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From the Classical to Empiricists: A review of the terms of trade controversy

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Abstract

Contrary to the classical position, the works of Prebisch and Singer in the middle of the last century launched the controversial hypothesis of a long-term decline in the terms of trade of primary products vis-à-vis manufactures and a corresponding decline in the terms of trade of the developing countries vis-à-vis the advanced ones. The present study traces the origin and evolution of the hypothesis and reviews the related statistical debate. It also reviews the theoretical support for the Prebisch-Singer hypothesis. It's an exercise in the history of economic thought to trace how the controversies surrounding the terms of trade have evolved over time, specifically noting that with the development in the field of econometrics, the central thesis of the argument got somewhere lost in the realm of hi-tech statistical debates.

Keywords: Prebisch-Singer hypothesis; North-South trade; deterioration hypothesis; terms of trade; commodity prices; uneven development.

JEL Codes: O1, O24, O50, B12, F02, F13.

1 Introduction

No questions in political economy are of greater practical importance than those which relate to the terms of international exchange, or, in other words, to the causes which determine whether the produce of a given quantity of the labour of one country shall exchange for and be equivalent to the produce of an equal, or of a greater, or of a lesser quantity of labour of another country.

(TORRENS, 1852, P. 32)

The topic of the terms of trade¹ has been a subject of much debate and discussion among the economists since the days of Adam Smith. The idea that the import prices should be appraised in terms of the export prices and the relation between the two matters for the welfare of a town or region or nation was recognized at an early stage of the development of political economy. As noted by Adam Smith (Smith, 2000), “The price which the town really pays for the provisions and materials annually imported into it is the quantity of manufactures and other goods annually exported from it. The dearer the latter are sold, the cheaper the former are bought.” Later, he (Smith, 2000) also noted, “The more . . . [the colonies] pay for [European goods] the less they get for [their own produce], . . . and the dearness of the one is the same thing with the cheapness of the other.” Among the classical economists, many were convinced that the prices of primary produce tended to rise over time relative to the prices of manufactures since production in the primary producing sector was governed by the law of diminishing returns, and the manufacturing sector was subject to increasing returns and cost-reducing technical progress.

However, in the aftermath of the Second World War, most of the underdeveloped countries realized that vast differences exist in their economic conditions and standards of living with those prevalent in developed countries. When the developing countries decided to decrease this gap by the development of their economies, a further aspect had been added to their existing problems – all the programmes of economic development by these underdeveloped countries required large amounts of capital goods obtainable from the advanced countries and needed to be exchanged by exports of the primary commodities. Therefore, the ability of the underdeveloped countries to acquire these capital goods and machinery from the advanced countries depended on the relation between the prices of their exports of

primary commodities and the prices of their imports of capital goods. Historically the terms of trade of primary commodities vis-à-vis manufactures was declining, which mostly meant a squeeze in the ability of these developing countries to import the requisite amount of capital goods from the advanced countries; this severely hampered the development prospects of these ‘primary-producing’ countries. This caused much worry among several economists. The view that the terms of trade had an inherent tendency to move against the ‘primary-producing’ countries in the long run, with the consequence that international economic inequalities would not be spontaneously smoothed out but would become sharper, unless adequate policies were instituted to prevent it, began to gain grounds among the popular economic discussions of those times.

There were real basis why this discussion was gripping the mainstream academia. According to estimates made by *The Economist* (November 16, 1957, p. 515), the primary commodity prices fell by 7.5% over the period 1956 to 1957, which resulted in a loss of \$3,500 million to \$4,000 million in the annual export earnings of the underdeveloped countries. Several well-known economists, like R.F. Kahn, E.A.G. Robinson, R. Stone, N. Kaldor and W.B. Reddaway from Cambridge and T. Balogh, F.A. Burchardt, Colin Clark, Roy Harrod, E.F. Jackson, G.D.A. MacDougal and G.D.N. Worswick from Oxford, signed a letter published in “*The Times*” in London on October 29, 1957, that underscored the apprehensions of these economists on the future development prospects of the underdeveloped ‘primary-producing’ countries:

..the decline in recent months [of world commodity prices] has now brought these prices, on average, back to the level ruling before the Korean War. Meanwhile the cost of manufacturing has risen substantially, so that each shipload exported by the underdeveloped countries now buys considerably fewer manufactured goods. It is not surprising that these countries are one after another running into exchange crises and that their development programmes are being seriously jeopardized..It is not always realized that a comparatively small fall in commodity prices is equivalent in its effects to a cut of billions of dollars in aid to underdeveloped countries. (Cited from Atallah (1958))

However, the credit for bringing this issue to the limelight during the post-World War II phase goes to Prebisch (*Economic Commission for Latin America*, United Nations, 1950; *The Secretariat of the Economic Commis-*

sion for Latin America, 1951) and Singer (1950). Both hypothesized a secular decline in the terms of trade of primary products vis-à-vis manufactures and, based on it, they made an argument for a secular decline in the terms of trade of the primary product-exporting South vis-à-vis the industrialized North.² Both these authors provided the theoretical underpinnings behind the ‘deterioration hypothesis,’ which later came to be popularly known as the Prebisch-Singer hypothesis (PSH) in the economic literature. In two independent research works, both these authors strongly criticized the Ricardian pattern of international division of labor where the periphery was assigned the role of supplying primary commodities to the industrialized nations. They challenged the theoretical premise formulated by the classical economists that the periphery with its specialization in primary production would benefit from a favorable movement in the export prices of its primary commodities and thus would get a benefit of the fruits of technical progress taking place in the manufacturing sector of the center. However, this expectation of the classical economists was not borne out by the facts noted by Prebisch (Economic Commission for Latin America, United Nations, 1950) and Singer (1950). In the course of their research, they concluded that there were some inherent factors in the global economic order which led to a long-term deterioration in the terms of trade of primary commodities vis-à-vis manufactured goods. They argued that trade between the developing and developed countries acts as a channel for transferring surpluses from the former to the latter. Hence, the authors suggested to the policymakers of the newly independent peripheral countries of the South to discard the Ricardian pattern of specialization and free trade and instead follow a path of rapid industrialization under the State protection along with the suspension of free play of international market forces.

This hypothesis (PSH) generated much controversy. A large number of critics pounced on it. In view of the vehement criticism, it seemed at one stage that the hypothesis was far from the truth. The hypothesis ran contrary to the traditional thinking and the dominant idea prevalent during that period and, therefore, there was a great reluctance among several economists of that generation to accept this hypothesis. The purpose of this article is to review this controversy on the international terms of trade centering on the P-S hypothesis. In the next section, we shall discuss the historical background from which the PSH emerged and evolved. In the third section, the critical points raised against this hypothesis will be examined on the basis of the studies already carried out in this field. In the penultimate section, the theory behind the PSH will be briefly discussed on the basis of some North-South models, and it concludes with some observations made while

performing this review.

2 Emergence of the theory of declining terms of trade of the South

2.1 The classical law of rising terms of trade

Many classical writers believed that the terms of trade of primary products would show long-term improvement vis-à-vis manufactures. In the words of Mill (1899): ‘. . . the exchange values of manufactured articles, compared with the products of agriculture and of mines, have, as population and industry advance, a certain and decided tendency to fall.’ This belief dates back to Adam Smith. In Smith (2000), the price of a commodity is determined by simply adding up wages, profits, and rent: ‘in every improved society, all three enter more or less, as component parts, into the price of the far greater part of commodities.’ However, Smith was convinced that technological progress in the manufacturing industry was faster than in the primary commodity producing sector. It’s because of the greater division of labor, introduction of machinery and increase in the ‘dexterity’ of workers. Therefore, he advocated industrialization to obtain the benefits of technological progress; while in the immediate short run he advocated specialization in goods of ‘absolute advantage’ and obtain thereby static gains in free trade. However, Adam Smith was aware of the fact that if labor productivity rises in the manufacturing sector, then the terms of trade would shift against it. In a passage of Book I, Chapter XI in *The Wealth of Nations*, he argued,

All those improvements in the productive powers of labour, which tend directly to reduce the real price of manufactures, tend indirectly to raise the real rent of land. The landlord exchanges that part of his crude produce, which is over and above his own consumption, or what comes to the same thing, the price of that part of it, for manufactured produce. Whatever reduces the real price of the latter, raises that of the former. An equal quantity of the former becomes thereby equivalent to a greater quantity of the latter; and the landlord is enabled to purchase a greater quantity of the conveniences, ornaments, or luxuries, which he has occasion for. (Smith (2000))

However, despite this shift in terms of trade against manufactures due to technological progress in this sector, Smith thought industrialization was worthwhile and strongly advocated it.

David Ricardo, the outstanding classical economist, had also argued that the process of accumulation of capital would get constrained by the non-availability of adequate supplies of natural resources, especially land. With a higher accumulation of capital, the increased demand for wage goods would force the primary commodity cultivators to cultivate on less and less fertile lands, in which the yields will become lower. This difficulty of obtaining a unit of output from agriculture relative to the industry, would eventually lead to a rise in the terms of trade in favor of the agricultural commodities which are subject to diminishing returns; a surge that, with fixed subsistence real wages, causes the rate of profit to decline. In Chapter-VII of his book *On the Principles of Political Economy and Taxation*, Ricardo argued:

... from the necessity of having recourse successively to land of a worse and worse quality, in order to feed an increasing population, corn must rise in relative value to other things. If therefore money continue permanently of the same value, corn will exchange for more of such money, that is to say, it will rise in price. The same rise in the price of corn will be produced by such improvement of machinery in manufactures, as shall enable us to manufacture commodities with peculiar advantages: for the influx of money will be the consequence; it will fall in value, and therefore exchange for less corn. (Ricardo (2001))

Therefore, in a nutshell, Ricardo believed that the diminishing returns in primary commodity production and the growing population, viewed against the effects of increasing specialization and technological progress in manufacturing, would be responsible for a secular improvement in the terms of trade of primary commodities vis-à-vis manufactured goods.

