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HOW IS THE SIMULTANEOUS APPROACH BETWEEN IMPORT AND AGGREGATE CONSUMPTION IN INDONESIA?

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Abstract

The research aims to analyze imports and consumption of Indonesia. With the simultaneous equation method of the 1987-2017 time-series data from the World Bank. The results showed that foreign exchange reserves, inflation, and significant consumption influenced the change in Indonesia's import developments. Foreign exchange reserves and consumption is inelastic against imports whereas inflation is elastic against imports. GDP, debt interest and imports significantly affect the change in Indonesia's consumption development. GDP is elastic against consumption while debt and import interest are inelastic towards consumption. Inelastic consumption of the import and import of inelastic to consumption, meaning that the change in price and the value of both economic variables in Indonesia during the period of research is to be responded insensitively by domestic communities. Suggestion to the Government that the Ministry of Trade keeps the regulation the import quota reduces dependence on products abroad and encourages the productivity of the domestic real market industries. Thus, consumption of local products that then increases domestic economic growth.

Keywords: Import, Consumption, GDP, inflation.

1. Introduction

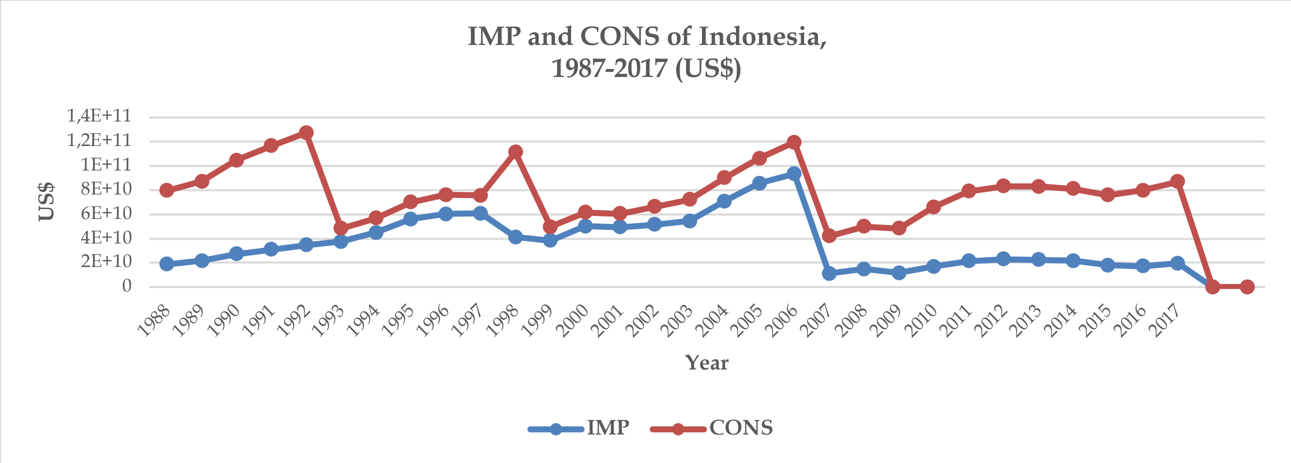
The prevailing open economic system supports the productivity of the domestic industries, especially in the real market. In international trade activities, Indonesia's export partners in ASEAN countries as well as other countries in the world market. In meeting the needs of the domestic, Indonesia is still importing the goods production and consumption as well as other countries that also need the role of Indonesia in fulfilling the economic needs of the people in the country.

The factors that encourage the import are among others is the limitation of the quality of human resources and technology owned, to process the natural resources available to achieve optimum effectiveness and efficiency in the activities Domestic production; of goods that have not been/cannot be produced domestically; and there are insufficient quantities or quantities of goods in the country. Imports will also incur costs in import activities such as customs fees, cruise costs, port costs and operational costs (Krugman, 1999).

Imports of production goods are usually raw materials or supporting materials in the domestic production process. While imports of consumer goods are goods that can be directly consumed by the community without going through the production process. High domestic demand with a growing population, forcing the government to conduct imports as an effort to meet the optimal demands of the community.

