

A TIME SERIES ANALYSIS OF GROSS DOMESTIC CAPITAL FORMATION AND FOREIGN TRADE IN INDIA

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Abstract

In this study, we analysis the relationship between exports, imports and gross domestic capital formation in a developing country like India has been investigated using popular time series data. First we calculated stationary of data through Augmented Dickey- Fuller test of unit root test which indicates that all variables are stationary at first difference. There is no co integration found among the variables in Johansen co integration test. That means there is no long run association-ship among the variables. The results of the empirical analysis lead to the conclusion that both exports and imports influence gross capital formation. The results strongly support the unidirectional causation from capital formation to total imports, as well as in case of exports to imports, means causality runs from Gross domestic capital formation to imports and exports to imports.

Keywords: Capital Formation, Economic Growth, Exports, Imports, Investment.

INTRODUCTION

Capital formation is vital indicator for the development of an economy. It is one of the basic determinants of an economy's ability to produce income for its nation's people. Physical capital formation is defined as a measure of the net addition to the (physical) stock of capital of a region in an accounting year. In a broader sense, the term 'capital formation' has been used to refer to saving drives, setting up financial institutions, fiscal measures, public borrowing, development of capital markets, privatization of financial institutions, development of secondary markets, etc. Thus, capital formation is simply the enlargement of capital stock. Higher the rate of capital formation, more rapid is the growth of the economy's productive capacity and, hence, more rapid would be the growth of aggregated income.

Capital formation also influences the economic welfare of a country. It helps in meeting all the requirements of an increasing population in a developing economy. When capital formation leads to the proper exploitation of natural resources and the establishment of different types of industries, which results increases the level of output and income that satisfied the varied wants of the people. They consume a variety of commodities, their standard of living rises and their economic welfare increases. An increase in economic welfare ceteris paribus is an indication of economic development.

According to Nurkse (1953), the circles of poverty in underdeveloped countries can be broken through capital formation. Nurkse believes that, due to low levels of income in such countries demand, production and investment are deficient. This results in the deficiency of capital goods which can be removed by capital formation. Thus, capital formation leads to increase in the size of national output, income and development thereby solving the problems of inflation and balance of payments, and making the economy free from the burden of foreign debts.

On the other side, international trade plays important role for economic growth. Since, the study

of Adam Smith, it has been argued that, trade plays an important role in national wealth of the nations (capital formation). Furthermore, trade increases specialization in productions which leads to the efficient productions and optimum allocations of resources. Furthermore, the neo classical growth theories led by Solow insisted that, trade (import and export) was a main determinant of growth and has long run relationship with economic growth. To strength the relationship between export and economic growth, during 1960s export led hypothesis received special attention, after the rapid increase in economic growth in East Asian Countries. It was believed that, the economic prosperity in East Asian Countries was influenced by the outward oriented policies.

From this fact, vast group of economists had skeptical views toward the exports, as it was seen as the main engine of the economic growth. It is believed that, export through relieving the constraints of foreign exchange reserves, will increase competition in production, and in turn will lead to efficiency in productions and optimum allocation of resources. This would result to economies of scale through specializations in productions and promoting the diffusion of advanced technology. Furthermore, the export growth relationship received a special priority in modelling the economic growth by the World Bank report.

Moreover, if we consider the endogenous growth theory, it emphasizes the role of imports in economic growth. The theory recommends that, imports can attract foreign technology into the domestic economy and increase the availability of transitional goods and inputs including machines, human capitals, skilled labours, equipment which in overall increase productivity in the economy. In this case, imports received considerable attention in determining the long run economic growth especially for developing countries.

The situation requires the need for the new empirically justifications which is the main purpose our study. Capital formations refer to the net additions of (physical) capital stock in the economy, which present the real picture of investment where by the goods and services are produced and presents the growth of “real economy”. Capital formations (investment) can have relationship with the exports, because when the investment demand increases, the export demand also rises. In the same case, Young argued that, besides export, rapid increases in economic growth of Newly Industrialized Countries (NICs) were highly contributed due to the development of the investment policies. Specifically, the endogenous growth theories have shown that, export, import capital formation and economic growth have long run relationship with the economic growth.

