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The Effect of Liberalization on Export-import in Indonesia

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ABSTRACT

This study investigates how international trade are affected by liberalization, starting with the export and import function. It aims to determine the main empirical factors of imports and exports in Indonesia, which is one of the developing countries that are participating in cooperation agreements for free trade. Import and export functions are then added to the liberalization factors to determine the impact of liberalization on export and import activities in Indonesia in both the short and long terms. We find that world income, relative price, and export taxes affect the volume of exports in the long term, while import volume is affected by relative price, domestic income, and import duties in the long term. Thus, a long-term equilibrium relationship can be established between the variables for research purposes. Liberalization policies have a positive and significant impact on imports in the short term.

Keywords: Liberalization, Export, Import, World Income, Relative Price
JEL Classifications: F15, F62, G13

1. INTRODUCTION

It is commonly accepted that sustainable trade liberalization should lead to the expansion of the country's foreign trade— both in its imports and exports and in absolute levels as well as proportions of the country's product. The effect of liberalization on trade structure, however, is probably of no less consequence than its impact on size: It should be of crucial importance in assessing some salient outcomes of trade liberalization. One effect is the implication of liberalization on the degree of the liberalizing economy's dependence on foreign markets; while trade expansion implies a stronger dependence, trade diversification (if that happens) would tend to lower it. Of at least equal importance is the impact of increased integration of the economy in the world market on employment or on income distribution inequality.

Such issues are certainly related to the degree to which trade exclusively expands in few sectors or, to the contrary, spreads over a variety of the economy's activities. Another issue is the extent to which trade liberalization encourages new fields of activity and intensifies entrepreneurship rather than increasing rents in established branches of production. Still another issue, raised recently in the literature, is the welfare impact of an increased range of traded goods.

Starting in 2010, international trade traffic again showed promising opportunities after being hit hard by the global economic crisis of 2008-2009. Indeed, it began to return to the long-term trend that developed immediately following the Second World War. A series of negotiations, particularly among industrialized countries, routinely takes place, addressing bilateral and multilateral forums and the general agreement on tariffs and trade. Such gatherings are typically followed by the WTO seeking to eliminate the barriers of world trade prevalent in a period of depression. Thus, the doctrine of free trade and exports as the engine of growth has gradually echoed back.

More liberal trade seems to be the purpose of most world countries in the hopes that liberalization can increase the volume and value of trade, which in turn can enhance economic growth and prosperity. World trade data show that there was indeed an increase in the value of trade from 1950 to 2005, US $ 290 billion to US $ 10,120 billion. The export trade of goods (manufacturing, mining and agriculture) worldwide rose by an average of 6.3% from 1950 to 2001 and rising world output averaged 3.8%. According to Baier and Bergstand (2004), world trade is influenced by three factors: Growth in revenue (income), reduction in trade barriers and the low cost of transportation. Liberalization is marked by the reduction or even elimination of tariff and non-tariff trade barriers. Important trade barriers

are to be eliminated because this can encourage the unhindered flow of goods and services.

Indonesian trade policy experienced periods of protection and liberalization. In the early 1970s until the early 1980s, the level of protection in Indonesia was still relatively high. Policy reform was particularly the case in the mid-1980s. Deregulation was the most important in 1986 when oil prices plummeted and forced the government to reform its trade policies, among others, by lowering tariff rates and converting several import licenses. Trade policy was intended to reduce dependence on oil and gas exports and policy targets were focused on increasing non-oil and gas exports (Santos-Paulino and Thirwall, 2004).

2. LITERATURE REVIEW

There are many studies which suggest important adverse impacts of trade liberalization. For example, Gavin and Hausmann (1998) and Laursen and Mahajan (2005) indicate that trade liberalization induces inequality and poverty in developing countries. These studies are supported by Harrison (1996) and Rodriguez and Rodrik (1999), which suggest that the positive association between trade liberalization and economic growth found in many previous studies is flawed, particularly due to the chosen measures of trade openness and model specification.

