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PROSPECTS OF REORGANIZING INTERNATIONAL TRADE IN PRIMARY COMMODITIES THE CASE OF COFFEE

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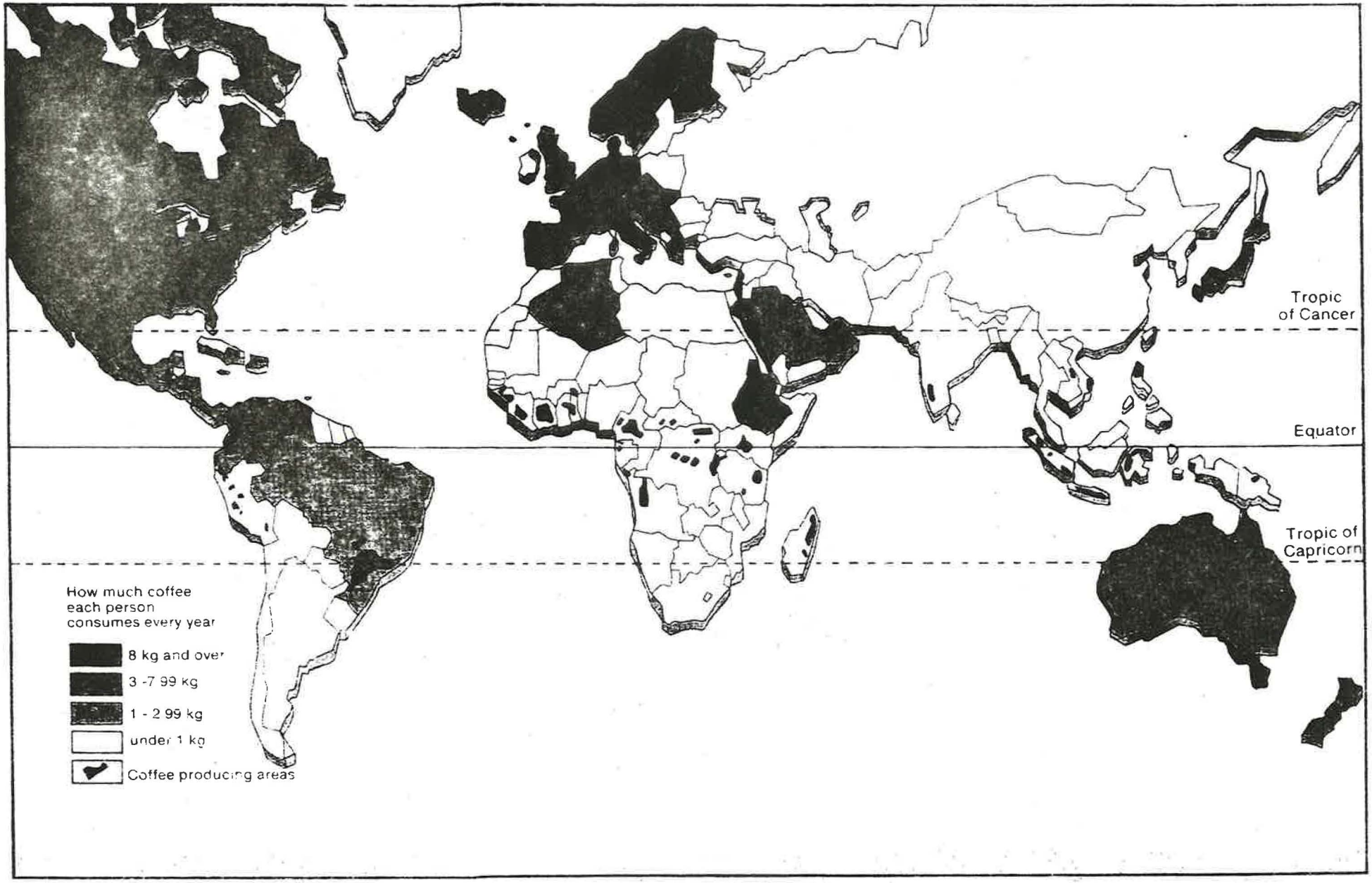
Map showing where coffee is grown and which countries buy most coffee



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CHAPTER I

INTRODUCTION

This chapter, besides providing an overview of the subject in general will attempt to accomplish two main objectives. First, it will point out the common drawbacks of heavy dependence on the export of primary commodities. Second, it will draw attention to some of the specific problems that are related to coffee as an internationally traded commodity.

The main query that this paper attempts to shed light upon, is whether the experience of OPEC can be repeated by other existing or would be producers-exporters associations, given the prevailing world market trend for primary commodities, and taking into consideration the prevailing world political and economic situation. In view of that, the past experience, the present trend and future prospects of coffee in the world market will be looked at, in order to obtain a more realistic view of the practical problems involved in the trade of primary commodities.

Why coffee has been selected for consideration, while it appears to have less prospect of being cartelised, is because: (a) coffee is second to oil in importance of the different primary commodities exported from the Third World on the basis of value, (b) during that last five years, 1975-79, the world coffee market has more or less behaved in favour of producers, that is, the nominal price of coffee has risen, (c) showing cartelisation possibilities for a less strategic commodity, such as coffee, will reveal even brighter chances for the others, e.g. minerals. However, it needs to be realised that problems of each commodity tend to be different and require separate studies.

1.1 Recent Developments

Ever since the appearance of the report of Raul Prebisch, on the requirements of a new trade policy for development at the UNCTAD 1964 conference, many have attempted to provide a theoretical analysis and statistical evidence to show the validity and weakness of the report. The most important feature of the report was, "a call for the establishment of a new international order which would be more responsive to both global needs, and the needs of developing countries".(1) At the beginning, the report received little favourable response, however some years later some of the suggestions of the report were incorporated in the international development strategy of the U.N. for 1970s.

Nonetheless, in the last two decades, the evidence has been such that the share of developing countries world exports has been declining and their terms of trade* have not been favourable. According to Yeates' calculation the terms of trade for non-oil producing developing countries deteriorated on the average by -12 percent, while for developed market economies it improved by +8 percent for the period 1960 to 1973.(2)**

Note: The numbers in brackets refer to the footnotes presented at the end of each chapter.

* Terms of trade is understood in this thesis as the price ratio of exports to imports or more commonly known as the net barter terms of trade.

** Yeates' calculation of terms of trade is based on figures for the years 1960, 1965, 1970, 1973. He arrived at the figures noted above by dividing the terms of trade for each year by the average ratio of exports to imports for the year 1954-56. (For a detailed analysis refer to Yeates 1979. P.48.)

There is also clear evidence that the share of developing countries exports has shown a persistent decline in the past two or three decades. For instance, exports in 1950 from the developing countries was 30 percent of the total world trade; for 1960 and 1970 the corresponding figures were 21 percent and 17 percent respectively. What is even more striking is that out of a total of US$200 billion (1973) worth of commodities exported from the less developed countries the return was only US$30 billion. The remaining US$170 billion was retained by transnational companies of the developed world which dominate the transport, marketing, insurance and finance. To illustrate the point Martner notes,

> "Moreover, it is worth noting the low percentage of earnings which the producing country receives out of the sale price in the consuming country. Thus, in the period 1967-1972, the export price of developing countries as a percentage of the sale price to the consumer in the developed country was 53 percent in the case of tea, 15 percent for cocoa (both as a percentage of United Kingdom price), 48 percent for peanut oil, 30 percent for citric juices, 20 percent for bananas, 14 percent for coffee, 32 percent for jute, 55 percent for copper concentrate, 75 percent for refined tin (in the seven cases as a percentage of the price in France) and 10 percent for iron ore (Federal Republic of Germany prices). If we consider that the export price includes all the local costs, it becomes clear that the primary producers earn only a minimal percentage". (4)

A number of economists attribute the unbalanced state of economic affairs and unequal distribution of income of the world to the developing countries' excessive reliance

on the production and export of primary commodities. Notwithstanding its importance, it would be gross simplification to leave it at that. The present imbalance in world development is the result of the existing structure of international economic relations, structure of power and dominance at the world level. This is one of the main factors underlying the support of most developing countries for the campaign to establish a 'New International Economic Order' (NIEO). However, it would be unwise to attempt to discuss all the causes of underdevelopment of the Third World and to provide prescription in an exercise of this nature. The main purpose of this thesis is to assess the prospects for Third World producers to gain a larger share of world income through cartelisation of primary exports; leaving open the question as to whether this would necessarily lead to an improvement of the situation ('development') for the majority of the inhabitants of these countries. As it will be noted in the following section the importance of primary commodity trade for the developing world can hardly be over emphasised.

1.2 Problems of Dependence on Primary Commodities

The most striking aspect of international trade is the predominance of the developed capitalist countries, as they are the source of two-thirds of the world exports and imports in money terms. According to figures for early 1970's developing countries accounted for only 26 percent of world exports of which 11 percent was derived from OPEC countries. In 1976 out of the total world trade in manufactured exports, only 7.6 percent originated in developing countries, while the developed capitalist countries accounted for 83.7 percent and the socialist countries for 8.7 percent. The population distribution

for these groups is roughly 71 percent, 19 percent and 10 percent respectively. Even in the case of primary commodities developed countries have by far the upper hand with the exception of few particular commodities such as petroleum. The value of exports of agricultural and mineral raw materials from developed countries is three times of that from developing countries.(5)

It is also important to note that excluding oil almost 70 percent (the estimate is based on 1972 figures) of developing countries export earnings originates from the sale of primary commodities. This amounts to about 15 percent of the value of total world exports.(6) The problem becomes even more serious when one considers the fact that a number of developing countries are mono-culture. For instance, in 1975 crude petroleum constituted more than 90 percent of total exports from Saudi Arabia, Iran, Iraq, Libya and Nigeria. Copper constituted about 70 percent of the total exports from Liberia and Mauritania. The situation with respect to agricultural commodities is not very different. Coffee constituted about 60 percent of total exports from Burundi, Ethiopia, Rwanda and Uganda; jute more than 80 percent of total exports from Bangladesh; groundnuts about 93 percent of total exports from Zambia and one could go on enumerating such examples if need be.*

It is rather generally accepted that the prices of primary products vary much more sharply from year to year than do the prices of manufactures. Since quite a number of developing countries, especially the least developed ones are dependent on one or two export commodities, fluctuation in the price of these commodities will have serious effect on these countries' economic well-being and constitute a major obstacle for development planning

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* It is based on UNCTAD Statistics for 1975.

and finance. Each commodity may have its own peculiar cause for such behaviour, but there are also factors that are common to most primary commodities. The main reason for price fluctuation is the short-run inflexibility of both output and demand in relation to price changes. The causes for the observed fluctuation might become more clear if we look carefully at the demand and supply behaviour of primary commodities. On the supply side, in the short run, response to price changes is rather low, since it requires a relatively longer period to bring about changes in the level of production. Even in the case of minerals, since a greater proportion of the total cost is fixed cost, it makes it advantageous to operate at full capacity for a wide range of prices. Hence, supply tends to be insensitive to price in the short or medium term. Moreover, agricultural commodities tend to be susceptible to natural calamities, such as frost, draught, excess rainfall which make supply variations uncontrolable or volotile.(7)

On the other hand, demand is determined by a number of complex factors. The income elasticity of demand for many of the primary commodities such as beverages and food stuffs tends to be rather low. For most minerals, metals and fuels, the income elasticity of demand appears to be high. Helleiner provides five factors that affect demand behaviour of agricultural primary commodities.*

> "Agricultural protection in the developed countries limits market access.
>
> Technological advancement has produced synthetic substitutes for rubber, wool, cotton, etc.

