1.0. INTRODUCTION

Ever since independence, balance of payments (BoP) has been a matter of concern for economic policy making authority in India. Though the economic planning era ushered in with an element of optimism, the First Five Year Plan ended with an uncomfortable BoP situation, and since then the external sector has been experiencing considerable stresses and strains. The magnitude of BoP deficit increased at an alarming rate hindering every attempt to project India's image internally as well as externally. After the collapse of the Bretton Woods system in 1971, the Indian economy became all the more vulnerable to external shocks. Severe challenges came up from the need to adapt to the changing international economic environment and to solve the unprecedented international liquidity problem.

In the context of the recent tendency for globalisation of economies, acquisition of external strength becomes a prerequisite of economic growth, which ultimately depends upon international trade and BoP performance. It has been recognised by policy makers that an external imbalance could distort the development process through its impact on output, employment and price levels. Hence, the need for maintaining a desired level of BoP consistent with other economic goals has attracted the attention of policy makers.

Although many macro-models relating to India are available, the external
sector has not been given much importance in most of them. The present study is an attempt towards an econometric analysis of BoP, the main focus being on investigating into the applicability of various theories/approaches to BoP in the Indian context.

1.1. THEME OF THE STUDY

In literature, the BoP problem has been analysed in different ways by addressing the question of correcting BoP disequilibrium from different angles. While the traditional analysis with Keynesian orientation views BoP as being determined exclusively by the real variables like income, expenditure, relative prices etc., and concentrates on what happens to separate components of BoP, the modern analysis with classical foundation formulates BoP as a monetary phenomenon determined essentially by the domestic money market conditions and concentrates on what happens to overall balances in the long-run. Hence any attempt to analyse BoP should resolve this issue. Accordingly, the basic issue whether the existing theories/approaches explain BoP in the Indian context assumes relevance.

A proper understanding of the determinants of BoP is of crucial significance for successful operation of policy programmes aiming at sustainable level of BoP. In the last forty five years that have passed since Independence, the efforts at planned rapid economic development have brought about many new situations in India's external sector, leading to far reaching changes in BoP policies. However, the policies have never been consistent with economic structure of the country. Mainly, a three-pronged policy viz., (i) import substitution; (ii) containing of imports through curbing consumption of some products; and (iii) export promotion, has been pursued to bridge the gap between imports and exports and to maintain BoP at a manageable
level.

Though the government has accorded high priority to improving the BoP position through acceleration of export growth, import substitution and economic utilisation of scarce foreign exchange resources, India has been having an adverse trade balance all through the planning period, except in 1972-73 and 1976-77 when a modest favourable balance was registered to the tune of Rs. 104 crore and Rs. 68 crore respectively. This perennial trade and BoP problems in the Indian context may be attributed to the basic lacuna of specific policy packages envisaged during the planning era. The trade and BoP policies suffer from an insufficient recognition of the root cause of the problems.

The intent of the study, however, is not to evaluate the BoP policies pursued by the government and to suggest policy options. Rather, the study aims at an analysis of BoP within the framework of established theories in literature.

1.2. OBJECTIVES OF THE STUDY

The present study primarily seeks to examine whether the existing theories/approaches to BoP explain India's international reserve movements or BoP. Accordingly, the study sets the following objectives:

(i) To attempt a critical review of various theories/approaches to identify possible determinants of India's BoP. Such a review might throw some light on the need for a broad analytical framework consistent with the prevalent institutional realities in the Indian context.

(ii) To assess empirically the validity of the Keynesian approaches to BoP in
the Indian context, more specifically to formulate and estimate a simple Keynesian model of BoP, and to test a particular scheme of causal relationships among income, absorption and trade balance underlying the income-absorption model of trade balance, and to examine the underlying policy prescriptions.

(iii) To examine the significance of monetary variables in determining India's payments position. An empirical test of monetary approach to balance of payments (MABP) under the fixed exchange rate is carried out to examine the link between money market conditions and BoP.

(iv) To study the combined movement in exchange rate and BoP under the managed floating exchange rate system within the framework of monetary model of exchange market pressure. This attempt aims to bring out the relevance of a prudent monetary management to maintain a BoP and exchange rate at desired levels.

(v) To test the exogeneity specifications underlying the MABP and to examine the relevance of its policy prescriptions for correcting BoP disequilibrium.

1.3. METHODOLOGY OF THE STUDY

The empirical investigation is carried out on annual time series spanning the period from 1950-51 to 1990-91. The choice of the initial period coincides with the inception of economic planning in India and the final period being the latest year for which all the required data are available. The source of data and definition of variables used in the study are given in appendix II.
To test the empirical validity of the various theories/approaches to BoP in the Indian context, the present study makes use of econometric techniques and time series (causality tests) procedures.

For testing the causal relationships underlying both the Keynesian income-absorption approach and monetary approach, the bivariate causality tests formulated by Granger (1969) and Sims (1972) are used. For choosing an appropriate lag structure in the Granger causality model, the final prediction error (FPE) criterion has been employed. A new test of causality proposed by Holmes and Hutton (1990) has also been used to examine the sensitivity of causal inference to form of the test.