Malthus is one of the first economists to have explicitly raised the issue of movements in the terms of trade (Bloomfield, 1984). While discussing the reduction of prices of manufactures in international trade, Malthus (1826) noted that the country with increased skill and machinery ‘would...be obliged, as its skill and capital increased, to give a larger quantity of manufactured produce for the raw produce which it received in return.’ Discussing Ricardo’s theory of profit, Malthus in Chapter V of *Principles of Political Economy* explained his argument in greater details:

Let us suppose a prosperous commercial city, greatly excelling in some manufactures, and purchasing all its corn abroad. At first and perhaps for a considerable time, the prices of its manufactures in foreign markets might be such as, compared with the

price of its imported corn, to yield high profits; but, as capital continued to be accumulated, and employed in larger quantities on the exportable manufactures, such manufactures, upon the principles of demand and supply, would in all probability fall in price. A larger portion of them must then be exchanged for a given portion of corn, and profits would necessarily fall ... surely the specific cause, in this case, of more work being necessary to earn the same quantity of corn is the fall in the prices of the exportable manufactures with which it is purchased, and not a rise in the price of the corn, which may remain exactly the same. (Malthus (1820))

Therefore, Malthus was of the view that an economy's terms of trade of manufactured goods vis-à-vis primary commodities will deteriorate as the amount of capital invested in the exportable manufacture increased, since there would be no resulting rise in the demand from the foreign economies corresponding to an increased supply.³

Although both Malthus and Ricardo believed in a secular movement in the terms of trade in favor of the primary commodities, their views differed on policy issues. The famous controversy between Ricardo and Malthus over ground rent and the Corn Law marked such a difference: a controversy over whether to shore up the rent or not, and an issue of whether to shift the terms of trade further in favor of the farm products or not. Ricardo, who was mindful of the interests of the rising capitalist class during his times took a position against the increasing ground rent and farm product prices; whereas, Malthus broadly subscribing to the cause of the landlord class supported it. According to Mitra, this Ricardo-Malthus debate is an important landmark in the history of economic thought, and especially, from the perspective of the terms of trade:

The debate between Ricardo and Malthus over ground rent and the Corn Law marked the intrusion of the issue of class relations in classical political economy; the debate can even be interpreted as one which sought to define the role of terms of trade between 'town' and 'country' for serving specific class interests. One can suspend judgement on whether it was Ricardo or Malthus who won the battle of economic theory; but it was the former who emerged triumphant in the sphere of policy-making. The abolition of the Corn Law – leading to a shift in the terms of trade against farm products implied a signal victory for the capitalist

class or, as Marx would say, for the cause of capitalist accumulation. (Mitra (2005))

In essence, the logic behind the classical proposition of a favorable terms of trade for agriculture lies in the operation of the two laws of return - the law of diminishing returns in primary production and the law of increasing returns in manufactures - in a free and competitive market-economy world (Torrens (1965); Rostow (1950)). This point was fully enunciated by Torrens:

...even if the effective powers of appropriative and agricultural industry were to sustain no diminution, still, in progress of wealth and population, the exchangeable value of wrought goods, as compared with raw produce, would gradually fall. As capital accumulates, and as labour multiply, improvements take place in the application of machinery, and in the division of employment, and enable a smaller number of hands to work up the same quantity of material. . . every improvement in manufacturing industry, which enables material to be wrought up with the expenditure of a less quantity of subsistence, must in this manner, reduce the exchangeable value of manufactured goods, as compared with the fruits of soil. . . as new countries advance in population, the cultivation of inferior soils must increase the cost of raising raw produce, and the division of labour reduces the expense of working it up. Hence, in all new settlements, the increasing value of raw produce must gradually check its exportation, and the falling value of wrought goods progressively prevent their importation; until at length the commercial intercourse between nations shall be confined to those peculiar articles, in the production of which the immutable circumstances of soil and climate give one country a permanent advantage over another. . . (Torrens (1965))

Further, renowned classical economists like Ellis (1825), Sleeman (1829), and Scrope (1833) too believed that the terms of trade of primary commodities vis-à-vis manufactured goods would show a steady upward trend. The classical economists, in general, viewed the issue of economic growth as propelled mainly by the urge of capital accumulation, and population growth, with technological change playing a minor role. Hence, the belief arises that with the passage of time, increased demand for raw materials and wage goods would slowly push primary commodity production to less and less fertile land, and propelled the primary commodity prices upwards relative to those of the manufactured goods. The policy implication from this is

that an economy, primarily relying on agricultural commodities, need not industrialize to produce manufactured items; free play of international market forces will distribute the gains from the advanced, industrial economies to the agricultural ones through favorable terms of trade. That is to say, the classical law provided additional support for the Ricardian dictum of the international division of labor in conformance with the theory of comparative advantages.

2.2 Keynes on the Terms of Trade and his debate with Beveridge

The classical proposition can also be traced in the early writings of Keynes. Keynes believed that constant returns to scale in industry and diminishing returns to scale in agriculture, along with population growth, would lead to a secular decline in the relative prices of manufactured goods vis-à-vis primary commodities. Keynes along with Broughton and Dawson, observed a deterioration in Britain's terms of trade between 1900 and 1911, and argued that:

the deterioration – from the point of view of this country [Britain] – is due, of course, to the operation of the law of diminishing returns for raw materials which, after a temporary lull, has been set in sharply in quite recent years...here is now again a constant tendency for a given unit of manufactured product to purchase year by year a diminishing quantity of raw product. The comparative advantage in trade is moving sharply against industrial countries (Keynes et al. (1912))

Further, Keynes (Keynes, 1920) in Chapter II of *The Economic Consequences of Peace* reflecting on the prewar movement of the terms of trade, wrote ‘... taking the world as a whole, there was no deficiency of wheat, but in order to call forth an adequate supply it was necessary to offer a higher real price’; and later, he further added that ‘the tendency towards stringency was showing itself... in a steady increase of real cost... the law of diminishing returns was at last reasserting itself, and was making it necessary year by year for Europe to offer a greater quantity of other commodities to obtain the same amount of bread.’ He also summed up by referring to ‘the increase in the real cost of food and, the diminishing response of Nature to any further increase in the population of the world’ as one of the two fundamental problems of post-1919 Europe. Robertson (1915) made a similar observation based on the British terms of trade data: ‘.. the normal tendency for the ratio of exchange to alter against the manufacturing and

in favor of agricultural communities was in force in the seventies, was suspended in the eighties and the nineties, and is now once more on the whole triumphing.’

However, Keynes’s views were profoundly critiqued by Beveridge. In his presidential address before the British Association in 1923, Beveridge challenged the theory of Keynes by putting forward few statistical evidence (Table 1, 2, 3), which was designed to show that the rise in acreage and the yield in agriculture were in tandem with the growth in population and the increase in the per-capita industrial production. Table 1 shows at four successive epochs – 1880, 1890, 1900, 1910 – the total yield and acreage of corn and the yield per acre and capita in Europe as a whole (including Britain), with corresponding figures for coal, iron ore and steel. From this table, it can be observed that at each successive epoch with a significantly increased population, acreage under corn and production increased faster than either, so that per capita yield and yield per acre alike rose materially and steadily. Table 2 gives the corresponding facts (as those in table 1) for the principal countries settled from Europe – Australia, New Zealand, and the United States, Canada, and parts of South America. This table begins in 1890 and continues till 1920. It shows a similar picture, not a markedly better one, in agriculture up to the War. From 1890 to 1910, the yield per acre is lower for wheat, although higher for the other crops. However, the actual yield per head is, of course, much higher in the settlements. It is in the industrial field, with the double or trebled per capita output of coal, iron ore and steel between 1890 and 1910, that the progress of Europe’s settlement is most marked. In table 3, taking Europe and its settlements together, we find an improvement both in the yield per acre and in yield per head of the four crops, more marked from 1900 to 1910 than from 1890 to 1900.

Table 1: Agriculture and other production at certain epochs (Europe)

Year	1880	1890	1900	1910	1920
Population (in thousands)	310,479	340,297	374,667	427,627	423,000
Total Production (in 1000 quarters)					
Wheat	136,067	152,006	192,869	225,356	–
Rye	130,741	145,759	173,185	194,195	–
Barley	70,254	78,343	89,427	111,665	–
Maize	40,542	48,683	53,797	65,435	–
Four Crops	377,604	424,791	509,278	596,651	–
Area under crops ('000 crops)					
Wheat	89,891	95,165	109,394	125,448	–
Rye	100,301	99,122	101,508	102,508	–
Barley	34,953	38,449	41,163	49,458	–
Maize	19,612	22,372	24,435	26,026	–
Four Crops	244,757	255,108	276,500	303,400	–
Yield per acre (in bushels)					
Wheat	12.1	12.8	14.1	14.4	–
Rye	10.4	11.8	13.7	15.2	–
Barley	16.1	16.3	17.4	18.1	–
Maize	16.5	17.4	17.6	20.1	–
Four Crops	12.3	13.3	14.7	15.7	–
Yield per head (in bushels)					
Wheat	3.5	3.6	4.1	4.2	–
Rye	3.4	3.4	3.7	3.6	–
Barley	1.8	1.8	1.9	2.1	–
Maize	1.0	1.1	1.1	1.2	–
Four Crops	9.7	10.0	10.9	11.2	–
Production per head (in cwt)					
Coal	15.1	18.2	21.7	25.1	–
Iron Ore	1.9	2.1	2.7	3.4	–
Crude Steel	–	0.5	0.9	1.4	–

Source: Cited from Beveridge (1923, p. 450)

Notes: All notes for this table are same as the original one.

Table 2: Agriculture and other production at certain epochs (Countries Settled from Europe)

Year	1890	1900	1910	1920
Population (in thousands)	75,596	91,451	111,829	131,432
Total Production (in 1000 quarters)				
Wheat	75,033	103,295	138,982	178,049
Rye	3,333	3,384	4,476	8,818
Barley	11,113	15,412	27,601	26,401
Maize	234,465	270,889	360,996	396,868
Four Crops	323,944	392,980	532,055	609,776
Area under crops ('000 crops)				
Wheat	49,977	65,500	80,717	107,142
Rye	2,201	1,802	2,291	5,565
Barley	4,104	4,957	9,280	10,769
Maize	77,662	91,584	116,685	111,878
Four Crops	133,944	163,843	208,973	235,354
Yield per acre (in bushels)				
Wheat	12.0	12.6	13.8	13.3
Rye	12.1	15.0	15.6	12.9
Barley	21.7	24.9	23.8	19.3
Maize	24.2	23.7	24.8	28.4
Four Crops	19.5	19.2	20.3	20.7
Yield per head (in bushels)				
Wheat	7.9	9.0	9.9	10.8
Rye	0.4	0.3	0.3	0.5
Barley	1.2	1.4	2.0	1.6
Maize	24.8	23.7	25.8	24.2
Four Crops	34.3	34.4	38.1	37.1
Production per head (in cwt)				
Coal	39.6	55.0	81.0	–
Iron Ore	4.0	6.0	8.7	–
Crude Steel	1.1	2.5	4.3	–

Source: Cited from Beveridge (1923, p. 450)

Notes: The figures for “Countries settled from Europe” relate to Canada, United States of America, Argentina, Uruguay, Australia and New Zealand.

