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Does Access to Digital Financial Services Increase Consumption in Indonesia?

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Abstract

The development of technology is increasing rapidly, the development of the internet in Indonesia has been sufficient to start financial development. Financial development using ICT can reduce problems in accessing financial services such as distance, collateral, time and high credit or interest costs. Previous studies have provided limited explanations for financial development in Indonesia. Using panel data from 2019 to 2022 collected from the Central Bureau of Statistics and the Financial Services Authority covering 34 provinces, we examined the effect of access to digital financial services on consumption levels in Indonesia. From the results of the random effect model (REM) regression analysis, we found that access to digital financial services in Indonesia has not increased consumption. The number of account holdings, the number of loans disbursed and the number of bank branch offices spread across all provinces in Indonesia are not enough to increase consumption. Only 21.75% of financial service access variables and control variables such as human capital levels, economic growth, urbanization and the Covid-19 year could explain consumption levels.

Keywords: Digital Financial Services, Consumption, Financial Development

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INTRODUCTION

Technology has developed very rapidly lately in various lines of life. Technological developments have received attention from various circles, ranging from the public, government, and academia in response to rapid changes in the money market and financial services and other sectors around it. The

development of technology for finance has given rise to new innovations such as applications, new business models, processes and products (Youngwon Nam and Sunwoo T. Lee, 2023; Yasir Maulana and Herma Wiharno, 2022) as a breakthrough to solve household financial problems.

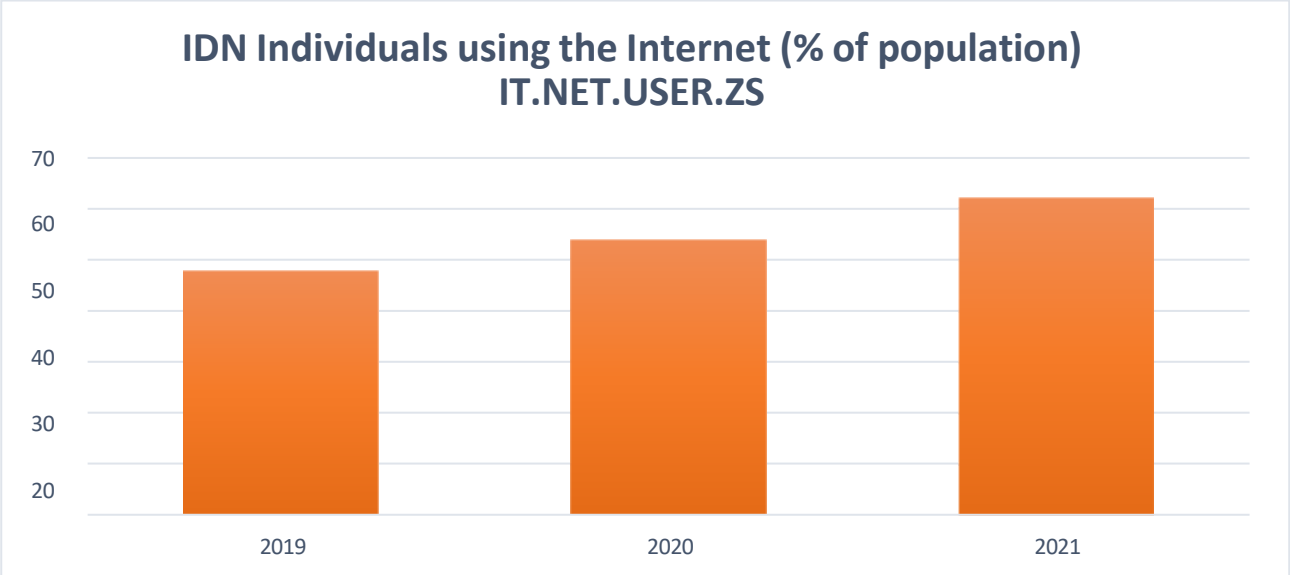

Figure 1. Internet Users in Indonesia in 2019-2021
Source: Worldbank (data processed), 2023

Financial development by utilizing the sophistication of technology, information and communication or ICT can minimize the problems faced by rural residents in accessing financial services such as credit, especially related to collateral, distance, time and high interest costs (De Janvry and Elisabeth, 2015). The existence of technological developments is expected to reduce administrative costs, transportation costs, verification fees, transaction partner search costs, and enable safe and affordable data transmission (Takor, 2020 in Youngwon Nam and Sunwoo T. Lee, 2023).

Furthermore, technological developments are expected to increase financial inclusion through access to digital financial services for the public in creating financial stability (Ozili, 2018 in Debao Hu et al, 2023). Financial development is not only characterized by focusing on the size of the financial market, institutional strength, supporting facilities and also human resources.

