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INTERNATIONAL TRADE AND ECONOMIC GROWTH

AN INDIAN EXPERIENCE

GUIDE :   BY :

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Introduction

The subject of International Trade and the developments thereof can be broadly classified as ' positive trade theory' and 'normative trade theory'. The former deals with the effect of exogenous or policy changes on the composition of outputs and relative prices, trade flows, or on the domestic distribution of real income. The province of normative trade theory poses the questions concerning the effect of exogenous or policy changes on the level of aggregate real income or dealing with the ranking of alternative policy instruments.

The premise of Classical Paradigm is the General-Equilibrium, establishing the interactions among markets, based on the belief that all final goods are tradable among countries. The primary inputs although are non-tradable, but fully mobile between different sectors of the domestic economy. It neglects intermediate stages in production hierarchy and assumes that all agents are atomistic, operating in an undistorted and competitive environment in which technology exhibits constant returns to scale. Much of the work after Ricardo has concentrated on the consequences of doing away with the assumptions underlying the orthodox trade theories. It may not be possible to construct a general model addressing all others as a special case. (1970) "There is but one world and only one model is needed to describe it." Positive trade theorists use a variety of models, yielding useful insights into a limited but still important range of questions.

One of the important issues, examined by the positive trade theory is the question of the determinants of the pattern of trade. The answer explores the possibilities suggested by Ricardo's comparative advantage. Although the principle accommodates, the case of more than two commodities and two countries. It argues that if commodities are ranked by their relative price ratios in autarky in the two countries, demand conditions will determine a critical ratio, such that, when trade is opened up, the home country will export all commodities whose autarky relative price is below this ratio and import all other commodities.

Such an assertion certainly requires the assumption of constant costs and the real conditions may rarely confirm it. However, this cannot diminish the credit of comparative cost advantage in providing basic explanation of determining trade patterns. Much of the trade theory thereafter has concentrated in investigating the alternative sources of differences in the intercountry autarkic relative prices.

The recent works have relaxed the assumptions of classical theory, allowing for trade at different levels of the production spectrum and for departures from comparative behaviour.

Normative economics is concerned with welfare judgments about policies and economic events. Does a particular policy change represent a welfare improvement? How can a number of policies be ranked in terms of welfare? Is one first-best, another second best, and so on? The particular policy that is the "best" is usually described as "optimal". While the focus is normally on government policies and, in the case of trade theory, on commercial policy – normative economics also embraces the study of the welfare consequences of various events when policies are constant. Similarly, does an increase in the domestically owned capital stock or technical progress raise or lower welfare?

The analysis of economic growth has emerged as a central theme of mainstream economics. The developed countries have worried about the stagnant or slow growth in real incomes in past few decades, which they effectively tackle by application of continuous and rapid technological changes. Whereas in developing economies the main emphasis has been on capital accumulation as the major source of growth. The most important thing is not the accumulation of capital but productivity of capital and labour through appropriate technological changes reaped from capital accumulation. Solow (1957) and others, technological change is exogenous – unaffected by a country's openness to world trade. Yet the 'new' growth theories suggest that trade policy affects long-run growth through its impact on technological change. In these models, openness to trade provides access to imported inputs, which embody new technology; increases the effective size of the market facing producers, which raises the returns to innovation; and affects a country's specialization in research-intensive production.

The endogenous growth theory pioneered by Romer (1980) and Lucas (1988) sheds some light on how technological change is endogenously generated by micro and macro-level incentives emanating from market conditions and the policy and institutional regimes. The non-public good nature of discovery is one of the major incentives for deliberate efforts in modern economies and a source for deliberate efforts in modern economics and a source of rents to innovators.

International trade is an important source of incentives in generating both intentional and by-product technological change by increasing the aggregate economic activity (market size) and competitive conditions. New growth theories, however, do not predict that trade will unambiguously raise economic growth. Harrison (1996) "Increased competition as argued by Schumpeter could discourage innovation by lowering expected profits." Grossman and Helpman (1992) point out "intervention in trade could raise long-run growth if protection encourages investment in research-intensive sectors for countries with an international advantage in these kinds of goods."

In the static framework of the classical trade theory, free international trade does not increase endowment of capital (capital accumulation). Under the assumption of perfectly competitive markets, free trade improves the static allocate efficiency of resources across trading nations, which in turn increases real incomes. Patibandla (1994) "The real world competition is far from perfect and International trade is a means to increase the production, thereby causing reduction in the average costs and prices through the economies of scale, ultimately increasing the real incomes. In a dynamic framework, increase in real incomes leads to increase in savings and investment (capital accumulation)."

International trade may also generate positive externalities, learning by doing economies and provide incentives for technological change through increased competitive conditions and extension of market size (division of labour). For developing countries, along with capital accumulation, continuous efforts of technological upgradation is important to realise greater spin offs as partners of developed nations in International trade. It is very important for developing countries to achieve a minimum threshold level of development in the sphere of agriculture, industrialization, infrastructures and institutions to foster the dynamic gains from the

International trade. Patibandla (1996) "It brings forth the significance of selective policy interventions on the domestic production side and the incentives in engendering technological changes that goes a long way beyond generating these minimum necessary endowments." The experience of the East Asian countries has demonstrated the dynamic gains from International trade have been translated into high economic growth and subsequent increase in the welfare of the people.

