Effects of fiscal components on economic growth: evidence from Malaysia

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Abstract:

The focus of this paper is to investigate the effect of foreign direct investment, employment, private consumption and national savings on GDP. The standard time series techniques are used for the analysis. Malaysia is taken as a case study. These variables are bound together by a theoretical relationship as evidenced in their being cointegrated. The findings based on the generalised variance decomposition(VDC) technique tend to indicate that the GDP is driven mostly by the foreign direct investment and followed by employment and private consumption. The foreign direct investment appears to be the crucial exogenous variable to initiate economic growth. The policy makers are, therefore, advised to encourage foreign direct investment to enhance economic growth.

Keywords: fiscal components, GDP, VECM, VDC, Malaysia

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(1) Introduction: Issues Motivating This Study

Many have discussed the effects of monetary policy on economic growth and many have studied the effects of fiscal measures on economic growth and development. This study will attempt to investigate the relationship between fiscal components such as, foreign direct investment, employment, private consumption (PS), national savings (NS), and gross domestic product (GDP). GDP being the indicator of growth in an economy.

Most if not all economies in the world use fiscal and monetary policy as their tool to boost economic growth. Combination of both tools may potentially result in continuous and sustainable growth.

In Malaysia, the national debt has been increasing over the years. In 2005 the national debt was RM299b and in 2011 it increased to RM456b with an increment of RM277b. This does not include contingent liabilities which can be construed as hidden debt under the off balance sheet item. From here we can see that debt has increased to 70% in 5 years whereas revenue increased only 30%. Study has shown that each Malaysian is basically shouldering RM20,000 each of national debt.

Current deficit in Malaysia can be clearly seen in 2012, where government has budgeted spending to be at RM233b at the back of expected revenue of only RM187b. This RM46b is reflective of government budget deficit. While government projected that deficit will be reduced to 4.7%, a report by IMF has forecasted that Malaysia will only be able to reduce up to 5.1%. This is due to current major imbalances faced by Malaysia's economic condition.

In light of the above this study has three research questions to be deliberated, namely:

i. Assuming that the Keynesian theory is the most relevant theory available, what is the relationship between foreign direct investment ("FDI"), private consumption ("PC"), national savings ("NS"), employment ("EM") and gross domestic product ("GDP").
ii. What sort of impact does each of the above-mentioned component have on the economy.

iii. Assuming that the government would want to make fiscal policy changes, which component of the above-mentioned components would have the most impact on economic growth.

The variable that is used to represent an economy or an economic growth in this study is the commonly used and cited in most economic literature or paper.

The findings of this research will illustrate to policy maker and country heads the major contributing factors to macroeconomics for an economic growth. Policy implication to changes made to these component and variables can also be articulated based on the result of the causality test performed.

(2) Literature Review

Macroeconomics literature is reasonably rich with discussion on monetary and fiscal policy in both developed and developing free-market economy. Economic growth has been and will always be the main theme of any government around the globe. Studies after studies have been produced by researchers and scholars to determine factors or sometimes the determinants that will most likely affect the performance of the government of the day.

There are many studies that recognise the correlation between industry performance, total consumption and economic performance. However, correlation between private consumption expenditure and economic performance has not been established. Furthermore, the direction of causality between them remains a debate. Does personal consumption expenditure promote economic growth or the other way round. It is the debate between economies whether an economy should be supply or demand driven as being mentioned in the supply-leading hypothesis and demand-following hypothesis.

Paper by Vargos et al (2010) indicated the positive correlation between Government consumption expenditure and the economic growth.

One of the dominant fundamentals of Keynesian theory is that the government has a complementary role in an economy. Government plays an important role to affect the

aggregate levels of spending and employment in the economy. Some of the tools used were fiscal initiatives such as taxation and austerity measures i.e. government spending. Before Keynes, government were thought to only redirect resources from the private to public sector. (Blinder et al 2005).

Generally, Keynesian approach can be considered to be valid in the short run where prices are given whereas employment and output depend on demand.