However, financial development includes technology finance where the financial sector takes advantage of advances in technology, information, and communication or ICT innovation (Zongxin Qian, et al. 2022). The development of technology and the internet has provided opportunities for comprehensive financial inclusion (Yang Liu et al, 2021), by providing mobile financial services such as digital wallets, digital investments, digital banks, and digital insurance that are also growing in China, Korea, and Sub-Saharan Africa (Yang Liu et al, 2021; Rang Zhang et al, 2023; Youngwon Nam and Sunwoo T. Lee, 2023; Debao Hu, 2023)

and Indonesia, are also expected to increase economic growth (Yang Liu et al, 2021).

Several studies have found that ICT can increase economic growth and improve household welfare through various socio-economic development channels (Arifin, 2011). Although technological developments do not always have the same pace (Jian Qiu Wang et al, 2023), it is sufficient to start developing the financial sector through digitization and digitalization according to the central statistical agency and the World Bank.

The development of the internet in Indonesia has reached 62.10% of the population in Indonesia has accessed the internet in 2021. Meanwhile, according to a survey by the Indonesian Internet Service Providers Association (APJII), it has reached 78.19% in 2023 or penetrated 215 million people out of a total population of 275 million people. From this data, APJII classifies the internet penetration rate into gender groups, where men are the most users, which is 79.32% of the total male population.

As for the gender of women, it is 77.36% of the total female population in Indonesia. Figure 1 is an illustration of how massive technological developments are in Indonesia and this increase in penetration is driven by the need for internet use, especially since the Covid-19 pandemic in 2020, including working, entrepreneurship, doing business, transacting and looking for entertainment online.

Through digitalization, it is predicted to absorb a workforce of 3.7 million people, including female workers, and bring an impact of a value of 150 billion US dollars until 2025. Furthermore, the potential of e-commerce in Indonesia is projected to reach 55 to 65 billion US dollars in 2022 (Das et al., 2016 in Palmira Permata Bahtiar, et al., 2020). Tokopedia also claims that its business contributes 222 trillion or equivalent to 1.5% of Indonesia's Gross Domestic Product and will continue to increase by up to 5% over the next ten years (Setyowati, 2019 in Palmira Permata Bahtiar, et al., 2020).

This gives Indonesia great hope to accelerate its economic growth rate, considering that the economic growth rate for the last four years tends to be small due to Covid- 19. The Government of Indonesia encourages the use of digitalization to encourage inclusive and sustainable finance for every country (Communication Department of Bank Indonesia, 2022).

Regulators play a role in strengthening a safe and trusted digital ecosystem that can be accessed by all residents in Indonesia to strengthen its implementation. Therefore, Bank Indonesia has released several applications, including QRIS and BI-Fast in the digital payment sector, as well as an API system to support the integration of banking and digital financial services (Bank Indonesia Communication Department, 2022).

Along with this, consumption is the most important thing in economic development. With economic conditions in Indonesia entering a new chapter, consumption will play an important role in encouraging economic growth (Debao Hu, et al., 2023). In consumption behavior, many people want to shop but have budget limitations and do not get loans. Digital financial inclusion directly encourages people's consumption behavior with digital payment methods. Therefore, the inclusion of digital finance can make it easier for them to get access to financial services in the form of credit for goods or money such as buy now pay later, or installments (Yang Liu, et al., 2021).

Consumption plays an important role in stabilizing the economy and protecting people's livelihoods (Yang Liu, et al., 2021). According to Mankiw (2012), Keynes' theory related to the absolute consumption function is when the MPC or marginal propensity to consume of the amount consumed due to an additional rupiah is between 1 and 0. This means that when someone gets additional income, they will actually increase their consumption even if it is not as much as their income or consume part of it and save the rest.

RESEARCH METHODS

This study is a quantitative research with secondary data. The data used in this study is panel data taken from the Financial Services Authority and the Central Statistics Agency of Indonesia in 2019-2022. It covers 34 provinces in Indonesia.

Table 1. Definition of Research Variables

Variable	Description	Source
Var Y1 Ln_consump	Natural logarithm of GDP per capita	BPS
Var X Ln_DFS	Access dimension (account) with the number of digital financial service accounts per province that is transformed Logarithmic	OJK
	Usage dimension (loan) with the amount of money lent through digital financial services that are transformed Logarithmic	OJK
	The availability dimension (branch) with the number of bank branch offices in each province is transformed Logarithmic	OJK
Var Kontrol Human Capital	Human development index by province	BPS
Economics Growth	GDP growth rate according to constant prices	BPS
Level of Urbanization	Proportion of urban population to total population	BPS
Covid-19 year	The dummy variable is worth 1 if in the year covid-19 and 0 if not	BPS

Source : Data Processed, 2024

This data from the OJK provides information on access to digital financial services or digital financial services, including the access dimension with the number of digital financial service accounts per province, the availability dimension with the number of bank branch offices per province and the usage dimension with the amount of money lent (loan) (Brigita Dian Saraswati, 2022). Meanwhile, from the Central Statistics Agency to measure consumption levels by proxy gross regional domestic product per capita per province according to prevailing (nominal) prices (Zongxin Qian, et al., 2022) and other influencing variables such as human capital levels, economic growth, urbanization rates, and

the year of covid-19 (Yang Liu, et al., 2021; Zongxin Qian, et al., 2022).