In much of literature, exports are seen as causing growth. One school of thought sees the stumbling block in attaining self-sustaining growth as a lack of demand for ones products. In this area an influential set of ideas has come to be called the "big push" and "balanced growth" doctrine. Rosenstein Rodan (1943), along with Nurkse (1953), Scitovsky (1954), argued that there was a vicious circle present. Firms did not industrialise because there was no market for their goods and there was no market for their goods because income was low and income was low because firms did not industrialise.

This kind of low level of equilibrium, can overcome by simultaneous industrialisation of a large part of the economy, and say failure to industrialise was essentially viewed as a coordination problem. Of course, exports, by breaking this circle of causation, could provide an important avenue for growth.

Hirschman (1958) The other "unbalanced growth" theory argued that industrialisation of certain "leading" sectors would pull along the rest of the economy. Hirschman's discussion of "backward" and "forward" linkages was an integral part of this analysis. Here "linkages" refer to the effects of one investment on the profitability of subsequent investments at earlier and later stages of development. Exports, especially in the industries with "linkage effects", could jump start the industrialisation. Exports also help in paying for imports of technology and capital machinery can help in generating further growth.

Coe and Helpman (1995) "argued that there are international R & D spillovers as foreign R & D has beneficial effects on domestic productivity, and that these are stronger the greater is trade." Alternatively, micro-level studies by Bernard and Jensen (1997), Clerides, Saul and Tybout (1998) find that learning-by exporting does not appear to have a strong impact on growth. Rather than learning-by-exporting, self-

selection of high productivity firms into exporting sectors seems to be the main reason for the growth of exports. Thus, it is not export-oriented firms that become productive; rather, it is productive firms that export.

Two factors explain why after so many years such a fundamental policy issue as the relationship policy issue as the relationship between trade policy and growth is still far from being resolved. First, for a long time it was argued that the theoretical underpinnings of the preposition that freer trade enhances growth were weak.

While the theory was clear regarding the static gains from free trade, the generalisation of these results to a dynamic equilibrium growth setting presented some problems. Only recently with the renewed interest on growth theory, and the resulting 'endogenous' growth models, new developments in this direction have been made. Second, the empirical work on the subject has suffered from some serious limitations. The most important of these stems from the fact that until now it has been exceedingly difficult to construct satisfactory and convincing measurements of trade orientation that can be used in time series analysis and, especially, in cross-country comparisons.

Researchers have developed two types of strategies to deal with the measurement problem of trade orientation: Some groups of researchers have chosen to decompose the question of the effects of trade orientation on economic performance into two stages. The first stage basically amounts to assuming (without testing) that a more liberalised trade regime will encourage exports via a reduction of the anti-export bias. In the second stage the researcher usually tests whether higher exports (or a more rapid growth in exports) have indeed been associated with a higher rate of output growth.

Neither of these approaches, however, has proven to be entirely satisfactory, since they have tended to generate a number of mutually contradictory results. Another influential set of ideas links trade policy and orientation with growth. Some studies, which were published in World Development Report 1987, have resorted to the construction of subjective indexes of trade orientation, which are not truly comparable across countries. Krishna (1992)"However, because trade policy is multi-faceted there is no unique measure of openness, and indeed various different openness measures are

loosely used to cover a host of different concepts, resulting in considerable confusion of terminology."

It is shown that such trade share measures are indices of vulnerability to terms of trade shocks, as they can be interpreted as the elasticity of indirect utility with respect to the terms of trade.

Several scholars have estimated cross-country regressions relating GDP growth to investment and/or trade variables in the last 30 years. The earliest studies, beginning with Emery (1967) simply regressed GDP growth on export growth rates and found significant positive coefficients. However, later investigators showed that these were not robust to changes in the data set. Michaely (1977) pointed out that since exports are a component of GDP, the correlation was only to be expected and had no explanatory power.

Balassa (1978) in his paper indicated that export growth favorably affects the rate of economic growth over and above the contributions of domestic and foreign capital and labour, thereby concluding that the benefits of export-orientation as compared to import substitution is greater in semi-industrialised countries. Further Balassa (1985) re-examined the validity of his earlier proposition in 1973-79 periods of external shocks, using a measure of trade orientation defined in terms of deviations of actual from hypothetical values (derived from per capita income and population variables, and availability of minerals) of percapita exports. He found that the countries with lower levels of development experienced the rate of economic growth importantly affected by rate of growth of exports. The rate of economic growth is further influenced by increases in the labour force and by domestic savings while, in contradiction with the earlier results; foreign savings do not appear to have affected the outcome. The results are cumulative of the extent of outward orientation at the beginning of the period and the reliance of export promotion in response to external shocks of the period.

As seen in Feder (1982), of particular significance were 'growth accounting' specifications derived from production functions, incorporating the growth rates of capital stock and the labour force. Kohli and Singh (1989), using the analytical framework developed by Gershon Feder, showed some convincing positive evidence

for non-linearities (i.e. export-led growth may be subject both to a critical minimum effort requirement and to a form of diminishing returns) in the relationship between GDP growth and export growth rates and shares.