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* It is a condensed version of the factors that have been presented by G.K. Helleiner.

> As a result of changing industrial structure and market situation of industrial countries income elasticities of demand tends to be low.
>
> Present population growth trends and forecasts for the future are rather low. Hence, increase in the demand for primary commodities in subsequent periods is unlikely.
>
> Although there is no full consent among economists price elasticity of world demand for agricultural tropical products appears to be low".(8)

Yeates on his part analyses price instability by dividing commodities into three main groups according to their market characteristic: Firstly, those commodities that have fluctuating world supply and fairly steady demand, e.g. coffee, tea, oil seeds, etc.; secondly, those that have fluctuating world supply and demand; in this group one may include rubber, flax, jute, etc; thirdly, those that have stable supply pattern and fluctuating demand. This group includes metals, minerals and fuels. Since demand for these commodities is determined mainly by the level of economic activity of the industrialized world, it tends to be unstable, while supply is fairly steady, for reasons noted earlier.(9) The same author rightly points out that for the exporting developing countries who depend on one or few commodities, it would matter little whether the fluctuation is demand or supply determined, since both types of fluctuations could result in a reduced foreign exchange earnings.

Besides these observed market characteristics of primary commodity trade, most of the marketing is handled by multinationals as it can easily be observed from the following table.

Table 1.1 - EXPORTS OF DEVELOPING COUNTRIES MARKETED BY MULTINATIONALS, 1976.

Commodity	Total Exports ($ million)	Percentage Marketed by Multinationals
Food		
Cocoa	1,737	85
Bananas	793	70 - 75
Tobacco	1,079	85 - 90
Tea	827	85
Coffee	7,831	85 - 90
Sugar	4,881	60
Rice	1,102	70
Wheat	449	85 - 90
Agricultural Raw Materials		
Hides and Skins	297	25
Natural Rubber	2,202	70 - 75
Cotton	2,692	85 - 90
Jute	172	85 - 90
Forest Products	4,169	90
Ores, Minerals, Metals		
Crude Petroleum	29,149	75
Copper	3,031	85 - 90
Iron Ore	1,256	90 - 95
Bauxite	518	90 - 95
Tin	604	75 - 80
Phosphates	850	50 - 60

Source: G. Martner - Producers-Exporters Association of Developing Countries. P.7, Geneva, 1979.

That fact that most of the trade of primary commodities is handled by multinationals may have a number of implicit implications for primary commodity producers. There will be intra-firm trade that encourages transfer pricing, the main objectives being to control the market, evading taxes and transfering profits with little difficulty. If the above figures reflect the actual situation in the real world it would be difficult to imagine that an improvement in the terms of trade of the developing countries alone will necessarily increase the export earnings of the governments or the actual producers.[10] Hence, remedies

offered to improve the trade position of developing countries should not overlook the possible impacts of such trade relations.

In addition, specialization in the production and export of primary commodities provides very little opportunity for skill improvement; since it mostly creates employment for unskilled workers. As a consequence, it only makes marginal contribution to the efforts of developing countries to improve the living standard of the people and 'development' in general.

Despite the awareness of persons in the governments and academic circles in the Third World it has proven difficult to get out of this pattern of production and trade relation. It has been suggested time and again that developing countries should diversify their export base both vertically and horizontally. However, there are many obstacles that retard developing countries from advancing along this path smoothly. Besides the knowhow and sometimes natural resources that some developing countries lack, there are also tariff and non-tariff barriers that make access to the rich markets of the developed world very difficult if not impossible.

This is not to deny the success of certain countries, for example, Taiwan, South Korea and Hong Kong, who have managed to penetrate the rich markets, in spite of the above mentioned barriers. However, it needs to be noted that most of these countries tend to have special reasons, such as their strategic position in the world trade and the economic support they enjoy from the developed capitalist countries, which makes it difficult to take them as typical examples of success in penetrating the rich markets. In line with this argument Sutcliffe notes,

> "In addition it is illegitimate in some cases to regard these exports as the exports of underdeveloped countries as such: they are often the exports of firms from developed countries which are taking advantage of lower wage rates and proximity to markets. Some of the exports of South Korea and Formosa to developed countries were the exports of Japanese firms. This fact means that the rapid growth of exports from some countries does not imply that it is possible in others; this will depend upon the international location policies of the firms concerned". (11)

1.3 Some Specific Problems of Reliance on Coffee Exports

Coffee comes second to oil in importance on the basis of the value of world annual export. (Refer to Table 1.1). Most of it comes from Africa and South America, and the major consumers are the United States and Europe, the former country alone accounts for about 35 percent of the consumption.

Though coffee is said to have started being a trade commodity around the 6th A.D. between Ethiopia and the Middle East, it only gained real importance at the end of the last and beginning of the present centuries as it started to be produced abundantly in South America and gained popularity as a beverage in the United States. (12)

As pointed out earlier, coffee is classified in the group of primary commodities with a market characteristic of steadily growing demand and fluctuating supply. The erratic behaviour of coffee supply is mainly caused by two factors. First, year to year fluctuation - due to the inherent nature of the coffee trees; that is, there is a tendency for a good crop year to be followed by a bad crop year. Second, periodic variation could come as a result of adverse climatic condition and as trees get old or new ones start to give forth fruit.

Even though there are many sub-species, the two main types of species are Arabica and Robusta. According to figures for 1976 Arabica accounted for about 70 percent of the production and Robusta the remaining 30 percent. The bulk of Arabica is produced in Latin America, while Robusta is mostly produced in Africa.(13)

Long before the Second World War and especially in the 1920's and 30's Brazil attempted to control the world market by virtue of her dominance over the quantity of coffee that was traded every year. The result of Brazil's attempt to control the market was sometimes successful and sometimes disastrous. In retrospect the failures of the control schemes were most often due to the inability of the government to regulate the domestic production to take advantage of the price increase.(14) This will become more evident as we explore the market trend of coffee in the last three decades in chapters III and IV.

As for many other agricultural primary commodities, the amount and quantity of coffee produced depends partly on weather and cultivation techniques, and partly on price. In the case of coffee, price changes usually bring marginal effect on the level of world coffee supply and demand. Throughout the history of coffee weather has been the most important cause for variation and in particular frost in Brazil. A serious frost could have an impact on the production level for upto 4 to 5 years and frost is observed to be the most important cause for periodic variation of supply, and as a result of price.(15)

In the short run price elasticities of both demand and supply are rather low. As a result a fall in the quantity of coffee supplied in the world market or a sudden increase in quantity demanded could drive prices

to a very high level. Such drastic price variations are usually explained in terms of the lagged behaviour of coffee plantation and production. How such and similar characteristics of coffee influence the world price trend of coffee beans has been discussed in detail in chapter IV. In addition to this inherent characteristic of coffee, weather seems to have a very serious impact on prices when one makes a careful inspection of trends of coffee price. A more recent and dramatic example is the 1975 frost in Brazil. The result was a rise of prices by over 400 percent between 1975 and 1977. To mention one case, Brazil's export earnings rose by 1,700 while the quantity exported fell by about one quarter. For most major coffee producing countries it was a blessing in disguise, while for a few such as Colombia it stimulated domestic inflation.(16)

Given the precarious or cyclical nature of the world coffee market, there are a lot of difficulties for planning and financing investments especially for those countries who depend on this particular commodity for the major part of their export earnings. In addition, coffee reflects the following major weaknesses:-

Firstly, coffee cultivation does not create much employment. The little employment that it can provide is a seasonal type for unskilled labour. This is mainly due to the nature of coffee trees. Once a coffee tree starts to give fruit, it may have a minimum productive life of 20 years and a maximum of 80 years. During this period the most important aspect of the production process that requires labour is the picking of ripe coffee beans, that takes place during a period of about 3 months a year.

Secondly, coffee does not lend itself to much further processing. At the present, coffee is mostly

exported in the form of washed or unwashed coffee beans. If a producing country decides to process it, it may be roasted and powdered. The only further step of processing may be blending different types of coffee to obtain a certain desired flavour plus the packaging. However, all the different aspects of coffee processing are monopolized by multinationals who control the major markets making entry into the processed coffee market very difficult, if not impossible. Even though the processing of coffee requires rather less sophisticated technology, it needs to be noted that coffee producing countries obtain only 14 percent of the consumer price and exporting it in the processed form may have a far reaching effect on export prices or earnings.

Many of the above mentioned problems are also common to other agricultural commodities and in particular to beverages. In chapter III, we will attempt to look at the main causes of the problems and its impact on coffee market trends. Such an exposition will provide the ground for the assessment and diagnosis of the obstacles to coffee cartelisation that will be presented in chapter V. It is hoped that such a study will shed some light on what type of steps need to be undertaken to come to a better understanding of problems of trade in this particular primary commodity as well as pointing to possible ways and means of overcoming some of this problems, from the point of view of the producing and exporting countries.

1.4 Outline of Contents

Given the preceding brief introductory remarks, to provide a general view of the nature and magnitude of the problems of the trade of primary commodities in general and coffee in particular, the rest of this paper will be as follows:-

Chapter II will show the theoretical advantages of cartels or monopoly pricing and provides a brief summary of its comparative advantage as opposed to the other trade arrangements such as the buffer stock, compensatory financing etc., which are suggested for the "Integrated Commodity Programme".

Chapter III will present some of the major structural characteristics of coffee production and marketing in the world, that are thought to be relevant for the purpose of this paper.

Chapter IV will look at past records of producers-exporters associations in the different coffee producing regions of the world. It will mainly attempt to discuss the nature of their set-up, their objectives and achievements of each of them.

It is then necessary to make a brief assessment of future prospects for cartelisation of coffee based on the analysis in the preceding two chapters. Hence, the main objective of Chapter V will be to compare and contrast the negative and positive characteristics of coffee with regard to cartelisation possibilities.

Finally, Chapter VI will attempt to show the role of primary commodities in the ongoing North South Dialogue. As it is well known, one of the main objectives of the North South Dialogue is to search for ways and means, whereby primary commodity exporting countries may obtain a fair share of the world income and the benefits of international trade. In addition the chapter will make brief concluding remarks.

