The Impact of Digital Economics on Economic Growth in Indonesia

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The purpose of this research is to determine the impact of the digital economy on economic growth in Indonesia. The research method uses a quantitative model to measure the role and influence of the digital economy on economic growth, using a regression analysis model. The data used are secondary data sourced from BPS, BI, internet search, and other related sources. Based on the results of the research, it shows that the digital economy has business resilience and is significantly able to make a positive contribution to economic growth. The conclusions of this study show that the digital economy is an economic sector that will continue to grow rapidly in the future. There is a need for the availability of a complete digital economy database that can be accessed by researchers, so that they can contribute ideas, in turn the digital economy is able to play a role as business resilience and make a positive contribution to sustainable economic growth.

Keywords: Digital Economic; Economic Growth; Indonesia; OLS

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INTRODUCTION

Indonesia has a great potential influence in the development of the world of technology. Technological developments in various types of sectors, especially in the development of the digital economy (Maria and Widayati 2020). The concept of the digital economy according to Zimmerman (Zimmerman, 2000), is a concept that is often used to explain the global impact of the rapid development of information and communication technology which has an impact on socio-economic conditions. This concept becomes a view of the interaction between the development of innovation and technological progress that has an impact on the macro and micro economy.

Affected sectors include goods and services when developing, producing, selling or supplying them depending on the extent to which digital technology can reach. The developments that have taken place in recent years in the field of digital technology and information technology are indeed quite impressive. Especially in terms of digital technology which continues to develop in line with the development of modern information technology. This technology is based on a component of computer technology which is currently in its early stages of development, and can be accessed through methods such as electronic cellular telephone technology. The main goal is to be able to interact with each other in multiple ways.

The development of the digital economy in Muslim countries has the potential to drive innovative economic growth and transform traditional industries. However, several challenges must be overcome to achieve this potential. One of the main challenges is the lack of digital infrastructure in many Muslim countries. To develop the digital economy, countries need reliable and high-speed internet connectivity, which is not available in many areas. Governments and private sector entities need to invest in expanding digital infrastructure to increase access to the internet and encourage digital entrepreneurship.

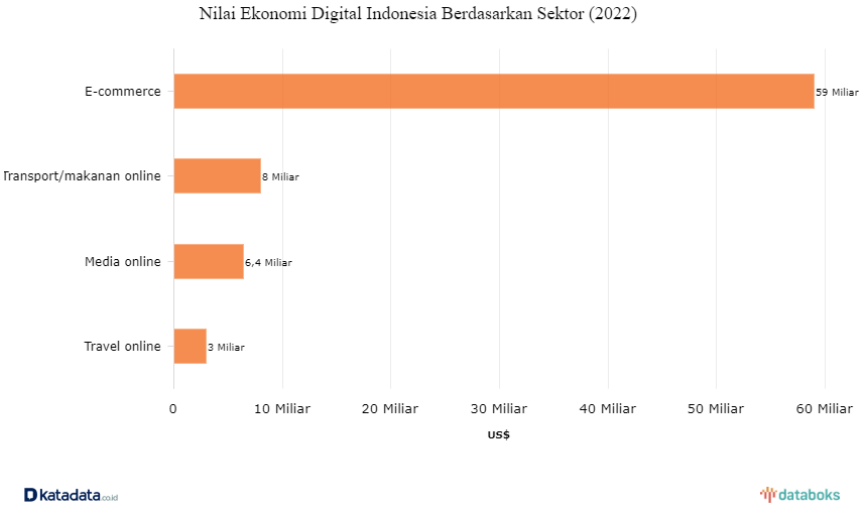

Figure 1: Indonesia's Digital Economy Value by Sector

Another challenge is the limited availability of digital skills and knowledge in Muslim countries. Countries need to focus on developing a highly skilled workforce with expertise in digital technologies and their applications. Governments can collaborate with educational institutions to offer specific training programs and provide incentives for individuals to acquire digital skills.