The dependent variable (Y) in this study is the level of consumption. To measure the level of consumption per province in Indonesia, we use data on gross regional domestic product per capita according to prevailing prices, which shows the value of GDP per capita or per population to show the income that can be enjoyed by the population of an area.

The independent variable (X) in this study is access to digital financial services. Digital financial services in this study include three dimensions, namely the access dimension which is proxied by the number of digital financial services accounts per province to show the penetration level of digital financial services in reaching digital financial service users, the availability dimension which is proxied by the number of bank branches or branches to see the number of bank branch offices in each region that can facilitate access to financial services and the dimensions of use with the amount of money lent by each province (loan) to see the use of financial services provided by banks or digital non-banks for consumption in both the productive sector and final consumption (Brigita Dian Saraswati, 2022).

Then in this study, control variables or other factors are added to the independent variables that can affect dependent variables such as human capital levels, economic growth, urbanization rates, and the year of covid-19 (Yang Liu, et al., 2021; Zongxin Qian, et al., 2022). Further, the variable definitions are presented in the table 1.

This study uses a panel data regression analysis tool. According to J.M. Wooldridge, (2015) that in the regression of advanced panel data there are two models, including the fixed effect model (FEM) and the random effect model (REM). Based on previous research conducted by (Brigita Dian Saraswati, 2022) on the influence of financial inclusion and fintech on economic growth in developing Asian countries, a similar study used a fixed effect model (FEM).

But in this study, after a series of tests were carried out in selecting the best model, including the Chow test, Hausman test, and Lagrange Multipier test (Gujarati, 2015 in Brigita Dian Saraswati, 2022) This study uses a random effect model (REM). The econometric specification of the panel data regression (REM) method to test the influence of digital financial services on consumption levels is formulated as follows:

$$Ln\_consumpit = \beta 0 + \beta 1 Ln\_DFSit + \beta 2 \chi it + wit$$

Where is $Consumpit$ the consumption of GDP per capita according to the prevailing price in province i in year t, $DFSit$it is access to digital financial services which includes three dimensions including the access dimension with the number of digital financial service accounts in province i in year t, the availability dimension with the number of bank branch offices spread across province i in year t and the usage dimension with the amount of money distributed to borrowers in province i in year t, $Xit$is a control variable, which is a combined error effect between the unit of analysis, wit effect (cross section) and the time effect (time series).

Based on the results of the Chow Test in table 2, it shows that the probability value of F in Prob > F is 0.00 < 0.05. Thus, it can be concluded that the appropriate model between the common effect model (CEM) and the fixed effect model (FEM) is the fixed effect model (FEM). This requires further testing in choosing the best

model, namely using the Hausman test to choose the right model between a fixed effect model (FEM) or a random effect model (REM).

Table 2. Chow Test Result

Effect Test	Constanta	df	Probability
Cross-section F	10.52562	7,95	0,0000

Source: Processed secondary data, 2024

From the results of the Hausman test in table 3, it can be seen that the probability value on Prob > Chi2 shows 0.07693 > 0.05. Therefore, the model that can be applied in this study is the random effect model (REM) and can be tested further using the LM-test or the lagrange multiplier test to find out the appropriate model between the common effect model (CEM) and the random effect model (REM).

Table 3. Hausman Test Result

Test Summary	df	Probability
Prob >chi2	4,09	0,7693

Source : Processed secondary data, 2024

The results of the LM-Test, which can be seen in table 4, show that the probability value of Breusch Pagan in Prob > Chibar2 is 0.00 < 0.05, so the appropriate model that can be applied in this study is the random effect model (REM).

Table 4. LM-Test Result

Test Summary	Varian	Chibar2	Probability
Prob>chibar2	31.16628	188,38	0,0000

Source: Processed secondary data, 2024

RESULTS AND DISCUSSION

The development of digitalization in Indonesia is growing rapidly. This development is marked by the continued increase in internet users in Indonesia from year to year. Based on research conducted by Palmira, et al., (2020) stated that the growth of internet users was very fast reaching 43.52% in 2019. Meanwhile, based on the figure below, the increase in internet users in the last ten years has increased rapidly. From 2014 to 2024, the increase in the number of internet users is 4 times from the base year.

This is a good potential in the development of the digital economy in Indonesia. Furthermore, the results of the e-commerce projection below show that Indonesia gets the highest score of 30.5% which is 3 (three) times higher than the global e-commerce projection of 10% and 9 other countries such as Mexico, Thailand, Iran, Malaysia, the Philippines, Peru, India, Israel and Vietnam.

Databoks said Indonesia will grow into a digital economy giant and the highest e-commerce growth in 2024. This great potential will open up new job opportunities, increase income and global connectivity (Palmira, et al., 2022). However, the data has not been followed by an increase in gross domestic product (GDP), because internet access is not evenly distributed throughout Indonesia.

