

# Influence Of Infrastructure Development And Foreign Debt On Economic Growth In Indonesia

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## Abstract

This study analyzes the influence of the Indonesian government's policy in carrying out infrastructure development through the burden of foreign debt and its effect on economic growth. The analysis method is carried out using time-series data regression analysis techniques using Indonesian data for the period 2005-2020 to see the effect of the government's external debt burden and infrastructure development in aggregate on economic growth.

The findings of this study are, first, the negative influence of government foreign debt appears in the form of a debt overhang, but not in the form of a crowding out effect. Second, infrastructure development has a positive and significant impact on economic growth. Comparison between the negative effects of foreign debt.

government and the positive influence of infrastructure development shows the value of potential benefits is much greater than the value of potential risks.

## I. INTRODUCTION

### I.1 Background

One of the strategies carried out by the government after winning the 2014 election was to revoke fuel subsidies, with the aim of diverting aid to the poor. Fuel subsidies were considered inappropriate and considered a waste of the state budget. development programs that are considered more productive. Infrastructure development carried out by the current government is considered capable of accelerating economic growth so that the government is not only aggressive in infrastructure development but also increases foreign debt so that development programs, especially infrastructure can run as expected, which will accelerate the pace of development. economic growth.

The policy of increasing the government's foreign debt has become a polemic to date and has raised pros and cons from the supporters and opposition of the government. The increase in debt that is always carried out by the government is inseparable from the domestic budget shortfall caused by the declining level of domestic tax revenue. Policies undertaken by the government in mobilizing large budgets to pursue backwardness in infrastructure development need to be studied theoretically and scientifically so that the unexpected impacts associated with pro and contra bias can be minimized

From the description above, it can be seen that the revocation of the fuel subsidy is one of the most popular policies in theory and has received support from the community and the government. Revocation of fuel subsidies and increasing debt on the one hand and accelerating infrastructure

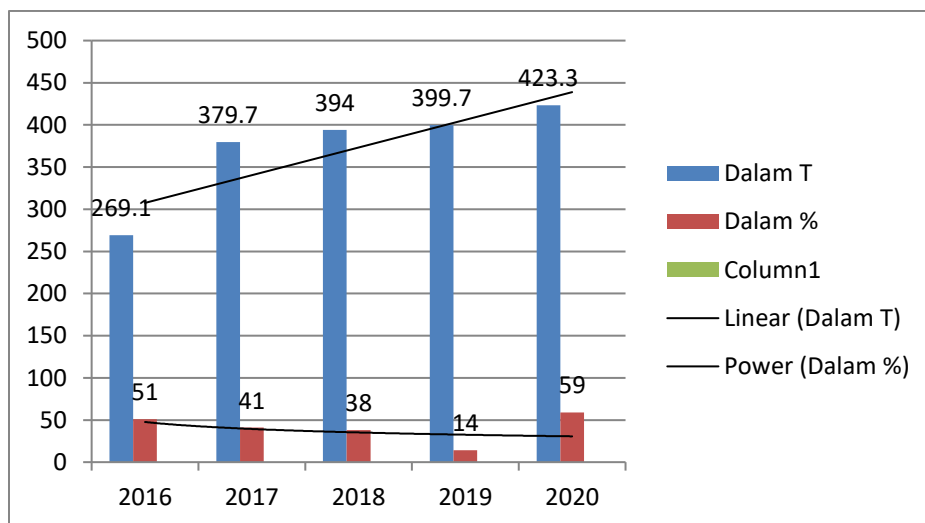
development on the other. Revocation of fuel subsidies has never been done before because it is considered a waste of budget due to large political costs. Well-targeted subsidies will free up some of the funds that are usually used to buy goods, but when subsidies are not well targeted, they will waste the state budget Hyman (2010). Subsidies will have a good impact because some can be used for other purposes while subsidies that are not well targeted will only lead to an increase in subsidized goods in accordance with the theory of demand where cheap goods will increase demand for these goods.

