TRADE POLICY AND ECONOMIC GROWTH IN INDONESIA

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ABSTRACT

The paper examines trade policy and economic growth for Indonesia. The paper has employed Cointegration and Granger Causality test to study the long-run and short-run dynamics among exports growth, imports growth and real output growth over the period 1970 to 2010. The results of the long-run equation get the coefficients that are positive and negative values that means exports growth contributes to the economic growth but imports growth has a negative contribution to economic growth for Indonesia. The results, multivariate Granger Causalityy test, indicate feedback effects between imports and output growth in the short-run, but no evidence feedback effects between exports and output growth for Indonesia. We only find evidence a effect from output growth to exports. However, a strong feedback effects between import growth and export growth has also been established.

Keywords*: Trade policy, Multivariate Granger causality test.*

INTRODUCTION

The explanation for free trade and the various certain benefits that international specialization brings to the productivity of nations have been widely discussed in the economic literature. The suitability of trade policy or growth and development has been also debated in the literature. Trade policy can be import substitution or export promotion.

The issue of how developing countries can accelerate their economic growth is of crucial importance. The two primary alternative routes to development are inward-oriented growth strategies, which emphasize import-substitution industrialization (ISI); and outward-oriented policies, which emphasize the economic benefits of participation in the world economy, that is, export-led growth (ELG).

The export-led growth hypothesis (ELGH) claims that export expansion is one of the main determinants of growth. It holds that the overall growth of countries can be generated not only by increasing the amounts of labor and capital within the economy, but also by getting higher exports. Allowing to its advocates, exports can perform as an “engine of growth”.

The late 1960s and 1970s seen a disappointment with ISI in many developing countries, leading to a reduction in protectionist measures. The 1980s seen further intensification of liberalization measures as many countries retreated from socialism, regulation and planning. Moreover many of the rapidly growing NICs(Newly Industrializing Countries) lend support to the idea that export promotion can be an effective development strategy. Naturally such a line of causation is consistent with macroeconomic theory, where exports are treated as injections into the economy (Marin, 1992).

The proponents of the IS policy stress upon the need for developing countries (LDCs) to progresstheir own style of development and to control their own destiny. This implies policies to promote indigenous, policies as stated by Arrow, "learning by doing" in manufacturing and the development of indigenous technologies appropriate to country's resource endowments (Todaro and Smith, 2012: 593). Now that mid-1970s, in most developing countries, there has been considerable shift towards export promotion strategy (EP), specifically, in the era of globalization and introduction of WTO regimes. This approach postulates that export expansion and may also leads to efficient resource allocation, economies of scale and production efficiency over technological development, capital formation, employment generation and therefore acceleration of economic growth.

Afterthe successful story of newly industrialized countries (Hong Kong, Taiwan, Singapore and South Korea), theoretical agreement on export-led growth appeared among neoclassical economists. The Four Tigers have been successful in achieving high and sustained rates of economic growth since early 1960s; because of their free-market, outward-oriented economies (see, World Bank (1993)). Nevertheless, the reality of the tigers does not support this view of how their export success was achieved. The production and composition of export was not left to the market but resulted as much from prudently planned intervention by the governments. The approach behind the emergence of this new 'Asian Tiger' is a strong, interventionist state, which has willfully and abundantly provided tariff protection and subsidies, change in interest and exchange rates, management investment, and controlled industry (Amsden, 1989). However, export-led growth hypothesis has not only been widely accepted among academics and evolved into a "new conventional wisdom", but also has shaped the development of a number of countries (Chaudhary, et.al, 2007: 2).

Studies on the export growth-economic growth nexus have been donealong time. The initial test were done on a bivariate level to study the correlation between exports and economic growth in levels and then in terms of rate of growth [Jung and Marshall (1985)]. Correlation between exports and economic growth via other economic growth-determining fundamentals such as labor and capital in a production-type function with investment (capital formation), manufacturing, and total exports was also explored [Balassa (1988)]. Studies were also done to consider the differential impacts of exports on economic growth depending on the level of economic/industrial development of the country-critical-minimum effort hypothesis [Kohli and Singh (1989) and Moschos (1989)].