Furthermore, the most popular platform in Indonesia to do online shopping based on the image below is Shopee with a percentage of 90%. followed by Tokopedia, Tiktok Shop, Lazada, Facebook, Bukalapak, Whatsapp, Blibli, online sites and other platforms. This is because the Shopee platform is a platform that is very easy to access and has complete features. Meanwhile, some platforms have weaknesses that are not easy for consumers to continue shopping online.

The potential of the digital economy is also followed by the existence of a digital economy gap. The digital economy gap and

barriers arise due to several aspects, including uneven internet use between regions, gender, education, and business groups. The gap between regions includes the classification of residences, both urban and rural.

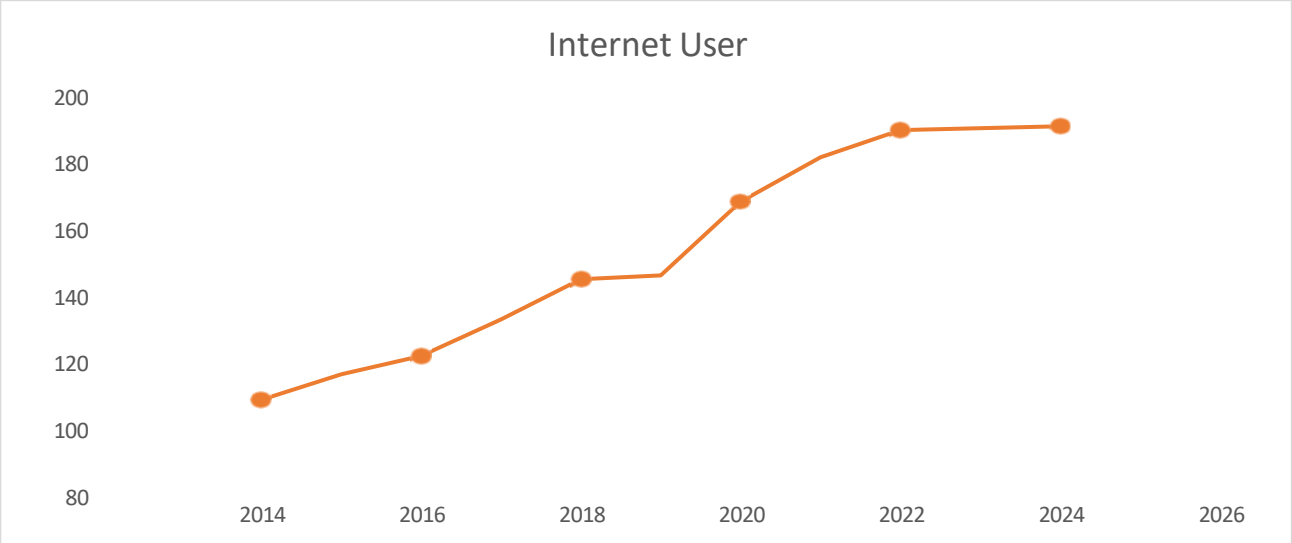

Figure 2. Number of Internet Users in the Last 10 Years
Source : Processed Databox, 2024

Meanwhile, the gender gap indicates that the digital economy is not friendly to either party, either men or women, for various reasons. The gap according to education level is the difference in access to the digital economy at various levels of education. Finally, the gap according to business sector groups means that not all sectors can use the development of internet technology in their business activities, both those that produce goods and services.

