RESEARCH ARTICLE

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THE ROLE OF ECOMMERCE ADOPTION IN INFLUENCING THE INCREASING INCOME OF SMALL AND MICRO ENTERPRISES (MSEs) DURING THE COVID-19 PANDEMIC

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Abstract: The COVID-19 pandemic has devastated the world economy, including Indonesia. Large-scale social restrictions as a consequence of preventing the spread of the COVID-19 virus have hampered the economy. Micro and small enterprises (MSEs) are the sectors most affected by the COVID-19 pandemic. On the other hand, the e-commerce survey showed that 24.20 percent of businesses claimed to have experienced an increase in income during the COVID-19 pandemic. This study aims to (1) find out the extent to which e-commerce adoption and income increased in MSEs during the COVID-19 pandemic; (2) looking for the effect of e-commerce adoption on MSEs on increasing MSE income during the COVID-19 pandemic; (3) knowing which items of e-commerce adoption have a significant effect on increasing MSE income; and (4) find out how big the opportunity to increase the income of each e-commerce adoption item compared to businesses that do not adopt e-commerce. This study uses descriptive analysis and binary logistic regression. The researched e-commerce adoption is seen from three dimensions, namely online sales media, training related to the use of information technology for digital marketing, and the speed of e-commerce adoption. All variables of e-commerce adoption that were studied using binary logistic regression proved to have a significant effect on increasing revenue. Of all e-commerce adoption items, e-commerce businesses that use instant messages as a sales medium, had the opportunity to experience an increase in revenue during the COVID-19 pandemic by 2.41 times compared to businesses that do not use instant messages.
Keywords: E-Commerce Adoption, COVID-19, Revenue Increase

Abstrak: Pandemi COVID-19 telah meluluhlantakkan perekonomian dunia, termasuk Indonesia. Pembatasan sosial berskala besar sebagai konsekuensi pencegahan penyebaran virus COVID-19 telah menghambat perekonomian. Usaha mikro dan kecil (UMK) menjadi sektor yang paling terdampak oleh pandemi COVID-19. Di sisi lain, survei *e-commerce* menunjukkan sebanyak 24,20 persen pelaku usaha mengaku mengalami peningkatan pendapatan selama pandemi COVID-19. Penelitian ini bertujuan untuk (1) mengetahui sejauh mana adopsi *e-commerce* dan peningkatan pendapatan pada UMKM selama pandemi COVID-19; (2) mencari pengaruh adopsi *e-commerce* pada UMKM terhadap peningkatan pendapatan UMKM selama pandemi COVID-19; (3) mengetahui item adopsi *e-commerce* mana saja yang berpengaruh signifikan terhadap peningkatan pendapatan UMKM; dan (4) mengetahui seberapa besar peluang peningkatan pendapatan masing-masing item adopsi *e-commerce* dibandingkan dengan pelaku usaha yang tidak mengadopsi *e-commerce*. Penelitian ini menggunakan analisis deskriptif dan regresi logistik biner. Adopsi *e-commerce* yang diteliti dilihat dari tiga dimensi, yaitu media penjualan daring, pelatihan terkait pemanfaatan teknologi informasi untuk pemasaran digital, dan kecepatan adopsi *e-commerce*. Seluruh variabel adopsi *e-commerce* yang diteliti menggunakan regresi logistik biner terbukti berpengaruh signifikan terhadap peningkatan pendapatan. Dari seluruh item adopsi *e-commerce*, bisnis *e-commerce* yang menggunakan pesan instan sebagai media penjualan, berpeluang mengalami peningkatan pendapatan di masa pandemi COVID-19 sebesar 2,41 kali lipat dibandingkan dengan bisnis yang tidak menggunakan pesan instan.
Kata Kunci: Adopsi E-Commerce, COVID-19, Peningkatan Pendapatan

INTRODUCTION

The economic recession caused by the COVID-19 pandemic did not only occur in Indonesia, but was experienced by almost all countries in the world. The Central Statistics Agency (BPS) announced that economic growth (year on year) in the first quarter of 2020 experienced a slowdown (2.97 percent), even in the following three quarters in the same year it experienced negative economic growth (-5.32 percent, -3.49 percent, -2.17 percent). The two sectors that experienced the worst downturn during the pandemic were the accommodation and food and drink supply sector [I] and the transportation, rail and air sector [H].

On the other hand, the 2021 e-commerce Survey shows that 24.40 percent of e-Commerce businesses experiencing an increase in online business income during 2020 (pandemic period). The survey results show that the majority of respondents are micro and small enterprises (MSEs) that adopt e-commerce in their business operations. According to Tambunan (2011) the majority of MSEs business actors are poor households. They open a business because they don't get better job opportunities. Therefore, the development of MSEs is a solution to reduce unemployment, including reducing poverty. Turban (2010) revealed that

the adoption of e-commerce offers many advantages for businesses, including expansion of market reach, increased customer loyalty, and increased revenue.

