Analysis of National Industrial Management Performance in The Viewpoint of Productivity Paradox in The Digital Economy in ASEAN 3

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Abstract

This study focuses on three countries in the ASEAN region that are geographically quite close together, namely Indonesia, Singapore, and Malaysia. The three countries have a very large opportunity to benefit from cooperation between countries with geographical proximity. This study simulates economic and business cooperation in the three countries by estimating the aggregate industry performance in the three countries and in total in the three countries along with the inclusion of digital technology in Indonesia, Singapore, and Malaysia.The research uses the analysis of the accumulative influence between variables which is used as a basis for forecasting to see the results of the influence between variables on each variable using vector analysis. This study investigates the influence of the background of digital technology production in Indonesia, Singapore, and Malaysia which is presented in the form of forecasting graphs so that the cumulative effect can be known as the result of the final analysis in this study. Its rate of output paradox besides current online financial system occurs at Indonesia and Singapore. However, this is not the case in Malaysia. So it can be concluded that the paradox in the digital economy does not occur in every country. Technology and economic growth have a relationship of influence. International cooperation allows countries that work together to influence each other's economic growth and technological literacy.

Keywords : Output gap, Foreign direct investment, Money supply, Interest rates.
JEL Classification: C31, E22, O40, Q10.

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Introduction

An ASEAN Economic Community has a positive direction and prospects for economic growth. The ASEAN Economic Community has increased its trade and collaboration among nations from beyond area for become the integral another global society under the program. The ASEAN E-Commerce Accord facilitating International e-commerce agreements were made while November 2018. ASEAN Strategy for Technological Connectivity to link through virtual systems that trade, data security, and development would be facilitated personnel to have virtual expertise (Chen & Kimura,2019). ASEAN's Enterprise Connection (Building an Association for ASEAN Development) for improve that environment for creativity By bringing together ASEAN's innovative partners, who being capable of keep up with most recent technical advancements within ASEAN and elsewhere. and MSME entrepreneurs it's definitely feasible for establish connections within ASEAN abroad & broaden cooperation possibilities.

The One Portal for ASEAN (ASEAN) Electronic Customs System (ASEAN Single Window (ASW) as that exchange of digital certificates such as origin based on that Convention on

ASEAN Trade in Goods (e-ATIGA Form D) and where 5 the nations that make up ASEAN Singapore, Indonesia, Malaysia, Singapore, and Vietnam. Identity Across ASEAN System (AWSC) for Promote Commerce Entrepreneurs from logged-in ASEAN nations may declare the roots of their merchandise themselves (Inama & Sim,2015 ; Tan et al.,2019).

ASEAN regional cooperation in the digital era as that 4th industrialization period is going better. That increase on digital technology in the ASEAN region has an impact on economic cooperation that is getting stronger and closer and of course, has an impact on the performance of industrial management in the ASEAN region (Vu,2017). The performance of the real sector is the performance of industrial management in the aggregate which is indicated by Gross Domestic Product (Lyu et al, 2021).

The pandemic has forced companies to realize the importance of building strong supply chains to reduce concentration risks. which may illustrate the picture briefly. This is a shift away from dependence on commercially efficient "just in time" global supply chains. to local supply chains in a “just in case” manner. Another key factor also contributes to the strength of the region's capabilities in terms of stronger intra-regional integration. And, the process of digitizing the work system (digitization) is happening faster than before. Digitalization is the development of the fourth revolution that not only unites but also collaborates economies around the world (Grover & Sabherwal,2020). Digitization and industrial revolution 4 have an impact on the performance of industrial management around the world. Stronger intra-regional integration will encourage economic growth (Alaloul et al.,2020).

Policymakers in ASEAN recognize that it is increasingly important to promote deep integration within the region. And continue to embrace an open, rules-based economy. and build a stronger and more integrated ASEAN supply chain. Free trade agreements are clearly an impetus for greater participation and economic growth. Free trade agreements can also encourage economic growth. The process of digitizing work systems in industrial management expands the integration of all cross-country regions in the world, including the ASEAN region (Ahmad et al,2014).