Table 3: Agriculture and other production at certain epochs (Europe and Countries Settled from Europe)

Year	1890	1900	1910
Population (in thousands)	415,893	466,118	539,456
Total Production (in 1000 quarters)			
Wheat	227,039	296,164	364,338
Rye	149,092	176,569	198,671
Barley	89,456	104,839	139,266
Maize	283,148	324,686	426,431
Four Crops	748,735	902,258	1,128,706
Area under crops ('000 crops)			
Wheat	145,142	174,894	206,165
Rye	101,323	103,310	104,789
Barley	42,553	46,120	58,738
Maize	100,034	116,019	142,711
Four Crops	389,052	440,343	512,413
Yield per acre (in bushels)			
Wheat	12.5	13.6	14.1
Rye	11.8	13.7	15.2
Barley	16.9	18.2	18.8
Maize	22.6	22.4	23.9
Four Crops	15.4	16.4	17.6
Yield per head (in bushels)			
Wheat	4.4	5.1	5.4
Rye	2.9	3.0	2.9
Barley	1.7	1.8	2.1
Maize	5.5	5.6	6.3
Four Crops	14.4	15.5	16.7
Production per head (in cwt)			
Coal	22.1	28.2	36.3
Iron Ore	2.4	3.4	4.5
Crude Steel	0.6	1.2	2.0

Source: Cited from Beveridge (1923, p. 450)

Notes: All notes for this table are same as the original one.

Keynes (1923) in his reply to Beveridge constructed two indices derived from Professor Bowley's price index, namely - the 'general index' which

deals with British exports and imports from 1873 to 1911 and the 'special index' which deals with the selected groups of articles like manufactured exports and food imports from 1881 onwards. Keynes's analysis showed that there was a steady decline in the quantity of the exported manufactured goods required to be exchanged for a uniform quantity of imported food till 1903; thereafter, the terms of trade showed a tendency to move against the manufacturing sector. Later, Beveridge (1924) directly confronted these terms of trade figures formulated by Keynes (1923); he argued that the export prices of grain relative to those of manufactured goods had steadily fallen over the whole period of study till 1914. Re-calculating the terms of trade figures, Beveridge (1924) showed that the Keynesian figures had some methodological flaws and, if revised, show no turning point in 1903: 'The correction of the figures taken from Professor Bowley's memorandum really disposes of Mr. Keynes's case.' Commenting on the terms of trade movement and disputing the classical view of rising terms of trade index of primary commodities vis-à-vis manufactured goods, Beveridge (1924) concluded: 'The course of such an index is the resultant of several independent forces, namely, efficiency of production in industry or in agriculture and demand for industrial or agricultural products. Here are four variables at least. There is no justification for attributing a change in the resultant to one of these variables alone, and building thereon a sweeping generalization of diminishing returns in agriculture.' In this debate, perhaps, Keynes, too, recognized that there was a dramatic reversal of British terms of trade position in the post war period; the price of the food imports as a percentage of the price of manufactured exports had fallen from 97 in 1913 to 77 in 1922, reflecting a remarkable improvement in the Britain's terms of trade. Keynes (1923), then, amalgamated the two positions of the terms of trade movement in the pre-war and post-war period, and put forward a concept that would define Britain's difficulties in both the scenarios: 'We are no longer able to sell a growing volume of manufactured goods (or a volume increasing in proportion to population) at a better real price in terms of food.'

The 'most substantial successor to Keynes, Beveridge and Robertson' was Colin Clark, who had in him a high 'dose of Torrens'(Rostow, 1950). Clark (1944) constructed a theoretical model which predicted that by 1960, 'the terms of trade for primary produce will improve by as much as 90 per cent from the average level of 1925-34.' To supplement his analysis, Clark (1944) searched 'the historical data to see whether such movements as terms of trade improvements for primary products have occurred during the past.' He observed that the terms of trade between British exports and imports

(‘the former constituting almost entirely manufactures and coal, the latter food and raw materials’) had been deteriorating since the Napoleonic War. This observation was based on the data available from British official records, presented by Schlote (1952), and was taken as the effect of industrialization in England and France in the eighteenth and the early nineteenth centuries. So, Clark (1944) argued: ‘. . . is it not reasonable to expect a similar impact from the industrialization of China and Japan in the middle years of the twentieth century?’ Thus, support for the classical proposition was sought in Britain’s terms of trade behavior. It is ironic that the support for the opposite proposition (the Prebisch-Singer hypothesis) was also sought in the British terms of trade data, as we shall see below.

2.3 The challenge to the classical proposition from Prebisch and Singer

In the early post-second world war period, Prebisch (Economic Commission for Latin America, United Nations, 1950) and Singer (1950) challenged the classical proposition and its implicit support for the colonial pattern of centre-periphery (or North-South) trade. The Prebisch-Singer hypothesis of a long-term decline in the terms of trade of primary products can be traced back to the early writings of Kindleberger (1943, p. 349): ‘Inexorably the terms of trade move against agricultural and raw material countries as the world’s standard of living increases. . . and as Engel’s law of consumption operates.’ Another economist Sanford A. Mosk argued in 1944, ‘The relatively unfavorable price position for raw materials and foodstuffs that prevailed in the inter-war period, affected the outlook of the Latin Americans’ (Cited from (Whitaker, 1945, p. 143)).

It was, however, the data published in a study by the League of Nations (1945), ‘mainly the work of Mr. Folke Hilgerdt’ that can be taken as the origin of the PSH and the related debate. Hilgerdt collected evidence to show that, during the 60 years preceding 1938, primary product prices had fallen relative to prices of manufactures. Hence, Lipsey (1963, p. 18) expressed the view that it was Hilgerdt who first turned the classical proposition upside down.

Later, the United Nations (UN) (United Nations, 1949b,a) took up the issue of declining relative prices for primary products. The UN study was mainly concerned with short-term price relations. However, to provide ‘a historical perspective,’ it presented data on unit value ratios between primary products and manufactures in world trade based on the study by the League of Nations (1945), and between British imports and exports based on the study by Schlote (1952). By these data, the UN study observed a

secular decline in the terms of trade of primary products vis-à-vis manufactures over the period 1876-1938 and inferred a corresponding decline in the terms of trade of the ‘underdeveloped’ countries (constituting the South, or the Periphery).

Both Prebisch (Economic Commission for Latin America, United Nations, 1950) and Singer (1950) referred to this observation by the UN study. Prebisch referred to the preliminary version of the UN report (United Nations, 1949b) and highlighted the behavior of the inverse of British terms of trade. Singer referred to the final report (United Nations, 1949a), ‘the principal author of which is known to be Singer himself’ (Spraos, 1980). It was pointed out that productivity increased faster in the industrialized North than in the primary-producing South, so the terms of trade should have moved in favor of the South given free trade and competition. The South could have enjoyed the fruits of technical progress taking place in the industry through free trade and specialization (in agriculture) without going for industrialization, as suggested by the classical writers. However, this did not happen, as the ‘historical fact’ reported in these UN studies showed. Therefore, Singer (1950, p.479-480) noted that ‘It is a matter of historical fact that ever since the seventies the trend of prices has been heavily against sellers of food and raw materials and in favour of the sellers of manufactured articles. The statistics are open to doubt and objection in detail, but the general story which they tell is unmistakable...The industrialized countries have had the best of both worlds, both as consumers of primary commodities and as producers of manufactured articles, whereas the underdeveloped countries had the worst of both worlds, as consumers of manufactures and as producers of raw materials. This perhaps is the legitimate germ of truth in the charge that foreign investment of the traditional type formed part of a system of “economic imperialism” and of “exploitation.”

According to Prebisch, technological progress in the manufacturing industries seemed to have been much more significant than in the primary commodity producing sector in the periphery. If the benefits of this technological progress percolated to the periphery through a reduction in prices, then there must be a secular decline in the relative prices of manufactures to primary commodities, and the countries in the periphery would have benefited from the fall in the real prices of finished industrial products to the same extent as the countries in the core. However, empirical evidence revealed precisely the opposite (Table 4). Hence, Prebisch notes, “With the same amount of primary products, only 63 percent of the finished manufactures which could be bought in the 1860’s were to be had in the 1930’s; in other words, an average of 58.6 per cent more primary products was needed

to buy the same amount of finished manufactures.” (Cited from (Sarkar, 1987))

Table 4: Ratio of Prices of Primary Commodities to those of Manufactured Goods (1876-80=100)

Period	Amount of finished products obtainable for a given quantity of primary commodities
1876-80	100.00
1881-85	104.40
1886-90	96.3
1891-95	90.1
1896-1900	87.1
1901-05	84.6
1906-10	85.8
1911-13	85.8
—	—
1921-25	67.3
1926-30	73.3
1931-35	62.0
1936-38	64.1
—	—
1946-47	68.7

Source: Cited from Sarkar (1987, p. 112)

Notes: Average import and export prices, according to the data of the Board of Trade.

Kindleberger (1956, p. 290) carried out an empirical exercise on various time series data on terms of trade and his results too stood in conformity with those of Prebisch and Singer, and therefore he concluded, “I would think that there was no doubt but the British terms of trade improved from 1881 (not 1870) to 1913 since the series of Imlah, Schlote, Silverman and Debenham show a rise of roughly 20 to 25 per cent...” The PSH ran contrary to the traditional thinking and the dominant idea prevalent during that period, and thus there was a great reluctance to accept this hypothesis. As noted by Sarkar (1987, p. 85), “The Prebisch-Singer thesis possibly influenced or at least formed the theoretical base for the policy makers of the newly independent colonies in adopting a path of rapid industrialization under tariff protection in the post war years. This might have hampered

the interest of the industrially developed countries, and so they strongly reacted against the doctrine and its policy conclusion. The thesis was severely criticized both from the view-points of facts and theory.” Simultaneously, it also changed the discourse of economic thinking, and, thereby, had important policy level implications.

2.4 The Prebisch-Singer-Myrdal thesis of ‘inward-looking industrialization’

As the available evidence did not support classical law, the primary-producing developing countries constituting ‘the periphery of the world economic system’ were advised to discard the ‘outdated scheme of the international division of labor’ and to make a vigorous effort for industrialization in order to improve their standard of living: ‘Industrialisation is not an end in itself, but the principal means at the disposal of the countries of obtaining a share of the benefits of technical progress and of progressively raising the standard of living of the masses.’ (Economic Commission for Latin America, United Nations, 1950, p. 2). In his later writings, Prebisch (1959) ruled out the technological advance in primary production as an alternative to industrialization because some of the fruits of such technological advance would be transferred from these ‘peripheral countries’ to the outer world because of the in-elasticity of demand for their exports. For industrialization in the South, Prebisch (1959, p. 257) suggested some form of interference in the working process of the market mechanism. ‘With an effort of imagination,’ Prebisch (United Nations Conference on Trade and Development, 1964, p. 15) visualized a situation in the distant future when the adverse terms of trade of the South would disappear ‘as a result of the worldwide process of industrialization.’