The phenomenon of 24.40 percent of e-commerce businesses experiencing an increase in income during the COVID-19 pandemic raises questions for further analysis such as about the condition of e-commerce adoption in MSEs, the extent to which MSEs income increases during the pandemic, whether e-commerce adoption in MSEs has an effect on increasing income. Then, the next question is which items of e-commerce adoption have a significant effect on increasing MSE income and how big is the opportunity to increase income compared to businesses that do not adopt e-commerce.

Several studies on e-commerce adoption have been conducted before, in several countries, including by Aygeman et al (2022), Aygeman conducted a study on four large e-commerce companies such as Amazon, JD.com, Alibaba, and Sunning.com, the conclusion that the four companies experienced an increase income during the COVID-19 pandemic. The results of the study also show that e-commerce will continue to increase, reaching 22 percent in 2023, and will continue to increase until 2040. Another study conducted by Nyarko et al (2022) in Ghana, the results of his research found that the adoption of e-commerce increased the monthly sales of agrochemical dealers. Using a survey dataset on small and medium-sized enterprises (MSEs) in the city of Jiaxing, China, Zhang (2022) found that (1) the adoption of e-commerce by manufacturing companies was negatively correlated with company age and positively correlated with company size; (2) the e-commerce performance of the manufacturing company is positively correlated with the experience of the e-commerce company and the size of the company in the e-commerce business. Bravo et al (2022) found that 44% of SMEs benefited from increased sales and marketing from the use of e-commerce, an increase of 47%.

Several studies on the adoption of e-commerce in Indonesia, one of which was conducted by Ausat et al (2022) found that MSEs in Subang Regency that adopted e-commerce had a significant positive effect on the performance of SMEs so as to increase sales and profits, efficiency, and customer satisfaction. The adoption of e-commerce has a positive and significant influence on improving the performance of the culinary sector MSMEs in Sukabumi City during the pandemic, according to the research findings of Pratama et al (2022). Aisyah and Diana (2022) stated in their research that the adoption of e-commerce has a positive and significant effect on the performance of MSMEs in Malang Regency. Subsequent research

found that the adoption of e-commerce has an influence on the level of sales of MSEs in Surakarta, Nuramalina (2022).

Research on the effect of e-commerce adoption on increasing business income during the COVID-19 pandemic in Indonesia is still rare, and the majority uses case studies in certain regions (districts). This research will fill this gap using the 2021 e-commerce Survey data conducted by BPS, where the sample from this research comes from all over Indonesia, but the analysis will focus on Java Island as the center of the Indonesian economy. This study aims to: (1) find out the extent to which e-commerce adoption and income increased in MSEs during the COVID-19 pandemic; (2) looking for the effect of e-commerce adoption on MSEs on increasing MSE income during the COVID-19 pandemic; (3) knowing which items of e-commerce adoption have a significant effect on increasing MSE income; and (4) find out how big the opportunity to increase the income of each e-commerce adoption item compared to businesses that do not adopt eCommerce.

METHOD

Data

This study uses data from the 2021 e-commerce Survey. The 2021 e-commerce survey is the third survey conducted by BPS. This survey aims to photograph the condition of e-commerce in Indonesia from the side of business actors. Previous e-commerce surveys (2019 and 2020) have not been able to estimate the population, because the sample used is too small, so the survey results are only for e-commerce business profiling. The profiling only describes the sample being surveyed and does not describe the population under study.

The 2021 e-commerce survey will be carried out in all provinces, covering 303 districts/cities. The implementation of the field survey starts from March to August 2021. The survey was preceded by listing all businesses (listing) in 5,394 selected census blocks in 34 provinces throughout Indonesia, followed by interviews with 11,928 businesses that were selected as samples. The 2021 e-commerce Survey data collection uses the Go Digital method, based on CAPI (Computer Assisted Personal Interviewing) and CAWI (Computer Assisted Web Interviewing). The response rate of sample enumeration is 99.61 percent. However, this study will focus on MSEs in Java, so that the total sample analyzed is 4,549 businesses.

The analysis will focus on Java, because the contribution of Java to the economy is the largest compared to other islands in Indonesia. The release of the Central Statistics Agency in

February 2022 announced that the Indonesian economy in 2021 would still concentrate on the island of Java. This can be seen from the contribution of Java to the Indonesian economy, which amounted to 57.89 percent. The second largest contributor is Sumatra Island, which is 21.70 percent with economic growth reaching 3.18 percent.

