3.1 Introduction:

The extensive literature concerning the relationship between trade and growth is a consequence of the many changes that have taken place in the fields of development economics and international trade policy in the last two decades (Jung and Marshall, 1985). An example of these changes is the tremendous modification from inward oriented policies to export oriented policy. The advocates of export led growth strategy and free trade point out that most developing countries that followed inward oriented policies under the import substitution strategy have shown poor economic achievements (Balassa, 1981). These facts were partly responsible for the substantial change that occurred in trade literature in the 1980's. However, by the end of 1980's, export-led growth strategy has secured a wide consensus among the researchers and policy makers. (Tyler 1981, Balassa, 1985).

A growing body of literature has sought to test export led growth strategy using a variety of techniques and data sets. The early empirical approaches to the export led growth strategy have taken two major forms - cross sectional and time series studies.

3.2 Cross sectional studies:

The early empirical work employed cross sectional data of various country groups to explore the relationship between export growth and economic growth.

Among earlier empirical studies Emery (1967, 1968), Syron and Walsh (1968), Kravis (1970), Michaely (1977), Heller and Porter (1978), Bhagawati (1978), and Krueger (1978) should be mentioned. This first group of studies explained economic growth in terms of export expansion alone, in a two variable framework. That is, they used bivariate framework- the spearman rank correlation- in cross-country format to illustrate the superior effects of the export led growth strategy.
A second group of researchers includes Balassa (1978, 1985), Tyler (1981), Feder (1983), Kavoussi (1984), Ram (1985, 1987), and Moschos (1989). They have studied the relationship between export and output performance within a neoclassical framework. In most of these studies exports were included in the production function, along with labor and capital. The majority of these investigations aimed at analyzing developing countries by using ordinary least squares (OLS) on cross section data and used their results to demonstrate the advantages of export led growth strategy in comparison with the import substitution policy.

Based on a cross section data of 41 less developed countries, Michaely (1977) has used the Spearman’s rank correlation to detect the association between export growth and economic growth. He has stressed on the fact that export expansion contributes to economic growth only when countries achieve some minimum level of development. Balassa (1978) argued that in an inter-industry context, the correlation between export growth and economic growth may also capture the indirect effects of exports emanating from changes in productivity and costs. To disentangle the direct and indirect effects of exports on economic growth, the study develops several measures of exports and income to explore the relationship between export expansion and economic growth in a sample of 11 developing countries having a substantial industrial base. The results suggest that export growth favorably affects the rate of economic growth.

Tyler (1981) analyses the empirical relationship between economic growth and export expansion in a sample of 55 middle-income developing countries using inter-country cross-section analysis. Bivariate correlation tests (simple Pearson and Spearman rank correlation tests) reveal a strong positive association between export growth and economic growth. The study supplements correlation analysis by estimating an aggregate production function relating output with traditional inputs (capital and labor) and exports. This analysis suggests that export performance is important, along with capital formation, in explaining inter country variance in the rate of output growth.

Kavoussi (1984) examines the relationship between export expansion and economic growth in sample of 73 developing countries. The correlation
tests indicate that export expansion is associated with better economic performance in both groups of low and middle-income economies. The study examines the effect of export growth on total factor productivity in terms of an estimated production function, and concludes that export has a positive impact on total factor productivity leading to higher economic growth.

Gonclaves and Richtering (1986) have conducted empirical analysis for a sample of 70 developing countries for the period 1960-1981 and found that export growth rate and change in export/GNP ratio are significantly correlated with GNP growth. The study has not found any significant correlation between non-export output growth and export growth.

A common feature of all the above studies is their reliance on correlation analysis based on cross section data sets. This approach has been criticized in the literature on the ground that contemporaneous relationship between exports and output cannot be taken as an indication of causality between export growth and economic growth (Ram, 1985). It has been argued that the question of causality is essentially dynamic one and it can be meaningfully studied only in a dynamic framework based on time series data (Kemel, Din, Qadir, Fernando, Colombage, 2002). Consequently a number of studies have examined the export-led strategy by employing Granger’s (1969) and Sim’s (1982) causality tests.

### 3.3 Time series analysis:

In a seminal contribution, Jung and Marshall (1985) analyze the relationship between export growth and economic growth using time series data for 37 developing countries. Based on the standard Granger’s Causality tests, four causal patterns are identified: export promotion, internally generated exports, exports reducing growth and growth reducing exports. The study finds evidence for export led growth strategy in only 4 out of 37 countries included in the sample: Indonesia, Egypt, Costa Rica and Ecuador.

Chow (1987) applies causality tests on time series data of 8 newly industrialized countries (NIC’s) to investigate the causal pattern between export growth and growth in manufacturing output. The study finds evidence of bidirectional causality in the case of Brazil, Hong Kong, Israel, Korea, Singapore
and Taiwan; and no causality in the case of Argentina. These findings are in sharp contrast to Jung and Marshall (1985) for four out of six countries common in the two samples, namely Brazil, Korea, Mexico and Taiwan. More specifically, as opposed to Chow’s evidence of duel causality between exports and economic growth, Jung and Marshall find no significant causality in Brazil and Mexico, and causality only from output to exports in case of Korea and Taiwan. The contrast in empirical findings can be partly explained by the fact that Chow uses output of manufacturing sector as a measure of aggregate output as opposed to Jung and Marshall who utilize Gross National Product.