The general theory of Keynes can be illustrated in the following equation :

$$Y = C + G + I + (X - M)$$

In an economy, the total output is the total of Gross Domestic Product (GDP) where it is a function of private consumption ("C"), government consumption ("G"), total investment ("I") and net export ("X-M"; export minus import).

This study intends to look into the relationship and causality effect of foreign direct investment, employment, private consumption, national savings, on economic growth. This will be viewed and studied in the context of Malaysia. Economic growth here is measured in terms of GDP. It has always been Malaysian government's strategy to promote and strengthen inflows of foreign direct investment into the country. Similarly private sector has been entrusted to drive the nation's economy. With private sector participation in an economy, employment is reckoned to increase which will in turn contribute towards private consumption as well.

To help us see the causality and relationship between these component and variables, we will test and prove this relationship using empirical data as to whether this intuition is correct. In light of this, we will now continue with quantitative analysis of this study.

(3) Research methodology, results and interpretation

This study intends to employ time series cointegration technique which was started in 1987 with the publication of the paper by the 2003 Noble Prize winner, Engle and Grange. This study, in particular intends to employ cointegration, error correction modelling and variance decomposition in order to find empirical evidence of the nature of relations between the macroeconomic components as enlightened in the introductory paragraphs. This method is favoured as opposed to traditional regression method due to the following circumstances:

Firstly, most economic time series are non stationary variable in their original level form. A variable is considered stationary when its mean, variance and covariance are constant over time. Therefore if the variables are non stationary, the test results using the traditional regression or OLS method are considered invalid and misleading. This is because statistical tests like t-ratios and F statistics are not statistically valid when applied to non-stationary variables. Non stationarity of a variable can be reversed in their difference form however should differenced variables be regressed, the long term trend is effectively removed. This is because regression only captures short term, seasonal and cyclical effects. In essence, regression is not really testing long term theoretical relationships.

Secondly, in traditional regression, the endogeneity and exogeneity of variables is pre-determined by the researcher, usually on the basis of prevailing or a priori theories. Whereas in cointegration techniques it does not presume variable endogeneity and exogeneity. The data will in the final analysis determine which variables are in fact exogenous and which are endogenous. In other words, causality is presumed with regression, whereas in cointegration, it is empirically proven with the econometric analysis or data.

Thirdly, cointegration technique take into account the dynamic interaction between variables whereas traditional regression methods, by definition, exclude or discriminate against interaction between variables. Economic intuition tells us that the interaction between macroeconomic functions is dynamic in nature. The variables identified and used for this study are as follows:

No	Variable	Description
1.	FDI	Foreign Direct Investment
2.	PC	Private Consumption
3.	GDP	Gross Domestic Product
4.	NS	National Savings
5.	EM	Total Employment

The data used here are quarterly data for each of the identified variables for Malaysia covering 20-year period starting with quarter 4, 1992. A total of 81 observations were obtained and the source data was DataStream.

Time series approach is adopted in this study. There are eight (8) steps in this approach. The first four steps test the theories while the next four steps test the causality of the variables. The method is simplified below through the eight steps that must be done in the time series technique through the software, *Microfit*:

1. Testing stationarity of variables
2. Determination of order of the VAR model
3. Testing for cointegration
4. Long run structural modelling (LRSM)
5. Vector error correction modelling (VECM)
6. Variance decomposition (VDC)
7. Impulse response function (IRF)
8. Persistence profiles

3.1 Testing stationarity of variables

We begin our empirical testing by determining the stationarity of the variables used. This time series method deviate from the traditional regression whereby it accept the fact that time series data are normally non stationary. Therefore, in order to proceed with the testing of cointegration later, ideally, our variables should be non-stationary in their original level form and stationary in their differenced form. The differenced form for each variable used is created by taking the difference of the log forms. For example DDFI = LFDI – $LDFI_{t-1}$.

This paper uses the common ADF (Augmented Dickey Fuller) unit root test method on each variable (in both level and differenced form).

