An Empirical Analysis Of Pre And Post Liberalization Period Of Export Growth In India

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This paper examines the export growth hypothesis using data from 1970 to 2004. The study is also undertaken for the sub-period that is 1991 to 2004. The paper studies the relationship between exports, GDP and imports. Granger causality test is carried out to examine the causal relationship between the three variables. The paper concludes that the export oriented, outward looking approach had not led to GDP growth in the pre and not in the post-liberalization period and but this would benefit the economy in the long-run in future as there is long-run co-integration between exports, imports and GDP.

Key Words: *Export, GDP, Import, Pre and Post Liberalization Period.*

INTRODUCTION

The major concern of the government in the past was restriction of imports with a view to controlling the trade deficit and protection of domestic industries against foreign competition. Imports were, therefore, very much restricted by prohibition of imports of many items, import licensing, very high import duties and foreign exchange restrictions. The foreign trade policy was characterized by the overtone of negativism. In tune with the general economic liberalization ushered in India in 1991, the EXIM policy and the regulatory mode have undergone a change. A new export import policy 1992-97 was passed in the parliament with some changes in the provision of FERA. The currency was also devaluated. The objective of the present act is to provide for the development and regulation of foreign trade by facilitating imports and augmenting exports. In 1991, India witnessed a radical shift from an inward-looking trade philosophy that dominated economic policy since 1951. India was a latecomer to economic reforms, embarking on the process in earnest only in 1991, in the wake of an exceptionally severe balance of payments crisis. It was felt very urgent on the part of our economic thinkers, having learnt a lesson from other East Asian countries and China who had achieved high growth and poverty reduction through export-oriented and market-friendly policy with growing emphasis on private sector.

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The Indian GDP has witnessed a growth from Rs 515410 crores in 1990 to Rs 3105512 crores in 2004 in the post liberalization era. But has this growth in GDP been mostly export driven or due to import liberalization has not been studied in the post reforms era. The author examines the relationship between exports, GDP and imports.

This paper is divided into six subsections. The first subsection is the introduction to the paper. The second and the third sub sections deal with the past literature survey and methodology respectively. The fourth subsection deals with the theoretical framework of the export led hypothesis. The empirical analysis form the fifth sub section of the paper and the last section covers the conclusion.

REVIEW OF LITERATURE

The literature on the role of exports as one of the deterministic factors of economic growth is a very old concept. Adam Smith and David Ricardo argued in favor of international trade as an engine of economic growth. The ELG paradigm has received a lot of attention following the highly successful East Asian export-led growth strategy during the 1970s and 1980s, and especially if compared to the overall failure of import substitution policies in most of African and Latin American countries.

Export growth helps in better utilization of the resources leading to total increase in factor productivity. Baldwin and Forslid (1996), Feenstra (1990), Segerstrom, Anant and Dinopoulos (1990), Grossman and Helpman (1990), and Rivera-Batiz and Romer (1991) in their works carried out in different time periods have shown the above finding. This hypothesis is basically studied for the developing and the less developing nations. Authors like Balassa (1978 and 1985), Jung and Marshall (1985), Ram (1985 and 1987), Chow (1987), Shan and Sun (1988), Bahmani-Oskoee, Mohtadi and Shabsigh (1991), Bahmani-Oskoee and Alse (1993), Jin (1995), Levin and Raut (1997), and Khalifa Al-Youssif (1997) have focused on export led hypothesis and their contribution to economic growth. The exports has led to the advantages of economies of scale, increased capacity utilization, technology transfer etc.

There are some the studies that exactly do not confirm to the conclusions of export led hypothesis. Clarke and Kirkpatrick (1992) use pooled data for 80 developing countries from 1981-1988 to estimate the impact of trade policy reform on the economic performance and conclude that trade reform does not affect economic performance.

There are large differences among the empirical studies with regards to statistical techniques used. According to Sharma and Panagiotidis (2005), we can distinguish between three methods: (a) using the correlation between exports and GDP; (b) using the aggregate production function with exports as explanatory variable; and (c) emphasizing the existence of threshold effects. Sharma and Panagiotidis (2005) also point out that the econometric methods used in most of the empirical investigations are dominated by the work of Granger (1969, 1988), Sims (1972), Engle and Granger (1987), Johansen (1988, 1995) and Johansen and Juselius (1990).