In 2019, India became fifth largest economy in terms of GDP after United States, China, Japan and Germany, the state third largest economy in terms of purchasing power parity after china and United States. After the 1991 economic liberalization India achieved 6-7%average GDP growth annually. During the last 4-5 years, the Indian economy has witnessed remarkable improvement in macro-economic environment with lead indicators in positive trajectory. The real GDP growth has increased from 6.4% in 2014 to 7.2% in 2019. Per-capita income at current prices has exhibited an increasing trend from Rs. 79,118 in 2014 to Rs. 1,25,397 in 2019. The exports growth has steadily increased from 7.8% in 2014 to 12.1% in 2019 and the total trade of the country has improved from USD 764.5 billion in 2014 to USD 769.1 billion in 2019. The fiscal deficit as share of GDP declined from 4.5% in 2014 to 3.3% in 2019. Further, India recorded a consistent increase in foreign inflows over the last few years. The FDI inflows have

increased from USD 36.0 billion in 2014 to USD 61.9 billion in 2019. The exchange rate in 2014 was INR/USD 60.5 however it is expected to dwindle between INR/USD 69-67 in 2019. India's exports during December 2018 were valued at USD 27.93 Billion as compared to USD 27.83

Billion during December 2017 exhibiting a positive growth of 0.34%. India's imports during December 2018 were valued at USD 41.01 Billion (Rs 2,90,032.95 crore) which was 2.44% lower in Dollar terms and 7.41% higher in Rupee terms over the level of imports valued at USD 42.03 Billion (Rs.2,70,015,44 crore) in December 2017. The major commodity groups of export showing positive growth over the corresponding month of last year are Petroleum Products (13.18%); Organic & Inorganic Chemicals (5.5%); Plastic & Linoleum (20.18%); RMG of all Textiles (2.77%) and Electronic Goods (50.81%).

Until the liberalisation of 1991, India was largely and intentionally inaccessible from world markets, to protect its economy and to achieve self-reliance. Foreign trade was subject to import tariffs, export taxes and quantitative restrictions, In November 2010, exports increased 22.3% year-on-year to ₹850.63 billion (US\$12 billion), while imports were up 7.5% at ₹1,251.33 billion (US\$17 billion). The trade deficit for the same month dropped from ₹468.65 billion (US\$6.5 billion) in 2009 to ₹400.7 billion (US\$5.6 billion) in 2010.

However, no recent study has been reported on Gross Domestic capital formation and its linkage to exports and imports of India, the post reform analysis. The present investigation undertaken with the specific objective to examine pattern of growth, speed of structural changes and temporal linkages,.

RESEARCH OBJECTIVE

The general objective of this study is to investigate the dynamic relationship among economic growth, export and import. Subsequently, specific objective of this study are:

- To examine if there is long run relationship among Gross Domestic Capital formation (GDCF), exports and imports.
- To examine the causality relationship among Gross Domestic Capital formation(GDCF), export and import.
- To investigate the impulse response effect among the GDCF, exports and imports

The general objective of this study is to investigate the relationship among Gross Domestic Capital formation (GDCF), export, import and economic growth in India. To achieve this objective, the paper is structured as follows. In section 2, we present the review of literature concerning the nexus between Gross Domestic Capital formation(GDCF), export, import and economic growth. We discuss the Methodology of Model Specification and data used in this study in Section 3. Section 4 presents the empirical results as well as the analysis of the findings. Finally, Section 5 is dedicated to our conclusion.

