Web Economy: Navigating Internet Influence, Foreign Investment, Consumption and Economic Growth in the Connected Age

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Abstract

This study will analyze and examine the link between technological developments and investment in the dynamics of economic growth in Indonesia. Data is sourced from the World Bank with a measurable range of 2000-2020. The variables we use are internet users, consumption, foreign direct investment, and economic growth which are analyzed using Vector Autoregressive (VAR). Our main findings include the mutual influence of prior Internet use (IU) and consumption (CO) suggesting that past increases in Internet activity can shape consumption patterns that are reflected in the current period. In addition, the unidirectional relationship between foreign direct investment (FDI) in the past and economic growth (ECG) provides evidence of the impact of foreign investment on current economic developments. The strong influence of internet use in the previous period and economic growth (ECG) also gave confidence in the important role of the internet in shaping economic dynamics. Taken together, these results confirm that in an increasingly connected economic framework, these variables work together in complex ways to form the foundation for strong and sustainable growth.

Keyword: Consumption, FDI, Economic growth, internet user, indomesia
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Background

In the era of globalization and technological advances, the relationship between economic factors such as consumption, foreign direct investment, and developments in communication technology have a crucial role in shaping a country's economic growth path (Priyanto, Widarni, & Bawono, 2022. Indonesia, as a developing country with great economic potential, is in the spotlight in this context. Consumption as the main driver of demand in the economy, foreign direct investment that brings technology and capital, and the rapid evolution of communication technology, all have the potential to influence each other in forming a framework for sustainable economic growth. Within this framework, an in-depth understanding of the correlation and impact of these three factors is necessary to comprehensively describe the panorama of the Indonesian economy. Therefore, an in-depth review of the literature regarding the correlation between consumption, foreign direct investment, the development of communication technology, and economic growth is an essential step in opening new insights into the potentials and challenges in achieving sustainable economic growth in Indonesia (Gati, 2023; Rusminingsih, Askar,Mutia, Fitria, Wahyudi, 2023).
Economic growth is one of the main indicators to measure a country's economic performance. Economic growth can be interpreted as an increase in the production capacity of goods and services in a certain period. Economic growth is influenced by various factors, both from the demand and supply sides. Demand factors include consumption, investment, government, and export-import,

while supply factors include natural resources, labor, capital, and technology (Alfada, 2019; Irawan, Sasongko, Mukhlis, Yanto, & Wulandari, 2022).

One of the demand factors that have an important role in economic growth is consumption. Consumption is household spending to buy goods and services used to meet the needs of life. Consumption is the largest component of Indonesia's Gross Domestic Product (GDP), which reflects the level of domestic demand for goods and services. Consumption is influenced by various factors, such as income, prices, preferences, and consumer expectations. Consumption is also related to public health, which could be disrupted by the Covid-19 pandemic. Therefore, the government is trying to mitigate the impact of the pandemic by vaccinating and implementing Micro PPKM. High consumption can encourage economic growth by increasing production, income and employment (Farabi, Abdullah, & Setianto, 2019; Sasongko, Nehruddin, Musriyatun, Siswanto, 2023).

Besides consumption, another demand factor that influences economic growth is foreign direct investment (FDI). FDI is a form of long-term investment made by foreign companies in Indonesia. FDI can provide benefits to the Indonesian economy, such as increasing capital, technology, skills and market access. FDI can also increase the competitiveness and productivity of strategic sectors, such as industry, infrastructure and energy. FDI is influenced by various factors, such as the business climate, government policies, political stability, and global conditions. Large FDI can boost economic growth by increasing production capacity, creating jobs, and increasing exports (Ridha & Parwanto, 2020).

On the other hand, one of the supply factors that plays a role in economic growth is the development of communication technology. The development of communication technology is a process of innovation and dissemination of technology that facilitates communication between individuals, groups or organizations. The development of communication technology can have a positive impact on the Indonesian economy, such as increasing the efficiency, quality and accessibility of information. The development of communication technology can also encourage digital transformation and the creative economy, which are potential sectors to generate added value and employment. The development of communication technology is influenced by various factors, such as advances in science and technology (Science and Technology), research and development (R&D) budgets, and cooperation between government, academia, industry and society. The rapid development of communication technology can drive economic growth by increasing innovation, competition and prosperity (Rath & Hermawan, 2019).

Research on the correlation between consumption, FDI, and the development of communication technology on economic growth has been carried out by many researchers, both in Indonesia and in other countries. One of the interesting studies is Lydia's research (2021) which shows that the use of information and communication technology has a positive and significant effect on the growth of the creative economy in Indonesia. This study uses panel data from 34 provinces in Indonesia during the 2015-2019 period. This research is in line with Putri & Ariusni's research (2020) which found that information and communication technology has a one-way causal effect on economic growth in Indonesia. This study also uses panel data from 34 provinces in Indonesia during the 2015-2019 period.