Taking a different track, Chow (1987) asks whether export growth promotes industrialization as proxied by growth in the manufacturing industries in eight successful export-oriented NICs. Results of Sims' causality test shows that for six of these countries exhibit bi-directional causality. Jung and Marshall (1987) by using granger notion of causality find that only four of the thirty-seven countries in their data set show evidence of a causal linkage from export growth to output growth. Thereby casting doubt on the validity of the export promotion hypothesis. Hsiao's (1987) causality tests indicate no causal relationship between exports and output in either direction for Korea. Singapore, and Taiwan. (However, using the Sims version of Granger causality tests, he finds bi-directional causality, except for Hong Kong, which exhibits causality only from output to exports).

A similar study on the ASEAN countries by Ahmad and Harnhirun (1995), using cointegration and error-correction methodology found that the export-led growth in the ASEAN not optimistic but bring out convincing evidence of a growth pattern in which internally generated mechanisms and the growth of exports interact and mutually reinforce one another. Another supporting evidence regarding the ambivalence about the endogenous growth is shown by Young (1995), that East Asian growth can be substantially explained by the growth of capital and labour inputs, with residual productivity growth (and hence efficiency gains of various kinds) playing a distinctly secondary role.

With reference to industrial countries Afxentiou and Serletis (1991), using the integration and cointegration technique, indicated that by and large there is no systematic relationship between exports and GNP. However using the same method, Dalia Marin (1992), in his paper proved that a causal link between exports and productivity exists for four developed market economies.

Bahmani-Oskooee et.al (1991) address the issue of optimally selecting the lag structures for empirical models used to explore causality, and find that six countries out of twenty LDCs in their sample, export growth is causally prior to output growth.

Similarly Kala Krishna et.al (1998) finds limited evidence of bi-directional causality between GDP, exports, imports and investment. In addition, the "best" models of growth in the sample of countries are usually characterised by uni-directional causality either from investment or from exports and/or imports to output, once stochastic trending properties of the data are correctly accounted for.

Some of the studies that used subjective indices of trade orientation and linking the relationship between international trade and economic development. Salvatore and Hatcher (1991) used the trade orientation measures available in The World Development Report 1987, shows that the hypothesis that international trade benefits most developing countries and that an outward orientation leads to a more efficient use of resources and growth is partially supported by the econometric results. In another study by Edwards (1992), nine alternative indicators of trade orientation was used, the data supports the view that more open economies tend to grow faster than economies with trade distortions. More recent investigators have incorporated school enrolment ratios (to measure human capital); GDP levels in some earlier years (to test for 'conditional convergence' between countries at different initial levels of development); shares of government consumption in GDP (to measure the cost of 'resource misallocation') and literally dozens of other variables, including several alternative measures of outward orientation.

A novel method by Harrison (1994), estimated panel data models with fixed effects, finds evidence of bi-directional Granger causality between openness and growth, and concludes that the issue of causality remains unresolved.

In the context of various authors between them finding over 50 variables to be significant determinants of growth, but often experiencing contradictory results, Levine and Renelt (1992) assembled a data base of over 50 variables, most of them time series, and ran thousands of growth regressions to test whether the conclusions of the earlier studies were robust to small changes in the set of conditioning variables. For each candidate explanatory variable, they estimated coefficients in multiple regressions with different combinations of conditioning variables, and computed the upper and lower 95% confidence limits from the highest and the lowest estimate for the coefficient of interest. The variable was deemed to be robust only if these upper and lower bounds

were both significantly different from zero and of the same sign. Most of the explanatory variables in the literature failed this test, but the investment ratio passed handsomely. Their findings on variables representing trade and price distortions shows:

First, if one substitutes imports or total trade for exports in cross-country growth or investment regressions one obtains essentially the same coefficient estimate and coefficient standard error. Thus, researchers who identify a significant correlation using an export performance measure should not associate this with exports per se, because it could be obtained using a corresponding measure of imports or total trade. Second, the share of trade in GDP is robustly positively correlated with the share of investment in GDP. Finally, when controlling for the share of investment in GDP, it could not be found to have a robust independent relationship between any trade or international price-distortion indicator and growth. These three results indicate that the relationship between trade and growth may be based on enhanced resource accumulation and not necessarily on the improved allocation of resources. These results suggest an important two-link chain between trade and growth through investment.

Levine and Renelt seem to favour a causal chain running from trade through investment to growth. They also found that six measures of trade policy orientation and distortion could not be robustly related to GDP growth when the equation included the investment share. Moreover none of the broad array of fiscal indicators or economic and political indicators was robustly correlated with growth or the investment share.

Harrison finds that the relationship between openness and growth cannot be established in cross-section regressions which use averages of the data over long periods, which is the method used by (Edwards). This is presumably because "most developing countries have experienced large swings in commercial and exchange rate policies over the last 30 years, which could render any proxies for openness essentially meaningless" [Harrison 1996: 432]. This would apply especially to the Leamer indices, which gave Edwards his only worthwhile result, and which Harrison explicitly rejects. Her panel estimation using annual data (i.e, pooling the cross-section and time

series data) gives the strongest verdict in favour of openness. However, a limited sensitivity analysis she undertakes along the lines of Levine and Renelt shows that half the openness indicators found to be significant are not robust. Nonetheless, she finds it encouraging that the remaining half is encouraging that the remaining half is robust. What is noteworthy in this context is that in both studies the investment ratio is significant in every regression, regardless of which other variables are used.