Variable	Test Statistic	Critical Value	Implication
Variables in Level Form			
LDFI	-6.61663	-3.4704	Variable is stationary
LPC	-2.8007	-3.4704	Variable is non-stationary
LGDP	-3.6319	-3.4704	Variable is stationary
LNS	-2.7410	-3.4704	Variable is non-stationary
LEM	-2.3697	-3.4704	Variable is non-stationary
Variables in Differenced Form			
DLFDI	-16.7760	-2.9012	Variable is stationary
DLPC	-4.1868	-2.9012	Variable is stationary
DLGDP	-4.4800	-2.9012	Variable is stationary
DLNS	-4.8103	-2.9012	Variable is stationary
DLEM	-2.9012	-2.9012	Variable is stationary

The test statistic highlighted above are chosen according to the AIC and SBC criteria, that is choosing the ADF from which the AIC is highest. However, all other test statistics are relevant in the case of level form variables. As in the case of differenced form variables, this criteria was needed since some of the other test statistics are not significant to show that

they are stationary. There are two variables which are stationary at even the level form which is LDFI and LGDP. Such instances are not detrimental to the whole process of this unit root test as the test intends to prove the theory of the economic function or equation. This is not an issue as in all cases, the implications are consistent.

3.2 Determination of order of the Vector Auto Regressive (VAR) model

In time series data, lagging order or the effect of previous data on the current data is important. As such before proceeding with the test of cointegration, we need to first determine the order of the VAR, that is the number of lags to be used. This is to make sure that the model is accurately predicting the result. If the lag period is too long, the estimate will be inefficient. This is done using the unrestricted VAR function in *Microfit* by selecting an exceptionally high order, 6. The outcome will show both AIC and SBC where AIC will give the maximum lag order, while SBC gives the minimum.

	Criteria	
	AIC	**SBC**
Optimal order	4	1

Given the apparent conflict between recommendation of AIC and SBC, we shall address this in the following manner. First we consider the serial correlation for each of the 5 variables and obtained the following results.

Variable	**Chi-Sq p-value**	**Implications (at 10%)**
DLFDI	0.391	There is no serial correlation
DLPC	0.417	There is no serial correlation
DLGDP	0.024	There is serial correlation
DLNS	0.047	There is serial correlation
DLEM	0.057	There is serial correlation

Based on the above results, it is evident that 3 out of the 5 variables, has an autocorrelation. Therefore, if we adopt a lower order of lag, we may encounter the effects of serial correlation. The disadvantage of taking a higher order is that we risk over-parameterization. However considering that we have relatively moderate number of observation and only 5 variables, the study decided to choose the higher VAR order of 4.

3.3 Testing cointegration

Once we have established that the variables are I(1) and determined the optimal VAR order as 4, we are ready to test for cointegration. The table below depicts the results derived from the maximal Eigenvalue, Trace, AIC, SBC and HQC. Except for AIC which indicate that there are 4 cointegrating vectors the other tests has one cointegrating vector.

Criteria[1]	**Number of cointegrating vectors**
Maximal Eigenvalue	1
Trace	1
AIC	4
SBC	1
HQC	1

Based on the above, we are inclined towards accepting that there is one cointegrating vector based on our intuitive and familiarity with the contemporary theory surrounding macroeconomics theoretical functions. Therefore based on the above statistical results as well as our insightful intuition, for the purpose of this study, we shall ***assume that there is one cointegrating vector***, or relationship.

[1] In the case of Maximal Eigenvalue and Trace, the test statistic for null of r=0 is greater than the 95% critical value whereas for other null hypotheses, statistic is less than the critical values. For AIC, SBC and HQC, the number of cointegrating vectors is obtained by locating the highest numbers.

Engel and Granger (1987) put forward the Cointegration theory which states that non-stationary variables can become stationary variables by linear combining these non-stationary variables. These variables have a co-integration relationship. That is, there exist long-term stable relationships among these variables. Even if these variables depart from the equilibrium levels because of some short-term outside disruptions, with time, the degree of variation of the variables will gradually decrease and variables will return to the general equilibrium levels.