Economic variables that can affect imports are domestic inflation. Inflation is the process of increasing the price of goods and services as a whole and occurs continuously within a certain period. Inflation will cause the price of imported goods to be cheaper than the goods produced in the country. Generally, inflation will cause imports of increased consumption goods (Islam, 2013).

Gross Domestic Product (GDP) as a measuring instrument of state revenue also affects the small volume of imports of countries according to Keynes. Imports are highly dependent on GDP, as GDP is one of the sources of import financing (Pakpahan, 2012).



Source: World Bank (1987-2017)

Figure 1: IMP and CONS of Indonesia, 1987-2017 (US$)

Figure 1 describes the fluctuations in the import and consumption data Indonesia period 1987-2017 in US$. The highest number for imports is in the year 2006 and the lowest in 2007. As for consumption, the highest is in the year 1992 and the lowest in 1993 during the research period.

The import of Indonesia is also influenced by other variables outside of consumption, such as the number of foreign exchange reserves (Rangkuty, 2019). Imports are also influenced by industrialization and investment levels (Yuliadi, 2008). High imports can lead to dependence on other countries. But imports can also be utilized productively when goods/services imported can provide economic value in the future.

The economic growth of a country measured by GDP is a measuring instrument of the purchasing power of a country in import activities. However, high GDP value is also not a large portion of import activities. Imports can be productive when generating economic gains in the future period in a country.

Inflation can also affect the consumption patterns and imports of a country. High inflation in the country resulted in the price of goods abroad tend to be cheap because of the purchasing power of domestic communities to the goods and services abroad. Similarly, vice versa. High inflation is a reflection of the high consumption of people also related to the purchasing power of society. More and more people spending their savings in the market for consumption needs will affect the amount of money circulating in the market so that the prices of goods and services as a whole tend to rise and occur continuously in the Period Certain. This is so-called inflation.

The import tendency reflecting the consumptive pattern has to do with the aggregate domestic consumption and other related economic variables. Therefore, researchers want to analyze through the simultaneous approach of import variables, consumption, foreign exchange reserves, GDP, inflation and Indonesian debt interest in accordance with the period of the research determined.

2. Theoretical Framework and Hypotheses

According to previous empirical studies in some countries, it shows that imports of a country relate positively to income levels (Hakim, 2016). This positive relationship has two explanations: first, that imports are often used as inputs to produce goods and services that are national products of the country. Secondly, that imports following the overall demand increase in revenue will result in more and more shopping goods and services that are also met from abroad. So, the higher the revenue, and more and more shopping commodities and services from abroad that is the result of imports. In general, the Import function is shown as follows:

$$M = mY \tag{1}$$

where:
M = imports
m = MPm (marginal propensity to imports)
Y = national income

By associating additional revenues with additional imports, having a marginal import pitcher shows the extent to which additional prosperity is in the import demand, which exacerbates the balance of payments. In conducting economic efforts should be sought to carry out the emphasis of imports so that the balance of trade will be surplus, in other words, the export value is higher than the value of imports.

Judging from the economic significance, consumption is an action to reduce or spend the economic value of an object. Meanwhile, according to Draham Bannoch in his book Ìeconomicsî gives an understanding of consumption is a total expenditure to obtain goods and services in an economy within a certain period of time (in one year) expenditure. The algebraic equations of such consumption functions are as follows:

$$\mathbf{C = a + bY_d} \tag{2}$$

Where C describes the value of consumption carried out by all households in the economy, a is the level of consumption that is not influenced by national income and b is the marginal propensity to consume (MPC) ie proportions among the increase in consumption with the increase in revenue. While Yd is disposable income.

Hypotheses in this study: (1) Foreign exchange reserves, inflation, and consumption have a simultaneous influence on imports, (2) GDP, debt interest, and imports have a simultaneous influence on consumption.