Sourcing from the discussion on the development on the nexus between Trade and Growth, we derive our motivation and the objective of examining the role of India's external trade in the overall economic growth of India.

In the 1950's and 1960's India's belief was that through domestic production it could fulfill its home requirements. However faced the internal constraints like economic efficiency and technological standards and other compulsions like rapid industrialisation. This was coupled with the external constraint of falling demand for Primary Products, which was taken for granted as foreign exchange earner to meet the import requirements. Hence this called for definite attempts to induce larger openness in the structure of the domestic economy to make it internationally competitive. This was witnessed in the liberalisation policy initiated since 1980's and more rigorously from 1990's onwards. While the attainment of the national self-sufficiency remains as the chief goal under the new strategy as under the earlier regime, the only difference is that the modalities of functioning have undergone a change.

Hence we devoted our attempt in analysing the trend and structure of India's foreign trade and their degree of responsiveness to changes in the India's trade policy. Further chapter is motivated by the need to explore the nexus between trade regimes and economic growth through an assessment of the import-growth connection in case of India, since an investigation of the import-growth linkage could provide some clue to the mechanism through which exports generate the generally observed positive effect on growth.

Finally the supply-side and demand-side factors in case of India can be better understood by concerting detailed analysis of the relationship between Trade, Growth and Productivity. Moreover there is growing literature stating that trade liberalisation improved productivity and thereby entailed growth.

Plan of the Study

The present study attempts to examine the possible relationship between international trade and economic growth in the context of the Indian economy over the period 1960-61 to 1995-96.

The Plan of the Dissertation is as follows. Chapter 2. deals with the literature survey on International trade and Economic Growth. Chapter 3. presents the Structure of exports and imports at current price and constant price at aggregate level and disaggregate level covering the period 1960-61 to 1995-96. Further we have examined the impact of policy changes on exports and imports at aggregate and disaggregate level. Chapter 4. examines the causality between exports, imports and growth at current and constant price. Chapter 5. investigates the causal relationship between exports of manufactures and productivity, imports of manufactures and productivity, GDP and productivity, exports of Agriculture, Chemical, Machinery and Transport equipment and Productivity, Imports of Chemical, Machinery and Transport equipment and Productivity. The final Chapter 6 is the concluding chapter.

Sources of Data and Methodology

The study is mainly based on data published by Directorate General of Commercial Intelligence and Statistics (DGCI & S), Monthly Statistics of Foreign Trade, Report on Currency and Finance, Statistical Abstracts, Economic Survey, National Accounts Statistics of India, CMIE Reports, Annual Survey of Industries.

The methodology of the analysis in the chapters to follow is quantitative techniques like regression analysis, and other econometric techniques.

The Chapter I is an introductory chapter. In chapter II, we explore the extensive literature on Trade and Growth. The chapter initiates into the theoretical underpinnings of trade theory and growth theory. How far the assumption filled orthodox trade theories can treat the dynamic complexities of an economy, especially while fostering

relationship in the external sphere. The chapter brings forth the importance of the issue relative to economic growth of less-developed countries, and the divergence between the classical, neo-classical and some other points of view in their asses of the relationship between foreign trade regimes and economic performance. The empirical findings available on the relationship between trade and growth with reference to different countries of the world suggests an existence of bi-directional causality between exports and GNP, or uni-directional, or exports and GNP are independent of each other. A similar diverging association between exports and growth is noted in the empirical findings by different authors.

The period from 1950-51 to 1959-60 it was Import substitution and Import substitution cum Export promotion oriented policy governing the period 1960-61 to 1978-79 and finally Export promotion oriented trade policy from 1979-80 to 1995-96. The chapter III presents the Structure of India's Trade over the period 1960-61 to 1995-96. The purpose is to examine broadly the emerging trends in Exports and Imports at aggregate and disaggregate level in current and constant price over the period of 36 years.

By classifying the commodities of Exports and Imports from section 0 to section 8 as per the S.I.T.C. (Revision 2), it provides an insight into the changes in economic structure of trade. This is possible by examining the trend in the growth of the different categories of goods; changes in the significance of each category of commodity measured by their share in the primary and manufactured goods.

In this chapter we have examined the overall behavior in the trend of exports and imports, how much they are associated with the National Income and measures the self-reliance (i.e. the percentage of imports financed by export earnings). The data corresponding to the purpose highlighted above is reported from Table II.1 to Table II.12. The Table II.1 presents the big leap forward from Rs.1763.94 crores in current price and Rs7069.85crores at constant price (Base: 1978-79 = 100) in 1960-61 to Rs.2, 29,031 crores in current price and Rs.57, 085.51 crores at constant price (Base: 1978-79 = 100) in 1995-96, achieved by India's foreign trade in the course of 35 years. The impressive growth of India's foreign trade had to be reflected in GNP_{MP} of the country. This can be observed in Table II.2, whereby the share of exports in GNP_{MP} at current

price and constant price during the period 1960-61 to 1994-95, increased from paltry 3.98% to a high of 11.38% and 4.72% to 7.73% respectively.