From the description above, although the revocation of subsidies in the short term has a negative impact in the form of price increases and reduced purchasing power of the people, but with the loss of the negative impact of revocation of subsidies, the policy of revocation of fuel subsidies can objectively be justified. In the description of the policy of revoking the fuel subsidy by the government, there are 2 things that need to be investigated further related to the

policy of rapid infrastructure development, namely the benefits of infrastructure and the risk of increasing debt.

The causes of poverty and inequality in Indonesia from 1990-2013 that led to stagnation and inequality in Indonesia (ADB 2015). Boediono (2016) in his explanation stated that the slowdown in Indonesia's economic growth was caused by the infrastructure deficit. According to an explanation from the WEF publication Global Competitiveness Index 2016-2017 (2017) that the main problem in the economy is infrastructure after corruption and bureaucracy. The three explanations above show that the need for handling infrastructure considering that infrastructure is a very important thing to do. The seriousness of the government in this case can be seen from the removal of subsidies which of course will increase space for infrastructure development, and of course lead to an increase in the budget and an increase in the APBN deficit.

Figure 1.1



Sumber RAPBN 2020

Graph 1.1 shows that the infrastructure budget increased sharply from 2016 to 2020. In the 2016-2020 RPJMN, the government provided an infrastructure budget of 423.3 trillion rupiah and

allocated to the central expenditure sector 191.2 trillion, transfers to the regions 200.3 trillion, other financing 31.8 trillion. The targets for development are the construction of 486 km of connectivity, the construction of 3 new airports, the construction of 49 dams, the construction and

rehabilitation of a 190.014 M bridge, the construction and completion of 238.8 km of railroad tracks, housing for MBR 5,348 units and special housing for 2000 units.

From the graph above, it can be seen that the addition of infrastructure from 2016 to 2020 amounted to 423.3T, but it is possible that it will increase in the following years. The addition of fiscal space for infrastructure development that is so aggressive does not rule out the possibility of increasing foreign debt due to budget shortfalls. as a result of the decrease in income from taxes even though the government has revoked the fuel subsidies. all the efforts that have been made by the government, both the removal of subsidies and the addition of foreign debt if there is no increase in income tax and this is the pros and cons among the community where some people think that foreign debt will burden the state budget so that it will result in potential risks for the government. The addition of a large enough foreign debt for infrastructure development is considered to have a negative value in the economy.

One type of debt that is always in the spotlight is the government's foreign debt because it is considered to be able to endanger the sovereignty of the state and give a negative value to the economy. In addition to this, in terms of the economy, foreign debt is able to create a debt overhang and crowding out effect. Debt overhang is a continuous increase in foreign debt that does not go hand in hand with economic growth, while the crowding out effect is foreign debt that is so high that it will burden the country's finances. thus urging the participation of the private sector not to be involved in the economy.

Based on previous research, the variable that can be used as an approach to analyze the effect of debt overhang is the ratio of total foreign debt to GNP, and on the one hand for crowding out is the ratio of debt payment burden to export receipts. The development of the two ratios.

Research results from several previous studies where the use of the budget for infrastructure development and the effect of using foreign debt are carried out separately. Several previous researchers such as those conducted by Wang (2012) and Antonio Estache and Grégoire Garsous (2012) whose research strengthens the theory related to the positive contribution of infrastructure to economic growth. while Shahid et.al (2016) Shah (2013) Traum and Yang (2014) Ejigayehu (2013) only found the negative impact of foreign debt in the form of crowding out effect. ). Research related to the negative influence of foreign debt mostly shows a debt overhang effect, while several other studies only find a crowding out effect. Claessens (1989) Sen, Te.al (2007) Habibmana (2005) Iyoha (1999) Mashingaidze (2014) Sichula (2012) found the effect of debt overhang in the object of his research. Meanwhile, according to Sanjeev Gupta et.al (2005) supports giving larger portions on productive spending in the structure of the state budget is supported by research results, while related

the implementation of a controlled budget deficit is supported by the results of research by Bajo Rubio et.al (2006).

