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MANUFACTURE-MANUFACTURE TERMS OF TRADE BETWEEN NORTH AND SOUTH

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Dedication:

I dedicate this piece of work
To my best and true friends in
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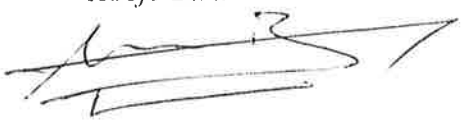

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Chapter One: Introduction

1.1 Introduction:

The role of international trade on growth and development has pre-occupied the profession of economics since the inception of the field itself. The debate mainly concentrated on weather countries will gain or lose from trade and weather international trade will improve or worsen the inequality that exists between nations of the world. The terms of trade is a variable that depicts the gain or lose of a country or groups of countries from trade.

There are basically two schools of thoughts regarding the trade relationship between countries of the South and the North. The Orthodox school includes, among others, Classical and Neo-Classical economists, The Product Cycle Theory (Technology gap theory) and the New Trade theories. The Non-Orthodox School consists of the Dependency Theorists/Structuralist Theories like Prebisch and Singer, Unequal Exchange Theory of Emanuel, Recent Theories of Sarkar, Maizels, Berge and Crowe, and Prasad Chandra.

Classical Economists like Smith (1776), Ricardo (1817), Torrens (1821) and Mill (1848) wrote a theory saying that in the long run the terms of trade for primary products will improve against the manufactured products owing to the law of diminishing return in Agriculture and increasing returns in Industry. However, Economists like Prebisch, (1950) Singer (1950), Lewis (1969) and Emanuel (1969) proved the otherwise.

According to Prebisch and Singer (1950) the asymmetry of the market structure in the South and North does not allow the laws of diminishing return and increasing return to operate as postulated by Classical Economists. The South has a competitive market structure. The benefits of increase in productivity lead to a decrease in price, not to an increase in wage (increase in the cost of production). The North, on the other side, has a monopolistic (oligopolistic) market structure. The benefits of increase in productivity go to an increase in wage. Moreover, most of the agricultural products of the South are income inelastic while the manufactured products of the North are income elastic.

Lewis (1969) looked at the deteriorating terms of trade of the South against the North from a different angle. According to him, it is not the type of commodities that matters; rather it is the countries producing them. That is to say, it doesn't matter if the South produces Agricultural or Manufactured products the terms of trade will still disfavor it. This is because the productivity of the food sector is lagging behind the export product in the South while it is either the same or leading in the North. Therefore the inter-sectorial terms of trade of exports in the South is falling while in the North it is not. This fact will force the terms of trade of the South (irrespective of the type of exports) to fall against the North.

Emmanuel (1969) was concerned about the deterioration of the double factorial terms of trade. According to him, the deterioration comes from the differences of real wage between South and North. This difference arises from the fact that labor is immobile across regions while capital is mobile. Therefore, the DFTT will just be the wage ratio. As the real wage of the South is less than the North at any point in time DFTT will be less than one.

Recent studies by Maizels (2000), Berge and Crowe (1997) and Prasad C. (1996) show that income terms of trade have improved for some developing countries that shifted their major export· from Agricultural products to Industrial products. However, the same studies show that the barter and factorial terms of trade of these countries have deteriorated. This reflects that the volume of manufactured products exported from the

developing countries (South) has increased but is not accompanied by a relative increase in price.

Generally, for the Orthodox school of Thought, the Terms of Trade of the South improves vis-à-vis the North owing to the Classical and Neo-Classical theories of diminishing return to trade and increasing return to manufactures. For the non-orthodox theories, to the contrary, the price elastic nature of agricultural products and the price inelastic nature of the manufacture products cause an asymmetric market structure between the south and the North. Therefore, the terms of trade will be in favor of the North and deteriorate for the South as the former faces an Oligopolistic market structure and the later will face a competitive market structure.

The debate is still going on. For some economists terms of trade for the south deteriorate because they mainly export agricultural products. Others believe that terms of trade will deteriorate for the South irrespective of the type of product they produce. It is hoped that this paper will contribute to the ongoing debate.

1.2 Organization of the study:

Following the introduction, problem statement, objective, scope and limitation, hypothesis of the study and methodology will be stated. The next chapter gives a theoretical and empirical background of the developing countries, their manufacturing bases is also included here. The next chapter consists of review of literatures on international trade and the terms of trade. Some methods used on previous researches of the same kind will also be reviewed. Chapter four is about the method used to collect the data, convert it in to a workable set and the model used to get the terms of trade. The analysis of the data and discussion of the result obtained will be presented in the two chapters that follow. Finally, the paper concludes by giving suggestions and recommendations.

1.3 Problem Statement:

It has been more apparent now that there is a wide disparity between economic growth of the North and the South. Studies show that the North is enjoying about 80% of the wealth of the nations leaving a mere 20% for the South. Even though Main –Stream Neo-classical economists assert that growth will naturally trickle down evidences show the contrary. Evidently, inequalities were rising and the poor are becoming worse off.

Again, for neo-classical economists the solution is trade liberalization. The comparative advantage theories assert better equitable distribution (factor price equalization) and higher economic growth (better efficiency and mix of consumption). (Heckseir-Ohlin Model, Stolper- Samuelson theorem).

Policy makers of the South have followed these lines of arguments and have tried to use a mix of trade polices in the hope of maximizing their gains from trade. Some of the range of trade policies they applied include import tariffs, physical quotas; export promotion versus import substitution, exchange rate adjustments, international commodity agreements and economic integration. As hot is the debate on the theories behind, evidences show that terms of trade have not improved for countries of the South. This goes also for those countries, which have shifted their export sector from Agriculture to Manufacture. The Manufacture- Manufacture terms of trade has deteriorated. [Sarkar and Singer (1991), Lewis (1969), Emanuel (1969), Maizels (2000), Berge and Crowe (1997)]

The focus of this paper is studying the manufacture-manufacture terms of trade of groups of countries of the North with groups of countries of the South.

1.4 Objective of the Study:

The main objective of the paper is to study the trend of the Manufacture-Manufacture Terms of Trade between countries of the South and the North. The Income Terms of

Trade and The Total Terms of Trade are also studied. There is an on going debate on the terms of trade between countries and between commodities. The debate is on weather terms of trade for countries of the South deteriorate because they specialize in Agricultural commodities or weather it will still deteriorate even if they shift to producing manufactured commodities. It is hoped that this piece of work will contribute to the ongoing debate. For the sake of clarity, theories of both the Orthodox and Non-orthodox schools of thought are reviewed. The theories and findings of those who studied the Agriculture- Manufacture terms of trade and the Manufacture-Manufacture terms of trade are also presented.

1.5 Significance of the study:

There are no much researches conducted, especially on the Manufacture-Manufacture terms of trade between countries of the South and the North. Of the limited number of researches conducted, the majority of them studied the terms of trade for specific countries. For example, Kersti Berge and Trevor Crowe (1997) studied terms of trade of Korea with developing and developed countries while Alf Maizels (2000) studied terms of trade of the USA, Chandra Prasad (1996) studied the bilateral Manufacture-Manufacture terms of trade of India, Indonesia and North Korea. Though Sarkar and Singer (1991) studied the Terms of Trade the Manufacture sector of the South faces vis-à-vis the Manufacture sector of the North, this study has extended the period till 2000, and also includes regression analysis of the terms of trade of ITC (Information Technology and communication) and Software products where some countries of the South are found to have improved terms of trade.

1.6 Scopes and Limitation:

Including many numbers of countries could have improved the precisions of the outcomes of this study. Due to spatial and temporal dimensions, however, this study will limit itself only to some selected countries of the South and the North.

Trend studies that make use of time serious analysis are best fit for cases where the time span included is as large as possible. In this study especially, it would have been more complete if the data has encompassed the period from 1960 onwards. This is because the major studies on terms of trade are conducted for the period until 1960's. While there are pretty good studies after that all of them, including this one, seem to be impeded by the availability of data.

The limitedness of data also made it impossible to include petroleum-exporting countries in the study, which was the original plan. The inclusion of these group of countries would, not only have improved the precision of the outcome of the study, but also would have given an important insight as the shift to industry is assumed to be easier to these countries pertaining to their gain of income from the export of petroleum.

The main scope of the study is the terms of trade between Manufactures of the South and Manufactures of the North. The Income terms of Trade and the Total Terms of Trade are also main components of the study as they are used to explain the volume and price relationship of the manufacture exports of the group of countries under study. The paper also gives due attention to the trade relation of groups of countries of the South with groups of countries of the North as opposed to the North as a whole. The Terms of Trade of the Information Technology (IT) and Software products from the Newly Industrialized Countries (NICs) are given special emphasis as they are expected to have a different trend.

1.7 Hypothesis:

The following are the hypotheses of the study: -

- The terms of trade between South and North has deteriorated for the former in favor of the latter irrespective of the type of commodity they export. In other words the Manufacture- Manufacture terms of trade has deteriorated for the South in favor of the North.

- There is a difference in the rate of decrease of the terms of trade of countries of the South with The USA, Japan, and The EU.

- The term of trade for some countries of the South who produces ITC and Software products has improved.

1.8 Methodology:

There are several methods that can be employed in this kind of study. The first option that comes in to mind is the multiple regression method. It allows the researcher to see the relative effect of several variables on a dependent variable. The coefficients estimated will tell weather a factor is significant or not. Moreover, pertaining to the estimate of the coefficients one can tell which factor is more important and to what degree or extent.

The other possibility is to use the gravitational method. The most important factor in this method is the distance between the trading countries. The assumption is the nearest a country is to a metropolitan country the better will be the terms of trade.

Discriminant Analysis is a statistical technique, which allows the researcher to study the differences between two or more groups of objects with respect to several variables simultaneously (Klecka, 1987). It is used to study the differences between two or more groups and a set of discriminating variables. Some areas, which it can be used, include economic differences between geographic regions. In this type of research it can be used to categorize countries in to groups with respect to different variables like type of commodities exported.

The other possibility, which is employed in this research and many others, is to use the time serious analysis. It allows the researcher to investigate the trend of the terms of trade through a given period of time. To investigate the trend of the terms of trade, there are two possible approaches.