Similarly, the share of imports in GNP_{MP} at current price and constant price during the period 1960-61 to 1994-95 surged upward from 6.95% to 13.12% and 8.78% to 16.88% respectively. It is of significant importance to examine that the growing divergence in the share of exports and imports in the GNP_{MP} is sustainable. Hence the export/import ratio reported in table II.3 and table II.4 narrates that the exports earnings which constituted 57.27% of imports in 1960-61, could finance 95.42% in 1993-94. Similarly in real terms the index of self-reliance rose from 53.69% to 74% in 1991-92. This conclusively qualifies that exports and imports over the years have increasingly grown amenable.

An exercise to understand the trend in exports is presented in table II.5, II.6, II.7, and II.8. Which shows that exports increased from Rs.642.32 crores in 1960-61 to Rs.1, 06,353 crores in 1995-96.

Although the rate of growth of exports was positive except a couple of years, reflects a fluctuating trend from 2.81% in 1961-62 to 31.92% in 1974-75. It was only from 1986-87 onwards that a steady robust growth rate was achieved as it turned upward from 14.3 % to 28.64% in 1995-96. Similarly, the exports in real terms provided earnings from Rs.2469.95crores in 1960-61 to Rs.21926.97crores in 1995-96. Whereas the rate of growth fluctuated widely from 1960-61 to 1985-86 and from 1986-87 onwards it presents a general upward rising trend.

With respect to imports, table II.9, II.10, II.11 and II.12, provides the changing trend in value and percentage terms. The value of imports in current price rose from Rs.1121.62 crores in 1960-61 to Rs.1, 22, 678 crores in 1995-96, whereas the rate of growth defined a general upward trend from 1987-88 onwards.

Similarly the value of imports at constant price marked an increase in expenditure from Rs.4599.9 crores in 1960-61 to Rs.35, 158 crores in 1995-96, but the growth rate experienced an indeterminist trend over the years due to wide fluctuations.

As we read into the behaviour of the trend of exports and imports, a common feature that emerges is that although the liberalisation was initiated in1979-80, but it was only from the second three-yearly import export policy (1988-91), could bring

about tangible gains in the value of exports and imports. In pursuance of the first three-yearly (April 1985-March 1988) import and export policy, the government initiated a series of measures aimed at trade liberalisation.

In order to examine the structural change it is important to examine the developments experienced by the commodities categories as Primary (Section 0 to Section 4) and Secondary (Section 5 to Section 8) in the overall exports/imports. With the industrialisation and the economic growth over the years, it is expected that the significance of manufactured goods to overweigh the primary goods in the trade basket. Such an observation is provided in Table II.13. A very important observation that emerges is that alongwith the share of manufacturer exports becoming sizeable, the share of manufactured imports has also grown in significance over the years this fact can be read from the Table II.18.

At a further disaggregate level within the Primary Products, it can be noted in table II.14 that the combined share of Food and Live Animals (section 0) and Crude Materials, Extd. Fuels (section 3) were 90.40% in 1960-61 and it has relatively remained steady at 87.76% in 1995-96. A similar observation can be done in table II.16 were the combined share of Food and Live Animals (section 0) and Crude Materials, Extd. Fuels (section 3) were 85.99% in 1960-61 and marginally rose to 90.55% in 1995-96 in the Total of Primary exports in real terms. It is interesting to note in table II.19 and table II.21 the imports of primary product performance at disaggregate level. The combined share of Food and Live Animals (section 0) and Crude Materials, Extd. Fuels (section 3) significantly declined from 83.13% (79.28%) in 1960-61 to 27.26% (24.95%) to 1995-96 at current (constant) prices. The commodity of new significance was Mineral Fuels (section 3), which increased from a low of 15.64% (19.86%) in 1960-61 to 66.39% (67.74%) at current (constant) price.

At the disaggregate level within the Export of Manufactured Products, table II.15 and table II.17 shows that Basic Manufactures (section 6) share was 90.68% (94.21%) in 1960-61, which sharply declined to 52.27% (45.76%) in 1995-96. Whereas the share of Miscellaneous Manufacturers (section 8), shows a rise from 4.35% (3.59%) to 26.55% (21.55%) at current price (constant price) during the same period.

The scenario for the Import of Manufactured goods is reported in table II.20 and table II.22. The combined share of Basic Manufacturers (section 6) and Machinery and Transport equipment (section 7) decreased from 84.60% (91.37%) in 1960-61 to 70.16% (79.83%) in 1995-96 at current (constant) price.