The second focus is that the analysis will focus on micro and small businesses because the results of the e-commerce survey show that the majority of respondents are micro and small businesses (MSEs) that adopt e-commerce in their business operations. According to Tambunan (2011) the majority of MSEs business actors are poor households. They open a business because they don't get better job opportunities. Therefore, the development of MSEs through e-commerce is one solution to reduce unemployment, including reducing poverty. Micro and small businesses in question are businesses with income below 300 million rupiah for a year (Law No. 20 of 2008).

The variable used as the independent variable is the technology adoption variable in the e-commerce business. Variables of e-commerce adoption are seen from three dimensions, such as online sales media, speed of e-commerce adoption, and training related to information technology. Online sales media consist of websites, instant messages (whatsapp, telegram, line), social media (facebook, instagram, twitter), and marketplaces (tokopedia, shopee, Bukalapak, gojek, grab, etc.). The dependent variable is an increase in online income.

Empirical Model

The type of data used in this study is categorical data with 2 answer choices. The statistical analysis model used to answer the research objectives according to the type of data is binary logistic regression. Binary logistic regression is a data analysis method to find the relationship between the dependent variable (y) which only consists of two categories, with the independent variable (x). The model in this study can be written as follows:

$$pendptn = \beta_0 + \beta_1 web + \beta_2 pesan + \beta_3 medsos + \beta_4 marketplace + \beta_5 latih + \beta_6 cepat + e$$

The following are the variables used in this study. The dependent variable is the increase in online income and the independent variables are online sales media (websites, instant messages, social media, and marketplaces), information technology training and the speed of e-commerce adoption.

Table 1. Variables Used in Research

Variable	Variable Category
Online revenue increase (pendptn)	1: Yes increase
	0: No increase
Sales media via website (web)	1: Yes
	0: No
Sales media via instant message (pesan)	1: Yes
	0: No
Sales media via social media (medsos)	1: Yes
	0: No
Sales media via marketplace (marketplace)	1: Yes
	0: No
Information technology training (latih)	1: Yes get training
	0: Do not get
Speed of e-commerce adoption (cepat)	1: 2 years or less
	0: More than 2 years

The research hypotheses formed are: (a) sales media variables (websites, instant messages, social media, and marketplaces) affect online income increase variables, (b) information technology training variables affect online income increase variables, (c) speed variables eCommerce adoption has an effect on increasing online income.
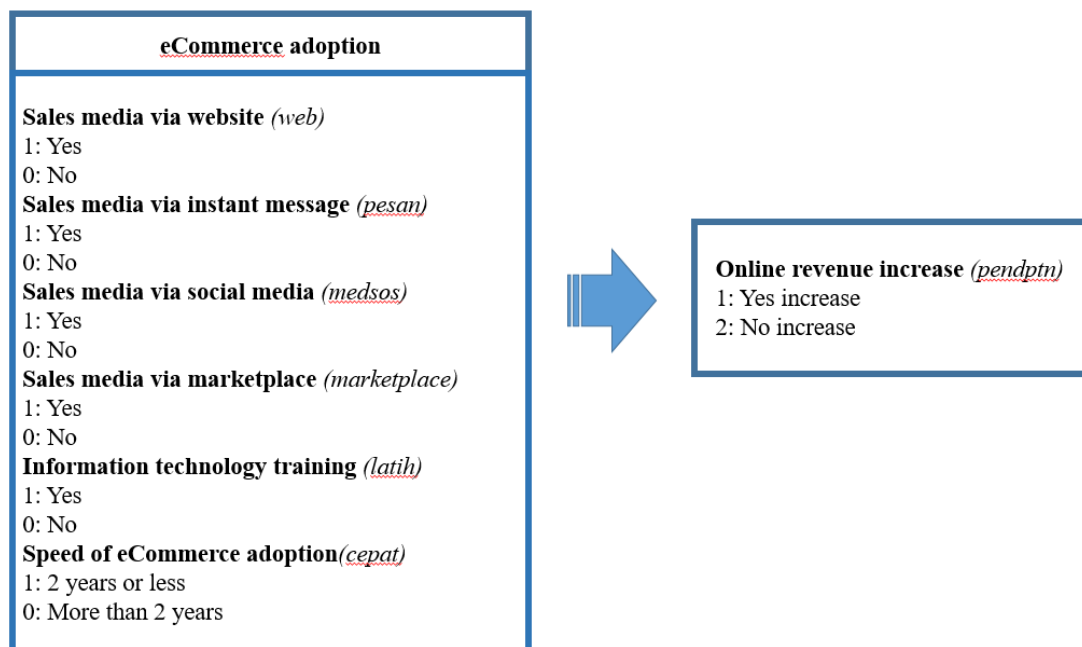
Figure 1. Research Framework

RESULTS AND DISCUSSION

The Organization for Economic Co-Operation and Development (OECD) defines e-commerce as the sale or purchase of goods or services via computer/online networks. Goods

or services are ordered through a computer network/online, but payment and delivery of goods/services does not have to be done online. Statista.com projects that the revenue in the e-commerce market in Indonesia will reach US$ 62.59 billion in 2022. On the other hand, Indonesia's population in 2022 will reach 275 million people. This is a very large share of the e-commerce market. The results of the 2021 Susenas show that 62.10 percent of Indonesia's population has access to the internet. The potential for e-commerce business development in Indonesia is still very large.

