

## The Digital Economy and the Importance of Technology in Economic Growth

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### Abstract

This study investigates internet users, economic growth and digital. This study investigates data at the start point year of 2000 to 2020 to generate "autoregressive vectors" that can be utilized for determine relationship among the variables. This model is to analyze among growth of the economic, the individual user from internet, also there is digital economic spending at Indonesia using secondary data from the World Bank. We discovered there is a development of digital economy who has a substantial and has influence on the growth of economic, implying that there is digital economy is critical to economic progress, but the growth of the modern economy cannot being separated from the influence of internet users. This study proves that a decrease in internet users will increase economic growth, just as an increase in the economy when it declines will lead to an increase in internet users.

**Keywords:** Digital Economic, Economic Growth, Internet Users, Indonesia.

**JEL Classification:** H30, L60, P10.

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### Background

Improving the quality of human resources can be done by means of improving education, this can also affect a significant increase in economic growth (Bawono, 2021). However, the government and regulations that exist in this world have the negative effect to economic growth. Measures if can minimize government to encourage economic growth, yet contemporary governments have traditionally tended to strive for the optimal size of government and foreign governments in order to improve economic growth. (DiPeitro & Anoruo, 2012). Macroeconomics and economic freedom have an impact on economic growth. Multifactor productivity can be increased by economic freedom, this has a substantial favorable impact on economic growth. Economic freedom with a faster rate of income growth. A freer economic structure contributes to the prosperity and development of economic growth (AINajjar, 2002).

Economic growth can also be affected due to public debt. This is hotly debated by researchers around the world. There have been many empirical studies investigating the link between Government debt with wealth creation, there's been a focus for transitory and momentary consequences on the growth of an economy. Regardless of the orientation underpinnings of connection. Also, potential impact on government borrowing upon that economy development is genuine and has been demonstrated. This is predicated on the belief that when the government borrows and distributes cash to boost the economy, such as public investment, the economy grows faster (Armstrong, 2018). The case is similar to Keynesian hypothesis on government

borrowing. According to this idea, when private investment is insufficient to assure accomplishment, full employment, government borrowing, and spending contribute toward a rise on government spending, who supplements deficient private growth investment (Brown-Collier & Collier, 1995). Furthermore, a rise inside the budget deficit (especially when the economy slump) stimulates aggregate demand via the wealth effect, resulting in an increase in production and a boost on the growth in the economy, On the other hand, public debt has no effect on economic growth (Hansen, 1959).

The Ricardian concept of government borrowing supports this point of view. Several hypotheses were founded on the idea because government borrowing appears to be a tax deferral as the government would impose more taxes there at this time which could repay the loan. As a result, individuals do not increase their consumption through government loans, on the contrary, individuals increase their money, which can be used in paying current taxes. In addition, since macroeconomic indicators such as consumption are not affected by increases in government debt, economic growth is also not affected (Barro, 1974, 1989).

The foreign repayments influence for growth in the economy was similarly beneficial as in near term, but it turns negative inside the long term owing to capital building density. According to this idea, short-term beneficial impacts are sensitive to tax decreases, resulting in a worsening of the deficit. This, in turn, increases disposable income, stimulating consumer spending with economy expansion. Moreover, in near term, stiff pricing and wages make aggregate demand improvement less relevant. This allows for impacts of squeezing over denotes the bad link among governmental borrow and development of the economy. A tax increase is another conduit of the long-term detrimental the effect from government borrowing upon that economy growth (Ferreira, 2014).

Country's capacity to increase economic growth depends on the financial resources available to support its spending, and the country depends on the creation of internal sources of funding within the digital economy sector. (Musaiyaroh & Bawono, 2018). In the digital economy sector itself or commonly referred to as the digital economy, it has been able to survive and record positive growth in several sectors. One of the things that can improve the digital economy, or the digital economy, is the increasing number of internet users. This also has an impact on the occurrence of digital acceleration of new internet users who continue to use digital services (Geissinger, Laurell, Öberg, & Sandström, 2019).

Internet users are part of the internet, and the internet plays a very important role in growth in various sectors, such as one example is the digital economy, internet users can be triggered due to interests that cover various aspects, one example is financial interests, in a financial, there are financial digital or digital financing, this plays critical and very effective role on development digital economy. When we talk about digital economic, there is digitalisation who In terms of economic effect and the development of new technology, has grown inextricably linked to numerous economic sectors. Digital economy that fostered fast economic growth, raised people's living standards, boosted resource efficiency, and reinforced environmental protection (Song, Zheng, & Wang, 2022).

Today's digital age, everyone may utilize their cellphone to make their lives simpler, of course I think this can increase internet users (Soniansih & Puspaningtyas, 2021). It is indicated that the majority of internet users use the internet for non-productive economic activities. This has an impact on pressure on economic productivity of the population as indicated by the total absorption of labor which shows the absorption of labor or the total participation of the workforce. So that the increase in internet users does not guarantee a boost to economic growth (Rusmingsih, Soniansih, 2021).