Statistically, the above results indicate that the variables we have chosen, in some combination, result in a stationary error term. The economic interpretation, in our opinion, is that the 5 economic functions are theoretically related in some way or another. In essence, the 5 variables are cointegrated, and that their relations to one another is not merely spurious or by chance. This conclusion has an important implication for policy and decision makers of an economy. What can be deduce here is that, a policy on economic development can be changed or developed based on these variables.

Another way of testing for co-integration is through a procedure proposed by Johansen. Johansen procedure is able to determine the number of co-integration vector group. That is, the number of co-integration relationships among the variables.

For this study, both the Johansen and Engel Granger co-integration test are carried out to explore whether there exist co-integrations among the variables.

Johansen co-integration test table below.

H0	H1	statistic	95% Crit.	90% crit.
Maximum eigen value statistics				
r=0	r=1	52.0184	37.86	35.04
R<=1	r=2	19.9308	31.79	29.13
Trace statistics				
r=0	r>=1	104.6322	87.17	82.88
R=1	r>=2	64.69	63.00	59.16

3.4 Long Run Structural Modelling (LRSM)

Existence of co-integration relationship among variables implies long term equilibrium relationships. LRSM seeks to test long run coefficients against theoretical, logical and intuitional expectation. This is done by imposing restrictions, namely, exact identifying and over identifying. Relying on the LRSM component of MicroFit, and normalizing our variable of interest, GDP, we initially obtained the results in the following table. Calculating the t-ratios manually, we found all 4 variables to be significant – FDI, PC, NS and EM.

Variable	Coefficient	Standard Error	t-ratio	Implication
LFDI	0.024359	0.0087410	2.79	Variable is significant
LPC	-0.54734	0.062195	-8.80	Variable is significant
LGDP	-	-	-	-
LNS	-0.32837	0.033538	-9.80	Variable is significant
LEM	-0.61074	0.13792	-4.43	Variable is significant

The above results correspond with many economic literature and theory on the long term relationship of these variables. Driven by even further curiosity, we still decided to proceed to verify the significance of the variables by subjecting the estimates to over-identifying restrictions perform over LFDI. The Null Hypotheses for the over-identification is LFDI=0. Based on the Chi-Square result, the p-value [0.011] is insignificant and hence we reject the null. This means that LFDI remains significant which is supportive of the earlier statistical result or exact-identification.

Following is the table for exact and over identifying restrictions on the cointegrating vector:

Variable	Panel A	Panel B
LFDI	0.024359* (0.0087410)	-.0000 (*None*)
LPC	-0.54734* (0.062195)	-0.45120* (0.064746)

LGDP	1.0000 (*None*)	1.0000 (*None*)
LNS	-0.32837* (0.033538)	-0.35551* (0.043552)
LEM	-0.61074* (0.13792)	-0.50654* (0.16336)
Log Likelihood	708.5311	705.2665
Chi-Square	None	6.5292 [0.011]

The table above show the maximum likelihood estimates subject to exactly identifying (Panel A) and over identifying (Panel B) restrictions. The Panel A estimates show that all the variables are significant (standard errors are in parenthesis). * Indicates significance at the 5% level or less. All the coefficients have the correct signs. However, the over-identifying restriction on real GDP equal to one is rejected (with a p-value of only 0.011 error while rejecting the null) and as a result we proceed with Panel A for the remainder of the paper.

From the above analysis, we arrive at the following ***cointegrating equation*** (number in parentheses are standard deviations):

GDP + 0.02FDI – 0.54PC - 0.33NS - 0.61EM → I(0)

(0.0087) (0.062) (0.033) (0.13)

3.5 Vector Error Correction Model

From our analysis thus far, we have established that all 5 variables are cointegrated to a significant degree – FDI, PC, GDP, NS and EM. However, the cointegrating equation reveals nothing about causality, that is, which variable is leading or exogenous and which one is a follower or laggard or endogenous variable. Information on direction of Granger-causation

can be particularly useful for investors. By knowing which variable is exogenous and endogenous, policy makers can better forecast or predict expected policy implication of their decision. Typically, policy maker would be interested to know which economic function is the exogenous variable because then the policy maker could closely monitor such function as it would have significant policy implication to the economy.