3. Research Method

Using the simultaneous equation with time-series data from World Bank start 1987-2017 the method equation is Two-Stage Least Square (TSLS). Simultaneous equations are the more complex equations of Ordinary Least Square (OLS) (Widarjono, 2014). It has two equations are the imports and the consumptions as endogen variables, as follows:

$$\mathbf{LOG(IMP)=C(10)+C(11)*LOG(FER)+C(12)*LOG(INF)+C(13)*LOG(CONS)+e_1} \tag{3}$$

where:
IMP = imports
FER = foreign exchange reserve
INF = inflation
CONS = consumption
C(10) = intercept
C(11), C(12), C(13) = coefficient
e_1 = error term

$$\mathbf{LOG(CONS)=C(20)+C(21)*LOG(GDP)+C(22)*LOG(DI)+C(23)*LOG(IMP)+e_2} \tag{4}$$

where:
CONS = consumptions
GDP = gross domestic product
DI = debt interest
IMP = imports
C(20) = intercept
C(21), C(22), C(23) = coefficient
e_1 = error term

Next, the stage of this research is the identification test. This identification is intended to know whether the equation is in one of the following conditions: under-identified, exactly-identified, or over-identified. The result of this test, as follows:

Table 1. Identification Test

The Equation	The Results	Explanation
LOG(IMP)	K – k > m – 1 4 – 2 > 2 – 1	Over Identification
LOG(CONS)	K – k > m – 1 4 – 2 > 2 – 1	Over Identification

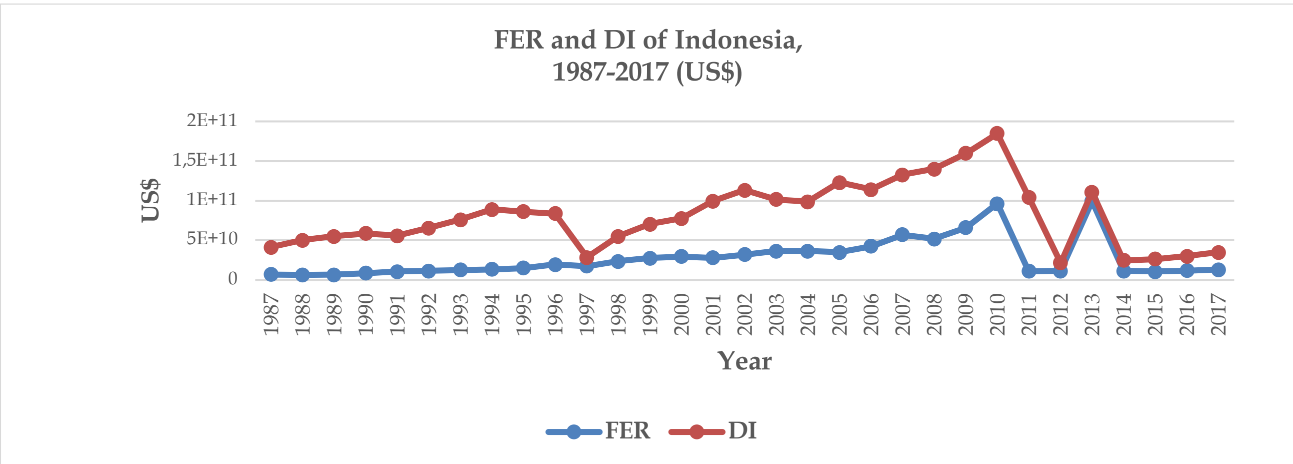
Based on Table 1, where **K** is the number of predetermined exogen variables in the model. **k** is the number of predetermined exogen variables in the equation. And **m** is the number of endogen variables in the equation. So the explanations are over-identification with TSLS.

4. Results and Discussion

Countries that embrace the open economic system will always be in touch with other countries that conduct international trade transactions. Countries that have always related to international trade transactions have their own objectives, some to earn profit by buying cheaper prices from other countries then sell them profitably in domestic and external Countries, and others have a purpose to fulfill the needs of their country because of the reliability of the resources it has.

