CHAPTER - II

REVIEW OF LITERATURE

The present chapter reviews the available empirical studies regarding different aspects of balance of payments at national and international levels. The aspects included are the trends of balance of payments and its various components, effect of balance of payments on economic growth, various factors affecting balance of payments and the measures taken at national and international levels to curb the problem of balance of payments deficit. The review of these studies provides a broad scenario of various dimensions of balance of payments. The chapter has been divided into four sections. Section I consists of review of studies concerning the analysis of the position of balance of payments and its components; Section II comprises review of studies related to determinants of balance of payments and its components (viz. current account and capital account); Section III consists of review of studies related to instability of exports and effect of components of balance of payments on economic growth and development and Section IV presents review of studies related to impact of various policy measures on balance of payments position.

I

Mehta and Moore’s (1982) study had the main objective of isolating and analyzing various components of the balance of trade of India during the period from 1950-51 to 1976-77. The statistical technique to separate the balance of trade elements was additive analysis. The statistical analysis of the changes in balance of trade of India showed that, on the whole, the Terms of Trade Effect (TOTE) contributed towards the deterioration of the changes in Trade Balance (CTB) while Quantity Component of Exports and Imports (QC) contributed towards improvement of CTB. Both the components of QC and TOTE caused substantial variations in the CTB as indicated by the coefficient of variation. The TOTE had a relatively greater stabilizing effect on the CTB. The unfavorable TOTE was mainly the result of insufficient diversification in commodity composition of exports and the concentration of India’s trade with a few developed markets. It was suggested that to manage the BOP position, the developed countries should increase their efforts to help the developing economies,
specifically by augmenting trade opportunities on equitable terms for the developing economies.

**Mukherjee (1984)** made an attempt to analyze the terms of trade for invisibles of India during period 1951-1980. The study examined two concepts of terms of trade namely commodity terms of trade and income terms of trade in respect of invisibles. The main findings of the study were that both the terms of trade for India’s invisibles had similar growth path fluctuating in initial years and then rising steeply. Both terms of trade had not subscribed to any thesis of secular deterioration or stagnation but, on the contrary, had been secularly rising. Quantum of exports had a favorable impact on both terms of trade and progress of these terms of trade had been quite impressive.

**Neog (1994)** analyzed the exports, imports, trade balances and GDP in India for the period 1950-51 to 1990-91 with five year intervals. The author linked industrial production to exports and imports in order to test the hypothesis that trade balance was highly correlated to industrial production. Using the semi-log model, the study concluded that exports and imports as individual components were highly correlated to industrial production and trade balance also improved the industrial production.

**Atkinson and Victor (1996)** in their article developed a model of the balance of payments in an economy in which international capital flows were constrained by borrowing limits. They used the model to describe the dynamics of the trade balance, capital account and the balance of payments of a country that borrowed to finance consumption following sweeping structural reforms and then hit constraints on its international borrowing during the period 1987-1995. The study clearly demonstrated that a country could experience balance of payments problem even if the government was committed to maintain fiscal and monetary policies consistent with its exchange rate targets in every state of nature. Moreover, the model also suggested that countries undertaking important policy reforms should anticipate balance of payments problems if international borrowing constraints became binding.

**Sivaprakasan and Berg (1996)** in their study covering the period 1990-1995, emphasized India’s experience with (partial) capital account convertibility. The study found that the difference between the analytic understanding of capital versus current account restrictions was striking. The main findings of the study was that the solution was not in imposing controls, which was usually circumvented, but in creating a
delicate blend of consistent macro-economic policies, flexible exchange rate and sound domestic financial system. Finally, the findings of this research indicated that foreign institutional inflows could be made more sustainable by enhancing micro-economic efficiency of the stock market and was possible only when stable government finances, price stability and a robust financial system supported the macro-economic environment.

**Hargopal (2002)** carried out in-depth analysis of external variables like exports, imports, trade balance, current account deficits, foreign exchange reserves and external debt by computing growth rates and using regression techniques. The analysis revealed that firstly even though exports and imports had grown but imports growth was faster than exports in post liberalization period. While the inflow of debt had fallen steeply, the growth of foreign exchange reserves equally rose in post-liberalization period. The study suggested that exports had to be increased steeply in order to nullify the negative impact of growing import expenditure. For this, untapped foreign markets have to be captured and products groups with indigenous technology have to be explored where we have strength.

**II**

**Artus (1972)** in the study over the period 1970-72, carried out a a systematic analysis of the short run determinants of international travel flows by specifying and estimating a complete world travel flows model of some selected countries. Forecasting techniques was employed for this purpose. The result clearly showed that most foreign travel flows were influenced significantly by relative prices. Travel flows between United States and Canada were also price elastic. Expenditures made by United States and Canada in Western Europe seemed rather insensitive to exchange rates. Relative prices were also found to influence the choice of the foreign country visited. Most international travel flows also seemed to be highly income elastic.

**Bond (1979)** in this study presented a theoretical model of exports and imports of invisibles for the 14 major industrial countries covering period 1954-1970. The study revealed that price competitiveness was an important factor in determination of various flow of invisibles. In particular, flows of international travel and passenger
transportation and other private services seemed to be strongly influenced by relative prices and exchange rates. The evidence also indicated that imports of ‘other private services’ responded to changes in current income.

