sale generated $25.6 trillion globally in 2018. It shows that e- commerce can increase the deal for the business, especially for the agriculture product. It alsoshows that in 2018, the sale rose by 8% for 2017.

Besides, based on UN's Food and Agriculture Organization (FAO) (2019), stated that if the farmerswant to adopt e-commerce the farmers need to have a requirement which is internet connectivity. Moreover, FAO also stated that internet connectivity is an important thingto consider before the adoption of e-commerce.

Furthermore, based on Congreso de Colombia, (2019) revealed that mostly the rural area has poor internet connectivity and this is challenging for the farmers to adopt e-commerce in their agribusiness.

Cost Implementation

According to the World Bank (2017), which is SMEs have technological and economic limitations for adopting e-commerce. This can be stated that most farmers did not have a good income so, it will be difficult for them to invest their money in the adoption of e-commerce because the money can be used for another important thing. However, according to Food et al., (2017) show that adoption of e-commerce into agriculture is for cost reduction. The farmers need to carefully spend their money on e-commerce to make sure that they did not lose money.

Furthermore, the farmers need to face the cost implementation for adopting e-commerce. This has been stated by Zhong et al (2019) that farmers need to bear the cost for start-up in e- commerce which is like using an e-commerce platform. This has been a challenge for the farmers to adopt e-commerce. Besides, this cost can be used up for another purpose like crop or family maintenance.

Delivery Risk

Agricultural logistics is an essential component of the logistics business that adds value to agricultural goods via subsequent processing, packing, storage, transportation, and distribution (Behzadi et al., 2018). However, the farm product is different from the industrial product because when came up with the agricultural product, the quality begins to

deteriorate immediately after harvesting. This also has been clarified by Wu & Haasis (2018) that the profitability of agricultural goods is significantly diminished due to quality degradationinduced by inefficient transportation.

Furthermore, the delivery of agricultural products needs to use high cost because it needs to keep the product in the freezer or be said like a refrigerator vehicle. This method is used to make sure that the quality of the product is excellent and fresh when it is delivered to the customer. Based on Dai & Gao (2016) has said that the delivery of agricultural products needs acertain amount of energy consumption to be delivered. Besides, according to Dubey & Gunasekaran, (2015), the logistic system is terrible for the environment, making the product defected with these pollutants. This will be devastated impacts to the farmers to adopt the e-commerce.

Platform Fraud

There are many different definitions of fraud and fraudulent behaviours available to you. As defined by the Association of Certified Fraud Examiners (ACFE), "fraud" is defined as "the intentional abuse or misapplication of an employer's resources or assets to obtain personal gainvia the use of one's vocation." (2020 ACFE Report to the Nations, n.d.).

According to Carta et al (2019) has stated that in e-commerce platform there is many ways to the thief to take the money seen for European Payment. There is a certain percentage of electronic internet payments related to fraud. This has made the farmers scared to adopt e-commerce in their agriculture operation, which is afraidto get them to fraud.

According to the Yakimin et al (2020) that the genuine customer will either lose money on things or services that did not exist/arrive or will purchase items that are later discovered tobe counterfeit or defective. This has made the farmers not adopt e-commerce because they don't want this problem happen in their agribusiness.

Moreover, on the e-commerce platform has been used by many people which is legitimate user and fraudster. According to Abdallah et al (2016), electronic commerce systems are utilized by both legitimate users and fraudsters. They are more prone to large-scale and systematic fraud than other business forms. The farmers will also face this fraud event thoughtheir business or agriculture production is still small.

Methodology

This population of the study is 69 farmers were supervised under the Kelantan Agriculture Department. So, by using Daniel's sampling size calculation the sample obtained is 59. Furthermore, the survey has been conducted to collect the data from the respondents. Set of questionnaires were distributed to the farmers. Besides, multiple regression analysis, Pearson correlation analysis, and descriptive analysis were used to analyse the results. Descriptive analysis is purposely to analyse thedemographic variables of the respondent and Pearson correlation analysis is to measure the relationship between the dependent variable

and independent variables. Lastly, multiple linear regression is conducted to observe the most dominant challenge that influences e-commerce adoption among the farmers.

Result and Discussion

Pearson Correlation Analysis

1. Internet connectivity

From the findings, the internet connectivity has a low positive relationship with the adoption of e-commerce among the farmers in Pasir Mas Kelantan. The result obtained is ($r = 0.492$, $p < 0.01$). This is justified by World Bank (2017) stating that internet connectivity is one of the challenges in adopting of e-commerce. The internet connectivity is very crucial for online business.

2. Delivery risk

Next is for the delivery risk, the result shows that delivery risk also has low positive relationship withthe adoption of e-commerce among the farmers in Pasir Mas Kelantan. The result obtained is ($r = 0.243$, $p > 0.05$) This is supported byAriff et al (2014) who found that delivery risk affects the attitude toward adoptionof e-commerce among the farmers. It might due to the nature of the farm products are perishable and easy to be deteriorated will influence the farmers to adopt the e-commerce.

3. Platform fraud

Lastly, for the platform fraud, the results show that platform fraud has a positive relationship with the adoption of e-commerce among the farmers in Pasir Mas Kelantan. The result obtained is ($r = 0.642$, $p < 0.01$). The frauds give many losses to the farmers. This will be the inhibitors to the farmers to adopt the e-commerce in their agribusiness.