RESEARCH METHODOLOGY

The study is based on the data on exports, imports and net GDP compiled from the secondary sources i.e. Handbook of Statistics on The Indian Economy, Reserve Bank of India, 2004-2005. The Export led hypothesis is tested for the period 1970-2004 as well as for the sub period 1991-2004. The net GDP is calculated by deducting exports from GDP.

To undertake this analysis various econometric tools like unit root test, Granger causality test and co-integration test have been applied. The unit root test is undertaken to test the time series

properties of the annual data. The stationary problems of all the variables are examined by testing for unit roots using standard Dicky Fuller test. This was further confirmed by the Philips Perron test which proposes a non parametric method of controlling for higher order serial correlation in a series. This stationary tests are significant in the light that non stationary regression model invalidates standard results.

The implication of non-stationary can lead to spurious regression when testing for Granger causality, unless a co-integrating vector is present. This makes the testing for a co-integration mandatory. If such a stationary linear combination exists, the non-stationary time series is said to be co-integrated. The stationary linear combination is called the co-integrating equation and may be interpreted as a long run equilibrium relationship among the variables. Since it is possible that co-integrating variables may deviate from their relationship in the short run, but their association would return in the long run. The test employed for the determination of co-integration between the time series is Johansen's test. The Johansen's technique for estimating co-integration is superior because it is based on well established maximum likelihood procedure that provides test statistics to determine number of co-integration vectors as well as their estimates. The existence of more than one co-integrating vector implies higher stability in the system.

The Granger causality test is applied to determine the direction of causation among the three variables in the study i.e. Exports, imports and net GDP. The causality procedure is based on bivariate system(x,y).

The natural log of the variables is taken into account while calculating co integration and granger causality.

FRAMEWORK OF THE STUDY

The trade theory has supported the export hypothesis proposition. The expansion in exports leads to an increase in external demand for a country's output and increase in the total output. This also leads to increase in specialized skills and enhancement of productivity levels. Thus resources would flow from non-productive sectors to productive sectors leading to the overall expansion of value added export oriented output. The increase in exports lead to increase in the foreign exchange reserves that further lead to meeting of the external and internal demand of the nation. Higher foreign exchange reserves are a reflection of the sound fundamental of the economy that further leads to reduction of the cost of capital. Not only that the country gains the advantage of access to advanced technologies, better management practices etc.

But there has not been uniformity in the acceptance of the theory. Some of the modern economists like Singer, Gunner, and Myrdal opined that international trade have not helped the underdeveloped countries significantly. With majority of the countries following the same strategy of exports promotion, the terms of trade for the industrialized nations improve which results in reduction in value of exports though the volume of exports increases.

ANALYSIS OF RESULTS

Openness of the economy

From table-1 it can be observed that the openness ratio (measured as summation of exports and imports as a proportion of GDP) has increased in each decade. The openness ratio in the 1970s was 0.103874 which has gradually climbed to 0.230932 in the period 200-2004. In the post liberalization period, the openness ratio is gradually on a rise. This implies government is following a systematic and watchful policy of trade liberalization. This ratio is much higher in countries like China, Brazil, and Fiji etc.

Table 1: Openness ratio (OR)

Time period	GDP	Exports	Imports	OR

1970-79	79722.7	3769.844	4511.235	0.103874
1981-89	281689.2	13174.45	19897.59	0.117406
1990-99	1159873	93729.88	112683.2	0.177962
2000-04	2538069	263432.4	322690	0.230932

Unit Roots and Co-integration

It is evident from table-2 that all the variables are stationary as the calculated ADF statistics exceed the tabulated critical values at 1%,5% and 10% level of significance, rejecting the null hypothesis of a unit root or non-stationarity.

Table 2: Unit Root Test using ADF method

Variable	With intercept	With constant and trend	None
NGDP	0.437836**	-2.290336**	2.187750**
Exports	7.541589**	5.547354**	8.006576**
Imports	2.504089**	2.742626**	2.394996* *
Critical values			
1%	-3.6422	-4.2605	-2.6344
5%	-2.9527	-3.5514	-1.9514
10%	-2.6148	-3.2081	-1.6211

* and ** denotes significance at 5 per cent and 1 per cent significance levels

Table-3: Unit Root test using Philips Pheron Test

variable	With intercept	With constant and trend	None
NGDP	0.408225**	-3.553990*	2.596275**
Exports	13.62739**	6.985926**	17.38776**
Imports	8.713641**	5.263661**	10.71504**
Critical values			
1%	-3.6353	-4.2505	-2.6321
5%	-2.9499	-3.5468	-1.9510
10%	-2.6133	-3.2056	-1.6209

The PP test results indicate that the results obtained by ADF test conform to the PP test results. Hence the null hypothesis of a unit root is rejected and we conclude that all variables are stationary at level.