Spitaller (1980) examined the short-run effects of exchange rate changes on the trade balance and terms of trade for a sample of ten countries using monthly data over the period January 1973 through April 1978. The terms of trade effect provided an illustration of first segment of the J-curve, the initial deterioration in trade balance, following devaluation. The study concluded that if the reaction of trade volumes to exchange rates was sluggish, the response of trade account to an exchange rate change was in most cases, likely to aggravate existing imbalances in international trade.

Sarkar (1984) explained the average trade flows and the explanatory variables affecting the trade flows between 12 ESCAP countries of the world covering the period 1958-60. The study revealed that trade flows were directly related to the size of population of trading countries. Similar direct influence was exerted by their levels of per capita income which could be taken as a crude index of economic development. But the distance variable acted as a significant barrier to trade between two countries and exerted a significantly negative influence on trade flows.

Costa (1988) examined factors affecting commodity trade balance over the period 1970-71 to 1984-85. The factors affecting commodity trade balance included were – quantum of exports, quantum of imports and net barter terms of trade. The variables which affected these factors were real income of India, real income of industrial countries and the real effective exchange rates. On the basis of findings, he concluded that India’s trade balance was associated positively with growth in real income of industrial countries and exports of crude petroleum, and negatively with India’s real income, the real effective exchange rate and import liberalization.

Salam (1992) attempted to identify the factors influencing movements in major components of India’s BOP viz. merchandise imports, merchandise exports, service imports. Results showed that fiscal deficit, in general, resulted in widening of current account deficit in BOPs, although this outcome critically depended on how the deficit was financed. The study concluded that viable BOPs strategy would have to be based on supportive domestic policies and for temporary disequilibrium in BOP, adverse relative price movements might necessitate some adjustments of exchange rate.
**Patel (1993)** examined the direct effect of private foreign investment (by transitional corporations) on the balance of payments in India during the period 1969-70 to 1985-86 by computing investment service ratio. The study found that about 21.5 percent of the export proceeds in 1965-66 and 1966-67 were remitted abroad in the form of investment income. The investment service ratio steadily rose from 12.5 percent in 1964-65 to over 15 percent in 1967-68. The study concluded that burden which India had to shoulder on account of service payments in the past had been heavy and had increased over the years.

**Shamsuddin (1994)** examined the economic determinants of private foreign direct investment by using a single-equation econometric model for 36 LDCs for the year 1983. The market size of the host country as measured by per capita GDP was found to be the most important factor in attracting FDI. The other important variables which influenced FDI were the cost factor (such as wage cost) and the investment climate in the host country. The inflow of per capita public aid and economic instability, proxied by the volatility of prices, were other important factors affecting the flow of FDI. While larger market size and increased inflow of public aid attracted FDI, the higher wage cost, poor investment climate, and economic instability in the host countries reduced the inflow of FDI.

**Chatterjee and Prajuntaborial (1995)** examined the factors that influenced the flows of foreign investment to Thailand over a period of 13 years. Multiple linear regression equations were estimated with the time series data. The empirical investigations revealed that market size variable appeared to have the most pervasive influence on investors. Trade orientation variable did not appear to be entirely consistent in its influence on investment decisions. The density of urban population had a negative influence on investors. Finally, the tax variable did not seem to figure at all in the investment decisions.

**Nanda and Raikhy (1997)** made an attempt to study the composition of Indian exports and to analyze the determinants of aggregate exports so as to know the possible factors affecting India’s exports covering the period 1960-61 to 1994-95 by using the Hirshman Index of Commodity Concentration. The study revealed that India started exporting large number of commodities for the period 1960-61 to 1990-91, but after 1990-91, not much change was observed in commodity composition of exports.
The analysis regarding determinants of exports showed that value of output, export profitability and relative export prices turned out to be significant variables affecting some categories of exports. But exchange rate proved to be significant variable for almost all the categories of exports except in case of ‘Primary group’. Variable export promotion expenditure turned out to be non-significant which showed that it did not have any effect on exports.

Jayaraj (1999) examined the impact of exchange rate variability on India’s export demand, export supply and export prices during 1975-91. Attempt was also been made to estimate the extent to which the trade balance of India was influenced by exchange rate variability. The study revealed that market exchange rate determination featured high variability. Price variations were not found to have significant impact. It was observed that reduction in exchange rate variability might improve the trade balance of India. A reduction in REER also positively benefitted the export demand, export supply and trade balance.

Karmakar (1999) outlined briefly India’s balance of trade over the years and policy initiatives undertaken to tackle the BOP crisis. An attempt was made to find out the main determinants of India’s balance of payments during 1951-52 to 1989-90 with the help of multiple regression analysis. It was concluded that in addressing an unsustainable current account deficit, it was true that a real depreciation of rupee was superior to import controls and higher tariffs. For the overall management of country’s BOP, reliance on exchange rate adjustment only might not, however, prove sufficient in order to prevent altogether the reoccurrence of serious current account imbalance in the balance of payments. Balance of payments being a macroeconomic phenomenon, estimates of real wealth, the real exchange rate, the size of government expenditure and the role of interest etc., were also identified as important determinants of balance of payments.

Sobhee (2000) tried to understand the possible linkages between budget deficit and current account imbalances by analyzing shocks in the current account of the Mauritius’s balance of payments. The study used OLS techniques and stationarity tests to undertake the analysis covering period of eighties. The study found that budget deficits indeed spilled into external deficits. It was also found that a fiscal deficit shock (as an (external policy) had a less lasting effect on the current account
compared to devaluation (as an external policy). Thus, the findings dictated that if the government wished to reduce current account imbalances, it had to exercise fiscal discipline to reduce high budgetary deficits to manageable levels. Moreover, favorable TOT and positive growth in output should be supplementary to promote a favorable current account balance.