Lately, there has been emphasis on empirical investigation of the relationship between export revenue and economic growth using the bivariate causality tests of Granger (1969) and Sims (1972). This result has a substantial number of studies both for developed and developing countries. However, most recent studies that have use time-series data to investigate the bivariate causality between a country's export growth and its economic growth has provided mix-evidence to support the export-led growth hypothesis. The evidence in these studies demonstrates that, though export growth and GDP growth have weak bidirectional causality, but, export-promotion deserves a consideration in developing countries. It was also found that exports and economic growth are cointegrated for a majority of sample countries.

Given the above background, in this paper an effort has been made to reinvestigate the relationship between export promotion and economic growth in the case of Indonesia. In this paper, we investigate not only the existence of a long-run relationship among economic growth, exports and imports, but also explore the short-run causal relationship between these variables for Indonesia by employing the multivariate Granger causality methodology developed by Toda and Yamamoto (1995). Hardly any comprehensive study has been done so for to examine the existence and nature of any causal relationship between output, imports and exports by employing Toda and Yamamoto's (1995) multivariate Granger causality procedure for Indonesia, so far.

THE INDONESIAN ECONOMY AND PERFORMANCE OF FOREIGN SECTOR

Indonesia has seen a respectable growth in its real GDP, as well as, in various sectors. Average GDP growth rate was 5.3 percent in 1970s, declined to 4.5 percent during 1980s, declined to 3.3 percent during 1990s because economic crisis in 1998, increased to 4.0 percent in 2000s. The growth rate increased to 5.1 percent to 5.4 percent in the recent years. The GDP growth rate is broad based extending to over all major sectors of the economy. Agricultural sector's growth rate, which was very low in 1990s, increased to 3.3 percent 2000s. However, it dropped and again picked up to 3 percent in 2010 and 2011.Industry and Manufacturing sector’s growth rate have decreased every decade. However, the growth rate increased slightly in the recent years. Services sector’s growth rate has decreased in 1980s and 1990s, but has increased in 2000s. The recent years increased to 8.4 percent and 8.5 percent in 2010 and 2011, respectively (see Table 1).

Indonesia has been a structural change in the economy over the past decades. The share of agricultural sector in GDP declined form 30.2 percent in 1975 to 14.7 percent in 2011, while that of industrial sector's contribution to GDP increased from 33.5 percent in 1975 to 47.2 percent in 2011. The share of services sector in GDP remained in the range of 36.3 percent to 38.1 percent during the same period (see Table 2). Despite the fact that a sharp structural change took place in the economy, yet it is heavily based on agricultural sector in terms of support to industrial sector and employment generation.

Table 1. Gross Domestic Product and Sectoral Growth Rate

	1970-80	1980-90	1990-00	2000-10	2010	2011
GDP	5.3	4.5	3.3	4.0	5.1	5.4
Agriculture	4.6	4.0	2.1	3.3	3.0	3.0
Industry	10.9	7.8	6.2	4.2	4.9	5.3
Manufacturing	13.7	13.3	7.3	4.6	4.7	6.2
Services	8.6	7.3	5.1	6.9	8.4	8.5

Source: World Development Indicator, Data World Bank

Table 2. Sectoral Composition of Gross Domestic Product

Sector	1975	1988	1995	1999	2005	2008	2009	2010	2011
Agriculture	30.2	22.5	17.1	19.6	13.1	14.5	15.3	15.3	14.7
Industry	33.5	37.3	41.8	43.4	46.5	48.1	47.7	47.0	47.2
Services	36.3	40.3	41.1	37.0	40.3	37.5	37.1	37.7	38.1

Source: World Development Indicator, Data World Bank

Like other countries of the region, Indonesia concentrated initially on the import substitution policy with different trade barriers. This is reflected in its share of trade in GDP. However, over time it has opened its economy to external trade. The share of total trade is almost doubled over one decade (see Table 3). The share of total trade has increased when the crisis happened this is due to the exchange rate which jumped from about Rp2.400,00 per dollar AS to above Rp10.000,00 per dollar AS.