Ramey and Ramey (1995) point out that higher macroeconomic volatility tends to lead to lower growth; Pallage and Robe (2003) and Barlevy (2004) suggest that if output and consumption smoothing is an issue for the government to stabilize the domestic economy, output and consumption volatility will finally lead to the reduction of economic welfare. However, Greenaway et al. (1998) and Bolaky and Freund (2004) suggest that trade liberalization may result in either an increase or a decrease in economic growth, depending on the country's characteristics and condition. International trade gives access to cheaper goods for consumers and owners of resources to obtain an increase in income due to declining production costs (Appleyard et al., 2006).

Some such investigations confirm that the countries that embarked on liberalization programs have improved their export performance (Thomas et al., 1991; Weiss, 1992; Joshi and Little, 1996; Helleiner, 1994; Ahmed, 2000). On the other hand, other researchers have found little evidence to uphold the relationship between trade liberalization and export growth (UNCTAD, 1989; Agosín, 1991; Clarke and Kirkpatrick, 1992; Shafaeddin, 1994; Jenkins, 1996).

The first country will specialize in the production of commodities whose absolute disadvantage is smaller (this is called commodity as a comparative advantage) and import commodities where its absolute disadvantage is greater (this is commodity as a comparative disadvantage) (Salvatore, 2007). In addition, liberal policies can also be marked by the growing importance of the role of trade in the economy. Liberalization policies can be achieved in several ways such as reducing barriers to trade or the adoption of export subsidies (Santos-Paulino and Thirwall, 2004).

Research conducted by Krueger (1978) and Bhagwati (1978) was the first organized study to formalize the classification of the policy. They interpret trade liberalization policies as policies that reduce the level of anti-export bias that focuses on reducing the premium import licenses (PR).

Import substitution policies are often associated with the protection and expansion of exports. In practice, the policy of protection by increasing rates is difficult. A country which plans to impose trade barriers such as tariffs should consider the reciprocal effect if other countries do the same thing (Nency and Pietrobelli, 2008).

Empirical research on the effect of trade liberalization on export development conducted by Bleaney (1999) and Santos-Paulino (2002), using data panel models, shows that liberalization has a positive and significant effect on the development of exports. Faini et al. (1995) analyzed the effect of trade policies on imports and recommended conducting research on the development of inserting import liberalization policy variables. In contrast to the effect of an export tax on export development, research by Santos-Paulino (2002) showed that tariffs significantly influenced the development of the import regime, but the amount depends on the policy of each country and the removal of trade barriers against imports has positive effects.

Studies of the impact of trade liberalization policies on the economy of Indonesia conducted by Feridhanusetyawan and Pangestu (2003) used a global model, computable general equilibrium with the global trade analysis project version 3. The study concludes that trade liberalization causes the trade balance to increase by amounts ranging between US $ 433 million and $ 450 million depending on the scenario run. In other words, exports and imports will increase, but the increase in exports is greater than imports.

Research by Santos-Paulino and Thirwall (2004) on 22 developing countries in Africa, Latin America, East and South Asia shows that the reduction in tariff/import duties affect the growth of imports. The policy of trade liberalization is measured in two ways: Export taxes and tariffs as well as a dummy variable indicating the entry into force of liberalization policies in each country.

