Export orientation vs import substitution : which strategy should the government adopt? Evidence from Malaysia

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15 June 2016

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Abstract

Many previous empirical studies focused mainly on the effect of export expansion while ignoring the potential contribution of import substitution in developing economic growth especially for the case of emerging countries. This paper attempts to investigate the relationship between trade and economic growth emphasising the role of import and export in Malaysia over the period 1970 to 2014. The study treats the impact of export and import separately to allow the possibility of asymmetric influences on economic growth by adopting recent time series modelling. The study used Granger Causality test and Variance Decomposition (VDC) method to analyse the influences of trade improvement on growth development. This is important in providing evidence whether growth is driven mainly by trade activities or whether there is a reciprocal impact between trade and growth. The result confirms the existence of bidirectional long run relationship between growth and export and between growth and import, suggesting that singular focus on export from previous study tends to be misleading. This is crucial from the policy point of view in developing strategies to enhance growth. If export drives the economic growth, policy should be directed more towards export orientation and likewise for import.

Keywords: Export orientation, import substitution, Malaysia

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I. Introduction

Does trade liberalisation boost economic growth in the long run? The trade openness-growth nexus has become an empirical question and being examined extensively during the last two decades. The relationship between trade-growth has received much attention especially from the academics and policy makers. Such questions are among the oldest puzzle in the economics field where the existing theory does not provide a decisive answer and disagreement persists regarding the extent to which the effects and the causality between variables. While many studies on the trade openness focus primarily on the effect of export ignoring the contribution of import, recent studies have shown that singular focus on the role of export as an engine for growth might be spurious and misleading or at best incomplete since it interacts with some other 'control' variables (Riezman et al. 1995)

This paper tries to examine the causal relationship between trade and economic growth in Malaysia. Although many previous empirical studies sought to test the validity of various hypotheses on export led growth (ELG), growth led export (GLE), growth led import (GLI) and import led growth (ILG), the empirical evidence remains a mixed result and often contradictory. The differences in proxy being used to measure export, import and growth contributed to the mixed results while country's specific factors such as policy oriented and different in sampling period influence the differences on the effect of export apart from the non-unity in the methodology adopted. Moreover, county specific factors cannot be fully controlled in the cross country regression which gives rise to the omitted variable problem.

Therefore this study intends to make an humble contribution to the current literature by extending the traditional neo-classical exogenous growth model and test the impact of real export and import as two endogenous variables in the cointegrated vector autoregression (VAR). The proposed modelling also will make it possible to test for both hypotheses of Export-led growth (ELD) and Import-led growth (ILG). Secondly, this paper adopts a standard time-series technique by specifying causal model based on Vector Error Correction Models in addition to Granger-causality test between export, import and growth. Overall, the findings of this paper support the existence of ELG and GLE hypothesis as well as ILG and GLI hypothesis.

This paper is organized as follows. Section II provides a brief theoretical framework and Section III discusses the empirical overview of the relationship between trade and growth. Section IV will deals with the data and methodology applied for this paper and Section V presents the empirical result. Lastly Section VI provides the concluding remarks and as well as policy implication.

II. Theoretical Framework

The theoretical hypothesis of export led-growth (ELG) postulates that export is one of the main determinants for the production and key factors in promoting economic growth. Such consensuses were made based on the arguments that, growth of a country does not only rely on the number of labour and capital but also the expansion of export. The positive relationship between growth and export is attributed by the positive externalities received by the domestic country for participating in the foreign market. According to its advocates, export can be regarded as an engine for growth in three dimensions. Firstly, export serves as a catalyst function for output growth through the expansion of aggregate demand (Siliverstovs and Herzer, 2007). Increase in demand for domestic exportable products can be translated into higher domestic production which will stimulate both income and employment level within the economy. Meanwhile, Kunst and Marin (1989) argues that export's expansion will lead to optimisation of resources and further enhance the productivity level of the economy, by allocating the resources to the most productive sectors. Secondly, the positive relationship between exports and growth can be explain through 'learning-by exporting' effect-where specific firms that involved in the exports market gains new knowledge and expertise. Loecker (2007)

proposed that such benefits will promotes an incentive for technological improvement and labor training which allows them to improve their overall efficiency compared to non-exporters. According to Feder (1983), the spillover effect from export activities enable the host country to reap the advantages of economies of scale through the combination of both international and domestic market by facilitating a larger scale of operation compared to the domestic market alone. Thirdly, the impact of export expansion from balance of trade perspective. Expansion of export followed by high foreign exchange which an increase in demand for import of intermediate goods would have on the capital formation of the economy and stimulate output growth.