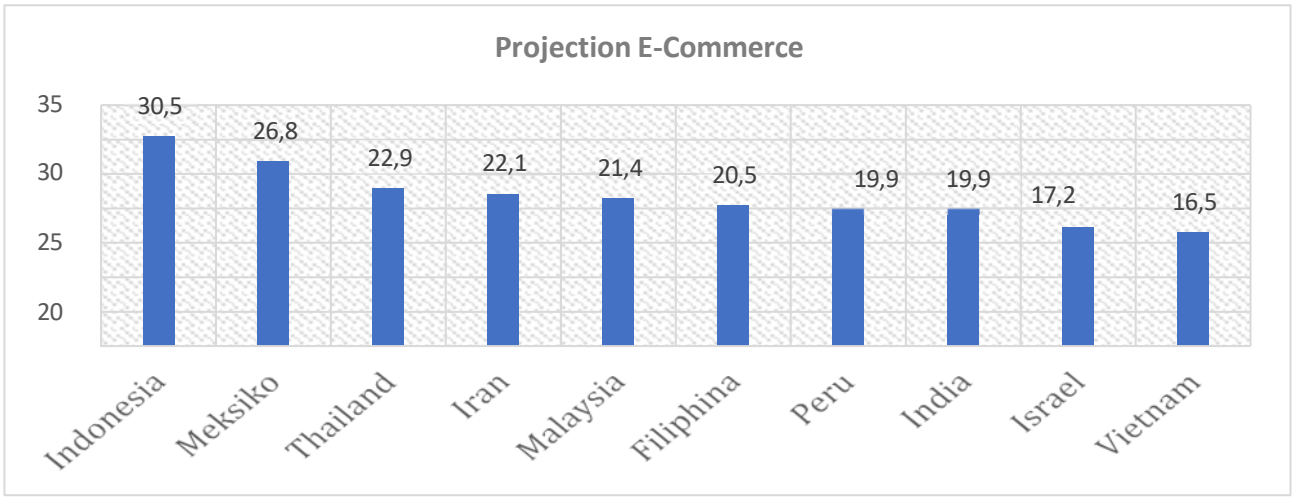

Figure 3. Global Highest E-Commerce Projection
Source : Processed Databox, 2024

Figure 5 shows the gap between regions, where the number of internet users is much higher in urban areas than in rural areas. This data covers all provinces in Indonesia. Meanwhile, in DKI Jakarta Province, the number of internet users in rural areas is known to be 0 (zero), because DKI Jakarta Province all its areas include urban areas.

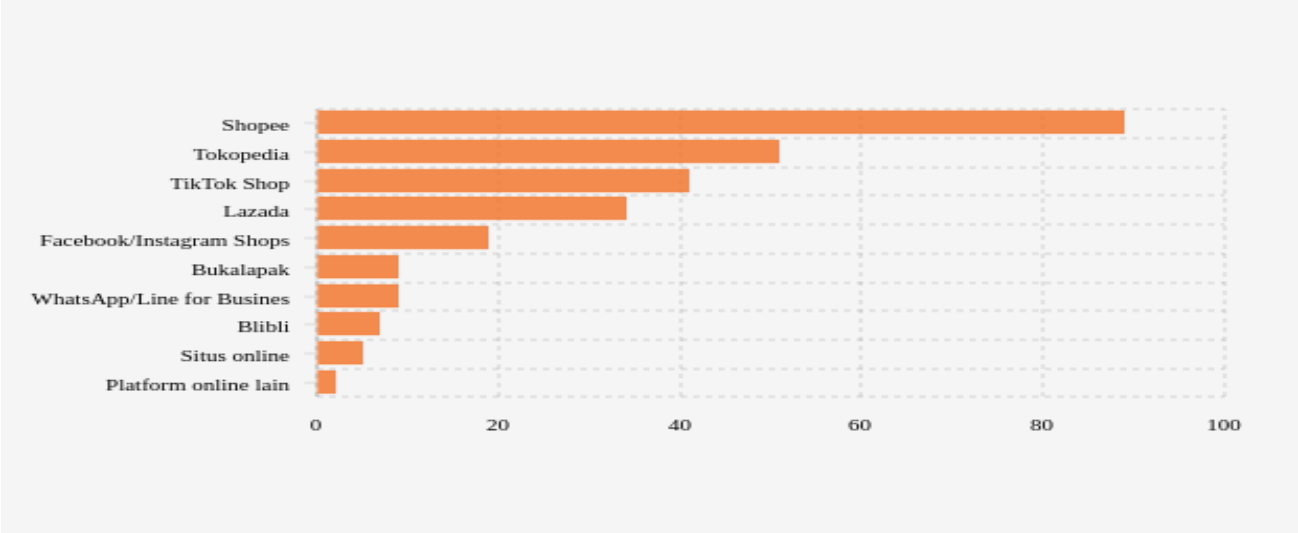

Figure 4. Most Requested Ecommerce Platforms
Source : Databoks, 2024

Furthermore, the gender gap creates differences in knowledge and experience in utilizing ICT. Based on BPS data, internet users with male gender are always higher than internet users with female gender. In almost all provinces in Indonesia, men have always dominated in internet use. This can happen because men are considered to have more free time than women who work.