Co-integration Analysis

From table 4 it can observe that there is one co-integrating equation at both 1% and 5 % level. This indicates that there is co-integration between ln net GDP, ln imports and ln exports. There is a long run relationship between exports imports and growth. But, this is not clearly evident from the time period that has been taken in the study.

Table 4: Co-integration test for Ln GDP, Ln Exports, and Ln Imports (1970-2004)

Assumption: No deterministic trend

Eigen value	LL Ratio	Critical Value	Critical Value	No. of CE(s)
0.528720	32.21262	24.31	29.75	None **
0.192921	7.386639	12.53	16.31	At most 1
0.009459	0.313622	3.84	6.51	At most 2
*(**) denotes rejection of the hypothesis at 5%(1%) significance level				

Table 5: Co-integration test for Ln GDP, Ln Exports, and Ln Imports (1991-2004)

Sample: 1991- 2004				
Included observations: 12				
Test assumption: No deterministic trend in the data				
Series: LNEXPORTS LNIMPORTS LNNGDP				
Lags interval: 1 to 1				
	Likelihood	5 Percent	1 Percent	Hypothesized
Eigen value	Ratio	Critical Value	Critical Value	No. of CE(s)
0.829635	31.66058	24.31	29.75	None **
0.576624	10.42285	12.53	16.31	At most 1
0.009035	0.108915	3.84	6.51	At most 2
*(**) denotes rejection of the hypothesis at 5%(1%) significance				
Level L.R. 1 significance level test indicates co-integrating equation(s) at 5%				

Granger Causality

The purpose of this section of the analysis is to test whether export Granger cause GDP. The Granger causality between exports and imports and imports and GDP in India is also tested for the period 1970 to 2004. The Granger Causality is also carried out for the same variable for the sub period 1991-2004. From table 5 it can be seen that there is two way causality between imports and exports. This can be ascribed to the policy of the government for promoting export based industries through import incentives. But the two way causality is found to absent between exports and GDP for the entire period of study. The major reason for which the GDP has not caused exports can be attributed to the large internal consumption in the domestic market. The relationship does not change in the post liberalization era. Another significant finding is that in the post liberalization era imports had caused a rise in the GDP. (Please refer table 7).

Table 6: Granger Causality for the period 1970-2004

Pair wise Granger Causality Tests			
Sample: 1970 2004			
Lags: 4			
Null Hypothesis:	Obs	F-Statistic	Probability
LNIMP does not Granger Cause LNEXP	31	10.8982**	5.0E-05
LNEXP does not Granger Cause LNIMP		10.4190**	6.9E-05
LNNGDP does not Granger Cause LNEXP	31	0.18095	0.94583
LNEXP does not Granger Cause LNNGDP		0.08549	0.98604
LNNGDP does not Granger Cause LNIMP	31	0.25290	0.90478
LNIMP does not Granger Cause LNNGDP		0.14554	0.96305

Table 7: Granger Causality for the period 1991-2004

Pair wise Granger Causality Tests			
Date: 09/28/06 Time: 15:05			
Sample: 1991 2004			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Probability
LNIMPORTS does not Granger Cause LNEXPORTS	12	1.20263	0.35567
LNEXPORTS does not Granger Cause LNIMPORTS		3.62123	0.08323
LNNGDP does not Granger Cause LNEXPORTS	12	2.29354	0.17137
LNEXPORTS does not Granger Cause LNNGDP		3.42318	0.09187
LNNGDP does not Granger Cause LNIMPORTS	12	0.41174	0.67755
LNIMPORTS does not Granger Cause LNNGDP		4.14577**	0.06490

Conclusion

India after the crisis in 1991-92 has opened its economy very cautiously. The policies are now more directed towards export liberalization which is evident from the openness ratio. But this is not quite significant in terms of the other developing nations. The export led hypothesis that exports causes a significant change in the GDP is also absent. This is due to the delay in the liberalization of the trade sector and also very slow liberalization after the 1990s. But certainly there is presence of the co integrating vector between exports, imports and GDP that reflects a long term association of the three variables.

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