On the other hand, empirical studies that have shown the role of import in stimulating the economic performance is not difficult to find. Although it is plausible to assume that the effect of import on growth is different from export, relatively little attention has been devoted to test the causal relationship despite of the potential role of import and import's competition. The arguments were made based on several presumptions. Firstly, the transfer of technology via import from developed country to developing country can serve as one of the source for economic growth. In Grossman and Helpman (1991), the study proves that import serves as a channel for long-run economic growth since it provides domestic firm an access towards foreign technology and knowledge. Mazumdar (2001) further support the import led growth (ILG) hypothesis which is consistent with the endogenous-growth literature. Imports activity allows for the exchange of foreign R&D knowledge since cutting-edge technologies are usually bundled with imported intermediate goods and services such as precision machines, computers and equipment. In other words, foreign import can be a source of technology-intensive intermediate factors of production. Secondly, import can promote growth and enhance domestic innovation via foreign competition. Exposure of domestic firm on foreign market level will spur innovation of competitive products as domestic producer will responds to the technological competitive pressure established from foreign competition (Lawrence and Weinstein, 1999). Given the argument on the contribution of both export and import, the question on whether export or import that drives growth remains unsettled.

III. Theoretical Overview

Import, Export and Economic Growth.

Since trade theory does not provide a definitive guidance on the causal relationship between trade openness and growth, the debates usually informed by inferences made based on empirical analyses. The volumes of empirical evidences on Export-Led Growth (ELG) hypothesis proves that there exist a notable link between GDP and export growth yet controversies still surrounded on the issue of causality. Earlier studies that examine the relationship between trade and growth focused primarily on the role of export by adopting bivariate correlation models and support the existence of positive relationship between the variables (McNab and Moore, 1998). Most of these cross-sectional studies found a significant positive relationship between export performance and national output growth such as Balassa (1978) and Ram (1987). However, correlation results from a Ordinary Least Square (OLS) regressions and simple correlation method have certain limitations. The correlation maybe spurious since it fails to account for the data's dynamic time-series properties (unit root test and cointegration) apart from limitation in providing the information for the causality direction between export and growth. This is because the issue of causality is very dynamic in nature thus it is best examined using a dynamic time series modeling framework.

On the other hand, there has been an increase in country-specific studies that focusing on the relationship between export and growth aided by the guidance of recent advancement in time series techniques (Biswal and Dhawan, 1998). These studies widely used Granger-Causality method to address the causal linkage between trade and growth. For example Bahmani et al, (1991) employing a bivariate Granger-Causality test supports the ELG hypothesis for 20 developing countries over the

period of 1951-1987. Similarly in Doraisami (1996), where the study shows the existence of bi-directional relationship between export and growth in Malaysia. Ghatak et al (1997) tested the causality relationship between export and economic growth using annual data in Malaysia and the results are in favour of ELG hypothesis. Islam (1998) proves that export expansion causes growth in two third out of 15 Asian countries between the period of 1967 to 1991 and Hatemi (2002) found that granger causality is bidirectional for the case of Japan. While several studies support the hypothesis of ELG, some studies have come up with the empirical evidence that favours GLE hypothesis. For example in Hussain (2014). The study examines the relationship of export and growth in Pakistan between the period of 1976-2010 and the finding shows that there is a unidirectional causality from growth to export and not vice versa. Similarly in Baharumshah & Rashid (1998), where the study confirms that economic growth causes export growth for the case of Malaysia. Meanwhile, empirical evidence that failed to provide unambiguous support for the export promotion development strategy is not difficult to find. For example in Dorado (1996), where the study employed data for more than 80 counties between the period 1961-1986 and concludes that granger-causality test offers a weak support on the notion of exports engine for growth. Xu (1996) also found support for ELG hypothesis in case of Columbia but not for the case of Argentina.

Recently, studies have adopted cointegration methods such as vector error correction model, modified granger-causality test and ARDL approach to investigate further the relationship between import, export, and growth. Ramos (2002) studied the granger causality between import, export and growth in Portugal between the periods of 1865-1998, employing multivariate Johansen's procedure and found a bidirectional relationship between GDP and import, GDP and Export but no link between import and export. Riezman et al (1996) argues that the standard method applied in testing the granger causality for export led growth (ELG) hypothesis may give rise to a misleading result if imports are excluded in the system being analyzed. For example in Awokuse (2007), where the author applied multivariate cointegrated VAR and investigate the contribution of trade openness on economic growth and the findings support ILG hypothesis for the case of Poland. Similarly in Tangavelu and Rajaguru (2004), where the study opined that imports are more relevant for Asian economies compared to export. Hussain and Said (2014) further examines the nexus of import, export and economic growth for the case of Saudi Arabia using annual data for the period of 1990-2011 and the study shows that economic growth was found to granger causes import. Baharumshah & Rashid (1998) support the hypothesis of ILG for the case of Malaysia and argues that import foreign technology is important for long run growth of the economy. Lawrence (1999) finds no evidence to support ELG hypothesis for the case of US, instead argues that import plays an important role to stimulate the productivity growth and not export. Mahadevan and Suardi (2008) found no evidence to support ELG hypothesis for the case of Korea however evidence was in favor of ILG for the case of Japan and finally Hey and Boubaker (2011) tested both ELG and ILG hypothesis in case for Tunisia and suggest that both hypothesis are valid.

