The Digital Economy and Usury in Indonesia

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Abstract

This study examines the impact of internet literacy on interest rates, consumption and economic growth.This study analyzes 21 years of data, from 2000 to 2020, to create "autoregressive vectors" to evaluate the causal relationship between variables. The following multivariate regression model was used to analyze the causal relationship between internet literacy, interest rates, consumption, and economic development in Indonesia, based on secondary data from the World Bank. We found that internet literacy has an impact on consumption and economic growth in Indonesia but does not have a significant impact on interest rates. This shows that internet technology penetration has no significant effect on interest rates but does affect consumption and economic growth. The level of interest rates itself encourages domestic consumption but suppresses economic growth. This becomes rational because the ease of credit makes it easier for people to consume but becomes a burden from economic growth.

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Introduction

Many people are currently confused about following the procedures for accelerating the transformation of the digital economy. It is true that the fear is slight, given the infiltration of digitization into the details of everyone's life to some degree, but talking about the transition to a digital economy causes a degree of concern, perhaps because of the ambiguity. But when its literal meaning and translation lies in the details of people's lives, it will contribute to paving the way for a transformation that, if it doesn't happen today, will surely happen tomorrow (Bawono, 2021).

Millions of people depend on transferring and receiving money, paying for gas, electricity, water, public transport, and other bills through mobile apps, which is one of the pillars of the digital economy. And the fact that a broad base of citizens in a country is involved in the digital economy, even if they are not aware of it, means that the process of transformation is imminent, or rather it is happening now, and it also means that the transition to a digital economy does not mean closing, breaking down or fragmenting it. breaking up the existing economy and rebuilding the economy, or vice versa, demolition and layoffs cause panic and panic, and this is understandable (Widarni, Murniati , Prestianawati, 2020).

The transition to a digital economy is not demolition, it is construction, and it is not a choice but a reality, and most importantly, if implemented properly and the necessary protective measures are followed, it is capable of making real changes for the better for the inhabitants of the world region without exception. The expected gains from the transition to a digital economy are enormous, and the sooner this happens, the greater the gains, which will result in innumerable social and economic gains. However, we must also realize that the transition to a digital economy is not without obstacles, because there is a crisis of trust between the citizen base in many countries around the world, and government institutions. In addition, obstacles and obstacles to routine and bureaucratic procedures still occur. In general, this is a solvable problem, and building trust doesn't need arguments and evidence, and bureaucracy just requires a flexible and efficient system that's devastating (Prabowo, Sulisnaningrum, Harnani, 2021).

The digital economy promotes the digital implementation of economic strategy initiatives in all sectors of the economy. E-finance, one of the financial technology giants, has almost completely dominated the government financial sector to become a powerful and flexible arm of technology at the same time. Digital technology has also given birth to many financial technologies that offer usury-based online loans. This of course provides financial inclusion in society that targets various groups in society. However, the spread of usury with the growth of internet technology is feared to increase economic burnden (Bawono & Wilantari, 2021). This study examines the impact of internet literacy on interest rates, consumption and economic growth.

Research Method

This study analyzes 21 years of data, from 2000 to 2020, to create "autoregressive vectors" to evaluate the causal relationship between variables. The following multivariate regression model was used to analyze the causal relationship between internet literacy, interest rates, consumption, and economic development in Indonesia, based on secondary data from the World Bank. Here's the model :

$$IL_t = \beta_0 + \beta_1 IR_t + \beta_2 CO_t + \beta_3 EG_t + e_t \quad \text{eql 1}$$

$$IR_t = \beta_0 + \beta_1 IL_t + \beta_2 CO_t + \beta_3 EG_t + e_t \quad \text{eql 2}$$

$$CO_t = \beta_0 + \beta_1 IL_t + \beta_2 IR_t + \beta_3 EG_t + e_t \quad \text{eql 3}$$

$$EG_t = \beta_0 + \beta_1 IL_t + \beta_2 IR_t + \beta_3 CO_t + e_t \quad \text{eql 4}$$

Description :

IL : Internet literacy

IR : Interest rates

CO : Consumption

EG : Economic growth

E : error term

t : time series

β : the magnitude of the effect of causality

eql: equation

This study uses vector calculations where each regression relationship will be brought together so that each variable will alternately become the dependent variable and the independent variable. The zero theory of Dickey-Fuller, taken from the PP test, and p=1 is the formula in $\Delta yt = (\rho - 1)yt\text{-}1 + ut$, in which Δ – for the first time different operators. This research used the following equation for the "unit root test":

$$\Delta Y_1 = \alpha_0 + \beta_0 T + \beta_1 Y_{t\text{-}1} + \sum_{i-1}^{q} \alpha_1 \Delta Y_{t\text{-}1} + e_t$$

Description:

Y as the variable is being examined for unit root

T as the variable which indicates the “linear trend,” the “lag difference” means is $\Delta Yt-1$,

$\alpha 0$ are shown as “constant term,” with the

"t" as a "time trend" indicator.

The null and alternative hypotheses for the "unit root test" are as follows:

$H_{0:}\ \alpha=0$

$H_1: \alpha\neq0$

Result and Discussion

If the series being assessed is non-stationary, the ADF Test considers the possibility of autocorrelation in the error component. The unit root test yielded the following results:

Table 1: ADF's Unit Root Test on IL, IR, CO, and EG data in Indonesia

Variable	Unit Root	Include in the examination Equation	Statistics for the ADF Test	5% Critical Value	Description
Internet literacy (IL)	Level	Intercept	6.626153	1.0000	
	First Diff	Intercept	-0.254496	0.9143	

	Second Diff	Intercept	-7.999192	0.0000	Stationer
Interest rates (IR)	Level	Intercept	-2.934472	0.0590	
	First Diff	Intercept	-5.490289	0.0003	Stationer
Economy growth (EG)	Level	Intercept	-0.527808	0.8660	
	First Diff	Intercept	-1.929268	0.3129	
	Second Diff	Intercept	-3.319458	0.0293	Stationer
Consumption (CO)	Level	Intercept	-1.838596	0.3523	
	First Diff	Intercept	-1.811369	0.3640	
	Second Diff	Intercept	-3.197277	0.0371	Stationer

The IL, EG, and CO data are stationary at the second difference, and the IR data at the first difference level are stationary. The ADF test is worth -5.490289 with a critical value of 0.0003. Smaller than the p-value, in this case the IR data shows stationary at the first difference compared to the original data. From here we can take the next step in determining vector analysis.