LITERATURE REVIEW

Since the review of literature has shown that import is the main variable in modelling export growth relationship, many studies examined the relationship among export, import Gross Domestic Capital Formation and economic growth. These studies include:

Sumei Tang, E. A. Selvanathan and S. Selvanathan (2008) investigate the causal link between foreign direct investment (FDI), domestic investment and economic growth in China for the

period 1988-2003. The results show that while there is a bi-directional causality between domestic investment and economic growth, there is only single-directional causality from FDI to domestic investment and to economic growth

Ullah et al. [2009] found that, GDP does not Granger cause export or capital formation in Pakistan. Instead, they found that, it only Grangers cause real imports. In addition, they found capital formation causes real imports and not real exports. Furthermore, they found no causality relationship between capital formation, export and import.

Ibarra(2010) find the export-investment relationship tends to hold empirically, particularly when export expansion is centred on manufacturing goods. In general, 'export-led investment' may play an important role in an economy's growth process.

Adhikary (2011) found that, capital formation has long run relationship with export and import in Bangladesh. On the other hand, the study found long run causality relationship flows from trade, capital formation and FDI to economic growth. In this way the study concluded that, capital formation has long run relationship and cause economic growth. However, most of these studies have not included export and imports in their models, they are bivariate systems, which results to unreliable suggestions for policies making.

Cipamba's (2013) Furthermore, support for the export-led growth strategy was derived from Granger causality tests in a multivariate VAR framework, which established bidirectional causality between exports and economic growth for the period 1970q1 to 2012q4.

Chang, Simo-Kengne and Gupta (2013) conducted an investigation at provincial level for the period 1995-2011 and detected evidence of export-led growth and bidirectional causality in the case of Mpumalanga and Gauteng respectively.

Saaed and Hussain (2015) found unidirectional causality between exports and imports and between exports and economic growth in Tunisia for the period from 1977 to 2012. According to them growth in Tunisia was propelled by a growth -led import strategy. Imports are thus seen as the source of economic growth in Tunisia. Other empirical studies investigated also the relationship between domestic investment and economic growth.

Sana Iftikhar, Fakhar-un-Nisa, Majid Ali and Sadia Umar(2016) examine the relationship among Gross Domestic Capital Formation, Exports and Economic Growth in Pakistan during the period 1985-2012. That all the variables are integrated at first order that is (1). Johansen co-integration test reveals that long run relationship prevails among the variables. Gross domestic capital formation found positively related to economic growth and exports found negatively related with economic growth in this study.

A large numbers of studies established on relationship between exports and economic growth, saving and capital formation, export and import relation, but no desirable literature found on the linkages between exports, imports and Gross Domestic Capital Formation at national level during 1991-2018. There is enough scope of research in this area.

Theoretical frameworks

We consider the endogenous growth theory; it emphasizes the role of imports in economic growth. The theory suggests that, imports can attract foreign technology into the domestic economy and increase the availability of intermediate goods and inputs including machines, human capitals, skilled labours, equipment which in general increase productivity in the economy. In this case, imports received considerable attention in determining the Gross Domestic Capital Formation and long run economic growth especially for developing countries. On the other side, exports increases because of raising the rate of Gross Domestic Capital Formation .Theoretically, capital formation can enhance the economic growth through increasing level of capital stock and promoting domestic technology. If this is the case, it is worthwhile to understand that, rise of imports especially of capital goods and inputs foreign technology and intermediate goods can accelerate the capital formations and enhance the domestic investment. This would result into expansion of exports and higher economic growth. Therefore, the effect of imports should pass through capital formations (investment).

DATA AND METHODOLOGY

The analysis used in this study cover annual time series of 1991to 2017 or 27 observations which should be sufficient to capture the relation between Exports, Imports, Gross Capital Formation in India. All the data set consists of current price with Rs billion figure of exports, imports and Gross Domestic Capital Formation(GDCF). All data set here are taken from Reserve Bank of India's statistical hand book 2017 and 2018, and economy survey of India-2017-18.