Multiple Regression Analysis

Four main independent variables were tested against adopting e-commerce in agriculture among farmers. The coefficient for constants, internet connectivity, cost implementation, delivery risk, and platform fraud variables was 1.234, 0.142, -0.068, - 0.035, and 0.682. The t-value for the internet connectivity, cost implementation, delivery risk, and platform fraud variables were 1.284, -0.459, -0.224, and 4.275, respectively, All the four variables were significant at a 5% level of significance. In multiple linear regression, the multicollinearity of the data was measured using variance inflation factor (VIF) and tolerance indicator. The tolerance value for the internet connectivity, cost implementation, delivery risk, and platform fraud variables were 0.634, 0.332, 0.313, and 0.523, respectively. These values fall under the acceptable range (Trevethan & Robert, 2016). The VIF for the internet connectivity, cost implementation, delivery risk, and platform fraud variables were 1.576, 3.014, 3.195, and 1.912. All the VIF values were at an acceptable level (Akinwande et al., 2015). For the variable Internet connectivity, the coefficient sign is 0.142. The coefficient sign for Internet connectivity positively affects the adoption of e-commerce among vegetable farmers. It means that internet connectivity as to the value of the independent variable increases, and the mean of the dependent variable, the adoption of e-commerce among the vegetable farmers, is increasing. The significance of Internet connectivity is not significant since the p-value of Internet connectivity is 0.204 and Internet connectivity is more than 0.05 ($p= 0.204$, $p > 0.05$).

According to the World Bank (2017) stated that internet connectivity is the challenge for the adoption of ecommerce. This is in line with the result from the multiple linear regression that shows a small influence on the adoption of e-commerce among farmers. For the variable Cost implementation, the coefficient sign is -0.068. The coefficient sign for Cost implementation negatively affects the adoption of e-commerce among vegetable farmers. It means that cost implementation as to the value of the independent variable increases, and the mean of the dependent variable, the adoption of e-commerce among the vegetable farmers, is decreasing. The significance of Cost implementation is not significant since the p-value of Cost implementation is 0.648 and Cost implementation is more than 0.05 (p= 0.648, p > 0.05). This result is in line with the previous study (Ariff et al., 2014) that got negative for the coefficient sign that shows a negative relationship between the independent variable and dependent variable, which is cost implementation and adoption of e-commerce among the farmers. For the variable delivery risk, the coefficient sign is -0.035.

Meanwhile, the coefficient sign for delivery risk negatively affects the adoption of e-commerce among vegetable farmers. It means that delivery risk as to the value of the independent variable increases, and the mean of the dependent variable, the adoption of e-commerce among the vegetable farmers, is decreasing. The significance of the delivery risk is not significant since the p-value of delivery risk is 0.808 and delivery risk is over 0.05 (p= 0.808, p > 0.05). This is in line with the previous research by (Ariff et al., 2014), which found that delivery risk negatively affects the attitude toward adoption (β -.110, t -2.035, Sig. 0.043). For the variable Platforms fraud, the coefficient sign is 0.682. The coefficient sign for Platform fraud positively affects the adoption of e-commerce among vegetable farmers. It means that platform fraud as to the value of the independent variable increases, and the mean of the dependent variable, the adoption of e-commerce among the vegetable farmers, is increasing. The significance of Platform fraud is not 38 significant since the p-value of Platforms fraud is 0.000, and the Platform's fraud is below 0.05 (p= 0.000, p > 0.05). This is in line with the previous study that if the multiple linear regression got 0.682 is good enough to influence the relationship between the independent and dependent variable, which is platform fraud and adoption of e-commerce in agriculture among the farmers (Koe & Sakir, 2020). The result also revealed that respondents' adopting e-commerce in agriculture among farmers platforms fraud factors have positive and significant relationships. The platform fraud was the most influenced factor in adopting ecommerce in the agriculture with coefficients 0.682, followed by internet connectivity factors with coefficients 0.142 respectively. The coefficient explains that a one-unit increase in platform fraud score is associated with 0.682 units increase in adopting e-commerce among the farmers. The platform fraud factor was the primary motivating factor for respondents to adopt e-commerce among the farmers. According to Carta et al., (2019), platform fraud factor mainly influences to the adoption of e-commerce. Platform fraud is also an essential factor in adopting e-commerce among the farmers in agriculture besides internet connectivity factors (FAO, 2019; Song et al., 2021).

Model Multiple Linear Regression

$Yi = a + \beta 1FS1 + \beta 2\ FS2 + \beta 3\ FS3 + \beta FS4 + \varepsilon i$

$Yi = 1.234 + 0.142\ FS1 + (-0.068)\ FS2 + (-0.035)\ FS3 + 0.682\ FS4 + \varepsilon i$

Yi : adopting of e-commerce in agriculture among the farmers
a : constant
β1 β2 β3 β4 : coefficients
FS1 : internet connectivity
FS2 : cost implementation
FS3 : delivery risk
FS4 : platform fraud
εi : random error term

Recommendation and Conclusion

For the recommendation, the government needs to give the farmers exposure towards the benefits of adopting e-commerce in their agribusiness. The government also should encourage the farmers to adopt the e-commerce for future investment in their agribusiness. The platform such as Agrobazaar should be more promoted to the farmers or agropreneurs to market their products online and indirectly will attract new potential customers to buy their products. Besides, the government can help the farmers for start-ups adopting e-commerce by providing or subsidizing e-commerce platform fees. This approach can be seen by government agencies like Felda that offer a free platform in the Shoppe to the farmers to sell their agriculture outputs to the customers. The government also needs to make announcements or advertising to ensure all farmers aware about the program. In conclusion, the challenges would be the factors that will influence the farmers to adopt or not the e-commerce in their agribusiness.

Acknowledgement

I would like to express my special thanks of gratitude to my student, Mohamad Akram and Dr. Nur Badriyah as co authors to write the paper. I am thankful to them and wishing the paper would be published and benefited the readers.

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