Research by Watanabe et al.(2018) found a productivity paradox in an electronic society. Where an decrease as present in that productivity of industrialized countries in the midst of increasing digital technology literacy when that industrialization first began 4. Based on research by Watanabe et al.(2018) Stimulus spending and inflation were related which would be an indicator such as the country's productivity and digital technology. Contrary to the results and conclusions of Watanabe et al.(2018), the research of Sawng et al.(2021) concludes that increased investment and digital literacy favorable correlation between and expansion and there is no productivity paradox in the digital economy in their research.

Sohag et al. (2021) found a reciprocal relationship between state institutions and international relations in the ASEAN region in the digital economy era. Lee & Oh (2020) concludes that in the trade bloc in the ASEAN, ASEAN 6, and ASEAN 3 regions, that exported amount has increased, so GDP improvement of the cooperation area between Member countries and there is a mutually influencing relationship related to the GDP of each country. Dogah's research (2021) strengthens the conclusions of Sohag et al.'s (2021) research that the existence of international cooperation in the economic field carried out by ASEAN member countries makes the economy between countries influence each other. Ganda (2019) Research, explains that economic cooperation in addition to increasing the level of economic influence indicated by the influence of GDB also creates a relationship of technological influence between countries by means of technology

exchange cooperation. Azam et al. (2015) explained that in the ASEAN an connection exists in one of influence for expansion (GDP) besides the three nations.

Based on previous research, there is a research gap related to the relationship between economic growth and digital economic literacy (Watanabe et al, 2018; Sawng et al, 2021) which requires further research related that effects thereof 4th economic revolution imitating economy, especially financial expansion. Based on previous research, international cooperation creates opportunities for the relationship between economic growth and technological literacy between cooperating countries (Azam et al, 2015; Lee & Oh, 2020; Sohag et al, 2021; Dogah, 2021). This study focuses on three countries in the ASEAN region that are geographically quite close together, namely Indonesia, Singapore, and Malaysia. The three countries have a very large opportunity to benefit from cooperation between countries with geographical proximity. This study simulates economic and business cooperation in the three countries by estimating the aggregate industry performance in the three countries and in total in the three countries along with the inclusion of digital technology in Indonesia, Singapore, and Malaysia.

Literature Review

The international economy is important because countries most of them need to rely on each other, especially in terms of economic contacts. mobile input trading and technology transfer. The international economic structure consists of trade and financial systems. The trading system consists of exports and imports. The financial system consists of an international balance of payments and international financial organizations The international economic system is always changing (Viphindrartin & Bawono,2021). In the international economy, goods and services, especially goods ready for export, of course, require distribution from producers to consumers. Geographical factors greatly determine distribution costs so that when exports are carried out in neighboring countries or geographically close, distribution costs are generally cheaper than countries that are geographically far away. Geographical location is one of the potentials in the development of international cooperation, especially in the economic field (Guo & Minier,2021 ; Cook et al.,2018).

Indonesia, Singapore, and Malaysia are geographically close together so that the three countries are very likely to develop the region in the three countries economically and mutually beneficially. Malaysia is one of Indonesia's main trading partners. Together with Singapore, Indonesia and Malaysia are three countries that are geographically close and are very likely to cooperate well in developing the economy. The island of Batam in Indonesia is bordered by Singapore in the south. This is an ideal place to build digital economic cooperation between Indonesia and Singapore. Geographical location is one of the determining factors for international cooperation. Singapore and Indonesia have identified further cooperation on issues such as infrastructure development, human resource development, among others digital economics. An role an technological society is very large as a result of the 4th industrial revolution on the Southeast Asian economy, especially in improving industrial management performance in various fields (Liu et al,2020 ; Turner,2018).

Malaysia and Singapore are inseparable from economic cooperation. Bilateral Agreement Johor Bahru Project – Singapore Rapid Transit System (RTS) between Singapore and Malaysia This is an electric rail connection project between northern Singapore at the Woodlands MRT station. The close geographical location between Malaysia and Singapore is very likely to work together for the common good (Rizzo & Khan,2013). The economy indicated by gross domestic product is a collection of industrial performance from various fields in a certain period of time, generally one year. The industrial performance itself is the result of industrial management. So it can be

said that the cumulative or aggregate industrial management performance nationally can be indicated by the GDP in that country (Testik & Sarikulak,2021).