We will use the most appropriate method of unit root test which consists firstly of determining stationary test of the variables applying ADF test. If the variables are all stationary at level, we apply an estimate based on a linear regression. On the other hand, if the variables are all integrated into the first Difference, our estimates are based on an estimate of the VAR model. When the variables are integrated in the first difference we will examine and determine the co-integration between the variables, applying johansen co-integration test. If the co-integration test indicates the absence of co-integration relation, we will use the model VAR. If the co integration test indicates the presence of a co-integration relation among the variables then use the VECM model in our analysis.

THE SPECIFICATION OF MODEL

The increase in exports would result to increase the accumulation of foreign exchange, which in turn will increase imports. This will accelerate capital formations and results to the economic growth. Furthermore, the higher income can initiate the domestic firms to demand more for investment and increase productivity, as results increase exports. In fact, both growth theories including neoclassical and endogenous theories have shown that, domestic investment, export and imports reinforce each other in determining the economic growth. Furthermore, the growth theories, especially endogenous growth theory show that, export, imports and domestic investment have long run equilibrium relationship with the economic growth. Therefore, we assume the following model:

$$\Delta GDCF = F(\Delta EXPORTS, \Delta IMPORTS) \dots \dots \dots (1)$$

$$GDCF_t = \beta_0 + \beta_1 EXPORTS_t + \beta_2 IMPORTS_t + \varepsilon_t \dots \dots \dots (2)$$

Where:

GDCF_t = Gross Domestic capital formation in India in year, t;

EXPORTS_t = Total exports out of the country in year, t;

IMPORTS_t = Total imports into the country in year t

t = Time and

ε = The error term assumed to be normally and independently distributed with zero mean and constant variance, which captures all other explanatory variables which influences gross domestic product in a country but are not captured in the model

For the estimation purposes for this paper, equation (2) was transformed into log.

We re-specify equation (2) as-

$$\text{Log}(GDCF)_t = \beta_0 + \beta_1 \text{log}(EXPORTS)_t + \beta_2 \text{log}(IMPORTS)_t + \varepsilon_t \dots \dots \dots (3)$$

Where: ε = White noise error

The prior expectations are as follows:

$$\beta_1, \beta_2, \beta_3 < > 0$$

Estimation Procedure

- To determine the suitability of the time series data employed we ran the unit root test.
- The data was discovered to be all stationary at first difference.
- The researcher investigated for the presence of co integration equation.
- With the presence of co integrating equation established, we developed vector error correction model.
- With the developed VEC model, we employed system equation estimation method to evaluate the model to establish the effect of the independent variables on the dependent variables. And finally investigating the direction of causal relationship between the dependent and independent variables using the VEC causality estimation procedure.

EMPERICAL ANALYSIS AND RESULT

Unit Root Test

For the time series, in order to guard against spurious regression, the first step is to see whether the series is stationary or non-stationary; to ensure this unit root tests are used. The Augmented Dickey-Fuller (ADF) statistic was employed to test for the existence of unit roots in the data using trend and intercept. The results of ADF test represented in table-1 that indicates the all variables are not stationary at level whereas all are stationary at first difference.

Table -1 Augmented Dickey-Fuller Test (ADF)

series	ADF Test statistic	5% critical value	10% critical value	probability	order	remarks
Log GDCF	-6.078373	-3.603202	-3.238054	0.0002	I(1)	Stationary
Log EXPORTS	-4.597673	-3.603202	-3.238054	0.0061	I(1)	Stationary
Log IMPORTS	-3.668326	-3.6.3202	-3.238054	0.0439	I(1)	Stationary

Source: Researcher’s own calculation based on GDCF, EXPORT and IMPORT data 1991-2017, (E-views version 9)

VAR Lag Order Selection Criteria

As soon as the order of integration of the studied variables is in first differentials, we will determine the co-integration between them. But before this step, we will apply the VAR Lag order selection criteria method. The results of VAR lag order selection criteria shown in table-2. There are different types of methods of lag order selection criterion. These are Sequential modified (LR), Final Prediction Error(FPE),Akaike Information Criterion(AIC), Schwarz Information Criterion(SC), Hannan- Quinn Information Criterion(HQ). The maximum criterion indicates lag 1 is suitable for our model.

