Impact of Taxes and Technological Improvement for Economic Growth

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Abstract

This study investigates internet users, Technology, taxes and Economic Growth. This study investigates data at the start point year of 2000 to 2020 to generate "autoregressive vectors" that can be utilize for determine relationship among the variables. This model is to analyze among Technology, Taxes and Economic Growth at Indonesia using secondary data from the World Bank. We discovered In terms of technological developments in Indonesia, if there are developments in Indonesia, taxes will decrease. This is because as technology develops, people will be smarter and this will reduce taxes and increase economic growth. Technology also plays an important role in economic development, but if technology decreases then taxes in Indonesia will increase.

Keywords: Technology, Taxes, Economic Growth.
JEL Classification: C10,F38,O33

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Background

Taxes have many purposes, mainly to achieve tax equity in the distribution of income and wealth among citizens, economic goals in financing the state budget and contributing to the process of economic development, and politics as represented in state sovereignty through the rule of law, so we will discuss its role in economic balance and in redistributing income (Wilantari, 2021).

The state's capacity to spend publicly and enhance economic growth is dependent on the financial resources available to support its expenditures, and the state is reliant on the creation of internal funding sources on the one hand, and the utilization of external financing sources on the other. It emphasizes the function and significance of taxes in growing internal funding and the financial resources necessary for growth (Zhang & Managi, 2020). Internal funding sources, notable taxes, are created through mobilizing national resources required for development in order to generate additional tax-generating revenues (Musaiyaroh & Bawono, 2018).

The purpose of the tax system is to aid economic growth by channeling resources into investment channels that aid development, enhance the production capacity, redistribute income and wealth, and maintain economic stability (Yang, 2022). The goals of tax policy are aligned with the goals of economic policy in general, such that changes in the economic policy lines defined have a clear impact on fiscal and tax policy actions (Vence, & López Pérez, 2021). Thus, the taxation system usually responds to changes in the economy, and the state has sufficient capacity to review the existing tax structure and what it contains taxable elements and rates, especially if there is a deficit in the public budget while achieving tax objectives. the country's fiscal policy (Opriyanti & Wilantari, 2017).

Achieving a balance between country specificity and the nature of tax formation is the result of tax policies that interact with the stage of development and provide the necessary conditions for growth and the necessary elements, particularly the element of capital, which is necessary for the process of economic development and helps reduce the gap between saving and investment by mobilizing financial resources to finance productive investments (Chugunov, Pasichnyi, Koroviy, Kaneva, & Nikitishin, 2021). The importance of the taxation system in preventing distortions and volatility that interrupt economic activity demonstrates the system's efficacy in establishing economic balance (Sasongko, Bawono, Prabowo, 2021).

Because tax policy plays a vital role in attaining economic balance and stability, as well as managing the amount of government expenditure, taxes are employed to maintain a balanced state and safeguard economic activity from volatility and economic crises (Tsindeliani, Kot, Vasilyeva, & Narinyan, 2019). The purpose of public finance, with its varied methods, has made taxes one of the most essential tools in the state's toolbox for achieving a variety of economic and social objectives (Mazzucato, Kattel, & Ryan-Collins, 2020). Among them is the contribution of taxes to national redistribution. income, unlike expenses which work to influence the primary distribution of income. The role of taxes in redistribution is focused primarily on their impact on cash income and real income (Alim, Setiyantono, Zakiah, 2021).

As with taxes, technology is also an inseparable part of human life. New generations are competing to create new innovations in the hope of making human work easier today and in the future (Lyapina, Sotnikova, Lebedeva, Makarova, Skvortsova, 2019). Technology is also beneficial for governments in developed countries, not only in developed countries, but it also has the potential to improve the quality of the economy and the quality of workers in developing countries (Ekici, Kabak, & Ülengin, 2019). Technology can also be used by the education sector, by utilizing technology, humans can use various useful applications, such as bookkeeping applications to be managed with computers with neat and orderly results. this is very useful in implementing learning around the world (Sulisnaningrum, Widarni, & Bawono, 2022). This study investigates the causal relationship between Technology, Taxes and economic growth.