The results of previous studies regarding the description of the use of the budget for infrastructure development and foreign debt taking policies and their effects on economic growth and problems that arise in the country by looking at the results of research that have relevance, this study was conducted in the hope of knowing whether there is an effect of debt overhang and crowding out effect, and if there is how much influence it has. And the second is whether the benefits of infrastructure development far outweigh the risks of using foreign debt and how big is the effect of both. infrastructure by looking at the research results objectively.

## 2. THEORY FRAMEWORK AND HYPOTHESES DEVELOPMENT

In this study, the focus of the discussion is the utilization of the use of the state budget for infrastructure development using fiscal policy with the aim of increasing economic growth. One of the focus of the discussion is aggressive infrastructure development by using additional foreign debt which is increasing from year to year.

### 2.1 Use of the state budget for infrastructure spending priorities

Fiscal policy which is the implementation of the APBN has two sides, namely the economic side and the political side. Both sides of fiscal policy are an agreement between the people and the government represented by the DPR who are elected by the people. According to (Hyman, 2010) the government has political limitations in making policies, because when the limits are not considered in policy making.

One of the economic theories that discusses economic growth is Romer's endogenous theory, which in this theory includes an additional capital factor in the economy. This theory is able to explain the use of the infrastructure budget and its relation to economic growth, as described below:

$$Y_t = AK^{\alpha}L^{1-\alpha}$$

The above equation assumes that the use of capital in all industries, including public industries, is described in the following model:

$$Y = AK^{\alpha+\beta}L^{1-\alpha}$$

In the model, it can be seen that additional capital K will get additional productivity obtained from additional capital, both physical capital and external capital between companies. Calculus operations are performed to obtain a growth model assuming A does not change/constant,  $Y^*/Y = K^*/K = g$ , and  $L^*/L = n$ , where g is the output growth rate and n is the population growth rate where both is constant.,  $Y^*/Y = K^*/K = g$ , dan  $L^*/L = n$ , where g is the output growth rate and n

is the population growth rate where both are constant. Romer's model based on the formula is  $g-n = n / 1-\alpha-\beta$ . From the equation, it is known that if  $\beta=0$  then  $g-n=0$  so that the output growth is 0 if there is no positive externality stated by . But in Romer's growth model it is assumed that  $\beta > 0$  so that  $g-n > 0$  or it can be described that there is an increase in the output growth rate specified in the model. The formula for Romer's model explains. problems all over the world where developed countries are still growing that can't be explained by the neoclassical growth theory/Solow model and demonstrates the important role of government in the country's economy.

The theory in the formula described above clearly shows the involvement of capital in the economy, besides that some empirical research that is the reference in this study is Wang (2012) examining the relationship between public infrastructure and private productivity growth in all Asian countries in the period 1979- 1998. The results of this study suggest that to achieve rapid economic growth, a balance is needed between public infrastructure expansion and private sector growth. And the most important thing related to infrastructure is how to maintain existing infrastructure for further development progress. Sanjeev Gupta et.al (2005) in his research found that the use of a large budget will result in higher economic growth, countries that do not devote large amounts of capital to development have lower growth rates, while those that allocate more to capital and other goods spending enjoy faster output growth. That's the result of research from Bajo Rubio et.al (2006) in his research that the Spanish government reduced / cut the budget deficit which was considered too large. the deficit threshold in ensuring the sustainability and security of the budget for the central government is 7% of GDP and local governments of 5.30% of GDP. The results of research from Antonio Estache and Grégoire Garsous (2012) concluded several findings in infrastructure development which proved to be very influential on economic

growth even though the impact was not paid attention to. According to Antonie, the average operational and maintenance needs for infrastructure reached 50% of total infrastructure investment. physical infrastructure not only boosts GDP. Economic growth but also provides social benefits The benefits provided by infrastructure in poor areas will add to the positive value of infrastructure development.