In a study of four Asian NIC’s (Hong Kong, South Korea, Singapore and Taiwan), Darrat (1986) finds no evidence of unidirectional causality from exports to output in all four economies. In case of Taiwan, however, the study detects unidirectional causality from output growth to export growth. Similarly, Ahmad and Kwan (1991) find no support for the export led growth strategy in their empirical study of 47 African countries. Bahmani - Oskooee (1991) examine the relationship between export growth and economic growth for 20 less developed countries by employing the granger concept of causality in combination with the Akaike’s Final Prediction Error (FPE) criterion for the selection of the optimal lag length.

Though the study detects the evidence of the causal association between exports and growth in half of these countries, the export led growth strategy has been supported only in case of Indonesia, Korea, Taiwan and Thailand. Whereas the study confirms the findings of Jung and Marshall for Indonesia, the two studies reach different conclusions for Korea, Taiwan and Thailand. Dodaro (1993) shows some support for the export led growth strategy – seven out of a sample of 87 countries reveal a positive causality from exports to GNP.

Another strand of literature on the export led growth strategy argues that the results of time series studies that have employed standard Grangers or Sims causality tests may be misleading owing to the fact that these tests are inappropriate in a setting where variables are non-stationary and share a common stochastic trend. To address the problem of the non-stationarity of variables, recent studies on the export led growth strategy have adopted the Error Correction Modeling Approach (ECM), due to Engel and Granger.
Notable among these are Martin (1992), Bahmani-Oskooee and Ales (1993), Henriques and Sadorsky (1996), Al-Yousif (1997), and Xu (1996). In general these studies have found empirical support for export led growth strategy for a majority of the economies. For instance, Bahmani-Oskooee and Alse (1993) re-examine relationship between export growth and economic growth for 9 developing countries within the framework of Error Correction Model, and find a strong support for all the countries included in the model. Similarly, in a study of 26 low, middle and high-income countries, Dutt and Ghosh (1996) provide evidence in favor of export led growth strategy in roughly half of the countries. In another study on the same lines, Xu (1996) finds evidence of export led growth in 17 out of 32 developing countries included in the analysis. Al-Yousif (1997) uses a multivariate model to examine relationship in case of Malaysia and finds evidence in support of the export led growth strategy as a short run phenomenon. In another study

El Sakka (2000) use a number of co integration and causality tests and obtain mixed results regarding the direction of causality in 16 Arab Countries.

Ram (1985) in a cross section study of 88 countries using the production function methodology, finds that the role of exports in growth is predominantly positive. Greenway and Nam (1988) have conducted empirical tests for a sample of 41 less developed countries and have suggested that outward orientation has more conductive to growth than the inward orientation. Khan and Saqib (1993) use a simultaneous equation model and find a strong association between export performance and economic growth in Pakistan.

3.3.1 EMPIRICAL STUDIES FOR ASIAN ECONOMIES:

It is widely believed that many East Asian and South East Asian economies have achieved higher rates of economic growth through export led growth strategy. However, the empirical evidence is generally mixed i.e. some results show that the growth in these countries was export led, while some other studies reject this proposition and show that the causation is from economic growth to export growth, while a few studies show bi-directional causation.

Kwan and Kwok (1995) used exogeneity tests and find that current real export growth has a positive impact on output growth in China. Applying a
Vector Auto-Regressive Model for Taiwan, USA and Japan, Ghartey (1993) observes that export growth Granger-causes economic growth in Taiwan, economic growth Granger-causes export growth in USA, and a feedback causal relationship exists in the case of Japan. On the other hand, Kwan (1996) report mixed results for Taiwan, while Boltho (1996) finds that domestic forces rather than foreign demand propelled longer run growth in Japan. Ahmed and Harnhirun (1996) find no statistical evidence in support of export led growth strategy for five ASEAN economies. Gupta explores the link between exports and economic growth for Israel and South Korea using quarterly data for the period 1960-1979. The results reveal that the relationship between the two is bi-directional for both countries.

For Bangladesh, Begum and Shamsuddin (1998) investigate the impact of exports on economic growth for the period 1961-92 using a two-sector growth model. The key finding of their study is that export growth has significantly increased economic growth of the country its positive impact on total factor productivity. Mallick (1996) provides evidence in favor of the export led growth strategy within the conventional framework of Granger's causality. Rana (1986) departs from the Granger's causality approach by estimating an export augmented production function for 14 Asian developing countries including Bangladesh, India, Pakistan, and Shri Lanka. The results show that exports contribute positively to economic growth.

Anwar and Sampath (2000) examine the export led growth strategy for 97 countries (including India, Pakistan and Shri Lanka) for the period 1960-92 using co integration and Granger's causality tests. They find the evidence of unidirectional causality in case of Pakistan and Shri Lanka and no causality in case of India. A study by Kemel, Din, Qadir, Fernando and Colombage (2002) shows short run causality from exports to growth for Bangladesh and Shri Lanka, and reverse short run causation (from GNP to exports) in case of India and Nepal. However this study strongly supports long run causality from exports to GNP for Pakistan and India.