I. Net Barter terms of Trade (NBTT)

It is the ratio of the price index of the South to the price index of the North.

$$P_S/P_N = P = \text{NBTT}$$

II. Double factorial terms of Trade: (DFTT)

Over and above the NBTT it also includes employment and productivity levels of the economy.

$$P\ A_sN_s / A_mN_m = \text{DFTT}$$

Where: p = NBTT

i. As = productivity in the South
ii. Am = productivity in the North

iii. Ns = Index of employment in the South
iv. Nm = Index of productivity in the North

The next step is to regress this against time (time series regression) and see the terms of trade between the South and the North through time. In this paper the NBTT is employed as the productivity and wage factors of the DFTT are out of the scope of the paper.

Chapter Two: Back- Ground of the South

2.1 Introduction:

It is a usual nomenclature to use "South" for those countries otherwise known as LDCs and "North" for the developed countries. Especially in literatures related to trade and the relationship between these two parts of the world, the use of "North" and "South" is a common practice. In this paper the same trend is applied.

It is proven beyond doubt that there is a huge amount of inequality between these two groups of countries. Evidences show that the gap is increasing. Though the need to decrease the gap is undisputed, the approach of tackling the problem divides economists in different schools of thoughts. International trade is one major area, where such a debate is undertaken. One School of Thought advocates free trade while the other prefers restricted trade.

The Orthodox School of Thought asserts that the law of diminishing return to agriculture and increasing return to industry insure gain from trade to all the partners. The Non-Orthodox School of Thought on the other hand, say that, the South will lose from international trade owing to the asymmetry in their market structure. The South faces a competitive market structure while the North enjoys an Oligopolistic market structure.

2.2 The Manufacturing Base of the Developing Countries:

The agricultural sector has been and still is the main economic sector of many developing countries. This has forced the majority of the population (70%, and in some cases 85%) to be rural settlers. It makes up for the majority of direct and indirect employment and most depend solely on the sector for their foreign exchange earning. According to Merlinda Ingco (2000) Africa depends on agriculture for 35% of its GDP and for employment of two third of its population. The same author stated that agriculture employs about 50% of the population in South Asian Countries. The export share of

agricultural products like coffee; cocoa, fish, fruits and vegetables are very high and growing. The price of the agricultural products, however, is cheep owing to the cheep labor force and the competition amongst southern countries that are made to produce the same kind of products. Some of these countries have made effort to shift their economy from agriculture base to industry base.

Industrialization, as it is called, in the South is not an easy task, as they have to compete with the already well-established manufactures of the North. Governments opted for protectionism policies in order to make their infant industries competitive in international markets. However, the industries in developing countries are different from that of OECD not only due to the policies impeded on them but also due to the structural differences in their economy. Some of the factors that contribute to the structural difference of the economies/industries of the developing countries from that of the OECDs are market size, import of processed and semi-processed inputs, human capital (skilled labor), infrastructure, credit services, price volatility and unfavorable socio-economic and political environment.

The internal market of most developing economies is so small to make the industries profitable. The limited amount of demand that exists goes for basic needs, which are agricultural products or agro-industries. This makes it difficult for the infant industries to pull out and be strong competent. On top of these, the distance to the metropolitans will increase the cost of transportation, which again reduces their competitive power.

The less developed countries get their inputs for their industries mainly through import. More often than not, the imports are very expensive and take the great majority of all the inputs. This makes the cost of production rise and reduces the competitiveness of the industries in the international market. The other alternative is to use substitutes of the imports, which is at the expense of quality. The repercussion is the same. Mostly it happens that the market for the products at the international level is tied to weather or not they import the inputs.

The lack of skilled manpower is one other factor that makes the industries of developing countries short handed. Most sophisticated manufacturing enterprises demand a skill, which is just specific to them. It is very costly, if not impossible, for developing countries to have this kind of training. The education level is mostly limited to secondary level, which itself is of low quality. The quantity and quality of technicians and researchers is very minimal. The usual practice is to import the trained manpower from the developed world, which again increases the cost of production. The hope is that the local people will learn and catch up from the expatriates. According to some studies though, it rarely happens. (Evenson and Westphal, 1995; Keller, 1996)

Infrastructures like water, roads, ports, power and communication are one of the main factors for the success or failure of a certain industry. In the developing countries they are very much poorly developed. Though some claim that the climatic condition of tropical countries reduces the cost of warming (no heater required), the increment of cost due to the lack of infrastructures or the high cost associated, more than offsets the benefit. (If at all there is any).

The financial market is also one big problem for the industries of the developing countries. The availability of credit, especially to the small firms is very much limited. There is a tendency for the banks to give loan on short-term basis, which makes it very expensive. The requirement of collateral and some percentage of initial capital by banks limit the access of credit to small firms. The per unit cost of lending to small firms is also high, which makes bankers to refrain from lending to this kind of institutions.

Last but not least, price volatility accompanied by political unrest (instability) makes the competition for the industries in the international market difficult. The less developed countries face the most volatile price in the world. This is because the agricultural products they produce are not only price elastic but also easily perishable, the cost of preserving, in most cases, is even higher than the price of the product itself. The manufactured products are subject high competition with other developing countries. This is because the types of manufacture they produce are low-tech and labor intensive,

which every other country can also duplicate so easily. Poor governance leads to high level of corruption and rent seeking behavior. According to studies, Nigeria and Cameroon have the highest level of corruption in Africa. As poor as the legal system is, contract enforcement, crime prevention and protection of property right are difficult.

2.3 Stylized Facts:

With all the above difficulties, the developing countries still showed some effort in improving their manufacturing base and thereby their trading pattern. The world-trading pattern as a whole changed since WW II. Following the establishment of the General Agreement on Trade and Tariff (GATT) the amount of world export grew by an average of 7.3% per year between 1960 and 1968, and accelerated to 9.7% per year between 1968 and 1973. (Ray, 1998) The Manufacturing Value Added (MVA) of developing countries between 1985-1998 was nearly two percentage points higher than the developed countries. (UNIDO, 2002/2003)

Yet, MVA per capita in industrialized countries was about 17 times in that of the developing countries. This figure was 83 times and grew to 144 times as compared to the least developed countries in the years 1985 and 1998 respectively. This is a reflection of the difference in the degree of intensity of industrialization between the regions. The share of manufactured exports by the developed world grew by 8 percent points and the per capita export was 15 times that of the developing countries. (UNIDO, 2002/2003)

The booming of the price of oil in 1973 was not a good sign for most developing countries. It led them to go in to recession and opt for an inward looking protectionist policies. The subsequent periods, yet, showed outward looking, export-promotion policies. UNIDO's industrial development report of 2002/2003 stated, "As a group, developing countries are doing fairly well on almost all measures of performance. They are increasing their shares of global production and exports. They are moving up the technological ladder, enlarging their bases of human capital, deepening their technological activity and attracting larger proportion of mobile resources"

The problem, however, is this concentrated on a very few developing countries. Owing to the favorablity of the factors mentioned above, the growth of the manufacturing sector in the developing countries was divergent than convergent. It was East Asian countries, which gained the most. The most successful were Hong-Kong, Singapore, Korea and Thailand. The trade expansion in these countries showed a magnificent achievement by sky rocketing to 13% per annum. (Ray, 1998) The performance of China, Indonesia, Malaysia, Philippines and Thailand was also remarkable. These countries, along with some South Asian countries like India, were able to adopt/copy the ITC and Software technologies innovated in Japan. Later on, they were able to dominate the market of these products because they were able to improve on the technologies themselves. (Tybout, 1998) The export share of the ITC and Software products of this group of countries (India not included), calculated by using the figures from the UNCTAD database, was 12% in 1995 to grow to 17% (of their total exports) in 2000.

East Asia's share of the main[1][2] manufacturing export sectors is high, with an average exceeding 82 percent; (In 1998, according to the UNIDO report, East Asian countries' share of the export of the total manufacturing goods is about two thirds) their share in the world total manufactured imports is 20% in the 1980's and 90's. (Bender and Li, 2002) In MVA, East Asian countries increased their share of the developing countries total from 43% to 53% between 1985 and 1998 (UNIDO, 2002/2003)

Following the high indebtedness in the 1970's in Latin America, there was a change in trade policy from import substitution (inward looking) to export promotion (outward looking). (Ray, 1998;Bender and Li, 2002) Mexico, Argentina and Chile are best examples. Evidences shows that the exports share of the Latin American countries have shown an increment since then. Though the export share of the main manufacturing sector decreased by 2.3% per annum on average between the years 1981-1997, there was a relative increase in the total export share by 17% (Bender and Li, 2002). The region,

[1] Main manufacture in this context is means highly sophisticated products.
[2] This show that east Asian countries were successful and dominant in producing high-tech products

along with the Caribbean, lost about 7 percentages in regional shares of MVA though it is the most industrialized from developing countries in per capita terms.

The performance in Sub-Saharan Africa and the least developed countries is not at all good at any scale of measurement. UNIDO's report reveals that the sub-continents MVA in 1998 was only one percent of the worlds. This figure was three percent in 1985. Of this small amount, the share of Morocco was about one thirds of the region. Excluding Bangladesh, which accounted for 31% of MVA in 1985 and 53% in 1998, the Least Developed Countries accounted for 0.5% in 1985 and zero in 1998 of the worlds MVA.

In summary, manufactures are still concentrated in developed countries and some few developing countries. The concentration is getting more in developing countries while it is declining in developed countries. In terms of per capita, especially, the gap is widening. The trade of Manufactures within the developing countries amount to more than 80% while it is just the remaining 20% that is traded between the South and the North. (UNTAD, Trade and development Report, 2003) From the limited amount of trade between the South and North, the per capita trade share with Japan exceeds with that of EU and USA. (Tybout, 1998) East Asia, among the developing countries, shows an indication that they are moving towards industrialization. They have a high growth rate in manufacture production and export, though in terms of MVA per capita they lag a little bit behind to Latin America and the Caribbean. Excluding Mexico from the region, their manufacturing performance and export is behind that of East Asia though it still is much better than Sub-Saharan Africa and The Least Developed Countries.