Myrdal (1969, p. 230-231) also subscribed to Prebisch and Singer’s view: ‘...the underdeveloped countries have had rather bad luck in the historical development of international prices of their typical export articles...most of the underdeveloped countries are saddled with a basket of traditional export goods - like copper, lead, raw silk, tobacco, tea, tin, zinc, and various foodstuffs - the prices of which have been lagging behind.’ Furthermore, he also recommended a vigorous policy of industrialization with the suspension of the free play of international market forces since ‘by itself “freer trade” would even tend to perpetuate stagnation in the underdeveloped regions’ (Myrdal, 1969, p. 2). In light of all these, the PSH came to be known as the ‘Prebisch-Singer-Myrdal thesis of autarkic development’ or ‘inward-looking industrialization.’

Influenced by the PSH, the leaders of the South raised the alarm about their adverse terms of trade. Thereafter, with the strong support of these nations against the opposition of the far fewer industrially advanced ones of the North, the UN General Assembly adopted a resolution (on 21 December 1952) that required ‘correction of maladjustments’ resulting from, among other things, secular movements in the value of primary products in terms of manufactures (Myrdal, 1969, p. 236, 360n). Despite these developments, the academic, as well as the intergovernmental discussions, have focused predominantly on measures to reduce short-term instability in the South’s (primary) commodity prices and commodity export earnings or to offset its effects on the economic growth of the South. It was primarily due to the strong statistical criticism of the PSH (the validity of which has been questioned, see next section). The negotiations of international commodity agreements (ICAs) - such as those for cocoa, coffee, rubber, sugar, and tin - was ‘recognition of the need to reduce excessive short-term commodity price instability’ (Maizels, 1994, p. 9).

The problem of commodity price instability was already well known before the launch of the PSH. So, Prebisch (Economic Commission for Latin America, United Nations, 1950) tried to relate his hypothesis of a long-term decline in terms of trade to the well-known problem of commodity price instability through his argument of short-lived booms and prolonged depressions in commodity prices (see also (Thirlwall and Bergevin, 1985)). Prebisch (United Nations Conference on Trade and Development, 1964), as the Secretary General of UNCTAD I, attempted to highlight both these problems of (a) short-term instability in prices and (b) a long-term decline in terms of trade. In the forum of UNCTAD-I, he again stressed the need for decisive action by governments instead of a reliance on free trade to stimulate economic development in the South. This created a great North-South divide at the UNCTAD-I meeting, as the major Northern countries were in favor of free trade under the Havana Charter and GATT, and did not want to go beyond ICAs.

2.5 The emergence of the dependency school

In the post-second world war period, the Prebisch-Singer-Myrdal thesis of inward-looking industrialization provided the theoretical basis for the policymakers of the newly independent countries to adopt a path of import-substituting industrialization (ISI) through protective commercial policy. Under the influence of the UN Economic Commission for Latin America (ECLA), led by Prebisch, many Latin American countries followed this path.

Many other countries such as India also followed this path guided by the spirits of economic nationalism (independent of the policy implication of the PSH). The path of ISI in predominantly agricultural economies required imports of machines and technology from the North. So, in the process of industrialization, these countries began to face an acute balance of payments deficit. To finance the deficit, these countries became dependent on the rich countries of the North and international financial institutions such as the IMF/World Bank, which were primarily dominated by these rich countries. This crisis generated the dependency school of thought in Latin America which highlights the problem of development in the South under various forms of dependence on the North. The scholarly writings of Baran (1957), Amin (1976), Frank (1978) and many others on uneven development highlight more or less the same problem of development of the emerging countries of the South.

2.6 Failure of import-substituting industrialization (ISI) and shift of focus of the PSH

The failure of the ISI strategy led many Southern countries to follow the path of export-oriented industrialization. The dependence on a few primary-product exports was reduced, and these began to be substituted by manufactured exports. Meanwhile, the emphasis of the PSH shifted from the relations between types of commodities to the relations between types of countries (Singer and Meier, 1958; Singer, 1978, 1975, 1984). The shift of emphasis too had its origin in the writings of Kindleberger (1956, 1958). The latter found no conclusive evidence of deterioration in the terms of trade of primary products, but he did have some evidence of a decline in the terms of trade of the ‘underdeveloped’ countries vis-à-vis the industrialized ones. In fact, both Prebisch (Economic Commission for Latin America, United Nations, 1950) and Singer (1950) had in mind the concept of terms of trade between the North and the South. However, in the absence of appropriate data, they used the series on terms of trade between primary products and manufactures as a proxy, with the underlying assumption that primary products dominated the then export structure of the South and manufactures dominated the North. Hence the shift of emphasis was readily accepted (Singer and Meier, 1958, p. 87-88). Hence, later Singer (1984, p. 282) argued: ‘.. the historical downward trend in terms of trade for primary products from the 1870s to 1939, or even to 1949, was due to general forces and the nature of relations both within and between industrial and developing countries, which could be expected to continue in the absence

of major changes (a New International Economic Order as we would now say).’ This development of the PSH was in congruence with the thinking of Marxist writers like Emmanuel (1969, p. 266): ‘...what worsens is not the terms of trade of certain products, but those of certain countries, regardless of the kind of products they may export or import’. He also argued that trade between the North and the South is an ‘unequal exchange’ as it involves a regular decline in the factorial terms of trade (if not in commodity terms of trade) to the South, owing to a widening North-South wage gap. This opened up the window for debate on the empirical evidence in favor or against the terms of trade.⁴

3 The empirical debate on the terms of trade

Since the early 1950s, there has been an active statistical debate regarding the empirical validity of the P-S hypothesis. Critics such as Viner (1952), Baldwin (1955), Ellsworth (1956), Morgan (1959, 1963), Meier (1958), Haberler (1961), Lipsey (1963), Johnson (1967), Kuznets (1967), Streeten (1974), Bairoch (1975), Frank (1976), Schloss (1977), Findlay (1981) and many others raised different questions about the empirical validity of the PSH. These points were also later addressed by other economists during the late 1980s and early 1990s. Here, we discuss those points to capture, in a nutshell, the essence of this empirical debate on the PSH.

3.1 The British terms of trade experience and the PSH

Critics of the PSH raised a couple of important issues. First, it was pointed out that the British terms of trade declined in the first half of the nineteenth century but began to improve from the last quarter of the nineteenth century, so that the overall picture is one of no trend. Secondly, the observation that there was an improvement in British terms of trade from the last quarter of the nineteenth century was possibly due to the prevailing practice of cost, insurance and freight (c.i.f.) valuation of British imports (i.e., British import prices included shipping and insurance costs). The critics pointed out that, since the last quarter of the nineteenth century, the shipping freight had started to decline. They argued that it could be that Britain’s actual import prices showed no trend or even increased, but freight-cost included British import prices showed a decline because of the declining trend in shipping freight.

In the context of examining the empirical validity of the P-S hypothesis, Sarkar (1986b,c) studied Britain’s terms of trade experience since the early

nineteenth century. He observed that in the last quarter of the nineteenth century the British terms of trade series reversed its earlier decline (which characterized the first half of that century) and began to improve. With the aid of simple regression analysis, he showed that the improvement in British terms of trade did not result from a decline in shipping freight. Sarkar (1986b, 1987) fitted a log-linear relation between these terms of trade series, and a series of tramp shipping freights, after excluding the abnormal years of post World War I, i.e. 1914-20 and also those of the Great Depression, i.e. the post-1930's period. He argued that, throughout the study, if there was a declining trend of primary commodity prices vis-à-vis manufactures and also a decline in the transportation cost (as claimed by several critics), then there must exist a positive relationship between the terms of trade series and the Isserlis series of tramp freights. Sarkar (1986b) found that in none of the cases the relationship was positive, and interestingly in some cases, it turned out to be negative. Even in a later study, Sapsford et al. (1992, p. 319) found a similar observation: ‘.. these results confirm the existence of the negative relationship between CTT (Commodity Terms of Trade) and shipping freight found in Sarkar.’ Hence, it means that there was no relationship between the declining terms of trade and the transportation costs; these findings negate the criticism that the “deterioration hypothesis” was due to any decline in the transportation costs.

However, Sarkar (1986b,c) provided an alternative explanation of the deteriorating trends in British terms of trade in the first half of the nineteenth century and the rising trends in the terms of trade in the later period. In the first half of the nineteenth century, when British terms of trade showed declining trends, cotton textiles dominated British exports and experienced rapid technological progress. In most of the colonies with which Britain had growing trade relationships, a textile industry had existed, in the form of handicrafts, since ancient times. So, British textile exports faced competition. Moreover, they faced competition from the indigenous wool industry. All these factors led to declining prices in British cotton textile exports in response to a fall in production costs.⁵ This fact exerted a dominating influence on Britain's terms of trade. However, this mechanism did not operate later, when technical progress spread to other manufacturing sectors that gradually replaced textiles in the structure of British export trade. These manufacturers had few indigenous counterparts in the British colonies. Moreover, the new industries were often organized as oligopolistic firms, almost from the very beginning. Thus, producers in these sectors were not compelled to engage in competitive behavior and price cutting in response to cost reductions resulting from technical progress. Hence, Pre-

bisch (Economic Commission for Latin America, United Nations, 1950) was right when he pointed to the improvement in British terms of trade and argued that the classical mechanism of distribution of the gains from technical progress through trade (in the form of lower prices) did not operate in the later phase of the industrial revolution.

3.2 Declining trends in the terms of trade of other industrial countries

One objection frequently advanced against the PSH is that Britain's terms of trade experience was not shared by the other industrially developed countries of the North. In support of this argument, some critics refer to the various case studies on the secular behavior of the terms of trade of a number of other industrially developed countries. Any deterioration or lack of significant trend found in the terms of trade series for these countries was used as an argument against the PSH.

The validity of this procedure was questioned by Sarkar (1986b, p. 359-61). It was argued that such case studies could be misleading because of the existence of trade amongst the Northern countries; the terms of trade of some non-British Northern countries could decline in relation to another advanced country (say, Britain) but could improve in relation to the Southern countries. The available data indicated that the intra-regional trade was very important for the countries of Industrial Europe other than Britain. It showed that intra-regional trade among the industrially developed countries in Europe apart from Britain comprised a huge proportion of the total trade of industrial Europe. It was seen that in total trade of the "industrial" region of the world, the aggregate share of intraregional trade in total trade, as origin and destination, was 64 per cent and 63 per cent in 1876-80 and 61 per cent and 64 per cent in 1913, respectively. Interestingly, it also showed that the trades of all these European countries apart from Britain (and to some extent France and Germany) were concentrated in few countries of 'Industrial Europe' itself over the period 1870 to 1913.

The deterioration in the terms of trade of continental Europe during the two periods, 1870-1913 and 1870-1952, observed by Kindleberger (1956, 1958) and referred to by the critics, did not contradict the PSH. The fact that the terms of trade of continental Europe declined does not imply an automatic improvement in the terms of trade of the South since the source of this decline might lie in the trading relations of continental Europe with the other Northern countries. Indeed, this was the case, as Kindleberger (1955, p. 290) himself observed: 'Between 1913 and 1952, the net barter terms of trade of Western Europe. . . declined 20 per cent vis-à-vis the United States

and improved 50 per cent vis-à-vis the underdeveloped areas of the world outside of Europe.’