The digital economy requires reliable quality measures, as well as an general view of the modern economy, an accurate and reproducible means of evaluating the digital economy which enables for the assessment of the status quo and the identification of the need for change, i.e. But performance has to be measured more deeply, because policy makers in making measurements also require trustworthy research into its judgment. This shows of a development and the digital economic can measured in international comparisons (Mueller, Bakhirev, Böhm, Schröer, Krcmar, Welp, 2017).

The digital economy is also influenced by digital finance. Over the years, Globally, It is a transition away at conventional the economics of bricks and mortar also toward the modern days, which has been driven by digitalization (which is, Digital Technology). This modern economy has given rise to an ecosystem involving prototype of business with procedures like as e-commerce. (Weill & Woerner, 2015). There is a type of active involvement of newly formed enterprises in a dynamic economy mixed with The fast expansion of the internet age, which gave rise to the digital economy, has piqued scholarly curiosity (Acs & Mueller, 2008). Too often, the digital economy is regarded as a hazy idea that comprises a collection of sectors, a collection of results (goods & services), a collection of inputs, and a collection of manufacturing / supply platforms employed in varying degrees throughout the global economy (Coyle, 1999).

The digital economy also affects the development of companies, the digital economy tends to have a changing business model in digital technology is triggering a fundamental change in the way companies do way company actions are carried out and revenue being created. Awaken define company digital is about to "a company who competes through technologies" advantages to the activities both externally and internally". Digital businesses or firms should have a business plan that's also based mostly on digital technologies. Digital companies depend on the availability of digital technology. You could say, Over time, " virtual business " have expanded to include any business operations who make utilisation technology solutions (Veit, Clemons, Benlian, Buxmann, Hess, Kundisch, Spann, 2014).

Several factors that can affect the digital economy as well as the technology that facilitates their growth and development, namely economic financing, financial and technological factors are factors that play an important role and enable the survival of digital companies that implement a digital economy system (Dabbous & Tarhini, 2021). In addition, providing information to the dominated by virtual fixers, like an scarcity among banking online throughout an expanding on the economic, has alarmed prospective buyers in the digital economy is also very influential in the sustainability of the digital economy (Spash, 2021). However, It is important in terms of legislation about the government while recognize if they are an increasing growth of the digital economy under development countries, in improving the digital economy there are also

companies that can increase employment but instead supply local commercial services that will now being implemented in order to create an advanced digital economy (Sturgeon, 2021).

Therefore, some legal framework is needed to was founded to protect these companies from the fierce competition that kept them stuck growth which will certainly hamper the growth of the digital economy (Bos & Gupta, 2019). Furthermore, infrastructure and financial support should be provided for this company to enable them to grow and hire more people because the more people who contribute or work the more opportunities the digital economy will have success. In addition, there are more accelerators also there is to offer exposure, incubation projects must established to these inventive concepts companies also can allow companies to raise money for the purpose of the continuation of a healthy digital economy (Elia, Margherita, Ciavolino, & Moustaghfir, 2021).

### Research Method

In the analysis of 21 years of data spanning the years 2000 through 2020, "autoregressive vectors" were used to express variable-to-variable causal linkages. The World data for this study. We examine Internet Users, Economic Growth and Digital Economic in Indonesia. To study the causal link, the next multivariate regression model was utilized among The user of Internet, The Growth an Economic with Digital Economic variables at Indonesia:

$$IS_t = \beta_0 + \beta_1 ET_t + \beta_2 DN_t + e_t \quad \text{eai 1}$$

$$ET_t = \beta_0 + \beta_1 IS_t + \beta_2 DN_t + e_t \quad \text{eai 2}$$

$$DN_t = \beta_0 + \beta_1 IS_t + \beta_2 ET_t + e_t \quad \text{eai 3}$$

Description :

IS: Internet Users

ET : Economic Growth

DN : Digital Economic

e : erroneous title

t : time sequence

$\beta$  : degree in terms of causation influence

eai: formula

This research employs vector computations, in which every regression connection is combined so that every variable simultaneously becomes both the independent and the dependent variables. The concept of zero from Dickey-Fuller, derived by PP analyze, with  $p=1$  and  $\Delta y_t = (\rho - 1)y_{t-1} + u_t$  are formula, while  $\Delta$  – This is the very first try, various operations were utilize. For the "unit root test," the following equation was employed in this study:

$$\Delta Y_t = \alpha_0 + \beta_0 T + \beta_1 Y_{t-1} + \sum_{i=1}^q \alpha_i \Delta Y_{t-i} + e_t$$

Caption:

Y the check of unit root variables. T "linear pattern" variable represented, and "different in lag" are  $Y_{t-1}$ , 0 are displayed as "single equation," also with "t" being a "time trends" indication. The null hypothesis ( $H_0$ ) and the following are some alternate unit root test hypotheses:

$H_0 : \alpha=0$

$H_1 : \alpha \neq 0$

**Result and Discussion**

This test may be used to assess whether or not data is stationary. An error term analysis is used to determine if the series is stationary, which includes the possibility of autocorrelation if the sequence isn't stationary. Following the trying on following test unit root: findings were obtained in table 1.