Some studies show that the manufacture performance of the tiger countries of East Asia had some spill over effect to countries of South Asia. India is becoming competent in manufactures like IT and soft wares while Bangladesh is relatively better in manufacture as compared to the least developed countries. It has attended decent manufacturing growth; yet, the export and manufacture per capita perform poorly.

Sub-Saharan Africa (except for South Africa) is the least performer in all respects. Its economy is still dominated by agriculture and the tendency to shift to manufacture is regressing. The least developed countries; among which are the 30 poorest countries are recording worst figures. The 12 least developed countries are seeing diminutions in their already minuscule shares of world industrial production and export.

The tables below give some figures of annual average percentage growth of exports in developing countries and the trends in their share of manufactured exports. The tables are extracted from International Monetary Fund (IMF) issues and development in international trade policy as reported in Ray, 1998.

Table: 2.1 Annual average percentage growth of exports in developing countries (International Monetary Fund)

Region	***1973-82***	***1983-86***	***1987-90***	***1991-95***[3]	***1995-2000***
All LDC's	0.2	4.7	5.7	5.9	6.2
Africa	-2.4	4.4	2.3	1.9	1.5
Asia	9.2	10.5	11.8	12.4	12.9
East Europe	4.3	5.1	-4.2	1.6	2.1
Middle East	-5.1	-1.1	5.4	4.2	3.1
Western Hemisphere	1.9	2.6	7.2	7.4	8.2
Sub-Saharan Africa	-1.0	1.7	1.0	0.8	0.9
NIE's	13.3	13.4	11.4	12.1	12.9

[3] The figures of the years , 1991-1995 and 1995-2000 were calculated by the researcher himself from available data of the IMF Report 2002/2003

Table: 2.2 Trends in the LDC manufactured exports (percentages) (International Monetary Fund)

	1970	1975	1980	1985	1990	1995[1]	2000
Share in world Total							
All LDC's	7.0	7.4	10.0	13.3	17.1	19.0	19.8
Asia	3.7	4.7	7.2	9.5	14.1	15.2	15.7
Latin America	1.8	1.7	2.0	2.5	2.0	2.4	2.3
Africa	1.4	0.7	0.6	0.4	0.5	0.3	0.2
Share in LDC Total							
Asia	52.4	62.8	71.8	71.2	82.7	84.5	86.2
Latin America	26.2	23.4	20.3	18.5	11.6	10.9	10.2
Africa	19.5	9.3	5.8	3.2	2.8	2.1	1.7

[1] The figures of the years 1995 and 2000 were calculated by the researcher himself from available data of the IMF Report 2002/2003

Chapter Three: Terms of Trade in the Theories of Trade

3.1 Introduction

Some researchers say that it is very difficult if not impossible for countries not to engage in trade and exist by themselves just as it is very difficult for individuals not to exchange to fulfill their requirements. According to them the closed economic system that China and other ex-communist countries tried to follow was accompanied by a lot of cost. To the contrary, other researchers say that opening up a countries (specially developing countries) economy to international trade will disbenefit it. The question of why trade and who gains from it are the main question addressed in many literatures of international trade.

Economists have been divided in to two main schools of thought in trying to respond to the above stated questions. The two schools of thoughts are The Orthodox and Non-Orthodox thinking. In the former are included Classical Economists like Adam smith and David Ricardo; Neo-Classical –Economists like Heckscher, Ohlin, Stopeller and Samuelson; Vernon, Findlay and Krugman of the Technology Gap and Product Cycle Model theories; and the New Trade Theories of Krugman and David Dollar. The latter have the Prebisch and Singer analysis (structuralist school/dependency theory) of the deteriorating terms of trade; Unequal exchange Theory of Emmanuel; The Lewis Thesis of Intersectorial Terms of Trade; Sarkar's Theory of Manufacture –Manufacture Terms of Trade; Prasad, Maizels and Berge, and Crowe are also some recent researchers who worked on the same line of argument as Sarkar.

3.2 Pre-Classical theories:

Historically, not mentioning the bibles conviction of trade (profit making) as immoral, the Physiocrats and Mercantilists were totally against it. The most important thing for

growth in the Physiocrats era was Agriculture and the most important factor of production or resource was land. Nations were involved in war looking for an expanded land. The reason of war for Mercantilists was rather gold. The source of wealth for them was accumulation of gold. They were very suspicious of foreign trade and the limited amount of trade was for acquisition of ammunition.

3.3 The Orthodox School of Thought:

It was against this background that classical economists came with the idea of trade benefiting all the partners. As a critique to the Mercantilists idea Adam Smith (1776) came up with a theory of Absolute Advantage. According to him, two countries that are involved in trade (assuming two commodities) can benefit if they produce and export the commodity, which they can produce cheaper instead of trying to produce both commodities. The whole idea rests on the theory of international division of labor. It was up to Ricardo (1817), however to refine the theory and come up with the famous theory of Comparative Advantage. According to him, it is not necessary that countries have an absolute advantage on both commodities they produce. Both countries wealth can increase if they specialize in the commodity which they have comparative advantage as they can use the labor more efficiently in that product and import the other product (from where it is more efficiently produced). The underlying assumptions here are perfect competition and unrestricted movement of capital between the countries.

The Neoclassical School extended the work of Ricardo by incorporating capital in the model. In this case countries will produce a product, which intensively uses the factor, which they are abundantly endowed with. The conclusion is that free international trade rewards a country's relative abundant factor and hence raises its price and decreases that of the scarce one; in the process it leads to factor price equalization. The dominant players of this theory are Hecksher (1919), Ohlin (1933), Stolper (1941) and Samuelson (1948). According to Leontief (1954) however, America specializes in labor intensive than capital-intensive products, which is contrary to the neoclassical assumption – hence, Leontief's Paradox. In 1956, yet, Leontief himself proved that America is a skilled labor

abundant country. If labor differentiation is taken in to account then, the H-O-S model holds.

Vernon (1966) ignored the comparative advantage and emphasized on the time gap between the innovation and adoption of technology. In his Product Cycle Theory he tries to explain the pattern of trade by saying that the technology innovated in the North will be transferred to the South owing to the wage difference that exist between the two. Krugman (1979) expanded this approach and built a North-South model of trade. He asserts that the North has monopoly power over the South on new goods as the innovation of new technology takes place there. Due to the high wage rate of labor in the North, technology transfer can improve the terms of trade of countries of the South. To improve the terms of trade, the North has to be constantly and continuously innovating.

Until the 1980's and 90's, constant return to scale and perfect competition were the basic underlying assumptions of the hitherto trade theories. In the New Trade Theories economists like Krugman (1992), Dollar (1989) and Stiglitz (1977) took a step and added the concepts of increasing returns to scale and imperfect competition. They explained intra-industry trade and intra-firm trade having the above assumptions at their core. They are listed under the Orthodox School of Thought as they share the idea of free trade and believe that trade can improve the terms of trade of the south. Yet, they differ from them in that they reject the constant return to scale assumptions and assume increasing return to scale.

According to Krugman scale economies are internal to the firm (for neo-classical-economists scale economics is external to the firm) Industries can exercise monopolistic competition up to a point where it is limited by the market. As explained by the Chamberlain Monopolistic Competition industries will be engaged in a monopolistic, but not, perfect competition. A general equilibrium will be reached when entry to the market derives profit to zero. International trade is a way to expand the market and overcome the limitation. Accordingly, trade is necessary irrespective of the comparative advantage

countries posses. Thus, international trade, which is free from restrictions, will benefit all the trading partners.

The Infra-Firm trade theory, as opposed to the Hecksher –Ohlin theory, talks about transfer pricing than pricing through the market forces of demand and supply. The MNC's go for a joint profit maximization scheme instead of competing for profit with each other. North-South trade relations do not give much of a sense here, as the units of analysis are the MNC's and not the governments. The terms of trade of countries of the South depends on the MNCs operating there.

3.4 The Non-Orthodox Theories of Trade:

Though in different perspective, all the orthodox theories of trade explained above are common in that they advocate free trade. They believe that the world as a unit will be better of and all trading partners will gain from trade. Production and productivity will increase and people will have a mix of consumptions. As the countries of the South are endowed with unskilled labor, the return to that resource will decrease the gap of inequality between the South and the North. The assumptions of perfect competition, factor mobility, full information and absence of government involvement however, makes their theory unrealistic. In reality, the world is far from being perfect and there are different types of market structures in the North and South. Moreover; evidences show that, in reality, the gap between the South and North is widening.

The structuralist economists of the Economic Commission of Latin America and the Caribbean's (ECLAC) were among the for runners in trying to concretely study the North-South trade relation by using the concept of Terms of Trade. (Geda, 1998) Raul Prebisch and H. Singer (1950) used the concept of terms of trade and proved that the Agriculture-Manufacture terms of trade faces a secular deterioration for the south and were in favor of the North. This was a challenge to the International Division of Labor and the Orthodox theory of Comparative Advantage. Singer used the report on the terms of trade of the League of Nations (1949) for his analysis. Long before that, Keynes

(1912), Robertson (1915) and Clark (1945) studied the same kind of proxy data and proved that, in the long run the terms of trade for agricultural products will improve vis-à-vis the manufactured products due to diminishing returns in agriculture and increasing returns in manufacture.

Prebisch and Singer made a separate analysis on the terms of trade of South and North, but the result they reached was fairly the same, hence the name Prebisch-Singer. According to them, the South experiences a competitive market structure while the North experiences an Oligopolistic market structure. Agricultural products of the South are price elastic while; manufactured products of the North are price inelastic. Therefore, an improvement in technology and productivity in the South will lead to the decrease of price in the South while it will lead to an increase in price in the North. Moreover, the labor in the South is largely unskilled working in the agricultural sector and small scale manufacturing like artisans and handicrafts. This exerts a pressure on the wage of the labor and pulls it down. In the North, on the other side, the labor is involved in a high-tech manufacturing sector and has a strong labor union, which keeps the wage rate high.

One other factor, which accounts for the deterioration of the terms of trade of the south vis-à-vis the North, as studied by Prebisch and Singer is the disparity of the demand of exports of the South and exports of the North. The former is income elastic while the later is income inelastic. Thus, the demand for the exports of the South keep on decreasing while that of the North keeps on increasing. This is also inline with the Engles Law, which states that, as growth proceeds, the relative demand composition shifts away from the primary products to the manufacture. The restriction of export that the South faces because of the protectionist policy of the North, and the synthetic substitutes of the agricultural products by the North, also add up to the circular deterioration of the terms of trade for the South.