In light of the above, the next part of our analysis involves the Vector Error Correction Model (VECM). Here, in addition to decomposing the change in each variable to short-term and long-term components, we are able to ascertain which variables are in fact exogenous and which are endogenous. The principle of Granger-causality here is that, a form of temporal causality where we determine the extent to which the change in one variable is caused by another variable in a previous period. By examining the error correction term, $e_{t-1,}$ for each variable, and checking whether it is significant or otherwise, we found that there are 3 exogenous variable, PC, FDI and EM as depicted in the table below. The other two variables were found to be endogenous.

Through Granger-causality, we are able to determine the extent to which one variable is influenced by another in the previous period. The following table summarizes this part of the output in VECM.

Variable	ECM(-1) t-ratio p-value	Implication
LFDI	0.113	Variable is exogenous
LPC	0.078	Variable is endogenous
LGDP	0.008	Variable is endogenous
LNS	0.000	Variable is endogenous
LEM	0.536	Variable is exogenous

This step seeks to determine the causal relationships of the co-integrated variables. The ECT stands for the long term relations among the variables. Check the 't' test of the ECT in order to determine the exogeneity or endogeneity of the corresponding dependent variables. At least one of the ECT should be significant for the validity of the co-integrating relationship. The impact of each variable on other variables in the short run is given by the 'F' test of joint significant/insignificant of the lags of each of the 'differenced' variables.

- If the ECT is insignificant, it implies the corresponding dependent variable is 'exogenous' (also called leader). It does not depend on the deviations of other variables.
- If the ECT is significant, it implies the corresponding dependent variable is 'endogenous' (also called follower). It does depend on the deviations of other variables.

The size of the coefficient of ECT is indicative of:

- The speed of short term adjustment to bring about long term equilibrium.
- The intensity of arbitrage activity to bring about equilibrium.

VECM is able to distinguish between the 'short-term' and 'long-term' Granger-causality. However, VECM is not able to determine the relative degree of endogeneity or exogeneity among the variables.

3.6 Variance Decomposition (VDCs)

Since the VECM in the previous step is not able to tell us the relative endogeneity of the three variables, we need the VDC to provide us with this information. The VDC has two methods in the *Microfit* software. One is the orthogonalized and the other is the generalized version. What VDC does is it decomposes the variance of forecasted error of the different variables individually into proportions attributable to shocks from each variable. This not only happens in the whole system, but also including its own shock. The least endogenous variable will be considered exogenous. This is seen from how much the variable is explained by its own past.

There are two main difference between the orthogonalized and generalised variance decomposition are as follows:

1. The orthogonalized VDCs are not unique and in general depend on the particular ordering of the variable in the VAR but the generalised VDCs are invariant to the ordering of the variables.
2. The orthogonalized VDCs assume that when a particular variable is shocked, all other variables in the system are switched off but the generalised VDCs do not make such an assumption.

The VDC decomposes the variance of the forecast error of a particular variable into proportions attributable to shocks in each variable in the system including its own. The relative exogeneity/endogeneity of a variable can be determined by the proportion of the variance explained by its own past shocks. The variable which is explained mostly by its own shocks is deemed to be the most exogenous of all.

We started out applying orthogonalized VDCs and obtained the following results.

Forecast at Horizon = 5 (quarters).

	LFDI	**LPC**	**LGDP**	**LNS**	**LEM**
LFDI	92.1%	0.6%	0.5%	6.0%	0.7%
LPC	13.5%	73.7%	9.7%	0.7%	2.4%
LGDP	25.4%	22.9%	41.5%	8.7%	1.5%
LNS	15.5%	5.7%	28.6%	47.7%	2.5%
LEM	7.4%	1.3%	4.3%	2.2%	84.8%

Forecast at Horizon = 10 (quarters).

