CAUSALITY ANALYSIS OF GOVERNMENT DEBT AND ECONOMIC GROWTH IN INDONESIA, 1990 – 2020

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Abstract – *This study aims to determine the pattern of the causal relationship between government debt and economic growth in Indonesia in 1990 – 2020. The data used in this study were obtained from the Indonesian State BPS (Central Bureau of Statistics). This research was conducted using the Granger causality test. The results show that in Indonesia there is one direction causality pattern, Economic Growth causes Government Debt, but Government Debt does not cause Economic Growth. The fact that government debt continues to rise, these results indicate that Indonesia's economic growth process is failed to reduce or suppress government debt. On the other hand, an increase in government debt, which also does not encourage economic growth, indicates the possibility of misallocation of the use of government debt to projects or programs that do not or are less effective at spurring economic growth. Considering that Indonesia has never failed to repay principal and interest on its debts, it shows that in the process of its economic growth, Indonesia has experienced what is known as the Fisher's Paradox, namely the more principal installments along with debt interest paid, the greater the amount of debt that must be made. The phenomenon that is often referred to as 'dig a hole cover the hole', borrowing money to pay off debt.*

Keywords: Granger Causality, Government Debt, Economic Growth, Fisher's Paradox.

I. INTRODUCTION

Economic growth is an absolute requirement for countries developing or often called third world countries including Indonesia, to catch up lagging behind developed countries a lot of things that need to be done. However constrained by a lack of capital resources as one of the triggers for growth. Every country needs capital resources for the welfare of its people therefore the need for funds is very crucial as a driver National development. Unfortunately, every country has a source of receipt of funds which varies depending on each system in each country. Until to continue to develop the country in a sustainable manner requires a lot of capital (Ibrahim et al., 2019).

Limitations of a country's capital resources will cause nothing else developed country. Indonesia itself actually has great potential in terms of resources resources, both in terms of population or natural resources. But that's not enough to support national development. So the government needs to owe to increasing capital resources to support domestic development programs (Akbar, 2018).

Government debt consists of domestic government debt and government debt national or foreign debt. Foreign debt is a portion of a country's total debt obtained from creditors outside the country. Recipients of foreign debt can government, company or individual. The form of debt can be in the form of money obtained from private banks, governments of other countries or international financial institutions such as the IMF and the World Bank (Ulfa & Zulham, 2017).

The use of debt as a source of funding in accelerating national development is used because the source of funding is from domestic savings the amount is very limited, so that as a source of funding, debt, especially debt abroad is urgently needed to solve the problem of internal financing development. Sources of funding from debt are an alternative development costs for developing countries like Indonesia (Ramadhani, 2014). In a short period of time government debt can lighten the burden budget, but in the long run if Indonesia continues to depend on government debt can also affect Indonesia's burden in paying debts.

Not only debt, but Indonesia also pays sufficient interest large because the foreign debt now is not only a complement but already become a state requirement. Scatter diagram showing debt relationships government with economic growth in Indonesia in 1990-2020.

II. METHODS

Causality of Government Debt and Economic Growth uses the Granger causality test model as follows:

$$UP_t = \sum_{i=1}^{m} \alpha_i \, UP_{t=1} \sum_{=1} \beta i \, PE_{t-j} + \varepsilon_{1t}$$

$$PE_t = \sum_{i=1}^{m} \lambda_i \, PE_{t-1} + \sum_{=1} \delta i \, UP_{t-j} + \varepsilon_{2t}$$

where :

UPt	: Government Debt
PEt	: Economic Growth
$1st$, $2st$	: Disruptive Variables
m	: Maximum number of lags
$\alpha, \beta, \lambda, \delta$	: Regression coefficient of each variable

III. RESULTS AND DISCUSSION

Variable Government Debt (UP)

The results of the stationarity test for the variable government debt (UP) are presented in Table 1.