The difference of Emmanuel's thesis of the circular deterioration of the terms of trade with that of the Prebisch Singer analysis is that, he studied the terms of trade at a particular point in time (static) while Prebisch and Singer studied it over a period of time.

(Dynamic) The two core assumptions of his thesis are, on the international context capital is mobile while labor is immobile and he took for granted that the wage in the North by far exceeds that of the South. The movement of capital to where the profit is makes equal profit rate all over the world. This makes the Double Factorial Terms of Trade (DFTT) simply the wage ratio of the South and North, and will always be less than one. (This is static) In his theory of Unequal Exchange he says, "it is clear that inequality of wages as such, all other things being equal, is one of the cause of inequality of exchange" Bacha (1978) used the language of Neo-Classicism to explain the Unequal exchange Theory of Emmanuel. Sarkar (1991) quoted Bacha as saying "Unequal exchange arises from the fact that real wages are higher in the developed North than in the developing South. Trade in these conditions is unequal to the South in the normative sense that its terms of trade (income levels) are lower than they would be under a Pareto efficient trade arrangement allowing for perfect international labor mobility"

Emmanuel also explained that the gab of wage rate, between the North and South, keeps on widening which takes it to the concept of dynamic nature of the circular deterioration of the terms of trade. This thinking of him will make his theory as one core of the general analysis of Prebisch and Singer.

For Lewis (1969), the terms of trade deteriorates for the South vis-à-vis the North not because of the nature of the commodity they produce. According to him, whether the South produces Agricultural or Manufactured products, its terms of trade will still deteriorate due to the behavior of the intersectorial terms of trade in the South and North. In the South, productivity in the food sector lags behind that of the export sector, while it either is the same or exceeds in the North. Therefore, prices of exports in the South fall in terms of food while export prices of the North improve. Thus, the terms of trade of the South against the North deteriorates. Later on, Economists like Sarkar, Prasad, Maizels and Berge, and Crowe studied the Manufacture-Manufacture Terms of trade of the South and North and showed that the former looses for the latter.

After the studies of Prebisch and Singer in the 1950's, a lot of developing countries went through a major change in the structure of their export. Many of them tried to shift, to some extent, to the manufacturing sector from the agricultural sector. Following this trend Sarkar and Singer (1991), conducted a research on the Manufacture-Manufacture Terms of Trade between, what they call, the periphery and the center. They calculated the ratio of unit values of manufactures exports of the two regions over the period 1970-87 and analyzed it using time series trend analysis. Their study was limited by the availability of data and they used some unpublished data of exports of countries and the UN publications (*Monthly Bulletin of statistics*) of import-export indices. The result of the study shows that "both in US dollars and SDR (Special Drawing Rights), the Unit value of the manufactured exports of the periphery declined by about 1% per annum in relation to those of the center. Over the period of 18 years, 1970-87, there was a cumulative decline of about 20%; however, as a result of sharp expansion in the volume of manufactures exported by developing countries there was an average annual increase of 10 per cent in their income terms of trade." Sarkar and Singer (1991)

The Sarkar-Singer analysis was accepted, however, not without a challenge. The main critique of the analysis came from Bleaney (1992) and Athukorala (1993). Bleaney put a question mark to the S-S analysis by saying that, the year 1982 (which is included in the study) is marked by the debt crisis and real devaluation of the currencies of the DCs, when Mexico announced its default. On a reply to the critique Sarkar and Singer (1993) said that they took care of the problem by dividing the period in to two 1970-82 and 1982- 89 (they added two years on the revise) and putting a Dummy to join the two periods.

The critique of Athukorala (1993), circles around two main concepts. First, the unit value indices used by Sarkar and Singer cannot be a true indicator of price since the movement of price within the mix can affect it. Admittedly, though this does not mean that it will have a systematic bias towards any direction. (Sarkar and singer, 1993) Second, the aggregate data used by Sarkar and Singer does not reflect the intra –region trade, while in reality around 80% of the manufacture export of DCs is within the region itself while it is

only 20% for the developing countries. Sarkar and Singer in their reply to the critique argue that even though the intra-region trade is not accounted for, it is not necessary that the direction of bias be towards their hypothesis.

Alf Maizels (2000) studied "the trends in the prices of US imports and exports of manufactures in trade with developing countries, and - for comparative purposes - with other developed countries." The period covered by the researcher was from 1980 to 1996. The results show that for developing countries, the first half of the 19890's showed deterioration in their terms of trade, while the next half did not show any significant change. For developed countries, in comparison, the manufacturing terms of trade was trendless in the first half of the 1980's and improved on the second half. For the over all period, compared to developed countries, the manufacture terms of trade of developing countries has shown a significant deterioration vis-à-vis the US.

Kersti Berge and Trevor Crowe (1997) used the database of UNCTAD to set up a balanced panel data for their analysis of the manufacture terms of trade of South Korea with developing and developed countries. Their study covers the period 1976 to 1995. According to the result they obtained, South Korea's manufacture terms of trade was trendless with that of the developed countries but its income terms of trade has improved. With developing countries on the other hand, South Korea was able to experience an improvement in its manufacture terms of trade and "an even more" improvement in its income terms of trade. The conclusion they reached at was that the volume of exports of South Korea to the developed countries has grown even if it is not associated with a relative increase in price. With that of the developing countries, though, South Korea has increased the volume of export and it was accompanied by a relative increase in price.

H. Ashok Chandra Prasad (1996), on a discussion paper of UNCTAD, studied the bilateral terms of trade of India, Indonesia and South Korea. The main findings of his paper are that; India's trade with the North resulted in adverse balance of trade in the 1980's owing to higher import volumes and lower prices. North Korea's adverse terms of trade is mainly with oil exporting countries owing to high prices of oil.

Generally, the Orthodox school of thought concludes that the Terms of Trade of the South will improve for the South vis-à-vis the North. The Non-Orthodox school of thought, on the other hand, say the Terms of Trade of the south faces sectorial deterioration. The former base their conclusion on the assumption of perfectly competitive market, while the later say that there is asymmetry in the market structure between the South and the North. The South operates under a perfectly competitive market while the North has an Oligopolistic market structure. The law of diminishing return for agricultural products and the law of increasing return for industrial products, according to the Orthodox School of Thought, will increase the price of agricultural products (the South), and thereby improve their terms of trade. To the contrary, the price elastic nature of agricultural products and the price inelastic nature of manufactured products contribute to the sectorial deterioration of the terms of trade for the South.

The structuralists also extended their study to the terms of trade relation of the manufactured products of the south with that of the North. The terms of trade of the manufacture of groups of countries of the South with some selected countries of the North were studied. Others also conducted a bilateral terms of trade relation between some countries of the South with Some countries of the North. The conclusion they all reached at is the Manufacture-Manufacture Terms of Trade deteriorated irrespective of the improvement of the Income Terms of Trade. The implication is that the increase in the volume of exports of manufactures of the South is not accompanied by a relative increase in the price of the manufactured exports.

This piece of work has, as a major hypothesis, deterioration Manufacture-Manufacture Terms of Trade. As was employed in the studies of Sarkar (1991), Kersti Berge and Trevor Crowe (1997), Alf Maizels (2000) and H. Ashok Chandra Prasad (1996), the methodology used is a time series regression analysis for the years 1980 to 2000. All the NBTT (Net Barter Terms of Trade), the ITT (Income Terms of Trade) and the TTT (Total Terms of Trade) were calculated for the sake of analysis. Unlike the others, yet, this paper also includes the ITC and Software terms of trade of the NICs. The other fact that differs this work from the others is it divided the North in to three major groups,

USA, EU and Japan. The conclusion reached by this paper is inline with that of the others. The Manufacture-Manufacture Terms of Trade deteriorated for the South. The improvement in the ITT implies an increase in volume of manufactured exports by the south, which however, is not accompanied by a relative increase in price of the Manufacture exports. The ITC and Software products terms of trade improved for the NICs. This shows their ability, not only to copy the technology but also to innovate their own technology. The deterioration of their Manufacture-Manufacture Terms of Trade and their TTT imply that the decrease in price of the other manufactures (heavy manufactures) more than offset the increase in price in the ITC and Software products.

Chapter 4: Methodology

4.1 Introduction

In this research a time series regression analysis is conducted to see the trend of the terms of trade of manufactured products between countries of the South and countries of the North .A time series regression is also run to see the terms of trade of selected types of manufactures (ITCs and Software Products) of some selected countries of the south with countries of the North. The Net Barter Terms of Trade (NBTT) is regressed against time to see the trend while the Income Terms of Trade (ITT) is employed to see the relation between the volume of export by the peripheral countries with the income gained. A comparison between the NBTT and the Income Terms of trade will explain a country's gain or loss from trade, as it is possible to compare the volume of export with the associated price level. The Double Factorial terms of Trade (DFTT) is usually used to see the effects of unemployment and productivity in the terms of trade between countries. As it is out of the scope of this research, it will not be adopted here. The following are equations used to calculate the NBTT and the ITT.

I. Net Barter terms of Trade (NBTT)

It is the ratio of the price index of the South to the price index of the North.

$$P_S/P_N = P = NBTT^5$$

Where Ps is price of the South

Pn is price of the North

II. The Income Terms of Trade (ITT)

It is the inverse of the NBTT multiplied by the Volume of Exports

$$ITT = (1/NBTT) * V$$

Where V is the Volume of Manufacture Exports of the South

[5] NBTT in this case represent the Manufacture-Manufacture Terms of Trade

The trade relation within countries of the North (North-North Trade) in terms of manufactures is about 80% of the total trade of the world. This figure is less than 20% for the trade relation between the South and The North. The South-South trade relation literally is insignificant in terms of manufactures. (Sarkar,1993) The export share of group of countries of the South with Japan is higher than with the EU and the USA. (See Table Below) Making the regression analysis with the North, as a unit will just give a crude result. In this piece of work therefore, the North is divided in to three groups, and is believed that studying the trend of the terms of trade of the South with each of the groups of the North will enable to have a detailed analysis of the trade relation of the South and the North.,

Table 4.1: The share (in percentage) of manufacture exports of groups of countries of the South with selected countries of the North, *Calculated using data from UNIDO Industrial Development Report 2002/2003*

	Japan	*EU*	*USA*
PCEC[6]	32	41	26
MPEC[7]	52	27	19
PEC[8]	45	31	22

4.2 Sources and Types of Data:

The types of data in this research are secondary data primarily collected by UNCTAD. From the databases, an annual merchandise trade (prices and volumes of imports and exports) for 100 countries for the periods between 1980 and 2000 are drawn. Other types

[6] PCEC Primary Commodity Exporting Countries
[7] MPEC Manufactured Product Exporting Countries
[8] PEC Petroleum Exporting Countries

of data necessary for the study are also drawn from databases of the World Bank, IMF, WTO, UNIDO and the Macro-Economic database of the Countries themselves.

