CHAPTER: 2

A BRIEF REVIEW OF THE EXISTING LITERATURE
2.1 Introduction:

The literature associated with the role and behaviour of terms of trade and related international trade problems in the context of developing economies has been quite extensive. These issues have been gaining importance in recent years with the process of gradual openness of these countries. A large number of theoretical as well as empirical works focusing on different dimensions of the problem are coming into being. The theoretical literature consists of both the neoclassical competitive general equilibrium and Keynes-Kalecki type framework at the static level. The dynamic models are based on various growth theoretic structures. New developments in the area of terms of trade are largely related to the North-South trade models. The role played by the nontraded goods in influencing terms of trade has been examined in the static frameworks. Moreover, an extensive literature has been found to be accumulating in the 1980s and 1990s examining the role of terms of trade in the context of trade and investment liberalised regime which by and large influences the income distribution in the developing countries. The empirical literature regarding the long run behaviour of terms of trade is essentially related to the Prebisch-Singer (1950) works and the trade liberalisation regime.

Ocampo (1986) has made a survey of the new literature on international trade relevant to the North-South controversy. In section 2 of his paper, Ocampo concentrates on terms of trade and uneven development of the world economy. He has begun his
survey with the ‘traditional theorem’ on terms of trade. From the theorem it can be shown that the South’s terms of trade would deteriorate if the relative growth rate of the South exceeds its relative income elasticity of demand. Ocampo has referred to the ‘unequal exchange theory’ in which the commodity terms of trade depends on the ratio of the labour productivities in the North and the South and the factorial terms of trade. He has then recalled Gibson’s (1980) ‘fundamental theorem of unequal exchange’ that shows a causal association between relative wages and barter terms of trade when labour productivities are given. The paper then tries to focus on the determinants of relative wages. Although Bacha (1978) has provided a link between Prebisch-Singer view and Emmanuel view on the assumption of full capital mobility but Ocampo has pointed out that the trade balance condition, as introduced by Bacha, is no longer necessary to determine the equilibrium terms of trade. Rather, equilibrium in the world capital market and the demand and supply of the Southern (or Northern) good will help to determine it. In this paper there are references to North-South trade models to highlight the determinants of long run terms of trade. In these models the South coincides with the Lewis-type economy but the characterisation of the North differs significantly, being represented alternatively, as a neoclassical (as in Findlay (1980)), a Kaleckian (as in Taylor (1983) and Dutt (1984)) or a Kaldorian (as in Vines (1984)) economy.

In a brief survey of the literature, in the context of the present work, it is not possible to consider all the attempts made in this field. Here we would concentrate only on those works that form an integral part of the present study. We organise this chapter in

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5 See chapter 1, page – 4.

6 See chapter 1, page – 4.

7 Factoral terms of trade is defined as the ratio of the real wages of the two regions.
the following manner. Section 2.2 is the survey of the existing literature and section 2.3 briefs the plan of the present study. In section 2.2 we subdivide our survey into four parts. The first part concentrates on the role of terms of trade and foreign capital in influencing the relative wages of the unskilled workers vis-à-vis the skilled workers in the developing countries. The second part concentrates on the behaviour of terms of trade in the presence of the nontraded goods. In the third part, we survey the literature associated with the North-South trade models. The fourth as well as the final part of the survey deals with the recent empirical works on the movement of terms of trade.

2.2 Review of the Literature

2.2.1 Terms of Trade, Foreign Capital and Skilled-Unskilled Wage Gap

The most important works in this area are by Robbins (1994a, 1994b, 1995a, 1995b, 1996a, 1996b), Wood (1997) and Acharyya & Marjit (2000). Broadly speaking, there are two opposite views on the impact of terms of trade on skilled-unskilled wage gap. The conventional view is explained through the Stolper-Samuelson theorem which states that in a developing economy an improvement in terms of trade reduces the skilled-unskilled wage gap. The other view is that an improvement in terms of trade widens the skilled-unskilled wage gap. While the studies pertaining to East Asia in the 1960s and the 1970s support the theory behind the Stolper-Samuelson proposition, the experiences of Latin American countries since the mid-1980s, however, contradict this result.