## 2.2 Potential Foreign Debt Risk

One of the polemics that is most highlighted is the use of foreign debt to carry out development that looks aggressive. By looking at the neo-classical growth model, a country if it wants to increase its economic growth must increase its capital and investment. Capital comes from within and from abroad while investment the financing comes from state revenues from taxes and investment income from outside in the form of foreign debt investment and foreign debt. The availability of national savings in developing countries is generally very minimal. so that it only relies on income from taxes.

The policy of increasing tax rates in developing countries in the Khwatrika will have a negative effect, because the tax formula has a negative relationship with national income and is feared to have a counter-productive relationship. Seeing the above, many developing countries choose to invest from foreign sources to finance development and sustainable development programs.

The model developed by Chennery and Strout (1966) known as the two gap model is a model that has a strong relationship with foreign debt. while the second model is the exchange rate/trade gap, which is the difference between the need for imports to reach a certain level of production and the domestic foreign exchange rate. In this model, if the saving gap is small from the trade gap, it will interfere with productive investment because of the limited ability to

import goods. capital used to invest in the country.

The use of foreign debt to finance development in the country is a justification of the neoclassical theory and the two gap model theory, according to both theories that foreign debt is one of the factors determinant of sustainable development. However, dependence on the use of foreign debt needs serious attention, where foreign debt must be used for productive investments and provide more yields for repayment of payments from foreign debt as well as for sustainable development.

From the explanation above it is clear that foreign debt must have the ability to be a driver of economic growth, where foreign debt will create activities that generate and are able to reduce the burden and interest of foreign debt. If these elements are not met in taking foreign debt, then will cause polemics in the country and will become a burden for the state and will cause a state budget deficit. With the reduced fiscal capacity, it will reduce the government's space to carry out development because part of the state's income is only used to pay foreign debts. In this case, debt no longer plays a role in encouraging economic growth but on the contrary will reduce the rate of economic growth. a force that generates and is able to reduce the burden and interest on foreign debt. If these elements are not met in taking foreign debt, it will lead to polemics in the country and will become a burden for the state and will cause a state budget deficit. will reduce the government's space for development because part of the state's income is only used to pay foreign debts. In this condition, debt no longer plays a role in encouraging economic growth but on the contrary will reduce the rate of economic growth.

The theory that explains the impact of foreign debt is the debt overhang theory, where this theory is an elaboration of the laffer curve, where on the curve it is explained that when there is a tendency for foreign debt to increase

continuously, it will reduce the level of investment in the country. This is because state revenues from taxes are partly used for foreign debt payments so that the fiscal space is getting smaller, when this happens it will reduce the government's room for investment, while investment is one of the factors that greatly affects economic growth.



Gambar 2 Debt Laffer Curve

If the increase in debt burden exceeds the ability to pay debts, it will reduce investment both from within and from abroad, so that it will reduce economic growth. Due to the declining investment returns caused by the lack of investment made by the government, because some of the production from economic activities cannot be enjoyed by the lending country because it must be given to the lending country. Paul Krugman (1988).

Investments related to debt have a broad meaning, where all expenditures made by the government at this time originating from foreign loans are expected to be able to provide future productivity which is not only in the form of physical investment but also human development, technology, and health that have a positive influence on growth (2001). Meanwhile, according to Classen and Diwan (1989) which explains that debt overhang is a situation where the influence of narrow liquidity can reduce the economic growth of the debtor country if it is not given relief by the debtor

country. From this explanation, it can be concluded that foreign debt which is estimated to be able to finance itself comes from investment from the debt, the debt is said to be able to become a driver of economic growth but on the contrary if the larger debt burden cannot be paid or from the investment results from the use of the currency. abroad, the debt will potentially hamper economic growth because the debt burden paid is taken from state finances.