**Sharma (2000)** investigated the determinants of export performance in India in a simultaneous equation framework by using of annual data for 1970-98. The results of the study suggested that demand for Indian exports increased when its price fell in relation to world prices. Further, the real appreciation of the rupee adversely affected India’s exports. Export supply was positively related to the domestic relative prices of exports and higher domestic demand reduced export supply. It was further concluded that foreign investment appeared to have statistically non-significant impact on export performance although the coefficient of FDI had a positive sign. Similarly, no evidence was found to claim that the level of infrastructure had an impact on export supply.

**Chumni (2001)** tried to identify some major determinants affecting the demand for Thailand’s international tourist receipts by taking annual time series data from 1978-1999. Five countries were selected as origin countries generating demand for Thailand’s tourist receipts. Econometric models were constructed and estimated to measure response of demand to the changes in determinants. The empirical results showed that the income variable was found statistically significant in case of Malaysia and Japan with elasticity coefficient of 1.57 and 1.94. The relative price variable was found statistically significant in case of Japan and Australia while exchange rate variable was found to be significant only in case of USA with expected positive sign. The lagged income variable was statistically significant in three cases namely, UK, Australia and Malaysia. The variable of national tourism office marketing expenditures was found to be significant in four out of five cases with elasticity ranging from 0.27 to 0.46. The dummy variable on special market program was non-significant in all cases, while dummy variable on world political crisis was found to be significant only in one case with unexpected sign of the coefficient.

**Chang and Calderon (2002)** tried to provide some stylized facts on links between current account deficits and broad set of variables for 44 developing countries
covering the period 1966-94. Reduced form approach was adopted instead of particular structural model. The findings suggested that current account deficits were moderately persistent. A rise in domestic output growth generated larger current account deficits. Shocks that increased the terms of trade or appreciated the real exchange rate were linked with higher current account deficits. Higher growth rate in industrialized countries reduced the current account deficit in developing countries.

**Erdal and Tatoqlu (2002)** conducted an empirical analysis of location related determinants of FDI. This was undertaken by means of co-integration analysis of major locational factors having an impact upon the level of FDI inflows for the period 1980-1998. The findings of the study supported the contention that while Turkey offered several locational advantages to foreign investors in terms of market size, infrastructure, openness of the economy and market attractiveness, the lack of exchange rate and economic stability hindered its efforts to harbor much higher volume of FDI.

**Chin and Prasad (2003)** in the study covering the period 1990-2001, provided an empirical investigation of medium term determinants of current account for a large sample of industrial and developing countries. The study concluded that current account balances were positively correlated with government budget balances and initial stocks of net foreign assets. The analysis showed that among developing countries, measures of financial deepening were positively associated with current account balances while indicators of openness to international trade were negatively correlated with current account balances.

**Rai and Bhanumurty (2004)** tried to examine the determinants of foreign institutional investments in India, which had crossed almost US$12 billions by taking monthly data from Jan 1994 to Nov 2002. The study brought out that FII inflows were dependent on stock market returns, inflation rate (both domestic and foreign) and ex-ante risk. In terms of magnitude, the impact of stock market returns and the ex-ante risk turned out to be major determinants of FII inflow. This study did not find any causation running from FII inflow to stock returns as found by some other studies. Stabilizing the stock market volatility and minimizing the ex-ante risk would help in attracting more FII inflow that had a positive impact on the real economy.
Ranjan and Nachane (2004) set up a disaggregated structural model of India’s BOP, with emphasis on the capital account, in line with the changing role of capital in India’s external sector. A simultaneous equation model, encompassing major constituents of the capital account, as well as other macroeconomic sectors, was estimated using annual data over the period 1970-71 to 1998-99. It was found that the two major factors impinging on the Indian capital account were changes in world income and non-interest domestic government expenditure. Monetary measures such as CRR or bank rate changes had limited implications for the capital account as a proactive policy of real exchange-rate targeting.

Fleermuys (2005) examined the monetary approach to the Namibian balance of payments for the period 1993–2003. Through the reserve flow equation, it was tested whether excess money supply played a significant role as a disturbance by using cointegration tests and error-correction modelling. The empirical results showed that monetary variables did not play an overwhelming role in determining Namibia’s balance of payments. The only two significant relationships found were between inflation and net foreign assets, which reflected a strong positive relationship, and between domestic credit extension and net foreign assets, which reflected a strongly negative relationship as posited by the monetary approach to balance of payments. The results evidently showed that, although some variables suggested by the monetary approach played significant role, the balance of payments was not a purely monetary phenomenon. A balance of payments disequilibrium, therefore, cannot be corrected only through monetary actions by the authorities.

Chakaraborty (2006) examined the time series properties of foreign capital inflows into India in the 1990s. An analysis of quarterly data for the period 1993 to 2003 showed that net capital inflows had been volatile, though not all components of aggregate inflows had moved in a similar fashion. The study further analyzed how capital inflows adjusted to changes in real exchange rate and other macro-economic variables in India since 1993. The econometric results indicated that an error correction mechanism was operating between net inflows of capital and the real exchange rate. Macroeconomic fundamentals did not have any significant effect on the dynamic adjustment of capital inflows and a co-integration relationship existed between net inflows of capital, real exchange rate and interest rate differential.
**Gupta (2006)** analysed the macroeconomic determinants of remittances to India during 1991 to 2002 and found that the growth of these remittances over time could be explained by the increase in migration and total earnings of migrants. Remittances were also affected by the economic environment in source countries, and appeared to be countercyclical i.e. higher during periods of low economic growth in India. On the other side, political uncertainty, interest rates and exchange rate depreciation, were found to affect remittances significantly.