The United Nations Conference on Trade and Development (UNCTAD) calculates the e-commerce index from the Business to Consumers (B2C) side. This index describes a country's economic readiness to support the online shopping climate. The index consists of four indicators that are closely related to online shopping. This index is calculated for about 150 countries. The first indicator is the percentage of the population aged 15 years and over who have an account with a financial institution or mobile financial service provider. The second indicator is the percentage of individuals who use the internet. The third indicator is the postal reliability index. While the last indicator to measure this index is the number of secure internet servers per 1 million population.
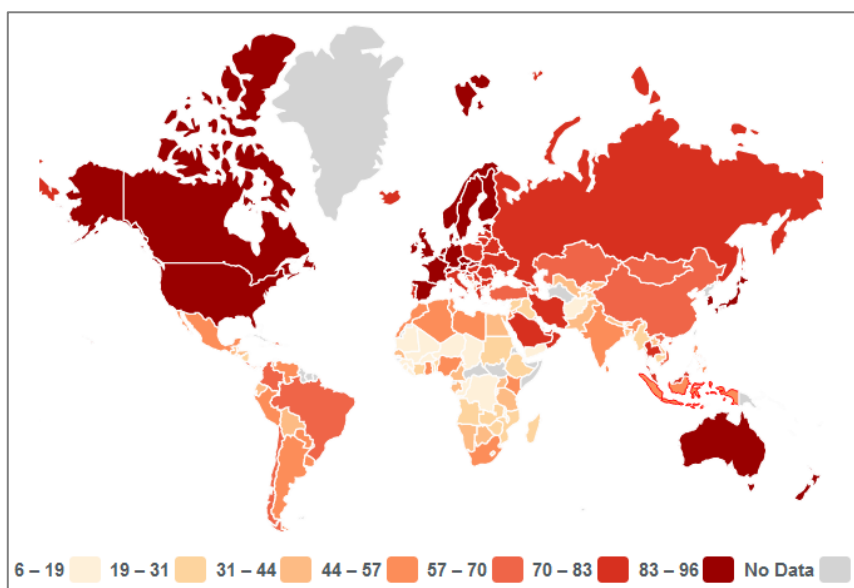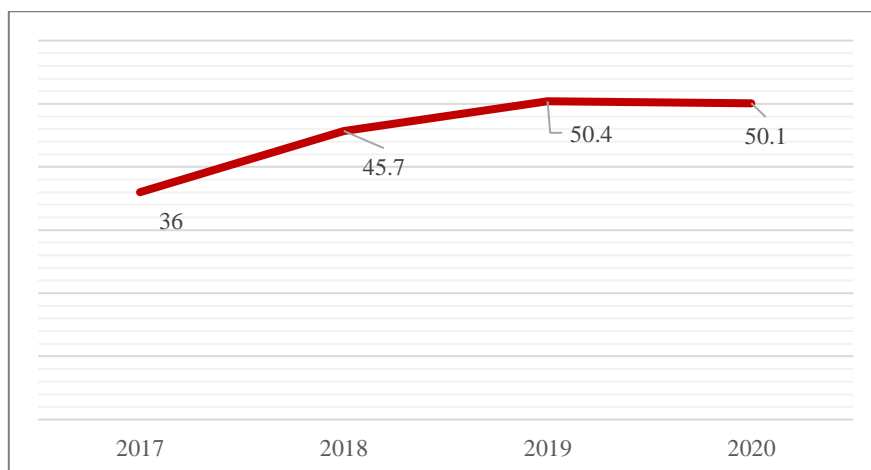

Figure 2. 2020 B2C eCommerce Index Map

The results of the e-commerce survey listing show that only about 25.25 percent of businesses use the internet in the process of selling their goods/services. The reasons businesses do not use the internet in the process of selling their goods/services are that they are more comfortable selling directly, not interested in selling online, and have a lack of knowledge or expertise. It is necessary to educate the public, especially business actors, to want to migrate to online businesses in order to increase share, which then increases business income.

The 2021 e-commerce data collection in Indonesia shows that the majority of businesses use instant messaging and social media as a sales medium. The value of total income and online income is below 300 million rupiah. The most frequently used payment method is cash payment (cash on delivery) and the shipping method used is direct delivery by the seller to the buyer.