4.3 Sampling Method:

Group commodity data (import and export) of 100 countries from the UNCTAD database was collected. The countries were divided in to South and North based on the World Bank classification. Accordingly, 25 developed (North) countries with per capita income more than $9,656 and 75 developing (South) countries with per capita income less than that were identified. Among the South, they were further subdivided in to three groups depending on the type of commodities they export. The groups are Primary Commodity Exporting (Agricultural Products), Oil/Fuel Exporting and Manufactured Products Exporting. The distinction is made based on the WTO's report on the type of products countries export and proportion of foreign exchange earning. From the North, the US, Japan and the EU are the three groups used in this study.

4.4 Method of Data Setting:

This research requires a balanced panel data that contains quantity and unit value indices of both import and export. The types of data that are obtained from the UNCTAD database are ones with 5-digit and 4-digit headings. These are data in which different group of commodities were aggregated as one in relation to their type. The different categories are Agriculture, Mines, Chemicals, Oil and Oil Products, Manufactures, ITC and Software Products, etc.

It was necessary to convert this data set in to a type that contains quantity and unit value observations of both import and export. This was calculated by dividing value with quantity. In all categories, either unit values or quantity or both could be missing. If, at least 20% of anyone of the two were missing then the whole category was dropped, as it is impossible to estimate this large amount of missing values. If the missing values were less than 20% then; Linear, Quadratic and Exponential regressions were fit and which

ever turned out to be the best fit was used to estimate the missing values. If none of them were found to fit a category significantly, then that category is dropped out.
At this stage there were still some categories that still lacked either both or any one of the observations. It was necessary to go through the above steps once again to get a complete set of data. Finally, there was a balanced panel data, which enabled to run the time series regression. It is impossible to deal with unbalanced panel data in this type of research as it involves the use of a link factor (a moving average, instead of a base year), which links the values of one year with that of a previous year. The link factor is calculated by using current, cross and lagged values. If any one of these values is missing, or if the data set is unbalanced, it is impossible to calculate the link factor.

One of the limitations of using unit value indices, as explained by Athukorala (1993), is that the different headings of the aggregated group of commodities contains many varieties and quantities of related products in addition to a range or related products. This could possibly have an erratic long-run movement within the unit over time due to the within the unit variation. However Sarkar (1993) argued that the between the unit long-run erratic movement due to the variations between the units is much higher than the within the unit variations. Maizels[9] (2000) also followed the same line of argument.

One other difficulty of using the unit value indices as compared to the genuine price indices is that the year to year change in the former involves a combination of price changes and combination changes while the latter do not involve a change in product mix and/or quality. A careful weighing system, while the commodities are aggregated in the UNCTAD database is used to reduce this limitation.

4.5 Method of Obtaining the Indices

The terms of trade were obtained by dividing the export indices by the import indices. The type of import and export indices used depends on the type of terms of trade

[9] The researcher also used some unofficial data from the Bureau of Labor Statistic of the United States of America

required. For total terms of trade total export indices were divided by total import indices. Manufacture-Manufacture terms of trade were obtained by dividing the export indices of manufactures with the import indices of manufactures and, terms of trade of ITC and Software products was calculated by using the respective export and import indices. The values were regressed against time to obtain the trend of the terms of trade.

For both the import and export indices the current and cross values were calculated by using the following formulas: -

Current value $_t$ = Unit Value $_t$ *quantity $_t$

Cross Value $_t$ (1) = Unit Value $_{t-1}$ *quantity $_t$
Cross Value $_t$ (2) = Unit Value $_t$ *quantity $_{t-1}$

Lagged Value = Unit Value $_{t-1}$ *quantity $_{t-1}$

All the above were aggregated or summed for each group and a link factor was calculated to see the incremental value of each year as compared to the previous one. (Fischer chain index) The use of the Fischer chain index is superior to other alternatives (calculating the indices using a base year) as it allows for the categories to change over the period covered in a relatively smooth manner. (Berge and Crown, 1997)

Link factor $_t$ = $\sqrt{}$ [($\sum$ Unit Value $_t$ quantity $_t$/$\sum$Unit Value $_{t-1}$ quantity $_t$). ($\sum$Unit Value $_t$ quantity $_{t-1}$/Unit Value $_{t-1}$ quantity$_{t-1}$)]

Finally, the average of the terms of trade (total terms of trade, manufacture terms of trade, ITC and Software products terms of trade, and income terms of trade) of each country is taken to be the terms of trade of the countries in a group. The analysis is based on this final out come.

4.6 The Model:

A natural logarithm series $\ln y_t = a + bt + e_t$ was fitted to test the trend analysis of each of the groups of countries. It was tested for unit roots and it happens that, at 95% level of significance, the null hypothesis of non-stationarity was not rejected. A difference stationary (D-S) model was employed as it appears that these series are integrated of order one I (1). In this case, the constant term "a" represents the long run trend, the growth rate over time due to economic factors. The short run shock factors bare taken care by the disturbance term e_t . The adjusted R^2 was used to test the over all significance of the model built and the student t-test (at 95% level of significance) was employed to test the significance of the variables. The Durbin- Watson statistic was used to check for autocorrelation.

Chapter Five: Result and Discussion

5.1 Result:

As explained in the methodology chapter the 75 countries of the South were divided in to three groups based on the type of their main export item. The groups are primary commodity exporting countries, oil exporting countries and manufactured product exporting countries. In the first group is mainly Sub-Saharan African countries; Latin American countries; South Asian countries and some countries of the Caribbean group. The second group consists of most Middle East countries, Nigeria and Venezuela. The Newly Industrialized Countries (NIC) makes up the third group among others.[10] The North is divided in to three groups USA, Japan and EU. (The assumption is that these groups fairly represent the North in terms of the trade relation with the South)

Following the method of data setting as discussed above, the unit value indices for the aggregated commodity groups for the different group of countries were calculated.

The barter terms of trade for the different group of countries of the South in relation to the North was calculated by using the method presented above. The income terms of trade is calculated by multiplying the barter terms of trade by export volume indices. It is also possible to use the import volume indices and multiply them by the inverse of the barter terms of trade.

Below are presented curves of the Net Barter, Income and Total terms of trade, for each of the groups of countries of the South in relation to the group of countries of the North[11]

[10] A complete list of the countries will be given as an appendix
[11] The tables of the calculated terms of trade are presented at the appendix

There are some limitations to the curves obtained below: -

- The Agriculture- Manufacture terms of trade of each of the groups of the South with that of the groups of the North are not included. Following the objective of the study, it was found necessary to limit it to the Manufacture-Manufacture Terms of Trade. Yet, as a lot of studies have already been conducted pertaining to the Agriculture –Manufacture Terms of Trade, this paper is taking it for granted that it is deteriorating.

- The data available for the manufacture export of those countries, which mainly export petroleum, were insufficient. It was compulsory, therefore, to exclude this group from the group of countries of the South.

- The ITC and Software Terms of Trade were conducted for NICs with each of the groups of the North. However; no significant deference was observed between terms of trade with US, EU and Japan individually and with The North as a whole. To avoid redundancy and for the sake of economies of words, only the ITC and Software products terms of trade of NICs vis-à-vis the North was reported.

Figure 5.1: TOT of PCEC with USA

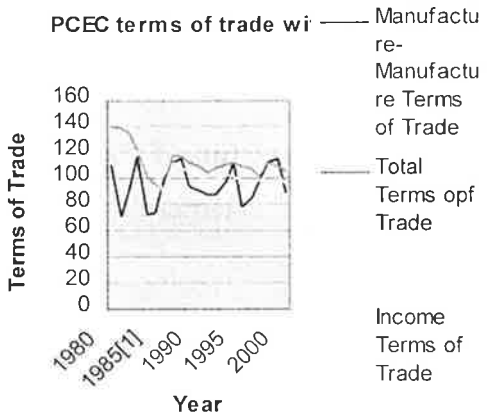


Figure 5.2: TOT of PCEC with EU

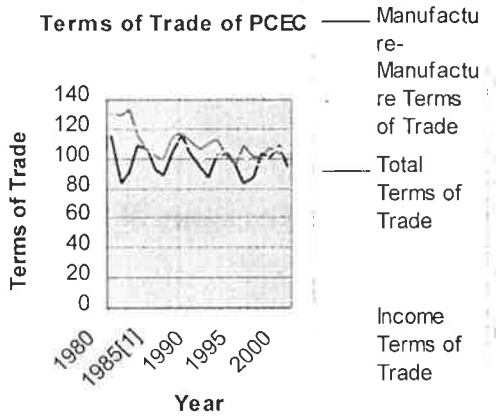
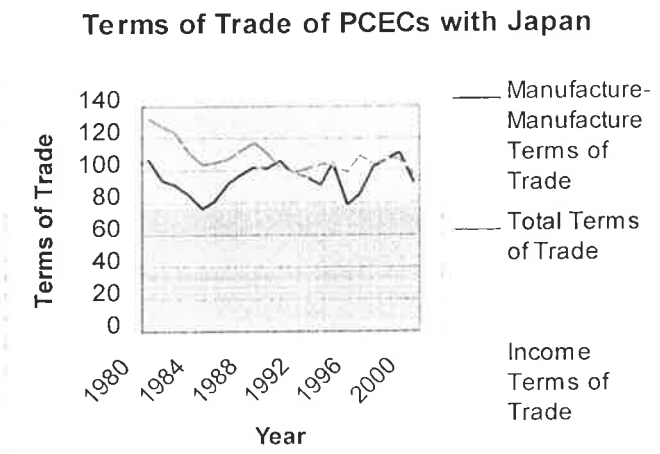


Figure 5.3 : TOT of PCECs with Japan



From figures 5.1, 5.2 and 5.3 above it can be seen that for the group of countries that mainly export primary (agricultural) products all the terms of trade; the Manufacture-Manufacture terms of trade, the Income terms of trade and the Total terms of trade declined. No significance difference in all the terms of trade of the PCECs with that of the USA, EU and Japan was observed. The implication here is that both the volume of export and the associated price of the manufactured products of these group of countries has declined over the period of time. On the other hand, it is apparent that the import prices of these counties were much higher than their export price. The fact that the total terms of trade declined, along with the manufacture-manufacture terms of trade, implies that the price of the agricultural exports of these countries is not improving.