Tabel 1. UP variable stationarity test

Model	δ	τ stat	τ(0,05)	Prob.	AIC
1.	0.002713	2.956301	-1.955681	0.9985	-2.970367*
2.	-0.276396	-5.561411	-2.986225	0.0001	-0.749927
3.	-0.854110	-13.09221	-3.603202	0.0000	-2.580264

Description : *Minimum AIC or best model

Table 1 it can be seen that the best stationarity test results are in the 1st model. In this model the statistical probability τ is 0.9985 (> 0.01), so the hypothesis that the data is not stationary (H0: δ = 0) is accepted, meaning that the Government Debt variable (UP) is not stationary so a 1st difference is made. The UP 1st difference stationarity test results are presented in Table 2.

Table 2. UP 1st difference stationarity test

Model	δ	t stat	t (0,05)	Prob	AIC
1	-0.524320	-6.365624	-1.955681	0.0000	-2.594601
2	-1.230029	-2.270966	-2.986225	0.1884	0.246127
3	-1.544728	-5.147226	-3.622033	0.0021	-3.355344*

Description : *Minimum AIC or best model

From Table 2 it can be seen that the best stationarity test results are in the 3rd model. In this model the statistical probability τ is 0.0021 (<0.05), so the stationary data hypothesis (HA: δ = 0) is accepted, meaning that the Government Debt variable (UP) 1st difference stationary.

Economic Growth Variable (*PE*)

The results of the stationarity test for the Economic Growth (PE) variable are presented in Table 3.

Table 3. PE variable stationarity test

Model	δ	t stat	t (0,10)	Prob	AIC
1	-0.201477	-1.212172	-1.609798	0.2010	5.974170
2	-0.723863	-4.157099	-2.617434	0.0028	5.496312*
3	-0.726516	-4.082807	-3.212361	0.0156	5.558060

Description : *Minimum AIC or best model

From Table 3 it can be seen that the best stationarity test results are in the 2nd model. In this model the statistical probability τ is 0.0028 (<0.10), so the stationary data hypothesis (HA: δ = 0) is accepted, meaning that the Economic Growth variable (PE) stationary.

From the results of the stationarity test the Government Debt (UP) variable is stationary at the 1st difference level while the Economic Growth variable (PE) is stationary at the Level level. So that the Granger causality test is carried out with the Government Debt (UP) variable at the 1st difference level and the economic growth variable (PE) at the level level.

The results of the Granger causality test on the EMP and PE variables are presented in Table 4.

Table 4. Granger Causality Test Results for UP and PE variables

Lag Maksimum	Hipotesis Nol	F	Prob.F
2	PE tidak menyebabkan DLOG(UP)	5,36931	0,0115
	DLOG(UP) tidak menyebabkan PE	2,14083	0,1386
3	PE tidak menyebabkan DLOG(UP)	6,55784	0,0025
	DLOG(UP) tidak menyebabkan PE	2,31093	0,1042
4	PE tidak menyebabkan DLOG(UP)	3,85936	0,0185
	DLOG(UP) tidak menyebabkan PE	1,37968	0,2784
5	PE tidak menyebabkan DLOG(UP)	4,74973	0,0075
	DLOG(UP) tidak menyebabkan PE	2,01459	0,1312
6	PE tidak menyebabkan DLOG(UP)	4,58712	0,0103
	DLOG(UP) tidak menyebabkan PE	2,38834	0,0887
7	PE tidak menyebabkan DLOG(UP)	2,77276	0,0701
	DLOG(UP) tidak menyebabkan PE	1,95998	0,1614
8	PE tidak menyebabkan DLOG(UP)	1,05988	0,4760
	DLOG(UP) tidak menyebabkan PE	0,25570	0,9626

From the results of the Granger causality test in Table 4.4, only lag 8 shows no causal relationship between Economic Growth and Government Debt, with an F probability of 0.4760 (> 0.10) and 0.9626 (> 0.10). At a maximum lag of 2-7, it can be seen that there is a one-way causality pattern. Economic Growth causes Government Debt, but Government Debt does not affect Economic Growth, with an F probability of 0.0115 (<0.10), 0.0025 (<0.10), 0.0185 (< 0.10), 0.0075 (< 0.10), 0.0103 (< 0.10), 0.0701 (< 0.10).