A simple three equation Keynesian model of BoP, and monetary model of exchange market pressure are estimated using Ordinary Least Square (OLS) method. However, wherever the presence of the first-order serial correlation in OLS estimation was detected, the Cochrane-Orcutt corrective procedure has been used.

The Three Stage Least Square (3SLS) method is applied to a simultaneous estimation of reserve flow and sterilisation equations for a test of the absence of sterilisation, an important proposition of the MABP. In addition to this, the exogeneity specification underlying the MABP model is formulated as a testable hypothesis and verified using a multivariate systems test of exogeneity under the framework of complete dynamic simultaneous equation model (CDSEM) originally developed by Geweke (1978). For the CDSEM system, both Wald and Likelihood ratio statistics are estimated and used to test the block exogeneity.
1.4. LIMITATIONS OF THE STUDY

Since the present study is an econometric study using time series data on various economic indicators, the availability of reliable and consistent data and selection of best-represented proxies for price level, interest rates etc., are of crucial significance. However, the study inherits certain limitations from its data base which are listed below:

(i) The major data constraint of the study is the non-availability of quarterly time series on income measure which limits the use of quarterly series on other variables. Since the study uses various time series techniques such as causality tests and CDSEM which require large number of observations, the reliability of the evidence, however, is limited to that extent.

(ii) The monetary aggregate considered for the present study is unadjusted narrow money (M1). Since the M1 series has undergone definitional changes in terms of its coverage in March, 1978, it needs to be adjusted for making the series consistent throughout the sample period.

(iii) In the absence of an appropriate proxy for interest rates, the call-money rates and one-year deposit rates are used in two different contexts. They are administered rates and do not represent the equilibrium rate at which respective markets are cleared. Hence, they may not represent the real opportunity cost of holding money in the Indian context.

(iv) The assumption of the 'law of one price' underlying the MABP makes domestic price level to represent the world price level. The price-taking assumption refers specifically to price equilibration in tradable goods sector. Hence an index of traded goods i.e., a composite index of export and
import price indices should represent the price level. However, the present study uses whole-sale price index as a proxy for price level, though it retains non-tradables. Since consumer goods prices are a biased estimator of traded goods, and include service content, it is not used in the present study.

1.5. ORGANISATION OF THE STUDY

The rest of the thesis is organised into four chapters. The summary, findings and policy implications of the study are given towards the end of the thesis. The second chapter deals with a critical review of various theories/approaches of BoP. It is hoped that, an examination of relative strength and weaknesses of each theory would help understanding the nature of BoP phenomenon in the Indian context. Since the study aims at verifying the applicability of various theoretical explanations of BoP, a review of those explanations will advance certain inadequacies in a given context.

The third chapter provides an econometric analysis of India's BoP within the simple Keynesian and income-absorption approaches. This chapter is designed to fulfill two objectives. The first objective is to formulate and estimate a simple model of trade balance and BoP within the traditional Keynesian theoretical framework. The Keynesian equations for trade balance, capital flow and BoP are estimated to see whether the propositions underlying the Keynesian model of BoP hold good in the Indian context. The second objective is an empirical investigation of the relationships among income, expenditure and trade balance underlying the income-absorption approach. This chapter, on the whole, is expected to throw light on the significance of devaluation, interest rate etc., as policy tools of BoP adjustment.

The intend of the fourth chapter is to see whether monetary factors exert
influence on BoP and exchange rates. Accordingly, a detailed analysis of India’s BoP within the theoretical and empirical framework of the MABP under the fixed and managed floating exchange rate regimes has been carried out. The chapter is organised into three sections. The first section deals with the MABP under fixed exchange rate for a period from 1950 to 1975. The validity of the propositions of the MABP are tested by estimating the reserve flow and sterilisation equations within a simultaneous equation framework using 3SLS method. It is also attempted to incorporate a modified money demand function as suggested by Tsiang (1977) into the monetary model of BoP and estimate the model. In the second section, an analysis of combined movement of India’s international reserves and exchange rates has been done for the period from 1976 to 1990 within the framework of exchange market pressure (EMP) model originally developed by Girton and Roper (1977). The third section summarises the findings and implications.

The last chapter tries to verify the applicability of the policy prescriptions of the MABP to maintain BoP equilibrium. Accordingly, a comprehensive econometric test is carried out to verify the exogeneity assumptions underlying the MABP that the determinants of money demand, and domestic credit are exogenous with respect to changes in reserves. The study investigates into the validity of the exogeneity assumptions in three different ways. First, a simultaneous estimation of the reserve flow and sterilisation equations is carried out to confirm the absence of sterilisation. Secondly, using three causality tests viz., the Granger, Sims and multiple rank F-tests bi-variate causality pattern is examined. Finally, the exogeneity specification is formulated as a testable hypothesis and verified using a multivariate systems test of exogeneity within the framework of complete dynamic simultaneous equation model (CDSEM).