The Role Of Human Capital And Digital Financial Inclusion On Economic Performance In The Southeast Asia Region

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Abstract

This study measures panel data from digital financial inclusion (DFI) in economic growth as an indicator of economic performance in ASEAN member countries, where we measure financial inclusion and digital indicators including internet user growth, % of domestic savings of GDP, and level of national flower. We use control variables for the consumer price index (CPI), government spending (GE), Education (EDU), and Population (POP). we used the Dubin spatial model to estimate the causal relationship between DFI and control variables on economic growth using the panel data. We discovered that human capital and digital financial inclusiveness are crucial for the Southeast Asian economic growth region represented by ASEAN member countries. In the Southeast Asian area, education is crucial for human development, and digital financial inclusion is crucial for raising production and consumption in the Southeast Asian region so that it can build a better economy.

Keywords: Human Capital,Digital Financial Inclusion, Economic Performance
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Background

The global financial system has changed dramatically in the last decade (Haralayya & Aithal,2021). When it's time for COVID-19 lockdown measures and covid prevention measures Making people's daily lives more dependent on digital technology (Kouřil & Ferenčuhová, 2020). As a result, almost every business sector, not only the financial sector. Must switch to accelerated massive digital transformation by incorporating digital technology into internal business processes. Businesses use this new form of information to formulate marketing strategies. to adapt to changing consumer lifestyles (Chapuzet & Bawono, 2021).

The bank has long adapted its customer service model to be able to carry out digital financial transactions without having to go to a branch, in line with the direction of developing government electronic payment infrastructure in each country (Klein & Todesco, 2021). When facing the spread of COVID 19, the Bank is quite ready to support consumers who switch to digital banking transactions at a very high speed. Consumers in emerging markets in the Southeast Asia region are well served (Kaur, Ali, Hassan, & Al-Emran, 2021).

Most countries in the Southeast Asian region have understood digital banking services as a digital financial sector (Mhlanga, 2020). The dominant players in the global financial system are led by well-known non-bank players such as insurance companies, mutual funds and pension funds (Zachosova & Babina, 2018). This group of non-bank financial sectors has grown to constitute almost half of the total assets of the global financial system. During the coronavirus pandemic, digital financial inclusion continues to increase (Priyanto, Widarni, & Bawono, 2022).

The developers of financial technology services are also growing massively in the Southeast Asia region. Common sectors developed by financial technology companies include lending, insurance, and financial investment. Relying on the power of having a large customer database with access to behavioral insights Being able to use artificial intelligence to analyze customer data to offer various forms of financial services (Arfanuzzaman & Dahiya, 2019).

In recent years, traditional bankers have seen a shift in adaptation in the era of digital disruption, turning to forge alliances with new players. Because the banks themselves have long accumulated credit costs and have an existing customer base. Meanwhile, new players in the non-banking sector are good at developing financial technology to find solutions that meet customer needs quickly, are easy to use, and able to penetrate customers who previously might not have had access to banking services, including some who have a large customer base in the social world. The future of the financial industry will be a harmonious coexistence between new and old players, namely banks, fintech, and big technology companies, by highlighting the selling points of different financial products. There is an opportunity to expand the market from domestic to regional and global levels under the world of digital finance that connects international transactions to make it more convenient (Cozzolino, Corbo, & Aversa, 2021).

The digital asset ecosystem is growing exponentially, with blockchain technology and smart contracts becoming a behind-the-scenes game-changer enabling the private sector to get creative. “Cryptocurrency” is a type of digital asset which is both a cryptocurrency and a digital asset itself. Exchange, transfer, invest or trade between one another without having to go through traditional financial intermediaries. Therefore, financial and investment transactions become more convenient, and faster, reduce costs, and reduce the difficulty of current payment services. special for international money transfer (Kundu, 2019).

Apart from that, there is also the development of “Stable Coins” with Cryptocurrency Pricing Mechanisms and Backed by Own Trusted Assets/Cryptos to reduce price fluctuations in order to have a fixed value that works better like money As a result, there are now more than thousands of privately generated cryptocurrencies that can be traded on the digital asset exchange market and linked (Xu & Zou, 2021). A financial system without intermediaries (Decentralized Finance that offers a wide range of digital financial and investment services. Access through non-governmental financial applications without limits. Classified as a new faceless non-bank player added to the global financial system. and becomes another investment option for investors who accept high risk For the business sector. Digital tokens are used in their own business ecosystem under the conditions set by the respective country's regulators which is another type of digital asset that companies can define with the benefits of being considered an investment token similar to raising funds from shareholders of company or utility tokens for holders to use or exchange for company products as agreed (Zetzsche, Arner, & Buckley, 2020).