Wood (1997) has tried to resolve the conflicting empirical results obtained regarding the impact of openness and the movement of terms of trade upon the wage gap
between the skilled and unskilled labour. He believes that this conflict of evidence is not the result of any structural differences between East Asia and Latin America but is probably the result of the differences between the time periods – the 1960s and the 1980s, specifically, the entry of China into the world market and the advent of new technology biased against unskilled labour. Wood (1997) has argued that more than half of the unskilled labour live in five low-income countries: Bangladesh, China, India, Indonesia and Pakistan. All these countries were largely closed to trade in the 1960s and the 1970s. By the mid-1980s they were all opening to trade, led by Indonesia and China. This event was likely to have altered the comparative advantage of the middle-income countries of Latin America. The comparative advantage of these countries then shifted to goods of the intermediate skill intensity. The effect on relative wages in a middle-income country of opening to trade is thus likely to have changed over time. Thus Wood (1997) never, in fact, challenged the conventional wisdom but he wanted to emphasise the causes behind the conflicting empirical evidences in the two different time periods upon the effective world supply and demand for unskilled labour. Wood (1997) was, therefore, in favour of more research in this regard in order to confirm or reject the conventional theory.

Robbins (1996 b) has synthesised nine in-depth studies of developing countries on the impact of trade upon wages. By using evidences from cross section household data for Argentina, Chile, Costa Rica, Colombia, Mexico, the Phillipines, Taiwan and Uruguay, he has shown that liberalisation in these countries was accompanied by rising relative wages (i.e., rising wage gap) of the skilled labour vis-à-vis unskilled labour. These studies cover a period from the late 1970s to the early 1990s. Although
Rybczynski theorem remains valid for a 2x2 Heckscher-Ohlin-Samuelson (HOS) trade model when relative supply of skilled labour endowments rises, Robbins (1996 b) maintains that in all these countries relative supply grew very rapidly, and that for all except Taiwan, supply shifts had large negative effects upon relative wages. Given that capital and skilled labour are complementary to each other, a rise in the relative supply of skilled labour endowment is associated with the rise in the inflow of physical capital that may be accelerated due to the liberalisation process. Based on his findings Robbins (1996 b) has argued that to identify the impact of relative labour demand shifts, the impact of relative supply shifts on relative wages need to be netted out, which may be subsequently related to trade liberalisation.

Marjit (1997) has made an attempt to theoretically justify the empirical results obtained for the Latin American countries. He believed that a traditional 2x2 HOS structure does not suit the characteristics of the developing countries. The empirical researchers should use realistic production structures rather than comparing their results with the Stolper-Samuelson proposition. Marjit (1997) has argued that production and trade patterns of any country have to match with the nation-specific composition of resources. So, he has preferred to use a model, which is a variant of the specific-factor structures proposed by Jones and Engerman (1996). With the help of a three-good four-factor model, he has shown that any improvement in terms of trade and inflow of foreign capital may reduce the relative wage of the unskilled labour. In another paper, Marjit (1999) has extended this original model by incorporating urban informal sector that uses unskilled labour. In this paper he has shown that export-driven rise in the price of
agricultural goods might not even raise the absolute wage of the unskilled labour under competitive conditions.

In an exhaustive study on the wage gap debate, Acharya and Marjit (2000) have tried to build up a theoretical structure, which can explain both symmetric changes in relative wages of the North and the South and also the widening wage gap of the South. They have shown that a 2x2 HOS model cannot help in explaining these issues and also the impact of any change in factor endowment upon the wage gap. More specifically, the main problem with the standard theories is their failure to capture the diverse trade pattern and the institutional characteristics specific to them. So, to explain widening wage gap, Acharya et al (2000) have developed alternative variants of specific factor models through the introduction of informal markets and nontraded goods sector in which the number of factors exceed the number of goods.