Empirical evidence related to debt overhang, namely research conducted by Sen, Te.al (2007) explains that the research that gave rise to debt overhang is research conducted in Asian and Latin American countries related to debt and economic growth. The results of this study explain that debt overhang is statistically proven to affect investment and economic growth in Latin American countries and only has a moderate impact in Asian countries. Research conducted by Maehdavi (2004) was conducted in 47 developing countries with the period 1974-2001.

on changes in the composition of government spending as a result of the recipient's external debt burden and found that debt burden has a negative effect on capital expenditures, goods/services expenditures and government subsidies/transfers.

In his research, Milton A. Iyoha (1999) found that in the Sub-Saharan Africa region where variables related to debt overhang have a significant influence and show that the amount of foreign debt suppresses investment growth, either because of the disincentive effect or crowding out effect.

While the research conducted by Benedek et.al (2012) concluded that foreign debt in general has a negative effect on domestic taxes and customs taxes but has a positive effect on international trade taxes. While the research conducted by Shahid et.al (2016) see that there is a crowding out effect of foreign debt and public investment in Pakistan and shows that statistically foreign

debt and government investment have a negative effect on economic growth in Pakistan. Habimana (2005) in his research looks at the relationship of high debt levels with fixed capital formation in Rwanda and concludes that high debt levels have a significant and negative effect on domestic investment in Rwanda.

And the results of research conducted by Shah (2013) found that a debt overhang which is identical to the amount of debt that is so large and its influence on economic growth is not found in Bangladesh while the crowding out effect which is identical to debt burden and debt payments and debt interest is found in Bangladesh. A similar study was conducted by Ejigayehu (2013) regarding the impact of foreign debt on economic growth in 8 African countries using panel data from 8 African countries that were poor and had a very large external debt burden in the period 1991-2010 with the findings that foreign debt has a negative effect on economic growth through the crowding out effect, while statistically debt overhang has no effect on economic growth.

Research conducted by Tokunbo, Oleru, and Oladele (2005) examines the relationship between the budget deficit, foreign debt, and economic growth in Nigeria in the period 1970-2003. In this study it is stated that if the budget deficit is financed by foreign debt by paying attention to the debt ratio at an optimal level, the debt overhang will not occur and the benefits of foreign debt can be felt. In their research, Abdullah et al (2013) examined the influence of foreign debt, especially in relation to the formation of fixed capital through the events experienced

experienced by poor countries. The results of this study conclude that foreign debt has a negative effect but is very much needed in the continuity of development in a country.

The most important thing that must be considered with regard to foreign debt is the emergence of debt overhang, crowding out effect and attendant effect because these three factors

hinder the formation of fixed capital in the economy in debtor countries.

Analysis of the impact of foreign debt on the economy in Zimbabwe in the period 1980-2012 states that in the long term there is a negative relationship between external debt and economic growth in Zimbabwe. country to economic growth. These results explain the existence of a debt overhang in Zimbabwe so that productive investment management is very much needed in relation to the use of foreign debt. Foreign debt has a negative effect on economic growth because it pushes out investment. Traum and Yang (2014), The conclusion of this study is that foreign debt has a negative impact and a positive impact. debt recipients, and is said to have a negative impact if it encourages or pushes out investment so that it will reduce investment levels and hamper the economy of the debtor country. This study finds that there is no empirical correlation between foreign debt and interest rates in America

### **3. Research methodology**

The approach taken in this research is a descriptive approach with quantitative methods by looking at previous research studies and the conceptual framework that is compiled by taking into account the phenomenon by paying attention to theories and bibliography that have a relationship. The problems found in this study were then solved by collecting data, compiling data and processing data analysis and interpretation of research results. This study uses data from the 2005-2020 time series in Indonesia. Quantitative research has the nature of generalizing the object of research to find general patterns so that the results of the interpretation of data analysis can provide an overview of the research object. To see the influence of foreign debt on economic growth, empirically adopt the Solow growth model which has been studied by Cunningham (1993), Iyoha (1999), and Shah (2012). In this model, the debt burden is added to

anticipate the impact caused if there is a Debt over hang and a crowding out effect, the formula  $Y = f(K, L, DB)$  is formed where  $Y = \text{GDP}$ ,  $K = \text{capital}$ ,  $L = \text{labor}$ ,  $DB = \text{debt burde}$ .