Indonesia's e-commerce index ranking from 2017 to 2020 continues to increase, from rank 101 (2017), and continues to increase to rank 83 in 2020. Of the 152 countries monitored for its e-commerce index, Indonesia's position in 2020 is ranked 83, with a value of 50.10 as shown in figure 2. Meanwhile, the development of Indonesia's e-commerce index continues to increase from 2017 as shown in figure 3.

Figure 3. Indonesia's B2C eCommerce Index, 2017-2020

The first objective of this research is to find out the extent of e-commerce adoption and income increase in MSEs during the COVID-19 pandemic. MSE businesses in Java that use websites in sales are only 1.34 percent. Meanwhile, almost all businesses use instant messages in the buying and selling process, which is 93.03 percent. Almost half (48.50 percent) of businesses use social media as a sales medium. Meanwhile, businesses that use the marketplace

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are only 21.42 percent. Only 7.93 percent of businesses claim to have attended training related to the use of information technology for digital marketing. A total of 68.16 percent of businesses started selling online within 2 years or less since the business was established/operated. Businesses that experienced an increase in income during the COVID-19 pandemic by 22.62 percent.

Table 2. Percentage of eCommerce Businesses by Adoption of eCommerce with Increased Business Revenue

E-Commerce Adoption	Online Income Increase	
	Yes increase	No increase
Online Sales Media:		
a. Using *Website*		
Yes	27,17	72,83
No	22,56	77,44
b. Using Instant Messaging		
Yes	23,21	76,79
No	11,40	88,60
c. Using Social Media		
Yes	27,71	72,29
No	17,83	82,17
d. Using Marketplace		
Yes	28,50	71,50
No	22,12	77,88
Participate in Information Technology Training		
a. Yes	28,50	71,50
b. No	22,12	77,88
eCommerce Adoption Speed		
a. 2 years or less	24,28	75,72
b. More than 2 years	19,07	80,93

Source: Data processing results

From table 2, it can be seen that the percentage of businesses using online sales media (websites, instant messages, social media, and marketplaces) that experienced an increase in online income during the COVID-19 pandemic was higher than businesses that did not use online sales media. Likewise, for businesses participating in training related to the use of information technology for digital marketing and the speed of e-commerce adoption. Businesses that have adopted e-commerce in their business processes for two years or less have a higher percentage that have experienced an increase in revenue than businesses that have adopted e-commerce for more than two years.

This study will examine the relationship between e-commerce adoption and increasing business income during the COVID-19 pandemic using binary logistic regression. The results of the omnibust test show that the chi-square model number is 30565.754 with a significant

value of 0.000. Because the significance value of the goodness of a fit chi-square is less than 0.05, it indicates that the logistic model is significant, so it deserves further testing.

Table 3. Simultaneous Test of the Effect of All Variables of eCommerce Adoption on Increasing Business Revenue

Variable	B	Wald	Sig.	Odds Ratio
All Variable	-1,230	392246.126	0.000***	0.292

The results of the simultaneous test in table 3 were carried out to see whether the parameters of the independent variables simultaneously had a significant effect on the dependent variables. The significance value of the simultaneous test is 0.000. Because the significance value is smaller than 0.05, it indicates that the parameters of the e-commerce adoption variable simultaneously have a significant effect on the variable of increasing business income during the COVID-19 pandemic. This is in line with the findings of Krisnawati et al (2019) which states that digital marketing has a significant effect on increasing business income.

Table 4. Partial Test of the Effect of Each Variable of e-Commerce Adoption on Increasing Business Revenue

Variable	B	Wald	Sig.	Odds Ratio
Using Website	0.093	32.523	0.000***	1.098
Using Instant Messaging	0.879	5053.875	0.000***	2.409
Using Social Media	0.480	13722.013	0.000***	1.616
Using Marketplace	0.063	158.393	0.000***	1.066
Participate in Information Technology Training	0.301	1805.095	0.000***	1.351
eCommerce Adoption Speed	0.250	3095.958	0.000***	1.284
Constant	-2.541	38742.227	0.000***	0.079

*** significant at 5% significance level

The results of the partial test in Table 4 were carried out to see whether the parameters of the independent variables partially had a significant effect on the dependent variables. The significance value of the partial test is 0.00 for all e-commerce adoption variables. Because the significance value is smaller than 0.05, it indicates that the parameters of each e-commerce adoption variable had a significant effect on the variable of increasing business income during the COVID-19 pandemic.

$$pendptn = -2{,}541 + 0{,}093 web + 0{,}879 pesan + 0{,}480 medsos + 0{,}063 marketplace + 0{,}301 latih + 0{,}250 cepat + e$$

The website is one of the important components of sales media in e-commerce. This is because the products offered by the seller cannot be seen directly by the buyer. The role of the

website is as a distributor of information that the seller wants to convey to the buyer. Therefore, the buyer's trust completely depends on the information submitted by the seller on the website, Büttner and Goritz (2008).