It can be deduced that, the major economic center of these countries, agriculture, does not have a strong basis to be able to compete with the developed countries and improve their terms of trade. Their effort to shift to manufacture products has failed both in terms of volume and price of exports. It is apparent that trade has not benefited this group of countries over the period of time.

Figure 5.4 : TOT of MPEC with USA

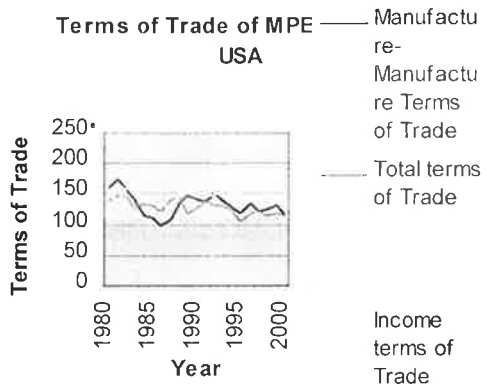


Figure 5.5: TOT of MPEC with EU

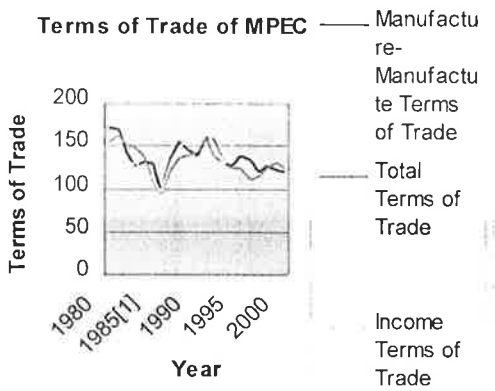
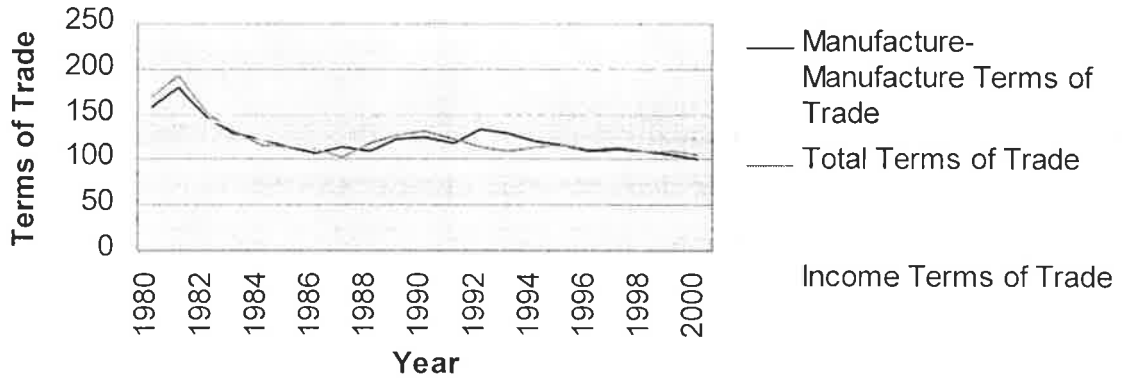


Figure 5.6: TOT of MPEC with Japan



From figures 5.4, 5.5 and 5.6 above it is seen that the Manufacture-Manufacture Terms of Trade and the Total Terms of Trade deteriorated while the Income Terms of Trade improved for the group of countries, which mainly export, manufactured products. The increase in the Income Terms of Trade along with the decrease in the Manufacture-Manufacture Terms of Trade reflect that though the volume of export of manufactured products by these group of countries increased, the decrease in price more than offset the increase in volume. (Alternately the increase in price of the manufactured products of countries of the North by far exceeds the increase in price of that of the South, even though the volume did not increase that much.). The increase in volume of the export of the manufactured products of this group of countries is mainly by those, which are semi-skilled labor-intensive products (like textile and leather products). While there import

mainly consists of high-tech manufactures from the North (Like sophisticated machines). The price difference that arises from the difference in technological level is what accounts for the decrease in the Manufacture-Manufacture Terms of Trade. In all the three cases, the Total terms of Trade decreased implying that the Agricultural export (in both volume and price) was not big enough to offset the decrease in price in the Manufacture export. It can also be inferred that, both the Agricultural and Manufacture exports face a competitive market structures, which keeps their price down as compared to their imports, even though the volume of export of manufactures increased.

The other relation that can be deducted from figures 5.4, 5.5 and 5.6 above is that, the manufacture-manufacture terms of trade (even though it decreased for this group of countries against all the groups of the North) decreased in a slower rate for their trade with Japan. From the group, their trade of manufacture with the USA is the worst. Their trade with the EU is better than the USA but not as good as with Japan. This evidently proves that, though the intra-trade of countries of the North takes the majority share of the world trade of manufactures, there is also a difference in the trade of manufactures of the south with the north.

Figure 5.7: ITC and Software TOT on NICs

With the North

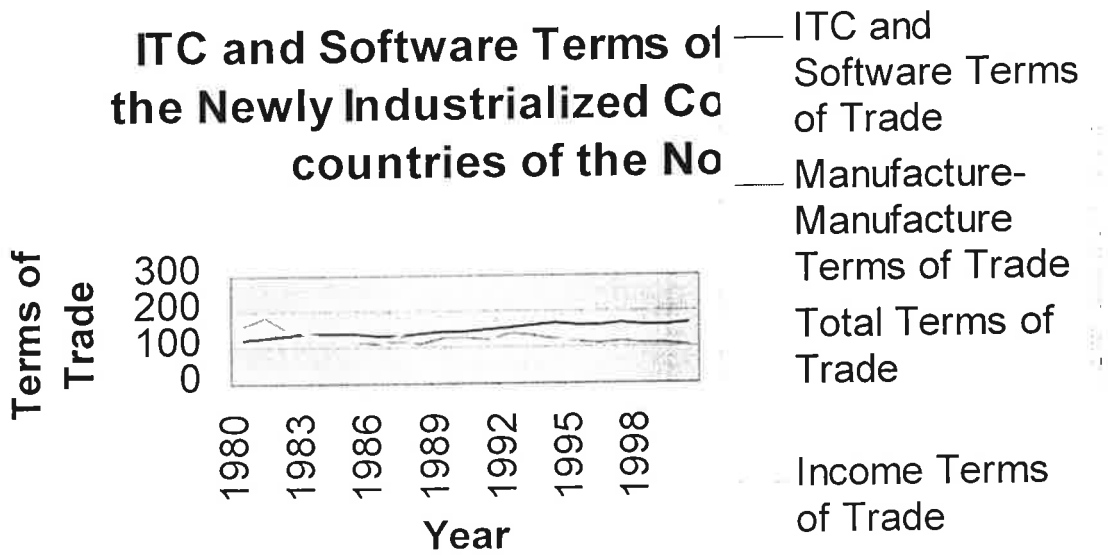


Figure 5.7 show that for the Newly Industrialized Countries (NICs), commonly known as the Asian Tiger courtiers, their terms of trade with respect to ITC and software products improved vis-à-vis the Northern countries taken as a unit. However; their manufacture-manufacture terms of trade deteriorated along with the total terms of trade. Like the manufacture exporting countries, their income terms of trade increased. The increase in the terms of trade of ITC is due to an associated increase in price. The interpretation is that, this group of countries[12] was able to not only copy but also improve on the technology of ITCs and software products that were originally innovated in the North. This has enabled them to sale their products in a market that is not as competitive as other manufactured products are for them. Yet, the manufacture-manufacture terms of trade for this group of countries has decreased, just like for the other groups of countries of the south. It reflects the fact that, the decrease in price in the heavy manufactures has more than offset the increase in price in the ITC and Software products. Though this group of countries were able to increase their volume of manufactured products, as a result of which their income terms of trade increased, the price were not big enough to keep the manufacture terms of trade from deteriorating. It is also clear that both the agricultural and manufacture terms of trade are declining as the total terms of trade is declining. These countries were, therefore, successful in their IT and Software industries while there manufacture (heavy) and agricultural export sectors do not have that much of a success story.

Generally, comparing countries of the South with that of the North based on the tables and curves above, the manufacture-manufacture terms of trade declined for all the group of countries of the South. This is attributed to the fact that the increase in the volume of exports of manufactures is not accompanied in a relative increase in the price of exports. On the other hand, the price of imports for the countries of the south has increased thereby affecting their terms of trade. The decrease of the total terms of trade in all cases also reflects that, the export price (both agricultural and manufactured products) of the south has decreased in relation to the increase in the import price. Though the ITC and Software ptroducts terms of trade increased for the NIC's, just like the rest of the group,

[12] See Appendix for the list of countries

the deterioration of manufacture-manufacture terms of trade was big enough to more than offset the increase.

From the above findings, it can be concluded that there is an asymmetry in the market structure of the South and the North the manufacture-manufacture terms of trade declined for the South despite the improvement in the Income terms of trade implying that the price of exports of the South declined. The market structure of the South is a competitive one. On the other hand the import price of the South increased as compared to their export price (which explains the decline in the manufacture-manufacture terms of trade). The price of the export of the North increases as they are facing an Oligopolistic market structure.