The theory of economic growth that is most relevant to this research is the theory of endogenous growth by adopting Romer's model by looking at two types of capital, namely those formed from private investment and capital originating from the budget provided by the government, so that the  $Y = f(KP, KS, L, DB)$  where  $Y = \text{GDP}$ ,  $KP = \text{Capital by the government}$ ,  $KS = \text{private capital}$ ,  $L = \text{labor}$  and  $DB = \text{debt burden}$ . and private investment is not included in the model.

In this study, the labor variable was not explicitly included in the model, but was able to control the output value by dividing the GDP value by the number of workers represented by the population aged 15-64 years, so the model was formed as follows:

$$Y = a + b_1 \text{INF} + b_2 \text{DSXR} + b_3 \text{DGNR} + e$$

Where  $Y = \text{Output per labor force}$ ,  $\text{INF} = \text{Value of infrastructure development by the government}$ ,  $\text{DSXR} = \text{ratio of total government external debt to gross national income}$ ,  $\text{DGNR} = \text{ratio of total}$

government external debt payments to exports,  $a = \text{constant}$ ,  $e = \text{error term}$ ,  $b_1, b_2, b_3 = \text{coefficient of influence of the independent variable on the dependent}$ .

The data used in this study is time series data, so that the results are not inaccurate, the first step that must be taken is to ensure that the data is stationary (Gujarati 2004). If the confidence is high, then the normality, heteroscedasticity, autocorrelation, and multicollinearity tests are carried out to meet the Gaus-Markov theorem requirements, better known as BLUE.

(Best Linear Unbiased Estimator).

#### 4 Research result

The time series data used in this study must be ensured to be stationary at the same level, after that a regression is carried out, so that the regression results are not inaccurate, an assumption test is carried out. After passing the assumption test, hypothesis testing and interpretation of the regression results were carried out. From the description above, a test of the data and model was carried out with the following results:

##### 4.1. Data Stationarity Test (ADF Test)

Tabel 4.1 Uji Stasioneritas ( ADF Test)

Variabel	t-stat (level)	-stat (first difference)
Y	1,379206	-2,052748
INF	1,156071	3,970976*
DXR	-1,366765	-4,715536*
DNR	-2,052846	-6,214768*

In the stationary test using the above, it can be seen that all the data is stationary at the first



difference value using the t-stat critical value = 1%. And to perform regression analysis, the data must be transformed first..

#### 4.2. Data regression, classical assumption test, and hypothesis testing

From the conclusions above, the Y variable becomes DY, the INF variable becomes DINF,

the DXR variable becomes DDXR, and the DNR variable becomes DDNR. This is done because all data will be converted into the first difference so that the variable notation also changes, after completion, a regression is carried out from the data above and the regression results are as shown in the table below.

**Tabel 4.2 Hasil Estimasi Model**

Variabel	Koefisien	t-sat/prob
DINF	7,19*10	10,17/ 0.0000
DDXR	22.382,37	0,97/ 0,3407
DDNR	- 30.266,19	-3,25/ 0,0029
Output penting lainnya		
R <sup>2</sup> = 0,89	Prob(F-Stat)=0,00	DW Stat=1,6505

To ensure that the regression carried out is not a spurious regression, the classical assumption test is carried out. From the results of the normality test carried out on the regression above, the probability value of 0.218217 by following

scientific steps H<sub>0</sub> = data is normally distributed, and when probability > a = 0.05, H<sub>0</sub> cannot be rejected so that the data in this regression can be expressed as data that are normally distributed.