The ability of a country in importing depends on the capital owned as a means of payment, namely the ability to reserve the number of foreign exchange reserves sufficient to transact in the international market. Too many imports will further reduce Indonesia's foreign exchange reserves which will result in a trade balance deficit. The position of foreign exchange reserves certainly affects the purchasing power of Indonesia in fulfilling the needs of domestic residents to goods/services from abroad. In order to maintain the stability of the rupiah currency in the international market, it can be done by pressing imports.

Domestic and foreign loans are also a source of the development capital of a country. Also known as debt. In Indonesia, domestic lending, in this case, is BUMN or local government, which must be paid back under certain requirements, according to the validity period. While foreign loans can come from bilateral, multilateral and private foreign creditors. The loan will generate interest. Interest will be paid for each period so that the interest would add to the financial burden of the country.



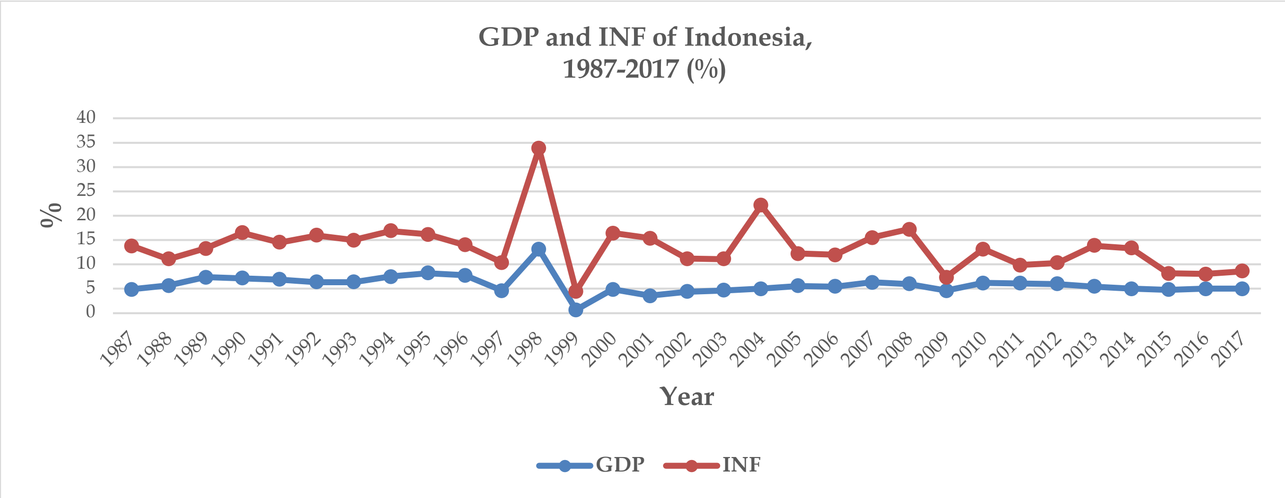
Source: World Bank (1987-2017)

Figure 2: FER and DI of Indonesia, 1987-2017 (US$)

Base on Figure 2 above shows the fluctuations of foreign exchange reserves and interest of Indonesian debt period 1987-2017. On the foreign exchange reserves, the highest number is in 2013 and lows in 1988. For fluctuations in debt interest, the highest number is in 2009 and lows in 2012. Low foreign exchange reserves are not sufficiently capable of increasing domestic development if not accompanied by other capital sources.

Gross Domestic Product (GDP) is the measuring instrument of a country's economic growth. High GDP reflects the accelerating increase in the country's economy. GDP is supported by the number of consumption expenditure of economic actors in the country. We say Indonesia, one of the components in the increase of national income is consumption. Consumption can accelerate the growth of industries or other business actors in the domestic real market. This activity will have an impact on rising economies.

The rate of inflation in relation is to the price of goods and services domestically. Demand and supply in the market for each of the goods and services. Inflation also affects import activities when the tendency to the consumption of imported goods will affect the movement of the rupiah exchange rate of US$ so that it also affects the price of goods and services in the country. In addition, it also resulted in a trade balance deficit because imports are greater than exports.