The cryptocurrency market capitalization was almost rapid during covid 19, but cryptocurrencies had fallen sharply after the Federal Reserve issued a monetary policy that suppressed cryptocurrencies. This marks an accelerated cut to monetary policy easing and some countries are starting to impose stricter cryptocurrency regulations (Allen, Gu, & Jagtiani, 2022). In today's digital era, countries in the Southeast Asian region are improving the availability of digital financial services for those who would not otherwise have access to bank or payment services (Pham & Doan, 2020). It will also increase the options for citizens to have access to secure and risk-free central bank digital cash like owning a large number of private cryptocurrencies in the digital finance world (Náñez Alonso, Echarte Fernández, Sanz Bas, & Kaczmarek, 2020).

Digital financial inclusion is currently increasingly diverse. This will be an opportunity to use financial innovation to profit. However, there may be risks that need to be considered or designed to cover risks, such as managing the security of personal data that impacts the banking system (Mhlanga, 2020). Changing the financial landscape of countries' Connectivity with international payment systems includes finding alternatives that meet the same needs but are less risky. It can be seen that adaptation to digital trends in the global financial system continues. Creating added value for the digital economy to grow Over the next decade, it is believed that the world of digital finance will change even more rapidly. It's time to be prepared to understand and be open to the new changes that are about to take place (Liu, Li, & Yang, 2018).

The change will have an impact on human life. And human ability to face change requires sufficient human capital (Ahmed & Wang, 2019). For this reason, digital financial inclusion also needs to be balanced with the development of human capital (Arner, Buckley, Zetzsche, & Veidt, 2020). The development of human capital depends significantly on education. However, education also requires adequate infrastructure support (Afriani, 2021).

The digital financial system is very helpful in the economy. However, it is also necessary to prepare the community to face quite massive changes, especially in the post-covid-19 era which requires adaptation and mastery of technology (Atmojo, Muhtarom, & Lukitoaji, 2020). The need for human capital development will continue to increase (Rusmingsih, Widarni, & Bawono, 2021). However, the readiness of the global community needs to be considered in the face of increasingly massive global changes (Kyrylov, Hranovska, Boiko, Kwilinski, & Boiko, 2020).

Literature Review

The digital economy era is a challenge for the elderly. It is considered to be facing changes that are challenging to adapt for those who are elderly (Rusminingsih, 2022). Therefore, the government must quickly encourage various sectors to be ready to provide practical and solution support for groups of people who have difficulty adapting to the digital world. Human capital management is one of the important priorities for countries in the world today is facing massive changes with the advent of the digital economy era (Rahmatullah, Mulyasa, Syahrani, Pongpalilu, & Putri, 2022).

The digital economy is changing the future of work. Many jobs have been lost due to the development of digital technology. However, many new jobs have also emerged from the

development of digital technology. The business sector in the pre-digital economy referred to a place where people came to organize things to make work. But the future business sector is not like that. The company is no longer a place for people to come to work full time but is an intermediary for a network of workers including permanent employees, independent employees, temporary employees, contract employees, etc. So modern business organizations will be smaller. And a stable organization doesn't have to be big. Speed is a vital factor in the digital age, acting fast is a necessity in business in the digital age (Balliester & Elsheikhi, 2018).

Always having new innovations and using the right technology is a must. Companies will increasingly consider using robots as workers in the future. The business sector that adopts robots can reduce business operational costs significantly. Many companies in the world have started using robots. Now the price of robots is starting to fall and continues to decrease so that it can increase the company's operating cost savings without reducing the quality of the products produced. The future of work will also have a changing form of work. Currently, most companies provide wages according to the position, according to the number of jobs, but later it will change according to the quality of the work. And according to the skills used in the work, the wages are not fixed, so people have to increase their own efficiency. and improve their own ability to survive in the future (Nam, Dutt, Chathoth, Daghfous, & Khan, 2021).