In addition, many Muslim countries face regulatory challenges that hinder the growth of their digital economy. Governments need to develop clear and supportive regulatory frameworks that facilitate innovation and entrepreneurship while protecting consumers and businesses. This includes policies that encourage the development of the local digital industry and attract foreign investment. There is a need to overcome cultural and social barriers to the adoption of digital technologies in Muslim countries, which can be achieved through public awareness campaigns that highlight the benefits of digital technologies and educate people on how to use them effectively.

Overall, the development of the digital economy in Muslim countries has the potential to drive innovation and economic growth. However, it requires significant

investment in infrastructure, education and supporting policies. By addressing these challenges, Muslim countries can create thriving digital economies that benefit their citizens and contribute to global economic development.

There is still a lack of research examining the impact of the digital economy on economic growth in Indonesia, which is a significant problem given the country's growing importance in the global economy. Although there are several studies looking at this, further research is needed to explain specifically how digital technology innovation affects the Indonesian economy.

LITERATURE REVIEW

The digital economy in Indonesia has grown significantly in recent years, driven by the increasing spread of internet usage, a growing population and favorable government policies. In recent years, Indonesia's digital economy has experienced growth as can be seen from reports by Google, Temasek, and Bain & Company, Indonesia's digital economy is expected to reach $124 billion in 2025, which means an increase from $40 billion in 2019. This growth is driven by the increasing number of internet users in the country, which reached 196 million in 2020, up from 171 million in 2019.

Tayibnapis et al., (2018) found that value *e-commerce* in Indonesia has reached US$87.8, with the number of internet users in Indonesia exceeding 50% of the total population. Ameliany et al., (2022) found that the impact of industry 4.0 has accelerated the growth of the digital economy ecosystem in Indonesia. Abdillah et., (2019) found that FinTech companies in Indonesia mostly use information technology. This shows that the digital economy is a big industry in Indonesia. However, with the development of the digital economy, better regulation of cybercrime is certainly needed in Indonesia (Fahlevi et al., 2019).

The digital economy in Indonesia is growing, but at a slow rate. Tayibnapis et al., (2018) suggested that value *e-commerce* in Indonesia by 52% of the market *e-commerce* in South East Asia. Jurriens & Tapsell (2017) found that the development of the digital economy in Indonesia has enormous potential for success, but there are several challenges that need to be overcome. According to Rumata & Sastrosubroto (2020), there are several paradoxes caused by existing regulations. However, Pangestu & Dewi (2017) argue that the digital economy has the potential to give birth *'creative destruction'*, and Joanita (2020) said that the presence of the digital economy is a new opportunity as well as a serious threat to the banking industry. Therefore, the rate of growth of the digital economy in Indonesia is still said to be uncertain.

Jurriëns & Tapsell (2017) found that the digital economy is an area with great potential in Indonesia, as demonstrated by the rise of Go-Jek and Grab. According to Shofawati (2019), the role of digital finance is to strengthen financial inclusion and the growth of SMEs in Indonesia. Fridayani et al., (2022) stated that the use of the digital economy helps a country's economic development. Barata (2019) found that the development of the digital economy in Indonesia has the potential to strengthen national economic growth and create jobs. The things above explain that the digital economy can present opportunities for development in Indonesia.

Tayibnapis et al., (2018) found that there are still a number of regulatory, collaboration and infrastructure issues that need to be addressed in order to support the development of the digital economy in Indonesia. Davis et al., (2017) stated that some of Indonesia's new regulations regarding digital lending platforms are close to best practice regulations. Jurriëns & Tapsell (2017) argue that digital platforms are used to organize mass demonstrations, assist with election monitoring, and generally provide space for greater freedom of opinion and expression on a variety of issues. According to Aprilianti & Dina (2021), a process of sharing responsibilities between the public and private sectors needs to be established to improve the regulatory framework for Indonesia's digital economy. These findings show that there are several policies and regulations to support the development of the digital economy in Indonesia, but these policies and regulations are inadequate so much remains to be done to support the development of the digital economy in Indonesia.