**Ralhan (2006)** examined the determinants of foreign institutional investments in India with the help of monthly data from January 1994 to November 2002. The study tried to examine whether return and risk in the stock market and the real factors had any impact on the FII inflow in the country. Econometric estimates, using TARCH procedure, showed positive association of FII with return on BSE, inflation in US and negative association with inflation in India, return on S&P 500, ex-ante risk on BSE and ex-ante risk on S&P 500. Thus empirical estimates seemed to be perfectly in consensus with the proposed theoretical model, except for ex-ante risk in US stock market, which adversely affected the FII flow to India. However, ex post risk in either economy did not affect FII inflow to India. The study did not found any causation running from FII inflow to return in BSE.

**Bhati (2006)** made an attempt to bring out the factors influencing FDI inflows in case of developing countries. In order to achieve this objective, multiple regression model consisting of eight independent variables and one dependent variable had been applied to three datasets-1989-94, 1995-99 and 2000-03. Per capita FDI inflow was taken as a dependent variable in each of the period. However, during the latest period the relationship of independent variables under consideration had also been analyzed with absolute FDI inflows as a dependent variable besides per capita FDI. The main findings of the study were: (i) the explanatory power of the model a a whole was of moderate level, and (ii) per capita GDP stood as a significant influencer of FDI inflows during each period. Another significant determinant of FDI for the periods 1989-94 and 1995-99 was exports as percentage to GDP. The rest of the socio-economic variables such as adult literacy, external debt, inflation rate and power consumption, which were generally considered as important determinants of foreign investment, had non-significant effect as per the findings of this study.
**Oscategui and Nunes (2006)** examined the main determinants of FDI in Latin America. Based on several panel data regression estimates, the study found that all the estimated coefficients had expected signs and were statistically significant. In particular, the variable market size as measured by the GDP of the country had positive impact on foreign capital inflows in any economy. The variable ‘infra (infrastructure)’ intended to capture the capacity of the country to absorb foreign capital in the understanding that foreign capital was attracted to countries where business was facilitated by good infrastructure in the form of roads, port facilities, etc. Its estimated sign was positive, as expected. The variable ‘inflation’ intended to capture the quality of macroeconomic policy. Assuming that bad macroeconomic policy will be reflected in high levels of inflation, and vice-versa, the sign obtained was negative as expected. The variable ‘open’ captured the degree of openness of an economy. The estimated sign was positive, so that more open economies were more attractive to foreign capital flows, as expected. The estimated negative sign of the variable ‘wages’ indicated negative effect of the relative cost of the labour force on FDI. The ‘privatization’ variable (PRIV) was not significant suggesting that such factor did not play a role in attracting foreign investments. Overall, the results revealed that a number of factors under the control of a country’s government, such as macroeconomic stability and openness of the economy could be used to attract foreign investments. It was plausible that other variables were also important, such as political stability or judiciary impartiality.

**Aleksander (2006)** investigated the main factors affecting the current account deficits in order to identify potential excessiveness of current account deficits in selected countries of Eastern Europe and former Soviet Union. Simulated benchmark has been calculated on the basis of selected determinants (for the period 1992-2003). The results of the study brought out that economic growth has a negative effect on current account balance, implying that domestic growth rate was associated with larger increase in domestic investment than saving. Moreover, shocks in public budget were likely to be accompanied with current account balance deterioration, confirming the twin deficit hypothesis. The results also indicated the partial impact of demographic factors as well as strong influence of EU-15 countries on the external imbalances. Finally appreciation of real exchange rate and a worsening of terms of trade were
generating deterioration in current account balances.

Mottaleb (2007) identified the influential factors that determine FDI inflow in the developing countries and empirically demonstrated the relationship between economic growth and FDI. The study made the use of panel data from 60 low-income and lower-middle income countries in 2003,2004 and 2005. The study concluded that countries with larger GDP and high GDP growth rate maintained business friendly environment with abundant modern infrastructural facilities, such as internet which could successfully attracted FDI and on the other hand, FDI significantly affected economic growth of a country.

III

Wadhva (1974) estimated the price and income elasticities of demand for India’s exports and imports for the period 1954 to 1970 to know the possible effects of devaluation. The results indicated that price and income variables explained 90 percent of variations in demand for exports. Though the price elasticity of demand for India’s exports was low but income elasticity of demand was high. To capture the effect of devaluation (1966) dummy variable was used and the result indicated that devaluation did not lead to any improvement in demand for exports.

Goldsbrough (1979) studied the role of foreign direct investment (FDI) in the external adjustment process. In particular, it investigated the extent to which flows of FDI were affected by changes in countries’ relative competitiveness and real levels of aggregate demand. The study had been undertaken over four countries covering the period 1961 to 1977. A simple model of location decision of multinational firm had been constructed. The results indicated that these flows were responsive to changes in both real levels of demand and in relative competitiveness, although there were sizeable variations, from country to country, in the degree of response.