Optimum Lag Test

Both the VAR test and the causation test need the proper lag length sensitivity. Before beginning a VAR or causality test investigation, it is critical to choose an acceptable optimum lag duration. The lag test yielded the following results:

Table 2 : Optimum lag test at Lag 0 to 3 IL, IR, CO, and EG data in Indonesia

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-173.5204	NA	4330.519	19.72449	19.92235	19.75178
1	-114.2995	85.54136*	37.73602	14.92217	15.91147	15.05858
2	-99.26193	15.03756	58.67681	15.02910	16.80985	15.27464
3	-67.93158	17.40575	32.93851*	13.32573*	15.89792*	13.68040*

Table 2 shows the findings of the Optimum Lag test. At Lag 0 to 3, the results show that the variable lengths of lag IL, IR, CO, and EG are at FPE, AIC, SC, and HQ at Lag 3. Because the findings of the five components are identical, then lag 3 will be chosen.

Var Model Analysis

Table 4 : VAR Model Analysis

	IL	IR	CO	EG
IL	0.661930	-1.568049	-0.831965	-0.562077
	(0.63866)	(1.56930)	(0.58930)	(0.63540)
	[1.03644]	[-0.99920]	[-1.41178]	[-0.88460]
IR	-0.049737	-0.071373	0.053160	-0.021055
	(0.12715)	(0.31243)	(0.11732)	(0.12650)
	[-0.39117]	[-0.22844]	[0.45311]	[-0.16644]
CO	0.367169	-0.595564	-0.211581	0.360183
	(0.61652)	(1.51489)	(0.56887)	(0.61337)
	[0.59555]	[-0.39314]	[-0.37193]	[0.58722]
EG	-0.435929	1.457452	1.080500	0.785348
	(1.11746)	(2.74580)	(1.03110)	(1.11176)
	[-0.39011]	[0.53079]	[1.04791]	[0.70640]
C	7.130314	9.370784	-4.403707	-1.088207
	(6.23432)	(15.3189)	(5.75255)	(6.20255)
	[1.14372]	[0.61171]	[-0.76552]	[-0.17545]
R-squared	0.993359	0.462515	0.520177	0.492577
Adj. R-squared	0.988046	0.032527	0.136318	0.086639
Sum sq. resids	29.86803	180.3363	25.43010	29.56434
S.E. equation	1.728237	4.246602	1.594682	1.719429
F-statistic	186.9642	1.075646	1.355125	1.213430
Log likelihood	-31.25715	-48.33848	-29.72903	-31.16007
Akaike AIC	4.237595	6.035630	4.076740	4.227376
Schwarz SC	4.684961	6.482996	4.524106	4.674741
Mean dependent	17.21472	5.628661	4.544521	4.977976
S.D. dependent	15.80659	4.317398	1.715920	1.799132

The relationship between IL and IL itself is significantly positive, with a coefficient of 0.661930 and a t-statistic of 1.03644. The relationship between IL and IR was negative, not significant, with a coefficient of -1.568049 and a t-statistic of -0.99920. Likewise, the relationship between IL and CO is significantly negative, with a coefficient of -0.831965 and a t-statistic of -1.41178, meaning that the lower the IU, the higher the E. The relationship between IL and EG is significantly negative, as evidenced by the coefficient -0.562077 and the t-statistic -0.88460. This shows that an increase in internet literacy, as indicated by an increase in users, will encourage economic growth and consumption in the opposite direction. In other words, a decrease in internet literacy will make consumption and economic growth increase. This is different from the previous one, indicated by a significant negative relationship between IR and IL with a coefficient of -0.049737 and a t-statistic of -0.39117, meaning that a decrease in IR will cause a higher IL.

Granger Causality Analysis

Table 5 : Granger Causality

Null Hypothesis:	Obs	F-Statistic	Prob.
IR does not Granger Cause IL	18	1.06472	0.4034
IL does not Granger Cause IR		1.54120	0.2589
CO does not Granger Cause IL	18	0.60212	0.6270
IL does not Granger Cause CO		2.88927	0.0836
EG does not Granger Cause IL	18	0.46115	0.7150
IL does not Granger Cause EG		3.25363	0.0636
CO does not Granger Cause IR	18	0.05394	0.9826
IR does not Granger Cause CO		1.10369	0.3888
EG does not Granger Cause IR	18	0.02381	0.9947
IR does not Granger Cause EG		0.20084	0.8936
EG does not Granger Cause CO	18	0.67873	0.5831
CO does not Granger Cause EG		0.11476	0.9496

The results of the Granger causality test analysis can be seen in Table 4. The results show that there is not a single causal relationship that occurs between variables, this can be seen from the probability that none of them is less than five percent.

Conclusion

Internet literacy has an impact on consumption and economic growth in Indonesia but does not have a significant impact on interest rates. This shows that internet technology penetration has no significant effect on interest rates but does affect consumption and economic growth. The level of interest rates itself encourages domestic consumption but suppresses economic growth. This becomes rational because the ease of credit makes it easier for people to consume but becomes a burden from economic growth.

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