Table-2 VAR Lag Order Selection Criteria

La g	LogL	LR	FPE	AIC	SC	HQ
0	81.42711	NA	2.19e-07	-6.819748	-6.671640	-6.782500
1	151.4103	115.6245*	1.10e-09*	-12.12264*	-11.53021*	-11.97364*
2	158.8526	10.35447	1.33e-09	-11.98718	-10.95043	-11.72644
3	163.8589	5.659260	2.13e-09	-11.63990	-10.15882	-11.26741
4	171.8573	6.955124	3.03e-09	-11.55281	-9.627403	-11.06857

Source-Source: Researcher’s own calculation based on GDCF, EXPORT and IMPORT data 1991-2017,(E-views version 9)

JOHANSEN CO-INTEGRATION TEST

To test the co-integration among the variables of the same order, we apply co-integration procedure developed by Johansen (1988) which the most effective and suitable test. We have already found that all variables are stationary at first difference, that is, series of the model is I (1). Therefore, the co-integration can be determined between the variables. Next step deals with determining the number of co-integrating vectors. In the study, both trace statistic and eigen value.

The Johanson co-integration test both table-3 and table -4 indicates that there is no co integration or long run association ship at the 0.5 % level in both Trace and Max statistics. Therefore, next we will use an estimate based on Vector Autoregressive Model (VAR) Estimation.

Table -3 Johansen Co-integration Test (Trace statistic)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.469633	27.87867	29.79707	0.0819
At most 1	0.347166	12.02400	15.49471	0.1558
At most 2	0.053068	1.363204	3.841466	0.2430

Source:Research’s own calculation based on Eviews version 9

Table-4 Johansen Co-integration test (Max Eigen statistic)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.469633	15.85467	21.13162	0.2335
At most 1	0.347166	10.66080	14.26460	0.1721
At most 2	0.053068	1.363204	3.841466	0.2430

Source: Researcher's own calculation based on GDCF, EXPORT and IMPORT data 1991-2017, (E-views version 9)

VAR ESTIMATION

Table-5 VAR estimation

	LOG_GDCF_	LOG_EXPORTS_	LOG_IMPORTS_
LOG_GDCF_(-1)	0.556915 (0.25081) [2.22046]	0.592925 (0.22948) [2.58374]	0.639772 (0.31338) [2.04151]
LOG_EXPORTS_(-1)	0.217135 (0.27946) [0.77699]	0.817880 (0.25569) [3.19868]	0.466250 (0.34917) [1.33529]
LOG_IMPORTS_(-1)	0.030358 (0.34830) [0.08716]	-0.163503 (0.31868) [-0.51306]	0.222096 (0.43519) [0.51034]
C	0.921093 (0.56930) [1.61794]	-1.056823 (0.52089) [-2.02889]	-1.285995 (0.71132) [-1.80789]

Source: Researcher's own calculation based on GDCF, EXPORT and IMPORT data 1991-2017, (E-views version 9)

$$\text{LOG_GDCF_} = C(1)*\text{LOG_GDCF_}(-1) + C(2)*\text{LOG_EXPORTS_}(-1) + C(3)*\text{LOG_IMPORTS_}(-1) + C(4)$$

$$\text{LOG_EXPORTS_} = C(5)*\text{LOG_GDCF_}(-1) + C(6)*\text{LOG_EXPORTS_}(-1) + C(7)*\text{LOG_IMPORTS_}(-1) + C(8)$$

$$\text{LOG_IMPORTS_} = C(9)*\text{LOG_GDCF_}(-1) + C(10)*\text{LOG_EXPORTS_}(-1) + C(11)*\text{LOG_IMPORTS_}(-1) + C(12)$$