Ram (1979) examined empirically the behavioral relation between exports, foreign capital inflows and economic growth in less developed areas particularly South Asian countries, during the period 1967-75. Cross-sectional regression equations and coefficient of multiple correlation were computed. The results of the study revealed that role of trade as a transmitter of economic growth was quite impressive. It was
observed that rate of growth of exports would tend to play a vital role in determining the rate and overall economic performance of developing countries. The slow rate of growth of exports, proved, in general, a big brake on the overall economic growth of developing economies. This implied that the main aim of developing countries should be to boost exports by restructuring existing policies and measures both at national and international levels.

Nandi and Biswas (1991) made an attempt to test the causality between export growth and growth of income in India covering the period 1960-1985. Granger’s and Sim’s causality tests had been applied for the purpose. Theoretically, there existed two way relationship between exports and economic growth. But the econometric results showed that in Indian context, causality run one way i.e. export growth caused growth of national income. But growth of income does not have any impact on growth of exports.

Goldstein and Khan (1996) estimated import demand functions for 12 industrial countries and empirically tested the proposition attributable to Orcutt (1950) that the import price elasticity was a function of the size of the relative price change. In the estimated equations for total imports during the period 1955-1973, it was observed that import demand was responsive to relative prices for 8 of the 12 countries in the sample. Real income changes were also found to exert a significant influence on aggregate import demand. The study further concluded that since the size of import price elasticity as well as timing of adjustment were both important matters of exchange rate policy, results tended to point to a favorable effect of devaluation on the quantity of imports demanded. The study found no evidence that the price elasticity of demand for imports varied with the size of relative price change.

Sharma and Saxena (1998) made an attempt to analyze the impact of international trade on growth in a large economy viz. India during 1979-80 to 1996-97. For understanding the important factors of growth in output and employment in the various production sectors of the economy, the I-O approach was adopted. The results showed that Growth in Final Demand (FDG) was the most important factor for growth of output and employment in the Indian economy. With growth in the share of trade due to trade liberalization, the Export Growth (EG) was also likely to play more important role in future. The Import Substitution (IS) and Technological Change (TC)
factors were also contributing positively for output, employment growth after trade liberalization, while the same were contributing negatively prior to 1989-90.

Carlos and Brid (1999) applied the basic balance of payments constraint model (BOPC model) to the analysis of Mexico’s economic growth in 1950-96. With the use of unit root tests and co-integration analysis, it estimated the long run association between growth of Mexico’s real exports and real output. The results tended to show significant and positive integration between these two variables. Moreover, the findings of co-integration tests for selected sub-periods suggested that slowdown in its economic growth since 1982 was associated with an increase in long term income elasticity of imports that made more binding the balance of payments constraint on the expansion of domestic output.

Anorew and Ahmad (1999) examined the impact of openness of an economy on the economic growth. The study used annual data on GDP, exports and imports for different ASEAN countries. Growth rates were calculated for the period 1960-1997. The study concluded that economic growth and openness were integrated for all the countries under study. There was a long run relationship between them. Bi-directional casualty existed between the growth and the openness. The study suggested that countries with nascent economies should embrace outward-orientation strategies coupled with prudent fiscal and monetary policies to engender economic growth.

Anwer and Sampath (1999) examined the causality between exports and economic growth for 97 countries, using World Bank data for the period 1960-1992. While determining the stationarity of the variables and their orders of integration, the study found that GDP and exports were integrated in different orders for 36 countries. Among the other 61 countries, for 17 countries there was no long run relationship between the two variables, 35 countries showed causality between in at least one direction with unidirectional causality from GDP to exports for 10, from exports to GDP for another 5 countries. With or without cointegration including unidirectional and bidirectional causality there were 30 out of 97 countries which showed positive impact of economic growth on exports and 29 countries showed positive impact from exports to GDP but the positive sign was statistically non-significant for 12 countries in each case.
Wadud (2000) examined the long run relationship between exports and economic growth in Bangladesh by applying Cointegration and Granger Causality tests with error-correction mechanisms. Different techniques were utilized to estimate and test the hypothesis about random walk, the cointegration space and error-correction mechanism of exports and gross domestic product (GDP). The results revealed that there was a single cointegrating vector and a significant unidirectional and positive Granger causal relationship between exports and GDP running from exports to economic growth.

Frederico (2001) studied application of Thirlwall’s model in the Brazilian economy using annual data from 1955 to 1998. Whether balance of payments constrained growth could be tested using cointegration technique and VEC representation. The findings of the study provided a satisfactory explanation of variations in the long term economic growth of Brazil. The results indicated the importance of balance of payments constrained economic growth in Brazil, both for the whole period and for selected periods, however the strategies to achieve persistently high economic growth could not be guaranteed.

Dimowo and Edo (2002) examined the impact of foreign investment on the economy of Nigeria during 1975-1994. Results of the linear regression analysis revealed that foreign investment had impressive and satisfactory impact on the economy. Foreign investment was remarkably high during the period with a positive influence on the economy. The only exception was that it did not have any favorable impact on BOP. There was thus a need to encourage increased inflow by improving the political climate and pursuing foreign investment policies with more zeal.