However, this study differs from that of Nurhayati & Suryana (2019) who examined the effect of FDI, exports and imports on Indonesia's economic growth. This study uses time series data from 1990-2017. This study shows that FDI and exports have a positive and significant effect, while imports have a negative and significant effect on Indonesia's economic growth. This research is again different from the research by Pratama & Wibowo (2018) which analyzes the effect of household consumption, investment, government spending, and international trade on Indonesia's economic growth. This study uses time series data from 1980-2016. This study found that household consumption and investment had a positive and significant effect, while government spending and international trade had a negative and significant effect on Indonesia's economic growth. From the above literature review, it can be seen that there are various approaches and methods used by researchers to analyze the correlation between consumption, FDI, and the development of communication technology on economic growth. However, no research has specifically tested the correlation between these three variables using panel data from 34 provinces in Indonesia. Therefore, this research is expected to fill the existing knowledge gap and provide a more accurate picture of the correlation between consumption, FDI, and communication technology developments on economic growth at the provincial level in Indonesia.

Based on the description above, this study aims to analyze the correlation between consumption, FDI, and the development of communication technology on Indonesia's economic growth. This research is expected to contribute to the development of economics, especially in the field of macroeconomics. This research is also expected to provide input for the government, business actors, and society in formulating policies and strategies that support Indonesia's economic growth.

Research Method

This study will analyze and examine the link between technological developments and investment in the dynamics of economic growth in Indonesia. Data is sourced from the World Bank with a measurable range of 2000-2020. The variables we use are internet users, consumption, foreign direct investment, and economic growth which are analyzed using Vector Autoregressive (VAR) with the following systematic equation:

$IU_{ti} = \beta_0 + \beta_1 FDI_{ti} + \beta_2 CO_{ti} + \beta_3 ECG_{ti} + e_{ti}$ eql 1

$FDI_{ti} = \beta_0 + \beta_1 IU_{ti} + \beta_2 CO_{ti} + \beta_3 ECG_{ti} + e_{ti}$ eql 2

$CO_{ti} = \beta_0 + \beta_1 IU_{ti} + \beta_2 FDI_{ti} + \beta_3 ECG_{ti} + e_{ti}$ eql 3

$ECG_{ti} = \beta_0 + \beta_1 IU_{ti} + \beta_2 FDI_{ti} + \beta_3 CO_{ti} + e_{ti}$ eql 4

Information:
IU : Internet users
FDI : Foreign direct investment
CO : Consumption
ECG : Economic growth
β = Constant
e = Error term
t = Time Period

Result and Discussion

The unit root test needs to be done to find out which variables are stationary at a certain level. This test is intended to see and ensure there are no problems with data stationarity shown in table 1.

Table 1. Stationerity Test FDI, CO, ECG, and IU result.

Variable	Level		First Difference	
	Prob.	**Description**	**Prob.**	**Description**
FDI	0.0226	Fulfil	0.0002	Fulfil

CO	0.7098	Not fulfil	0.0371	Fulfil
ECG	0.3129	Not fulfil	0.0293	Fulfil
IU	0.9143	Not fulfil	0.0000	Fulfil

Based on the stationary unit root test in table 1. All variables are stationary at the first difference level so there is no problem with data stationarity. Furthermore, the optimum lag determination test was carried out to determine the optimum lag to be used in this research study. The optimum lag test will be shown in below.

Table 2. Lag test result

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-168.2907	NA	357.0555	17.22907	17.42821	17.26794
1	-101.6276	99.99457*	2.350329*	12.16276*	13.15849*	12.35714*

Based on the results of the optimum lag test in table 2, the lag that will be used as the optimum lag is lag 1. Then a VAR analysis was carried out which is shown in table 3.

Table 3. VAR Test Result

	IU	FDI	CO	ECG
IU(-1)	1.162884	0.008555	-0.063785	-0.091314
	(0.03191)	(0.01760)	(0.03075)	(0.03093)
	[36.4410]	[0.48608]	[-2.07458]	[-2.95244]
FDI(-1)	0.193324	0.332634	-0.113154	0.306209
	(0.43406)	(0.23939)	(0.41821)	(0.42069)
	[0.44538]	[1.38950]	[-0.27056]	[0.72787]
CO(-1)	-0.298436	0.400111	0.384692	0.154067
	(0.52482)	(0.28944)	(0.50565)	(0.50865)
	[-0.56865]	[1.38236]	[0.76078]	[0.30289]
ECG(-1)	-0.728861	0.232602	0.770585	0.245057
	(0.72787)	(0.40143)	(0.70129)	(0.70545)
	[-1.00136]	[0.57944]	[1.09881]	[0.34738]
C	5.387417	-2.154726	-0.332251	3.767324
	(4.84163)	(2.67020)	(4.66483)	(4.69248)
	[1.11273]	[-0.80695]	[-0.07122]	[0.80284]

Based on the results of the VAR analysis listed in table 3, it can be concluded that IU(-1) and CO have a significant effect on the t-statistic value with the number [-2.07458]. This finding reflects that the increase in internet usage in the previous period was able to have a real impact on current consumption patterns. Increased access and activity of internet users in the past is associated with changes in consumption patterns that are reflected in the current period. In addition, the results of the VAR test also show that FDI(-1) and ECG have a significant effect on the t-statistic with the number [0.72787]. This indicates a correlation between the increase in foreign direct investment (FDI) in the previous period and economic growth in the current period. These results reveal that foreign investment in the past can provide a contribution related to economic growth in the ongoing period. Not only that, other findings in the analysis show that IU(-1) and ECG have a significant impact on the t-statistic with a value of [-2.95244]. This reaffirms the existence of a strong relationship between earlier Internet use and economic growth factors. The increased use of the internet in the past can play an important role in shaping today's economic dynamics, reflecting the flow of information and transactions that impact various aspects of economic activity.

