CHAPTER-I

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At the outset of independence, the strategic objectives of Indian policy makers were to create a self-reliant economy and the reduction of the high levels of poverty. In order to achieve these objectives, the authorities steadfastly pursued a Socialist strategy of state-directed, heavy industry based industrialisation complemented by an across-the-board import substitution policy, financial repression and complex industrial requirements.[1] Notwithstanding some notable successes, the highly statist and interventionist development policies adhered to during this period of insulation led to a severely distorted production structure. While growth did pick up in the latter half of the 1970s, the Indian economy was generally mired in a vicious circle of low productivity/product obsolescence and slow growth. Not only was the performance of the Indian economy well below the targets set by the planning authorities, the country was left lagging in terms of economic growth and development relative to its East Asian neighbours such as China and Korea, which had broadly similar levels of per capita income at the time of India's independence (Kelkar, 2001). Although some tentative steps were taken in 1985 to liberalise and unshackle the economy by delicensing a few industries, these partial and rather *ad hoc* measures contributed to the creation of severe and unsustainable macroeconomic imbalances in the Indian economy, particularly with regard to escalating fiscal deficits.[2] The imbalances corresponded to a period of severe political instability and uncertainty following three successive minority governments during 1989–91. While the fragilities in the Indian economy were largely homemade, the shock of the 1990 Gulf war was the single most factors, which "broke the camel's back" as India was brought to the brink of an international default. Following this, the country plunged into a deep economic crisis. The rate of inflation rose to a level much higher than what India had witnessed even six months earlier. Foreign exchange reserves declined to a level covering only three weeks of imports, something that had never occurred in its post-independence history.

[1] See, Government of India, Second five-year plan, (New Delhi,-1956)
[2] See, Wadhva, Charan D (2003).

Faced with a severe balance of payments crisis, India entered into an IMF influenced structural adjustment program. In addition to the conventional expenditure switching and reducing policies, as part of the IMF agreement, a range of far-reaching economic policy reforms was launched in July 1991 in the external, industrial, financial and public sectors.

Although the reforms mainly dealt with industry and trade policies, these policies do have its impact on the external sector. It is in the context of this that it is essential to examine the effect of the reforms on the external sector variables like, exports, imports, terms of trade etc.[3]

1.2 OBJECTIVE AND HYPOTHESIS OF THE STUDY

India has completed a period of two decades of economic reforms. Since, the reforms were initiated as a result of external sector shocks; it is desirable to evaluate the performance of India's foreign trade during this period. With this as a backdrop, this study has three main objectives:

1. The first objective is to analyse the behaviour of India's exports in two trade regimes i.e. (a) period of administrative control and regulation of trade, and (b) period of liberalisation and global orientation.

2. The second objective is to analyse the behaviour of India's imports in two trade regimes. The changes in its structure both in terms of direction and in terms of commodity composition are to be examined.

3. The Third objective is to analyse the behaviour of India's terms of trade. In particular, there is a need to examine the changing pattern in terms of trade.

Based on these objectives the central hypothesis of the present study is that economic reforms have brought growth and stability in India's foreign trade.

[3] The costs imposed by these policies had been extensively studied (Bhagwati and Desai, 1965; Bhagwati and Srinivasan, 1971; Ahluwalia, 1985) and by 1991, a broad consensus had emerged on the need for greater liberalization and openness.

Following from this central hypothesis it is expected that reforms brings about a change in the structure of exports and imports and make the country less vulnerable to the external shocks. It will also improve the secular trend of the deterioration in the terms of trade.

The hypothesis has been tested on the basis of the methods described below. To make a study comprehensive enough a time period corresponding to pre and post reform has been considered.

Although this study pertains to a post-reform period, for sake of comparison the decade prior to reform was also considered. Accordingly, the whole time period has been divided into:

Pre-reform period	1980-81 to 1990-91
Post-reform period	1991-92 to 2006-07
Overall period	1980-81 to 2006-07.