Doganlar (2004) investigated the casual relation between export and economic growth for eight Asian countries for the period before the 1997 Asian crisis. The countries included are India, Pakistan, Philippines, Singapore, Sri Lanka, South Korea, Thailand and Turkey. The empirical methodology involved investigating a cointegrating relationship between exports and output growth and specifying an error correction mechanism to detect a casual relation between these two series. This study found evidence of bi-directional causality for Turkey, S. Korea, Singapore, Philippines and India. However, the causality ran from export to output growth for Thailand and from output to export growth for Pakistan and Sri Lanka.
Kumar (2005) studied the evolution of attitude of Indian government towards FDI, examined the trends and patterns in FDI inflows during the 1990s and considered its impact on a few parameters of development in a comparative East Asian perspective. India’s experience with respect to fostering export-oriented industrialization with the help of FDI had been much poorer than that of East Asian economies. Recent analysis suggested that MNCs were beginning to take a serious look at the India’s potential as base for export oriented manufacture. The increasing recognition of India’s locational advantages in knowledge based industries among MNC’s had led to increasing investments in software development and global R & D centers set up in India to exploit these advantages. So the evidence presented in this paper clearly suggested that the government policies played an important role in determining the developmental impact of FDI and in facilitating the exploitation of its potential benefits by host country’s development.

Chang and Thompson (2005) used cointegration and vector autoregressive models to examine Granger causality among exports, imports and output for quarterly data for US from 1971-2001. The results revealed that these three variables were cointegrated. Bidirectional feedback was found between output and imports, and between exports and imports. There was unidirectional Granger causality from output to exports. Exports, however, did not cause output. The argument that an increase in exports would itself cause economic growth in the US was apparently tenuous.

Fatima et al. (2008) investigated the long run and short run relationships among exports, foreign economic performance and output, and also among exports, foreign economic performance and productivity using multivariate co-integration and Vector Error Correction Model (VECM). Using exports and foreign economic performance as determinants of total factor productivity and output growth, the study found significant impact of outward orientation (export) on productivity in the short run, but exports did not promote economic growth.

Fida et al. (2009) empirically examined the balance of payments constraint growth for Pakistan using annual data for the period 1950 to 2007. The cointegration technique, Vector Error Correction (VEC) framework and the impulse response functions had been applied to check the validity of the model in the long run and to explore the short run adjustments in the sample period. Empirical findings revealed
that cointegration relationship existed between exports growth and economic growth in Pakistan.

IV

Williamson (1973) argued for greater use of economic analysis in examining the balance of payments objectives that countries should pursue. It was argued that such analysis pointed to a target for the overall balance of payments that directed adjustment policies towards the gradual elimination of any persistent duration between actual and target reserve levels, while deliberately financing transitory and reversible imbalances by reserve change rather than allowing them to initial adjustment. The study concluded that capital flows should influence the current account target or they might act as an alternative way of financing current account imbalances but their study did not provide a method of balance of payments adjustment, interpreted as a process by which payments flows as altered so as to promote the objectives that would be consistent with the maximization of economic welfare.

Khan (1974) estimated import and export demand functions for 15 countries for the period 1951-1969 that could be characterized as ‘developing’ and tested the hypothesis whether the changes in prices of traded and non-traded goods exerted any significant influence on the trade flows of these counties. Further, he investigated that both the import demand of developing countries and world demand for their exports had generally been assumed in the literature to be determined by non-market forces. Because, products imported and exported by these countries had been considered to be relatively insensitive to changes in prices. The basic conclusion of this paper was that prices played an important role in determination of imports and exports of developing countries. As far as, estimated price elasticities were concerned, they were found to be fairly high for most of the 15 countries studied.

Bhagwat and Onitsuka (1974) studied export import responses to devaluation in context of experience of non-industrial countries in the 1960s. The study revealed that the number of non-industrial countries experienced balance of payments difficulties in the 1960s, resulting from overvalued currencies. To cope with these difficulties, they devalued their currencies. Also other countries devalued their currencies following the
devaluation of United Kingdom in 1967 and France in 1969, mainly to avoid an appreciation of their currencies against their major trade partner’s currency. The devaluation could be divided into three main groups: Group A, consisting of independent and discrete devaluations and two sub-groups of countries which devalued in the context of devaluations of the pound sterling in 1967 (Group B) and French franc in 1969 (Group C). The study concluded that in the trade response to devaluation, there were some differences among the two groups, particularly in the responsiveness to exports.

Hewson and Sakakibara (1975) attempted to quantify the effects of capital control measures on the capital account of the U.S. balance of payments with particular emphasis on short term capital transactions. For this purpose, a portfolio model of relevant items of capital account of balance of payments was presented and estimated using quarterly data for the period 1964-1973. It was concluded that while the direct impact of these control measures was favorable on the particular items. The indirect effects on other items of BOP tended to balance the direct effect, so as to render these controls virtually ineffective as instrument to improve the U.S. balance of payments.

Ripley (1980) in his study covering the period 1971-1979 focused primarily of the impact of levels of economic activity in the 14 industrial countries on their foreign trade balances. Various scenarios were constructed according to which activity levels in a number of countries or even in all industrial countries simultaneously, were adjusted and their trade balance implications were analyzed. The simulations based on variations in activity levels showed that while trade balance in particular countries might respond especially strongly to changes in activity levels, nonetheless cyclical factors tended to be extremely important in determining the evolution of trade balances in all of the industrial countries.

Steinherr (1981) analyzed the effectiveness of exchange rate policy for trade account adjustment. A framework had been proposed that elucidated why trade account reactions to exchange rate changes were sometimes sluggish or even perverse. The model incorporated the spirit of elasticity, income and asset approaches in a general equilibrium framework. The study found that over the short term and medium term, a revaluation might or might not affect the trade surplus depending on structural
characteristics of the economy like size and behavior of non-price taking sector, the existence of wage and price rigidities.