Despite the extensive literature analyzing the relationship between export and growth, no clear conclusion has emerged from all these studies. Therefore, this paper presents an alternative approach to test for the existence of a stable long-run relationship between output, export and import.

V. Data and Methodology

Annual time series data will be collected from 1970 to 2014 (44 observations). Time series data started from 1970 which is after Malaysia joined ASEAN and can be considered as a critical period when the outward oriented policies started to emerge. The data will be transformed into log form to achieve stationary in variance. The data of gross domestic product (GDP), export of goods and services, import of goods and services and exchange rate are measured in Malaysian Ringgit (MYR). The uses of GDP as a proxy to measure the economic growth in Malaysia while both import

and export of goods and services are being utilized as a proxy to measure trade and finally the exchange rate is measured in Malaysian Ringgit to 1 US$. All data set are taken from the database of Datastream.

The variable will be valued as G, X, M and ER which implies real GDP, export of goods and services, import of goods and services and exchange rate respectively. Following the growth theories, especially endogenous growth theory that shows export and import have a long run equilibrium relationship with the economic growth while exchange rate as control variable, we assume the following model;

$$\Delta G = F\ (\Delta X,\ \Delta M,\ \Delta ER)$$

We acknowledge that there are many other variables exist in the growth model which is relevant to this analysis. However, the VAR in multivariate system requires sufficient number of observations. On the other hand, given lag length, the addition of more variables in the systems can quickly exhaust degree of freedom and make the estimation unreliable. Since we are only interested in the direct relationship between export, import, exchange rate and growth, we believe that the inclusion of more variables in VAR analysis would result to confusion and poor estimation in making inferences.

The estimation methodology employed in this study is the cointegration, error correction modeling technique and variance decomposition in order to find the empirical evidence on the relation between trade and growth. This method is more preferable comparing to the traditional regression method due to several reasons. Firstly, the traditional regression method, assumed the long run theoretical relationship between the variables, as well as the assumption on which variables are the leader and follower. In opposite with time-series technique, which tests the long run theoretical relationship of the variable and utilized the Granger Causality to confirm the causal relationship. Secondly, most economic variables are non-stationary. By performing the ordinary regression method on non-stationary variables may render the results misleading as the test statistics such as t-ratios and F statistic will not be valid. Therefore, time-series technique cater the problem by performing the regression on difference form where the long-run term is effectively being removed leaving the short term, cyclical or its seasonal effects to be captured by the regression. Thirdly, in the traditional regression, the endogeneity and exogeneity of the variables were predetermined on the basis of priori theories. On the other hand, the application of cointegration technique in the time series method will determine the endogeneity and the exogeneity of each variable based on the data given without making prior assumption on the causality relationship.

VI Empirical Results

Table 1 lists the variables used for identifying the relationship between trade and economic growth in Malaysia which includes GDP, export, import and exchange rate. The variables are converted into log form in order to make the series stationary in variance and proceed with the first differencing to turns the series stationary in mean.

Table 1. List of variables.

Code	Description	Log Level Form	1st Difference Form
GDP(G)	Gross Domestic Product	LG	DG
Export (X)	Exports of Goods and Services	LX	DX
Import (M)	Imports of Goods and Services	LM	DM
Exchange Rate (ER)	Exchange Rate Malaysia Ringgits to 1 US$	LER	DER

Figure 1. Graphs plotted based on Raw Data.