	LFDI	**LPC**	**LGDP**	**LNS**	**LEM**
LFDI	89.6%	0.5%	0.4%	9.0%	0.5%
LPC	15.8%	71.1%	9.6%	0.7%	2.8%
LGDP	26.2%	26.1%	35.0%	11.7%	1.0%
LNS	10.6%	2.8%	28.3%	43.0%	15.3%
LEM	8.7%	0.9%	5.0%	4.3%	81.2%

For the above two tables, rows read as the percentage of the variance of forecast error of each variable into proportion attributable to shocks from other variables (in columns), including its own. The columns read the percentage in which that variable contributes to other variables in explaining observed changes. The diagonal line of the matrix (highlighted) represents the relative exogeneity. According to these results, the ranking of indices by degree of exogeneity (extent to which variation is explained by its own past variations) is as per the table below:

No	Variable
1	FDI
2	EM
3	PC
4	NS
5	GDP

In order to make sense of this result, we need to recognize two important limitations of Orthogonalized VDCs. Firstly it assumes that when a particular variable is shocked, all other variables are "switched off". Secondly and most importantly, Orthogonalized VDCs do not produce a unique solution. The generated numbers are dependent upon ordering of the variables in the VAR. Typically, the first variable would report the highest percentage and this would likely to be specified as the most exogenous variable. This is the case for our data, where FDI appears first in the VAR order, is reported to be the most exogenous.

Following this discovery, we decided to rely instead on Generalized VDCs, which are invariant to the ordering of variables. The generalized VDC does not consider the particular ordering of the variables and does not assume that when one variable is shocked, the others are 'switched off'. However, the numbers in the row for generalized version does not add up to 1 or 100% like the orthogonalized. Thus, manual calculation of the numbers needs to be done in order to get consistent numbers as a percentage amount.

Forecast at Horizon = 5 (years).

	LFDI	LPC	LGDP	LNS	LEM
LFDI	89.1%	1.0%	1.6%	6.0%	2.2%
LPC	10.6%	56.2%	27.0%	0.9%	5.2%
LGDP	21.4%	17.7%	53.2%	3.7%	4.0%
LNS	15.4%	6.0%	26.7%	50.7%	1.2%
LEM	7.1%	1.3%	4.8%	1.5%	85.2%

Forecast at Horizon = 10 (years).

	LFDI	LPC	LGDP	LNS	LEM
LFDI	87.0%	0.9%	1.6%	9.1%	1.5%
LPC	12.4%	53.9%	27.4%	0.6%	5.7%
LGDP	22.3%	20.4%	49.1%	5.3%	3.0%
LNS	11.8%	3.4%	28.3%	41.2%	15.3%
LEM	8.4%	0.9%	5.9%	2.9%	82.0%

We can now more reliably rank the indices by relative exogeneity, as depicted in the table below.

No.	Variable Relative Exogeneity	
	At Horizon = 5	At Horizon = 10
1	FDI	FDI
2	EM	EM
3	PC	PC
4	GDP	GDP
5	NS	NS

From the above results, we can make the following key observations :

- The Generalized VDCs confirm the results of the VECM in that FDI is the most exogenous variable.
- The relative rank in exogeneity is somewhat stable as time passes. There is no changes in ranking between the two time horizon above.
- FDI has been the most exogenous in both the results, Orthogonalized as well as in Generalized VDCs.

The above results would have the following plausible implication for policy makers. It is evident that FDI being the exogenous and hence the leading variable together with EM. This could be further supported in that an increase in employment would therefore translate

into increase in disposable income. With an increase in disposable income will in turn translate into increase in private consumption. In developing country like Malaysia, increase in employment in middle and lower income category of society will also increase the Marginal Propensity to Consume. This also in turn will translate into increase in private consumption and eventually rise in economic activity or GDP.