RESEARCH METHODOLOGY

1. Data

This paper uses annual data from 1970-2011 on real GDP, real exports and real imports, that are recovered from World Development Indicator (World Bank Data). All the time series are transformed into logarithms. Plot of the logarithms of the three time series are shown in Figure 1. This figure demonstrates that individually the real GDP (*y*), the real exports (*x*), and the real imports (*m*) of Indonesia exhibit no strong upward trends implying that these variables may move together. The economic crisis led to a reduction of the real GDP in 1998 and of real exports and imports in 1999.

2. Methodology

The objective of this study is to examine the dynamic relationship among the variables, i.e., real output (GDP), real imports, and real exports. The system can be represented as follows:

$$\boldsymbol{Y}_t = \beta_0 + \beta_1 x_t + \beta_2 m_t + \varepsilon_t \quad (1)$$

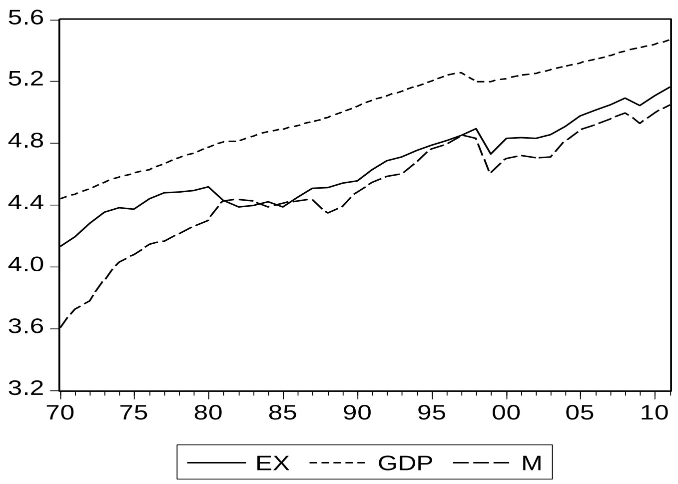
where the vector (y, x and m) denote log levels of real output, exports and imports respectively. The coefficients β_1 and β_2 are estimated to be positive.

For the investigation of the long-run relationship among these variables, we used the cointegration test developed by Johansen (1988) and Johansen and Juselius (1990). For examining causality, we used the Granger causality test based on Toda and Yamamoto (1995).

Table 3. Trends of Trade (% of GDP)

	1970	1980	1990	1998	2000	2010	2011
Exports as % of GDP	13.45	34.18	26.31	52.97	40.98	24.62	26.33
Imports as % of GDP	14.97	20.21	27.65	43.22	30.46	22.94	24.92
Total Trade as % of GDP	28.42	54.39	53.96	96.19	71.44	47.56	51.24

Source: World Development Indicator, Data World Bank



Source: Data World Bank, Development Indicators

Figure 1. Log of Output, Exports and Imports in Indonesia

The following procedures were used. Firstly, since both the cointegration test and Toda-Yamamoto Granger causality test require a certain stochastic structure of the time series, a stationary test is performed to determine the order of integration for each time series using the augmented Dickey-Fuller test (ADF) (1979) and Phillips-Perron test (PP) (1988). Secondly, since one of the critical parts of the cointegration test and Toda-Yamamoto Granger causality test is to determine the lag length *k* in the level VAR system, the lag length of the level VAR system was determined by minimizing the Akaike information criterion (AIC) and the Schwarz Bayesian criterion (SBC). Thirdly, to conduct the cointegration test, the standard maximum likelihood method of Johansen (1988) and Johansen and Juselius (1990) was applied, and the following unrestricted VAR model was estimated.