METHOD

This type of research uses a combination model method, or exploratory design, which is a combination method that uses qualitative and quantitative research types sequentially (Sugiyono, 2020). Qualitative research is used to look at economic resilience which is analyzed based on the digital economy business model, then compared with conventional economic business models. This analysis is intended to find business model patterns, both digital or internet-based business models with conventional business models, how business people get profit (profit). Meanwhile, a quantitative research type approach is used to measure the influence of the digital economy on economic growth.

Quantitative research data uses secondary data. Data sources are from the Central Bureau of Statistics (BPS), Bank Indonesia (BI), the Financial Services Authority (OJK) and other related sources. The data used is Gross Domestic Product (GDP) data, the value of e-commerce transactions, the number of fintech startup companies. Total use of electronic money, Information Communication Technology Development Index (IP-TIK), and Human Development Index (IPM).

Technique on Data Analysis

The regression method is a statistical method that makes predictions using the development of mathematical relationships between variables, namely the dependent variable (Y) and the independent variable (X). The dependent variable is the effect variable or the affected variable, while the independent variable is the cause variable or the influencing variable. Predictions of the value of the dependent variable can be made if the independent variables are known. Generally, the sales or demand for a product is expressed as the dependent variable whose magnitude or value is influenced by the independent variables. Linear regression is one of the methods used in production to forecast or predict the quality and quantity characteristics. This is because by estimating various product combinations, companies can maximize profits and estimate the right amount of production.

The purpose of the regression analysis is to obtain a pattern of mathematical relationship between variable X and variable Y, and to determine the magnitude of the change in variable X to variable Y, as well as to predict variable Y if the value of variable X is known. The basic principle of the simple regression equation is that the dependent variable (Y) and the independent variable (Y) must have the nature of a causal relationship or causality, based on theory, from the results of previous research, or also based on certain logical explanations.

The simple linear regression formula is as follows:

$$Y = a + bx$$

Then formed in the econometric model with the following equation:

$$PDB = a + \beta 1UE + \beta 2PF + \beta 3NT + \beta 4IPM + e$$

Where:
Y = PDB
X1 = Electronic Money
X2 = Fintech Company
X3 = Transaction Value
X4 = Human Development Index

To find out the significant level of each independent variable regression coefficient (independent variable) on the dependent variable (dependent variable), a statistical test was carried out.

a) Individual Parameter Significance Test (Statistical t-test)
This test is used to determine whether each independent variable has a significant influence on the dependent variable. In other words, to find out whether each independent variable can actually explain the changes that occur in the dependent variable. To examine the effect of individual dependent variables, the following hypothesis can be seen: H1: $\beta 1 < 0$ has a negative effect. Where β1 is the 1st independent variable, namely the hypothesized parameter value. Usually the value of β is considered zero, meaning that there is no effect of variable X1 on Y. If t-count <t-table, then H_o is accepted (not significant). The t test is used to make a decision whether the hypothesis is proven or not where significant levels are used namely 1%, 5%, and 10%.

b) Simultaneous Significant Test (Test-f test statistic)
This test was conducted to determine the effect of the independent variable significantly on the dependent variable. Where if f count <f table, then H0 is accepted or the independent variables together have no influence on the dependent variable (not significant) in other words the changes that occur in the dependent variable cannot be explained by changes in the independent variables, where the significance level used is 1 %, 5% and 10%.

c) Testing the Coefficient of Determination (R2)
The determination test refers to the ability of the independent variable (X) to explain the dependent variable (Y). The coefficient of determination is used to calculate how much the variance of the dependent variable can be explained by the variation of the independent variables. The largest R 2 value is 1 and the smallest is 0 (0£ R 2 £ 1). If R2 is equal to 0, then the regression line cannot be used to predict the dependent variable, because the variables included in the regression equation do not have an effect on the variance of the dependent variable, which is 0. There is no definite measure of

how large R2 is to say that a choice of variable has been appropriate. If R2 is greater or closer to 1, then the model is more appropriate for the data.