3. METHODOLOGY

3.1. Research Model

Following the relevant literature (Carone [1996]; Bahmani-Oskooee and Niroomand [1998]; Santos-Paulino and Thirlwall [2004]), we use the standard import and export demand functions to analyze the impact of trade liberalization on the volume of imports and exports for Indonesia. The standard specification of the import and export demand models is similar to any other demand model. The quantity of imports and exports demanded will be treated as endogenous variables while the relative price of imports (price of imported goods relative to the price of domestic goods), the relative price of exports (price of exported goods relative to the world export price), world's real income and country's real

income will be considered as exogenous variables. By assuming the price and income elasticities of demand are constant over time, the import function can be specified as follows:

$$M_t = A\left[\frac{P_M}{P_D}\right]_t^{a1} Y_t^{a2} \qquad (1)$$

Where, M_t is the volume of imports at time t; A is a constant; (P_M/P_D) denotes relative import prices at time t; Y_t is Indonesia real gross domestic product (GDP) at time t. Regarding the appropriate specification of import demand, there is no theory providing a specific functional form for this demand function. Other advantages of the logarithmic form are their convenience and the ease of interpretation (Carone, 1996). Thus, following previous studies (Boylan et al., 1980), taking the logs of the above function, the import function can be transformed into logarithmic form as follows:

$$\ln M_t = \beta_0 + \beta_1 \ln PM_t + \beta_2 \ln Y_t + \varepsilon_t \qquad (2)$$

Where, PM_t is the relative price for imports, μ_t, ε_t is the stochastic error term. Modifications to the original model are then inserted: Liberalization policy indicators such as import duties as well as the implementation of a policy to analyze the impact of liberalization on the growth of exports and imports. The long-run import research equation is then specified as follows:

$$\ln M_t = \beta_0 + \beta_1 \ln PM_t + \beta_2 \ln Y_t + \beta_3 \ln MD_t + \beta_4 LIB_t$$
$$+ \beta_5 SDPM_t + \beta_6 SDY_t + \varepsilon_t \qquad (3)$$

Where, LIB_t represents dummy variable for trade liberalization. $SDPM_t$ denotes slope dummy variable elasticity of imports to the price, SDY_t denotes slope dummy variable elasticity of imports to income.

As for the export demand model, again following the literature, we assume that the main determinants of a country's exports are relative export prices and world income. Thus, we assume that the export demand function can be represented as follows:

$$X_t = B\left[\frac{P_X}{P_{XW}}\right]_t^{b1} YW_t^{b2} \qquad (4)$$

Where, X_t is the volume of exports at time t; B is a constant; (P_X/P_{XW}) is export price relative to world export price at time t; W_t is world real GDP at time t. Following the same approach used for the import demand function, the export demand function takes the following form after taking logs:

$$\ln X_t = \alpha_0 + \alpha_1 \ln PX_t + \alpha_2 \ln YW_t + \mu_t \qquad (5)$$

Where, PX_t is the relative (export) price (to world export price). Then, we modify the original model by inserting liberalization policy indicators such as export duties and import duties, as well as the implementation of a policy to analyze the impact of liberalization on the growth of exports and imports. The long-run export research equation is then specified as follows:

$$\ln X_t = \alpha_0 + \alpha_1 \ln PX_t + \alpha_2 \ln YW_t + \alpha_3 \ln XD_t + \alpha_4 LIB_t$$
$$+ \alpha_5 SDPX_t + \alpha_6 SDYW_t + \mu_t \qquad (6)$$

Where, LIB_t represents dummy variable for trade liberalization. $SDPX_t$ denotes slope dummy variable elasticity of exports to the price, $SDYW_t$ denotes slope dummy variable elasticity of exports to income.

To estimate the short-run model for this study, it is necessary to estimate the error correction model. Thus the error correction model result demonstrates the speed of adjustment back to the long-run equilibrium after a disturbance. Thus the expected short run imports and exports are indicated by these equations:

Imports:

$$\Delta \ln M_t = \beta_0 + \sum_{i=0}^{n} \beta_1 \Delta \ln M_{t-1} + \sum_{i=0}^{n} \beta_2 \Delta \ln PM_{t-1} +$$
$$\sum_{i=0}^{n} \beta_3 \Delta \ln Y_{t-1} + \sum_{i=0}^{n} \beta_4 \Delta \ln MD_{t-1} + \beta_5 LIB$$
$$+ \beta_6 SD_t PM + \beta_7 SD_t Y + \beta_8 ECT_{t-1} + \varepsilon_t \qquad (7)$$