Overall, the results of this VAR analysis underscore the strong interconnection between variables such as internet use (IU), foreign direct investment (FDI), consumption (CO), and economic growth (ECG). These findings show that changes in one variable can affect other variables, indicating the importance of seeing these aspects as part of an interconnected ecosystem in forming complex patterns of economic growth.

Conclusion

Our main findings include the mutual influence of prior Internet use (IU) and consumption (CO) suggesting that past increases in Internet activity can shape consumption patterns that are reflected in the current period. In addition, the unidirectional relationship between foreign direct investment (FDI) in the past and economic growth (ECG) provides evidence of the impact of foreign investment on current economic developments. The strong influence of internet use in the previous period and economic growth (ECG) also gave confidence in the important role of the internet in shaping economic dynamics. Taken together, these results confirm that in an increasingly connected economic framework, these variables work together in complex ways to form the foundation for strong and sustainable growth.

References

Alfada, A. (2019). The destructive effect of corruption on economic growth in Indonesia: A threshold model. *Heliyon, 5 (10)*, 1-17.

Farabi, A., Abdullah, A., & Setianto, R. H. (2019). Energy consumption, carbon emissions and economic growth in Indonesia and Malaysia. *International Journal of Energy Economics and Policy, 9 (3)*, 338-345.

Gati, S. A. (2023). The Effect Of Telecommunications Infrastructure On Inclusive Economic Growth In Indonesia 2011－2021. International Journal of Innovative Technologies in Social Science, 2 (38), 1-15.

Irawan, C. B., Sasongko, B., Mukhlis, M., Yanto, D. D. G. F., & Wulandari, M. W. (2022). Trade and Foreign Direct Investment on Economic Growth in Indonesia: ARDL Approach: English. Tamansiswa Accounting Journal International, 5(1), 70-75.

Lydia, E. (2021). Peran pemanfaatan teknologi informasi dan komunikasi pada sektor ekonomi kreatif di Indonesia. Jurnal Ekonomi dan Bisnis, 24(1), 1-18.

Nurhayati, & Suryana, A. (2019). Pengaruh investasi asing langsung, ekspor, dan impor terhadap pertumbuhan ekonomi Indonesia. Jurnal Ilmiah MEA (Manajemen, Ekonomi, & Akuntansi), 3(3), 1015-1028.

Pratama, A., & Wibowo, A. (2018). Pengaruh konsumsi rumah tangga, investasi, pengeluaran pemerintah, dan perdagangan internasional terhadap pertumbuhan ekonomi Indonesia. Jurnal Ekonomi dan Kebijakan Publik Indonesia, 9(2), 131-146.

Priyanto, E., Widarni, E. L., & Bawono, S. (2022). The Effect of Internet Inclusion on Financial Inclusion in P2P Lending in Indonesia Based on Human Capital Point of View. In Modeling Economic Growth in Contemporary Indonesia (pp. 107-121). Emerald Publishing Limited.

Putri, A. D., & Ariusni, N. (2020). Analisis kausalitas teknologi informasi dan komunikasi, konsumsi listrik, dan pertumbuhan ekonomi di Indonesia. Jurnal Ekonomi Pembangunan, 21(2), 237-250.

Rath, B. N., & Hermawan, D. (2019). Do information and communication technologies foster economic growth in Indonesia? *Buletin Ekonomi Moneter dan Perbankan, 22 (1)*, 103-122.

Ridha, M. R., & Parwanto, N. B. (2020). The effect of foreign direct investment, human development and macroeconomic condition on economic growth: Evidence from Indonesia. *Journal of Indonesian Applied Economics, 8 (2)*, 46-54.

Rusminingsih, D., Askar,Mutia,D.K, Fitria,L., Wahyudi,M.I. (2023). Pembudidayaan Budidaya Hidroponik Sayur Organik Di Desa Kampung Putih Kelurahan Klojen Kecamatan Klojen Malang. Jurnal Abdimas Jayanegara, 1(1), 1-8.

Sasongko,B., Nehruddin, Musriyatun, Siswanto,N.H.(2023). Peningkatan Nilai Ekonomis Di Bidang Lingkungan Di Desa Jenggolo Kecamatan Kepanjen Kabupaten Malang.Jurnal Abdimas Jayanegara, 1(1), 21-28