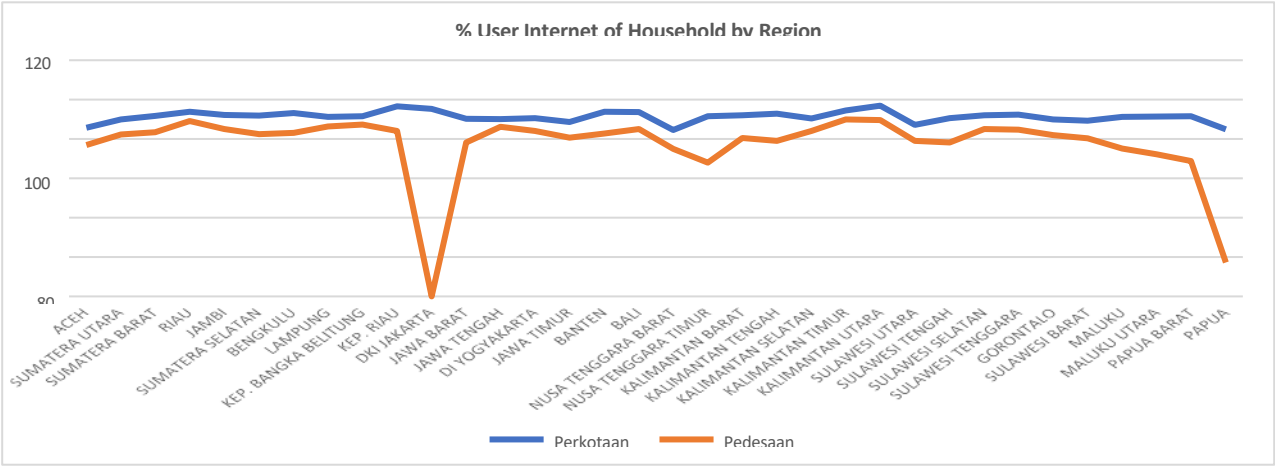

Figure 5. Percentage of Internet User Households by Regional Classification
Source : Processed BPS data, 2024

The gap between men and women continues to occur in the fields of economy, education and gender equality, so that it can affect the welfare of women, including the head of the family with the female gender. Therefore, based on data from BPS, the highest frequency of internet users according to education level is in high school graduates.

Table 5. Random Effect Model Estimation Results

Variable	Coefficient	Standar eror	z-Statistics	Probability
C	10,26784	1.324873	7,75	0,000***
ln_access	0,0204735	0,0249395	0,82	0,412
ln_loan	0,0415645	0,0297431	1,40	0,162
ln_branch	-0,1539213	0,0838249	-1,84	0,066*
human_capt	0,1008735	0,019807	5,09	0,000***
eco_growth	0,0042708	0,0017676	2,42	0,016**
lv_urban	-0,0059634	0,0030077	-1,98	0,047**
y-covid19	-0,0205077	0,0173165	-1,18	0,236
R-Squared (overall) = 0,2175 Wald chi2 = 195,25				
Prob > chi2 = 0,000				
R-Squared (overall) = 0,2175 Wald chi2 = 195,25				

*Significalsi Rate = ***) prob < 1%; **) prob < 5%; *)prob <10%

Source : Processed Secondary Data, 2024

The use of the internet by high school graduates is not always used to find information or means of learning and doing business. However, most of them are used to find entertainment online such as playing games, scrolling social media, and shopping online. So that the gap in internet use according to education level is not always bad.

However, the digital literacy gap between education levels is a problem. The use of the internet with high frequencies is not always accompanied by good digital literacy. It could be that high internet usage is only used for the pleasure and effects of opening the same applications. Meanwhile, the use of the internet with a low frequency at a higher level of education does not mean that it cannot be digitally literate. This happens because of a person's busyness and preferences in choosing activities to fill their free time. The use of the internet in digital economic activities is still uneven sectorally.

The largest internet users in Indonesia are the community services sector, then trade, hotels and restaurants. This is due to the lack of adequate resources, so that digitalization in all economic sectors always faces obstacles. Meanwhile, the sectors that use the internet in their service and production activities at a fairly low level are other sectors and electricity, water and gas. This gap occurs due to constraints on access to internet networks, electricity, data costs, and the capacity of human resources working in the sector.

In this study, it has been explained through the selection of the best model that the regression equation model in the appropriate panel data is the random effect model (REM).

Table 5 shows the results of the estimation from the formation of the model to explain the influence of digital financial services through three dimensions, namely the access dimension, the use dimension and the availability dimension as well as other independent variables such as the level of human capital, economic growth, urbanization level and the year of Covid-19 on the level of consumption in Indonesia as follows:

$Ln\_consumpit$ = 10,26784 + 0,0204735 $ln\_accessit$ + 0,0415645 ln_loanit – 0,1539213 ln $\_branchit$ + 0,1008735 human_captit + 0,0042708 $eco\_growthit$ –0,0059634 $lv\_urbanit$ – 0,0205077 $y\_covid19it + wit$

Based on the above equation, the value of the coefficient in the constant is recorded at 10.26784 with a probability of 0.00 < 1%. This shows that the consumption rate value is equal to 10.26784 if all independent or independent variables have a value of 0 (zero) or no change. From the results of the REM estimation, it can be seen that 2 out of 7 independent variables tested in this study have a positive and significant effect, while the other 2 variables have a negative and significant effect on the level of partial consumption.

The variable probability value of the number of bank account ownership shows 0.412 > 5% or 10% with a regression coefficient value of 0.0204735. This means that the number of account ownership in Indonesia from 2019 to 2022 is influential, in other words, when the number of account ownership increases by 1%, it will increase the consumption rate by 2%. However, it is not significant to the level of consumption in Indonesia, so the first hypothesis is rejected.

Then, the results of another study showed that the probability value in the variable of the amount of loan disbursement showed 0.162 > 5% with a regression coefficient value of 0.0415645. This can explain that if the amount of loans disbursed to people in Indonesia increases by 1%, it can affect the increase in consumption levels by 4.15%. However, the effect was not significant, so the second hypothesis was also rejected.