Source: World Bank (1987-2017)

Figure 3: GDP and INF of Indonesia, 1987-2017 (%)

The ever increasing Indonesian imports have different patterns between the prior economic crisis of 1998 with the after an economic crisis. Before the crisis, the total import value of imports of goods and services shows a pattern that is logarithmic. However, after the total import increase crisis tends to weaken. Imports are increasing this certainly has a reason for the background, including (1) limitation of the production capability of semi-finished material in the country so that imports on semi-finished goods for industrial productivity needs Also called the limitation of Capital Resources, (2) The limitation of natural resources due to the geographical location of the country so that there are goods/services that can not be produced domestically but can be imported from abroad, and (3) because the agreement International relations between the nation in fulfilling the needs of the population in their respective countries to give each other a profit (Atmadji, 2009).

Imports and consumption are variables in the calculation of national income based on the theory of expenditure approaches. So this needs to be researched and analyzed as an international macroeconomic study. Since the results of the identification test show over DomainKeys identified then the estimation using TSLS is as follows.

Table 2: The Result of TSLS Estimation

Estimation Method: Two-Stage Least Squares			
Sample: 1987 2017			
Included observations: 31			
	Coefficient	t-Statistic	Prob.
C(10)	23.01613	7.969172	0.0000
C(11)	-0.231566	-1.951816	0.0562*
C(12)	0.386426	2.019562	0.0484*
C(13)	-0.358776	-2.003118	0.0502*

C(20)	32.49235	4.745548	0.0000
C(21)	0.680843	2.702732	0.0092*
C(22)	-0.331067	-2.132121	0.0376*
C(23)	-0.908181	-2.733691	0.0085*
Determinant residual covariance 0.026263			
Equation: LOG(IMP)=C(10)+C(11)*LOG(FER)+C(12)*LOG(INF)+ C(13)*LOG(KON) Instruments: C FER INF GDP DI Observations: 31			
R-squared	0.475282	Mean dependent var	14.95087
Adjusted R-squared	0.416980	S.D. dependent var	0.593819
S.E. of regression	0.453415	Sum squared resid	5.550803
Durbin-Watson stat	1.215604		
Equation: LOG(CONS)=C(20)+C(21)*LOG(GDP)+C(12)*LOG(DI)+ C(13)*LOG(IMP) Instruments: C FER INF GDP DI Observations: 31			
R-squared	0.522882	Mean dependent var	15.00137
Adjusted R-squared	0.469869	S.D. dependent var	0.740197
S.E. of regression	0.538938	Sum squared resid	7.842266
Durbin-Watson stat	1.447203		

Source: data processed with EViews v.10; 2019
*significant (α = 10% = 0.10)

Based on Table 2 above, the interpretation for each equation, as follows:

LOG(IMP) = 23.016 - 0.232*LOG(FER) + 0.386*LOG(INF) - 0.359*LOG(CONS) + e_1 (5)

Based on the above equation, it is known that foreign exchange reserves, inflation, and significant consumption affect the change in Indonesia's import developments. If the foreign exchange reserves, inflation, and consumption are 0 (zero), the imports will increase by 23.016 percent, Cateris paribus.

Foreign exchange reserves are negative and significant to the change in the development of imports, meaning that if the foreign reserves are up by 1 percent it will reduce the import value by 0.232 percent and vice versa. Inflation has a positive and significant impact on changes in imports, meaning that when inflation rises by 1 percent it increases the import value by 0.386 percent and vice versa. Consumption of negative and significant influence on changes in the development of imports, meaning that if the consumption of domestic communities increased by 1 percent, it will reduce imports by 0.359 percent as well as vice versa.

LOG(CONS) = 32.492 + 0.681*LOG(GDP) -0.331*LOG(DI) - 0.908*LOG(IMP) + e_2 (6)

According to the above equation, it is known that GDP, debt interest and imports significantly affect the change in Indonesia's consumption development. When GDP, debt and import interest is 0 (zero) then consumption will increase by 32.492 percent, Cateris paribus.