In the process of examining the impact of trade upon the skilled-unskilled wage gap, Marjit and Acharya (2003) have developed an interesting theoretical analysis that incorporates the mechanism of skill formation. They have developed a two-sector static model in the context of a small open economy in which the demand for skilled labour is satisfied by the process of skill formation. Skilled labour is assumed to be an intermediate product produced with the help of unskilled labour and capital. Using this analysis, they have shown, that if the price of the capital intensive traded product (which also uses skilled labour) rises, then the skilled-unskilled wage gap widens as return to capital rises and unskilled money wage falls. Since the process of skill formation has been considered
in the present work, although in the context of a North-South model, we like to refer here to the work of Gupta (1999) in which a dynamic model of skill formation has been developed in the presence of child labour market. In his paper, Gupta (1999) has shown that the process of skill formation is constrained by the existence of the child labour market.

2.2.2 Terms of Trade and Nontraded Good

The studies related to the behaviour of terms of trade in the presence of nontraded goods are not so extensive. The major works in this area are found in Komiya (1967), Ethier (1972), Batra (1973), Jones (1974) and Dornbusch (1980). Most of these works concentrate mainly on examining the basic results of HOS trade model when terms of trade is given.

Komiya (1967) has made an attempt to generalise 2x2 HOS model by introducing a nontraded good. In a three-commodity two-factor model, he has examined some of the major theorems of the pure theory of international trade. He has proceeded with the assumption that the prices of the traded goods are internationally given and thereby the impact of changes in the relative prices of the traded goods in terms of the nontraded good upon the demand for and the output of the importables and the exportables has been ignored. He has studied, among others, the impact of changes in the factor endowments upon terms of trade. In order to study this he has examined the impact of change in factor endowment upon the demand for and the supply of the traded goods. The analysis emphasises only on the income effect and has ignored the substitution effect. Komiya's
(1967) analysis shows that if importables are more capital-intensive than exportables then any rise in the supply of capital will reduce the demand for imports. So the prices of the importables fall and thus terms of trade improves for the country.

Introducing nontraded goods in the standard 2x2 trade model, Jones (1974) has also examined some standard theorems relating to the elasticity of the offer curve, the stability condition of trade equilibrium and the impact of transfers upon terms of trade. Regarding the movement of terms of trade, Jones (1974) has referred to the standard result that if the sum of the propensities to import of the trading countries exceeds unity then any transfer from the home country to the foreign country would turn the terms of trade in favour of the home country. He has argued that in a model with nontraded goods the above condition is no longer considered to be crucial. When prices of nontraded goods adjust in the background, the elasticity of supply of exports and the elasticity of demand for imports of both the countries enter into the determination of the required change in terms of trade, given that exports and imports are functions of the respective relative prices expressed in terms of the nontraded good. Jones (1974) has concluded that a transfer from the home country improves its terms of trade if the product of import demand elasticities of both countries exceeds the product of their export supply elasticities.

There are some studies including those of Komiya (1967), Ethier (1972) and Batra (1973) in which the validity of the Rybczynski theorem has been examined in the presence of nontraded good. Komiya (1967) has shown that at constant terms of trade Rybczynski results remain valid and the output of nontraded good also rises provided that
the marginal propensity to consume (mpc) of the nontraded good lies between zero and unity. Ethier (1972) has made an attempt to comprehensively analyse four basic properties of the standard HOS model, viz., factor-price equalisation theorem, Rybczynski theorem, Stolper-Samuelson theorem and impact of change in prices upon outputs in the presence of the nontraded goods. Batra (1973) has studied it by assuming that terms of trade remains unchanged. He has shown very clearly that while Rybczynski theorem remains true, rise in factor endowment must lead to a rise in the output of the nontraded good. Any rise in the supply of a factor culminates in a rise in the national income at constant terms of trade. So the demand for nontraded goods rises. Hence, to maintain equilibrium in the market for nontraded good, its output must rise to the same extent.