ANALYSIS AND DISCUSSION

Based on the hypothesis above, data processing has been carried out with five variables studied with GDP as the dependent variable and four independent variables, namely the amount of electronic money, the number of fintech companies, the value of online transactions, and HDI. Following are the results of data testing:

Dependent Variable: PDB
Method: Least Squares
Date: 03/30/23 Time: 23:45
Sample: 2018M01 2022M12
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-37.57656	1.17E-08	-3.22E+09	0.0000
UE	4.34E-09	5.35E-19	8.12E+09	0.0000
PF	0.007151	1.04E-12	6.90E+09	0.0000
NT	-0.422866	5.94E-11	-7.12E+09	0.0000
IPM	0.011948	1.75E-12	6.82E+09	0.0000

R-squared	1.000000	Mean dependent var	37.33923
Adjusted R-squared	1.000000	S.D. dependent var	0.098417
S.E. of regression	3.50E-11	Akaike info criterion	-45.23398
Sum squared resid	6.74E-20	Schwarz criterion	-45.05945
Log likelihood	1362.019	Hannan-Quinn criter.	-45.16571
F-statistic	1.17E+20	Durbin-Watson stat	0.250889
Prob(F-statistic)	0.000000		

Statistical Test T

The t test was conducted to test the research hypothesis regarding the effect of each independent variable partially on the dependent variable. The T test (Test T) is a statistical test that is used to test the truth or falsity of a hypothesis which states that between two mean samples taken randomly from the same population, there is no significant difference (Sudjiono, 2010).

Decision making is done by looking at the significance value in the Coefficients table. Usually the basis for testing the regression results is carried out with a confidence level of 95% or with a significance level of 5% ($\alpha = 0.05$). The criteria for the t statistical test (Ghozali, 2016):

1. If the significance value of the t test > 0.05 then H_0 is accepted and Ha is rejected. This means that there is no influence between the independent variables on the dependent variable.
2. If the significance value of the t test <0.05 then H_0 is rejected and Ha is accepted. This means that there is influence between the independent variables on the dependent variable.

The hypothesis used in this test is:

- T test on the variable coefficient of Amount of Electronic Money

  It can be concluded that individually the electronic money variables affect economic growth in Indonesia. Because the probability value is 0.0000, it can be said that this result is significantly positive.
- T test on the variable coefficient of Number of Fintech Companies

  It can be concluded that individually the Fintech company variables affect economic growth in Indonesia. Because the probability value is 0.0000, it can be said that this result is significantly positive.
- T test on the coefficient of the Transaction Value variable

  It can be concluded that individually the online transaction value variables affect economic growth in Indonesia. Because the probability value is 0.0000, it can be said that this result is significantly positive.
- T test on the variable coefficient of the Human Development Index

  It can be concluded that individually the HDI variable influences economic growth in Indonesia. Because the probability value is 0.0000, it can be said that this result is significantly positive.

Statistical Test F

The F statistic test aims to determine the effect of the independent variables jointly on the dependent variable. The F value in the table is 0.0000, it can be concluded that together the independent variables are

able to have a significant effect on the dependent variable.

Coefficient of determination (R2)

This test aims to measure how well the regression model fits the data or measure the percentage of the total Y variation explained by the regression line. The closer the number is to 1, the better the regression line.

The estimation results from the linear log model produce R^2 1.000000 means that 100% of the variation in the dependent variable (GDP) can be explained with certainty or precisely by independent variations (amount of electronic money, number of fintech companies, online transaction value, and HDI).

DISCUSSION

According to the results of data processing, it can be seen that the amount of electronic money has an influence on a country's economic growth. Electronic money is money stored electronically on devices such as debit cards or mobile phones. This money is often referred to as*e-money*, digital money, or electronic money. The results of this study are consistent with the quantity theory of money put forward by economic scientist Irving Fisher at the beginning of the 20th century. The theory states that the level of money supply and the level of economic activity are interrelated. The quantity theory of money can be represented as follows:

$$M \times V = P \times Q$$

Where M is the money supply, V is the velocity of money (how many times money changes hands in a given period), P is the price level, and Q is the real output level. The left side (MV) of this equation represents the total expenditure in an economy and the right side (PQ) represents the total production in an economy.

