THE INFLUENCE OF IMPORT TARIFF TOWARDS
INDONESIAN BALANCE OF TRADE AND
NATIONAL INCOME

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Abstract

This study tries to explain the influence of import tariff to Indonesian balance of trade and national income. The analysis was made by applying a dynamic linear model. The result showed that the imposing of import tariff has a positive and significant influence to the raising of balance of trade surplus in a long term. The import tariff on commodity of agriculture and manufacture have also positive influence to the growth on balance of trade, however the sector that give a significant value is agriculture sector. The surplus growth on balance of trade gives positive and significant influence to the national economic growth.

Keywords: Import tariff, balance of trade, national income.

Abstrak

Penelitian ini mencoba menjelaskan pengaruh tarif impor Indonesia ke saldo perdagangan dan pendapatan nasional. Analisa dilakukan dengan menggunakan model linier dinamis. Hasil penelitian menunjukkan bahwa pengenaan tarif impor memiliki pengaruh positif dan signifikant terhadap kenaikan surplus neraca perdagangan dalam jangka panjang. Tarif impor komoditas pertanian dan manufaktur juga memiliki pengaruh positif terhadap pertumbuhan pada neraca perdagangan, namun sektor yang memberikan nilai yang signifikan adalah sektor pertanian. Pertumbuhan surplus neraca perdagangan memberikan pengaruh positif dan signifikan terhadap pertumbuhan ekonomi nasional.

Kata kunci: Tarif impor, neraca perdagangan, pendapatan nasional.

The balance of trade is an important information source to know the economic condition of a country because it can describe the transactions (export and import of the products and services) between countries. According to Djojohadikusumo (1987), foreign economic traffic contains variable of strategy for the national income, cash inflow, and exchange reserve. the
increasing and decreasing of the trade and revenue can affect the national income and productive occupation opportunity for the most inhabitants who are still plunge into agricultural sector or industrial sector that concerned with agricultural sector.

The competition policy that will be an international agenda seems becoming a national agenda in line with economy reformation program that is officially stamped in a program of economy reform that is supported by IMF. The most common problems in competition are occurred because a number of industries (or companies) get special treatment; usually it is organized as protection (tariff and non-tariff) to an import competition or confines the “entry” into industries (Soesastro, 2004).

Because of those reasons, the market liberalization policy, especially for trade liberalization and investment are known as simple way in creating competition climate in domestic area. By means of liberalization that is applied consistently is highly expected that the national economy competitiveness will increase.

Import tariff policy is still popular applied to enhance the country’s revenue, boosted the export value, and protect certain production sector from the competition. Tariff is a paradoxical of an inclination on the market liberalization. In a wide range of meaning, tariff can reduce the trading benefit or reduce trading prosperity. However, in fact it is still applied both explicitly and implicitly. The trade policy on developed countries which are often ambiguous can be made as a sample.

From one side, to make the free trade flow become unceasing through a variety of world economic forum that is in the domain of it. But on the other side, it still protects tightly its market for protection and efficiency for certain sectors in its country. United State of America and some Western European countries still protect their agricultural sectors and it is followed by efforts to liberalize their settled and highly efficiency manufacture sectors. On the other hand, in developing countries, they protect their manufacture industries instead and they are not interested in lobbying to liberalize the agricultural products (Bhagwati, 1988:9-10)

This fact is supported by evidence on the continuing of market liberalization. Since ASEAN Free Trade Area (AFTA) was put into effect through Common Effective Preferential Tariff (CEPT) that is a configuration of agreement from ASEAN countries to make free trade area, it showed that in 2003, approximately 99.07% Indonesian CEPT tariff was in 0-5% of scale.

Then, the agreements reached in AFTA were decrease the tariff and wipe the quantitative restrictions and non-tariff barriers out. Furthermore, the eleven priority sectors are the commodity of wood, automotive, rubber, textile, garment, agricultural products, fishery products, electronics, health products, transportation and touris.

The tariff will be reduced until zero, non-tariff barriers are completely removed and the limitation of exchange rate to those products/commodities are in harmonization.

The more Indonesian economy is concerned with the global world cause us concern with the rules of
World Trade Organization (WTO) that has several purposes as follows: (1) Omitting the tariff surcharge in 2004; (2) Omitting all of the non-tariff barriers (NTB) in 2004; (3) Keeping the tariff that has been applying under maximum constraint that was set in the commitment of WTO; (4) Reducing tariff for information technological products until 0%.