Finally we have examined the impact of trade policy on the trend of exports and imports at aggregate and disaggregate level in current price and constant price for the period 1960-61 to 1995-96. For this objective as explanatory variable we deploy dummy variables to serve as a proxy for liberalisation since 1978-79, the value of which was taken as zero for the years prior to it and one for the rest of the period since 1978-79. Further by using the dummy variables once again we tried to capture the insight into the impact of the broader policy reforms undertaken since 1990-91 as compared to the period of beginning of India's liberal policy initiation i.e. 1979-80 to 1989-90. To achieve this the value of one was assigned for the period 1979-80 to 1989-90 and zero was taken for the remaining years of 1960-61 to 1995-96. In the same equation another explanatory dummy variable was added, were the value of one was assigned for the period 1991-92 to 1995-96 and for the entire rest of the years from 1960-61 to 1995-96 was represented by zero. The results yielded were roboust for the earlier equation, thereby confirming the theoretical belief that the liberalisation phase of 1979-80 to 1995-96 influenced exports positively for all section of commodities classified under S.I.T.C (Revision 2) at current and constant price. The results are statistically significant at 1% level. A similar observation yielded in case of imports for all the sections of commodities classified under S.I.T.C (Revision 2), at current price and constant price. Further test showed that exports and imports at current price and constant price are indeed amenable to policy action initiated since 1979-80 to 1995-96 and broadly from 1992-93 onwards.

In chapter four we have attempted to examine the nexus between Trade and Growth. A trade development model can be composed of namely Import-led Growth and Growth-led Export. By grabbing the developmental stimulant from import of sectoral inputs, basic heavy and infrastructure industries develop with dynamic structural linkage to industrial, agriculture and infrastructure service sectors. Further the technological flow contributes higher induced income, growth induced

employment, efficient allocation of resources, improvement in human capital etc Equally important is the capital investment, which improves the quality and quantity of the existing physical and human resources and promotes rapid economic development by developing dynamic industrial and non-industrial sectors.

We begin our empirical investigation of the existence of causal relationship between exports and imports at current price for the periods1949-50 to 1995-96, 1960-61 to 1995-96, 1967-66 to 1995-96, 1970-71 to 1995-96 and 1980-81 to 1995-96. The methodology applied is the test of integration, cointegration and error-correction.

We have summarized our findings Table II.35, Table II.36, Table II.37 and Table II.38. In Table II.35 and Table II.36. From the reading of the Tables it is apparent, almost all of the export and import series under different time periods can be viewed as integrated of order I (0) and have confirmed that the properties of the time series are stationary. The results of the bi-variate Augmented Dickey Fuller test are presented in Table II.37; the null hypothesis of no-cointegration is rejected at 1% level, for the period 1960-61 to 1995-96 and 1970-71 to 1995-96. There appears to be no evidence of a common trend in the movement of the two variable exports and imports incase of other time break-ups.

Further in order to examine the possible evidence with regard to the bi-directional causality between exports and imports. This requires application of error-correction models to the stationary time series of exports and imports for determining causality. In table II.38 the results of ADF tests are shown in the 10th column. However we fail to reject the null hypothesis of no-causality either from exports to imports or imports to exports.

Further we attempt to examine the causal nexus between exports and imports in real terms (Base: 1978-79 = 100) for the following periods 1960-61 to 1995-96, 1967-66 to 1995-96, 1970-71 to 1995-96 and 1980-81 to 1995-96.

The summaries of the findings are presented in Table II.39 and for the imports in the table II.40. In case of exports the null hypothesis of non-stationarity is rejected for the period 1960-61 to 1995-96 at 1% significance level. Whereas for the period, 1967-66 to 1995-96, 1970-71 to 1995-96 at 5% significance level based on Dickey

Fuller (DF) test but for the period 1980-81 to 1995-96, we failed to reject the null hypothesis. However in case of imports we failed to reject the null hypothesis for all period breakups analysed.

Hence it is essential for the integration and cointegration that the properties of the data on exports and imports are stationary of the same order. Therefore these two series were second-differenced, but the results presented in the table II.41 and table II.42 shows that, non-stationarity cannot be rejected at the 1% and 5% level of significance. Further, we subjected the series of exports and imports to the third order difference, but only for the period 1960-61 to 1995-96 and 1967-68 to 1995-96. The period of 1970-71 to 1995-96 and 1980-81 to 1995-96 was considered since the observation would have becomes too small to derive meaningful results. The results presented in the table II. 43 and table II.44 shows that once again we had to accept the null hypothesis of non-stationarity at 1% and 5% significance level. Therefore, the overall result has to be interpreted that stationarity could not be established at first/second/third order difference. Hence test of cointegration and error-correction cannot be estimated.

Further in the chapter we examine the Causality between Exports/Imports and GNP$_{MP}$. In this section we try to analyse the type of causality that exist between exports and GNP$_{MP}$, and imports and GNP$_{MP}$ for the time period 1960-61 to 1994-95, 1967-68 to 1994-95, 1970-71 to 1994-95, 1980-81 to 1994-95. In the table II.45, table II.46 and table II.47, it is apparent, almost all the three time series of exports, imports and GNP$_{MP}$, can be viewed as I (0). Given this property it is important to assess whether the variables are also cointegrated. The results are presented in the table II. 48 and table II.49 were the ADF test mentioned in the column 8 shows that we fail to reject the null hypothesis of no-cointegration at 1% and 5%. significance level.

Since exports and imports do not cointegrated with the GNP$_{MP}$, then we cannot include error-correction model to test the causality.