TABLE-6

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.556915	0.250811	2.220459	0.0298
C(2)	0.217135	0.279457	0.776990	0.4399
C(3)	0.030358	0.348300	0.087160	0.9308
C(4)	0.921093	0.569299	1.617942	0.1104
C(5)	0.592925	0.229483	2.583742	0.0120
C(6)	0.817880	0.255693	3.198681	0.0021
C(7)	-0.163503	0.318682	-0.513060	0.6096
C(8)	-1.056823	0.520888	-2.028889	0.0465
C(9)	0.639772	0.313382	2.041509	0.0452
C(10)	0.466250	0.349174	1.335294	0.1864
C(11)	0.222096	0.435193	0.510340	0.6115
C(12)	-1.285995	0.711325	-1.807888	0.0752

Source: Researcher's own calculation based on GDCF, EXPORT and IMPORT data 1991-2017, (

E-views version 9)

Coefficient converted model:

$$\text{LOG_GDCF}_t = 0.556915 \text{ LOG_GDCF}_{t-1} + 0.217135 \text{ LOG_EXPORTS}_t + 0.030358 \text{ LOG_IMPORTS}_t + 0.921093$$

$$\text{LOG_EXPORTS}_t = 0.592925 \text{ LOG_GDCF}_{t-1} + 0.817880 \text{ LOG_EXPORTS}_{t-1} - 0.163503 \text{ LOG_IMPORTS}_{t-1} - 1.056823$$

$$\text{LOG_IMPORTS}_t = 0.639772 \text{ LOG_GDCF}_{t-1} + 0.466250 \text{ LOG_EXPORTS}_{t-1} + 0.222096 \text{ LOG_IMPORTS}_{t-1} - 1.285995$$

The purpose of the model estimation is to identify and see whether the dependent variable directly or indirectly related to that of independent variables. The results of the analysis of the VAR model is given in table -5 and table-6. It indicates that the exports and imports have positive impact on the variable Gross Domestic Capital Formation (GDCF) but they do not have significant probability value. On the other hand the variable imports have negative effects on exports also not significant. But if we look to our model estimation we found that a single unit change in export that would positive impact on GDCF which is increase 21.71%. Similarly a unit change in imports can cause 3.03% increase in GDCF. To know the cause and effect among the variable, we use VAR Granger Causality test which is given below.

VAR GRANGER CAUSALITY TEST

Table -7

Null Hypothesis	Probability.	Remarks
Log EXPORTS does not Granger Cause Log GDCF	0.4372	Accept
Log IMPORTS does not Granger Cause Log GDCF	0.9305	Accept
Log GDCF does not Granger Cause Log EXPORTS	0.0098	Reject
Log IMPORTS does not Granger Cause Log EXPORTS	0.6079	Accept
Log GDCF does not Granger Cause Log IMPORTS	0.0412	Reject
Log EXPORTS does not Granger Cause Log IMPORTS	0.1818	Accept

Source: Researcher's own calculation based on GDCF, EXPORT and IMPORT data 1991-2017, (E-views version 9)

According to the VAR Granger Causality test, the variables are related in unidirectional ways. The results of the above table indicates that the Log GDCF Granger causes to both Exports and Imports in India. When the Gross Domestic Capital Formation increases that have positive impact on exports and imports in India. The imports of capital goods like machinery goods, technology etc. increases that results the increase in GDCF in India. On the other hand, when GDCF increase than the level of produced goods and services also expands that influence exports in India.

RESIDUAL DIAGNOSTIC TEST

To verify that our model estimation work is reliable and acceptable or not. In context the results are given in table -8. This is highly reliable that is because of residual diagnostic test result. The R-square and adjusted R-square value are very high that is 0.987521 and 0.985819 respectively. On the other hand there are no serial correlation and heteroskedasticity

in our model estimation. Our model is normally distributed. Finally our model is a stable model.