Industrial revolution 4 is a technological revolution. Where technology itself drives the performance of human resources. Human resources or labor collaborate with financial capital to encourage production. Because the production itself is a function of labor and financial capital. Industrial Revolution 4 in Southeast Asia has an impact on encouraging cooperation between countries and improving international trade management. With the breakthrough of the digital industry, international trade and cooperation is getting better and easier (Mahmood & Mubarik,2020). Naveed et al.(2018) explained that the development of the digital world has penetrated various firms that are driving the real sector. Where the firm is grouped into industries and the industry is grouped into one into actual estate. Where that sector performance that estate industry nationally is the performance of industrial management in the aggregate which is reflected by gross domestic product. Ha et al. (2016) explained that economic cooperation relations in the ASEAN region are getting better and are increasingly developing the economic growth of ASEAN member countries. International cooperative relations make the economies of the member countries influence each other. Research by Cuyvers et al.(2017) and Azam et al. (2015) strengthen this study of Ha et al. (2016) which explains that the relationship of economic cooperation creates a relationship of economic influence between countries in the ASEAN region.

Huang & Shih (2014) explain that the existence of international relations has an impact on technology transfer so that technology between cooperating countries can influence each other. In line with Huang & Shih (2014), Ganda (2019) explain that the technology that develops in each country that cooperates in the international economy can influence each other. Krutova et al (2021) explains the relationship between digital technology and economic productivity.

Based on previous research, a temporary conclusion can be formulated that technology and economic growth have a relationship of influence (Krutova et al, 2021; Watanabe et al, 2018; Sawng et al, 2021). And, international cooperation allows countries that work together to influence each other's economic growth and technological literacy (Huang & Shih, 2014; Azam et al, 2015; Ha et al, 2016; Cuyvers et al, 2017; Ganda, 2019; Lee & Oh, 2020; Sohag et al, 2021; Dogah, 2021). Provisional conclusions are presented in the form of hypotheses as follows:

H1. Technology and economic growth have a relationship of influence

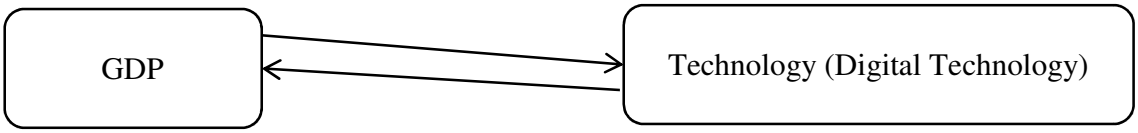
H2. International cooperation allows countries that work together to influence each other's financial expansion and technological literacy

Research Method

The research uses the analysis of the accumulative influence between variables which is used as a basis for forecasting to see the results of the influence between variables on each variable using vector analysis. This study investigates the influence of the background of digital technology production in Indonesia, Singapore, and Malaysia which is presented in the form of forecasting graphs so that the cumulative effect can be known as the result of the final analysis in this study. This study focus on the performance of national industrial management in accumulative or aggregate terms in each country in ASEAN 3 (Indonesia, Singapore, Malaysia) in the 4th era of the industrial revolution. Using qualitative sources that we obtained out of the World Bank. In selecting the research period, we are based on the era when the internet was discovered from 1990 to 2020 (Cerquitelli et al,2021; Bawono & Prestianawati,2019). Based on the research

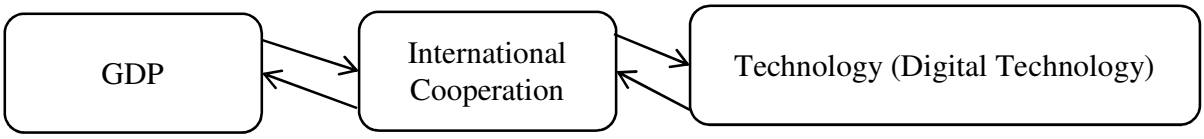
motivation and hypotheses that have been formulated, the following research model was developed:

Close Economic (Without International Cooperation) (H1) (Model 1)



H1. Technology and economic growth have a relationship of influence

Open Economic (Global Economic) (H2) (Model 2)



H2. International cooperation allows countries that work together to influence each other's economic growth and technological literacy

The technology referred to in this study is digital technology as an indicator of the industrial revolution 4. GDP is a reflection of National Industrial Management Performance (Naveed et al.,2018;Lyu et al.,2018)

Based imitating research design that was built, the appropriate research method was determined. In the model, there is the possibility of reciprocal relationships between variables so that the dependent variable becomes an independent variable in turn. As well as the existence of an intermediary variable, namely economic cooperation in hypothesis 2. Where the relationship of economic cooperation can be in the form of relations between countries related to economic growth and technology. Based on the research model the method chosen is vector analysis. Vector analysis allows the estimation of variables alternately as independent variables and as dependent variables. With the following vector equation

$\Delta Xt\text{-}1 = \Phi + i=1k\text{-}1\Gamma\Delta Xt\text{-}i + \alpha\beta' Xt\text{-}k + t$ (Equation 1)

Which $\Gamma\Delta Xt\text{-}i$ seems to be an one off factor, Φ was its correlation of error term, α would be a criterion and the rate on adaptation. β' would be the correlations of lengthy balance, and k was its duration about a jitter, and t is time period. The autoregression vector model used is as follows:

$Ti_t = \beta_1 Ti_{t1} + \beta_2 Ti_{t2} + \beta_3 Tm_{t3} + \beta_4 Tm_{t4} + \beta_5 Ts_{t5} + \beta_6 Tm_{t6} + \beta_7 GDPi_{t7} + \beta_8 GDPi_{t8} + \beta_9 GDPm_{t9} + \beta_{10} GDPm_{t10} + \beta_{11} GDPs_{t11} + \beta_{12} GDPs_{t12} + e_t$ (Equation 2)

$Tm_t = \beta_1 Ti_{t1} + \beta_2 Ti_{t2} + \beta_3 Tm_{t3} + \beta_4 Tm_{t4} + \beta_5 Ts_{t5} + \beta_6 Tm_{t6} + \beta_7 GDPi_{t7} + \beta_8 GDPi_{t8} + \beta_9 GDPm_{t9} + \beta_{10} GDPm_{t10} + \beta_{11} GDPs_{t11} + \beta_{12} GDPs_{t12} + e_t$ (Equation 3)

$Ts_t = \beta_1 Ti_{t1} + \beta_2 Ti_{t2} + \beta_3 Tm_{t3} + \beta_4 Tm_{t4} + \beta_5 Ts_{t5} + \beta_6 Tm_{t6} + \beta_7 GDPi_{t7} + \beta_8 GDPi_{t8} + \beta_9 GDPm_{t9} + \beta_{10} GDPm_{t10} + \beta_{11} GDPs_{t11} + \beta_{12} GDPs_{t12} + e_t$ (Equation 4)

$GDPi_t = \beta_1 Ti_{t1} + \beta_2 Ti_{t2} + \beta_3 Tm_{t3} + \beta_4 Tm_{t4} + \beta_5 Ts_{t5} + \beta_6 Tm_{t6} + \beta_7 GDPi_{t7} + \beta_8 GDPi_{t8} + \beta_9 GDPm_{t9} + \beta_{10} GDPm_{t10} + \beta_{11} GDPs_{t11} + \beta_{12} GDPs_{t12} + e_t$ (Equation 5)

$GDPm_t = \beta_1 Ti_{t1} + \beta_2 Ti_{t2} + \beta_3 Tm_{t3} + \beta_4 Tm_{t4} + \beta_5 Ts_{t5} + \beta_6 Tm_{t6} + \beta_7 GDPi_{t7} + \beta_8 GDPi_{t8} + \beta_9 GDPm_{t9} + \beta_{10} GDPm_{t10} + \beta_{11} GDPs_{t11} + \beta_{12} GDPs_{t12} + e_t$ (Equation 6)