FOOTNOTES

1. A.J. Yeates, Trade Barriers Facing Developing Countries, Macmillan, London, 1979, p.1.
2. Ibid., p.39.
3. G. Martner, Producers-Exporters Association of Developing Countries, Geneva, 1979, p.27.
4. Ibid., p.15.
5. Ibid., pp.4-6.
6. A.J. Yeates, op.cit., p.5.
7. G.K. Helleiner, International Trade and Economic Development, Harmondsworth, Penguin Books Ltd., Middlesex, England, 1972, p.43.
8. Ibid., pp.34-40.
9. A.J. Yeates, op.cit., p.24.
10. G. Martner, op.cit., p.8.
11. R.B. Sutcliffe, Industry and Underdevelopment, Addison-Wesley Publishing Company, London, 1971, p.271.
12. A. Paulson, Marketing and Distribution of Coffee, Nov.2, 1979, (unpublished Report for UNCTAD), p.3.
13. Ibid., p.9.
14. V.D. Wickizer, Coffee, Tea and Cocoa, An Economic and Political Analysis, Food Research Institute, Stanford University Press, California, 1951, p.27.
15. Ibid., pp.42-43.
16. A. Paulson, op.cit., pp.18-22.

CHAPTER II

THEORY OF CARTELS AND IDENTIFICATION OF KEY CHARACTERISTICS

The main objective of this chapter will be to point out the key characteristics of the theory of collusive oligopoly and to demonstrate the benefits that the sellers could drive from such a situation. At a later stage an attempt will be made to present the essential conditions for effective collusion among producers and to provide a brief description of the different instruments of the integrated commodity agreement, which has been proposed by UNCTAD. Finally, a brief comparison of the gains from the different policy options will be made.

2.1 Theory of cartels

> "A situation of collusive oligopoly would occur when the firms in a particular industry decide that their common and individual interests would be served best if they joined together as a single unit so as to reap the maximum potential profit that their advantageous market position can afford".(1)

Such a situation is referred to as a centralized cartel. If all the members could reach an agreement to maximize their collective gain they would behave as a perfect profit maximizing monopoly.

The demand they face will be the total market demand for the product as represented in Fig.2.1 by line DD. Once the members reach an agreement as to what objective they should pursue, then they will choose the quantity that will best satisfy that objective. Instead of profit maximization they could have as their objective total revenue maximization. In either of these two monopoly pricing situation, provided the commodity faces a negatively

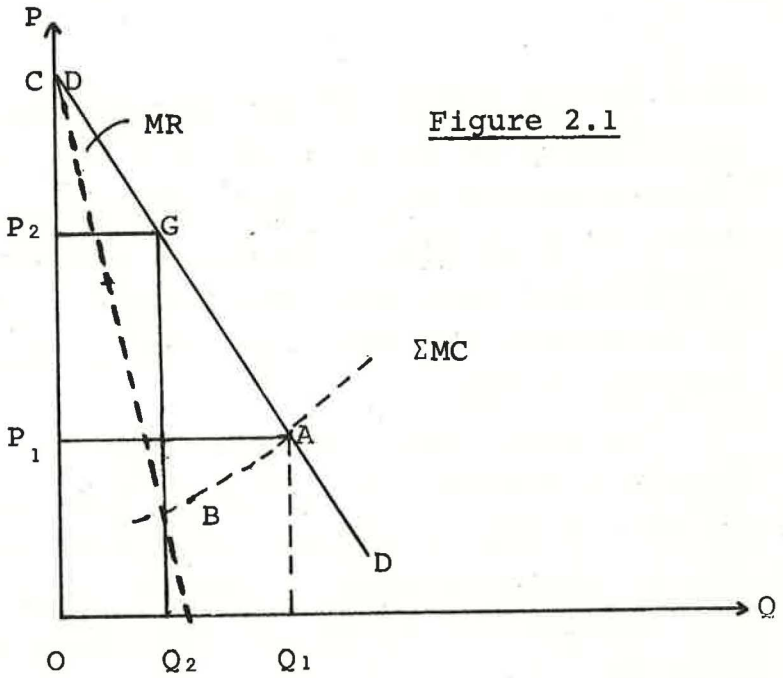

Figure 2.1

sloping demand curve, prices would be higher than what would prevail at a competitive market and lower than the prohibitive level* (exceptions to this rather general principle will be taken up on page 25). Referring to Fig.2.1 in a hypothetical perfectly competitive market, ΣMc curve will be the supply curve and the equilibrium point will be at A or P_1, Q_1.

In a monopoly situation, the most profitable position is at a point of intersection of marginal cost and marginal revenue. In Fig.2.1 this intersection corresponds to P_2 and Q_2. Hence, reducing the output to a level below the competitive position will bring higher sales volume and/or profits depending on the price elasticity of the goods. Any point between A and G will mean higher sales volume than at P_1, Q_1. In theory, the most profitable point is the point of intersection of marginal revenue and marginal

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* The prohibitive level is the level of price that would result in a reduced profit than would be the case in the hypothetical perfectly competitive situation.

cost and the limits of the common price is that level of price beyond which no sales will take place. The limit actually exists due to the negative slope of the demand curve. Had it been a perfectly inelastic demand curve prices could have gone even higher.* It is also possible to illustrate the above argument by means of the same numerical example.

Any price level above 3.3 and below 8.00 in Table 2.1 implies a transfer of resources from the buyers to the sellers through the market mechanism (higher sales volume with a reduced quantity). In the case of trade of primary commodities income will hopefully be distributed from the buyers in the developed world to the producers in the underdeveloped world unless counteracted by other mechanisms.

Table 2.1

Quantity	Price	Sales volume		
0.5	12	6		
1.0	10	10		
1.5	8	12		
2.0	7.2	14.4	}	
2.5	6.0	15.0	}	monopoly
3.0	5.1	15.3	}	situation
3.5	4.2	14.7	}	
3.8	3.3	12.54	-	the competitive situation
4.0	3.1	12.40		
4.5	2.3	10.35		
5.0	1.2	6.00		

Note: The above numbers roughly reflect the price elasticity depicted in Fig.2.1

* In the real world, it is rather rare to find commodities with perfectly inelastic demand.

What needs to be resolved now is deriving the optimum quantity that each member of the collusive oligopoly should produce and how the gains should be distributed.

To begin with, the profit maximizing level should first be agreed upon jointly. Then each member will have to produce the quantity at which its short-run marginal cost intersects the aggregate marginal revenue curve. Due to differences in level of efficiency, it is to be expected that all firms will not have identical marginal cost curve and the share of production of each firm may differ. One plausible procedure suggested by Bell and Todaro is as follows:-

> "The share of total profits that is contributed by each firm could then be calculated as the difference between the price at which all output is sold on the market and the average cost of producing each quota multiplied by the output volume of each firm. Profits might then be divided according to the size of each firm's contribution to total profits". (2)

It may also be distributed on the basis of some pre-arranged procedure, such as a production quota. Assuming the members can formulate a procedure that would be accepted by all members, the success of such a collusion will depend on the effectiveness of the barrier that prohibits the entry of new producers. The barrier could either be physical, technical, financial or artificial like a tariff.

In the real world we are more likely to find a less rigid type of oligopoly than the pure monopoly described above. The type mostly observed is where firms in an industry set their prices following the price leader. This usually happens when an industry is composed of few big firms and a number of small ones. In the absence of any

formal agreement the big firms will set the price and the small ones will sell at that price as much quantity as they can instead of competing among themselves to obtain the highest share of the remaining market from the big firms. When the small firms behave in such a manner there will be a tacit understanding by the big firms not to undercut the small firms.* It should anyhow be noted that in such a situation producers will obtain a lower profit than in the case of formally agreed oligopoly.

The above presentation of an oligopoly market might be a sufficient treatment if we have in mind an industrial product. But, for the purpose of primary commodities that are traded internationally, we will be obliged to modify our approach and to take into consideration some other factors.

In theory any commodity can be subjected to monopoly pricing provided the producing countries believe their interests would be served best if they join a collusive association. The limits to such a monopoly pricing is believed to be the price elasticity of demand.(3) The lower the demand elasticity the better the chances to push prices high and sustain it for a long period. Hence, in most literature the argument is that inelastic demand is a necessary condition for the success of a cartel. Kindleberger for instance, provides the following equation to measure the optimal monopoly mark up.

$$t^* = \frac{\text{optimal price minus marginal cost}}{\text{price}} = \frac{1}{/dc/}$$

dc - the elasticity of demand for the cartel product.

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* For a detailed discussion and graphic illustration, refer to Bell and Todaro 1969, pp.257-58.

The most important conclusion that one draws from the above equation is that the higher the demand elasticity the lower the optimal monopoly mark-up. The extreme case will be where the product faces a completely elastic demand and the mark-up will be so low that cartelisation will not be viable at all.

For any internationally traded commodity, the elasticity of the demand faced by the cartel as a whole is determined by three factors.(4)

(a) the elasticity of competing supply outside the cartel (of the same product)
(b) the elasticity of world demand for the product
(c) the cartels share of the world market.

These three factors are summarized by the following equation(5)

$$dc = \frac{d - So\ (1-C)}{C}$$

The mark-up may be calculated as a fraction of the price by means of the following expression

$$t = \frac{C}{/\ d - S_o\ (1-C)\ /}$$

c = the market share of the cartel
d = world demand elasticity of the product
S_o = positive elasticity of supply outside the cartel.

The two main implicit assumption for most parts of the above discussion are:-

a) the producers are capable of behaving more or less like a single monopoly producer
b) the product is homogeneous.

However, in cases where the above two assumptions do not hold true, as it is the case in practice, the approach that will be employed to assess the viability of cartelisation will be slightly different, as it may be observed below. For instance, in the case of coffee it can be observed that coffee from one region or country is not a perfect substitute for coffee produced in another region or country. One also cannot always assume that every producer will be part of the cartel. Hence, the task ahead will be to assess the impact of such factors on the viability of cartelisation.

Carl Van Duyne (1975) in his study on the subject provides an equation to measure the viability of a cartel and as well take into consideration the above two conditions.*

$$\sigma \xrightarrow{\text{Lim}} \infty \qquad \eta c = \frac{\eta}{S} + \frac{(1 - S)}{S} \varepsilon$$

The term $\frac{\eta}{S}$ shows that the elasticity of demand will vary inversely with the market share of the cartel. The other term $\frac{(1-S)}{S} \varepsilon$ shows that the elasticity of demand for the cartel's product varies directly with the elasticity of supply outside the cartel and that the magnitude of this effect increases as the market share of the cartel is reduced. The smaller the cartel's share of the world supply the more difficult it becomes to absorb the reduction in export volume to keep up prices. Carl Van Duyne

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* The author has gone through eight steps to derive the final equation. The equation is a special case of Hick's (1961) elasticity of derived demand and more recently the equation has been used by Takeuchi (1972) in his study of CIPEC copper cartel. For further details refer Carl Van Duyne, 1975, pp.597-606.

has calculated the extent to which prices are expected to increase for a range of price elasticity and market share, e.g. a market share of 0.8 and an elasticity of supply outside the cartel of 1.0 will ensure that the cartel will be able to bring a substantial increase in its export earnings as long as the elasticity of demand for the product is not much over 0.5[6] (for a more complete data and graph refer to Annex II).