Dornbusch (1980) has developed a dependent economy model with nontraded goods. He has examined the problem of internal and external balance simultaneously and has shown that they are interrelated. He has assumed that the prices of traded goods are exogenously given in the small open economy and hence, given the income-expenditure identity, any excess demand (or excess supply) in the home goods market implies trade surplus (or trade deficit) in the trade balance condition. He has argued that in order to maintain both external and internal balance, there would be a fall in the real exchange rate, defined as the relative price of the traded goods in terms of the nontraded (home) goods, when there is any excess demand for the home goods. On the other hand, if the home goods market is in equilibrium excess of income (or spending) over spending (or income) implies trade surplus (or deficit).
Proceeding further, Dornbusch (1980) has dropped the small country assumption and has considered that the terms of trade is endogenously determined. In this part of the analysis he has also examined how disturbances affect both terms of trade and equilibrium relative prices of the home goods. By introducing the market for exports he has argued that when there is equality between income and expenditure any excess supply (or demand) of exports or home goods implies a trade deficit (or trade surplus). Imbalances in the trade balance condition not only change terms of trade but also affect the relative prices of the non-traded goods.

2.2.3 Terms of Trade and North-South Trade Models

There exists a vast literature on terms of trade in the context of North-South trade models. The major works in this area are related to those by Findlay (1980), Burgstaller and Saavedra-Rivano (1984), Sarkar (1989), Gupta (1996), etc. These models have examined the role of terms of trade in the development prospects of the North and the South.

The pioneering work involving the role of terms of trade in a North-South interaction model is found in Findlay (1980). He has argued that ever since the emergence of Prebisch-Singer hypothesis the movement of the terms of trade between the North and South has been regarded as a key index of the distribution of the benefits from the international division of labour and the development prospects of the South. He has, therefore, developed a dynamic model in which terms of trade plays the key role to link
the growth rates of output in the North and the South. Using a Solow-type neoclassical Northern economy and Lewisian labour-surplus Southern economy, Findlay (1980) has demonstrated that there is a feedback from terms of trade to the growth of output in the South. Findlay (1980) has analytically explained that terms of trade and growth rate of Southern output have to adjust to the growth rate of the ‘effective’ labour force or the natural rate of growth of the North. Given the constant value of the natural growth rate of the North, the long run value of terms of trade and thus the growth rate of output in the South are independent of other Northern parameters but they only depend on some Southern parameters like, the proportion of profits saved and the technology of production.

Burgstaller and Saavedra-Rivano (1984) have extended Findlay’s (1980) framework by introducing perfect mobility of capital. They have examined two types of questions. Firstly, whether a move from international capital immobility to one of capital mobility has any systematic implications on long run growth equilibrium, per capita income differentials and relative employment levels. Secondly, whether the structural asymmetries of the two regions will act in such a way as to bring about consistent bias against the South of the world-system’s adjustment to new growth equilibrium. The authors have concluded that, given some reasonable assumptions, free capital mobility entails an unambiguous long-run impoverishment of the South relative to the North. Again, the analysis involving comparative dynamics shows that the impact of parameter shifts is indeed biased against the South.
Sarkar (1989) has developed a North-South model in which the levels of output and employment in each region are constrained by effective demand in Keynesian fashion. In this model, the South has been identified as the exporter of consumption goods and the North has been identified as the exporter of investment goods. The equilibrium terms of trade is determined by the equality between the excess supply and excess demand functions for investment goods in the world market and these functions are determined from the trade balance condition of the South. Sarkar (1989) has shown that free international trade unambiguously reduces consumption and employment in the South. Thus he has expressed doubts about the development prospects of the South through outward looking policies.

In Gupta's (1996) model, it has been shown that the movement of terms of trade plays an important role in determining the long run equilibrium values of the capital stocks of the North and the South and to determine the per capita income of the South. Gupta (1996) has developed a North-South model with a Solow-type neoclassical North and a mobile capital Harris-Todaro (1970) type South as considered in Corden and Findlay (1975). Here, trade is free and there is perfect mobility of capital between the North and the South. The model has explained how low-level equilibrium trap becomes inevitable in the South when it is overpopulated. A large size of the population in the South falls in this trap through its adverse effect upon terms of trade and foreign capital inflow.
2.2.4 Empirical Studies about the Behaviour of Terms of Trade in the Developing Countries

Areas of research regarding the movement of terms of trade owing to the growth in the trade openness and the share of the manufactured exports of the LDCs has been largely unexplored. Such studies have been found in Sarkar and Singer (1991), Athukorala (1993), Bleaney (1993), Lutz and Singer (1994), etc. But there is no consensus regarding the impact of increasing trade liberalisation and growth in the share of manufactured exports upon terms of trade for the developing economies.