Exports:

$$\Delta \ln X_t = \alpha_0 + \sum_{i=0}^{n} \alpha_1 \Delta \ln X_{t-1} + \sum_{i=0}^{n} \alpha_2 \Delta \ln PX_{t-1}$$
$$+ \sum_{i=0}^{n} \alpha_3 \Delta \ln YW_{t-1} + \sum_{i=0}^{n} \alpha_4 \Delta \ln XD_{t-1} + \alpha_5 LIB$$
$$+ \alpha_6 SD_t PX + \alpha_7 SD_t YW + \alpha_8 ECT_{t-1} + \mu_t \qquad (8)$$

Where, ln represents natural logarithm, t is time subscript, ECT_{t-1} is the error-correction term; the residuals from the co-integration equation lagged 1 period. The α_1-α_9 and β_1-β_9 are the elasticities of the respective variables while α_{10}, β_{10} are the speed of adjustment to the long-run equilibrium following a shock to the system. μ_t, ε_t is the stochastic error term, α_0 and β_0 is the drift component and Δ is the difference operator.

3.2. The Data and Method of Analysis
The study uses secondary data. Quarterly series is generated from an annual series. Time series data runs from 1986Q1 to 2014Q4. All the series for the various variables are obtained from Statistical Indonesia, Ministry of Trade, World Bank and IFS-IMF. The study adopted the Johansen approach to cointegration to obtain both the short - and long-run estimates of the variables involved. The analysis techniques used in this study are included in the analysis of time series data clumps (time series analysis) with the analytical tools used in general that approach the cointegration and error correction model.

4. RESULTS AND DISCUSSIONS

We use the well-known Augmented Dickey and Fuller (1981) tests to identify the order of integration of each variable. The test results of ADF use intercept and trend with the McKinnon critical value (1%, 5% and 10%) indicating that all the variables contain unit root. We need to determine the order of integration for each of the variables used in the analysis. This is to ensure that all of

the variables are I(1); an important requirement of the Johansen and Juselius (1990) test approach.

To identify cointegration, this study test uses the Johansen cointegration test. Before testing the cointegration test, we predetermined the vector autoregressive optimal lag amount based on the equation. Once the optimal amount of lag is determined, this lag is used in the cointegration test. From the results we conclude that there is a long-run relationship between the variables identified in the export equation. Trace test indicates one cointegrating vector. This shows that world income, relative price and export taxes affect the volume of exports in the long term.

The long-run equation of exports based on the results of cointegration test is:

$$\ln X_t = -1.33 \ln PX_t{**} + 9.86 \ln YW_t{*} - 0.29 \ln XD_t{***}$$

The long-run equation for imports is as follows:

$$\ln M_t = -0.035 \ln PM_t{***} + 0.98 \ln Y_t{***} - 0.29 \ln MD_t{***}$$

In the equation can be written as:

$$\Delta \ln X_t = -0.021{*} - 0.36 \Delta \ln X_{t-1}{***} + 0.072 \Delta \ln PX_{t-1}{*} + 8.26 \Delta \ln Y_{t-4}{**} - 0.032 \Delta \ln XD_{t-2}{*} + 0.035 \Delta \ln XD_{t-3}{*} - 4.409 LIB{**} + 0.506 SDYW{**} - 0.26 ecm_{t-1}{**}$$

Error correction model results for the import equation can be written as:

$$\Delta \ln M_t = -0.08{**} + 0.12 \Delta \ln M_{t-4}{**} - 0.46 \Delta \ln PM_t{***} - 0.40 \Delta \ln PM_{t-1}{***} + 6.35 \Delta \ln Y_{t-1}{***} - 0.63 \Delta \ln MD_t{***} - 0.37 \Delta \ln MD_{tv1}{*} - 0.01 LIB8{***} - 0.68 SDY98{***} - 0.79 ecm_{t-1}{***}$$

4.1. Relative Price
The relative price on the export and import equation, which is the real effective exchange rate, negatively affects export volumes to the value of the coefficient of elasticity of −1.33 for the export equation. The coefficient of relative export prices showed above one (>1), meaning changes of price affect export volume changes. The coefficient of relative price of imports is −0.35. Changes in relative prices significantly influence the volume of imports although they were not elastic. It means a change in the terms of trade and the exchange rate did not greatly affect the rise or fall of the volume of imports.

