CHAPTER-I

INTRODUCTION

1.1 Twin Deficits and Twin Deficit Hypothesis

The macroeconomic structure of trading economies and the evolution of the ideas of the economists about it since 1971 constitute fascinating topic of interest to a researcher who seeks to know whether events shape ideas or ideas modify the course of events. The period since 1970s in economic history is made colorful by the growth of unprecedented events and subsequent development of important innovative ideas. The events which took place in this period are perplexing and enormously important for international economic community. The ideas too changed markedly in the past decades. The focus of analysis has changed. The validity of some of the underlying assumptions of the prevalent models has been questioned. Some well-known theories have been subject to skepticism. New assumptions have been introduced. The Macroeconomic structures of trading economies have been re-examined.

The most important events in the history of international economics during 1970's is the breakdown of '*fixed exchange rate*' system and the adoption of '*flexible exchange rate*' system instead. It is significant because it spelled the end of the spirit of '*Bretton Woods System'* as incorporated in the IMF Chapter. With the adoption of flexible exchange rate system since 1970s, another important event emerged. This is known as the '*Twin deficits Phenomenon*' in economic literature.

The phenomenon of '*Twin Deficits*' is a recent development in macroeconomic structure of trading economies. Its origin dates back to 1980's when *flexible exchange rate* virtually replaced the system of *fixed exchange rate*. The simultaneous upsurge of the *budget deficit* and *trade (current account) deficit* in a relatively large number of countries was observed in 1980s. The close correlation observed between these two deficits is usually known as '*Twin Deficits'*.

'Twin Deficits', therefore, refer to the long run relationship between '*budget deficit'* and '*trade deficit'* (or Current Account Deficit). *The proposition that budget deficit has positive and significant effect on trade deficit is usually referred to as 'Twin Deficit Hypothesis'. The hypothesis basically implies that the main cause of trade deficit is the excessive budget deficit. However, some economists also argue that budget deficit may also be the resultant of trade deficit. Consequently, the direction of causality between these two macroeconomic variables appears to be a subject of contention among the economists.*

1.2 Origin Of the Problem:

During 1980's, 1990's and early 2000s, the US economy experienced large trade deficits. These *trade deficits* had to be financed through borrowing from abroad. As a result, United States, the world's largest creditor emerged as world's largest debtor. It was argued that huge trade deficit also coincided with a fall in national saving. Such fall was due to expansionary fiscal policy in 1980's, in which substantial cut in personal income taxes remained unmatched by equal cuts in government spending. Consequently, government budgets ran into deficit. Since the government budgets and trade balances went into deficit simultaneously, these shortfalls were called the 'Twin Deficits'.

1.3 Twin Deficits: Theoretical Basis

A simple study of the '*National Income Identity*' for any open economy exhibits a link between 'budget *deficit*' and '*trade deficit*'. The identity is

$$Y = C + I + G + (X\text{-}M) \qquad (1.1)$$

where, Y = National Income

C = Consumption

I = Investment

G = Government Expenditure

X = Export

M = Import and

X-M = Net Export.

From (1.1) we have,

$$Y - C - G = I + (X - M)$$

$$\text{Or, } (Y - T - C) + (T - G) = I + (X - M)$$

$$\text{Or, } S_p + S_{pub} = I + (X\text{-}M) \qquad (1.2)$$

where S_p = Private Savings

S_{pub} = Public Savings

S = National Savings = $S_p + S_{pub}$

Equation (1.2) states that national savings, which is the sum of private savings($S_p = Y - T - C$) and public savings ($S_{pub} = T\text{-}G$) equals investment plus net export (X-M). From equation (1.2) we further obtain

$$(M - X) = (I - S) + (G - T) \qquad (1.3)$$

where, M – X implies '*Trade Deficit*' when M > X

and G – T implies '*budget deficit*' when government expenditure exceeds tax revenue (i.e. G > T).

Equation (1.3) states that trade balance is virtually the sum of *Investment –Savings Gap* and the '*budget deficit*'. Thus given a stable investment- savings gap, an increase in *budget deficit* raises the *trade deficit*. Thus

Trade Deficit = Excess of Investment over Savings + Budget Deficit

An economy requires the equality between investment and savings for reaching equilibrium. But the equation (1.3) shows that there may exist an excess of investment over savings such that I > S. This is an indirect pointer to the disequilibrium of the economy. Consequently, one may wonder if '*twin deficits phenomenon*' is an inevitable feature of an '*Economy under disequilibrium*'.

It may be noted that even if I = S in the economy, two deficits may still exist. In that event, volume of *trade deficit* equals the volume of *budget deficit*. If *budget deficit* does not arise, then *trade deficit* also withers away. The emergence of one deficit also leads to the appearance of another deficit in the economy, irrespective of whether the economy is in equilibrium or not. **Feldstein** (1992), therefore, coins two deficits as **'Twin Tower Deficits' or 'Twin Deficits'**.

1.4 Twin Deficits: Transmission Mechanism:

Theoretically, the mechanism behind the twin deficits could simply be explained through the '*Keynesian Income-Expenditure Approach*'. An increase in *budget deficits* will increase 'domestic absorption' and, therefore, the domestic income. Increased income will raise import demand and eventually will reduce the surplus or worsen the external balance. That is how the government sector and external sector deficits becomes twins.