Sarkar and Singer (1991) have examined the movement of the manufacture-manufacture barter terms of trade both for the developing countries as a whole over the period 1970-1987 and also for a sample of 29 individual developing countries for the period 1965-85. They have attempted to examine the impact of growth in the share of the manufactures in the exports of the periphery countries upon the behaviour of their terms of trade vis-à-vis the centre countries. They have actually desired to show that increasing reliance on manufactured exports does not offer the developing countries any escape from unequal exchange with the developed countries. They have also estimated the income terms of trade of the periphery and they have found that while the manufacture-manufacture terms of trade for the periphery declined by 1 percent per annum, their ITT rose by about 10 percent. Of course, the individual country study does not provide any conclusive trend. Fourteen of such countries have shown a negative trend and the remaining fifteen have shown a positive trend. They have concluded that there are some evidences of decline in the unit values of manufactured exports of the periphery vis-a-vis
those of the centre but the higher rate of growth in the volume of manufactured exports has served to increase the capacity to import of the periphery. At the same time they have also believed that the country case studies do not support the deteriorating trends in the manufacture-manufacture terms of trade of these countries vis-à-vis the rest of the world.

In a series of articles, published in World Development (1993), Athukorala, Bleaney and Sarkar and Singer have debated over the results obtained by Sarkar & Singer in 1991. Athukorala, on the basis of thorough scrutiny of Sarkar-singer results (hereafter S-S result), has argued that rapid expansion of manufactured exports in the developing countries have enabled them to achieve significant gains in import purchasing power through the improvement in their ITT without generating adverse impact on the NBTT. He has further argued that unit value indices as proxy measures cannot actually reflect true price changes of manufactured goods. Again, changes in unit value indices may be influenced by the changes in the commodity mix. Thus unit values for aggregates such as total manufactures for a given country or for a group of countries are unreliable. He has shown that the S-S result suffers from some major limitations arising mostly out of the failure to adjust the data properly and they are likely to have infused an undue downward bias into NBTT trend rate estimates. The unit value index for manufactured goods includes Standard International Trade Classification (SITC) 68. This commodity category consists of nonferrous metal products composed predominantly of mineral products, whose price movements tend to be significantly different from those of standard manufactured goods. Moreover, as compared to the developed countries, this commodity group accounts for a greater share of total SITC 5-8 exports from developing countries.
He has estimated the trend value for the adjusted NBTT series by excluding this commodity category and it has been found that NBTT for developing countries fall only by 0.2% which is not statistically different from zero in terms of the standard t-test.

Bleaney (1993) has also questioned the S-S result. He has argued that the results are sensitive to the choice of the end year, which is marked by debt crisis, of the study and to the fluctuations in the unit values of US exports relative to those of the rest of the world. The result is also sensitive to real devaluation of the currencies of the developing countries.

Sarkar and Singer (1993) have tried to answer all the questions raised by Athukorala and Bleaney against the S-S result. They have maintained the view that the terms of trade of the South has deteriorated not only in their exchange of primary products for Northern manufactures but also in their exchange of manufactures for Northern manufactures.