**Tabel 4.3. Hasil Uji Glejser (Heteroskedastitas)**

Variabel Independen	Variabel Dependen	tstat/ prob
DINF	Absolut Residual	0,27/ 0,78
DDXR		0,07/ 0,95
DDNR		0,23/ 0,71

In heteroscedasticity testing, the Glejser Test is used. This test aims to test the relationship of the independent variable to the absolute residual value. The hypothesis of this test is H<sub>0</sub> = There is no heteroscedasticity problem, H<sub>1</sub> = There is a

heteroscedasticity problem. From the results of the test table above, all variables have a probability value > a = 0.05 so that H<sub>0</sub> cannot be rejected. From the regression results, there is no heteroscedasticity problem.

Variabel	Uncentered VIF	Centered VIF
DINF	Centered VIF	1,67
DDXR	1,03	1,03
DDNR	1,73	1,73

In the multicollinearity test in this regression, it is done to see the diagnostics coefficient in the form of the value of variance inflation factors (VIF). if the value of  $VIF < 10$  then the regression is declared free from multicollinearity problems..In the table above, it is known that all independent variables have a VIF value of less than 10 so that it is stated that the regression is free from multicollinearity

The value of Durbin-Watson stat (d) contained in the estimation output table can be seen by performing the autocorrelation test. Based on the number of samples and the number of independent variables, the values of  $du = 1.436$  and  $dl = 1.070$  are obtained. The value that will guarantee that there is no autocorrelation either positive or negative is between the values of  $du=1.436$  and  $4-du=2.564$  and the doubtful area is between  $dl$  and  $du$  and between  $4-du$  and  $4-dl$ . The value of  $d$  in this study is included in the  $du$  and  $4-du$  regions so that the regression can be declared autocorrelation free

After going through the classical assumption test, the regression is said to have met the requirements of the Gaussmarkov theorem so that the results from this regression are not included in the lancung regression.

R value of 0.89 can explain the influence of the dependent variable. As described previously, this study aims to examine how much influence the external debt burden factor and infrastructure development have on the economy and not to examine what factors affect economic growth.

The prob f-statistic value is 0.000, meaning that statistically the independent variables jointly significantly affect the dependent variable.

From the results of the t-statistic and prob values where the DDNR variable significantly and significantly at  $\alpha = 1\%$  affects the DY variable in an inverse relationship. The DINF variable significantly and significantly at  $\alpha = 1\%$  affected the DY variable with a unidirectional

relationship, while the DDXR variable was not significant in influencing the DY variable

The estimation results that have been substituted in the first model, then the following equation can be obtained:  $DY = 7.19E-09 \text{ DINF} + 22,382,37 \text{ DDXR}^* - 30,266,19 \text{ DDNR} + 445264$ . \* = not significant

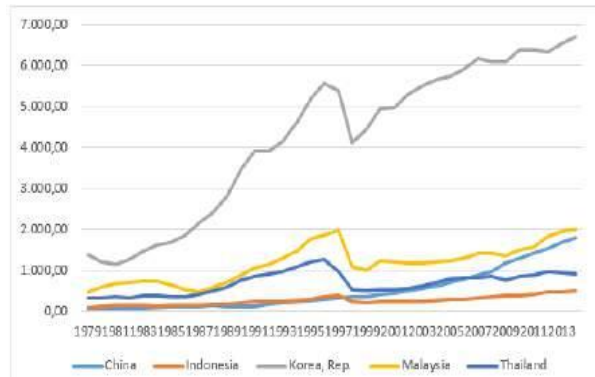
From the above equation, it can be seen that the external debt burden represented by the DDNR and DDXR variables has a significant and significant negative effect on economic growth. And infrastructure development which is represented by DINF variable has a real and significant positive effect on economic growth. From the results of the analysis above, it can be seen that the DDNR and DINF variables have outcomes that are in accordance with the hypothesis, while the DDXR variable is not in accordance with the initial hypothesis.

#### 4.3. . Descriptive Analysis of Research Results

From the regression coefficients on significant variables, in the statistical analysis above, it means that for every additional 1 billion Rupiah in the value of infrastructure built by the government, there is an additional Rp. 7.19 in output per worker assuming other variables are fixed and each additional 1% is the value of the ratio of the government's total external debt to GNI, there is a reduction of Rp. 30,266 in output per worker assuming other variables remain constant.