Song -Chen (1995) using bivariate Granger method show the evidence of bi-directional causality in case of Japan, South Korea and Taiwan. Kugler and Dirdi (1993) in a study of 11 developing countries find the evidence of
Export led growth in case of Hong Kong, Korea, Pakistan and Philippines. They used four variables GNP, Exports, total private consumption expenditure and the results are based on co integration analysis.

3.3.2 EMPIRICAL STUDIES FOR INDIA

In the context of India a number of studies such as Bhagvati and Shrinivasan, Gupta and Keshava, Mukherjee (1987), etc. have investigated the relationship between trade and economic growth. But the relation between exports and growth in case of India has been discussed in quite a few studies. The researchers have used a variety of techniques such as Granger’s causality, vector Auto regression, estimation of demand components in GNP growth, etc. and have come out with different results.

Nandi and Basu (1991) apply the Granger Causality tests to examine the export led growth strategy for India for the period 1960-1985, and find evidence of unidirectional causality from export growth to economic growth. They have also pointed out that though the acceptance of only one way causation has been criticized, nobody has put up the theory to explain how alternative i.e. income growth causing export growth, could work.

Sharma-Dhakal (1994) using 4 variable Granger causality test show the evidence of exports led growth in the case of India for the period 1967 to 1988. The study shows the existence of unidirectional causality between export growth and GNP growth in India.

Based on a longer data set (1950-1993), Bhat (1995) re-examines the export-economic growth nexus for India by utilizing the error correction modeling approach, and finds evidence of bi-directional causality between export growth and economic growth.

Using the same methodology, Ghatak, Milner and Utkula (1997) conclude that export growth is Granger-caused output growth in India. It is noteworthy that these results are in sharp contrast with Xu (1996) who obtains rejection of the export led growth strategy for India for the period 1960-1990.

Chandra and Love (2004) using a multivariate model and employing vector auto regression and Granger causality tests have investigated the issue of causality in case of India and some other Asian countries. Their findings show
that while in the long run there is bi-directional causality between export and GNP growth, in the short run the direction is only from export growth to income growth.

Some researchers have used different methodology for analyzing export-growth relationship. Mukherjee (1987), for instance tries to find the correlation and regression coefficients for the export growth and GNP growth. The results however do not confirm export led growth in case of India. The author concludes, “As far as the long run objective of stimulating the growth rate of the economy is concerned, exports do seem to have a positive role” (Mukherjee, 1987).

Fan and Felipe (2005) while estimating the contribution of demand components to GNP growth have shown that even though until 1993 the growth in India was domestic demand led, there has been a great increase in the export component of growth after the reforms. The exports have contributed positively to the economic growth after 1993.

3.4 Conclusions:

The main objective behind the analysis of the empirical studies on export led growth was to find out the empirical evidence supporting the export led growth strategy. The different studies using different methodologies and for different countries have proved the existence of the causal relation between the export growth and GNP growth. The above analysis leads us to the following conclusions:

1. The above analysis shows that most of the studies on export led growth with reference to India as well as other Asian countries are based on mathematical approach especially using the correlation or OLS methods in case of cross section studies and causality tests or Auto-regression models in case of time series studies.

2. The cross section studies bring out the results showing the existence of high correlation between export growth and GNP growth in case of most of the countries under consideration. On the other hand most of the time series studies show the evidence of the bi-directional causality between exports and economic growth.
3. In case of East and South East Asian countries many studies have proved the existence of export led growth but there are differences regarding the bi-directional or unidirectional causation.

4. In case of India again the empirical evidence supports the case for export led growth but most of the studies reflect the existence bi-directional causality.

5. Another important feature of these studies is that some of these studies that reject the causality between exports and growth in case of India consider a time frame (up to 1993) when Indian trade policy was still opening. The results obviously reflect that exports have played quite an insignificant role in India’s growth process as compared to the other Asian economies that were already opened up and their policies were strongly oriented towards export promotion. An analysis of India’s export and GNP growth after the introduction and implementation of trade reforms may bring out some different results.

One major lacuna that one finds in the empirical studies undertaken by different researchers is that all these studies analyze the export led growth in terms of causality and through the use of rigorous statistical techniques without undertaking a comprehensive analysis of the phenomena from the policy perspective. The export policies along with other economic policies have played a crucial role in the success of East and South East Asian economies. The next chapter undertakes a brief review of the export policy phases in the selected Asian countries and brings out some policy implications for India.

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1 Generally the economies that adopted import substitution policies were considered as inward oriented economies because of the high level of protection to domestic industries creating an in built bias against imports as well as exports (Salvatore, 2006).

2 Bilateral causality indicates the two way relationship between export growth and GDP growth i.e. it indicates that export growth causes GDP growth and GDP growth, at the same time, causes export growth. On the contrary unilateral relationship indicates one way relation, that is, export growth causing GDP growth.