3.3 The Choice of the end point in the time series data

There were three much-quoted series on the terms of trade between primary products and manufactures, available in the League of Nations (1945, p. 157), United Nations (1949a, p. 22) and Lewis (1952, p. 117-118). All these series had the terminal date marked by the years of the Great Depression, the end of the 1920s and the early 1930s. So, it was alleged that the choice of time span has created a bias in favor of the PSH. To examine this question of critical time span, Sarkar (1986b) examined trends of these series in the terms of trade of primary products over the periods 1870/76-1929/30 and 1870/76-1938 by extending them beyond the period of Great Depression. The trend analysis showed that irrespective of whether the data from the decade of the Great Depression, the 1930s, were included or not, all series exhibited a statistically significant declining trend; including the data from the 1930s only accentuated the existing declining trend. It was empirically shown that all of these series exhibited a deteriorating trend, irrespective of the inclusion or exclusion of the period of 1930s. Spraos (1980) also arrived at the same conclusion by introducing another methodology of cyclical demand variable into his regression analysis.

3.4 Differential quality improvements between manufactured goods and primary commodities

Another criticism regarding PSH was that the price index of manufactured goods did not adequately reflect the quality changes of existing manufactured goods and the introduction of new manufactured goods in international trade. Several critics argued that the manufactured goods are more subject to changes in their quality, normally in the direction of improvement, than food and primary commodities, and with technological advances new manufactured goods continuously gets introduced into the international arena. Moreover, trade composition of the developing countries has also changed through a twofold quality effect: the commodity basket has shifted over time towards improved quality manufactured goods and the quality of individual manufactured products has improved. Hence, a long run study of the terms of trade of primary commodities vis-à-vis manufactured goods tended to be affected by a systematic bias towards making changes appear more unfavorable to primary products than they actually are; and this

tended to provide a bias to the Prebisch's index and therefore gave the impression of deterioration.

On the issue of the quality improvements of manufactured goods as compared to primary commodities making the terms of trade appear worse than they are in reality, it was pointed out that changes in quality take place in fits and starts, and take place not only in manufactures but also in primary products (Spraos (1980, p. 117-118) and Sarkar (1986b, p. 362)). Drawing examples, Spraos (1980) reported that in Kenya the proportion of coffee beans of highest quality (AA) rose from 0.2 percent in 1957-58 to 16.3 percent in 1964-65, and that the proportion of higher quality cotton output with a staple length of 28mm or more rose in Greece from 11.3 percent in 1954 to 97.3 percent in 1970. The share of processed primary commodities instead of unprocessed raw materials (e.g., cocoa butter instead of cocoa beans) had also increased in the export basket of developing countries. The studies of UN ECOSOC and the US BLS cited in Spraos (1980, p. 118) suggested that "no general support can be found for the proposition that the unit price index is subject to excessive inflation because it under allows the quality improvements." Razzaque et al. (2007, p. 19) argued that 'there is no measurement of differential qualitative changes in the two types of products.' Hence it was not certain in anyway that the quality of manufactures relative to that of primary products exhibited a systematic time-trend of quality improvement.

3.5 Can terms of trade of primary commodities be used as a proxy for the South?

Many critics pointed out that both the North and the South exported primary products and so a secular decline in the terms of trade of primary products was likely to affect both the regions. The argument is to challenge the underlying assumption of using the terms of trade of primary commodities vis-à-vis the manufactured goods as a proxy for the terms of trade of the North vis-à-vis the South. This argument, however, cannot be extended to negate the PSH. It can be argued that manufactures dominated the North's structures of production and exports while those of the South were biased in favor of primary products. Hence any deterioration in the terms of trade of primary products vis-à-vis manufactures would have affected the South more than the North, as there is no evidence to suggest that the group of primary products in which the South specialized and which it exported did not share the same fate as that of primary products in general (Sarkar, 1986b, p. 361).

Because of a lack of data, it cannot be verified whether the secular decline in the terms of trade of primary products between the 1870s and the beginning of the Second World War was associated with a similar decline in the terms of trade of the South. However, for the post-second world war years, 1950-1980, some data were available to show that the behavior of the terms of trade of primary products corresponded well with that of the terms of trade of the South (Sarkar, 1986b, p. 368). From those estimations, it is evident that in the period 1876-80 to 1913, out of the total primary export of industrial countries, a significant portion (around 82 to 85 percent) was among the advanced countries themselves; a much smaller portion of the primary commodity exports of advanced countries went to the 'non-industrial countries.' However, in the case of the manufactured goods export, more than 50 per cent of the manufactured exports of the industrialized countries went to the agrarian-based countries. In exchange, the industrialized countries received around 84 to 86 percent of the total primary commodity exports of the non-industrialized world. Hence, a majority of the developing countries export basket consisted mainly of primary commodities, and these were exchanged with the developed countries manufactured export bundle.

Spraos (1980) also argued that the empirical validity of a deterioration of the NBTT for the narrower range of primary products originating from the developing countries holds true, as theoretically claimed by the PSH. Spraos (1980, p. 115) claimed, '...if we observed a tendency for the unit value of U.S. agricultural imports to fall more than the corresponding index for agricultural exports, the evidence would strengthen the statistical inference.' In support of his statistical evidence, he used the data assembled by Lipsey (1963, p. 151-52). Spraos found that there exists a positive (though insignificant) trend for the rate of change of the unit value of U.S. agricultural exports, whereas a negative one for those of imports providing empirical support to his argument. A similar exercise was also carried out earlier by Kindleberger (1956, p. 265) for industrial Europe's export and imports. Kindleberger constructed a unit value index for industrial Europe's combined exports and imports of primary commodity trade (excluding intra-regional trade of industrial Europe), and also an import index of primary commodities from the 'other' group of countries (Africa excluding South Africa, Asia excluding South Asia and Asiatic Turkey, and Latin America except Argentina and Uruguay). Over the period 1872 to 1938, the former index fell by 22 per cent, and the latter fell by 38 per cent. Singer (1989, p. 328), himself, presented quantitative evidence that the prices of primary commodity exported by the developed nations fell by 0.73 percent annually during 1954-72, whereas those of the developing nations fell by 1.82

percent over the same period (both coefficients significant at 1 percent). Even Thirlwall and Bergevin (1985) study supported this conclusion. These studies suggested that the export price index of the developing countries, composed mainly of primary commodities, experienced a more significant fall than that of the developed world's primary commodities.

3.6 The decline in terms of trade and the loss of welfare

Finally, there were critics such as Baldwin (1955), Haberler (1961) and Streeten (1974) who questioned the validity of the use of commodity terms of trade in studying the distribution of gains from trade between two global regions. The concept, commodity terms of trade (CTT) or net barter terms of trade (NBTT), eventually reflects gains from a unit volume of trade: 'they do not take into account changes in the total volume of trade or, therefore, measure the total gains from trade in relation to the base year' (Imlah, 1950, p. 175). The critics also pointed out that a loss in the CTT of a country or a region may lead to a gain in its purchasing power of exports or income terms of trade, i.e. ITT (= CTT multiplied by the export volume) through a rise in the volume of exports. However, it was not often clear how much of the gain in the ITT was due to a loss in the CTT, because export volume often increased more as a result of growth in the global income than because of a decline in the CTT. Hence a loss in the CTT is often taken as a loss in the ITT compared with what could have been the case had there been no loss in the CTT.

By the same logic Prebisch (United Nations Conference on Trade and Development, 1964), as the first Secretary-General of UNCTAD, calculated the loss incurred by the South as a result of a deterioration in their CTT during 1950-1961. According to his estimate, the fall in the purchasing power of total exports from the South during 1950-1961 owing to a deterioration in the CTT was about US\$13.1 billion; this loss wiped out one-half of the net inflows of all types of resource from the North (loans, investment and grants-in-aid net of remittances of interest and profits). Moreover, the issue of terms of trade raised by Prebisch and Singer was basically concerned with relative gains from trade, not the absolute gains from trade. However, gains in the ITT were absolute gains from trade. The ITT of both the North and the South can rise simultaneously, as shown in Sarkar (1986a), which basically implied that both regions experienced absolute gains from trade.

Nonetheless, the more relevant concept in the context of the PSH was the double factorial terms of trade (DFTT). The DFTT was intended to reflect whether a deterioration in the CTT is the result of improvements in

productivity and consequent relative decline in cost and prices of exports. It is defined as CTT multiplied by the ratio of labor productivity indexes of the two regions. If technological progress and labor productivity improvements in their export sector can account for the total loss in the CTT of a country or region, it was not suffering a loss; in that sense, their DFTT will not show any decline. Rostow (1950) commented that DFTT is not in common use as a measure of terms of trade since it was empirically more difficult to measure changes in productivity than changes in market prices. It is difficult to obtain data for the DFTT of the South vis-à-vis that of the North. It is, however, the general presumption that factor productivity in the North increased at a faster rate than in the South throughout the nineteenth century and the first half of the twentieth century. Given the presumption, a decline in the CTT implies a higher rate of decline in the DFTT. This is what Prebisch and Singer had in mind. So, the question of distribution of the fruits of technical progress was raised, along with the issue of the secular decline in the CTT.

In essence, the PSH and Emmanuel's thesis of unequal exchange are very closely related as both implied deteriorating DFTT of the South vis-à-vis the North. The evidence from the available data (see Sarkar and Singer (1991)) indicated that there exists a considerable and widening gap in the growth of labor productivity in the manufacturing sectors of the North and the South. During 1960-1970, the annual average rate of growth of labor productivity in the manufacturing sector of the North was 4.1 per cent, while for the South it was 2.3 per cent. This gap widened further in the next decade, 1970-1980: while labor productivity grew more slowly, at an annual average rate of 2.8 per cent in the North, the rate was a mere 0.4 per cent in the South. Given the fact that the South experienced a lower rate of growth in labor productivity, an observed decline in the CTT of the South implied a more acute decline in their DFTT. Hence, it was argued by Sarkar and Singer (1991) that the DFTT in the case of North-South trade in manufacturers 'deteriorated even more' as the CTT was observed to decline during the period 1970-1987.

For some primary products exported by the South, Spraos (1983) observed a decline in the DFTT over the post-war years 1960-1977. He also took into account the gain in welfare owing to utilization of surplus labor in the South in the process of expansion of production through trade in a concept which he called the 'employment-corrected' DFTT and studied its behavior in the context of some commodities exported by the South. Here also he found deteriorating trends over the period 1960-1977.