The deterioration of the manufacture-manufacture terms of trade of the South with respect to countries of the North holds to all the groups. However, their trade with Japan is better than with Europe, the USA being the worst case. This is clearer with the trade relation of MPECs with USA, EU and Japan. There was more transfer of technology from Japan to the East Asian countries (which constitute the majority of the MPECs) as compared to USA and EU. The distance of these countries to Japan and the trade policy of USA and EU (which is more restrictive to the products of the South) are some of the factors that account for the differences.

5.2 Econometric Results:

After obtaining the indices of the terms of trade above, it was necessary to determine the trend of the terms of trade that the South faces. The econometric results shows weather there exists any significant upward or downward trend in the indices. The econometric result of the terms of trade of PCECs, MPECs and the NICs with the USA, EU and Japan are presented in the tables below.

Table 5.1: Econometric Results of the Terms of Trade of PCECs with USA, EU and Japan

	NBTT			***ITT***		
Index	USA	EU	JAPAN	USA	EU	JAPAN
Estimate of "a"	-2.3	-2.1	-2.6	3.39	4.43	3.17
	(2.473)	(2.524)	(2.591)	(2.634)	(2.67)	(2.687)
R^2- adjusted	0.36	0.33	0.29	0.64	0.61	.69
Durbin-Watson Statistics	1.42	1.63	0.29	1.29	1.32	1.45

Table 5.2: Econometric Results of the Terms of Trade of MPECs with USA, EU and Japan

	NBTT			***ITT***		
Index	USA	EU	JAPAN	USA	EU	JAPAN
Estimate of "a"	-1.7	-1.4	-1.09	4.24	4.33	4.19
	(2.610)	(2.632)	(2.692)	(2.692)	(2.677)	(2.819)
R^2- adjusted	0.41	0.44	0.36	0.63	0.58	0.49
Durbin-Watson Statistics	0.41	1.70	1.72	1.64	1.47	1.39

Table 5.3: Econometric Results of the Terms of Trade the NICs with countries of the North

Index	*Estimate 0 f " a"*	*R^2 adjusted*	*Durbin –Watson statistic*
NBTT (M-M)	-1.11	0.35	1.64
	(2.284)		
ITT	5.64	0.74	1.57
	(2.284)		
NBTT (ITC and Software)	1.18	0.37	1.69
	(2.284)		

NB: The t-tests are shown under brackets and are significant at the 95 % level.

As it was discussed earlier, from the time series regression, it is more apparent that the NBTT deteriorated for all countries of the South in relation to the North. The deterioration was more significant to countries that export, mainly, agricultural products than for those who export manufactured products. The test statistics show that it deteriorated (per annum) 2.3%, 2.1% and 2.6% with the USA, EU and Japan respectively. For those that export manufactured products the rate of deterioration is 1.7%, 1.4% and 1.09% with respect to the USA, EU and Japan respectively. On the other hand, the income terms of trade increased by (per annum) 4.24%, 4.33% and 4.19% for primary commodity exporting countries and 4.24%, 4.33% and 4.19% for manufactured product exporting countries, in both cases with the USA, EU and Japan respectively. The NBTT for the NICs with the North improved by 1.18% per annum while the ITT improved by 5.64%, while the manufacture terms of trade decreased by 1.11% per annum through out the years.

The sings of the estimate of the constant " a ", which indicates the represents the long run trend of the terms of trade, were as expected. They were all negative for the Net Barter

Terms of Trade, indicating that it declined, and were positive for the Income Terms of Trade indicating it improved. The estimate " a " was also positive for the ITC and Software Terms of Trade.

The time series were tested for over all significance and as show by the adjusted R squared, they were found to be significant. The Durbin-Watson test was used to test for autocorrelation and the p-value were found to be greater than zero, indicating that the time series does not suffer from autocorrelation.

The findings of the regression strengthen the result obtained from the tables and curves. The manufacture-manufacture terms of trade decreased for the south while the income terms of trade increased. The rate of decrease is higher with the USA and lowest with Japan. The NICs have improved terms of trade with the North in terms of their ITC and software products.

5.3 Discussion:

Prebisch and Singer conducted an immense study on the terms of trade between primary and secondary commodities. They came up with the conclusion that countries producing agricultural product will be disfavored in being involved in international trade, as they will loose to the manufacture producing countries in terms of price. The policy implication is for those countries to shift to producing manufactured products. Some were successful in that regard, but unfortunately their terms of trade have not improved yet.
As the results of this paper show, which is in line with the results obtained by Sarkar (93) Maizels (2000), Berge and Crowe (1997) and Prasad C. (1996), the terms of trade for those countries that tried to shift to manufacture products did not show an improvement. The product cycle theory argues that countries of the North (which are the innovators of technology) will enjoy an oligopoly market structure while the South (which adopt technology from the North) will face a competitive market structure. This means that the North is a price maker while the South is a price taker. Though this is one possible logical explanation (which holds true in most of the cases) it fails to explain why the price of

ITC and software products of the South exceeded that of the North. Because of the nature of the technologies themselves it is easy, not only to duplicate them but even to improve them. However, the NBTT of these countries still deteriorated owing to the fact that their import of other manufactured group of commodities over offset the gain from trade from ITC products. Even though the BTT for specially ITC and software products might increase for these countries, the NBTT still deteriorates. As compared to those countries, which are not able, to catch the ITC as fast as these countries, NBTT decreases in a faster rate (compare the figures above).

Sarkar and Singer (1991), calculated productivity in the manufacturing sector to grow 2.8% annually for countries of the North while it decreased by 0.4% for countries of the South. This coupled with the low wage rate in the South led to the decrease in the double factorial terms of trade (DFTT) that is the NBTT multiplied by productivity and wage ratios.

Generally, the results of this paper show that the effort of the South to shift their export structure to manufactures (following the Prebisch-singer analysis of the secular deterioration of the terms of trade of the agricultural products of the South) was dominated by an increase in the volume of exports but was offset by a decrease in the price of the exports. A more detailed analysis on the ITC and Software products terms of trade showed that the NICs were able to improve their terms of trade with that regard. The implication of these findings is that the asymmetric market structure theories of the structuralists hold true. The North enjoys an Oligopolistic market structure while the south faces a competitive market structure. The terms of trade will deteriorate for the South irrespective of the type of product they produce. This is so, however, as long as the North keeps on innovating. As seen in the case of ITC and software products the terms of trade for the South can improve if they are able to improve on the technology transferred from the North.

Chapter Six: Conclusion

There is a wide inequality between countries of the North and the South in terms of growth and development. " More than three-fourths of the world's people live in developing countries, but they enjoy only 16% of the worlds income-while the richest 20% have 85% of global income"(UNDP, 1998) " In 1997, the total national products of all the nations of the world was valued at more than USD 29 trillion, of which more than 22 trillion USD originated in the economically developed regions and less than 7 trillion USD was generated in the less developed regions" (Todaro, 1997) Evidently, this inequality is increasing through time. Most economists and development theorists seem to agree on the need to decrease the inequality, "Our primary goal in development must be to reduce the disparities across and within countries.... The key development challenge of our time is the challenge of inclusion" James D.Wolfensohn, President World Bank, 1998. The difference economists have is on the method to solve the problem.

International trade is a major area where the inequality between the South and North is depicted. There is an ongoing debate on weather countries will gain or lose from trade and weather international trade will improve or worsen the inequality that exists between nations of the world. In this regard, there are two major schools of thought. The Orthodox School of Thought is in favor of free trade and believes that it will reduce the inequality that exists while the Non-Orthodox school of Thought believe it will worsen the inequality.

The Orthodox School includes, Classical Economists like Adam Smith (1776) and David Ricardo (1817); and Neo-Classical economists like Hecksher (1919), Ohlin (1933), Stolper (1941) and Samuelson (1948); The Product Cycle Theory (Technology gap theory) of Vernon (1966), Krugman (1979); and the New Trade theories of Krugman and Dollar (1998). The Non-Orthodox School consists of the Dependency Theorists/Structuralist Theories like Prebisch (1950) and Singer (1950) Unequal

Exchange Theory of Emanuel (1969), Recent Theories of Sarkar (1993), Maizels (2000), Berge and Crowe (1997), and Prasad Chandra (1996).

The major assumptions of the Orthodox School of thought are perfectly competitive market economy, full information, constant return to scale and absence of government intervention. The South will benefit from trade as they produce agricultural products, of which they have a comparative advantage because they are unskilled labor abundant countries. The North will produce industrial products, of which they have a comparative advantage, as they are capital and skilled labor-intensive countries. The law of diminishing return in the agricultural products and the law of increasing return in the manufactured products will insure that the most abundant factors of the countries benefit from trade. Therefore, they say, international trade will decrease the gap between the South and the North.

The New Trade theory went further and asserted that trade will benefit the partners under the assumption of increasing return to scale. Following the Chamberlian monopolistic competition, entry in to the system will derive profit to a level of zero. International trade will increase the market and improve the gains of it.

The Non-Orthodox school of thought, on the other hand, stress on the asymmetric nature of the market structure between the south and the North. The South has a competitive market structure while the north has an Oligopolistic market structure. The agricultural products of the south are price elastic and the increase in productivity brings about a decrease in price and not an increase in income. The manufactured products are price inelastic so the increase in productivity goes to an increase in income and not to a decrease in price. Therefore, they say, international trade widens the gap between the south and the north. The terms of trade of the south faces a sectorial deterioration. The policy implication here is that countries of the south shift their export from agriculture to manufacture dominated.

Sarkar (1993), Maizels (2000), Berge and Crowe (1997), and Prasad Chandra (1996) studied the Manufacture-Manufacture Terms of trade for the south vis-à-vis the North and found that it deteriorated for the south in favor of the North. This paper also followed the same line of argument and studied the manufacture-manufacture Terms of Trade of group of countries of the South with group of countries of the North. The ITC and Software terms of trade of the NICs were also part of the study.

It was found that the Manufacture-Manufacture terms of trade deteriorated for all the groups of the countries of the South. The income terms of trade improved, which indicate that, the volume of manufacture exports increased but is not associated with an increase in the price of the exports. This implies that, irrespective of the type of product the South is producing, they face a competitive market structure, which keeps their price down. The North on the other side is the innovator of technology, which makes it enjoy a monopolistic market structure, which keeps its price up. The terms of trade of ITC and Software products improved for the NICs. They were able to improve on the technology of these products and, therefore increase their price.