As work factors change both regarding the use of robots and labor behavior in the ever-changing market leading to organizational change. Therefore, the state needs to be present in addressing this need. To deal with increasingly massive technological developments, agility, flexibility, and speed are needed because HR plays an important role in supporting the company. By developing a group of people working from abroad who can work to achieve company goals. Overall, HR is important to use in planning workflows: one, understanding the company's business strategy and the changes caused by new technologies (Li, Bonn, & Ye, 2019).

In addition to technological developments that have changed the labor market, in the current digital era population is a challenge in itself in the Southeast Asia region. The aging population continues to grow, resulting in fewer people of working age in the coming decades. Employee loyalty to the organization is decreasing day by day, especially in the new generation. Business organizations may need to broaden their perspective on how to add some functionality to their organization or sometimes have to move outside to let the company know which points in the organization are important or need to be reduced (Schröder, 2019). Development of approaches to help business organizations change in response to the digital economy. Measurement in the digital economy is not enough just to use general indicators that are commonly used, in-depth measurements are needed to provide indicators that are sufficiently well-established to investigate economic conditions more deeply (Sturgeon, 2021).

Digital economy and human capital are two important things to understand and develop to build a better economy. Massive technological changes in addition to changing the labor market also change the skill needs of the workforce so that they can continue to contribute economically. Apart from the production side, it is also necessary to understand the consumption side where purchasing power is an important factor in measuring and investigating economic conditions in the digital era (Teece, 2018).

Human capital is an important thing in business organizations where in the digital economy the human expertise factor is a vital factor in increasing the added value of business organizations. Human capital requires a mechanism to increase human capital. Education is one mechanism that has proven to be quite good in increasing human capital. There is no denying that investing in 'human capital' is very important for both individuals and society. A number of studies have confirmed that investment in human capital, In particular, the development and provision of basic education for socially vulnerable children and youth produces 'valuable' returns, i.e. more likely to return the investment than the investment (Litvinenko, 2020).

The economy cannot grow without effective education because the quality of the workforce in that society determines the rate of economic growth (Soliyev & Ganiev, 2021). Invest in the parental development of children, especially mothers, which leads to better child development. and the return on investment is certainly higher than the total investment because investment in parent-child development increases investment in parent-child education (Cui, Liu, & Zhao, 2019). One of the most sustainable investments in human resources especially in socially vulnerable groups is to ensure they have access to quality education or motivate teachers or education personnel who can manage to learn effectively working to help them there. Education is an important factor in today's digital era because education is one of the factors that have a significant influence on the development of human capital (Leal et al., 2019).

Each country has a different approach to motivating teachers and educators to do their job in remote areas. While there is debate about which is the most effective and sustainable. Teachers should be compensated taking into account the value of their social and professional contributions. Including additional compensation that varies according to the obstacles in carrying out the task. To facilitate teaching operations for teachers, such as travel expenses, because currently Many teachers face discrimination and unequal respect that varies with salaries. Teachers in big cities tend to be paid more than rural teachers. As a result, high potential teachers lack the motivation to do their job and have a negative attitude towards the teaching profession (Adarkwah, 2021).

Therefore, compensation for teachers and educators must be given taking into account the obstacles faced by each teacher. They must shoulder the expenses in addition to the region's social and economic losses. Therefore, each region's social and economic losses must be properly evaluated. because each school, even in the same area, such as in the same city In the same province, etc., there will be different obstacles that teachers have to face. The advantages and disadvantages also vary. Providing welfare and facilities to teachers who choose to develop socially vulnerable children is also important in motivating them. One of the benefits and facilities needed is a teacher's house (Hassan, Mirza, & Hussain, 2020).

Education is the first step in human development, but education cannot sustainably develop human resources without self-improvement. Investment in human capital means investing in the development of the potential of children and youth, but also investing in the development of personnel who have the knowledge, skills, and determination to further develop others. Therefore, investing in human resources is not just a big budget allocation, taking into account the role of human resources in economic growth. But the budget was allocated carefully.

Increase the capacity of 'human capital' which has the task of developing 'human capital' comprehensively (Widarni & Bawono, 2020).