Thus, it will be more difficult for government to determine the import tariff, considering that Indonesia is one of the players in world economy, we do not know how far the import tariff policy take a role in enhancing the economy is. This question is interesting to be put, considering the import tariff policy are expected in enhancing the export value and compressing the import value to increase the national income through the balance of trade surplus.

This research is focused to answer the question, does the variation of import tariff on the commodity of agriculture and manufacture has a significant influence to the balance of trade? And does the balance of trade have a significant influence to the national income? The results will give information about the advantages of import tariff policy to the development on balance of trade and Indonesian national income and also can be an input for the government in designing the form of the exact competition policy that is concerned with the increasing trading liberalization flow.

Heriqbaldi (2006), discuss about the effect of the changes on exchange rate of balance of trade in Indonesian case with the biggest two trade miter countries. The analysis used approximation models of Bahmani-Oskooee and Kantipong (2001), which were a function of equation on import demand and export supply. The conclusion, if there is no change for the better on balance of trade, it because of the minimum elasticity on Indonesian import demand, so the import price changes are not significant in influencing Indonesian import quantity.

Heriqbaldi’s research viewed from the money market (exchange rate), whereas this research followed up the question, if the import value is concerned with balance of trade which was viewed from the amount of tariff that is applied by the government, is there any influence to the import quantity and how is the influence of balance of trade changes to the Indonesian national income.

Nopirin (1998) used Keynes and Monetarist approach. There was different opinion on economy growth influence to the balance of trade. Keynes had a notion that national income increment will make the balance of trade worse, particularly in a short term, so devaluation will have a good impact. Whereas, Monetarist hammered at a long term, so the national income increment will reform the balance of payment.

From the different opinions between Keynes and Monetarist, Frenkel explained that the influence of economic growth to the balance of payment depends on someone’s point of view. If it is intended to the balance of trade, the economic growth can cause deficit on balance of trade very often. On the contrary, if it is intended to the balance of payment, the overall impacts are probably will be positive (surplus).

Tariff, the most common trade policy is a kind of tax that is applied...
for import products. In addition to that, tariff is the oldest trade policy and traditionally used as a source of government revenue (Krugman & Obstfeld, 1991: 224). Tariff can be defined as a tax levied for import products when those products enter another countries. The main purpose is enhancing the export and reducing on import dependence.

Generally, tariff is used more on import (import duties). There are three systems of tariff in international trade; they are single-column tariff, double-column tariff, and triple-column tariff. The first is a system, which on each import product is liable on one kind of tariff. Usually this kind of tariff is determined unilateral by a country (autonomous) without the agreement of its trade miter country, and it is also called autonomous tariff. If this tariff’s height is determined by the agreement between a country with its trade miter country, it is called conventional tariff (so single-column tariff is the opposite of conventional tariff).

The second tariff is a system which on each product will have two kinds of tariff that is determined in its law on maximum and minimum tariff. If maximum tariff is used as a normal tax (means that it is for import product if all countries) that is unilateral determined, whereas the minimum tariff is used particularly to the import products from a certain country by agreement, so this type is called general conventional form. It is a system which use autonomous and conventional partly. Whereas, the extension of this both system, added by one tariff on a shadow land (preferential system), called triple-column tariff.

Tambunan (2004:335) also mentioned that tariff is distinguishable between nominal tariff (NT-ad valorem) and effective rate of protection (ERP). Nominal Tariff is the rate of import tariff on a certain product (finished goods, fabricating material goods, or unfinished goods) that is in Indonesian BM book of tariff (BTBMI).

Import tariff has influences to the domestic economy, they are price effect, production effect, base effect of international exchange (terms of trade), balance of payment effect, employment opportunity effect, government income effect, and redistribution effect of income. The admission charge of import has influence to the balance of payment because it can reduce deficit on a balance of trade (export-import) by compressing the import as small as possible. With an assumption that other factors can affect balance of payment or fixed asset (cateris paribus), so deficit reduction on balance of payment will reduce the balance of payment of itself and then reduce the dissemination of a foreign exchange reserve (Tambunan, 2004).

National income is measured according to the output approximation, equal to all of the added value in economy, or equal to all of finished goods that is produced in economy (Lipsey, 1992:622). In an open economy, the equation of national income must be modified because some of its outputs are exported to another country and some of domestic income must be retained to buy (import) products abroad. Thereby, between saving and investment are not always equal like in a closed economy, because countries in open economy
can make a saving by making export activities more than import, on the contrary they can reduce saving or their assets by making import activities more than export.