There could be two more or less equally plausible objectives that a cartel could pursue:- a) to maximize total revenue, b) to maximize profits. But unless demand happens to be completely inelastic, no single price and quantity combination will satisfy the two objectives at the same time. It would be more logical to assume that a cartel of primary commodity producing countries will choose the objective of maximizing profits. This will amount to maximizing returns to scarce productive resources that are needed to produce the commodity under consideration.* This particular objective promotes economic growth and efficiency. However if a cartel seeks to maximize total revenue, it would not necessarily improve returns to the scarce resources unless the elasticity of the demand that the commodity faces is less than unity.** However, even if it does not satisfy the

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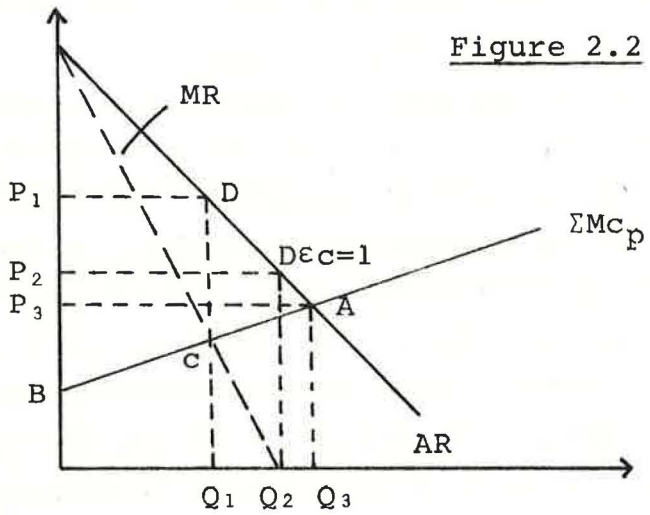
* It is assumed that the scarce resources are obtained locally.
Costs should be based on the opportunity cost of the productive resources in order to assess the impact of trade on the society as a whole.

** In some literature price is also taken as an objective. However, as it is well known prices are rather tricky to deal with. Even when it is possible to keep prices stable the purchasing capacity of export earnings may decline.

economic efficiency criteria it could possibly be justified if the countries are subject to a severe foreign exchange constraint.(7) Next, we shall try to demonstrate why the above two objectives may not be achieved at the same level of production in all cases.

Figure 2.2



As pointed out at the beginning of this chapter the hypothetical, most profitable monopoly position is where Mc = MR. In Fig.2.2 it is P_1 Q_1. On the other hand, under the same conditions total revenue will be at a maximum where demand elasticity is one and marginal revenue is zero and as it can easily be observed from Fig.2.2 it is P_2 Q_2.

However, in the hypothetical perfectly competitive situation the long-run equilibrium will be at A or P_3 Q_3.* Among the three levels of production, it can easily be seen that total profit is at a maximum at Q_1. The above is more or less the standard neoclassical marginal cost

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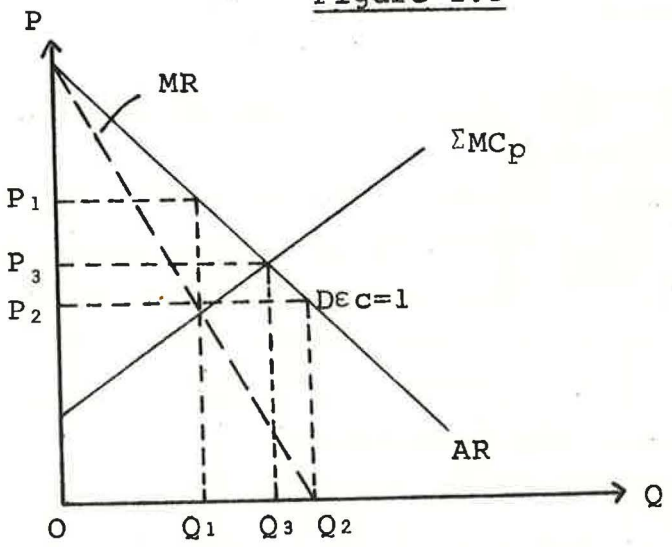
* It would anyhow be irrational to expect a perfectly competitive international primary commodity market as buyers and sellers are few in number and sometimes handled by corporations and parstatal organisations.

and revenue relationship.[8] In some exceptional cases, depending on the demand elasticity and cost structure, unitary negative elasticity could be at a level of production higher than the competitive position as it may be observed in Fig.2.3.[9]

Figure 2.3



In a perfectly competitive situation, production will be at Q_3, which is a lower level of production than the level where total revenue is at a maximum or where demand is minus unitary. Hence, any one policy cannot be expected to satisfy all the two objectives unless in special cases. The policy that is to be pursued should not only be decided on the basis of elasticity of demand, but should also take into consideration the cost and revenue structure of the commodity concerned.

With the idea of making our argument more sound, in section 2:2 we will present the conditions that are essential for the durability of a cartel. In section 2:3 cartelisation as a trade reform would be compared with other forms of International Commodity Agreements

(ICAs) before going on to discuss the specific characteristics of and possible problems associated with the cartelisation of coffee trade in the next three chapters. Given the scope and the purpose of this paper it is sufficient to consider only the major policy instruments of ICA's that have been studied by UNCTAD extensively in recent years.

2.2 Conditions that are essential for the Durability of a Cartel

Nozil Choucri defines a cartel "as an agreement about price or price structure and output by firms in an industry".(10) The success of a cartel will depend on the ability of the small number of producers to dominate or regulate the market on the basis of their oligopoly power rather than competition.

According to the above mentioned author there is a general consensus among many economists that the most favourable conditions for the formation and success of a cartel are the following:-

" 1) the existence of a few sellers;
2) the dominance of one seller;
3) an agreement about appropriate market shares;
4) a similarity of costs incurred in the production process;
5) a similarity in the seller's prediction of the demand for their product;
6) the stability of the demand;
7) a similarity in ways and rates of discounting future profits;
8) the shared perception of risk;
9) unorganized consumers for the product;

10) a compatible valuation framework by which sellers seek to maximize profits and buyers seek to minimize the cost of goods pruchased".(11)

The above are more or less purely economic conditions that are considered to be conducive for a cartel formation and durability for firms in an industry. However, when the participants in the cartel are states instead of firms it is not only economic considerations, one has also to take into account the political aspect. For instance, in the case of OPEC, the hostility between the Arabs and Israel and the embargo of oil against Western countries, which lasted for some time; and also the agreement between Iraq and Iran to limit the Kurdish liberation movement may be sighted as some of the factors that created the political atmosphere for the success of OPEC. Hence the success of OPEC cannot be attributed to economic factors alone. The political factors have provided strength for the organization.

Broadly speaking, OPEC satisfies 1, 2, 6, 9 and 10 of the above favourable conditions for the success of a cartel. Despite its lack of the favourable characteristics it has so far proven to be successful. Among others, E. Penrose rightly warns against the idea of attempting to equate OPEC to the classical textbook image of a cartel. In addition, he notes, many economists predicted its imminent collapse.(12) It seems safe to assume that such predictions have been based on the experience of cartels in the past and the favourable conditions that are enumerated above. Unless, we are ready to assume that OPEC is an exception to the general principles, we will be forced to search for a set of criteria that will serve our purpose.

As it has been observed earlier, there are a number of political, social and economic factors that have contributed to the success of OPEC. However, there is not yet enough experience to single out the factors without which cartelisation would not have been durable. Radtzeki suggests that there are other eight commodities suited for cartelisation. (Refer Table 2:2). The suggestion is purely made on technical or economic grounds, taking into consideration factors such as elasticity, origin and other market characteristics.(13)

On the other hand, G. Martner notes that any conclusion on prospects for cartelisation of primary commodities should be made in the light of the experience of about twenty organizations including OPEC.

C. Mantoura based on different studies on the subject notes that a primary commodity to be cartelised should possess the following characteristics:-*

"a) common external oponent;
b) price inelastic demand;
c) price inelastic supply;
d) high market concentration;
e) shared values (non-economic);
f) an extended time horizon".(14)

As it can be observed the above criteria, unlike others, take into consideration non-economic factors as well. If the assessment of prospects for cartelisation of primary commodities is based on such criteria and is made in the light of the experience of about twenty Producer-Exporter organizations it is likely that it will come up with a better judgement than otherwise.

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* The criteria are based on the experience of OPEC.

Table 2.2 : COMMODITIES SUITED FOR CARTEL ACTION BY DEVELOPING COUNTRIES

Commodity	SITC code no.*	Developing countries' share of world exports, 1967-9 (%)	Developing countries' exports as a share of estimated world production,+ 1967-9 (%)	Total exports from developing countries, annual average, 1967-9 ($ billions)	Growth of exports from developing countries, 1960-67/9 (%)
Cocoa	072.1	100.0	76	0.7	21
Coffee	071.1	94.4	66	2.3	26
Tea	074.1	82.6	50	0.5	- 8
Tin	283.6, 687.1	80.7	74	0.6	118
Bauxite	283.3	79.6	37	0.2	69
Oil	331, 332	76.0	50	13.5	93
Manganese ore	283.7	60.5	22	0.1	-19
Phosphate rock	271.3	60.2	25 (1972)	0.2	56
Copper	283.1, 682.1	56.4	32	2.3	138

* Standard International Trade Classification.

\+ Obtained by valuing the world production figures with the help of prices in international trade, and then comparing the value of developing countries' exports with the value of world production.

Source - Marian Radetzki "The potential for monopolistic commodity pricing by developing countries" in A World Divided, G.K. Helleiner (ed.), 1976, p.62.

In the opinion of Radetzki minerals like manganese, phosphates, copper, tin and bauxite stand a better chance than the agricultural primary commodities such as coffee, cocoa and tea. The proposition is mainly based on the fact that minerals are indispensable ingredients for a number of industrial products.(15) However, when one observes the world coffee market in the last four years,* though it is rather a short period, the evidence is to the contrary. For instance, Brazil exported one-quarter less in 1977 as compared to 1975 but, earnings from coffee was about US$1.7 billion higher. Moreover, the tendency to substitute coffee by other beverages has been rather negligible. Given such market trends and provided producing countries can come to an agreement, setting coffee prices at a level which is optimal for producing countries does not seem to be impossible.(16)

We cannot either ignore the fact that developing countries have witnessed the success of OPEC and many of the representatives of the Third World realize that their countries are not getting a fair share of the benefits of international trade. To demonstrate the point it would be in order to quote from the declaration adopted by the conference of the foreign ministers of non-aligned in July 1978, Belgrade.

> "The foreign ministers reiterated their firm belief that the creation and strengthening of developing countries producers' association of raw materials and basic commodities would improve the bargaining position of these countries and play a vital role in balancing economic relations between developed and developing countries".(17)

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* It covers the period 1975-79.

To come up with a more realistic assessment of prospects for cartelisation of primary commodities, it is necessary to take into consideration the above and other important non-economic factors besides the six essential criteria that we have enumerated earlier.