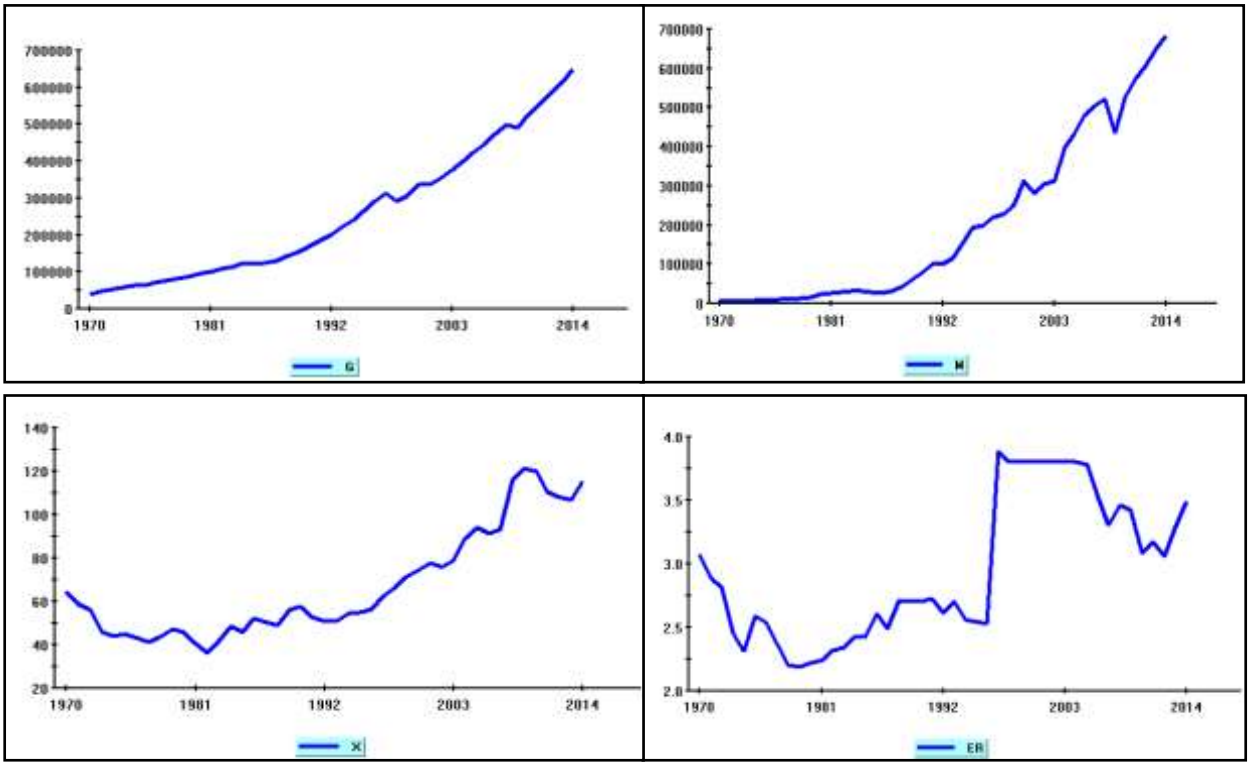


Figure 1 shows the graph of variables used in this study based on original data. From the graph attached, there is no trend shown between GDP, export, import and exchange rate.

UNIT ROOT TEST.

It is accepted that, most of finance and macroeconomic data are non-stationary in their level form, thus their mean and variances tends to diverge overtime. Therefore, classical regression via ordinary least squares estimation may yield a spurious relationship and therefore inappropriate if they are non-stationary. To ensure these data are stationary, we perform the first differencing (Yt-Yt-1); otherwise would results into spurious relationship.

The application of unit root test will analyzed the properties of each variables in the time series data. There are three types of Unit root test namely Augmented Dickery-Fuller (ADF), Phillips Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS). Table 1 presents the result of the three tests.

Table 1. Results of Unit Root Test.

Log Level Form				**Stationarity**		
Variables	**ADF**	**PP**	**KPSS**	**ADF**	**PP**	**KPSS**
	t-statistic	t-statistic	t-statistic			
LG	-1.7975	-3.4939	0.44274	**Non-Stationary**	**Stationary**	**Non-Stationary**
LX	0.42390	-0.060347	0.37788	**Non-Stationary**	**Non-Stationary**	**Non-Stationary**
LM	-1.9295	-2.6620	0.43450	**Non-Stationary**	**Non-Stationary**	**Non-Stationary**
LER	-1.1863	-1.4149	0.31944	**Non-Stationary**	**Non-Stationary**	**Stationary**
CV	**-2.9378**	**-2.9287**	**0.37085**	-	-	-

First Difference Form				**Stationarity**		
Variables	**ADF**	**PP**	**KPSS**	**ADF**	**PP**	**KPSS**
	t-statistic	t-statistic	t-statistic			
DG	-5.1877	-8.4795	0.14249	**Stationary**	**Stationary**	**Stationary**
DX	-5.9859	-5.7639	0.16108	**Stationary**	**Stationary**	**Stationary**
DM	-4.6226	-6.9330	0.17465	**Stationary**	**Stationary**	**Stationary**
LER	-6.3083	-6.8455	0.14882	**Stationary**	**Stationary**	**Stationary**
CV	**-3.5313**	**-3.5162**	**0.18961**	-	-	-

The ADF regression order is based on the highest based on Schwarz Bayesian Criterion (SBC) and Akaike Information Criterion (AIC). The result for ADF suggests that all variables are non-stationary at the level form since t-statistic is lower than the critical value. Therefore the null hypothesis of non-stationary variables remained. Similar hypothesis were applied for PP test and only GDP variable is found to be stationary at their level form while all other variables are found to be non-stationary since t-statistic is lower than critical value. However, for KPSS test, since the t-statistic is greater than the critical value, we have to reject the null hypothesis i.e. variables are non-stationary except for LER. The different between ADF and PP test is that, ADF test takes care of Autocorrelation while PP test takes care of both Autocorrelation and Heteroscadasticity problems.