$GDPs_t = \beta_1 Ti_{t1} + \beta_2 Ti_{t2} + \beta_3 Tm_{t3} + \beta_4 Tm_{t4} + \beta_5 Ts_{t5} + \beta_6 Tm_{t6} + \beta_7 GDPi_{t7} + \beta_8 GDPi_{t8} + \beta_9 GDPm_{t9} + \beta_{10} GDPm_{t10} + \beta_{11} GDPs_{t11} + \beta_{12} GDPs_{t12} + e_t$ (Equation 7)

Where, β is the coefficient, and t is time period. Ti is digital technology inclusion in Indonesia.Tm is digital technology inclusion in Malaysia. Ts is digital technology inclusion in Singapore. GDPi is Gross Domestic Product growth in Indonesia. GDPm is Gross Domestic Product growth in Malaysia. GDPs is Gross Domestic Product growth in Singapore. To perform the estimation, it is necessary to describe the analysis data presented in table 1.

Table 1. Information Summary Analysis

No	Variable	Description	Source	Unit Analysis
1	GDP	To see the National Industrial Management Performance, an aggregate indicator is needed which is the total growth among manufacturing on both Items & offerings nationally. So that an indicator of economic growth in the form besides GDP growth was chosen as the calculated variable.	World Bank	Percent %
2	T	Digital technology that is of concern in this study is the level of public literacy in digital technology which is calculated based on the percentage of the population who is able to access and use digital technology properly.	World Bank	Percent %

Results and Discussion

Before estimating to perform cumulative forecasting of the direction of influence using vector analysis, a data stationarity an examination is carried out to identify that stationarity of the data.

Table 2. Data Normality Check

Method			Statistic	Prob.**
ADF - Fisher Chi-square			27.1965	0.0072
ADF - Choi Z-stat			1.34667	0.911
Series	Prob.	Lag	Max Lag	Obs
GDPi	0.0094	0	6	30
GDPm	0.0361	1	6	29
GDPs	0.0069	0	6	30
TI	1	0	6	30

TM	0.9819	0	6	30
TS	0.5417	0	6	30

**The probability of Fischer testing were calculated utilising approximate Chi-square distributed. Others exams are based on that assumption of exponential growth normality.
From its outcomes thereof stationarity exam, all data were stationary. the data is stationary, it can be estimated vector autoregression. The The finest delay tests are tests used for calculate an optimal latency of an prototype. the best in research. In addition, its conclusion thereof optium latency has been also used for ascertain that duration among an variable's cycle to the previous factors & to additional intrinsic factors. The accuracy in determining the lag length will have implications for the model used so that it is free from autocorrelation and heteroscedasticity problems. Optimum lag test results are presented in table 3

Table 3. The best latency findings

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-530.3049	NA	4.66E+08	36.98654	37.26943	37.07514
1	-375.9092	234.2556*	140416.3*	28.82132*	30.80154*	29.44150*
2	-340.2714	39.3244	204887.8	28.84631	32.52386	29.99807

* suggests this same optimal lag length chosen by basis
LR: sequentially altered LR statistical analysis (every check out on 5% tier)
FPE: Mistake through classifier
AIC: Knowledge set of criteria Akaike
SC: The knowledge set of criteria of Schwarz
HQ: Knowledge set of criteria Hannan-Quinn

According to test outcomes, As is apparent, its optimal latency of the model becomes lag one thus estimated model. The Its var model likely outcome can be seen below presented in table 4.