GDP has a significant positive impact on changes in consumption growth, meaning that when GDP rises by 1 percent it will increase consumption by 0.681 percent and vice versa. Debt growth affects negative and significant changes in consumption development, meaning that when the debt rises by 1 percent it will decrease consumption by 0331 percent and vice versa. Imports have a negative and significant effect on changes in consumption development, meaning that if the import rises by 1 percent it will decrease consumption by 0.908 percent and vice versa.

R-squared of 0.475282 means that 47.53 percent of foreign exchange reserves, inflation and consumption affect imports and the remainder of 52.47 percent of imports are influenced by other variables beyond the research model.

Table 3: Result of the Elasticity

Variables	Result	Conclusion
Equation (3); IMP as endogen		
FER	-0.225	Inelastic
INF	-8.387	Elastiic
CONS	-0.402	Inelastic
Equation (4); CONS as endogen		
GDP	9.584	Elastic
DI	-0.426	Inelastic
IMP	-0.807	Inelastic

Source: the elasticity of coefficient; 2019

Base on Table 3 above, changes in foreign exchange reserves are inelastic to import changes. Changes in inflation are elastic against import changes. And consumption changes are inelastic to import changes during the period of research.

GDP changes are elastic towards consumption change. The debt interest change is inelastic to the consumption change. And import change is inelastic to change the dive consumption period of research.

Inelastic consumption of imports and imports is equally inelastic to consumption. It means that the people of Indonesia are less sensitive to the changes in imported goods/services that are part of their consumption. This is covered that reflects the tendency to import goods/services so that the import value is greater than export (Ahmed, Rizwan Raheem; Ghauri, Saghir Pervaiz; Vveinhardt; Streimikiene, 2018). The consumption of Indonesian society on goods/services from abroad also resulted in a trading balance deficit condition, because domestic industry activities in the real market did not grow rapidly which could interfere with the goods/services.

In accordance with the Trade Balance Index (TBI) of the Bah-WA to encourage the high export net rate and suppress imports, it is hoped that there is a special commodity for the country in the export trade activities to achieve competitiveness in the international market (Ervani, Widodo and Purnawan, 2019).

Indonesia as a developing country is often experiencing a trade balance deficit. The export value is smaller than the imports. Indonesian import tendencies towards supporting goods in the domestic industrial process and exporting only raw materials. Followed by the tendency of consumption patterns of domestic communities against imported products. So that in the period of research it looks the results that inelastic consumption of imports and imports inelastic to consumption. Insensitivity to price changes.

5. Conclusion

Foreign exchange reserves have a significant effect on changes in the development of imports and an inelastic exchange reserve against imports. Inflation has a significant effect on changes in import developments, and elastic inflation on imports. Consumption has a significant effect on changes in the development of imports, inelastic consumption of imports.

GDP has a significant effect on changes in consumption developments and GDP on elastic consumption. Debt interest is significant to changes in consumption growth, and inelastic debt interest to consumption. Imports have a significant effect on changes in consumption development, inelastic imports on consumption.

Since the research has not been found related to import and aggregate consumption of Indonesia then this is a new discussion in the article researchers and have found that imports and consumption respectively show the results of negative estimates and Significant. While the elasticity indicates inelastic.

Imports and Consumptions both show negative and significant influences. Consumption negatively and significantly affects imports. Imports negatively and significantly affect consumption. Both of them have significant and inelastic influences. It can be concluded that the tendency to consume Indonesian people inelastic to imports. And the trend of Indonesian imports inelastic towards consumption. The suggestion concern that to the Government through the Ministry of Trade should suppress imports only for goods/services supporting services in meeting the needs in the country. Then press consumption against imported products by giving the import restriction policy. For the creation of high export net figures so that the trade balance surplus. High imports will have an impact on domestic rigid industries and the dependence of consumption of overseas products. So the results of this research shows how the relationship between import and aggregate consumption.

This research article still has the limitation of only discussing import variables and the aggregate consumption of one country namely Indonesia. It is hoped for the next researchers to compare these economic variables against other countries at least two countries. So, it can be clear as a government reference in establishing international trade regulations.

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