Research Method

This study measures panel data from digital financial inclusion (DFI) on economic growth as an indicator of economic performance in ASEAN member countries, where we measure financial inclusion and digital indicators including internet user growth, % of domestic savings of GDP, and level of national flower. We use control variables for the consumer price index (CPI), government spending (GE), Education (EDU), and Population (POP). In table 1, descriptive statistics are presented of the variables making up digital financial inclusion.

Table 1. Digital Financial Inclusion Descriptive statistics

Indicator	Max	Min	Std
Internet user growth	92	21	15.07
national interest rate	24	-0.1	5.28
domestic saving % of GDP	35	12	8.71

We adopted the method from Sarma, M. (2015) to develop a financial digital index from the indicators listed in table 1. In compiling the index we use 3 stages which include the stage of normalizing the original data using the measurement of indicator changes to have a value between 0 and 1 with the following equation:

for positive indicators :

$\Theta_{npj} = (x_{npj} - x_{pj}^{min}) / (x_{pj}^{max} - x_{pj}^{min})$

for reverse indicators :

$\Theta_{npj} = (x_{pj}^{max} - x_{npj}) / (x_{pj}^{max} - x_{pj}^{min})$

We assume that n is the country we are studying, P is the indicator that makes up the index, j is an aggregate of p and n. Θ is the value of the change in the jth indicator in the p-th dimension of Country n, x is the indicator change. The second step is to measure the coefficient of variation and variable weighting with the following equation:

$V_{pj} = \sigma_{pj} / \alpha_{pj}$

Where is the standard deviation of the p indicator on a change in j, and is the average change in j on the p indicator. Where the weighting equation is as follows:

$W_{pj} = V_{pj} / \Sigma\ V_{pj}$

Where W is the weighting of the indicator. In the last phase, the dimension index is computed using the Euclidean distance synthesis technique and the following equation :

$DFI_n = ½ ((\ \sqrt{DI}_n^2 /\ \ \sqrt{W}_n^2) + (\sqrt{}\ (W - DI)_n 2 /\ \ \sqrt{W}_n^2))$

DFI is digital financial inclusion. And DI is the mean of Θ_n. To measure the causal relationship between digital financial inclusion (DFI) and control variables on economic growth in ASEAN member countries, we used the Dubin spatial model with the following equation:

$Y = \rho WY + X\beta + WX\theta + \varepsilon$

Y is each country's economic growth that was looked at. , where X is every explanatory variable, W is the spatial weights matrix with zeros on the diagonal, WY is the spatial autoregressive coefficient, WX is the exogenous interaction effect coefficient, ρ is the spatial autoregressive coefficient, β and θ are coefficients to be estimated. ε is error term.

Result and Discussion

The results of the digital financial inclusion measurement are presented in table 2.

Table 2. Digital Financial Inclusion

Country	DFI
Indonesia	0.564
Malaysia	0.575
Singapore	0.897
Thailand	0.590
Philippines	0.518
Brunei Darussalam	0.617
Laos	0.441
Myanmar	0.451
Vietnamese	0.321
Cambodia	0.485

Based on the DFI measurement, it is known that the highest DFI is Singapore and the lowest is Vietnam. With an average DFI of the ASEAN Member States of 0.546. After measuring DFI, we estimate the causal relationship between DFI and control variables on economic growth using the panel data presented in table 3.

Table 3. Spatial Dubin Model estimation outcomes

Variable	Coefficient	Asymptot t-stat	z-probability
DFI	133.178	6.151	0.000
CPI	0.008	0.123	0.000
GE	0.069	3.448	0.038
EDU	2.061	2.079	0.0.029
POP	4.648	3.166	0.002

From the results of the Spatial Dubin Model estimation, it can be seen that all variables have a significant positive effect on economic growth which indicates that digital technology as indicated by GDP is supported by people's purchasing power as indicated by the CPI, government policies in the form of state spending, as well as education and the size of the population, play an important role. in economic development. Education and population are indicators of human capital where the community or population is a human resource whose capital is developed through education. This proves that digital financial inclusion and human capital supported by people's purchasing power and appropriate government policies can be important factors in economic development.

Conclusion

Digital financial inclusion and human capital have a significant role in economic development in the Southeast Asian region represented by ASEAN member countries. Education plays an important role in human development in the Southeast Asian region and digital financial

inclusion has a significant role in increasing production and consumption in the Southeast Asian region so that it can build a better economy.

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