**Sihag (1982)** tried to develop appropriate measures of costs of adjustment resulting from the adoption of income reducing and devaluation policies for correcting balance of payments deficits. For this, he had adopted a model with some appropriate alterations as to incorporate the cost of adjustment incurred by following various policies such as income changing, capital inflow and devaluation. The study concluded that a policy of devaluation always costed less in improving balance of payments. Income changing policy was also a potential instrument to improve balance of payments but in most of the cases, a policy of capital inflow costed less than that of income changing policy, but exceptions could not be precluded completely.

**Bhatia (1982)** examined the balance of payments and monetary policies in India during the fixed exchange rate period 1951-73. The hypothesis tested was that the changes in international reserve flows (the balance of payments) were determined by the excess demand for money, a variant of monetary approach to the BOP. The data used in this study were the quarterly observations of India’s international reserves (R), money supply (M), base money (B), domestic credit (D) and permanent real income (Y) based on 12 quarter moving averages of Net National Product. The empirical analysis of India strongly supported the thesis of monetary approach to BOP and strongly suggested the usefulness of this approach in explaining the rate of growth in international reserves of other developing countries. The money demand relationship appeared to be stable over time. The reserve flow equation results were such that the model could be used in analyzing economic policies. Increasing government deficits, partially due to an income inelastic revenue structure, led to excessive expansion of domestic credit and finally a loss of foreign exchange reserves during certain years of sample period. The analysis further suggested that India could achieve and maintain a fixed exchange rate with its major trading partners like USA and UK and an appropriate stability in BOP by increasing domestic credit at a rate equal to world price level plus the rate of growth in real output in India.

**Cuddinton and Vinals (1985)** in their analysis stressed on budget deficits and current account using inter-temporal disequilibrium approach in context to USA in early eighties. This study reconsidered the effect of money-financed and tax financed
increases in government spending and output, the real exchange rates on the current account of BOPs. It was shown that permanent tax financed increase always improved the current account. This study concluded that temporary increase in government spending that was money financed, left the current account unchanged, while a permanent increase in government spending always improved it.

Sundararajan and Bhole (1988) made an endeavor to pursue the impacts of devaluation on the balance of payments in India with respect to absorption model covering the period from 1960-61 to 1984-85. Elasticity coefficients were estimated and Chi-square tests were applied. All the coefficients had their expected sign and were statistically significant. The findings brought out that devaluation made the BOP position better. The tests of exchange rate, dummy variable and residuals analysis rejected the null hypothesis that devaluation did not ameliorate the BOP.

Dowla (1990) used the inter-temporal approach to examine the effects of permanent and temporary changes in tariffs and subsidies on the current account of USA. The study found that in general, permanent and temporary changes in tariffs and subsidies had an ambiguous effect on the current account. The reason for ambiguity was the interaction of opposing income and substitution effects. However, if the level of subsidy was zero initially, a temporary increase in subsidy resulted in a deterioration of the current account. In spite of not having a clear cut result about the effect of permanent changes in tariffs and subsidies on current account, the study pointed out the limitations of the conclusions reached in traditional static models of trade regarding effects of tariffs and subsidies on the current account.

Ostry (1991) argued that trade liberalization in developing countries was frequently opposed on the grounds that it was likely to cause deterioration in the external balance, it might not be a viable policy option for countries facing foreign exchange constraints. This paper mediated inputs (a reform that has figured prominently in developing countries) leading to improvement or deterioration in current account, depending on the level of initial trade distortions and the structure of the economy. The main policy implication was that, given the likely differences in economic structure and in initial levels of protection that existed among developing countries trade liberalization could not be expected to systematically affect the current account of these countries in one direction or another.
Travedi (1992) tried to assess the likely impact of recent policy measures on India’s balance of payments. India’s 11 major trading partners from OECD countries in accordance with their share in India’s trade had been selected. Data on nominal bilateral exchange rate of ratios of index of price level of India had been used for compilation of various indices for the period 1970-71 to 1988-89. The study concluded that though devaluation was expected to augment export earnings, it could not be expected to contain trade gap if the import intensity in domestic production was not checked and import liberalization policy continued. Further, interest rate reform to augment NRI deposits might not be the right solution to the problem. Checking monetary and fiscal expansion might have stagflationary consequences for the economy already suffering from phenomenal unemployment backlog. In view of these facts, the success of the recent policy measures hinged on a very supportive environment from the rest of the world, a determined action on the part of the government to curb all wasteful expenditures.

Gafar (1993) examined the impact of devaluation within the traditional import demand function of Jamaica for period 1954-72 by estimating the regression equations. The econometric results indicated that devaluation did not affect the demand for imports significantly. The continued deterioration in the balance of payments subsequent to devaluation might be partly due to the expansionary monetary policy. The study suggested that exchange rate policies should be accompanied with the appropriate “policy mix” to achieve internal and external balance.