2.3 Comparison of Cartels with other Trade Arrangements

Suggestions to intervene and regulate the world commodity market dates back to the Versailles Conference in 1919. About 20 years later in 1942 Keynes presented a memorandum to the United Kingdom Treasury to the effect that the world commodity market should be regulated. His main concern was to deal with "meaningless short-period price swings", and with the business cycle.(18)

At present, one of the main aspects of the NIEO is to deal with the problem of commodities. The main attempt is to find ways and means of reducing the fluctuations of the export earnings of developing countries which mainly come from primary commodity exports. The approach suggested, which evolved from many years of negotiations falls under the general heading, "Integrated Programme for Commodities" (IPC). It may involve quite a number of policy instruments. Nonetheless, the most common ones are Buffer Stocks, Compensatory Financing, Export Quotas and Production Controls. In most literature and debates that took place in the international arena, the issue as to whether IPC will be restricted to stabilize prices or employed to keep prices above the long-run projected level, or whether it would stabilize prices at an indexed price level that would take into consideration the rise in the price of manufactured and industrial goods has been left open.(19) However, the evidence suggests that there is a tacit understanding, at least

on the side of consuming countries, that prices will be stabilized at the long-run trend at which prices of each commodity have been observed to fluctuate about.

For the purpose of making comparisons between cartels and other trade agreements, it would be in order to provide a brief description of some of the alternative proposals such as buffer stock, compensatory financing and production quota.

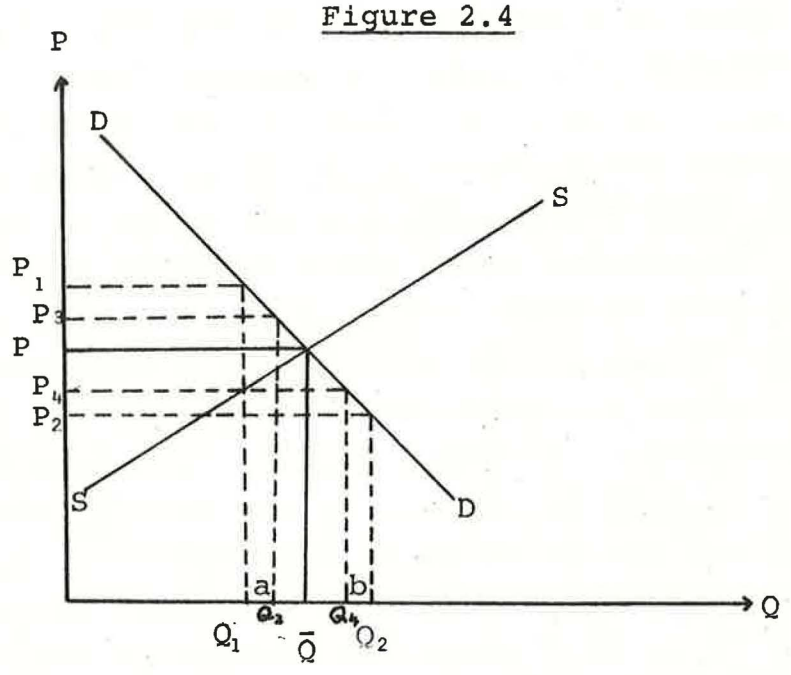
2.3.1 Commodity Agreements to set up Buffer Stocks

In the strict sense a buffer stock would be organized and controlled by a group composed of producers and consumers. In accordance with the agreement that creates such bodies a governing council will set the procedures under which it should function.

A buffer stock arrangement will start with a fixed capital contributed by member nations (consumers and producers) which, if necessary, may be augmented by borrowing from financial institutions. From the experience of buffer stock arrangements at the national level, they would be given a price target and the range under which they should attempt to operate. It would usually be expressed in percentage, say plus minus 5 percent of the target price. The buffer stock would defend the floor price by buying on the market and the ceiling price by releasing some of its stock on the market. It does not usually involve any restriction of supply. As it may have been apparent, buffer stock arrangement can only deal with the short-term cyclical variation of price.(20) In the words of McNicol, "A pure buffer stock should accomodate itself to long-run adjustments rather than attempt to override them".(21) As opposed to this cartelisation aims not only to stabilize but also to improve/raise prices for producers.

In short, the main objective of a buffer stock is to minimize the range of price fluctuation. As it could easily be observed in Fig. 2.4, if a commodity under normal conditions fluctuates between P_1 and P_2, what a buffer stock arrangement will attempt to accomplish is to narrow the gap. At times of high demand when price rises to P_1 the quantity a will be released to reduce the gap between Q_1 and Q_2 and prices are expected to come down to p_3. In the same manner when prices go down to p_2 as a result of excess supply or reduced demand, the buffer stock arrangement will react by buying in the market and reduce the price gap to P_4 by buying quantity b. The range of price fluctuation beyond which the buffer stock arrangement will react will be governed by the procedures set by the agreement.

Figure 2.4



The main advantage of a buffer stock arrangement is assumed to be the extent of estimated net gains (direct plus indirect) that could be derived. It goes without saying, that the estimated net gains will depend on a cost benefit analysis of the particular buffer stock arrangement for the commodity under consideration.

Consequently, in the following paragraphs an attempt will be made to address the following questions:- What are the benefits? Who covers the costs? Who receives the benefits? It is to be expected that in the trade of primary commodities, costs, as mentioned earlier will be covered by the participating governments (producers and consumers). However, the benefits will go to the producers and consumers in the participating countries. It is seen as one of the services that governments provide, such as roads, schools, dams, etc.(22)

Costs of a buffer stock, as most other operations, are composed of capital, and variable costs. The capital cost will depend on the extent of the anticipated supply and demand deviations from the general trend and the actual value of the commodity per weight or volume. Moreover, the desired range within which the price is to remain will determine the capital cost. The capital cost is not necessarily all the capital layout that is required. It is rather the opportunity cost of the capital tied up in the scheme. In some instances, there could be a possibility to hold the capital in the form of interest-bearing assets for the period it is kept idle.(23) Based on studies, UNCTAD has suggested that joint operation of a buffer stock for a number of commodities could bring better results. However, the detailed study of each commodity that is of importance to developing countries, which started in 1978, has not been finalized. So far the study of about five commodities has been completed.*

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* The commodities are banana, hides and skins, cocoa, tobacco and cotton. (Source: UNCTAD).

The following table provides the capital cost estimate by UNCTAD for the ten core commodities, which are considered to have export significance for developing countries. The estimate is based on the assumption that there will be no pooling together of funds.

Table 2.3: UNCTAD SECRETARIATE ESTIMATE OF STOCKS SUFFICIENT TO MAINTAIN PRICE WITHIN ± 10 PERCENT OF TARGET (1979-1983)

Commodity	Stock Requirements (1,000 ton)	Capital Requirements (1976 $ million)*
Cocoa	459	768
Coffee	680	1256
Tea	111	143
Sugar	4734	1934
Cotton	495	672
Jute+	420	174
Sisal+	149	86
Rubber	753	586
Copper	854	1365
Tin	37	267
Total		7251

Source : David L. McNicol - Commodity Agreements and Price Stabilization.

Note : + Fibre only

* Without pooling together funds.

In addition to capital costs, the operation of a buffer stock would involve variable costs which may be subdivided into administrative handling and storage costs (involves refrigeration, pesticides, etc. for agricultural products). To provide a more complete picture of the extent of costs that are involved Table 2.4 shows estimates of variable costs that has been undertaken for the same ten commodities listed above.

Table 2.4: UNCTAD SECRETARIATE ESTIMATES OF HANDLING AND STORAGE COSTS FOR TEN COMMODITIES

Commodity	Handling costs ($ per ton)*	Storage cost ($ per ton/year)+	Costs of storing the maximum stock for one year plus handling costs ($ million)**
Coffee	14.33	32.82	28.02
Cocoa	3.76	24.27	21.60
Tea	6.61	32.18	5.00
Sugar	11.35	24.80	224.90
Cotton	7.16	17.67	15.80
Jute	7.05	12.12	11.00
Sisal	5.04	11.11	3.20
Rubber	5.51	27.78	29.20
Copper	3.48	7.08	12.00
Tin	4.85	7.27	0.60

Source: David L. McNicol - Commodity Agreement and Price Stabilization 1978, p.51.

Note: * Handling costs per ton for movements into/out of warehouses

\+ Cost of dead weight storage plus costs of rotation

** Storage costs plus twice handling costs times the stock requirement from the previous table.

Having taken a brief look at some important aspects of the costs involved, it would be appropriate to consider the benefits expected from such a programme. The main direct economic benefits claimed for a buffer stock are:- First, for developing countries, it will stabilize their export earnings; secondly, for developed countries, it is expected to reduce their rate of inflation, as a consequence of regulated import prices of primary commodities. In short, the objective of buffer stocks is

stabilization of prices to benefit both producers and consumers but, cartels as noted earlier attempt to stabilize prices and they also pursue the objective of increasing 'rent' for producers, which could result in a loss for consumers.(24)

It is anyhow difficult to give a generalized statement as to whether producers, consumer or both will gain because of a buffer stock, since it depends on the nature of the elasticity of supply and demand of each commodity. However, according to estimates by UNCTAD, the outcome of stabilization for commodities under the IPC will imply net gains for producers and/or consumers, depending on the discount rate we have to use.

Assuming that both supply and demand will vary, for the above ten commodities,* the gain for suppliers and buyers is estimated to be US$277.4 and US$386.0 million respectively or a sum of US$664.4 million on the average annually. D.L. McNicol has estimated that the total gains for each of the above commodities is less than 5 percent of their capital requirement with the exception of tin.** It is suggested that pooling will give a better chance, but it would require a detailed study of the correlation of the fluctuation of supply and demand of the group of commodities under consideration.(25)

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* These ten commodities are those referred to as the core group in the UNCTAD Integrated Programme for Commodities.

** The above computation is based on actual price and quantity for 1971, and elasticities of supply demand for the same year. The hypothetical variation in supply and demand were taken from different econometric models worked out by F. Fisher, F.G. Adams and J. Behrman.

Table 2.5: EXPECTED ANNUAL GAINS FROM PRICE STABILIZATION (MILLIONS OF DOLLARS)

	Supply Varies			Demand Varies			Both Vary		
Commodity	Producers	Consumers	Total	Producers	Consumers	Total	Producers	Consumers	Total
Cocoa	21.4	- 7.0	14.5	- 7.5	21.9	14.5	14.0	14.9	28.9
Coffee	28.6	- 8.9	19.7	-10.8	30.6	19.7	17.7	21.7	39.4
Tea	8.2	- 2.1	6.1	- 4.0	10.1	6.1	4.1	8.0	12.2
Cotton	25.8	- 5.6	20.3	-14.7	34.9	20.3	11.2	29.4	40.5
Sugar	226.0	-67.0	159.0	-92.1	251.1	159.0	133.9	184.2	318.1
Jute	1.6	- 0.6	1.0	- 0.4	1.4	1.0	1.2	0.7	2.0
Sisal	2.2	- 0.9	1.3	- 0.4	1.8	1.3	1.8	0.9	2.7
Rubber	15.2	- 6.4	8.8	- 2.4	11.2	8.8	12.8	4.8	17.6
Copper	114.0	-31.9	82.1	-50.2	132.3	82.1	63.9	100.4	164.2
Tin	27.3	- 8.4	18.9	-10.5	29.4	18.9	16.8	21.0	37.8
Total							277.4	386.0	664.4

Source: David L. McNicol - Commodity Agreements and Price Stabilization, 1978, p.57.

Note: UNCTAD estimates.