Only 1.34 percent of e-commerce businesses use the website as a sales medium. E-Commerce businesses that use websites as a sales medium have the opportunity to experience an increase in income during the COVID-19 pandemic by 1.10 times compared to businesses that do not use websites. This phenomenon of small odds ratio may be due to website maintenance requiring employees with special skills and costs that are not cheap. Hyejeong and Niehm (2009) found facts in their research that consumers who believe in the information provided on the website will feel that the product is worth buying, which in turn will increase operating income.

Almost all e-commerce businesses use instant messages such as whatsapp, telegram and line, as sales media as much as 93.03 percent. This is in line with the rise of instant messages such as whatsapp as a medium of communication today. Meanwhile, e-commerce businesses that use instant messages as a sales medium have the opportunity to experience an increase in revenue during the COVID-19 pandemic by 2.41 times compared to businesses that do not use instant messages. This finding is very interesting because the opportunity to increase revenue by using instant messages as a sales medium can increase business income by up to two times in the conditions of the COVID-19 pandemic.

Now there is a business version of WhatsApp that is suitable for business use. The business version of whatsapp has been equipped with features that are quite adequate to support the sale of goods/services, such as shop opening hours, automatic messages, product/service catalogs and so on.

The Ministry of Communication and Information, in collaboration with the Katadata Insight Center (KIC) released the results of a joint research in 2022, where WhatsApp became the most popular instant message in Indonesia. A total of 95.90 research respondents from the Ministry of Communication and Informatics together with Katadata claimed to have a WhatsApp application. Lestari and Damhudi (2021) found in their research that instant messaging has a partially significant effect on the e-commerce income of micro-enterprises.

Marketing through social media such as Facebook, Instagram and Twitter is the latest method in business marketing. Entrepreneurs have wider opportunities to reach their target

customers and communicate with customers in an online environment effectively, Evans et al (2021). Almost half of businesses in e-commerce use social media as a sales medium, as much as 48.50 percent. E-Commerce businesses that use social media as a sales medium have the opportunity to experience an increase in revenue during the COVID-19 pandemic by 1.62 times compared to businesses that do not use social media. This finding is in accordance with the research findings of Kautsarina (2012), Cyntia (2012), Handaruwati (2017), Puspitarini and Nuraeni (2019), Sudirwo, et al. (2021), and Adli, et al. (2021).

Almost a quarter of e-commerce businesses use the marketplace as a sales medium, which is 21.42 percent. e-commerce businesses that use marketplaces such as Tokopedia, Shopee, Gojek, Grab and others as sales media, have the opportunity to experience an increase in revenue during the COVID-19 Pandemic by 1.07 times compared to businesses that do not use a marketplace. This finding supports the research of Ratmono et al (2022) who conducted research on MSEs in Bandung during the COVID-19 pandemic, the results of which showed that the use of the marketplace as a sales medium during the pandemic could increase the income of MSEs. The small value of the odds ratio seems to be because marketplace management also requires special skills such as website management, so entrepreneurs must really understand marketplace management.

Only 7.93 percent of e-commerce businesses claimed to have received training related to the use of information technology for digital marketing. E-Commerce businesses that have received training regarding the use of information technology for digital marketing have the opportunity to experience an increase in income during the COVID-19 pandemic by 1.35 times compared to businesses that have never received training. This finding can certainly be a reference for the government, especially related stakeholders, to intensify training related to the use of information technology for digital marketing. Santoso et al (2022) found an interesting phenomenon that increasing digital literacy through training is needed for MSEs to introduce sales features on the marketplace.

E-Commerce businesses that started selling online two years or less since operating, have the opportunity to experience an increase in revenue during the COVID-19 pandemic by 1.28 times compared to businesses that started selling online more than two years after operating. The sooner a business adopts e-commerce in its sales business process, the higher the chance of experiencing business growth. This finding is supported by previous research

conducted by Amornkitvikai at al (2022), which states that business age has a negative and significant effect on e-commerce adoption. In other words, companies with more e-commerce experience positively and significantly affect the intensity of their e-commerce activities.

Goodness of Fit Test is a test of the suitability of the model with the data. Is the model used in accordance with the data. The goodness of the fit test tells how well the model used fits the data (Lai & Liu, 2018). There are several methods that can be used to test the suitability of the logistic regression model, including the Hosmer-Lemeshow Test and the Classification Table.

The significant value of the Hosmer Lemeshow test in this study was 0.00 or less than 0.05. This is because the sample in this study is very large, namely 4.549 businesses. The weakness of the Hosmer-Lemeshow Test is that the test power will increase with the sample size n, which means that the number of sample sizes affects the test power. If the sample size is very large, then the test power will be very high, so it tends to reject H0 even though H0 is true (Yuhadisi & Suliadi, 2021), (Yu et al, 2017), (Nattino et al, 2020). Therefore, in this study, another method was used to evaluate the fit of the model through the Classification Table (Hosmer et al, 2013). The correct percentage value shows the number 77.40 percent, which means that the model is estimated to provide an accurate prediction of 77.40 percent.