a. Cointegration

In implementing the tests for cointegration we use the likelihood ratio test due to Johansen and Juselius (1990). The method involves estimating the following unrestricted vector autoregressive (VAR) model:

$$\boldsymbol{Y}_t = A_0 + \sum_{j=1}^{p} A_j Y_{t-j} + \varepsilon_t \qquad (2)$$

where $\boldsymbol{Y}_t$ is an n x 1 vector of non-stationary I(1) variables, in our circumstance $\boldsymbol{Y}_t \equiv (y, x, m)$, n is the number of variables in the system, in this case n=3. A_0 is a 3 x 1 vector of the constants, *p* is the number of lags, A_j is a 3 x 3 matrix of estimable parameters, and ε_t is a 3 x 1 vector of the independent and identically distributed innovations. If $\boldsymbol{Y}_t$ is cointegrated, equation (2) can be generated by a vector error correction model (VECM):

$$\Delta Y_t = A_0 + \sum_{j=1}^{p-1} \Gamma_j \Delta Y_{t-j} + \Pi Y_{t-1} + \varepsilon_t \qquad (3)$$

where $\Gamma_j = -\sum_{i=j+1}^{p} A_i$ and $\Pi = \sum_{j=1}^{p} A_j - I$. Δ is the difference operator, and *I* is an *n* x*n* identity matrix. The rank of the matrix Π determines the number of cointegrating vectors, since the rank of Π is equal to the number of independent cointegrating vectors. Thus, if the rank of Π equals 0, the matrix is null and the above model becomes the usual VAR model in first differences. If the rank of Π is r where r < n, then in the above model, there exist r cointegrating relationships.

In this paper, the matrix Π can be rewritten as $\Pi = \alpha\beta'$ where α and β are nxr matrices of rank r. At this point, β is the matrix of cointegrating parameters and α is the matrix of weights with which each cointegrating vector enters the above VAR model. Johansen gives two different test statistics that can be used to test the hypothesis of the existence of r cointegrating vectors, that is, the trace test and the maximum eigenvalue test. The trace test statistic tests the null hypothesis that the number of distinct cointegrating relationships is less than or equal to r against the alternative hypothesis of more than r cointegrating relationships, and is defined as:

$$\lambda_{trace}(r) = -T \sum_{j=r+1}^{p} \ln(1 - \hat{\lambda}_j) \qquad (4)$$

Wherethe λ's are the eigenvalues of Π in equation (3) and T is the number of observations.

The maximum eigenvalue test statistic tests the null hypothesis that the number of cointegrating relationships is less than or equal to r against the alternative of r + 1 cointegrating relationships, is defined as:

$$\lambda_{max}(r, r+1) = -T\ ln\left(1 - \hat{\lambda}_{r+1}\right). \qquad (5)$$

The critical parts of the Johansen and Juselius approach is to conclude the rank of matrix Π , then the approach depends primarily upon a well-specified regression model. Hence, before any attempt to determine this rank or to present any estimation, the empirical analysis begins with specification and misspecification test. The specification and misspecification test based on the OLS residuals of the unrestricted model in equation (2) for the vector Y_t. We use the Akaike Information Criterion (AIC) and the Schwarz Bayesian Criterion (SBC) to select the lag length of the VAR system, which is reached by minimizing the AIC and SBC.

b. Granger Causality Test

The direction of causality was found through the Toda-Yamamoto (1995) Granger causality test. This method was chosen for the following reasons (Shirazi and Abdul Manap, 2005: 478):

1. The standard Granger (1969) causality test for inferring leads and lags among integrated variables is likely to give spurious regression results and the *F*-test becomes invalid unless the variables in levels are cointegrated.
2. The error correction model (Engle and Granger 1987) and the VAR error correction model (Johansen and Juselius 1990) as alternatives for the testing of non-causality betweeneconomic time series are cumbersome.
3. Toda and Phillips (1993) have provided evidence that the Granger causality tests in ECMs still contain the possibility of incorrect inference and suffer from nuisance parameter dependency asymptotically in some cases.