Further, to know the real impact of reforms on the exports, imports and terms of trade. The post-reform period is divided into two: Adjustment period and Post-adjustment period.[4]

Adjustment period	1991-92 to 1995-96
Post-adjustment period	1996-97 to 2006-07
Post-reform period	1991-92 to 2006-07

1.3 JUSTIFICATION OF THE STUDY

The main justification of this study is that a comprehensive impact of reforms in terms of growth and instability of exports and imports commodity wise as well as country wise have not been undertaken at one place in Indian context. The present study makes an attempt to fill this lacuna. Relevant literatures have been reviewed in different chapters to provide justification for undertaking the present study.

[4] It needs to be mentioned here that economic reforms is a long-term process and will take time to adjust. Thus, quick results cannot be expected. In view of this, the post-reform is sub-divided into adjustment and post-adjustment period.

1.4 METHODOLOGY AND SOURCE OF DATA

A. Methodology:

There are mainly four methods by which the trend values of any variable can be determined over a period of time. They are: (1) Graphic method (2) Method of semi-averages (3) Method of moving averages (4) Method of least squares.

1. Graphic Method:

In this method, the values of a time series are plotted on a graph paper in the form of a histogram. After this, a free hand smoothed curve is drawn through these points in such a way that the curve represents the general tendency of the data.

2. Method of Semi-Averages:

In this method, semi-averages are calculated to find out the trend value. By semi-averages is meant the averages of the two halves of a series. These average values would be plotted against the mid-value of each half. The two points are then joined by a straight line, which can be extended on either side. This would be the trend line.

3. Method of Moving Averages:

Moving average method is a simple device of reducing fluctuations and obtaining trend values with a fair degree of accuracy. In this method, the average value of a number of years (months, weeks or days) is taken as the trend value for the middle point of the period of moving average. The process of averaging smoothen the curve and reduces the fluctuations.

The main demerit of graphic method is that it is highly subjective that is, different persons will get different lines or curves. Where as, semi- average method presupposes linear relationship between the plotted points. This assumption would not be true in many cases. Secondly, the trend is affected appreciable by higher or extreme

values. Under the method of moving-averages, there are no trend values for some years in the beginning and some in the end.

Considering the above, the most used method of obtaining trend values is the method of ordinary least square (OLS).With this method a straight line trend is obtained. This line is called the line of the best fit. The equation of a straight line is $Y = a + bt$. Where Y is the dependent variable, 'a' is the constant, 'b' is the slope of coefficient of the dependent variable and 't' is the time. Such a model is called linear trend model. Here the time variable 't' is known as the trend variable. If the slope coefficient is positive, there is an upward trend in Y whereas if it is negative, there is a downward trend in Y.

Semi-logarithmic regression equation is employed to determine the compound growth rate and to identify the deterioration in the variable under the study. The equation can be written as: $\ln y = a + bt$. Where ln y is the log of dependent variable, 'a' is the constant, 'b' is the slope of coefficient of the dependent variable and 't' is the time. Such a model is called semi-log linear trend model. In the present study, also this model is used. The linear equation for any variable under the study can be written as:

$$Y_t = b_0 + b_1 t + u_{1t} \text{ ---- } (1)$$

Where Y is the variable under study and t is the time. If the slope coefficient b_1 is positive, this implies an upward trend in Y, whereas if it is negative, trend in Y is downward.

Semi-log exponential trend equations have been fitted to the time series data of any variable in order to compute compound rates of growth. This model also provides better fit as compare to the linear model.[5] This equation can be written as:

$$\ln y_t = b_0 + b_1 t + u_{1t} \text{ ------ } (2)$$

Where $\ln y_t$ is log of any variable and t is time.

[5] See, Gujarati, D.N (2004), log-linear model gives a slightly better fit.

This equation is called the semi-log model because only one variable (in this case regressand) appears in the logarithmic form. For descriptive purposes, a model in which the regressand is logarithmic will be called a log-lin model. In this model, the slope coefficient b_1 measures the constant proportional or relative change in Y for a given absolute change in the value of the regressor (in this case the variable t). If we multiply b_1 by 100, it will give the percentage change, or the growth rate, in Y for an absolute change in t, the regressor.