For the first difference, the t-statistic for ADF and PP test are higher than the critical value (in absolute terms) therefore the null hypothesis of non-stationary is rejected. Meanwhile for KPSS test, since t-statistic are lower than the critical value, the null hypothesis remained i.e. variables are stationary. Overall, all the variables indicates non-stationary at the level form except for GDP and LER become stationary after the first differencing for all three type of unit root test.

VAR ORDER

Table 3. Lag Order Identification

Order	AIC	SBC	p-value	CV
2	202.3416	171.4973	[0.091]	5%

From VAR Order, lag length of 2 is selected based on 5% significance level as shown in Table 3. It is important to choose an appropriate lag length since too small lag will invalidate the test and if the lag is too high, it may lose the power of freedom.

COINTEGRATION TEST

Having established the variables to be I(1), with the optimal VAR of 2, both Angel-Granger and Johansen test will be utilised in the cointegration step. The determination of cointegration vectors are based on Maximal Eigenvalue and The Trace test presented below.

Table 4. Maximal Eigenvalue and Trace Test Result.

Cointegration LR Test Based on Maximal Eigenvalue of the Stochastic Matrix				
Null	Alternative	Statistic	95% Critical Value	90% Critical Value
r =0	r = 1	35.9567	31.7900	29.1300
r <=1	r = 2	20.3688	25.4200	23.1000
Cointegration LR Test Based on Trace of the Stochastic Matrix				

Null	Alternative	Statistic	95% Critical Value	90% Critical Value
r =0	r = 1	71.9252	63.0000	59.1600
r <=1	r = 2	35.9685	42.3400	39.3400

Based on Maximal Eigenvalue and Trace test of Cointegration conducted, only one cointegration vector among variable is identified. Since t-statistic is greater than the critical value (at both 5% and 10%) the null hypothesis of no-cointegration is rejected and the alternative of 1 cointegration among variables is identified. The result indicates that the relationship between GDP, export, import and exchange rate are not spurious and implies that each variable contains information for the prediction of other variables. However, cointegration test does not provide information on the direction of Granger-causation as to which variable is leading and which variable is lagging. In this case, the Vector Error Correction Model (VECM) will be applied to identify which variable is exogenous and which variable is endogenous.

LONG RUN STRUCTURAL MODEL (LRSM)

The purpose of Cointegration is to test whether there is a theoretical relationship among the variables and that they are in equilibrium in the long run. LRSM endeavours to estimate theoretically meaningful long run (cointegration) relations by imposing both exact identifying and over identifying restriction based on the theories and information of the economies under review.

Table 5.Exact Identification and Over Identification Results.

Variable	**Data**	**Panel A**	**Panel B**
		A1=1	**A=1,A2=0**
LG	Coefficient Stand.Err	1.0000 (*NONE*)	1.000 (*NONE*)
LX	Coefficient Stand.Err	-0.14722 (0.088163) INSIGNIFICANT	0.0000 (*NONE*)
LM	Coefficient Stand.Err	-0.33866* (0.038765) SIGNIFICANT	-0.28952* (0.021389) SIGNIFICANT
LER	Coefficient Stand.Err	0.17141* (0.064664) SIGNIFICANT	0.098072* (0.043484) SIGNIFICANT
LR Test for Restrictions		**NONE**	**CHSQ(1)=3.3348[0.068]**

Since the variable of interest is LG, we normalize the variable by placing an exact identifying restriction of unity to the coefficient of LG. For the exact-identification test, the t-ratios are calculated manually (t-ratio = coefficient/σ).

Based on the results presented in Table 5, both LER and LM have a significant impact on LG since the t-statistic is more than 2 while insignificant for LX. Testing over identification for LX=0 shows that the restriction is correct since CHSQ(1) is greater than 5% significant level.

VECTOR ERROR CORRECTION MODEL

The purpose of Vector Error Correction Model (VECM) is to identify both endogeneity and exogeneity of variables. The reason lies on the fact that, being well informed on the Granger-causality between variables i.e the drivers of the economic growth will certainly help in policymaking decision. Based on the identification of the exogenous variable, policymaker will then provide close monitor on the performance of such variables to ensure the policy tools are effective enough to transmit the impact on the endogenous variables.

Table 6. ECM(-1) Results.

ecm(-1)	Coefficient	Standard Error	T-ratio [Prob.]	Significant Level	Result
dLG	-0.37013	0.16555	-2.2358 [0.031]	5%	Endogenous
dLX	0.15209	0.46582	0.32649 [0.746]	5%	Exogenous
dLM	1.3011	0.76682	1.6968 [0.098]	5%	Exogenous
dLER	0.018428	0.48562	0.037948 [0.970]	5%	Exogenous

The VECM output suggests that export, import and exchange rate are all exogenous variables since p-value greater than 5% significant level while GDP is found to be endogenous since p-value is less than 5% significant level. In other words, any shocks or changes created in the market, exogenous variable would then transmit the effect of those shocks to other variables. The coefficient of e_{t-1} will provides the information on the period taken by the variable to revert back to its long term equilibrium once shock is received. The equation of ECM as follows ;

ecm1 = 1.0000*LG + .0000*LX -.28952*LM + .098072*LER -.026291*Trend

VARIANCE DECOMPOSITIONS (VDC)