CONCLUSION

The market share (consumers) of e-commerce businesses in Indonesia is still very large, so the potential for e-commerce business development is very wide open. On the other hand, businesses that use e-commerce are still few. E-Commerce businesses in Indonesia are still social commerce, which means they still rely on instant messages and social media as sales media.

The adoption of e-commerce, which consists of the use of sales media (websites, instant messages, social media, and marketplaces), information technology training, and the speed of e-commerce adoption has proven to have an effect on increasing MSEs, during the COVID-19 pandemic. The use of instant messages such as whatsapp, telegram and line can increase MSEs income up to two times when compared to without using instant messages.

The results of this study are that the majority of e-commerce businesses in Indonesia are still social commerce, which means they still rely on instant messages and social media as their sales media. Suggestions for further research is to study the phenomenon of business

migration from social commerce to marketplace commerce. This is because if businesses already use marketplace commerce in their business processes, security in selling will be more guaranteed, financial reports are automatically recorded in the system, and payment and delivery models are fully integrated in the marketplace application. Future research can also focus more on highlighting the use of instant messaging in e-commerce businesses so that the resulting policy implications can be more targeted.

REFERENCES

Adli M., T. A. (2021). *Pemanfaatan Penggunaan Media Sosial Instagram Dalam Pengembangan UMKM MR. ROTI Di Kota Jambi [Doctoral Dissertation].* Jambi: UIN Sulthan Thaha Saifuddin.

Agyeman, F. O. (2022). Comprehending The Globalization and Performance of E-Commerce Businesses: Evidence from E-Commerce Companies. *Asian Journal of Advances in Research, 14(1)*, 13-28.

Aisyah, F. D. (2022). Faktor-Faktor Yang Mempengaruhi Adopsi E-Commerce Dan Dampaknya Pada Kinerja UMKM Di Masa Pandemi Covid-19 (Studi Kasus Pelaku UMKM Di Kecamatan Singosari Kabupaten Malang). *e_Jurnal Ilmiah Riset Akuntansi, 11*(01), 57-68.

Ausat, A. A. (2022). Analisis Faktor yang Berpengaruh pada Adopsi E-Commerce dan Dampaknya Bagi Kinerja UKM di Kabupaten Subang. *Jurnal Teknologi Informasi dan Ilmu Komputer, 9(2)*, 333-346.

BPS. (2019). *Analisis Hasil Sensus Ekonomi 2016 Lanjutan, Potensi Peningkatan Kinerja Usaha Mikro Kecil.* Jakarta: Badan Pusat Statistik.

BPS. (2020). *Analisis Isu Terkini 2020.* Jakarta: Badan Pusat Statistik.

BPS. (2021). *Statistik E-Commerce 2021.* Jakarta: Badan Pusat Statistik.

Bravo, R. S. (2022). How Does a Pandemic Disrupt the Benefits of eCommerce? A Case Study of Small and Medium Enterprises in the US. *Journal of Theoretical and Applied Electronic Commerce Research, 17*(2), 522-557. doi:https://doi.org/10.3390/jtaer17020028

Büttner, O. B. (2008). Perceived trustworthiness of online shops. *Journal of Consumer Behaviour: An International Research Review, 7*(1), 35-50.

Cyntia, A. (2012). *Pengaruh Promosi Aksesoris Melalui Facebook dan Twitter Terhadap Laba Penjualan [Skripsi].* Surakarta.

Evans, D. B. (2021). *Social Media Marketing the Next Generation of Business Engagement.* Wiley Publishing, Inc.

Handaruwati, I. (2017). Pengaruh Media Sosial Terhadap Penjualan Produk Camilan Lokal Secara Online. *Buletin Bisnis dan Manajemen, 3*(1), 41-52. doi:http://dx.doi.org/10.47686/bbm.v3i1.36

Hosmer, D. W. (2013). *Applied Logistic Regression 3rd ed.* Canada: Jhon Wiley & Sons, Inc.

Informatika, K. I. (2022). Retrieved from https://survei.literasidigital.id/dashboard-literasi-digital

Kautsarina. (2013). Pemasaran Elektronik Melalui Aplikasi Jejaring Sosial (Survei Pelaku UKM di Provinsi Jambi dan Bengkulu. *Jurnal Studi Komunikasi Dan Media, 17*(2), 135 – 147.

Kim, H. d. (2009). The Impact of Website Quality On Information Quality, Value, And Loyalty Intentions in Apparel Retailing. *Journal of Interactive Marketing*, 221-133.