The coefficient of the trend variable b_1 in the growth model specified above gives the instantaneous (at a point in time) rate of growth and not the compound (over a period of time) rate of growth. Therefore, to find out the compound rate of growth the anti-log of the b_1 is taken from which 1 is subtracted and then the difference is multiplied by 100.[6]

As mentioned earlier this study considers a period corresponding to pre and post- reform regime. Accordingly, two separate regressions can be considered-one for the pre-reform period and the other for the post-reform period, respectively:

i) $\log Y_t = a + b.t$

ii) $\log Y_t = a' + b' .t$

Since the above two regression equations can be combined into a multiple regression by adding intercept and slope dummies to equation (i), we get the equation:

$$\text{Log } Y_t = a + b.t + (a' - a)\, Dt + (b' - b)\, Dt + u_t \quad \text{---------- (3)}$$

or

$$\text{Log } Y_t = b_0 + b_1 t + b_2 D + b_3 D.t + u_t \quad \text{---------- (3)}$$

[6] See, Gujarati, D.N (2004).

Where Y_t is the time series under study or determinant, t is the time variable and D is the intercept dummy which assumes the value one for the post-reform period and zero for the pre-reform period.[7] D.t is the slope dummy which is nothing but the time variable during the post-reform period and zero otherwise. The coefficient b_1 will be the growth rate of variables in the pre reforms and $(b_1 + b_3)$ will give the growth rate of variable in the post-reform period. The slope coefficients b_1 and $(b_1 + b_3)$ give the instantaneous (at a point in time) rate of growth. The compound growth can be computed by taking the anti-log as explained above. If the coefficient of, say, slope dummy,(b_3), is statistically significant and positive, it can be concluded that the regression equation for the post-reform period is different from that of the pre- reform period and that the rate of growth in the series is higher during the post-reform period (as $b_3 > b_1$).

In economic literature to calculate the instability, the statistical tool of standard deviation and coefficient of variation (C.V) is used, coefficient of variation is nothing but standard deviation divided by mean of the variable. However, in the present study in order to capture year-to-year fluctuation in growth trends, an index of instability as suggested by Coppock (1962) has been incorporated in the analysis. This takes care of the trend component in the time series data. This index is expressed as:

$$I.I = (\text{antilog } \sqrt{V \log} - 1) \times 100$$

Where $V \log = [\Sigma (\log X_{t+1} - \log X_t - M)^2] / N$

And $M = \Sigma (\log X_{t+1} - \log X_t) / N$ N – the number of year minus 1

In the calculation of Coppock's index, the following six steps are involved:

[7] Similarly, 'D' the intercept dummy assumes the value one for the Post-adjustment period and zero for the Adjustment period.

Steps Involved in Coppock's Method:

1. Logarithms are obtained for each annual value of a variable for example, total exports for year 1, year 2, etc.
2. The logarithm of the value for year 2 is subtracted from the logarithm of the value for year1, etc in order to get the first difference of the logarithms. [The antilog of this difference is the ratio of the value for year 2 to the value for year 1].
3. The arithmetic mean of the logarithmic first difference is then obtained. [The algebraic sum of the difference is used in the numerator].
4. This logarithmic mean is then subtracted from each year-to-year logarithmic first difference in order to obtain the logarithmic difference between the actual and the average (or trend) year-to-year logarithmic differences.
5. These logarithmic differences from the trend some positive and some negative are then squared up, summed up, and divided by the number of years minus one. The resulting number is referred to as the "Log Variance."
6. The next step is to take the square root of the log variance and obtain the antilog of the square-root value. Unity is subtracted from the antilog and the decimal moved two places to the right. The resulting "instability Index" is a close approximation of the average year-to-year percentage variation, adjusted for trend.[8]