While VECM provides the absolute causality between variables, VDC will provide the relative causality of the variables which gives an absolute answer to the policymaker's question. The main function of Variance Decomposition (VDCs) is to decompose the variance of forecast error of a particular variable into a proportion that is attributable to the shocks in each variable in the system including its own. Generalized Variance Decomposition technique will assist in specifying the relative degree of endogeneity and exogeneity of the specific variables. In this case, the variable that is

explained mostly by its own shocks is deemed to be the most exogenous. Both generalised and orthogonalised approach can be used for this purpose however, the former is preferred since orthogonalised approach are more sensitive towards the order of the variables in VAR while the generalized approach is invariant to the order of the variables in VAR.

Table 7. Generalized Approach Result.

Horizon	Variable	LG	LX	LM	LER
1	LG	45.57%	5.255%	34.48%	14.69%
1	LX	1.557%	84.51%	2.538%	11.393%
1	LM	38.41%	3.247%	53.011	5.335%
1	LER	1.286%	11.41%	3.759%	83.54%
Exogeneity Ranking		**45.57% (4)**	**84.51% (1)**	**53.011% (3)**	**83.54% (2)**

Horizon	Variable	LG	LX	LM	LER
3	LG	37.27%	7.316%	37.36%	18.08%
3	LX	1.98%	80.62%	3.79%	13.58%
3	LM	39.31%	5.27%	47.85%	7.59%
3	LER	1.03%	12.13%	3.397%	83.41%
Exogeneity Ranking		**37.27% (4)**	**80.62% (2)**	**47.85% (3)**	**83.41% (1)**

Horizon	Variable	LG	LX	LM	LER
5	LG	35.58%	7.78%	38.82%	17.72%
5	LX	2.43%	78.63%	4.883%	14.06%
5	LM	38.97%	5.94%	46.37%	8.76%

5	LER	0.981%	12.39%	3.38%	83.24%
Exogeneity Ranking		**35.58% (4)**	**78.63% (2)**	**46.37% (3)**	**83.24% (1)**

Horizon	**Variable**	**LG**	**LX**	**LM**	**LER**
9	LG	34.69%	8.264%	39.06%	18%
9	LX	2.698%	77.39%	5.453%	14.43%
9	LM	38.74%	6.435%	45.4%	9.44%
9	LER	0.934%	12.61%	3.343%	83.1%
Exogeneity Ranking		**34.69% (4)**	**77.39% (2)**	**45.4% (3)**	**83.1% (1)**

Table 8. Orthogonalized Approach Result.

Horizon	**Variable**	**LG**	**LX**	**LM**	**LER**
1	LG	81.59%	5.728%	0.9651%	11.71%
1	LX	0.893%	47.68%	10.89%	40.55%
1	LM	70.39%	2.845%	26.27%	0.4926%
1	LER	1.534%	12.9%	2.232%	83.24%
Exogeneity Ranking		**81.59% (2)**	**47.68% (3)**	**26.27% (4)**	**83.24% (1)**

Horizon	**Variable**	**LG**	**LX**	**LM**	**LER**
3	LG	70.07%	8.939%	8.088%	12.91%
3	LX	2.439%	96.82%	0.3081%	0.4382%
3	LM	64.16%	4.865%	15.56%	1.5407%

3	LER	1.229%	13.82%	2.286%	82.63%
Exogeneity Ranking		**70.07% (3)**	**96.82% (1)**	**15.56% (4)**	**82.63% (2)**

Horizon	**Variable**	**LG**	**LX**	**LM**	**LER**
5	LG	68.17%	9.712%	10.39%	11.72%
5	LX	3.025%	95.82%	0.6702%	0.4819%
5	LM	46.69%	4.1675%	10.07%	1.578%
5	LER	1.173%	14.17%	2.346%	82.3%
Exogeneity Ranking		**68.17% (3)**	**95.82% (1)**	**10.07% (4)**	**82.3% (2)**