3.7 The Prebisch Singer Hypothesis and the cartel action of OPEC

The rise of OPEC in the 1970s led to a sequence of increase in the prices of petroleum and allied products. The unit value index of 'fuels' (much of which is accounted for by petroleum) for market economy export trade rose from 100 in 1970 to 501 in 1974 and reached a peak of 1359 in 1980 (United Nations, 1982, p. 1210). Accordingly, the terms of trade index for primary products shot up suddenly to 169 in 1974 and rose further to 184 in 1980 (1970 = 100). The presence of these abnormally large figures in the primary-manufacture terms of trade series during the 1970s reversed the downward trend of the earlier period into a steep upward trend. This factor also influenced the terms of trade of the South to exhibit an upward trend. Only a handful of primary producing countries (most of which are organized as OPEC) enjoyed the benefits of the oil price 'hike.' So it can be argued following Singer (1984) that Prebisch and Singer's projection would hold good during the post-war years, 'if oil and OPEC are excluded as a special case.'

The South's terms of trade improvement in the 1970s as a result of the successful cartel action by OPEC is sometimes used to make a case against the PSH. However, the OPEC action supported the PSH, since the implication of the hypothesis was that the primary-product-exporting countries should not rely on the free market that worked to their disadvantage but needed to take cartel action if they wanted to change these existing market forces. This is what OPEC managed to do, at least temporarily. Encouraged by OPEC's success, the UN declaration for a New International Economic Order called for organizing cartels along the lines of OPEC. However, it was not successful because of a lack of unity among the Southern countries and also because most of the export goods of the South do not have the unique position in the world economy enjoyed by petroleum and its related products.

OPEC began to lose its monopoly power over petroleum in the 1980s, and so petroleum prices began to decline. As a result, the terms of trade of the South (including OPEC) deteriorated during 1981-1995 at a rapid rate of 4 per cent per annum (Sarkar, 2001). Considering the whole period, 1950-1995, it was further observed that the deteriorating trend observed for 1950-1972 worsened during 1981-1995.⁶ Not only the fall of OPEC but also the debt crisis faced by many Southern countries in the 1980s and the resulting transfer burden and export desperation (for details see Sarkar (1991)) might have exerted some depressing influence on the South's terms of trade. Hence, even after excluding the 'fuel' exports of the South, it was observed that the

deteriorating trend in their terms of trade since 1950 worsened during 1981-1995 (there was no evidence of acceleration or deceleration during 1973-1980).

3.8 Trends in the terms of trade of primary products (1900-2003): the recent 'hi-tech' empirical debate

Because of a lack of data, it was not possible to link the post-war trend in the terms of trade of the South with that of the period 1870-1938. However, for the terms of trade of the primary products, a few long run series like the UNCTAD and Grilli-Yang was available since 1900. From the United Nations Conference on Trade and Development (1972, p. 43), one series on terms of trade of other goods (i.e., non-manufactures) vis-à-vis manufactures was available for the period 1900-1970. This series showed no deteriorating trend. Given this observation, Spraos (1983, p. 69) commented 'while the tendency for the NBT [terms of trade] to deteriorate cannot be decisively refuted, it is open to doubt when. . . the record up to the 1970s is taken into account.' However, from the graph of the UNCTAD series, it seems that 'the severity of the great war in the 1940s has shifted the terms of trade curve to a new height' (Sarkar, 1983). A structural shift analysis supports this graphical argument. After considering the parametric shift (upward shift) in the series, a deteriorating trend was observed over the whole period (Sarkar, 1986b, p. 366-67). Sapsford (1985, p. 786) derived the same conclusion through a study of some petroleum-exclusive hybrid series for a longer span, 1900-1982: '.. the negative trend evident over the period 1900 to the outbreak of World War II continued into the early 1980s without any significant alteration in its value.' An alternative series was made available by Grilli and Yang (1988), which supported the observation of a declining trend in the terms of trade over the long-time span, 1900-1986. Henceforth, a 'hi-tech' empirical debate based on time series analysis started concerning the trend-behavior of the Grilli-Yang series (GY series). Newly invented statistical tools and tests such as the Dicky-Fuller unit root test, Perron test, co-integration, structural time series approach, and every other newly invented major time-series technique since then, began to be used on this long series data.

Cuddington and Urzua (1989) initiated this 'hi-tech' empirical debate. The authors questioned the trend-stationarity of the GY series and showed that apart from a one-time drop in the series in 1921, the trend is level. Applying the Engle-Granger co-integration analysis, Powell (1991) tried to show that there were three negative jumps in the series, one in 1921 as earlier

noted by Cuddington and Urzua (1989), and two other negative jumps in 1938 and 1975. Apart from these three jumps, Powell (1991) concluded that the GY series was trend-less till 1986. Sapsford et al. (1992) re-examined the GY series and found that the one-time abrupt fall in the terms of trade series as evident in Cuddington and Urzua (1989) was specific to the war-period data (1914-1920). The use of alternative series for the war period, 1914-1920, or ignoring the war-period data from the analysis, supported the trend-stationarity of the GY series. Later, Cuddington (1992) himself agreed to the trend-stationarity of the GY series. After excluding the first two decades of the G-Y series to eliminate the data for the First World War period (and to avoid a gap in the series), it was observed that there was a significant negative deterministic trend since 1921, 1922 or 1930 until 1986, 1988 or 1990, up to which point updating of the series was possible (see (Helg, 1990; Sapsford et al., 1992; Barros and Amazonas, 1993)). Even Powell's 1991 study was criticized on similar grounds. One crucial point was that Powell (1991) admitted structural breaks in the GY series but applied the statistical inference for co-integration analysis that did not consider such structural breaks (Helg, 1990).

Addressing this debate on the NBTT of primary commodities, Ardeni and Wright (1992) applied a new structural time series approach (Harvey (1984, 1985)) to the GY series. The authors, then, concluded that the estimated trend rate of decline was around 0.6 percent per annum and, therefore, found evidence in favor of a secular deterioration throughout the whole of the last century till 1988. Accepting the trend-stationary model, Sarkar (1994) applied the CUSUM Squares test and observed that the values of the GY series during 1914-1920 were outliers. These values were by and large interpolated values and, as Sapsford et al. (1992) showed, the conclusion of Cuddington and Urzua (1989) was indeed sensitive to these observations. Therefore, all these outliers were omitted, and the trend-stationary model was again estimated in Sarkar (1994). It showed an undoubtedly significant deteriorating trend without any structural break after 1949 as evident in Sapsford et al. (1992). It was further observed by Sarkar (1994) that the decline in the trend worsened during 1980-1986 perhaps under the influence of debt crisis and export desperation. Bleaney and Greenaway (1993) updated the GY series to include the years 1987-1991 and found a similar impact of the debt crisis over the period 1980-1991.

Reinhart and Wickham (1994) in their study used the IMF quarterly data on non-fuel (aggregate) commodity price index deflated by the IMF index of manufacturing export unit values of industrial countries from the first quarter of 1957 to the second quarter of 1993. The results obtained,

after performing rigorous econometric tests, showed a secular decline in the commodity prices, and the downward trend ‘obviously steepened’ as evident in the earlier studies in the post-1980 phase. Later, Newbold and Vougas (1996), using the univariate time series technique on the GY series, found that, in the case of a trend stationary, the best estimate of a downward drift was around 0.8 to 0.9 percent per annum, and if the experience of 1921 is excluded from the analysis, then the decline was around 0.64 percent per annum. However, if the series was considered to be difference stationary, there was no evidence of a declining trend. The authors found the series to be difference stationary, and concluded that the deteriorating secular trend was not established. Leon and Soto (1997) confirmed the existence of structural breaks on the 24 individual primary commodity price indexes as formulated by GY series by applying the Zivot and Andrews (1992) procedure. The authors found that out of these 24 commodities, 20 depicted a trend stationary process. Their estimation procedure showed that 17 commodities out of these 24 had statistically significant declining trends. However, their final conclusion was that of a ‘mixed response.’ Cashin and McDermott (2002) estimated the trend growth rate for three sub-periods on the Economist’s index covering the period 1862-1999. The authors found that there have been a decline in the primary commodity prices of about 1.3 per cent per annum over these 140 years. However, the declining trend gets aggravated to 2.3 per cent per annum during 1971-99. Another empirical exercise by Ocampo and Parra (2003) concluded that no evidence of a declining secular trend could be observed. However, the authors clarified that ‘relative raw material prices deteriorated markedly in the course of the twentieth century,’ based on the two structural breaks in the 1920s and the 1980s. Zaniias (2005) also found that there were two structural breaks in the commodity prices during the last century - 1920 and 1984. According to his estimations, the former accounted for an unfavorable 41 percent reduction in the terms of trade, while the latter accounted for 36 per cent. The overall effect of these structural breaks was around 62 percent. However, criticizing this work, Kellard and Wohar (2006) found little support for the PSH. Although this study found no evidence in favor of the PSH, some recent studies done by Yamada and Yoon (2014) argued that the decline in relative prices in the twentieth century could be due to the presence of structural breaks in the early 1920s and 1980s. Other recent studies of Harvey et al. (2010) and Arezki et al. (2014) spanned their dataset from 1650 to 2010 and arrived at mixed results toward the empirical validity of the PSH over the last four centuries.

This section of the review shows that significant critical empirical points

raised against the PSH over the last century. It can be concluded from the above discussion that there were some empirical basis of the PSH in the last century, which although did not go unchallenged. This picture was episodically obscured by the temporary phenomenon of the oil producers' cartel, OPEC. Nevertheless, contrary to the classical proposition, there were evidence of a secular decline in the terms of trade of primary products vis-à-vis manufactures. This 'deteriorating trend' continued even in the post-second world war years and concurrently, the terms of trade of the South vis-à-vis the North also deteriorated. Some of the studies which did not find evidence in favor of a declining trend, however, found evidence of structural breaks. Those studies concluded that the fall in relative prices of primary commodities vis-à-vis manufactured goods was due to these 'sudden drops.'

Nevertheless, one interesting change in the discourse on this topic can be noted. Since the early 1990s, the entire discussion on PSH have changed to an econometric based-one, without, perhaps, engaging to a full extent with the theoretical perspective and policy implication of it. Thus, with the development of such 'rigorous' statistical analyses, the primary focus slowly shifted away from the central idea - *the unequal distribution of the gains from trade between the developed and developing countries*: 'The statistical literature surrounding the long-run deterioration issue is vast and continues to grow. Indeed, the debate has attracted the attention of statisticians, to the extent that it now represents to what amounts to be a test-bed upon which the latest techniques of time-series analysis are routinely put through their paces. While this development is welcome from the intellectual standpoint, it had posed some difficulties for practitioners in the sense that it has often proved difficult to disentangle the question of the existence, or otherwise, of a declining trend from that of the performance and adequacy of the particular statistical technique employed.'(Sapsford and Singer, 1998, p. 1654). Hence, it is vital from the perspective of the PSH that one equally, if not more, engages with the theoretical discourse on it. A detailed theoretical discussion on the PSH is beyond the scope of the present paper. However, we provide a brief review of the existing literature in the next section.