From the presented estimates of benefits and costs of a buffer stock, the net gains are not that impressive. Moreover, so long as a buffer stock arrangement is sponsored by producers and consumers, it can only be employed to reduce the price fluctuation and not as a means to increase export earnings of commodity exporting countries. Employing buffer stock arrangements to increase price or export earning could bring disastrous results. The most spectacular example is the case of Brazil. In an attempt to improve export earnings the government of Brazil employed what is called coffee 'valorization' scheme. It was a buffer stock scheme with the objective of raising coffee prices above the normal level. In 14 years (1931-1944) Brazil was compelled to destroy about 78 million bags of coffee estimated to be enough for three years of world coffee consumption then. The main cause of the failure was the increased production that came as a result of the high prices that the programme maintained during that period. In addition, there was a substantial increase of production in the other producing countries, and unusually good weather in the late 1920's and 1930's.(26)

2.3.2 Commodity Agreements for Supply Restriction

There could be two types of supply restriction, as it could be observed from the past records of international trade. Supply restriction can take place as a result of an agreement reached between producers and consumers, e.g. International Coffee Agreement. In this type of arrangement representatives of producing and consuming countries will meet periodically and decide on the quota to be allocated to each producing country and set the range of prices that buyers will have to pay. In such type of arrangements the objective is to reduce fluctuation and to keep prices at or around the competitive level.

The second type of supply restriction, which is actually the main concern of the thesis, is where only suppliers collude to restrict production and keep prices above the competitive level. The best example, though considered a special case, is OPEC.

This is not, however, to deny that problems can arise as to what procedures to follow in sharing the total world quota among themselves. However, it has been noted, at the beginning of this chapter, that there are a number of ways that could be employed once producers decide that their interest could be best served if they form a collusion.

2.3.3 Compensatory Financing

In the opinion of many developed countries' official representatives, to stabilize developing countries' export earnings, it would not be necessary to intervene in the commodity markets as it is the case with buffer stocks and producer's cartels. Rather, an arrangement should be worked out by both exporting and importing countries to provide financial compensation for declines in export earnings. The compensation may be made on commodity basis or on total export earnings.

Just like in the case of the buffer stock, it would begin with a fixed capital. It could either be contributed by both exporters and importers or by importers alone as part of the official aid they provide to developing countries.

The most significant difference between a buffer stock arrangement and compensatory financing is the fact that the latter does not deal with prices but, with earnings. Depending on the agreement, compensatory financing would determine at what percentage of reduced export earnings would compensation be paid to a country.

The arrangement may also be worked out in such a way that a member country would be required to pay into the pool when it receives export earnings above a certain percentage level than is expected. In such a situation it may be seen as a saving bank or insurance policy.

It needs to be pointed out that if the objective is only to stabilize export earnings, this may be regarded as a satisfactory procedure. However, if the objective is to raise prices and earnings above the present levels, as is usually the case with the producer's cartels, compensatory financing would not be practical, as it would be sponsored by a group of members with conflicting interests. On the other hand, it is a more flexible instrument to implement as compared to the buffer stock. For instance, if the price of its commodity goes down very low, a country will have the option to limit production and lay off some of those engaged in the production of the commodity and pay them compensation.

It should, therefore, be clear that both the commodity agreement and compensatory financing arrangements are unlikely to be an effective means of transferring income from the developed to the underdeveloped world on any significant scale because of the need always to obtain the agreement of both producing and consuming countries. Besides the conflicting interest of the members, the main objective of such schemes is to avoid any sudden and unexpected short falls in export earnings of producers. Moreover, the expenditure that is made by the consuing developed countries for such purposes will be considered part of the official aid that they have committed to developing countries. Hence, it would be unrealistic to expect any substantial transfer of income through such mechanisms especially as the experience in the last two decades has shown that aid is not a very effective means for such purposes.

2.4 Concluding Remarks

There is no consensus on whether prices of primary commodities should be employed as a means to transfer resources (income) from the developed to the developing countries. However, almost all developing countries think and hope it could be employed for such a purpose. Even among developed countries there are some who would not mind using commodity prices for such a purpose. For instance, a statement made by the French Government in 1972 runs as follows:-

> "By making consumers in rich countries pay a higher price for these foodstuffs and metals than would result from the free play of competition, France is fostering the most acceptable form of aid-payment for the human effort rather than charity pure and simple".(27)

On the other hand, the United States has consistently rejected the use of price of primary commodities as a form of aid.

As it may be noted from the discussion about the three types of commodity price stabilization schemes, none except those implying supply restriction by producers could really be expected to transfer income to the developing countries. Among other studies, Bernd Stecher provides a mathematical comparison ("with the help of partial analysis of producers' and consumers' surplus") of the welfare effects of cartels and commodity agreements. The conclusion that he draws is that International Commodity Agreements (ICA's) have more serious adverse effects on welfare than commodity cartels.* He qualifies his conclusion by pointing that it will be true in so

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* The equation that he derived for assessing the welfare loss as a result of cartels was:- $\Delta Wc = 0.5\ \Delta P.\ \Delta x$

for ICA's $\Delta W^{ICA} = Z\ (0.5\Delta P+P)$

far as production increase as a result of ICA's is greater than the quantity decrease that results from cartel formation.(28)

Another criticism of ICA's is that they are likely to distort resource allocation and encourage the increased production of exportable primary commodities at the expense of other sectors of the economy. Given the characteristics of the different policy instruments and the objective of stabilizing prices and/or earnings, it implies that producers will have a more or less guaranteed price or income. Experience has shown that the result of such schemes is mostly over production. One possible long-run effect is the continuation and reinforcement of the dependence of developing countries on the production and export of primary commodities. In a sense it counteracts the other objectives of NIEO - e.g. encouragement of the industrialization of developing countries. Whereas, in the case of producers' cartels, the main principle is to restrict supplies in order to raise prices. It could be seen as a forced or a deliberate move away from the production of primary commodities. Moreover, it is unrealistic to expect a smooth implementation and effective results from ICAs as it is composed of members with diverging interests - consumers want low prices and producers expect high prices.(29) In the case of producers' cartels the objective is clear - 'remunerative prices'.*

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* 'Remunerative prices' are profitable prices that would take into consideration the increase in the price of industrial goods that are imported by developing countries. It is also possible to refer to them as 'shadow prices' that are based on the opportunity cost of the factors of production that are required for the production of the commodity under consideration.

Given the desire on the part of producers to capture a larger share of the 'surplus' or 'rent' in the exchange of primary commodities, it would therefore seem, on theoretical grounds at least, that a producer's cartel consisting of price and output controls/regulations would be more effective than any of the other proposals for ICA's.

However, we have not as yet discussed any of the problems associated with the establishment of a cartel as opposed to the other alternatives. To analyse these problems (for any commodity) it is necessary that one has a clear understanding of the structures of the 'industry' and market for the commodity concerned.

It is, therefore, this aspect of international trade in coffee that we address ourselves to in the following chapter, before going to assess the feasibility of cartelisation of coffee in chapter V.

FOOTNOTES

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18. D.L. McNicol - Commodity Agreement and Price Stabilization, Lexington Books, D.C. Heath and Company, Toronto 1978, p.5.

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20. Ibid., p.43.

21. Ibid., p.45.

22. Ibid.

23. Ibid., p.48.

24. Ibid., p.56.

25. Ibid.

26. V.D. Wickizer - Coffee, Tea and Cocoa, An Economic and Political Analysis, Food Research Institute, Stanford University Press, California, 1951, pp.26-28.

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28. Bernd Stecher - "The Prospects for a reorganization of International Trade in Commodities", in Issues and Prospects of the New International Economic Order, W.G. Taylor (ed.), Heath and Company, London, 1977, pp.110-111.

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CHAPTER III

COFFEE: ITS PRODUCTION, MARKETING AND INTERNATIONAL TRADE

3.1 Introduction

This chapter will consider briefly those aspects of production and marketing in the coffee industry that are thought to have relevance in assessing prospects of coffee cartelisation. In addition, it will provide brief historical background on coffee as an internationally traded commodity, paying particular attention to the types of coffee that are traded internationally, supply sources, consumption centers and short and long-term trends. This chapter is meant to be a prelude to the following two chapters that deal with past attempts and future prospects of coffee cartelisation.

3.2 Production Process*

As indicated on the map,

> "coffee grows in a belt some 20° either side of the equator and from the sea level to upto 6,000 ft. (1829 mt.), with the best conditions found at a height of around 4,500 ft. (1372 mt.) at an average temperature of 70 F (17 C) and with an average annual rainfall of between 40 and 70 inches".(1)

The shrub does not like the low-lying, hot, humid areas around the equator and it will only bear fruit properly at this latitude at about 1,000 mt. It can be grown near the Tropics of Cancer and Capricorn, e.g. Cuba. Certain coffee varieties tolerate dryness and cold but a temperature of below 2°C for more than one night is inevitably damaging.(2)

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* This section draws heavily from a world coffee survey in 1959 and a special study on coffee presented by "The Courier" No.59, January-February 1980.

Coffee is a perennial crop that will start to give forth fruit on the average at the age of six years. Contrary to common belief, a world coffee survey in 1959 has shown that coffee is mostly produced on small and medium-sized farms. It is no more than a dozen of countries that produce most of their coffee on big estates. The survey estimated coffee farms in the world to be around 3 to 4 million. By now it is possible that the number has reached over 5 million, since in several countries due to shortage of labour and rise in wages large estates have been abandoned in favour of small or medium-sized farms.

Despite the fact that 20 million* people in the world work directly in coffee production, the method of cultivation has remained quite primitive in many areas. A great variety of plantings are observed in use. In some countries a spacing of up to 5 by 5 meters are used in plantings. For Arabica the spacing ranges from 2.5 by 2.5 to 3 by 3. For Robusta, wider plantings are usually employed. In most cases each hole will contain one coffee seedling, while in certain countries such as Brazil and Vietnam good results have been obtained by planting more than one in each hole.

There is no clear and definite pattern about the use of shades either. In some parts of Africa, where coffee still grows wild, shades tend to be common, while in Latin America, the trend is to eliminate the use of shades or to reduce the intensity. There is, on the other hand, a trend to use more fertilizer and irrigation. However, as a whole, the extent of employing modern inputs is rather limited to big farmers.

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* The estimate does not include those involved in the processing and distribution of coffee.

On the small farms, weeding takes place on the average twice a year. Whereas on the big farm, it could go as many as six times a year.

A great variety of processing methods are used for coffee preparation. However, the most widely employed are those known as the dry and wet methods. The dry method is where the ripe fruits are carefully picked and sun dried. Then the dry pulp and the parchment can be husked by a modern mechanical equipment or can be ground by means of stone mills. In the case of the wet method, the ripe coffee picked from the trees is depulped immediately and the beans then placed in water to facilitate later removal of the mucilage. Both methods are widely used, but the wet method of processing is preferred and results in better quality coffee beans.

As noted earlier, a survey taken as early as 1959 has indicated that there were about 3 to 4 million farm units in the world and most were small farms. It is unlikely a more recent survey would come up with less number and bigger size of farms. Moreover, it is rarely that it is a cash crop of relatively secondary value; in the majority of cases it is the main and often the only cash crop needed for the subsistence of farmers.