Based on the results of the analysis of the impact of infrastructure, the results are quite encouraging. However, if viewed in the framework of competitiveness, Indonesia's infrastructure is far behind other countries. The graph below shows the stark difference in the value of infrastructure development per capita between Indonesia and other countries.

#### Grafik 4.3. PMTB Per Kapita



Sumber: Worldbank

From the graph above, it can be seen that Indonesia is far behind Malaysia, Thailand, and South Korea, in terms of the value of infrastructure as measured by population. In this case, the population of Indonesia is much larger than the population of the three countries. So that the value of Indonesia's infrastructure is small because of the large number of divisors.

#### 4.4. Policy implications based on analysis results

The conclusion from the discussion of the results of the research analysis is that the increase in the ratio of the government's total external debt to GNI has a negative contribution to economic growth which indicates the debtoverhang phenomenon in Indonesia during the research

period. With this finding, the government should focus more on dealing with foreign debt. although it has not yet reached a dangerous level, considering that the optimal point for the government's external debt ratio is at 30% of GDP, while currently the government's external debt ratio is at 16%

In the interpretation of the results of previous studies, it is stated that for every addition of 1 billion Rupiah to PMTB, there will be an increase in GNP of an increase in output per worker by Rp.7,19. And if the simulation is carried out where there is an increase of 1% in the ratio of external debt to GNP and 10% of the additional debt is used. for the addition of PMTB value, a net benefit of increasing output per worker will be Rp41,634

Tabel 4.5. Simulasi Manfaat ULN Produktif

Variabel	Pengaruh ke output per pekerja	Simulasi penambahan (PNB=10.000T)	Dampak penambahan	Manfaat Neto
(1)	(2)	(3)	(4 = 2 x 3)	(5)
ULN	-30266/1%	1% PNB= 100T	- 30.266	41.634
PMTB	7,19/ 1M	10%*100T=10T	71.900	

The importance of infrastructure development in Indonesia is increasingly prominent considering that the benefits provided outweigh the negative

contributions arising from the increase in the government's external debt ratio. In aggregate, infrastructure development makes a positive

contribution, but considering the very limited funds available and the large gap between regions in Indonesia, a good strategy in infrastructure development is absolutely necessary. with the nearest infrastructure value as a benchmark target. In infrastructure development the problem is the limited funds that require the preparation of priority and strategic programs in the use of the infrastructure budget.

## 5. CONCLUSIONS AND RECOMMENDATIONS

Hasil penelitian ini adalah pertama, pengaruh negatif dari utang luar negeri pemerintah adalah muncul dalam bentuk debt overhang tetapi tidak dalam bentuk crowding out effect, dan kedua adalah pembangunan infrastruktur berpengaruh positif dan signifikan terhadap pertumbuhan ekonomi. Nilai potensi mamfaat pembangunan infrastruktur jauh lebih besar dibandingkan dengan potesi resiko dari pengaruh negatif utang luar negeri. Pemerintah harus mengejar ketinggalan kemajuan pembangunan infrastruktur dengan memanfaatkan tambahan utang luar negeri sehingga memperkecil dampak utang luar negeri .

## 6. IMPLICATIONS AND LIMITATIONS

The purpose of this study is to determine the effect of the government's external debt burden and infrastructure development on economic growth in Indonesia. The result of this research is that foreign debt taking policies are still accepted within the framework of accelerating infrastructure development in Indonesia, although government foreign debt has a negative impact on economic growth, but by utilizing foreign debt for productive spending and measurable and measurable infrastructure development. planned negative impact can be reduced.

Researchers found various limitations in conducting research. The limitations in question are data limitations, both from the number of data

series and types of data that can be used to represent a variable so that the analysis results are not optimal. The scope of research is national scale which has a variety of problems and inequality With the various limitations, it is hoped that the next researcher will be able to produce research with good analytical results and be easier to accept to be used as reference material in making policies related to foreign debt.

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