Assuming that the velocity of money is constant, an increase in the money supply (M) will result in an increase in total spending (MV) so that it can increase the level of real production (Q). This is because an increase in the money supply will increase the demand for goods and services which in turn will stimulate production. The relationship between the money supply and economic activity also applies to electronic money.

According to the results of data processing, it can be seen that the number of companies *fintech* also has an influence on the economic growth of a country. Company *fintech* is a company that uses technology to provide financial services. Emergence of the company *fintech* has opened new avenues for innovation and economic growth. The number of companies *fintech* can affect the amount of competition in the financial industry and increase economic growth.

Several studies have proven that there is a positive relationship between *fintech* and economic growth. One of them is the research conducted *World Bank* which is titled *"Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution"*. The research found that *fintech* can increase financial inclusion so as to encourage economic growth. This study also found that *fintech* can increase competition in the banking industry, resulting in better efficiency and innovation. *Fintech* can help to reduce the cost of financial services and improve their accessibility. This can lead to increased participation in the economy, increased savings, and better financial planning.

According to the results of data processing, it can be seen that the transaction value has an influence on a country's economic growth. According to (Jafar, 2014) transaction value is the total payment actually paid for goods and services that have been made, either paid for or to be paid by the buyer to the seller or for the benefit of the seller. From the above understanding it can be concluded that the transaction value in the payment system is the actual nominal that has been made in the payment process to fulfill community needs. The transaction value is regulated in the Agreement on Implementation of Article VII of GATT and has been stated in article 15 of the Customs Law, namely the value actually paid by the buyer to the seller and other costs incurred by the buyer. Additional costs incurred by the buyer beyond the agreed price must use objective and measurable data.

According to the results of data processing, it can be seen that the HDI has an influence on a country's economic growth. In the modern era, HDI is closely related to economic growth because it relies on optimal utilization of quality human resources in the development process of a country. This is because a high standard of living in society can increase the ability of the population to explore and develop productive sectors, which lead to economic growth. In addition, with the increasing quality of life and population, public consumption also increases, which in turn drives economic growth (Sukirno, 2015).

CONCLUSION

From the results and discussion that have been described above, it can be concluded that the researcher tested 5 variables using a simple linear regression

method. The results of the t test and f statistics state that the four independent variables (amount of electronic money, number of fintech companies, online transaction value, and HDI) have a significant and positive influence on the dependent variable (GDP). According to the estimation results from the linear log model it produces R^2 of 1.000000 means that 100% of the variation in the dependent variable (GDP) can be explained with certainty or precisely by the independent variables (amount of electronic money, number of fintech companies, online transaction value, and HDI).

Based on the research results, we can say that the amount of electronic money, the number of fintech companies, the value of online transactions and the Human Development Index (IPM) are important factors in economic growth in Indonesia. Electronic money and digital payments have enabled more people to access financial services and increased their purchasing power. The increasing number of fintech companies is providing access to a wider range of financial services that can facilitate economic growth. In addition, higher values for online transactions indicate increased public trust in digital payment systems which can lead to greater economic activity and growth. Likewise, a higher Human Development Index (HDI) score is associated with a higher level of GDP per capita, which is also a key indicator of economic development. So from the results of this study it can be said that the amount of electronic money, the number of fintech companies, the value of online transactions, and the Human Development Index have a very important role for economic growth in Indonesia in 2018-2022.

REFERENCES

Abdillah, L. (2019, December). An overview of Indonesian fintech application. In The First International Conference on Communication, Information Technology and Youth Study (I-CITYS2019), Bayview Hotel Melaka, Melaka (Malacca), Malaysia.

Ameliany, N., & Iryani, L. (2022, March). The impact of industry 4.0 in responding to the digital Economy's potential in indonesia at pandemic covid 19. In 2nd International Conference on Social Science, Political Science, and Humanities (ICoSPOLHUM 2021) (pp. 334-338). Atlantis Press.

Barata, A. (2019). Strengthening national economic growth and equitable income through sharia digital economy in Indonesia. Journal of Islamic Monetary Economics and Finance, 5(1), 145-168.