We extend our purpose to consider the causality issue between exports, imports and GNP$_{MP}$ at constant price (base: 1978-79) for the period 1960-61 to 1994-95, 1967-68 to 1994-95, 1970-71 to 1994-95, 1980-81 to 1994-95 with the aid of cointegration and error-correction modeling. Table II.50, Table II.51 and Table II.52 reports our non-

stationary tests for all the time series for the above-mentioned three variables, using the Dickey-Fuller test and its augmented version The column 8 of the tables shows the asterisks only for exports and GNP$_{MP}$ for the period 1960-61 to 1994-95, showing that the null hypothesis of non-stationarity is rejected at 5% level significance. But in all other category of time, and in case of imports for the entire break up of time periods we fail to reject the hypothesis of non-stationarity at 1% and 5% significance level. Given the stationary properties of the exports and GNP$_{MP}$ for the time period 1960-61 to 1994-95, we run the cointegration equations in both directions. In the column 8 of the Table II.53 show no asterisks, which means that we accept the hypothesis of non-cointegration at 1% and 5% significance level. Therefore we do not test for error-correction, to test for the causality, since the variables do not cointegrated.

In order to find the possibility of stationarity the variables of exports, imports and GNP$_{MP}$ are differenced further and the stationary properties and the order of integration examined. The table II.54, table II.55, table II.56 summarizes the results of second order-differenced series tested for stationarity. The absence of asterisk, in case of exports and imports means we fail to reject the hypothesis of non-stationarity. However in case of GNP$_{MP}$ for the period 1960-61 to 1994-95, 1970-71 to 1994-95, 1980-81 to 1994-95 we reject the null hypothesis at 1% significance level and at 5% level significance. But for cointegration test between export and GNP$_{MP}$, or import and GNP$_{MP}$, it requires they should be not only stationary but also integrated of same order. Therefore the three variables were third-order differenced but the period considered was only 1960-61 to 1994-95 and 1967-70 to 1994-95 and tested for the properties of stationarity. The table II.57, table II.58, table II.59 summarizes the results, that only exports and GNP$_{MP}$ show the properties of stationarity at 1% level of significance.

Given this property, it is important to ascertain whether the exports and GNP$_{MP}$ are cointegrated. The table II.60 reports the cointegrating equations relating exports and GNP$_{MP}$ and vice versa. The column 8 of the table II.60 shows the results of ADF test with no asterisk, means that we fail to reject the null hypothesis of non-cointegration at 1% and 5% significance level. Since we cannot account for cointegration, the error correction model to test the causality becomes invalid in principle.

Following were the observations, the results show that there is no causality between imports and growth neither at current price nor in real terms in case of India. However such a finding is compatible with the findings by Ram Rati (1990), that Import growth nexus is weaker in low-income LDCs than in middle-income group countries a period 1974-85. In another paper by Wall David (1968) also supports our results, were he finds the argument of UNCTAD that there is a "close" or "positive" relationship between import capacity and growth is untenable. He further has shown that there is no evidence of a close association between imports of investment goods and growth.

However with reference to India, Krishna et.al (1998) there is unidirectional relationship from imports to growth in real terms for the period 1960-61 to 1995-96. The results differ on account of choice of methodology. All the variables are in natural logs and in 1990 prices in National currency.

Our judgment on exports and growth also finds no causality at current price or in real terms. The result finds some resemblance to the findings by Mukherji Smirti (1987), she states, it is evident that in whatever way we might choose to represent export growth and income growth variables, the outcome happens to be same; that is, the case of the Indian economy a higher growth rate in exports has led to a fall in the growth of income over the period 1950-51 to 1980-81. An explanation of this inverse relationship forwarded by her is: (1) "it might be that imports being quite substantial (in fact in most of the years imports have exceeded exports), the desired relationship between growth rate of export and income gets distorted." (2) "In the face of inflated import requirements to make import substitution a success, export growth fails to show the desired effect upon income growth."

According to Nayyar (1976) one of the reasons for no link between exports and growth is in India, there has been little demarcation between the sectors catering to domestic demand and exports. In another paper by Jung and Marshall (1985) shows using Granger test of causality could not establish the direction of causality between export and domestic output in India.

Sangeeta (1995) presents a similar supporting view is of no significant link between export and economic growth covering a period of 1960-80. However in another study of the India's experience by Sukumar Nandi (1991) finds that causality

runs one way i.e. export growth causes growth of national income covering the period of 1960-61 to 1985.

Further in a study by Sakiya Khan (1994) examines the causal relationship between exports and GDP in real terms for the period 1980-81 to 1992-93 in the case of India shows that export coefficient though positive is found not to be statistically significant. However in another paper using modified Sims test of which Granger and Sims test are special cases, by and large supported the bi-directional causation between income growth and exports growth of India for the period 1950-51 to 1991-92.

A similar view in contradiction to our findings is shows by S.K Mallick (1994), the bi-directional causality between exports and economic growth in India 1950-51 to 1993-94. Although the method used by the author is same i.e. using integration and cointegration but he chooses the lag arbitrarily rather than FPE criterion as done by us. Moreover he has used standard Granger test of causality rather than error correction mechanism, which is more accurate method of ascertaining the causality. Further the base year chosen by the author is (base: 1980-81 = 100) and has used log values of the series.