Lutz and Singer (1994) have examined the impact of increased trade openness on the terms of trade. Using a large sample of countries they have tried to assess empirically the validity of the ‘small country assumption’ and the ‘fallacy of composition’. They have largely focused their study on whether an individual country’s move to greater outward orientation can be linked to (a) deterioration in its terms of trade and (b) an increase in terms of trade volatility. They have performed a number of empirical exercises to answer the questions like: What is the correlation of the terms of trade and
Can the terms of trade be treated as an exogenous variable from an individual country’s point of view? Their studies are based on a sample of 91 countries including both LDCs and non-LDCs over the period 1968-88. The results of their study show that the average correlation coefficients between the degree of openness and the NBTT are all negative for different country groups with an exception for the oil exporters. But there are strong positive correlations between the income terms of trade and the degree of openness. But regarding the correlation between the openness and terms of trade volatility they have observed no positive relationship. The second part of their empirical analysis consists of a test relating to the small country assumption. They have asked the question that whether the NBTT could be deemed exogenous or endogenous with respect to either the tradeable sector as a whole, or each of its components. Applying the ‘Hausman Exogeneity Test’, they have concluded that the rejection rates ranged from 6.6 to 15.4 percent across all countries but were as high as 30 percent or more for oil exporting countries. They have argued that there is a sizable group of countries (LDCs and non-LDCs) for which the assumption of exogenous traded-goods prices can be rejected.

In a classic survey article, Panchamukhi (1997) has presented a brief outline of the empirical works that can be undertaken by researchers to analyse the behaviour of terms of trade. He has considered that the impact of the recent liberalisation and globalisation programmes, introduced in India and other developing countries, on terms of trade can be analysed as part of a research problem. He has tried to explain the methodological
analysis of Lutz and Singer (1994), particularly, the process of applying exogeneity test relating to terms of trade for examining the applicability of ‘small country assumption’ for an individual developing country.

Chatterjee and Karmakar (1998) have examined the degree of openness of the Indian economy over the period 1951-52 to 1994-95. Their aim was to understand the extent of dependence of the economy and its growth process on external transactions. They have used two measures of Trade Orientation Ratio (TOR) for this purpose. The study shows that the degree of openness of the Indian economy is consistently low for most of the period when it is taken into consideration entirely, but when the entire period is divided into two parts, the TORs exhibit mild U-turn in both of the two phases with some periodic fluctuations.

2.3 Plan of the Study

The present study attempts to contribute to the existing literature by taking into account of the various theoretical aspects of the problem of terms of trade in a developing economy. It also attempts to empirically test the behaviour and movement of terms of trade facing a developing economy, like India. As it is not possible to consider all the theoretical and empirical issues related to terms of trade and international trade problems in this study, we would like to consider here only a few selected aspects of the problem. Our study tries to consider mainly those issues that are gaining importance in recent years in the context of the liberalisation programme adopted in the developing countries. It is to be noted that in spite of the existence of a vast literature on the subject, an integrated
study focusing on the role and behaviour of terms of trade after taking into account the major features of a liberalised trade regime is relatively neglected in the context of developing economies.

In chapter 3, we consider the role of terms of trade and the liberalisation process in affecting the relative wage of the unskilled labour vis-à-vis the skilled labour. We also consider a small open economy to examine the impact of improvement in terms of trade upon the relative wage of unskilled labour. In our model, we use a three-sector Harris-Todaro (1970) framework characterised by migration of unskilled workers from the rural sector to the urban sector with urban unemployment. The model has then been extended to incorporate disguised unemployment in the rural sector.

In chapter 4, we consider a four-sector small open economy to examine the impact of improvement in terms of trade and increased investment liberalisation upon the skilled-unskilled wage gap.

In chapter 5, we theoretically examine the behaviour of endogenously determined terms of trade in the context of trade models with nontraded goods sector. In our analysis, we consider a three-good two-factor model, which includes both tradeables and nontradeables. In the context of developing economies, we analyse the impact of rises in the autonomous demand for nontradeables, autonomous foreign demand for home exports and in the stock of capital upon terms of trade.
In chapter 6, we consider a North-South trade model in which terms of trade plays an important role in determining the factor returns and the internal demand for skilled labour in the South. The analysis shows that trade liberalisation in the South can suitably influence terms of trade to increase the stock of skilled labour and also to attract more inflow of foreign capital.

In chapter 7, we empirically analyse the behaviour of terms of trade for India and we make an exogeneity test to see whether the terms of trade for India are truly exogenous. We estimate the annual average growth rate of trade openness, the percentage share of manufactures in total exports and different aspects of terms of trade. We then test some hypotheses related to the behaviour of the terms of trade for India when her trade openness and the percentage share of manufactured exports rise. Chapter 8 summarises and concludes the entire study.