4 The theoretical debates over the PS hypothesis

The important question that follows from the above discussion is: what theoretical explanations are provided in factoring the deteriorating trends in the terms of trade of the South vis-à-vis the North? In short, no rigorous theoretical model can be found in the writings of Prebisch and Singer. However,

Singer (1989) summarized the underlying theoretical economic arguments to explain the deteriorating terms of trade of primary commodities vis-à-vis manufactured goods (PSH). He broadly summarized them into three headings:

1. The price-elasticity of demand for primary commodities and manufactured goods differ widely, where the former has a lower price-elasticity of demand. This implied that when the prices fell there was no compensation in the balance-of-payment terms (or income terms of trade) for the primary commodity exporting economies as a result of increased volumes. In case of food, the low price-elasticity of demand was mainly because it is a basic necessity and hence, any income set free by the lowering of prices of food would be spent elsewhere, i.e. an increased expenditure in the consumption of other goods rather than an increase in food consumption.
2. With a rise in income, the demand for primary commodities increases less than the demand for manufactured goods, which is partly due to the Engel's law - low income elasticity of demand for primary products, especially agricultural products, and partially because of the technological superiority of the industrial countries exporting manufactures. The latter entailed the economic use of raw materials in the production of manufactured articles, and also the substitution of synthetic products for the primary commodities. These different demand conditions led to a balance of trade deficit for the developing countries, which in turn enforced currency depreciation and introduced another circle of terms of trade deterioration.
3. The structure of both the commodity and labor market is different in the periphery and the core. In the former, the laborers are unorganized; there is a presence of a huge rural surplus population, and massive unemployment, which hinders the bargaining power of the laborers in these economies. Whereas in the core - the workers are more or less organized in strong trade unions and the producers are organized in strong producer organizations, which ensures that the results of technological progress and increased productivity are largely absorbed in the form of higher factorial incomes, rather than lower prices for the consumers.

This theoretical explanations invited lots of criticism from Flanders (1964), Johnson (1967), Findlay (1981, p. 428–430) and others. Flanders (1964)

found a number of models in the writings of Prebisch (1950, 1959) and argued that ‘it is by no means obvious that they are consistent with one another.’ Johnson (1967) examined the theoretical explanation contained in United Nations Conference on Trade and Development (1964) and found it to be ‘confused and obscure.’

The lack of a rigorous theory behind the PSH generated a wave of model building in the field of North-South trade. The pioneer in this field is Lewis (1954). In Lewis’s framework, it is assumed that the North produces ‘food’ and ‘steel’ while the South produces ‘food’ and ‘coffee.’ The North exports ‘steel’ to buy ‘coffee’ from the South. The ‘stylized facts’ that Lewis introduced in his model were that productivity growth is faster in ‘food’ than ‘steel’ in the North, whereas it is faster in ‘coffee’ than in ‘food’ in the South. From a historical perspective, citing the example of sugar industry, Lewis (1954, p. 183) argued:

... the contribution of the temperate world to the tropical world, whether in capital or in knowledge, has in the main been confined to the commercial crops for export, where the benefit mainly accrues to the temperate world in lower prices. The prices of tropical commercial crops will always permit only subsistence wages until, for a change, capital and knowledge are put at the disposal of the subsistence producers to increase the productivity of tropical food production for home consumption.

Given these facts, the cost of a unit of ‘steel’ in terms of ‘food’ tends to rise in the North while the cost of a unit of ‘coffee’ - the export item of the South - in terms of ‘food’ tends to fall. In the Lewis framework, this factor leads to a secular decline in the terms of trade of Southern ‘coffee’ vis-à-vis Northern ‘steel’ (see also Findlay (1981); Evans (1987)).

Lewis’s argument differed from that of Prebisch and Singer mainly in two aspects. Firstly, according to Lewis, it is the internal conditions of the South as opposed to Prebisch’s proposition of the pattern of international specialization that was responsible for the ‘deterioration hypothesis.’ Hence, the policy prescription following Lewis’s analysis would be some form of an improvement in the productivity of the South’s food-producing sector in contrast to Prebisch’s ‘inward-looking’ commercial policy via protected industrialization.⁷ Secondly, Lewis’s argument on the deterioration of the terms of trade of the South vis-à-vis the North is independent of the nature of commodities traded by these economies. Lewis’s argument implied that even if the Southern countries exported manufactures to the North, then too the former will face a deterioration in their terms of trade vis-à-vis the

latter; which is unlike Prebisch-Singer's argument which relied on the nature of these commodities. Thus, Lewis's argument focused more on the terms of trade between the countries rather than the commodities.

Emphasizing the significance of the inter-sectoral relationship between primary (agricultural) and secondary (industrial) sector for economic growth, Kaldor's theory (Kaldor, 1967, 1975, 1979, 1996) on the terms of trade seemed to be a departure from the Lewisian model; it shifted the focus from the cost of production to the demand side of the industrial sector, though retaining the same Lewisian framework of the dual economy. Kaldor argued:

... whereas the growth of industrial production is primarily governed by the growth of effective demand, in the growth of agricultural production (in the early stages of development, at any rate), the element of response to outside stimuli plays a much smaller role. Agricultural production has an autonomous momentum... In the second place, the growth of the agricultural surplus is an essential condition for providing the growth of purchasing power necessary for sustaining industrial expansion" (emphases in original). ((Kaldor, 1967, p. 56))

Kaldor, unlike Lewis, adopted a Kaleckian framework (Kalecki, 1971, p. 43-61) of cost-determined price with constant mark-up in the industrial sector and demand-supply based determination of prices in the agricultural sector to explain the movements in the prices of the agricultural commodities relative to those of the industrial goods. However, as Lewis did, he too retained the assumption of a constant real wage in industry in terms of food, which implied that the industrial money wage rate changed in proportion to the agricultural price. Hence, the level of prices in the industrial sector in terms of the foodstuffs (ρ) was determined by three factors - the wage of the labor in terms of food (\hat{w}), the share of profit in terms of foodstuffs (π) and the labor requirements per unit of output (l) and represented by the formula: $\rho = (1 + \pi) * \hat{w} * l$.

Now, in Kaldor's framework of analysis, with both the industrial mark-up and labor productivity assumed to be constant, the industrial price rises by the same proportion as the industrial money wage rate, which leaves the inter-sectoral terms of trade inflexible. Hence, Kaldor (1979) noted, 'This makes the prices of the industrial goods in terms of agricultural products - the terms of trade between industry and agriculture - virtually independent, except in very short periods, of the supply/demand situation in agriculture.'

Hobsbawm (1969), an eminent economic historian, also relied on Kalecki's concept of the 'degree of monopoly' to explain the movements in the Britain's

terms of trade over the nineteenth century till the period of Second World War. According to his estimates, over much of the nineteenth century, the British terms of trade had moved against its exported manufactured goods; however, the successive periods of 1860-95 and 1896-1914 experienced a rapid and then a slow movement, respectively, in its favor. After the First World War till the Second World War, the terms of trade had moved highly in favor of Britain. According to (Hobsbawm, 1969, p. 143(fn)), the explanation of this tendency for the terms of trade to move against primary commodities could be attributed to the continuous tendency for the ‘degree of monopoly’ in the British industrial sector to rise during the course of monopoly capitalism:

Various reasons may be suggested for this important phenomenon. Two relevant ones are (a) that until the second half of the century slumps often still began in the agricultural sector – for example with bad harvests – but later on in the industrial sector; and (b) that the ‘degree of monopoly’ – that is the ability to maintain stable prices and meet slumps by cutting production or in some other way – was increasingly greater in the industrial sector than in agriculture. Indeed, agriculture might actually tend to meet slumps by increasing output.

Findlay (1980, 1981) believed that there is a fundamental equilibrium value of the terms of trade at a steady state where both the North and the South are growing at the same rate. However, he agreed with the Prebisch-Singer proposition that technical progress in the South led to a fall in Southern export prices while technical progress in the North did not have a similar impact on Northern export prices. This factor, as argued by Sarkar (1997), can also be used to explain a secular decline in the terms of trade of the South ‘in the process of long-term evolution of the world economy through technical progress and productivity growth.’ Dutt (1988) tried to explain the PSH in terms of rising profit margin or mark up (‘monopoly power’ a la Kalecki) of the Northern capitalists. The North-South model of Darity (1990), however, pointed to the ambiguity in the relationship between the monopoly power and the North-South terms of trade (see also (Sarkar, 1997, p. 125-25)). The Darity (1990) model is a modified Findlay (1980, 1981) model: Solow-type North was replaced by Kalecki-type North while Lewis type South was retained. With these incorporations, it was shown that a rise in profit margin or mark up by the Northern capitalists would change the terms of trade in favor of the South.

Based on the theory of prime cost mark-up pricing in the industrial sector, as originally formulated by Kalecki (1971), Patnaik (1997) critiqued the PSH on the grounds that productivity increases and their effects on the prices, whether identical in the two sectors or divergent, had nothing to do with the secular movements in the terms of trade. He distinguished between the short-run and long-run determinants of the terms of trade, where in the former the primary commodity sector output is assumed to be fixed, and in the latter it is assumed to adjust itself. According to Patnaik (1997, p. 245), in the short run, for a given configuration of money wages, the real prices of primary commodities in terms of manufactured goods get determined by the relative sizes of the two sectors, which are the major determinants of the demand for and supply of primary commodities. However, in the long run, once supply adjustments are allowed, so that the relative sizes of the two sectors can be varied to bring demand and supply into balance, the secular movements in the terms of trade of primary commodities vis-à-vis manufactured goods depend only upon three factors: the primary commodity input per unit of the manufactured good, the wage rate (taking the primary commodity as the numeraire) per efficiency unit of labor in the manufacturing sector, and the mark up in that sector. If State is introduced in such an economy, then the last two factors would be slightly modified to the post-tax wage rate per efficiency unit of labor and the surplus (inclusive of tax revenue) per unit of output in the manufactured sector.

A study by Bloch and Sapsford (2000) provided some empirical evidence in support of the theoretical position held by Dutt (1988) and Patnaik (1997). They estimated a Kalecki-type primary product-manufacture dual-economy model on the basis of some data for the period 1948-1993. This study showed that rising wages and profit mark up in the manufacturing sector led to a secular decline in the terms of trade of primary products vis-à-vis manufactures, as argued by Prebisch (Economic Commission for Latin America, United Nations, 1950). Similarly, in a recent study, Chakraborty (2016) showed that, assuming a world of mark-up pricing for the manufacturing sector, a percentage increase in the share of profits in the gross output of the manufacturing sector of the G7 countries led to a decline of 1.93 per cent per annum in the international terms of trade over the period 1974-2005.