4.2. World Income and Domestic Income
World and domestic income provides a significant and positive influence on the volume of exports and imports with coefficients respectively at 9.86 and 0.98. This means that the growth of exports and imports of Indonesia is strongly influenced by world and domestic income. World economic conditions, especially those of the economies of the main trading partners, will affect Indonesia's exports. Since 1986, Indonesia's export-destination countries have not experienced a fundamental change in terms of both volume and value. Two countries which are major trading partners are Japan and USA. Until 2006, as proportions of Indonesia's total export

value, exports to Japan reached 21.56%; USA, 11.14%; ASEAN amounted to 18.34% and the EU 11.87%.

4.3. Export Duty
Trade liberalization policies, as measured by export taxes, turned out to have a significant impact and is negatively marked with a coefficient of −0.29. This means that a 1% increase in export duty will reduce the export volume by 0.29%. There is an inelastic effect of the export duty on exports because only certain items are taxed exports such as timber, palm oil and coal. Export duties have a significant impact for exports such as wood. The influence of the export tax on exports being non-elastic can also be caused due to the fact that the export tax is an instrument of trade policy which usually has short-term goals, so that in the long term, the effect is not elastic.

4.4. Import Duty
The coefficient value of import duty amounted to −0.29, meaning that if the duty increased, the imports would fall by 0.29%. Vice versa, if the duty lowered, imports would rise by 0.29% as well. Just like export duties, import duties also influence inelastic imports. Indonesia has reduced import duties gradually since deregulation in 1986. The maximum duty rate was lowered from 225% to 60% during the period 1986-1990.

Both in exports and imports, in the short term, inaction (lag) is very influential. On export, the export of the previous quarters affects export quarterly growth now. Imports from four previous quarters affect the current quarterly imports. It is more realistic in the sense that exports and imports require adjustments to differences arising between the number of requests in the current quarter with the previous quarter. By doing so, exports and imports make partial adjustments to such differences.

Relative prices do not affect exports in the short term because in practice, export activities are activities that are tied to the employment contract. If there had been an agreement between exporters and importers, the price has no effect in the short term. Adjustments to price changes also cannot be immediately carried out by the exporter or producer because exporters cannot easily turn the use of the factors of production into inputs for the production process.

Import duty in the short-term is negatively related to imports. Together with the long-term, with the reduction or elimination of distortions to trade, one of which is import duty, then the more efficient allocation of resources means that the principle of comparative advantage applies. A liberalization policy has a positive and significant impact on imports in the short-term. This is consistent with the hypothesis that liberalization will actually increase the volume of imports.

5. CONCLUSIONS

This study aims to analyze the impact of trade liberalization policy variables on the development of exports and imports identify the variables which have the most impact in the short and long-term. In accordance with the objectives, it has done tests with cointegration analysis and the error correction model.

Trade liberalization policies which shift from a policy of import substitution to export promotion expansion is critical for the growth of exports and imports. In the long-term, trade liberalization policies which are measured through export taxes and import duties have a negative impact on exports and imports. In the short-term, trade liberalization policies have a negative impact on exports and positive impact on imports, while in the long-term, the effect of trade liberalization policies on exports and imports are no different. Imports return faster to equilibrium than exports because of the error correction term value of imports being greater than exports.

From the observation of the long-term model and a short-term model, the most dominant variable effect for export and import growth is an income variable, concerning both world and domestic income revenue.

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