

The Role of Technology and Infrastructure in Driving Net Exports and Economic Growth

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Abstract

This study examines the Role of Technology and Infrastructure in Driving Net Exports and Economic Growth. This study uses secondary data from world banks and processed regression using the moving average autoregression method. We find that when the development of supporting infrastructure for the economy is integrated with technology, there is a very large amount of technology imports so that net exports decline when this is done and economic growth occurs through the consumption process in the domestic market so that technology and economic infrastructure are positively related. However, technology is negatively related to gross domestic product because the export push occurs but it is not comparable to technology imports so that the net export becomes negative.

Keywords: Technology Inclusion, Indonesia, Health Services
JEL Classification: C0, J24, J64

Background

Indonesia is a country that opens up to international trade so that Indonesia has a trade balance and is familiar with the term net exports. Net exports represent the difference between exports and imports. Export and import activities are normal economic activities in countries that open up to the international economy (Krueger, 2020).

In increasing exports, of course, technology is needed starting from production technology, packaging to distribution so that the quality of goods remains good when they arrive in the hands of consumers abroad. Apart from technology, infrastructure is also needed to support economic activities or international trade, such as docks and shipyards for sea export routes (Raychauduri & Gupta, 2020).

This study examines the Role of Technology and Infrastructure in Driving Net Exports and Economic Growth. We use a hypothesis or a provisional conclusion that technology and infrastructure to support export activities can drive net exports and economic growth.

Literature review

In the Solow model, technology plays a role in improving the performance of human resources so that it can increase production. Increased production can boost economic growth. Technology can be

improved through a technology investment process in the form of developing better existing technology or importing better technology (Harris et al,2020).

Economic infrastructure encourages transaction growth so that product distribution is getting better, which in turn encourages increased production from the consumption and distribution side. Infrastructure is also needed to ensure the quality of goods remains good until the hands of consumers. Technology and infrastructure play a role in encouraging net exports, which means encouraging the distribution and quality of goods into the hands of consumers who are abroad so as to form export market inclusion as indicated by an increase in net exports (Proag,2020).

An increase in net exports can be a signal of demand which is responded to by an increase in production resulting in an increase in gross domestic product which is an indicator of economic growth (Patnaik & Patnaik,2021).

Research methods

This research studies the Role of Technology and Infrastructure in Encouraging Net Exports and Economic Growth. This study uses secondary data from world banks and processed regression using the moving average autoregression method with the following equation:

$$GDP_t = C_t + \beta_1 TI_{t1} + \beta_2 G_{t2} + \beta_3 NX_{t3} + e_t$$

Where,

GDP = Gross Domestic Product

C = Constant

IT = Technology

G = Infrastructure

Nx = Net Exports

e = Error Term

All financial data is calculated in USD.

Results and Discussion

The estimation results are as follows:

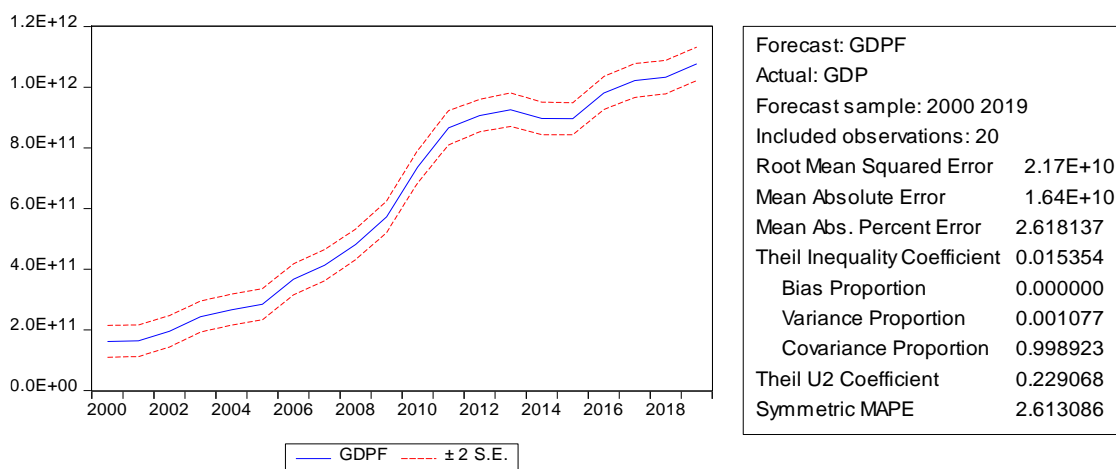
$$GDP = 53099562250.5 + 9.83035988743 * G - 0.00273289477761 * NX + 23.9501524525 * TI$$

From the estimation results, technology and infrastructure have a positive relationship with economic growth. However, Net Exports have a negative relationship. When the development of economic supporting infrastructure is integrated with technology, technology imports are very large, so that net exports decline when this is done and economic growth occurs through the consumption process in the domestic market so that technology and economic infrastructure are positively related. However, technology has a negative relationship with gross domestic product because the export push occurs but it is not comparable to technology imports so that the net export becomes negative. Table 1 illustrates the estimation results as follows:

Table 1. Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.31E+10	1.66E+10	3.191807	0.0057
G	9.83036	0.291106	33.769	0
NX	-0.002733	0.675821	-0.004044	0.9968
TI	23.95015	10.70818	2.236622	0.0399
R-squared	0.995701	Mean dependent var		6.24E+11
Adjusted R-squared	0.994895	S.D. dependent var		3.39E+11
S.E. of regression	2.42E+10	Akaike info criterion		50.83799
Sum squared resid	9.41E+21	Schwarz criterion		51.03713
Log likelihood	-504.3799	Hannan-Quinn criter.		50.87686
F-statistic	1235.336	Durbin-Watson stat		1.319714
Prob(F-statistic)			0	

Based on the estimation results described in Table 1., it can be seen that the R-square is quite high, namely 0.995701 so that the quantitative calculation results show a 99% level of truth. Figure 1. Shows the forecasting of economic growth in Indonesia

Figure 1. Forecasting Economic Growth in Indonesia

Source: Author Computing

From the results of forecasting, it can be seen that economic growth in Indonesia is experiencing very rapid growth by taking into account Technology and Infrastructure in Encouraging Net Exports and Economic Growth in the process of building economic growth forecasts in Figure 1. Based on the results of forecasting and estimates indicate a spike in consumption in the domestic market when the government takes action. investment in supporting infrastructure for the economy based on technology imports, resulting in a boost to economic growth. However, high imports have weakened the impetus for exports from imports and negatively impacted net exports.

Conclusion

When the development of supporting infrastructure for the economy is integrated with technology, technology imports are very large, so net exports decline when this is done and economic growth occurs through the consumption process in the domestic market so that technology and economic

infrastructure are positively related. However, technology is negatively related to gross domestic product because the export push occurs but it is not comparable to technology imports so that the net export becomes negative.

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