This study mainly uses the above-mentioned methods for the analysis of growth and instability. However, it also makes use of other statistical tools such as average percentage share and ratios. Further for analysising the growth trend and instability of exports and imports the absolute value (at current prices Rs crores) as well as in percentage

[8] [In algebraic terms the process is as follows:-
Let X_t - the value of a country's exports in year t
N – the number of year minus 1
M – the arithmetic mean of the differences between the logs of X_t and X_{t-1}, X_{t-1}, and X_{t-2} etc., and V log – the logarithmic variance of the series]

share has been considered.[9] In addition to this the relationship between growth and instability have been analysed on the bases of four possibilities in each chapter.[10]

1. A declining growth with a decreasing instability.
2. A declining growth with an increasing instability.
3. Increasing growth with an increasing instability.
4. Increasing growth with a decreasing instability.

In all the chapters of this study, same methodology has been adopted. However, in chapter two ratios are also used to asses the performance of external sector.

B. Sources of Data:

The study is essentially of an empirical nature and its basic materials have been drawn from second hand published sources such as 'Handbook of Statistics on Indian Economy' published by RBI, Annual Reports on Currency and Finance of the RBI, Economic Surveys of the Government of India and Reports of the Indian Institute of Foreign Trade. The analysis in each of the chapters has been made in the context of a comprehensive review of the theoretical and empirical literature of the subject in order to put the study of each aspect in a wider context.

1.5 CHAPTER SCHEME

The chapter one, the present chapter is the introductory chapter wherein the hypothesis is stated and also provides the objectives of the study. Further, it provides an over view of the remaining chapters.

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[9] Analysis is also done in percentage share because, if the exports or imports of different commodity group or country groups, at one point of time are compared with the other. Then the use of current price figure does not provide the true picture, because it includes the effects of the price movement over a period.

[10] This is because growth and instability analysis provides different conclusion. Thus, there is a need to examine growth and instability together.

In the second chapter of the study, a broad survey of the theories of international trade has been made with a view to demonstrate their relevance to the developing countries. An insight of reform process has also been described.

In third chapter the impact of reforms on the selected macroeconomic and external sector, variables have been examined on the basis of the stated methodology.

The fourth chapter deals with country group wise export growth and instability. The country groups are O.E.C.D, O.P.E.C, Eastern Europe and Developing countries.[11] These grouping are based on the source of data.

Chapter five makes an attempt to highlight the behaviour of Indian exports with respect to different group of commodities during the study period under consideration.

After having, examine the export growth and instability country and commodity wise separately in chapter four and five there is a need to examine the growth and instability commodity and country wise together. This is required to identify the commodity and country where these commodities have the possibility of providing a base for higher exports with stability in the years to come. This is attempted in the chapter six.

Chapter seven examines the pattern and behaviour of Indian imports. Therefore, the chapter is divided in two parts. In the first part, sources of Indian imports have been examined. In second part, Imports of different commodities have been analysed.

After examining the impact of reforms on the pattern and behaviour of Indian exports and imports, the work remains incomplete if growth and instability is not examined for the terms of trade. This is attempted in the chapter eight.
The last chapter is the concluding chapter. It provides necessary policy implications.

[11] O.E.C.D is Organisation for Economic Cooperation and Development, O.P.E.C is Organisation of Petroleum Exporting Countries.

1.6 LIMITATION OF THE STUDY

The main limitation of the study is the classification of the Indian trade on the basis of which the data has been collected by RBI. From April 1977 to March 1987, the data was collected on the basis of Standard International Trade Classification Revision- 2 (SITC-Rev. 2), in which commodities were classified in nine major sections. From April 1987, onwards the new system of commodity classification called Indian Trade Classification (based on Harmonised Commodity Description and Coding System); in short, ITC (HS) was adopted.

As per this classification, commodities are classified in twenty-one sections consisting of 97 chapters (1 to 97). Thus, the pre-reform and post-reform data are strictly not comparable. However, in the absence of a more reliable alternative source of data the RBI data can be regarded as the most comprehensive source.