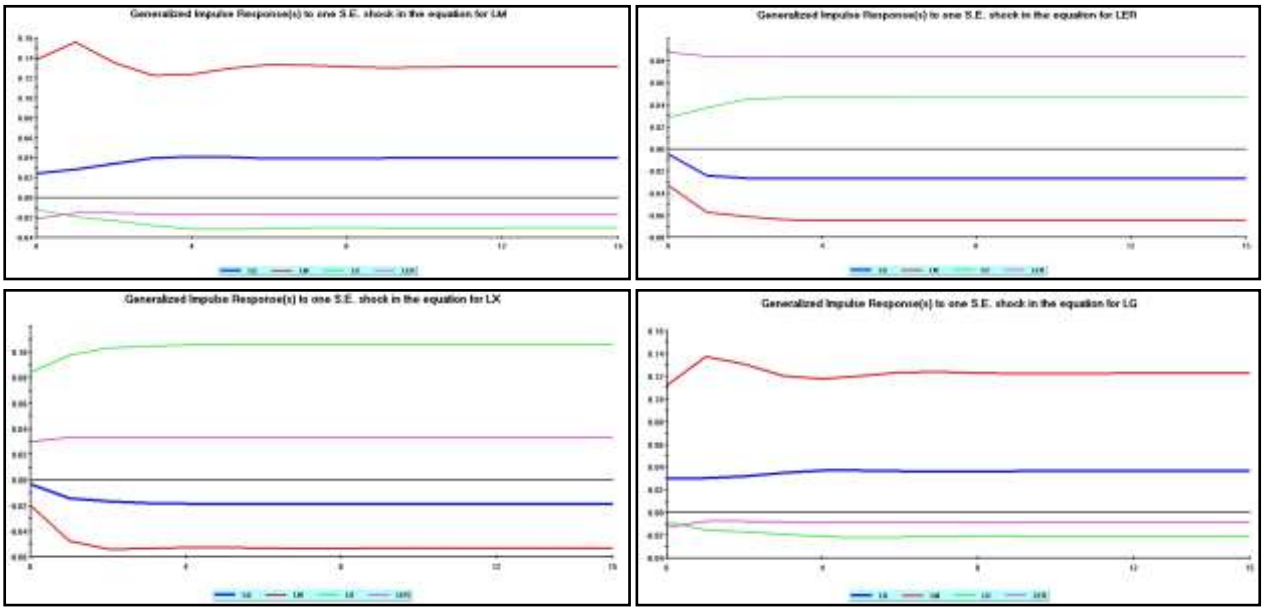
Horizon	**Variable**	**LG**	**LX**	**LM**	**LER**
9	LG	66.92%	10.51%	10.97%	11.6%
9	LX	3.409%	95.25%	0.8039%	0.5355%
9	LM	75%	7.419%	14.69%	2.876%
9	LER	1.118%	14.46%	2.2381%	82.043%
Exogeneity Ranking		**66.92% (3)**	**95.25% (1)**	**14.69% (4)**	**82.043% (2)**

Based on result presented, both generalised and orthogonalised shows a different exogeneity ranking. In generalised approach, exchange rate is the first leader followed by export as the second leader, then import while GDP is the most endogenous. The ranking is consistent in most of the period except in horizon 1 with the small ranking difference by less than 1%. In this case, it is important for the decision makers to identify the relative exogeneity of the variables since affecting the most exogenous variable will have a greater impact to other variables. Therefore, by knowing the relativity of exogenous for each variable, policymaker will use the result as tools in assisting which variables will have due impact on others.

IMPULSE RESPONSE FUNCTION (IRF)

Figure 2. Generalized Impulse Response to one S.E shock in the equation for each variable.

IFRs maps out the dynamic response path of a variable owing to one period standard deviation shock to other variables. IRFs essentially produce the same information as VDC with the additional of graphical form .The impulse response function will assist in tracing the time path of the various shocks on the variables contained in VAR system, their degree of response and how long it would take to normalized.

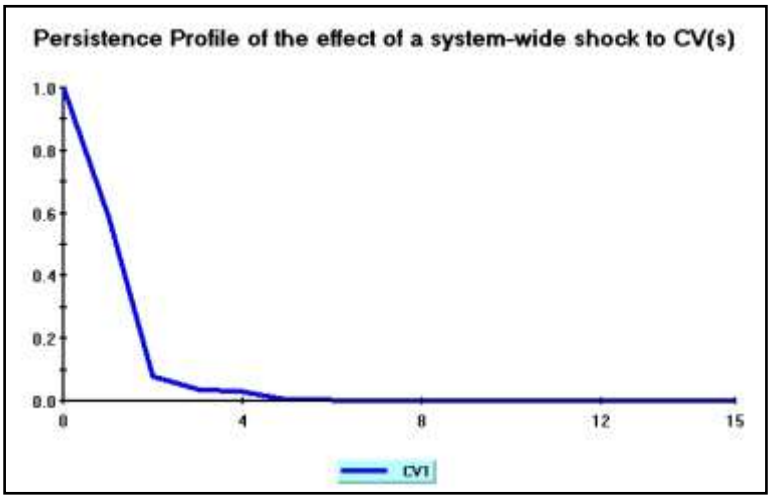


From figure 2, it shows that changes in GDP influence mostly on import of goods and services since import takes nearly 4 years to stabilize. Meanwhile less impact was transmitted to both exchange rate and export as both become stabilize by less than 1 year. On the other hand, shock that occurs to export will have a greater impact on both GDP and export of goods and services which take average of 3 years to return to equilibrium while less impact on exchange rate. Shock on import influenced GDP which takes 3 years to normalized, in contrast with export and exchange rate. Lastly, any shock that occurred to exchange rate will impact all variables; GDP, import and export of goods and series which take 3 years to normalize. The result presented is consistent with the VDC result. When exchange rate, the most exogenous variable is shocked, it will influence export, import and GDP simultaneously to deviate from the equilibrium. Exchange rate is the most leading variable by looking at the scale of graphs and GDP is the most endogenous; consistent with the findings in VECM and VDC.