5 The Recent Discourse on Terms of Trade

Since the beginning of 2000, the real international prices of primary commodities have shown a sudden rise, and these prices have been at a high level since then. According to the most recent FAO data (Table 5), the food price index in real terms (deflated by the World Bank Manufactures Unit Value Index) has increased from 91.8 in 2000 to 135.1 in 2018, which is a slight dip after it reached a peak of 165.9 in 2011. Such a rapid rise in the international prices of primary commodities, to such a level, had not been experienced in recent history, and it was last felt in the early years of the 1970s during the OPEC cartel as discussed earlier. The recent upsurge in these commodity prices, especially the food grain prices, has been a matter of concern for the global economy in so far as it has accentuated the already existing global food crisis, especially in the third world.⁸

Table 5: FAO Food Price Index in nominal and real terms (2000-2019)
(2002-2004=100)

Period	Nominal Price Index	Deflated Price Index
2000	91.1	91.8
2001	94.6	99.0
2002	89.6	94.9
2003	97.7	98.3
2004	112.7	106.1
2005	118.0	107.7
2006	127.2	113.3
2007	161.4	135.5
2008	201.4	156.9
2009	160.3	133.2
2010	188.0	150.6
2011	229.9	165.9
2012	213.3	155.0
2013	209.8	153.2
2014	201.8	149.3
2015	164.0	134.2
2016	161.5	137.6
2017	174.6	143.8
2018	168.5	139.8
2019	166.1	135.1

Source: World Food Situation, FAO, UN

Notes: The real price index is the nominal price index deflated by the World Bank Manufactures Unit Value index (MUV)

As discussed earlier, international commodity prices have been extremely volatile. The booms and busts are relatively common occurrences in the primary commodity market. Even though terms of trade exhibited a secular downward trend over the last century, there were some instances when these prices have shown upward spikes, marked by sudden sharp increases in the commodity prices, over the last century. Two main incidents of a sharp increase in the commodity prices were dotted over the last century - 1915-17 (World War-I) and 1973-74 (First Oil Crisis). However, the present episode had surpassed all these previous episodes of the last century in the magnitude

and the duration (The World Bank, 2009).

Many explanations have been offered to elucidate the recent hike in the global prices of the non-fuel primary commodities, in particular, the sharp rise in the food grain prices. These arguments blame both the supply-demand imbalances as well as the economic policies followed in the developing countries under the diktat of the IMF-WB. The role of increased demand for biofuels, the impact of recent climate change, greater international speculation in commodities and the pursuit of income deflationary policies across the globe, especially in the developing ones, were identified as some of the major factors responsible for this upward movement in the commodity prices (see Chakraborty (2015) for details). However, some other factors have also been identified by the US administration under President George Bush for the rise in the commodity prices. The US administration argued that this increase in the food prices was essentially demand-led: the densely populated Indian and Chinese economies have experienced unprecedented economic growth, which has increased their direct and indirect consumption of food grains. The US administration blamed the food crisis on such increased consumption of the developing countries, especially China and India. However, this reason was proved to be factually incorrect (Patnaik, 2007; Chakraborty, 2015).

Simultaneously, the world economy was undergoing another change. As discussed earlier, the impetus of the industrialization strategy in the post-World War-II phase of the developing countries got its theoretical support from the PSH. The general policy conclusion from the ‘deterioration hypothesis’ was that the developing countries must diversify their exports into manufactures as intensively and rapidly as possible. This, the authors, believed to be an ‘escape route’ from the declining terms of trade, which would eventually lead to an improvement in the gains from trade of the developing countries. As noted by Bagchi (2008, p. 23):

...the imperially imposed division of labour under which the underdeveloped countries were to specialize in agricultural commodities with low income elasticities of demand had to be over-tuned and a vigorous programme of industrialization had to be taken in hand if the poverty of these newly independent nations was to be seriously dented. The Prebisch-Singer thesis that the terms of trade of primary commodities vis-à-vis the industrialized nations had been on a downward trend for most of the twentieth century added vigour to the industrializer’s argument.

By their following an industrialization policy, the product composition

of the export basket of the developing countries started undergoing a major change in the direction of dominance by manufactures, especially since the 1980s. These changing scenario shifted the focus of the debate from primary commodity-manufacture terms of trade to manufacture-manufacture terms of trade between the developing countries and the developed countries. Nevertheless, this did not imply that the traditional concern with the secular decline in the terms of trade of primary commodities vis-à-vis manufactured goods can now be ignored. This is primarily because though the exports of manufactured goods from the developing countries have increased steadily, the expansion has been confined to a few major emerging economies only.

In an influential study, Sarkar and Singer (1991) initiated the empirical debate on the terms of trade of manufactured goods between the developing and developed countries. After fitting an exponential trend equation on the net barter terms of trade over the period 1970 to 1987, the authors observed that “in both US dollars and SDRs, the unit values of manufactured exports of the periphery declined by about 1.0 per cent per annum in relation to those of the centre. Over the period of 18 years, 1970 to 1987, there was a cumulative decline of 20 per cent.” This paper was profoundly criticized by Athukorala (1993), especially the inclusion of ferrous metals in the index. However, Chakraborty (2012) reanalyzing over an extended period found evidence in favor of Sarkar and Singer (1991, 1993). Chakraborty (2012) found that over the period 1975 to 2005, the manufacture-manufacture terms of trade of the South vis-à-vis the North experienced a secular decline at an annual rate of 0.96 per cent, and after excluding ferrous metals from that index, the decline was still evident at 0.91 per cent per annum.

6 Conclusion

This detailed review has been done to explore into the history of economic thoughts that developed in the field of terms of trade of the North vis-à-vis the South over the last century and the controversies surrounding it. From the classical economists to the empiricists, this review tried to capture, in details, the existing literature on this vital ‘deterioration’ hypothesis forwarded by Prebisch and Singer in the early 1950s. Interestingly, while doing this review, we realized that an important change has happened with the emergence of a long time series data, development of technology, and, thereby, the ease of doing computation in the field of economics. The idea of unequal distribution captured through the historic movements of the terms of trade, and also reflected in the growing divergence between the South

and the North in the post-World War II phase, got buried in the literature focusing primarily on empirics. Those who tried to disprove the PSH during the end of the last century through these empirical exercises, however, never came up, to the best of our knowledge, with a proper theoretical alternative to explain the growing divergence of the North and the South. These empirical exercises do not provide an answer to the important question of why majority of the poor nations in the South tends to remain poor and confined in economic activities primarily associated with agriculture and other primary commodities.

This is not to argue that there is no significance of empirical tests of a hypothesis. Nevertheless, this is to emphasize that while performing those econometric tests, it is essential to keep the centrality of the argument of those economic theories in mind, and their significance and relevance. It has been observed that in some of the studies while performing these hi-tech statistical exercises, the centrality of the economic argument on this hypothesis got lost. This is essential from the perspective of economic thoughts since it has significant policy implications as we have seen.

It is true that since the phase of globalization, trade relations, and thereby the economic relationship between nations, have changed for a lot of the emerging economies. Some developing countries among them, especially the South East Asian countries and China, are entering into the realm of industrial goods. Developing countries are steadily increasing their share of manufactured goods in the world trade. However, this cannot alter the fact that there are still a large number of other developing countries in the South which are dependent on their livelihoods from agriculture, and their export relations with the North. One may argue that the terms of trade of primary commodities vis-à-vis manufactured goods have taken a sharp upward trend since the beginning of this century. However, the interesting question one might still pose whether this phenomena is a permanent or a temporary one and also whether the agricultural laborers and workers in these developing countries are the real beneficiaries of these new developments. These questions are some important ones which the scholars can explore in the future.

Notes

¹There are different concepts of terms of trade - commodity terms of trade (CTT) or net barter terms of trade (NBTT), income terms of trade (ITT), double factorial terms of trade (DFTT). Of all these concepts, the CTT or NBTT is widely used - unless otherwise specified, the phrase, 'terms of trade' is used to mean CTT or NBTT. The CTT of the South vis-à-vis the North is defined as the price (unit value) of exports of the South to the North as a percentage of the price (unit value) of exports of the North to the South.

²The global 'market economy' (excluding socialist and ex-socialist countries) is divided into two broad groups - industrially developed 'rich' countries and (industrially) less developed 'poor' countries. Economic Commission for Latin America, United Nations (1950) popularized the terms, (industrial) 'Centre' and (raw-material-supplying) 'Periphery' to denote these two groups (respectively). Today, these groups are often referred to as the 'North' and the 'South' (respectively). In the UN data published in various yearbooks, these are called 'Developed Market Economy' and 'Developing Market Economy' (respectively). 'Developed Market Economy' covers North America (USA, Canada), Australia, New Zealand, Japan, Israel and Western Europe. All other 'market economy' countries belong to the other group. Following the rise of OPEC, some of the 'oil' exporting countries of the South are rich and need special treatment. At present, however, countries such as (South) Korea of the South are also industrially developed.

³Malthus's theory presumed that the supplies of primary commodities are not increasing in the long run.

⁴Emmanuel (1969) assumed that 'the capital factor is mobile but the labor factor is immobile on the international plane'. Owing to perfect capital mobility, the rate of profit is equalized all over the globe whilst because of institutional barriers to labor mobility across countries, wages are not equalized - the North is a high-wage region and the South is a low-wage region. This North-South wage gap is assumed to exceed the difference in labor productivity. Hence, the products of the high-wage region (the North) commands, in exchange, more labor than they would if wages were the same in both regions. This is what Emmanuel called unequal exchange. In essence, it implies that the double factorial terms of trade (DFTT) of the South is less than one. (Emmanuel, 1969, p. 265) had in mind a widening wage gap and a falling DFTT of the South (see also Sarkar (2001)). (Bloch and Sapsford, 2000, p. 476) also found some evidence of an increasing wage gap and its unfavorable impact on the terms of trade of primary products.

⁵The economic history of former British colonies such as India tells us that the cost of reducing technical progress in the cotton textile sector of Britain, associated with the discriminating commercial policies of the British government, helped the process of de-industrialization in these countries. Then, in a sense, the decline in the terms of trade of Britain in the first half of the nineteenth century is a reflection of the process of de-industrialization that took place in the colonies and semi-colonies at that time (see also Sarkar (1992)).

⁶Because of the existence of high values during 1973-1980, the overall picture is one of no trend.

⁷However, Lewis won't oppose Prebisch's policy prescription of protected industrialization. The labor productivity in the food producing sector in 'the South' can be increased only if the labor is drawn away from the subsistence production into the industry.

⁸Many international bureaucrats have even gone to the extent of referring to this current crisis as "a silent tsunami", given that the world food crisis has resulted in food riots in many countries- namely, Haiti, Guinea, Mauritania, Mexico, Morocco, Egypt, Senegal,

Uzbekistan, Yemen, Bangladesh, Philippines and Indonesia (Angus, 2008).

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