Furthermore, the results above show the probability value of the variable number of bank branches of 0.066 < 10% with a regression coefficient value of – 0.1539213. Thus, it can be interpreted that the number of bank branch offices spread across all provinces in Indonesia has no effect and is significant. In this case, when the number of bank branches is increased by 1%, it will reduce the consumption rate by 15.39%. Therefore, the third hypothesis is rejected.

The results of the next statistical test showed the probability values in the human capital variables of 0.000 < 1%, 5% and 10% with a regression coefficient value of 0.1008735. It can be concluded that the level of human capital has an influence and is significant on the level of consumption in Indonesia. In other words, if the level of human capital replaced by the human development index (HDI) increases by 1%, it will increase consumption by 10.08%.

Therefore, the fourth hypothesis is accepted. Furthermore, the probability values of the economic growth variables show 0.016 < 5% and 10% with a regression coefficient value of 0.0042708. It can be concluded that economic growth has an influence and is significant on the level of consumption in Indonesia. So, if economic growth rises by 1%, it will increase the consumption rate by 0.4%. Therefore, the fifth

hypothesis is accepted. Based on table 5, the probability value is also shown by the urbanization rate variables, which are 0.047 < 5% and 10% with a coefficient value of -0.0059634.

It can be concluded that the level of urbanization has no effect and is significant on the level of consumption. In this case, if the urbanization level increases by 1%, the consumption rate will decrease by 0.59%. Therefore, the sixth hypothesis is rejected. Finally, the probability values of the y_covid19 variables show 0.236 >5% and 10% with a regression coefficient value of – 0.0205077.

So it can be explained that the year of Covid-19 has no effect and is not significant to the level of consumption in Indonesia. This, the seventh hypothesis rejected. Other results showed the results of the simultaneous z test, the value of Wald Chi2 was 195.25 with a Prob value of > chi2 of 0.000 < 1%.

Therefore, it can be concluded that the variables of Digital Financial Services and control variables such as the Level of Human Capital, Economic Growth, Urbanization Level and the Year of Covid-19 simultaneously have a positive and significant effect on the level of consumption in Indonesia. Finally, the results of the Determination Coefficient Test showed that the R-Square value (overall) was 0.2175.

Thus, the model formed from digital financial service variables which includes three dimensions including the access dimension, the availability dimension and the use dimension as well as the level of human capital, economic growth, urbanization level, and the year of Covid-19 are only able to explain the dependent variable of consumption level of 21.75% while the rest is explained by other variables that are not observed in this study.

The results of the Random Effect Model estimation in table 5 show that digital financial services have an effect on the level of consumption and are significant simultaneously. This is in line with research conducted by Zongxin Qian, et al, (2022), Chunkai Zhao et al, (2022), Bo Yang, et al, (2022), Jiaping Zhang, et al, (2022), Bismark Addai, et al, (2022), Parni Sastiono and Chaikal N, (2019), Quanyun Song, (2020), Yang Liu, et al, (2021), and Debao Hu, et al, (2023) that access to digital financial services is both in the form of technology finance, Digital financial inclusion, digital financial development, and mobile payments and digital loans have a significant impact on consumption levels, household consumption expenditure, energy consumption, lighting, and economic growth, which have the greatest effect on rural populations and have high or low per capita income.

Meanwhile, partially, several variables are influential but not significant, such as the number of digital bank or non-bank account accounts and the number of loan disbursements in 34 provinces in Indonesia from 2019 to 2022. This is in line with research conducted by Parni S and Chaikal N (2019) that the number of bank accounts has an effect on the level of consumption but is not significant because the effect is very small, only around 2%.

This is because the number of bank accounts does not have enough influence on consumption in each province in Indonesia. In line with research conducted by Elaine et al., (2004) in Brigita Dian Saraswati (2022) which states that the number of account ownership is not enough to describe the level of financial inclusion.

The number of bank accounts owned by residents can be more than 1 (one) account

account, but it does not function because they do not use the digital financial services. Then, the number of loan disbursements is influential but not significant in this study, so it is not in line with research conducted by Brigita Dian Saraswati (2022) and Parni S and Chaikal N (2019) that the dimensions of use calculated using the amount of loans distributed to the population are influential and significant with a percentage of 14.5% to 28%.

The amount of loans disbursed to residents in Indonesia's 34 provinces is not enough to increase consumption. Although the amount disbursed is large, based on data from the Financial Services Authority, the loans disbursed are not 100% used for final consumption. This is in accordance with the objective data above, that loans are also distributed to productive sectors such as agriculture, fisheries, mining, plantations, real estate, accommodation, education, administration, services, and other productive sectors.