Other possible explanations for the deterioration of the terms of trade are the distance of the Southern countries from the metropolitan countries of the north Corden W. (1999) built a gravitational model and concluded that distance between peripherals and metropolitans is a major factor determining the marketability of exports.

For Lewis (1969), the food sector of the South pulls back the terms of trade while it does not affect the North. This fact will force the terms of trade of the South (irrespective of the type of exports) to fall against the North.

Ray (1998), in his book Development Economics wrote that the high amount of debt that countries of the South has to pay to the North is one other factor that forces the terms of trade to deteriorate.

The weak manufacturing base that the South exhibits plays a major role to the deterioration of the Manufacture-Manufacture terms of trade. The industries in developing countries face a sever competition from the already established manufactures of the South. The structural differences in their economy on top of the policies impeded on them makes the competition even worse. The weak internal market size coupled with a small South-South market, the high price for the import of the inputs used, human capital (skilled labor), infrastructure, credit services, price volatility and unfavorable socio-economic and political environment are some of the factors that contribute to the structural differences and weaken the competitive capacity of the South. The North also imposes trade restrictions on the South, which aggravates the problem.

Economists have given policy instruments that countries should use in order to increase their gains from trade. The two broad ones are Import substitution and Export Promotion. The former is an inward looking policy while the later is an outward looking policy. Countries of the South have been using either one of the policies at different stages of the growth of their economy.

The overall idea of import substitution is trying to create or improve the competitive base of the export sector (mainly the manufacture). This is done by the intervention of the government in the market system and creates an artificial competitiveness. They look for the internal market (so the name inward looking) and protect their industries from outside competition. They expect the local manufactures to produce substitutes for the imports restricted.

Tariffs and Quotas are one way of implementing the import substitution policies. " A Tariff is a percentage that is applied to the value of an imported item, with the resulting some of money going to the government and a Quota is the stipulation of a maximum quantity on a particular good, above which no more of that good can be imported" (Todaro, 2000)

A devaluation of a countries currency against dollar (which is a purposeful act of the government) will make imports expensive and exports cheaper. This is supposed to increase the competitiveness of the local industries against the imports.

The import substitution policies were many applied in the 1960s and 70s. The result was that local industries built an interest and took protection as a monopolistic right than a temporary measure to increase competitiveness. (Ray, 1998) the industries became continuously inefficient. This along with the increase in price of oil led to the 1980's crisis.

In contrast to the inward looking import substitution policies, export promotion policies aim at expanding trade hence called outward looking. The export subsidy is one major instrument used to effect the policy. It works in an opposite fashion to tariff and quotas. It is applied mainly on manufactures, where it is believed that the comparative advantage can be improved. As many countries of the South already have a comparative advantage on agricultural products, there is not much to change there. (Ray, 1998) Giving the targeted manufacture exports preferential treatment through access to credit and access to imports are also other instruments applied.

Generally, the Prebisch-Singer analysis has proved that the Agricultural-Manufacture Terms of Trade has deteriorated for the South. In the 60's and 70's, many countries of the South have tried to shift their export structure to manufacture from agriculture in the believe that it will alleviate them from the problem of facing reduced prices because of the price elastic nature of the agricultural products. Studies conducted later, Sarkar (1993) and the like, showed that the Manufacture-Manufacture Terms of trade also deteriorated for the South. They were still facing a competitive market structure and the North enjoyed a monopolistic market structure as they were innovating the technologies. The South must be able to involve in the act of innovating technologies if its products are going to be competitive. The improvement in the ITC and Software products Terms of Trade of the NICs proves the above statement. Countries must be able to use a mix of policies, pertaining to their existing realities, to improve their ability of innovating.

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Appendix A: Country List

Developing Countries:

Manufactured Products exporting countries:

Argentina
Brazil
Chile
China
Hong Kong
Singapore
Mexico
Malaysia
Philippines
Israel
Republic of Korea
Thailand

Primary Commodity Exporting countries:

Benin
Bolivia
Botswana
Burkina Faso
Cameroon
Central African Republic
Colombia
Costa Rica
Cyprus
Dominican Republic
El Salvador
Ethiopia
Fiji
Gambia
Ghana
Guatemala
Guyana
Haiti
Honduras
India
Jamaica
Jordan
Kenya
Lesotho
Madagascar
Malawi
Mauritania
Mauritius
Morocco
Nepal
Nicaragua
Niger
Pakistan
Paraguay
Peru
Rwanda
Senegal
Sierra Leon
South Africa
Sudan
Tanzania
Togo
Turkey
Uganda
Uruguay
Zaire
Zambia
Zimbabwe
Panama

Petroleum Exporting Countries:

Algeria	Kuwait	Trinidad
Congo	Indonesia	Tunisia
Ecuador	Nigeria	Emirate
Egypt	Saudi Arabia	Venezuela
Gabon	Syria	

Developed Countries:

Australia	Greece	Netherlands
Austria	Norway	
Belgium	Iceland	New Zealand
Canada	Ireland	Sweden
Denmark	Italy	Switzerland
Finland	Japan	Spain
France	Luxemburg	UK
Germany	Portugal	USA

Appendix B: Terms of Trade Indices of Countries of the South with Countries of the North.

Table 1: Terms of Trade of PCECs vis-à-vis the USA

Year	Manufacture-Manufacture Terms of Trade	Total[1] Terms of Trade	Income Terms of Trade[2][3]
1980	111	140	123
1981	71	139	116
1982	91	136	119
1983	117	121	121
1984	72	101	113
1985	81	94	98
1986	99	92	89
1987	113	119	113
1988	116	117	108
1989	94	112	106
1990	91	109	102
1991	87	104	98
1992	88	107	98
1993	97	111	103
1994	112	113	101
1995	79	110	99
1996	85	107	97
1997	98	101	99
1998	113	112	103
1999	115	109	103
2000	89	106	96

[1] Import of oil is excluded
[2] Income terms of trade is calculated based on the export indices of manufactures

Table 2: Terms of Trade of PCECs vis-à-vis the EU

Year	Manufacture-Manufacture terms of Trade	Total terms of Trade	Income Terms of Trade
1980	116	131	133
1981	84	129	124
1982	91	133	121
1983	109	116	121
1984	107	105	109
1985	95	101	104
1986	89	99	96
1987	106	116	113
1988	116	117	110
1989	103	112	108
1990	94	107	99
1991	87	111	102
1992	102	113	101
1993	104	102	106
1994	96	95	104
1995	83	109	101
1996	88	101	97
1997	104	101	95
1998	101	108	103
1999	109	103	108
2000	94	102	101

[3] The calculated export indices will be given at the appendix

Table 3: Terms of Trade of PCECs vis-à-vis the Japan

Year	Manufacture-Manufacture Terms of Trade	Total Terms of Trade	Income Terms of Trade
1980	107	132	123
1981	94	127	113
1982	91	124	116
1983	85	111	116
1984	76	104	113
1985	81	101	114
1986	93	107	119
1987	98	113	108
1988	103	117	104
1989	101	111	99
1990	106	102	101
1991	97	99	98
1992	96	101	95
1993	91	104	107
1994	105	105	104
1995	79	99	101
1996	85	109	101
1997	102	104	109
1998	107	108	107
1999	111	108	102
2000	95	97	105

Year	Manufacture-Manufacture Terms of Trade	Total[4] Terms of Trade	Income Terms of Trade
1980	161	141	147
1981	174	149	142
1982	159	148	161
1983	140	128	156
1984	114	136	139
1985	105	131	136
1986	99	121	136
1987	107	142	129
1988	136	145	151
1989	147	120	155
1990	142	129	162
1991	138	137	149
1992	151	131	149
1993	137	130	164
1994	129	123	171
1995	118	104	173
1996	134	118	153
1997	121	122	167
1998	126	115	174
1999	132	119	181
2000	114	116	194

Table 4: Terms of Trade of MPEC vis-à-vis the USA

[4] Total: excluding petroleum

Table 5: Terms of Trade of MPEC with the EU

Year	Manufacture-Manufacture Terms of Trade	Total Terms of Trade	Income Terms of Trade
1980	172	156	139
1981	169	163	136
1982	141	151	121
1983	126	148	132
1984	132	136	117
1985	107	111	109
1986	96	93	97
1987	137	122	131
1988	156	137	149
1989	147	139	159
1990	140	144	165
1991	161	161	166
1992	157	139	152
1993	129	130	130
1994	127	124	151
1995	140	125	168
1996	134	111	174
1997	119	116	167
1998	128	124	171
1999	122	131	177
2000	119	124	183

Table 6: Terms of Trade of MPEC vis-à-vis Japan

Year	Manufacture-Manufacture Terms of Trade	Total Terms of Trade	Income Terms of Trade
1980	157	168	131
1981	179	194	145
1982	146	152	144
1983	129	131	136
1984	122	117	123
1985	116	114	113
1986	107	112	109
1987	114	103	130
1988	109	118	152
1989	123	128	163
1990	126	131	170
1991	119	122	155
1992	134	114	167
1993	129	109	172
1994	121	114	181
1995	116	117	188
1996	109	111	205
1997	112	115	196
1998	110	110	190
1999	106	109	208
2000	101	106	213

Table 7: ITC and Software Terms of Trade of NIC's[5] with the North

Year	ITC and Software Terms of Trade	Manufacture-Manufacture Terms of Trade	Total Terms of Trade	Income Terms of Trade
1980	121	160	173	136
1981	129	182	199	150
1982	133	149	157	149
1983	141	132	136	141
1984	139	125	122	128
1985	140	119	117	119
1986	135	110	117	114
1987	131	117	108	135
1988	137	112	123	157
1989	142	126	133	168
1990	147	129	136	175
1991	152	122	127	160
1992	156	137	119	172
1993	161	132	114	177
1994	165	124	119	186
1995	161	119	122	193
1996	163	112	116	208
1997	167	115	120	201
1998	161	113	115	195
1999	161	109	114	213
2000	169	104	111	218

[5] NIC: - Newly Industrialized Countries