In chapter five we have been motivated to examine the nexus between Trade, Productivity, and Growth. There has been significant amount of research focusing on quantitative analysis of economic growth in different countries and also on various possible refinements in the methodology for measuring the sources of economic growth. There is a widely held view, in the studies of Bhagwati and Desai (1970) and Bhagwati and Srinivasan (1975) that the inward looking development strategy based on the policies of import control and domestic licensing have led to considerable inefficiency in the industrial sector.

Further studies by Goldar (1986.b) and Ahluwalia (1991) have investigated the impact of trade orientation on the productivity growth for the Indian Industry during the 1970s and 1980s. Their studies concluded that the prevailing trade policies did play a role in the observed TFP growth rates for Indian manufacturing sector.

In this chapter we attempt to examine the probable relationship between Trade, Growth and Productivity.

The empirical findings of the chapter are as follows:

(i)The TFP calculated by Isher .Ahluwalia (1991) for the manufacturing sector for the period 1960-61 to 1985-86, and exports were found to be integrated of order I(2). Further by taking these stationary properties we tested for cointegration but couldn't reject the null hypothesis of no-cointegration. A point has to be added that in case of imports and GDP_{MP}, we could not find stationary properties.

(ii) The TFP for the manufacturing calculated by P. Balakrishnan and K. Pushpangadan (1994, 1995), and the recalculated series of Dholakia. B and R. Dholakia (1994) by the above mentioned authors, for the period 1970-71 to 1988-89 and imports were found to be integrated of order I (2). Further by taking these stationary properties we tested for cointegration but couldn't reject the null hypothesis of no-cointegration. Further, the results of DF test shows that in case of exports and GDP_{MP}, were found to be of non-stationary properties.

(iii) TFP calculated by J.M. Rao (1996) for the period 1973-74 to 1992-93, exports and GDP_{MP}, were found to be of non-stationary properties.
Only the imports were found to be integrated of order I (2). For cointegration test two variables has to be integrated of same order.

(iv) TFP calculated for the Manufacturing sector and the Indian Economy by Hajra, S. and Vasudeva, V. (1993) for the period 1970-71 to 1987-88, the exports of manufacturers /Total exports and GDP_{MP}, shows that the results of DF test to be of non-stationary properties and imports of Manufacturers and Total imports were found to be integrated of order I(2). For cointegration test two variables has to be integrated of same order.

(v) The TFP calculated for the Agriculture sector by Dholakia. B and R. Dholakia (1993) for the period 1950-51 to 1988-89 and exports of agriculture were found to be integrated of order I(2). Further by taking these stationary properties we tested for cointegration but couldn't reject the null hypothesis of no-cointegration. However we could not find, the imports of agriculture to be non-stationary.

(vi) The TFP calculated by Singh, Tarlok (2000) for the Chemical sector and Machinery and Transport equipment sectors for the period 1974-75 to 1993-94, exports and imports were found to be non-stationary.

The above mentioned results shows that when longer duration period is considered Total Factor Productivity and Exports do test stationary but for short period duration TFP and Imports test stationary. Moreover in some of the cases of short period duration only Imports tested stationary. But in none of the above cases examined none of the variables were found to have steady state long run equilibrium. Moreover the study failed to establish any causal relationship between Productivity, Output, and Trade Performance in case of India.

Our results are consistence with the findings of Ahluwalia (1991). Her study covers the period 1959-60 till 1985-86. She by computing the Chenery measures of the contribution of import substitution to growth for 62 industry groups of manufacturing of India. Using this measures as an explanatory variable in an equation explaining growth in productivity the study established a negative relationship between Total Factor Productivity Growth and a Chenery measure of import substitution. In another study, Goldar (1986) found that there was a significant negative relationship between TFP growth and import substitution.

The finding summarized in our study above has incorporated the export/import variables are from the period when import substitution was pursued hence the link between productivity and trade performance was difficult to be ascertained.

Further evidence can be sighted from the study of Fujita (1994). Productivity growth rates of manufacturing industries in India were computed for the period 1981-82 to 1987-88. It was observed that productivity growth rates of most labour-intensive industries were higher than those of capital-intensive ones, Further the share of public sector was used as a trade policy, as the increase in the share usually reflects restrictions in attempts at liberalisation. Therefore a negative relationship was obtained between liberalization policies and TFP growth.

It is obvious that in our study we have considered manufacturing exports and imports and even when the Total exports and imports were considered, the period of study above are of 70's and 80's, were the share of Manufactured exports (section 5 to

8) was greater than primary exports (section 0 to 4). Moreover the privatization of public sector was initiated from 1990 onwards and till the end of the decade the reforms has to not been substantially and far reaching. Thereby it is rather difficult to establish a causal relationship between Trade performance and Total Factor Productivity.

Area For Further Research

Building up human capital and other complementarities may be important in the link between exports of manufacturers and economic growth. On the other hand, managerial strategies that push for export promotion may be important, too. Though both may yield non-linearities in the link between exports and growth. Such a study can provide a better insight into the causal relationship between exports, imports and growth.