In *Keynesian Open Economy Models* with high '*capital mobility*' such as '*Mundel-Fleming Model*', an additional linkage can explain the deterioration in the *trade balance* owing to higher *budget deficit*. An increase in the budget deficit will cause an increase in aggregate demand and domestic interest rates. High interest rate will attract foreign investors and net *capital inflow* will take place. This results in an appreciation of the domestic currency. This, in turn, adversely affects net export and thus there will be deterioration in the current account.

1.5 Ricardian Equivalence Hypotheses (REH)

Alternative to '*Twin Deficit Hypothesis*' is the '*Ricardian Equivalence Hypothesis*' which holds that there is no *causal link* between budget deficit and trade deficit. Therefore, the deficits are not '*twin*'. According to this hypothesis, the equilibrium levels of current accounts, interest rates, investment and consumption remain unaffected by the changes in the level of budget deficit. This can be regarded as an extension of the *Permanent Income-Life Cycle Hypothesis* including government expenditures, taxes and debt.

In this framework a change in the level of budget deficit will not change the life-time budget constraint and real wealth of the consumer. If agents can borrow at a constant interest rate, a reduction in taxes will be regarded as an increase in the present value of future tax liabilities. The consumers will adjust their savings to the change in the budget deficit and, therefore, the amount of desired national savings will not differ. In this model, it is assumed that consumers have infinite horizon and altruistic bequest motives. All these are not liquidity constraints and there is no uncertainty about the public sector behavior.

As a consequence of intertemporal consumption behavior, according to **REH**, temporary changes in the level of government expenditure and marginal tax rates are much more important than the ways of financing it. **REH** proposes that for the explanation of the trade deficit, interest rate along with productivity differential and temporary increase in the public sector spending could be considered as alternative explanatory variables besides budget deficits.

1.6 Objectives of the Study:

Both budget deficit and trade deficit exist simultaneously in the economy of Maldives. There exist theoretical and analytical relations between these two deficits. Consequently, it becomes pertinent for researcher to enquire if there exists any degree of association between these deficits. In the event of such association being present, it becomes a task for a researcher to examine the nature and direction of *causal* relation between two deficits. The close correlation between these two deficits does not imply any *causal* relation between the variables. Therefore, identifying the *causal* relation between these two deficits is important and that would have different policy implications.

Theoretically, there are four possibilities about the relationship between budget deficits and trade deficits.

First, there is the **'Twin Deficit Hypothesis'**. According to which budget deficit has positive and significant effect on trade deficit. This means that the main cause of trade deficit is the excessive budget deficit.

Second, reverse of the relationship is also possible. Trade deficits might cause budget deficits.

Third, a natural deduction from the above two possibilities is that the two deficits might also be *mutually interdependent.*

Finally, the alternative to all the three possibilities is that there exists 'no relationship' between these two deficits. So these deficits are *independent*. This is the '**Ricardian Equivalent Hypothesis'.**

All these possible relationships between these two deficits necessitate an empirical study for ascertaining the nature of '*causal relation'*, if any, between budget deficit and trade deficit in Maldives. The present study is devoted to address this issue. More specifically, in this study we seek to examine the relationship between budget deficit and trade deficit in the economy of Maldives for the period 1979-2003 with yearly datasets.

We seek to focus, by using this dataset, on testing two main hypotheses. These hypotheses are

(i) **Twin Deficit Hypothesis :** Budget Deficit *Granger Causes* Trade Deficit

(ii) **Ricardian Equivalence Hypothesis:** Two Deficits are *Independent*

We seek to test these hypotheses in our study and examine the nature as well as the direction of *causal relation* between budget deficit and trade deficit in the economy of Maldives.

1.7 Plan of the Study:

The present study is accordingly divided into the following chapters.

Chapter–II presents the outline of the economy of Maldives.

Chapter-III presents the review of literature.

Chapter–IV deals with source and nature of the data, methodological issues and periods of study. It also contains an elaborate discussion on time series methods used in the present study.

Chapter –V is devoted to the study of *stationarity* of variables concerned and this enables us to ascertain the *Integrability* of the variables.

Chapter–VI is devoted to study of *'Cointegration'* between the variables concerned in order to examine if any long-run relationship between the variables exist.

Chapter–VII deals with the *stability of the long-run relationship* through '*Vector Error Correction Modeling'* (VECM).

Chapter–VIII presents our attempt for examining the '*Causal*' relationship between these two deficits through the estimation of an '*Unrestricted Vector Autoregressive (UVAR) Model'*

Chapter– IX presents the *Intervention Analysis* through the study of *Impulse Response Functions* of the variables concerned.

Chapter– X focuses on *Intervention Analysis* through the study of '*Variance Decomposition'* of the '*Forecast Errors'* for the variables concerned.

Chapter– XI is devoted to the study of 'Granger Causality' between the budget deficit and trade deficit through the estimation of a '**Restricted Vector Autoregression (RVAR) Model.**' This is done in order to ensure confirmation of our findings about the nature and direction of 'Causality' between the variables in Chapter (VIII).

Chapter – XII deals with the '*Spectral Analysis'* which is expected to ensure further confirmation of our findings about the causal relationship between the budget and trade deficits

Chapter – XIII presents the *summary, concluding remarks* and *policy implications* of the findings.