The fact that most coffee producers are small farmers will by implication mean they are incapable of withholding production or supplies as they require cash right away after the harvest period, since most live no better than a hand-to-mouth type of life. Moreover, even if some of the farmers decide to store some of their produce, storage facilities are insufficient and of poor quality. It also needs to be noted that any attempt to reduce the dependence of farmers on coffee will require providing them with alternative crops as a source of cash, that could provide comparable incomes.

Such moves will surely require capital investments which might be difficult for most of these governments to provide.

One observes a clear disadvantage in coffee or any other agricultural commodity as compared to oil or the minerals, where production is in the hands of few companies or the state, as a result of which withholding production or supplies does not become a serious problem. In addition storage costs are minimal or non-existent in the case of oil and the minerals. Hence, attempting to control agricultural commodities such as coffee raises varied spectrum of difficulties of which costs might be much higher than each country would be able to afford.

3.2.1 Lag and Fluctuation in Coffee Production

Coffee is a perennial crop that starts to give forth fruit after an average of six years. This means a decision made this year about production will only have an effect after six years. It is well known from experience that prediction about the pattern of coffee demand after a period of six years will tend to have a much higher probability of error than a short period, say, a year or half. This implies that there is ample time between decision to produce and the time the produce will be available to allow consumers and processing plants to look for synthetic and natural substitutes.

Besides, there are fluctuations in production caused by different factors. First, in particular the Arabica type of coffee tends to have a biannual characteristic of production. That is, a good crop year tends to be followed by a bad crop year. Second, as coffee

trees become old, say, after an average of 20 years,* the yield per tree will gradually decline. Third, as it is observed in the case of Brazil, annual coffee supplies depend to a considerable extent on weather conditions. Frost especially tends to bring a significant impact on production. In addition, drought, hurricane, hail, storm, and similar weather hazards will have adverse effects on yield levels. Fourth, there are many organisms, insects and pests that damage coffee trees and coffee cherries, and can affect the level of yield.(3) Certain types of diseases can wipe out all the stocks in a country. For instance, leaf rust (Hemileia Vastarix) has destroyed all the stock in Sri Lanka and there is virtually no coffee production in that country anymore.

Table 3.1 - GREEN COFFEE PRODUCTION (000 BAGS, 60 KG/BAG)

	Angola	Brazil	Cameroon
1973-4	3,200	14,500	1,260
1974-5	3,000	27,500	1,816
1975-6	1,200	23,000	1,332
1976-7	1,200	9,300	1,250
1977-8	1,400	17,000	1,583

Source: 1978 Commodity Year Book, New York Commodity Bureau, Inc., 1978.

It can easily be seen from the above table that there is a considerable variation in the production of coffee from year to year in many of the major coffee producing countries. For instance, in Brazil coffee produced in 1976-7 is less than half of the quantity

* The minimum number of years depends on the type of management. The better the management, the higher the minimum number of years.

produced in the previous year. Such variations are mainly caused by natural calamities and it is not something that can easily be controlled. Consequently coffee supplies in the international market is quite volatile.

3.2.2 Extent of the Vertical Integration of the Coffee Industry

Processing of coffee can basically take two forms; it can be roasted and ground or it can be made into soluble form (instant coffee). Producing a roasted and ground coffee does not require a sophisticated technology. Some estimates suggest that cost of a plant for such a purpose will be in the region of US$2 million. Coffee is sold in the roasted or ground form but, it loses its flavour faily quickly if it is stored in this forms and in particular in the powdered form. However, more recent developments of vacuum packing have shown better results.(4)

The second type of processing requires brewing liquid coffee from beans which have been roasted and ground and then drying the liquid. Unlike the first type of processing it requires capital-intensive technology and costs may run up to 20 times as compared to the previous one. Trade in roasted and ground form accounts for about 3 percent of the world trade and most of it represents re-exports. On the other hand, trade in soluble (instant) coffee accounts for about 7 percent of the total world coffee trade. About 60 percent of the soluble coffee trade comes from developing countries and Brazil accounts for 80 percent of it.(5)

3.3 Marketing Process

> "Marketing involves taking the goods from the producers, transforming it into consumable form, and delivering it to the consumer in another place and/or at another time".(6)

As observed earlier, most of the world coffee is produced by small farmers who produce less than a dozen of bags annually. The coffee is bought and transported by local traders and brought to a mill or big trader that cleans and bags them properly. Then, it is purchased by exporters that sort out the coffee on the basis of colour, density and bean size, etc. In the process of coffee marketing in the producing countries, it is observed that there are basically three different systems.

In East Africa and Asia, we mostly find marketing boards that are given monopoly rights to purchase and export all the coffee produced in the country. The board takes the responsibility of setting quality standards, provides minimum guaranteed prices to growers, sets export tax and regulates quantity of exports. In most cases, the board buys the coffee from producers directly or through cooperatives and cleans and makes it ready for export. Some export it directly to roasters or traders abroad while others sell it at auction to private export companies in the country.

In West Africa, where francophone countries are dominant in number, there is what is called "caisse de stabilisation", which fixes the price of coffee for different grades annually. Then it sets the quantity that each firm is entitled to buy at the set price. The firms are expected to clean the coffee, grade it, and transport it abroad to companies that are arranged either by "caisse" or by themselves. If the prices that

the exporters obtain are less than the local price, they can demand the difference from "caisse"; if on the other hand the prices are higher than the set price plus the allowed margin the "caisse" will receive the difference.

The third type which is mostly found in Latin America is the quasi-government type of entity, which is normally composed of relevant cabinet ministers and representatives from the coffee producers. In most cases, minimum guaranteed prices at which the board will buy from growers when world prices are low will be fixed annually. When world prices are high they have effective taxing system that they charge exporters per bag of coffee exported. In Brazil, there is what is called "minimum registration price" that exporters must pay in advance to the Central Bank for each bag of coffee that is to be exported. The higher the world price the higher the rate, and it tends to vary with the world price.

Even though coffee beans started to be traded internationally a long time ago, trade of coffee in the processed form gained importance only in the 1950's and the technology has not really developed and has also not been easily accessible to developing countries. In addition, developed countries tend to protect their own industries by means of tariff and non-tariff barriers. The nominal tariff rate goes as high as 35 percent for New Zealand, 25 percent for Japan, 18 percent for EEC. In the case of the U.S. there is no tariff imposed on the import of coffee. But, as observed in the 1971 soluble coffee dispute between the U.S. and Brazil, the Government of U.S. put pressure on Brazil to impose a tax on soluble coffee that it exports to the U.S. and to give concession of price on a given volume of coffee beans that it exports to the U.S. In 1971 and 1972 the

concession of price covered the quantity required by the coffee processing companies in the U.S.(7)

The fact that most of the soluble coffee gets processed in the developed countries is not the only concern. One of the most important characteristics of the coffee marketing in most major consuming countries is gradual concentration of the processing industry in the hands of a few large firms.

Table 3.2 - MARKET CONCENTRATION OF ROASTED COFFEE IN THE U.S. 1958-77

Year	Total Number of Roasters
1958	380
1963	324
1967	268
1972	213
1977	171

Source: A. Paulson - Marketing and Distribution of Coffee, Nov.2, 1979, p.110.

This concentration trend is apparent in all other consuming countries except in Italy where thousands of small independent roasters still flourish. As it can be observed in the table, in the U.S. the number of coffee roasters has dropped from 380 in 1958 to 171 in 1977. Besides, many side effects that one may think of that can come as a result of such developments, the most significant are: that producing countries will be faced with monopsony as time passes by; secondly, producers will be further and further removed from consumers, and have neither the means to control the proportion of coffee beans in the soluble coffee nor the ratio of margins on final products to import price of coffee beans.

3.4 The International Trade of Coffee

3.4.1 Historical Background

Based on circumstantial evidence, it has been estimated that inter-continental trading of coffee has existed for over one thousand years. From its original habitat of the highlands of Ethiopia coffee was first brought to the Arabian Peninsula by the Persians around the Sixth Century A.D. From Arabia, it is believed to have spread to the Ottoman Empire and then to Western Europe via Vienna. Finally, Europeans spread it almost all over their colonies in Asia, Central and Latin America and Africa.(8)

From the different continents that coffee has been introduced, it flourished most in Central and Latin America and it performed reasonably well in Africa, in particular after the introduction of the Robusta variety in 1929. In Asia, tea happens to be by far the most important beverage grown as opposed to coffee and the continent accounts for no more than 4 percent of the world coffee production.(9)

3.4.2 Coffee Types

Even though there are roughly four main species of coffee, it is only Coffea Arabica and Coffea Canephora that have any commercial significance.* These two types of coffee, which are more well known as 'Arabica' and 'Robusta' account for about 70 and 30 percent of the world production respectively.(10)

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* The other two species are Coffea Liberica and Coffea Excelsa.

Arabia coffee is further divided into two main types, namely washed Arabicas (mild Arabicas) and unwashed Arabicas. The division as the names could suggest is mainly based on the method of processing the coffee beans; if the coffee cherry is dried and then depulped to free the coffee beans, the coffee is classified as unwashed. If the cherry is depulped immediately after peaking and the beans then placed in water to facilitate the removal of the mucilage at a later stage, it is classified as washed coffee. The washed Arabica coffee is further divided into Colombian milds and other milds. But, this type of division does not have much technical significance. In fact, such a distinction started to exist only after 1966. Robusta, which is the second important variety to Arabica, does not have any comparable classification.(11)

The share of world robusta production and consumption has steadily increased during the post Second World War period from about 10 percent shortly after the war to about 30 percent towards the end of the seventies.* However, the Arabica coffee is generally preferred by consumers. It has a milder flavour and contains less caffeine than robusta. As a result, until mid 1960's, robusta obtained 20-40 percent less price than arabica. Since then the gap has narrowed and by 1975 in New York, spot prices of robusta were higher than some arabica varieties. This change of prices is mainly explained by the increased popularity of instant coffee. Most coffee roasters sell on the basis of brand names with no indication of the type of coffee beans they used in the blend.(12)

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* For a more detailed information on the main producers of the different types of coffee - refer to Annex III Table I
A detailed information of main consumers is provided in Annex III Table II.

3.4.3 Long and Short-Term Trends of World Coffee Trade

One important characteristic that affects the level of production is the biennial property of the coffee tree which is true of many tree crops. That is, a good harvest tends to be followed by a poor harvest. As a result, coffee tends to exhibit a two year cycle, which is referred by many as the biennial cycle or short-term cycle.* Another type of cycle that the coffee trade tends to manifest is of a longer period type and it is mainly due to the lagged response of coffee supply to prices. A high price in a year will encourage planting of new coffee trees and will result in excess supply after a period of about 5 to 6 years, which will mean depressed prices and will discourage new planting or will mean destroying the existing ones if prices are very low. Consequently, reduction in supply will tend to push prices up once again and the cycle will repeat itself. In addition to these two more common types of coffee cycles, natural calamities in particular frost tends to bring serious impacts on coffee trade. Though frost does not occur at regular intervals, it has been observed that it takes place on the average about twice in ten years. Over the last 30 years, frost has seriously affected coffee production in 1953, 1955, 1963, 1969, 1972 and 1975.**

In particular, the 1975 frost in Brazil reduced production considerably and increased world prices to record levels as it can easily be observed from Table 3.1 and

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* More pronounced in arabica than in robusta type of coffee.