Data Indonesia. (2022, 9 November). Ekonomi Digital Indonesia Terbesar di Asia Tenggara pada 2022. Diambil pada 16 Maret 2023, dari https://dataindonesia.id/digital/detail/ekonomi-digital-indonesia-terbesar-di-asia-tenggara-pada-2022

Demirguc-Kunt, Asli; Klapper, Leora; Singer, Dorothe; Ansar, Saniya; Hess, Jake. (2018). Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution. Washington, DC: World Bank.

Fahlevi, M., Saparudin, M., Maemunah, S., Irma, D., & Ekhsan, M. (2019). Cybercrime business digital in Indonesia. In E3S Web of Conferences (Vol. 125, p. 21001). EDP Sciences.

Fridayani, H. D., Iqbal, M., Chiang, L. C., Pratama, M. A., & Atmojo, M. E. (2022, March). Opportunities and Challenges of Digital Economy for Micro, Small, and Medium Enterprises Facing Pandemic Covid-19 in Indonesia: A Case Study. In International Conference on Public Organization (ICONPO 2021) (pp. 83-89). Atlantis Press.

https://jiped.org/index.php/JSE/article/view/111/64

Jurriëns, E., & Tapsell, R. (2017). Challenges and opportunities of the digital 'revolution'in Indonesia. Digital Indonesia: Connectivity and Divergence, 2020, 275-288.

Katadata. (2022, 27 Oktober). Ini Nilai Ekonomi Digital Indonesia Tahun 2022 Menurut Google. Databoks. https://databoks.katadata.co.id/datapublish/2022/10/27/ini-nilai-ekonomi-digital-indonesia-tahun-2022-menurut-google

Marginingsih, R., & Sari, I. (2019). Nilai transaksi non tunai terhadap pertumbuhan ekonomi di Indonesia periode 2014-2018. *Inovator*, *8*(2), 13-24.

Maria, N. S. B., & Widayati, T. (2020). Dampak perkembangan ekonomi digital terhadap perilaku pengguna media sosial dalam melakukan transaksi ekonomi. JKBM (Jurnal Konsep Bisnis dan Manajemen), 6(2), 234-239.

Nizar, N. I., & Sholeh, A. N. (2021). Peran Ekonomi Digital Terhadap Ketahanan dan Pertumbuhan Ekonomi Selama Pandemi COVID-19. Jurnal Madani: Ilmu Pengetahuan, Teknologi, Dan Humaniora, 4(1), 87-99.

Pangestu, M., & Dewi, G. (2017). 13 Indonesia and the digital economy: creative destruction,

opportunities and challenges. Digital Indonesia: Connectivity and Divergence, 227.

Purnama, I. (2019, 6 Desember). Analisis Regresi Sederhana. BINUS Business School Blog. https://bbs.binus.ac.id/management/2019/12/analisis-regresi-sederhana/

Raharja, A., Angraeni, W., & Vinarti, R. A. (2010). Penerapan Metode Exponential Smoothing Untuk Peramalan Penggunaan Waktu Telepon Di PT. Telkomsel Divre3 Surabaya. Jurnal Sistem Informasi SISFO, 14(2), 1-9

Rumata, V. M., & Sastrosubroto, A. S. (2020). The paradox of Indonesian digital economy development. E-Bus High Educ Intell Appl.

Shofawati, A. (2019). The role of digital finance to strengthen financial inclusion and the growth of SME in Indonesia. KnE Social Sciences, 389-407.

Sitompul, P. N. (2022). Analisis Pengaruh E-Money Terhadap Pertumbuhanekonomi Indonesia. Jurnal Manajemen Dan Akuntansi Medan, 4(2), 1-10.

Sukirno, S. (2015). Makroekonomi: Teori Pengantar Edisi Ketiga Cetakan ke-23. Jakarta: Rajawali Pers.

Tayibnapis, A. Z., Wuryaningsih, L. E., & Gora, R. (2018). The development of digital economy in Indonesia. IJMBS International Journal of Management and Business Studies, 8(3), 14-18.