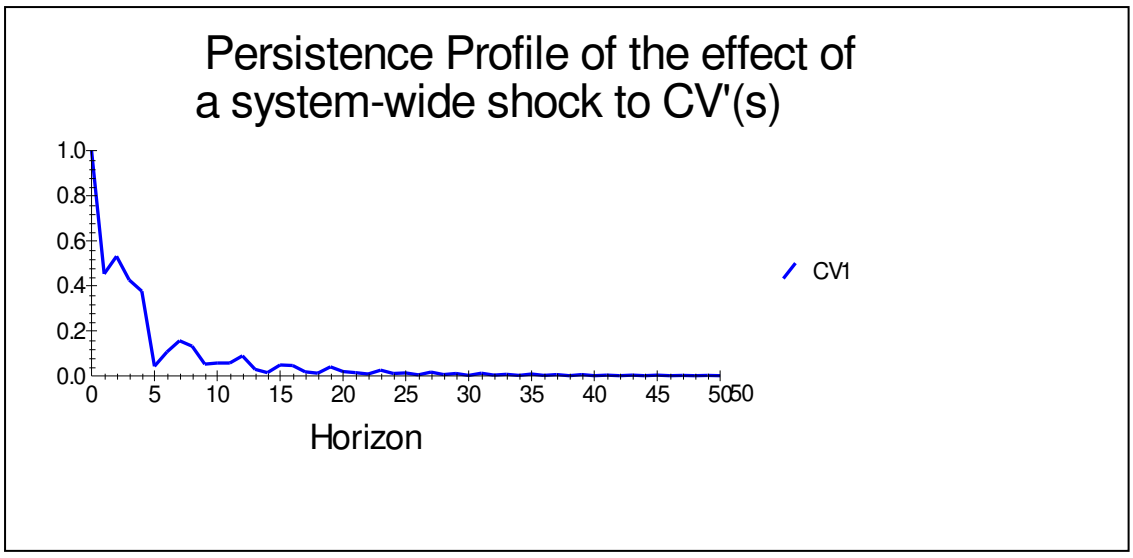
GDP and National Savings are considered dependent variable and lagging variable which support existing economic theoretical understanding and our intuition. GDP will be dependant on other macroeconomic functions in an economy and being a lagging component of an economic policy.

3.7 Impulse Response Function (IRFs)

This step will produce the result of shocks of a variable on all other variables in a graphical form. It can be on both orthogonalized and generalised impulse response. The information contain in the VDCs can be equivalently represented by IFRs. Both are obtained from the MA representation of the original VAR model. IRFs essentially map out the dynamic response path of a variable owing to a one-period standard deviation shock to another variable. The IFRs are normalised such that zero represents the steady-state value of the response variable.

3.8 Persistence Profile (PP)

The persistence profile illustrates the situation when the entire cointegrating equation is shocked, and indicates the time it would take for the relationship to get back to equilibrium. Here the effect of a system-wide shock on the long-run relations is the focus of (instead of variable-specific shocks as in the case of IRFs). The chart below shows the persistence profile for the cointegrating equation of this study.



This is to get a graphical effect of a system-wide shock to the co-integrating vectors (CVs). The chart indicates that it would take approximately 35 quarters (almost 9 years)[2] for the cointegrating relationship to return to equilibrium following a system-wide shock.

4 Conclusion and Policy Implications

In conclusion, we revisit the three research question posed at the onset of this study. Based on the above quantitative analysis, we found the answers to be:

i. There appears to be a relationship between the economic functions of foreign direct investment ("FDI"), private consumption ("PC"), national savings ("NS"), employment ("EM") and gross domestic product ("GDP"). This confirms our intuition and economic theoretical framework propagated by the Keynesians.

ii. Some component will have larger and greater impact on others as proved with the exogeneity and endogeneity test of the variables. And should there be a system-wide shock in the economic functions identified in the study, it will take approximately 35 quarters to return to equilibrium.

iii. Amongst the above-mentioned component, the most impacted will be GDP and National Savings should any policy changes be made as these are the dependent variable or most endogenous variables. For example should the government decide

[2] Such effect can be supported by a working paper by Kenneth S. Rogoff from National Bureau of Economic Research published in April 2012, where according to this paper, debt overhang of a country might take between 7 to 25 years for a full recovery.

to attract and increase foreign direct investment, the impact will largely be on our GDP and the country's consumptions and/or savings.

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