Table 1: ADF's Unit Root Test on DN, ET, and IN data in Indonesia

Variable	Unit Root	Include in the examination Equation	Statistics for the ADF Test	5% Critical Value	Description
Internet Users (IN)	Level	Intercept	-1.603876	0.4613	
	First Diff	Intercept	-5.809191	0.0002	Stationer
Economic Growth (ET)	Level	Intercept	-1.838596	0.3523	
	First Diff	Intercept	-1.811369	0.3640	
	Second Diff	Intercept	-3.197277	0.0371	Stationer
Digital Economic (DN)	First Diff	Intercept	-1.841408	0.3511	
	Second Diff	Intercept	-3.693995	0.0133	Stationer

The ET and DN data is stationary in the second difference, while the IN variables are stationary at the first difference. This is indicated by the Augmented Dickey-Fuller with such a result of, run a test -5.199054 and a probability of 0.0002, because the probability is less than 5%, in this situation, the second difference IN data demonstrates that it is stationary.

Both the VAR and the causationry must be got the sensitivity test before beginning the VAR investigation, there is must be select an acceptable optimum lag time. This is the following result:

Table 2 : The test of Optimum Lag at Lag 0 to 4 DN, ET, and IN data in Indonesia

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-171.3397	NA	162321.3	20.51056	20.65759	20.52517
1	-125.8847	69.51943*	2287.134*	16.22173	16.80988*	16.28019
2	-121.9299	4.652732	4710.119	16.81528	17.84455	16.91759
3	-114.4404	6.167853	8100.819	16.99298	18.46336	17.13914
4	-90.75039	11.14822	3668.707	15.26475*	17.17624	15.45476*

The study's findings check we can se on the Table 2. And result of varying lengths of lag DN, ET, and IN are at LR, FPE, and SC at position number 1. As a result of this three components' conclusions are all the same, lag one will be picked.

Table 3 : VAR Model Analysis

	DN	ET	IN
DN	0.679666	0.120904	0.005079
	(0.19595)	(0.05945)	(0.03045)
	[ 3.46861]	[2.03377]	[ 0.16682]
ET	-0.568097	0.334431	-0.022513
	(0.73575)	(0.22322)	(0.11433)
	[-0.77213]	[ 1.49823]	[-0.19692]
IN	0.147801	-0.099897	1.162430
	(0.23737)	(0.07201)	(0.03688)
	[ 0.62267]	[-1.38719]	[ 31.5164]
C	16.24610	5.835043	0.526358
	(9.74313)	(2.95594)	(1.51394)
	[ 1.66744]	[ 1.97400]	[ 0.34767]
R-squared	0.574312	0.493101	0.991627
Adj. R-squared	0.494495	0.398058	0.990056
Sum sq. resids	1635.754	150.5611	39.49470
S.E. equation	10.11111	3.067584	1.571120
F-statistic	7.195400	5.188162	631.5986
Log likelihood	-72.42004	-48.56514	-35.18311
Akaike AIC	7.642004	5.256514	3.918311
Schwarz SC	7.841150	5.455660	4.117458
Mean dependent	30.23765	11.81501	16.45492
S.D. dependent	14.22120	3.953839	15.75578

The connection among ET with IN, was greatly negative, having a -0.022513 coefficient with the t-statistic -0.19692. The association among DN with ET is drastically positive, having a 0.935035 coefficient with 2.03377, meaning that the more DN there is, the more ET. The association among IN with IN itself is super positive, with 0.120904 coefficient and 2.03377 t-statistic. This demonstrates that a rise in Digital Economic will boost Economic Growth, and a decline Users of the Internet it can also raise the Growth of an Economy.

Table 4 : The test of Causality's Granger

Null Hypothesis:	Obs	F-Statistic	Prob.
ET does not Granger Cause DN	20	2.25994	0.1511
DN does not Granger Cause ET		2.19548	0.1567
IN does not Granger Cause DN	20	2.01802	0.1735
DN does not Granger Cause IN		0.00755	0.9318
IN does not Granger Cause ET	20	0.08689	0.7717
ET does not Granger Cause IN		0.01917	0.8915

The outcomes of the Granger causality test in Indonesia there is in Table 4. It's a single variable-to-variable causal connection, namely between ET variable against DN, IN against DN, and IN variable against ET. This can be seen from the lower probability than five percent.

### Conclusion

The economy will always develop and it is proven that the emergence of the digital economy has a substantial influence on economic growth, meaning that the the digital economy is critical to economic prosperity, but the growth of the modern economy cannot being separated from influence of the internet users. This study proves that a decrease in internet users will increase economic growth, just as an increase in the economy when it declines will lead to an increase in internet users.

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