Table 4. Its var model prediction outcomes

	GDPi	GDPm	GDPs	Ti	Tm	Ts
GDPi(-1)	0.031603	-0.148247	0.128679	0.045764	-0.038569	-0.471505
	-0.60986	-0.61427	-0.47667	-0.18944	-0.38479	-0.64581
	[0.05182]	[-0.24134]	[0.26995]	[0.24158]	[-0.10023]	[-0.73010]
GDPm(-1)	0.219962	0.076123	-0.565061	-0.189769	-0.109972	0.690017
	-0.77448	-0.78007	-0.60534	-0.24057	-0.48865	-0.82012
	[0.28401]	[0.09759]	[-0.93347]	[-0.78883]	[-0.22505]	[0.84136]
GDPs(-1)	-0.165294	-0.022636	0.377638	0.171173	0.303167	-0.580737
	-0.42331	-0.42636	-0.33086	-0.13149	-0.26708	-0.44826
	[-0.39048]	[-0.05309]	[1.14139]	[1.30179]	[1.13510]	[-1.29555]
Ti(-1)	-0.420702	-0.967652	-1.181758	0.783397	0.49132	0.61271
	-0.88788	-0.89429	-0.69397	-0.2758	-0.5602	-0.94021
	[-0.47383]	[-1.08204]	[-1.70289]	[2.84048]	[0.87704]	[0.65168]
Tm(-1)	0.277645	0.239362	0.136017	0.135583	0.379473	0.285736
	-0.33383	-0.33624	-0.26093	-0.1037	-0.21063	-0.35351
	[0.83169]	[0.71187]	[0.52129]	[1.30749]	[1.80161]	[0.80829]
Ts(-1)	-0.272187	-0.36688	-0.651323	-0.037667	0.255928	0.824262

	-0.25012	-0.25192	-0.19549	-0.07769	-0.15781	-0.26486
	[-1.08823]	[-1.45631]	[-3.33167]	[-0.48482]	[1.62173]	[3.11206]

Based on the results of the autoregression vector estimation, This is clear besides trying to compare the coefficient worth in this t-statistic value this Indonesia's GDP in the past as an indicator of national industrial management performance in Indonesia does have an substantial beneficial impact for Indonesia's recent GDP including the correlation coefficients 0.031603 and a t-statistic worth more 0.05182. Indonesia's GDP does have an massive effect negative impact for Malaysia's GDP using the ratio worth more -0.148247 & a t-statistic worth more -0.24134. And, the substantial beneficial influence to Singapore's GDP such as a coefficient worth more 0.128679 & the t-statistic worth more 0.26995. Indonesia's GDP does have the substantial beneficial affect to technological knowledge in Indonesia that has a coefficient worth more 0.045764 & the t-statistic worth more 0.24158. Indonesia's GDP does have the substantial beneficial affect to technological knowledge in Malaysia that has a coefficient of -0.038569 & the t-statistic on -0.10023. Indonesia's GDP does have the massive effect negative impact in technological knowledge in Singapore that has a coefficient such as -0.471505 & the t-statistic such as -0.73010.

Malaysia's GDP does have the substantial beneficial affect to Indonesia's GDP with correlation coefficients 0.219962 & the t-statistic worth more 0.28401. Malaysia's GDP does have the substantial beneficial affect to Malaysia's own GDP with a t-statistic worth more 0.076123 & the ratio worth more 0.09759. Malaysia's GDP does have a massive effect negative impact of Singapore's GDP using the ratio worth more -0.565061 & the t-statistic worth more -0.93347. Malaysia's GDP does have a substantial negative impact of technological knowledge in Indonesia that has the coefficient worth more -0.189769 & the t-statistic worth more -0.78883. Malaysia's GDP does have a massive effect negative impact of technological knowledge in Malaysia that has the coefficient worth more -0.109972 & the t-statistic worth more -0.22505. Malaysia's GDP does have the substantial beneficial affect to technological knowledge in Singapore that has the coefficient worth more 0.690017 & the t-statistic of 0.84136.

Singapore's GDP does have a massive effect negative impact of Indonesia's GDP as well as the correlation coefficients -0.165294 & the t-statistic worth more -0.39048. Singapore's GDP does have a massive effect negative impact of Malaysia's GDP that has the t-statistic worth more -0.022636 as well as the significance level on -0.05309. Singapore's GDP does have the substantial beneficial affect to Singapore's own GDP that has the coefficient worth more 0.377638 & the t-statistic worth more 1.14139. Singapore's GDP does have the substantial beneficial affect to technological knowledge in Indonesia that has the coefficient worth more 0.171173 & the t-statistic worth more 1.30179. Singapore's GDP does have the substantial beneficial affect to technological knowledge in Malaysia that has the coefficient worth more 0.303167 & the t-statistic worth more 1.13510. Singapore's does have a massive effect negative impact of technological knowledge in Singapore that has the coefficient such as -0.580737 & the t-statistic such as -1.29555.