Based on the result, conclusion could be drawn that the trade opens of a country will highly depends on the stability of the exchange rate. The policymakers will make a decision on GDP and import of goods and services based on exchange rate since changes in exchange rate will give impact on GDP ,import and export of goods and services.

PERSISTENCE PROFILE (PP)

Figure 3. Persistence Profile (PP) of the effect of a system wide shock to CV.



The persistence profile shows deals with the effect of a system-wide shock in the long term run rather than specific-variable shock. PP will further shows that how long it would take for the whole system to stabilize if all variables are subject to an external shock or external factors such as global crisis. The results indicates that if the variables were disturbed by any shock, the long term convergence between variables will take about 5 years in order to restore to equilibrium.

CONCLUDING REMARKS AND POLICY IMPLICATION.

In a recent year, attention has much been given on the role of international trade as an engine for growth. Economic theory suggests that both export and import sectors can contribute towards economic growth. However, most previous investigations have only focused on the role of the export sector while ignoring the potential growth-enhancing contribution of the import sector. This paper contributes to this literature by using a neoclassical growth modelling framework and multivariate cointegrated VAR methods to investigate the contribution of both export and import to the economic growth in Malaysia. The analysis focused on the dynamic causal relationship between GDP, export, import and exchange rate.

Based on the evidence shown, the result confirms that there is a bi-directional causal relationship exist between export and economic growth where export leads economic growth and also growth leads export. Therefore this study confirms the validity of both export led growth (ELG) and growth led export (GLE) hypothesis. The results are consistent with the findings in Van den Berg and Schmidt (1994) and Giles and Williams (2000). Secondly, the results also confirmed the existence of bi-directional causal relationship between import and economic growth supporting both import lead growth (ILG) and growth leads import hypothesis which is consistent with the findings in Lawrence and Weinstein (1999) which suggests that competitive pressures and potentially learning from foreign rivals are important conduits for growth in Japan.

In summary, the findings confirmed that the exclusion of import and the singular focus on role of export as the engine of growth may be misleading or at best incomplete. Although export plays a significant role for economic growth, reliance on the exports mainly is incomplete. Despite of the bidirectional relationship between growth and export and the role of imports, exchange rate condition or exchange rate stability plays an important role for the contribution of growth since exchange rate is the most exogenous variable and subject to external factor.

There are several policy implications based on the findings in this paper especially for the case of Malaysia and other developing countries; Policy to enhance export should be comprehensive in the sense that it cater both domestic and external factor such as ;

Government strategy on export promotion and economic diplomacy.

One of the key objective that government could do is to strengthen the economic diplomacy in general such as trade agreement. This is one way to tackle both benefits of trade stability and import competitiveness. Given the condition of developing economy facing a limited technological endowment, access to foreign knowledge and technology is only possible via imports. Therefore, if government wish to promote export as part of their strategy to enhance growth while at the same time imposing import constraints, this would only be partially effective. Evidenced from the experiences of large developing countries that have adopted the import- substitution growth strategy, large scale of restriction can impede the economic growth. Trade openness is very important to economic growth since it complements the role of export by serving as supply of intermediate production inputs needed in the export sector.

Liberalising credit facilities and simplifying regulations.

The availability of short term and long term credit is crucial for exporters. This is decisive for small and medium (SMEs) in which credit constraint and excess to finance is more restricted than large firms. It is non-arguable that SME's role as a drivers of the economy, yet tends to be overlooked. According to Stein et al. (2010), SME contributes half to the world's GDP and provides more than two third of global workforce (ACCA, 2010). Acknowledging the important role this domain, necessary action should be taken not only by the government but also state agencies and international organization in supporting the growth of SME especially for the business with the opportunities to serve for international demand. Apart from that, government also plays an important role in simplifying regulations related to export since long bureaucracy procedures will negatively affect export activities. Government may give fiscal concessions as part of the export promotion strategy. For example, the introduction of 'duty drawback scheme' under which taxes paid on materials used in the manufacture of goods for export was refunded.

Bilateral trade agreements.

Findings in this paper also highlight the importance of exchange rate stability as part of the export promotion to enhance growth. Therefore, engagement in bilateral trade agreements with other countries can be made to step up exports.

Finally, it is recommended that future empirical research focusing more on the impact of trade liberalization which explicitly account for the role of imports in stimulating economic growth.
It may be useful to extend the analytical framework used in this study to include other countries and comparison can be made between developed, developing and less developed countries.

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