Table -8

R-squared	0.987521		
Adjusted R-squared	0.985819		
F-statistic	580.3064		
Breusch-Godfrey Serial correlation LM Test :	2.182852	Prob. Chi-square	0.1396
Brusch-Pagan-Godfrey Heteroskedasticity Test	1.930170	Prob. Chi-square	0.8843
Jarque-Bera Normality Test	1.348357	probability-	0.509575

Source: Researcher’s own calculation based on GDCF, EXPORT and IMPORT data 1991-2017, (E-views version 9)

IMPULSE RESPONSE FUNCTION(IRF)

Figure-1

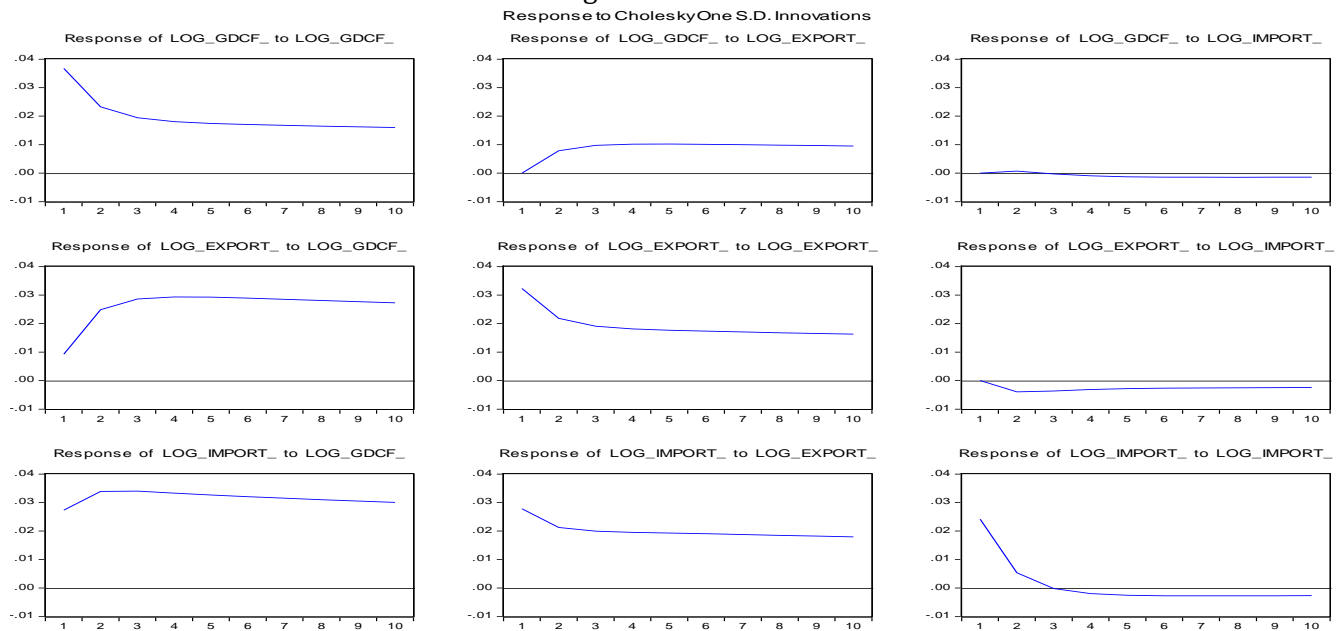
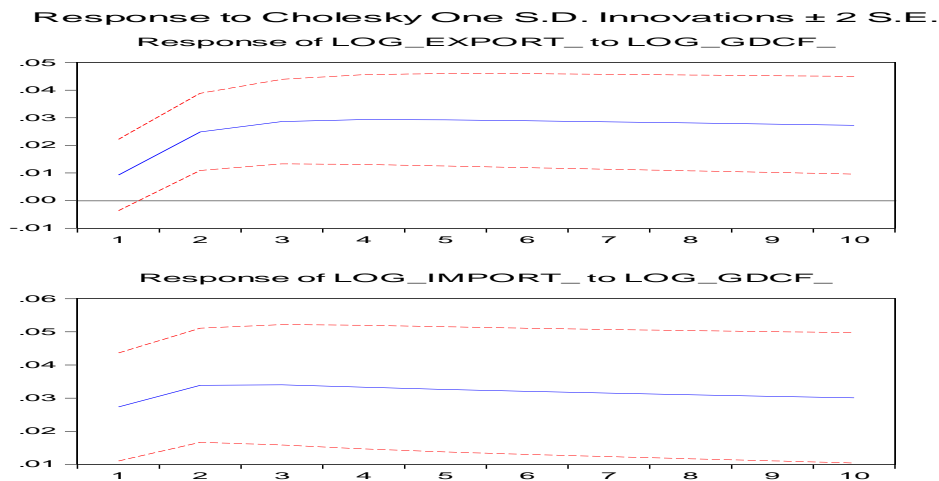