The equation of national income (GNP) for open economy system shows how the sale of goods and service activities which become national income source in an open economy country is divided into sale on domestic people and foreign in another country is. Because the people in open economy countries can spend some of their income to make import by buying and consuming other countries’ products and services, so it is not only consumption for import that is counted in domestic GNP.

The import value must be retained from the total value of domestic consumption, which is C + I +G, in order that we can gain some parts of domestic consumption that can produce domestic national income. Import the goods from abroad can add GNP of other countries, but not for domestic GNP immediately. It is similar to the products and services that will be sold as an export to other countries.

Salvatore (2000, 181-182) explained that import function of a country or \( M(Y) \), is a function which shows relationships between the import of a country and national income. The value of import elasticity to the income is determined by the Marginal Propensity of Import and Average Propensity to Import. This value explains the changes of import quantity that is caused by the changes of national incomes that are an enhancement of import value because of the national income increasingly.

Government’s import tariff policy automatically will give impact to the entire import commodities that have an import tariff. The total import value will reduce the export value. The difference on import and export value (X-M) is called balance of trade. If the difference indicates positive number (export is more than import value), so the balance of trade will be surplus, and on the other hand for deficit. The difference on export and import value will affect the national income value. It will increase GNP value if X-M is on a surplus position and will reduce GNP value when it is on deficit condition.

The national income condition that is accepted, indirectly referable for government to determine the next policy on import tariff. Refer to the national income that is accepted, expected the tariff applied can determine the national income. So, the policy can give positive input to the reparation of the next economy condition.

The object on this research is import commodity for non-oil and natural gas (manufacture and agricultural) in Indonesia that is in. This kind of research is quantitative descriptive. Time series data used was gotten from several related institutes; they are Bank of Indonesia (SEKI quarterly edition in 1995-2007), Financial Department (Rule of Financial Minister Number 591/PMK.010/ 2004), Statistical Institution /BPS (Indonesian Statistic in 1995–2007), Directorate General of Excise Tax (Import Notification Document in 1995-2007). The data of import tariff were classified based on PIB (Import Notification Document) which is come out from Directorate General of Excise Tax in 1995–2007.
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Research Method
The analysis device used was econometrics on Dynamic Linear Model (DLM) approach after considering a variety of its superiority (Gujarati, 1995: 589-590). The coefficients in this model are estimated by using OLS (Ordinary Least Square) method. The specification of model is tested by using Error Correction Model (ECM), particularly because it can examine the specification of model in analyzing the economic phenomenon by using valid time series data, which is by virtue of its error correction term value.

ECM on co-integration approach can avoid the model used from a fake regression that can stir the analysis up thoroughly by making the best use of time series (Insukindro in Wibisono, 1999: 54-55). One of the characteristics of fake regression is highly $R^2$ value followed by the low DW value. Because of the fake regression is an inefficient coefficient of estimated regression, estimation by using the regression will be wrong and the standard test for coefficient of regression is not valid (Insukindro in Wibisono, 1991:76-77).

On equation model in an open economy country:
\[ Y = C + I + G + (XM) \] ..................... (1)

So that will be known that the net export is a component which is able to increase the national income of a country. The net export is gotten from $X - M$ (the export minus import value), so that will be known the influence on balance of trade development and can be determined the regression model as follows;
\[ \Delta EN = \beta_0 + \beta_1 t_m + e \] ........................ (2)

Because in this research the import tariff is applied for the import value in balance of trade, so before the model of equation (2) is used, so that is applied a model related to the tariff in order to be able to be made as a comparison. The export and import value is the result from the trade transaction that is held with other countries, and it is involved the tariff to protect domestic products. Furthermore, it can be determined a regression analysis model to research the influence of the tariff to the import value as follows:
The equation above is used to know the influence of import tariff to the import value that is added by independent variables. The forming model for import value is because:

\[ M = f(Y, P_m, P, t_m, er) \]  

(4)

There is another independent variable in model except the import tariff to the import value in a long term, whereas to know the influence in a short term is as follows:

\[ M_t - M_{t-1} = \lambda (M^* - M_{t-1}) \]  

(5)

\[ M_t = \lambda M^* + (1-\lambda) M_{t-1} \]  

(6)

\[ M_t = \lambda (T_0 + T_1 Y + T_2 P + T_3 P_m + T_4 t_m + T_5 er) + (1-\lambda) M_{t-1} \]  

(7)