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 Technology, Inflation and Economic Growth in Indonesia. To study the causal link, the next multivariate regression model was utilized among The Technology, Taxes and Economic Growth variables at Indonesia:

$TY_t = \beta_0 + \beta_1 XS_t + EH + e_t$ eai 1
$XS_t = \beta_0 + \beta_1 TY_t + EH + e_t$ eai 2
$EH = \beta_0 + \beta_1 TY_t + \beta_2 XS_t + e_t$ eai 3

Description :
TY: Technology
XS : Taxes

EH : Economic Growth
e : erroneous title
t : time sequence
β : 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 Δyt = (ρ – 1)yt-1 + ut are formula, while Δ – This is the very first try, various operations were utilize. For the "unit root test," the following equation was employed in this study:

$$\Delta Y1 = \alpha_0 + \beta_0 T + \beta_1 Y_{t-1} + \sum\_(i-1)\text{^}q\ \alpha_1 \Delta Y_{t-1} + e_t$$

Caption:
Y the check of unit root variables.
T "linear pattern" variable represented, and "different in lag" are Yt1, 0 are displayed as "single equation," also with "t" being a "time trends" indication. The null hypothesis (h0) and the following are some alternate unit root test hypotheses:
H0 : α=0
H1 : α≠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:

Table 1: ADF's Unit Root Test on EH, TY, and XS data in Indonesia

Variable	Unit Root	Include in the examination Equation	Statistics for the ADF Test	5% Critical Value	Description
Economic Growth (EH)	Level	Intercept	-0.527808	0.8660	
	First Diff	Intercept	-1.929268	0.3129	
	Seccond Diff	Intercept	-3.319458	0.0293	Stationer
Technology (TY)	Level	Intercept	-1.840710	0.3514	
	First Diff	Intercept	-3.693215	0.0133	Stationer
Taxes (XS)	Level	Intercept	-3.540671	0.0175	Stationer

The EH data is stationary in the second difference, while the TY variables are stationary at the first difference. This is indicated by the Augmented Dickey-Fuller with such a result of, run a test -3.693215 and a probability of 0.0133, 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 causationtry 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 EH, TY, and XS data in Indonesia

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-115.5542	NA	229.1401	13.94756	14.09459	13.96217
1	-109.2594	9.627441	323.4781	14.26581	14.85396	14.32427
2	-100.4601	10.35212	376.7593	14.28942	15.31868	14.39173
3	-74.12632	21.68661 *	70.59030 *	12.25016	13.72053 *	12.39631
4	-62.63251	5.408853	134.2372	11.95677 *	13.86826	12.14677 *

The study's findings check we can se on the Table 2. And result of varying lengths of lag EH, TY, and XS are at LR, FPE, and SC at possition number 1. As a result of this three components' conclusions are the lag 3 will be choosen.

Table 3 : VAR Model Analysis

	EH	TY	XS
EH	3.131705	6.393466	2.791846
	(3.04996)	(16.0306)	(1.01937)
	[1.02680]	[0.39883]	[2.73879]
TY	0.028514	0.720509	-0.003350
	(0.07528)	(0.39567)	(0.02516)
	[0.37878]	[1.82100]	[-0.13314]
XS	-0.873335	-4.316372	-0.754714
	(1.40342)	(7.37637)	(0.46906)
	[-0.62229]	[-0.58516]	[-1.60900]
C	-9.478105	5.886638	-15.87802
	(13.2606)	(69.6978)	(4.43204)
	[-0.71476]	[0.08446]	[-3.58256]
R-squared	0.233971	0.410253	0.751612
Adj. R-squared	-0.627812	-0.253213	0.472175
Sum sq. resids	44.44659	1227.860	4.964983
S.E. equation	2.357080	12.38880	0.787796
F-statistic	0.271496	0.618348	2.689736
Log likelihood	-33.67614	-63.54480	-13.94924
Akaike AIC	4.852905	8.171644	2.661026
Schwarz SC	5.347556	8.666295	3.155677
Mean dependent	5.004559	33.36707	0.929355
S.D. dependent	1.847448	11.06667	1.084348

The connection among TY with XS, was greatly negative, having a -0.003350 coefficient with the t-statistic -0.13314. The association among EH with TY is drastically positive, having a 6.393466 coefficient with 0.39883, meaning that the more EH there is, the more TY. The association among EH with EH itself is super positive, with 3.131705 coefficient and 1.02680 t-statistic. This demonstrates that a rise in Economic Gworth will boost Technology, and a decline of the Technology it can also raise the Taxes.

Table 4 : The test of Causality's Granger

Null Hypothesis:	Obs	F-Statistic	Prob.
TY does not Granger Cause EH	18	0.14046	0.9336
EH does not Granger Cause TY		0.58355	0.6381
XS does not Granger Cause EH	18	0.44032	0.7288
EH does not Granger Cause XS		3.94399	0.0391
XS does not Granger Cause TY	18	0.30870	0.8187
TY does not Granger Cause XS		0.37418	0.7734

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 TY variable against EH, XS against EH, and XS variable against TY. This can be seen from the lower probability than five percent.

Conclusion

In terms of technological developments in Indonesia, if there are developments in Indonesia, taxes will decrease. This is because as technology develops, people will be smarter and this will reduce taxes and increase economic growth. Technology also plays an important role in economic development, but if technology decreases then taxes in Indonesia will increase.

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