Technological education does have the massive effect at Indonesia negative impact in GDP in Indonesia that has the coefficient worth more -0.420702 & the t-statistic worth more -0.47383. Technological education does have the massive effect at Indonesia negative impact in GDP in Malaysia impact in coefficient worth more -0.967652 & the t-statistic worth more -1.08204. Technological education does have the massive effect at Indonesia negative impact in GDP in Singapore that has the coefficient worth more -1.181758 & the t-statistic worth more -1.70289.

Technological literacy in Indonesia does have the substantial beneficial affect in technological knowledge in Indonesia that has the coefficient worth more 0.783397 & the t-statistic worth more 2.84048. Technological literacy in Indonesia does have the substantial beneficial affect in technological knowledge in Malaysia that has the coefficient worth more 0.49132 & the t-statistic worth more 0.87704. Technological literacy in Indonesia does have the substantial beneficial affect in technological knowledge in Singapore that has the coefficient worth more 0.61271 & the t-statistic worth more 0.65168.

Technological literacy in Malaysia does have the substantial beneficial affect in GDP in Indonesia using ratio worth more 0.277645 & the t-statistic worth more 0.83169. Technological literacy in Malaysia does have the substantial beneficial affect in GDP in Malaysia using ratio worth more 0.239362 & the t-statistic worth more 0.71187. Technological literacy in Malaysia does have the substantial beneficial affect in GDP in Singapore using ratio worth more 0.136017 & the t-statistic worth more 0.52129. Technological literacy in Malaysia does have the substantial beneficial affect in technological knowledge in Indonesia that has the coefficient worth more 0.135583 & the t-statistic worth more 1.30749. Technological literacy in Malaysia does have the substantial beneficial affect in technological knowledge in Malaysia that has the coefficient worth more 0.379473 & the t-statistic worth more 1.80161. Technological literacy in Malaysia does have the substantial beneficial affect in technological knowledge in Singapore that has the coefficient worth more 0.285736 & the t-statistic worth more 0.80829.

Technological literacy in Singapore does have the massive effect negative impact in GDP in Indonesia using the ratio worth more -0.272187 & the t-statistic worth more -1.08823. Technological literacy in Singapore does have the massive effect negative impact in GDP in Malaysia as for correlation coefficients -0.36688 & the t-statistic worth more -1.45631. Technological literacy in Singapore does have the massive effect negative impact in GDP in Singapore as for correlation coefficients -0.651323 & the t-statistic worth more -3.33167. Technological literacy in Singapore does have the massive effect negative impact in technological knowledge in Indonesia that has the coefficient worth more -0.037667 & the t-statistic worth more -0.48482. Technological literacy in Singapore does have the substantial beneficial affect in technological knowledge in Malaysia that has the coefficient worth more 0.255928 & the t-statistic worth more 1.62173. Technological literacy in Singapore does have the substantial beneficial affect in technological knowledge in Singapore that has the coefficient worth more 0.824262 & the t-statistic worth more 3.11206.

From a outcomes in the autoregression vector estimation, it is indicated that in Indonesia and Singapore there is the digitalisation efficiency conundrum in line with this results at Watanabe et al.(2018) research and not according to that findings on Sawng et al.(2021). However, in Malaysia, there is no Its electronic country's economic efficiency conundrum, contrary to that research results on Watanabe et al.(2018) and besides accordance to research on Sawng et al.(2021). From this estimation outcomes, it can be concluded that its efficiency inside that digitalization, there's the logical contradiction does not occur besides every country. From the estimation results, there are various influences related to technology and financial expansion. As the result, this is possible to draw the conclusion which H1 and H2 are accepted.

Conclusion

Its rate of output paradox besides current online financial system occurs at Indonesia and Singapore. However, this is not the case in Malaysia. So it can be concluded that the paradox in the digital economy does not occur in every country. Technology and economic growth have a

relationship of influence. International cooperation allows countries that work together to influence each other's economic growth and technological literacy.

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