Figure -2



In figure-1 the blue line represents the Impulse Response Function (IRF). The IRF line of log exports to log GDCF and log imports to log GDCF indicates the direct relationship. On the other hand the IRF line of log GDCF to log import, log exports to log imports, log imports to log exports shows the negative relationship.

In Figure-2 the blue line shows the impulse response line and the red line shows the 95% confidence intervals. The impulse response lies between the 95% confidence interval. Upper part of the figure shows the impulse response of log exports to log GDCF. Here the response line starts from period 1 to period 10. It represents the reaction of exports to GDCF. Here we can see the IRF line the exports increase at increasing rate from period 1 to period 2, then it increases at a diminishing rate up to period 3. After that exports gradually decline in a very smooth manner up to period 10. It is almost stable. On the other hand lower part of the figure represents the IRF of imports to GDCF. Here the same thing happens that imports increase up to period 1 then imports are stable in period 2 to period 3. After that imports decline in a very smooth manner up to 10th period.

INTERPRETATION OF S.D. SHOCK TO GDCF

1. Response on exports

One shock to log GDCF initially has noticeable impact on exports in period 1 and 2. From second period to period 4 exports increase at a declining rate. At period 4 to 5 exports are stable, after that gradually declining up to period 10. Shocks to GDCF will have positive impact on log exports both in short run and long run.

2. Response on Imports

One shock to log GDCF initially has positive impact on Imports in period 1 and 2. From second period to period 3 it is stable. After that imports decline in a very smooth manner up to 10th period. Shocks to GDCF will have asymmetric impact on log Imports both in short run and long run.

Innovations and responses must be consistent with economic theory of priority expectations.

For instance, our results are consistent because with high rate of capital formation occur we need more technology, more capital, machine etc. that is because in initial stage imports increase rapidly. On the other side, when rapid rate of gross domestic capital formation takes place the production level of goods and services increases. So that export also increases.

SUGGESTION AND CONCLUSION

On the basis of above findings, it is suggested that more thrust should be given for exports, imports and capital formation in the economy. The policy implication of the positive relationship between exports and gross capital formation is that an expansion of exports will lead to an increase in capital formation. In addition, the increase in capital formation may also lead to an increase in exports. On the other side, our results are consistent because with high rate of capital formation occur we need more technology, more capital, machine etc. that is because in initial stage imports increase rapidly. On the other side, when rapid rate of gross domestic capital formation takes place the production level of goods and services increases. So that export also increases.

CONCLUSION

In this study, we analysis the relationship between exports, imports and gross domestic capital formation in a developing country like India has been investigated using popular time series data. First we calculated stationary of data through Augmented Dickey- Fuller test of unit root test which indicates that all variables are stationary at first difference. There is no co integration found among the variables in Johansen co integration test. That means there is no long run association-ship among the variables. The results of the empirical analysis lead to the conclusion that both exports and imports influence gross capital formation. The results strongly support the unidirectional causation from capital formation to total imports, as well as in case of exports to imports, means causality runs from Gross domestic capital formation to imports and exports to imports. We look to our model estimation we found that a single unit change in export that would positive impact on GDCF which is increase 21.71%. Similarly a unit change in imports cause 3.03% increase in GDCF.

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