The concept of causality was firstly defined by Granger (1969). Generally, in a bivariate framework, a time series x_{1t} Granger-causes another time series x_{2t} if series x_{2t} can be predicted with better accuracy by using past values of x_{1t} rather than by not doing so, other information is being identical. Testing causal relations between two series x_{1t} and x_{2t} (in bivariate case) can be verified on the following vector autoregressive process of order p.

$$\begin{bmatrix} x_{1t} \\ x_{2t} \end{bmatrix} = \begin{bmatrix} A_{10} \\ A_{20} \end{bmatrix} + \begin{bmatrix} A_{11}(L) & A_{12}(L) \\ A_{21}(L) & A_{22}(L) \end{bmatrix} \begin{bmatrix} x_{1t} \\ x_{2t} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \end{bmatrix} \quad (6)$$

where A_{i0} are the parameters representing intercept terms and $A_{ij}(L)$ are the polynomials in the lag operator. $\varepsilon_t = (\varepsilon_{1t}, \varepsilon_{2t})$is an independently and identically distributed bivariate white noise process with zero mean and non singular covariance matrix. In this process, if $A_{12}(L)$ are statistically significantly different from zero, either in individual coefficient or a subset of coefficients but $A_{21}(L)$ not, then it is said that x_{2t} is unidirectional Granger casual tox_{1t}. On the other side, if $A_{21}(L)$ are statistically significantly different from zero, either in individual coefficient or a subset of coefficients, but $A_{12}(L)$ not, then it is said that x_{1t} is unidirectional Granger casual to x_{2t} . If both $A_{12}(L)$ and $A_{21}(L)$ are statistically significantly different from zero, either in individual coefficient or a subset of coefficients in eachequations, then it is bi-directional causality (feedback effect) between these two variables.

Toda and Yamamoto (1995) suggested a simple procedure requiring the estimation of an 'augmented' VAR, even when there is cointegration, which guarantees the asymptotic distribution of the MWald statistic. The benefit of using Toda and Yamamoto's techniques of testing for granger causality lies in its simplicity and the ability to overcome many shortcomings of alternative econometric procedures. It uses a modified Wald (MWALD) test to test for restrictions on the parameters of the *VAR*(*k*) model. This test has an asymptotic chi-squared distribution with *k* degrees of freedom in the limit when a *VAR* [*k* +*d*(max)] is estimated (where *d*(max) is the maximal order of integration for the series in the system). Two steps are involved in implementing this procedure. The first step includes determination of the true lag length (*k*) and the maximum order of integration (*d*) of the variables in the system. The level *VAR*(*k* +*d*) is then estimated. The second step is to apply standard Wald tests to the first *k* VAR coefficient matrix only in order to conduct inference on Granger causality

ESTIMATION AND DISCUSSION

1. Stationary Test Results

We tested for unit roots in order to investigate the stationarity properties of the data; Augmented Dickey-Fuller (ADF) t-tests (Dickey and Fuller, 1979) and (PP) Phillips and Perron (1988) tests are used for each of the three time series real GDP, real exports and real imports to test for the presence of a unit root. The lag length for the ADF tests was selected to ensure that the residuals were white noise.

In Table 4, weare reported the results of the Augmented Dickey Fuller (ADF) test with and without trend as recommended by Engle and Granger (1987) and the Phillips and Perron(1988) test again with and without trend. This table shows that the null of unit root cannot be rejected for any of the three level variables. Nevertheless, the null of unit root is rejected for first differenced variables, indicating that all variables are first differenced stationary or integrated of order one, 1(1).