Discussion

The one-way causality pattern of Economic Growth causes Government Debt, but Government Debt does not cause Economic Growth, based on the fact that the amount of government debt continues to increase, shows that in Indonesia the process of economic growth cannot drive down the amount of government debt. On the other hand, an increase in government debt which also does not encourage economic growth, indicates the possibility of misallocation of the use of government debt in projects or programs that are not or are less effective at spurring economic growth.

Ibrahim (2019), in Indonesia during 2000-2017, also found that economic growth had an effect on government debt. The government, which has prioritized the development of mega and high-tech infrastructure projects, is in dire need of large funds, so the government will continue to need funds from debt, because domestic savings and government revenues are insufficient. Such a priority has made Indonesia completely dependent on a debt financing model, which causes the government's debt to increase every year.

The government debt itself, in turn, has no effect on economic growth in Indonesia, because the infrastructure sector, in addition to requiring a fairly long development process, also has the potential to return on investment for quite a long time, moreover there are often non-economic considerations, such as tariff subsidies for infrastructure usage. This indicates that the impact of government debt cannot be directly felt economically, especially to encourage national economic growth.

In addition, in practice, of course, not all of the government's debt is spent on development spending, but part of the debt must also be used to pay the principal and interest installments. The obligation to pay principal and interest installments forces the government to continue seeking new debts which are never sufficient to pay off old debts in each current budget. This condition is often referred to as a

debt trap, which forces the government to "dig a hole to close a hole" in paying off government debt every year - Fisher's Paradox. As a result of high debt repayments and interest payments, the government had to cut the allotment of APBN development funds, this of course slowed down domestic economic activity. Syafi'i (2021) also found that government debt had no effect on economic growth in 6 Asean countries in 2015-2019.

The condition of government debt that has no effect on economic growth in Indonesia, theoretically can also occur because the allocation of government debt is not used in projects or investments that do not consider costs and benefits in a prudent manner. The government is not sure whether the debt is allocated to productive projects whose return is higher than the cost of the debt. Because the debt obtained cannot be traced to its distribution, this results in the effectiveness of the debt being unable to be determined and the function of debt as a leverage factor cannot be proven. This could also be one of the factors causing a slowdown in economic growth in Indonesia. Basten (2021)

Misallocation of the use of debt that is less effective is also caused by laws and regulations that are not comprehensive enough to regulate various factors in debt management. This has the potential to cause inefficiencies in debt management and the risk of uncontrollable debt amounts. Venti (2015)

IV. CONCLUSION

During the period studied, namely 1990-2020, in Indonesia there was a pattern of one-way causality relationship between economic growth and government debt in Indonesia, namely Economic Growth causes Government Debt, but Government Debt does not cause Economic Growth. Increased economic growth has apparently not been able to reduce the amount of government debt because the government which has prioritized the development of mega and high-tech infrastructure projects really needs large funds, so the government continues to need additional funds through debt, because domestic savings and government revenues are insufficient.

The increase in government debt itself failed to encourage significant economic growth. Apart from requiring a long development process, the infrastructure sector requires a long return on investment. Of course, not all of the government's debt is spent on development spending, but part of the debt must also be used to pay the principal and interest installments. The obligation to pay principal and interest installments forces the government to cut the allotment of APBN development funds, this of course slows down domestic economic activity. Allocation of government debt is not used in projects or investments without considering the costs and benefits prudently. The government is not sure whether the debt is allocated to productive projects whose return is higher than the cost of the debt. Misallocation of the use of debt that is less effective is also caused by laws and regulations that are not comprehensive enough to regulate various factors in debt management.

Related to the results of this study, the government should start seriously to make plans to reduce government debt in the medium and long time dimensions of achievement. Drafting laws that limit the use of debt more economically and only for development projects that are vital and have a potential return higher than the cost of debt must be realized and strictly enforced.

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