Kiranti, S. (2022). Optimalisasi Media Sosial Instagram dalam Meningkatkan Penjualan Pada Café Kopi di Depok. *Asian Journal of Accounting and Information Management*, 7-11.

Krisnawati, I. U. (2019). Strategi Digital Marketing dalam Perdagangan Hasil Tani untuk Meningkatkan Pendapatan Kabupaten Karawang. *Jurnal Ilmiah Ekonomi Global Masa Kini*.

Lai, X. &. (2018). A simple test procedure in standardizing the power of HosmerLemeshow test in large data sets. *Journal of Statistical Computation and Simulation, 88*(13), 2463-2472. doi:https://doi.org/10.1080/00949655.2018.1467912

Lestari, T. D. (2021). Peran Media Penjualan Terhadap Pendapatan E-Commerce Pada Usaha Mikro. *Jurnal Ekonomi dan Manajemen, 19*(2), 150-157.

Nattino, G. P. (2020). Assessing the goodness of fit of logistic regression models in large samples: A modification of the Hosmer-Lemeshow test. *Biometrics*, 549 - 560.

Nuramalina, N. (2022). Faktor yang Mempengaruhi Minat Adopsi E-Commerce dan Pengaruhnya Pada Tingkat Penjualan UMKM di Surakarta. *Jurnal Ilmu Manajemen Retail (JIMAT)* . doi:ttps://doi.org/10.37150/jimat.v3i1.1485

Nyarko, B. M. (2022). Influences of E-commerce Adoption on Sales performance among Agrochemical Input Dealers in the Ghanaian City. *Cogent Business & Management, 9*(1). doi:https://doi.org/10.1080/23311975.2022.2038763

Pratama, M. I. (2022). nalisis Orientasi Kewirausahaan dan Adopsi E-Commerce Dalam Meningkatkan Kinerja UMKM Pada Masa Pandemi Covid-19. *Management Studies and Entrepreneurship Journal (MSEJ), 3*(3), 1450–1459. doi:https://doi.org/10.37385/msej.v3i3.556

Puspitarini, D. S. (2019). Pemanfaatan Media Sosial Sebagai Media Promosi. *Jurnal Common, 3*(1), 71-80.

Rahayu, R. d. (2017). E-commerce Adoption by SMEs in developing countrie: evidence from Indonesia. *Eurasion Bus Rev, 7*, 25-41. doi:https://doi.org/10.1007/s40821-016-0044-6

Ratmono, R. D. (2022). In the Middle of the Covid-19 Pandemic, Using the Marketplace as a Promotional Medium to Increase Sales. *Academy of Strategic Management Journal*, 1-5.

Santoso, D. H. (2022). The Resistance to Adopting Online Marketplace: The Influence of Perceived Risk and Behavioral Control of Small and Medium Enterprises in Indonesia. *Communication and Information Technology Journal, 16*(1), 53-68. doi:https://doi.org/10.21512/commit.v16i1.7858

Sudirwo, S. N. (2021). Pemanfaatan Instagram bagi Pengembangan Pemasaran Usaha Mikro Kecil dan Menengah di Banjarbaru. *Jurnal Riset Inspirasi Manajemen dan Kewirausahaan, 5*(1), 50-57.

UNCTAD. (2018). *The UNCTAD B2C E-COMMERCE INDEX 2017.* United Nations Conference on Trade and Development.

UNCTAD. (2019). *The UNCTAD B2C E-COMMERCE INDEX 2018 Focus on Africa.* United Nations Conference on Trade and Development.

UNCTAD. (2021). *The UNCTAD B2C E-COMMERCE INDEX 2020 Spotlight on Latin America and the Caribbean.* United Nations Conference on Trade and Development.

Yot Amornkitvikai, Y. A. (2022). Barriers and Factors Affecting the E-Commerce Sustainability of Thai Micro-, Small- and Medium-Sized Enterprises (MSMEs). *Sustainability, 14*(14), 8476. doi:https://doi.org/10.3390/su14148476

Yu, W. X. (2017). A modified Hosmer–Lemeshow test for large data sets. *Communications in Statistics - Theory and Methods*, 11813 - 11825.

Yuhadisi, S. &. (2021). Penerapan Metode Modifikasi Hosmer-Lemeshow Test pada Model Regresi Logistik Data Penderita Penyakit Hipertensi. *Prosiding Statistika, Seminar Penelitian Sivitas Akademika Unisba, 7.* doi:http://dx.doi.org/10.29313/.v7i1.25541

Zhang, M. Z. (2022). Manufacturing firms' E-commerce adoption and performance: evidence from a large survey in Jiaxing, China. *Information Technology and Management.* doi:https://doi.org/10.1007/s10799-022-00357-9