2. Testing For Cointegration

After getting that all variables in the study are integrated of order one, I(1), we proceed to test for cointegration between the variables on levels. Two time series are cointegrated when a linear combination of the time series is stationary, although each series may individually be non-stationary. Ever since non-stationary time series do not return to their long-run average values following a disturbance, it is important to convert them to stationary processes; otherwise regressing one non-stationary process on another non-stationary process can generate spurious results.

Previously, the lag length for the VAR system is determined, using the Akaike Information Criterion (AIC), Hannan-Quinn information criterion(HIC) and the Schwarz Bayesian Criterion (SBC), thereafter we run cointegration test (see Table 5).

Table 4. Stationary Test Result

	ADF Test		PP Test	
Variable	Without Trend	With trend	Without Trend	With trend
y	-1.60408	-1.92554	-1.87499	-1.674
Δy	-3.69445**	-3.9563**	-4.39691**	-4.60955**
x	-0.34084	-2.02207	-0.60289	-2.47155
Δx	-4.54063**	-4.46515**	-6.71281**	-6.62016**
m	-1.94526	-3.16591	-2.48093	-3.29868

Δm	-4.27575**	-4.41437**	-5.6699**	-5.75274**

Notes: ADF means Augmented Dickey Fuller Test and PP denoted Phillips Perron Test.
Δ denotes first difference. And ** (*) denotes significance at 1% (5%) level. y, x and m denote the natural logarithms of Output, Exports and Imports, respectively.

Table 5. VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	92.078836	NA	1.85E-06	-4.68836	-4.559077	-4.642362
1	239.71809	264.1966	1.25E-09	-11.98516	-11.46803	-11.80117
2	256.09299	26.71695*	8.60E-10*	-12.37332*	-11.46833*	-12.05133*
3	262.57995	9.559719	1.01E-09	-12.24105	-10.94822	-11.78107
4	266.93374	5.728671	1.35E-09	-11.99651	-10.31583	-11.39854

Notes:
* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

The lags used by all criteria in the VAR are shown in Table 6. Moreover, since the data are of annual periodicity, an inspection of the results suggests that serial correlation is not a problem when we set the order of the VAR at suggested lags.Table 6 shows that the results of their λ-max and λ-trace tests to identify the number of cointegrating vectors are reported.

Reinsel and Ahn (1992) argue that in model with a limited number of observations, the likelihood ratio tests can be biased toward finding cointegration too often. Thus, they suggest multiplying the long run test statistics (λ-max and λ-trace) by a factor (T-nk)/T, where T is the effective number of observations, n is the number of variables in the model, and k is the order of VAR, to obtain the adjusted estimates. Table 6 reports these adjusted statistics.

In Table 6, the hypothesis null of no cointegration is rejected using either statistics because both statistics are greater than their critical values. Nevertheless, the hypothesis null of at most one cointegrating vector cannot be rejected in favour of r = 2. Hence, the empirical support for one cointegration vector implies that all three variables, import, export and output, are cointegrated and follow a common long-run path. This is consistent with-our "a priory" expectation that import, export and economic growth are inter-connected.

Table 7 shows the long-run equation, which is derived by normalizing on output based on estimated cointegration coefficient.Thecoefficients are positive and negativethatmeansexports growth contributes to the economic growth but imports growthhas a negative contribution to economic growth for Indonesia.

Table 6. Johansen Cointegration Test Result
(Variables: Output, Export and Import)
(lag=2)

Hypothesis Null	Hypothesis Alternatif	λ_{max} Statistics	Critical Value 5%	Critical Value 1%	λ_{trace} Statistics	Critical Value 5%	Critical Value 1%
$r = 0$	$r = 1$	26.23**	20.97	25.52	37.16**	29.68	35.65
$r \leq 1$	$r = 2$	9.27	14.07	18.63	10.93	15.41	20.04
$r \leq 2$	$r = 3$	1.66	3.76	6.65	1.66	3.76	6.65

Note: ** and * indicate significance at the 1% and 5%, respectively

Table 7. Estimated Cointegration Coefficient Derived by Normalizing on Output (Y)

Constant	Export (x)	Import (m)

5.929	1.341 (0.0303)	-2.497 (0.0391)

Note: Standard errors are in the parentheses.