The explanation of the variables above is:

\[ \begin{align*} 
Y &= \text{Domestic Income} \\
C &= \text{Domestic Consumption} \\
M &= \text{Net Import Value} \\
I &= \text{Domestic Investment} \\
P &= \text{Price of Commodity Product} \\
G &= \text{Government Consumption} \\
M^* &= \text{the Expected Import Value} \\
(X-M) &= E_n = \text{Balance of Trade} = \text{Net Export} \\
t_m &= \text{Import Tariff Value} \\
P_m &= \text{Price of Import Commodity} \\
E_r &= \text{Exchange Rate} \\
E &= \text{Standard of Error} 
\end{align*} \]

Based on hypothesis that is explained before, that is the influence of balance of trade after knowing the influence of import tariff to the balance of trade. Furthermore, it can be made two kinds of model as follows:

\[ \Delta EN = \beta_0 + \beta_1 t_m + e \]  

(8)

\[ Y = \beta_0 + \beta_1 \Delta EN + e \]  

(9)

From the equation of (8) and (9), it can be known that balance of trade variables can be applied as dependent or independent variables. It means that there is a causal relationship which \( Y \) is not only determined by \( \Delta EN \), but it is determined by \( t_m \) value indirectly. In short, there is two-ways relationship or simultaneously on \( \Delta EN \) variable, so it is needed an identification of problem on both models above in order that the structural equation can be gotten from the estimated coefficient. If the identification of problem can be taken, it means that the equation can be identified. If it cannot be taken, it means that the equation cannot be identified or under identified.

The identification of the problem can be taken by the related reduced-form equations and the reduced-form coefficients. It is important because the approximation in this research is OLS method, which both of independent variables; non-stochastic and stochastic are distributed allowed openly from the stochastic disturbance. If there is no one of this condition completed, the smallest quadrate appraiser determined, it will not be unbiased but also inconsistent, that is enhancing the samples unlimitedly, and the appraiser is not turned to the intrinsic of value.

**Result and Discussion**

The result from ECM model estimation (table 1) showed that the coefficient of \( \beta_3 \) or the error-correction term was significant and has a positive sign. Thereby, the ECM model is good and can be used to estimate the import tariff to the development on balance of trade. Then, from the significant coefficient value of \( \beta_3 \), it means that specification of the model on regression equation, \( \Delta EN = \beta_0 + \beta_1 t_m + e \) is valid.
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Then, to know whether the variables in this research be used or not, it can be examined by using ECM model and the results are also significant (table 2). Thereby, hypothesis test model can be applied as a whole.

The estimation by using dynamic linear model is on table 1 and 2. The overall hypothesis test models are free from autocorrelation and heteroscedasticity. The possibility is small to be biased. Both of agriculture and manufacture commodities have a positive and significant influence to the balance of trade development. It shows that there is a positive influence between import tariffs to the balance of trade. If the import tariff increases, it will impact positively to the surplus enhancement in balance of trade.

Table 1. ECM Estimation on Import Tariff Variable to the Balance of Trade

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECT</td>
<td>0.186133</td>
<td>0.127293</td>
<td>9.318103</td>
<td>0.0000</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.694778</td>
<td>F-statistic</td>
<td>29.59195</td>
<td></td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.671299</td>
<td>Prob(F-statistic)</td>
<td>0.000000</td>
<td></td>
</tr>
</tbody>
</table>

Source : Secondary data

Table 2. ECM Estimation on Import Function Variables to the Development of Balance of Trade

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECT</td>
<td>0.257408</td>
<td>0.032632</td>
<td>6.245572</td>
<td>0.0254</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.777506</td>
<td>F-statistic</td>
<td>7.361366</td>
<td></td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.769925</td>
<td>Prob(F-statistic)</td>
<td>0.000000</td>
<td></td>
</tr>
</tbody>
</table>

Source : Secondary data

Table 3. The Influence of Variation on Manufacture and Agricultural Import Tariff to the Balance of Trade

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient of Regression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant (C)</td>
<td>0.064</td>
</tr>
<tr>
<td></td>
<td>(4.817)*</td>
</tr>
<tr>
<td>X_{1.1}. Tariff of agricultural commodity</td>
<td>0.085</td>
</tr>
<tr>
<td></td>
<td>(3.676)*</td>
</tr>
<tr>
<td>X_{1.2}. Tariff of manufacture commodity</td>
<td>0.987</td>
</tr>
<tr>
<td></td>
<td>(5.511)*</td>
</tr>
</tbody>
</table>

Explanation :

Adjusted $R^2 = 0.7308$

F-statistic = 5290

DW-statistic = 2.515

The number of observation on balanced panel = 4096

*Significance on level 1%
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Table 4. The Influence of Balance of Trade to the National Income