Pattaniak and Patra (1994) stressed upon the effects of unprecedented payments crisis of 1990-92 which brought issues relating to the external sector to the very forefront of macro-economic management. The main objective of the study was to investigate whether exchange rate changes had any desirable effect on the trade balance of India for the period 1974 to 1993. Policy implications showed that there were time lags extending well beyond a year for an exchange rate to have its impact on trade balance. The full benefits could be reaped only when they were orchestrated with other policy changes and when monetary, fiscal and other corrections were effected so as to allow the price effects of exchange rate movements to have impact upon trade balance.
Reinhart (1995) examined the relationship between relative prices and imports and exports in a sample of 12 developing countries over the period 1970-1992. Time series and co-integration analysis found that for majority of the cases, relative prices were a significant determinant of the demand for imports and exports. The study further suggested that large relative price swings were required to have an appreciable impact on trade patterns. Finally, it concluded that industrial country income elasticities were well above their developing Asian and Latin American counterparts, suggesting that in a scenario of balanced growth, the developing country trade balance should improve.

Rangarajan and Mohanty (1997) developed macro model that provided an integrated framework to study the various dimensions of fiscal deficit to evaluate different policy options for maintaining sustainable internal and external balances in the Indian economy during the period 1971-72 and 1993-94. The policy simulation had failed to improve balance of trade and balance of payments in India. The changes in exchange rates had also not significantly affected the export and import competitiveness.

Attri (1999) examined the role of globalization in promoting higher and faster growth of GDP. The paper examined the role of exports and imports in economic development. For this, double log regression equation had been used for the period 1950-51 to 1990-91. Multivariate least square regression methods were applied for analyzing export and import data. The paper established that foreign trade played an important role in economic development in India. The income elasticity of demand for exports/imports of India was greater than one and sufficiently high. This emphasized the need for globalization of the Indian economy. It was opined that recent steps taken by government towards liberalization and globalization would yield productive results.

Virmani (2003) examined the effect of globalization and liberalization on the external sector and also determined the impact of fiscal deficit on balance of payments position. The reduced form equations were set up for this purpose. The study found that the liberalization of India’s external sector was extremely successful in meeting the balance of payments crisis of 1990 and putting the BOP on sustainable path. Liberalization of current and capital account increased the flexibility and
resilience of the balance of payments. The analysis confirmed that in India, the exchange rate was a powerful instrument of adjustment in current account deficit. It also confirmed that equity outflows were very unlikely to be a major cause of balance of payments problem.

Paulino and Thirlwall (2004) used panel data and time series or cross-section analysis to estimate the effect of trade liberalization on export growth, import growth, balance of trade and the balance of payments for a sample of 22 developing countries that adopted trade liberalization policies since the mid 1970s. The study found that liberalization stimulated export growth but raised import growth more, leading to a worsening of balance of payments.

Saleh and Nair (2005) explored the phenomenon of twin deficit in case of Sri Lanka during the period 1970 to 2003. It was examined whether prolonged fiscal expansion contributed to current account imbalances. In this study, autoregressive distributed lag model and bounds test for co-integration were used to access the long run dynamics between twin deficits. The empirical results showed that direction of causality runs from budget deficit to current account deficit. Thus, any policy measures to reduce budget deficit in Sri Lanka could well assist in reducing current account imbalances.

Basu and Datta (2005) undertook an econometric exercise to study the impact of fiscal deficit on India’s external accounts since the mid 1980s. Absence of co-integration between the savings rate and fiscal deficit GDP ratio negated the Ricardian Equivalence Hypothesis (REH) in Indian circumstances. The findings suggested that the ratios of trade deficit, fiscal deficit and net savings randomly maintained the national income identity. The study also did not find any support for the existence of twin deficit hypothesis which claimed that a budget deficit caused a trade deficit.

Kaundal (2005) examined the impact of economic reforms on the external sector of India during post reform period (1984-85 to 2003-04) by computing compound growth rates and instability indices. The study found that economic reforms were externally successful in meeting the balance of payments crisis of 1990s. These reforms improved the openness of the Indian economy vis-à-vis other emerging economies. Indian economy was observed to be is more deeply integrated with the world economy than it was in 1991 as a result of high growth rate of both exports and imports. The study concluded that further, reduction in tariff protection and
liberalization of capital inflows would enhance the efficiency of the economy and along with reforms of domestic policies would stimulate investment and growth.

Dhindsa and Sharma (2006) evaluated the impact of external sector reforms on Indian economy during the period 1990-2001. The study found that various external sector reforms in the form of import licensing policy, export promotion incentives and tariff structures had a favorable effect on the balance of payments situation. There had been remarkable growth in both exports and imports. Share of exports and imports of India in the total world trade also increased.

Parikh and Rao (2006) examined the effect of fiscal deficits on the current account deficits in Indian economy from period 1973-74 to 2003-04. However, fiscal deficits in India were mostly financed through official borrowings from various external sources, leading to higher interest payments which could eventually increase BOP crisis. The study concluded that in addition to real exchange rate and ratio of private investments to GDP, fiscal deficits significantly contributed to the current account deficits.

Various empirical studies on balance of payments position at national and international level showed that balance of payments position of any economy was a true barometer of its economic growth. Exports and imports of various nations had long run as well as short run relationship with gross domestic product. The factors affecting the BOP position including fiscal deficit, exchange rate, terms of trade, infrastructure index and GDP turned out to be the common factors affecting the various components of balance of payments in most of the studies. The studies also revealed that in Indian case, fiscal deficit resulted in widening of current account deficit in balance of payments which dictated that if the government wished to reduce current account imbalances, it has to exercise fiscal discipline to reduce high fiscal deficit up to manageable levels. Moreover, favorable terms of trade and positive growth in output should be supplementary to promote a favorable current account balance. However, policy measures like devaluation, changes in tariff structure and trade liberalization also affected balance of payments significantly.