3. Multivariate Granger Causality Test

Ever since all of above tests confirm cointegration among these variables under study, hence, the standard Granger causality test is no longer valid in these cases. Therefore, we have used multivariate Granger Causality developed by Toda and Yamamoto (1995) to study short-run dynamics among exports growth, imports growth and real output growth.

The results from Table 4 clearly suggest that none of the variables are stationary in level. Nevertheless, the first differences of these series are stationary. This means that d_{max} = 1 in our case. We then proceed in estimating the lag structure of a system of VAR in levels and our results indicate that the optimal lag length based on all criterion is 2, that is, *k*=2 (see table 5). We then estimate a system of VAR in levels with a total of (d_{max} + k=2+1=3) lags.

From above information, the system of equations is jointly estimated as a "Seemingly Unrelated Regression Equations" (SURE) model by Maximum Likelihood and computes the MWALD test statistic as shown in Table 8.

Table 8 shows that the null hypothesis that 'Granger no-causality from export to growth' can’t be rejected but converse can be rejected for at 5% level of significance. This shows that there is one effect between exports and economic growth for Indonesia.

The results also show that the null hypothesis that 'Granger no-causality from import to growth' can be rejected for at 5% level of significance andconverse can be rejected for at 1% level of significance.

Table 8. Multivariate Granger Causality Test Results

Dependent Variable	Source of Causation		
	Output χ^2	Exports χ^2	Imports χ^2
Output	-	0.34	7.34**
Exports	25.91***	-	2.78
Imports	27.10***	8.93**	-

Notes: ***,** and * indicate significance at the 1%, 5% and 10% respectively

These results indicate that in the process of development, it is essential for developing countries such as Indonesia to import some needed technology and input material to expand capacity to enhance output. It is fact that in the process of growth, imports play important role through different channels. Imports of raw material increase the value added products and import of necessary technology increase the productive capacity and productivity, which further booats the growth rate of the economy. Imports create employment especially in the handling and transportation sectors. It also generates employment indirectly in the wholesale and retail sectors, which positively affects the growth of the economy. Moreover, it also provides cheap products to consumers and unrestricted access to imports also supports by reducing the prices of essential production inputs. The overall effect of this is to increase growth which supports the increase demand of the imports. However, excessive imports of finished goods may replace the domestic output and displace the workers. How much employment will be effected is an empirical question that needs to be investigated.

CONCLUSION

The suitability of trade policy for economic growth and development has been debated in the literature over the decades. Up until the mid-1970s, import substitution (IS) policies prevailed in most developing countries, and then the emphasis shifted towards export promotion (EP) strategies in an effort to promote economic development. This approach postulates that export expansion leads to better resource allocation, economies of scale and production efficiency through technological development, capital formation, employment creation and hence economics growth. The export-led growth has been focus of the economic debate. However, results are found to be mixed in the literature. Moreover, findings of the recent studies, which are conducted with reference to Indonesia, are also mixed.

This paper investigated the link between exports, imports and economic growth for Indonesia. A vector autoregression (VAR) model applying the multivariate Granger causality procedure, developed by Toda and Yamamoto (1995), instead the traditional error correction mode (ECM) has been used to improve the Standard F-statistics in the causality test process and to test the causal link between the growth of exports, imports and the real output growth.

The results of empirical strongly support a long-run relationship among the three variables (output, export and import). Our results show a feedback effect between import and output growth in the short-run for Indonesia, but don’t find feedback effects between exports and output growth for Indonesia. We only find evidence a effect from output growth to exports. Results also show evidence of a strong feedback effects between import and export of the country.

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