So, it cannot directly increase consumption. Furthermore, the number of bank branch offices has a negative effect on the consumption level in 34 provinces in Indonesia in 2019-2022 with a significance of 10%. This is in line with research conducted by Brigita Dian Saraswati (2022) which stated that the number of bank branch offices had no effect on economic growth in India, Indonesia, Thailand, the Philippines and Cambodia in 2015-2019.

The influence of access to digital financial services on consumption must be accompanied by an equitable distribution of internet development (Yang Liu, et al., 2021; Palmira, et al., 2020; Xuan Leng, 2022) and mobile phone ownership (Zaenal Arifin, 2004). The development of the internet and telephone ownership is important in digital transformation, both at the digitization and digitalization stages.

The higher the level of internet development in a region, the stronger the impact of digital financial development on economic growth (Yang Liu, et al., 2021). However, internet access in Indonesia is still uneven based on gender, region, level of welfare, level of education and employment sector (Palmira, et al., 2020).

The most internet users by location of residence in the Palmira study, et al, in 2020 were domiciled in urban areas and were on the island of Java. Equitable distribution of internet network facilities in villages for areas outside Java is difficult to do, considering the geographical location and inadequate basic infrastructure such as highways and electricity.

Furthermore, many workers in the agricultural sector still rarely use the internet network in their business practices. In order to be involved in the digital economy ecosystem both in production and distribution activities, workers in the agricultural sector must be facilitated with an internet network and access to proper education.

So that it can contribute to a larger gross domestic product (GDP) like other sectors (Palmira, et al., 2020). In addition, a gender gap in internet use in Indonesia also occurs. The number of men has always been more numerous and superior to women in various things, such as internet access, education and welfare (Palmira, et al., 2020).

In fact, women are also equal to men in order to meet their needs, responsibilities and work. In addition to the development of the internet and smartphone ownership, the influence of access to digital financial services on consumption levels can also reduce liquidity

constraints, facilitate payments, investment efficiency, transaction cost efficiency and reduce risks that may arise in traditional financial services (Chunkai Zhao, 2022; Debao Hu, (2023).

The ease of payment can be felt by residents in Indonesia for those who access digital financial services in the form of e-wallets, m-banking, internet banking, and virtual accounts. This is evidenced by the frequency of online shopping which is carried out 3-8 times a month, where women shop online much more than men (Indonesia Data 2022).

Then, the efficiency of transaction costs can be felt by residents with the ease of online shopping with ease of payment. Access to digital financial services makes it easier for buyers to make payments as well as obtain loans from the platform. In addition, transaction costs that appear in traditional financial services are much larger than digital financial services, including transportation costs, administrative fees and other costs.

Human capital plays a very important role in increasing consumption in the digital economy which is entering its early stages. In a study conducted by Qing Chang, et al., (2024) related to endogenous economic growth and human resource accumulation, it is explained that the accumulation of human capital is the beginning of well-being. Furthermore, the initial development of the digital economy without the accumulation of adequate human resources in terms of knowledge and skills is impossible.

The formation of IOT and Big Data can only be done by humans who have knowledge and skills in these fields. Therefore, it can be concluded that human capital through education and skills can improve people's welfare through consumption levels. Even at the time of the formation of the accumulation of human resources, the community does not get the desired welfare and is temporary.

Meanwhile, economic growth also affects the level of consumption. Directly, when the population of an area is more prosperous, the level of consumption will also increase. Based on the regression in table 5, if economic growth rises by 1%, it will increase consumption by 0.4%. This is in line with research conducted by Zongxin Qian, et al., (2022) on the impact of financial development on consumption and income levels which states that economic growth can increase total wealth and benefit the poor through consumption channels, income from work and payment transfers.

Furthermore, economic growth can be described through several things, including the amount of production of goods or services in a certain period of time and the real income of the community. Economic growth in this study is measured using GDP per capita according to constant prices, where this GDP contains two measures, namely the amount of household income and expenditure (Sudirman, 2018). Thus, it can be concluded that economic growth always affects consumption with an increase in income due to increasing people's productivity.

CONCLUSION

The rapid development of technology and information can improve the quality of human life in various aspects. Digitalization in various business sectors can make it easier for workers to be able to access data quickly, transact safely, quickly and economically. Based on the results of theoretical and mathematical analysis, this study proposes two hypotheses.

Using panel data taken from BPS and OJK, the results of this study found that access to digital financial services can increase

consumption even with very small numbers simultaneously. Meanwhile, based on the results of partial regression, the dimensions that measure access to digital financial services do not have a significant effect.

However, human capital and economic growth in this study are considered to be able to significantly increase consumption. This is because human capital is the initial stage of welfare. When human capital continues to increase including education, skills and experience, human income also increases, so that an increase in income will indirectly encourage consumption. Meanwhile, economic growth is one of the benchmarks of people's welfare in terms of expenditure and income.

An increase in the production of both goods and services can increase total wealth. The limitations in this study are using one indicator in each dimension, endogenous problems where the right instrument variables are not found, measurement dimensions with smaller units so that they can see the influence of access to digital financial services more deeply and data limitations.

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