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient of Regression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant (C)</td>
<td>0.904</td>
</tr>
<tr>
<td></td>
<td>(2.274)</td>
</tr>
<tr>
<td>(X_1) Balance of Trade</td>
<td>0.039</td>
</tr>
<tr>
<td></td>
<td>(8.467)*</td>
</tr>
</tbody>
</table>

Explanation:

Adjusted \(R^2 = 0.287\)

F-statistic = 5171

DW-statistic = 0.924

The number of observation on balanced panel = 4096

*Significance on level 1%

However, if we see on it per commodity, the tariff on agricultural has a smaller influence to the balance of trade development. It indicates the protection on manufacture has a significant influence to the surplus of trade, or the characteristic of agricultural commodity is more elastic than manufacture commodity. It indicates about the phenomenon of retrogressive on agricultural commodity in domestic market and it is substitutable to import the agricultural commodity.

The surplus impact on balance of trade to the national income is also positive and significant (table 4). It means that although the trade surplus has a small influence, particularly on manufacture commodity, but it still has influence to the national economy. It shows the importance of the effort in enhancing the competitiveness of manufacture and agricultural products in international market, particularly in enhancing the surplus on commodity of oil and natural gas.

The influence of import tariff value to the balance of trade development can be known from the influence of each tariff to the export and import value. The import tariff has a positive value to the balance of trade development. It means that if government put the tariff increment into effect, so the balance of trade will increase, and conversely. However, from the data on balance of trade development, it shows that balance of payment does not always increase. Although the import tariff has a positive influence on balance of trade development, but government cannot determined the import tariff directly to protect its domestic products because there are so many rules on the global trade that cannot be broke by countries in boosting the tariff.

Indonesia as a developing country needs a lot of import products that cannot be produced by it. Furthermore, government gives the import tariff policy to confine the import of goods, but on the other side, government still consumes the import products without any constraint.

To clarify the condition, it can be seen on a model which shows the influence of import tariff. From the regression, it can be seen that all of the independent variables (\(Y\), \(P\), \(Pm\), \(Tm\), \(Er\)) after examination on dynamic model, it can affect the import value. The particular attention on this case is the import tariff value that is in contradiction to Kindleberger and Lindert’s opinions (1983), “there are some reasons of government in using
the import tariff to confine the import, ensuring the increment import expenses can be controlled on the foreign competition that is always increasing”.

It means that tariff is used to impede the import entrance inside the country. So the expectation is, through the import tariff increment, the import tariff will decrease, and conversely, if the tariff descends, the import value will increase. However, the fact from the study is not such condition. In conclusion, tariff will have a positive influence on it.

Because the result is not conformity with the theory, it means that Indonesian Government always tries to impede the import entrance inside through its tariff. However, the need for import products is still dominant. It can be known from the trend enhancement of import value from year to year. It means that although the balance of trade is on surplus, but the import value is always increasing.

The main countries to import in 1995 until now were still dominated by Japan, USA, MEE, and ASEAN. It made the influence of import tariff to the import value was in a positive value. Such condition was taken by government to confine the import entrance to protect domestic production, but not all of them. The tariff was focused on labor intensive products and agricultural products. However, the other products such as capital goods, raw materials, and auxiliary goods, government always increase the import entrance although the tariff is applied. Those products are common used for industries.

Conclusion

The using on approximation of dynamic application model to determine the influence of import tariff to the balance of trade in Indonesia is valid. It can be showed from the positive and significant coefficient value of variables. It seemed that there is difference on influence of import tariff in a long term and a short term to the balance of trade development. Although in a short term, the tariff value does not have a significant influence, but its tariff will give significant influence. In short, import tariff still has a strategic value, particularly in enhancing the competitiveness of the main export products of Indonesia.

As a component of economic activity that has a strategic contribution on production sector of growth in Indonesia, to get the more significant benefit in a long term, the policy on import tariff must be formed in line with developmental strategy on export commodity that will be the mainstay in international market. For example, on import tariff of non agricultural manufacture commodity, particularly on raw materials of domestic industries ought to be diversified appropriate for the priority scale and industry prospect that will be developed in the future.

The problem such as like Soesatyo (2006) said, the identical challenge for Indonesia in enhancing its role in the international trade is the market access expansion and competitiveness enhancement. The negotiations in a world trade forum have a strategic meaning that must be in a high light consistently in order to be able to give the wider possibility for Indonesia. This way must be followed by the reparation on capital production which
can support the quality of product in a high competitiveness and there is an ability to make the best use of the trend momentum of international trade.

REFERENCE