** Refer to Graph 3.1 for further details.

Table 3.1 - VALUE AND QUANTITY OF WORLD COFFEE EXPORTS 1975 - 77

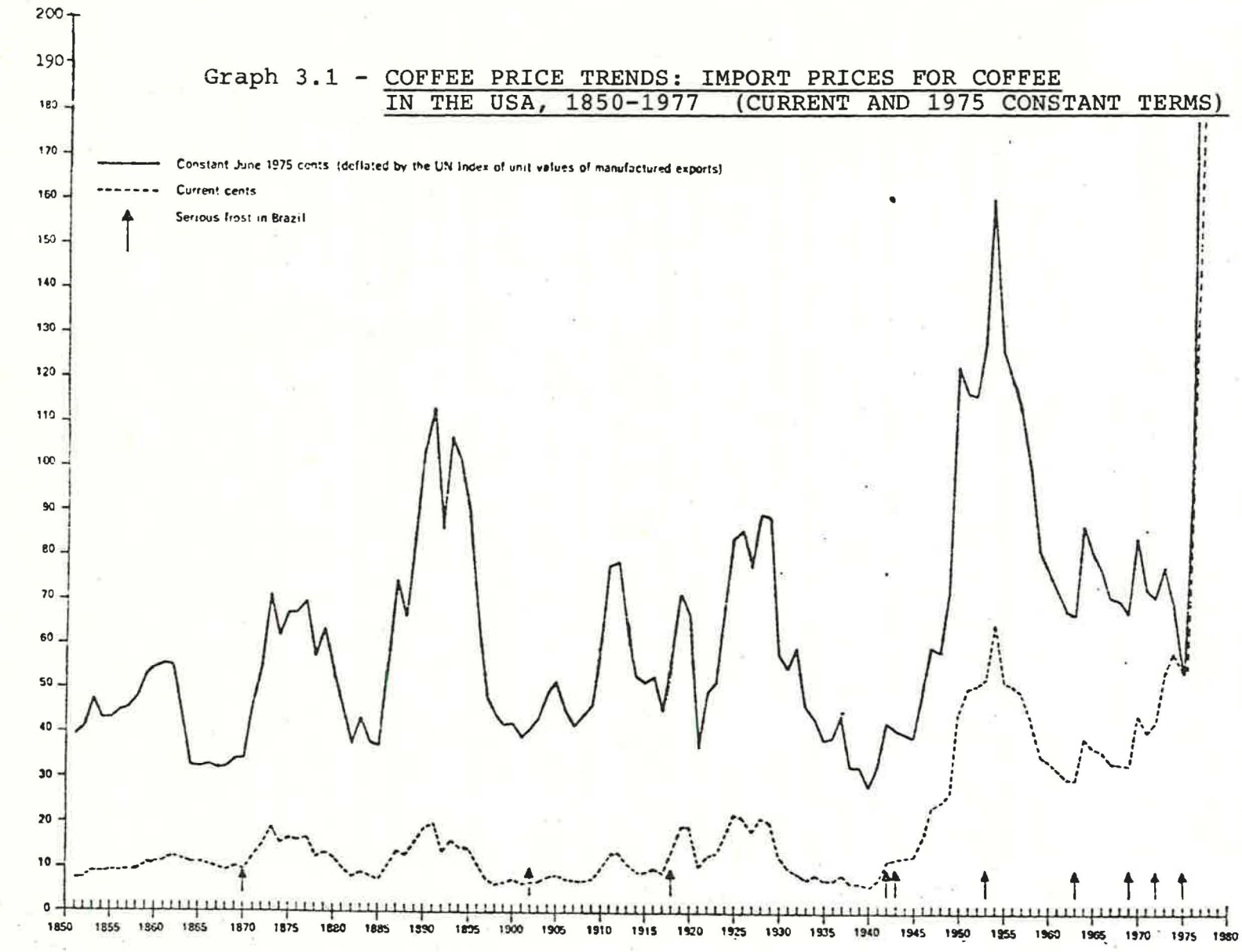
	1975	1976	1977
Value (US$ million)	4180	8139	12034
Quantity (000 metric ton)	3471	3513	2815
Unit value (US$/lb)	0.55	1.05	1.94

Source: A. Paulson, Marketing and Distribution of Coffee, Nov. 1979,p.20.

Graph 3.1. In addition to the frost, floods in Colombia, Civil War in Angola, earthquake in Guatemala contributed to the production reduction. As a result, world export of coffee increased by a value of US$8 billion and Brazil which was most hit by the frost earned about US$1.7 billion more revenue as compared to 1975. However, within this period of supply shortage, a number of individual countries have been attempting to expand their coffee production. Unless a similar catastrophy takes place, or major producing countries take deliberate steps to reduce the supply that enters the world market, the effect of high prices since 1975 will mean depressed prices in 1980-81 and in the subsequent years, if the world coffee market behaves the same way as it did in the past.

There is somewhat a controversial hypothesis as to the long-run impact of keeping coffee prices at a high level. On the one hand, based on surveys that have been conducted in the United States, some suggest that the fact the younger generation consumes less coffee and the older generation a lighter coffee than before is the consequence of exorbitant prices. On the other hand, a survey of 23 econometric models over the last 20 years

Graph 3.1 - COFFEE PRICE TRENDS: IMPORT PRICES FOR COFFEE IN THE USA, 1850-1977 (CURRENT AND 1975 CONSTANT TERMS)



Source: ICO and UNCTAD cited in A. Paulson - Marketing and Distribution of Coffee, Nov. 1979, p.125.

shows that measures for price elasticity of demand ranged from -0.1 to -0.5. Based on such evidences, others argue that the 2 percent decline observed from the per capita consumption data of U.S. during the last 15 years is not necessarily because of prices, but rather because of changes in life style, such as preference for cold drinks, the fact that breakfast, a meal in which people usually take coffee is becoming less important, etc. In addition, there has also been a strong campaign against beverages for health reasons, of which coffee happens to be one.(13) Strictly speaking, coffee is not a food. It may be seen as a hot drink, which has no nutritional qualities, but acts as a mild drug or stimulant. Hence, it should not be expected that its consumption will grow with a certain degree of correlation with income, price, population, etc. Rather, the increase in coffee consumption will depend on market promotion, possibilities of manufacturing synthetic substitutes, changes in life style and many other social and economic factors. Therefore, there is no firm ground to assume that higher prices alone will have a large enough negative impact on the level of consumption to lower export earnings, in the short or medium-term, at least.

3.5 Concluding Remarks

Among the significant aspects of the coffee industry that have been presented in this chapter, it is deemed necessary that we draw particular attention to the following specific points:-

First, coffee requires a specific climatic condition that is mainly found in areas that it is grown at present. Hence, in the event of an increase in the world price of coffee, it is unlikely that coffee will start to be

produced in Europe or the U.S., since the right condition does not exist in these countries. This is not, however, to ignore the possibility of coffee cultivation expansion in the coffee producing countries themselves, in particular if the price increase happens to be substantial.

Second, a decrease in world coffee supply (provided it is more than 10 percent of the world supply) will result in an increase in the value of export earnings from coffee, albeit the assertion is based on a short period (1975-78). On the other hand, to date, there is no strong evidence that can disprove the assertion.

Third, there is no firm ground to assume that higher prices alone will have a large enough impact on the level of consumption to lower export earnings in the short or medium term, at least.

Fourth, in almost all major coffee producing countries coffee processing and exports is handled by parstatal organization or boards that are made up of relevant government ministers and farmers' representatives. This fact clearly shows that governments are in a position to regulate coffee production and exports.

Fifth, coffee processing which is mostly handled by the developed countries, is portraying an apparent trend of concentration in the hands of few big and/or multi-national companies. Among the major consuming countries the exception to this rule is only the case of Italy.

FOOTNOTES

1. The Courier, No.59, January-February 1980, p.48.
2. Ibid., p.54.
3. D.J. Ford, "Commodity Markets Modelling and the Simulation of Market Intervention: the case of coffee" in Stabilizing World Commodity Markets, Analysis, Practice and Policy, F.G. Adams and S.A. Klein (ed.), Heath and Company, Toronto, 1978, pp.37-38.
4. A. Paulson, Marketing and Distribution of Coffee, 1979, (unpublished Report for UNCTAD), p.98.
5. Ibid., p.102.
6. Ibid., p.38.
7. Ibid., p.102.
8. Fredric L. Wellman, Coffee: Botany, Cultivation and Utilization, Leonard Hill, London, 1961,pp.8-20.
9. A. Paulson, op.cit., p.3.
10. Fredric L. Wellman, op.cit., pp.129-31.
11. A. Paulson, op.cit., p.9.
12. Shamer Singh, Jos de Vries, John C.L. Halley and Patrick Yeung, Coffee, Tea and Cocoa, Market Prospects and Development Lending, 1977, p.25.
13. ICO Report, Coffee in the United States of America, Board No.269, 29 August 1980, pp.47-49.

CHAPTER IV

HISTORY OF ATTEMPTS TO REGULATE INTERNATIONAL COFFEE TRADE

4.1 Introduction

The first producer-exporter association of coffee is as old as OPEC and its objectives were not very different from what OPEC had at its inception. In order to have an insight into the different producer-exporter associations of coffee that have existed so far, we shall have a brief look at the background to their formation, their objectives and their achievements if any. There have been quite a number of producer-exporter associations, of which some had a very short duration, while some tended to have a very limited objective.

At a later stage of the chapter, an attempt will also be made to present the salient features of the three ICFAS and other minor coffee producers and consumer agreements that existed in the past.

4.2 Inter African Coffee Organization (IACO)

IACO was the first coffee producer-exporter association to be formed. There were a number of factors that lead to the formation of IACO, but the principal motive is believed to be the lack of co-ordination among the African countries in the marketing of their coffee products. Each African country was compelled to receive the price any consuming country chose to pay.(1)

The concerned countries, listed in Table 3.2, met in Tavanarive, Madagascar on the 7th of December 1960.*

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* It was only Angola that was not represented, since she did not yet gain her independence then. Portugal had a representative, but she was never accepted as a member of the organization.

TABLE 4:1 COFFEE EXPORTING COUNTRIES IN AFRICA

Exporting Countries	Volume of Exports (000 Mt.)	Value of Exports (Million $ U.S.)	Share of export values in world Total
Members of the Inter-African Coffee Organization		1977	
Ivory Coast	233.1	808.4	6.6
Uganda	131.5	500.0	4.1
Kenya	94.3	494.6	4.0
Ethiopia	48.2	249.4	2.0
Tanzania	46.9	226.4	1.9
Zaïre	64.1	193.1	1.6
Benin	0.6	1.7	-
Burundi	18.6	89.1	0.7
Cameroon	71.2	224.9	1.8
Central African Empire	9.8	33.4	0.3
Angola	62.3	200.0	1.6
Congo	1.9	5.6	-
Gabon	0.2	0.2	-
Liberia	10.1	43.0	0.4
Madagascar	50.7	202.0	1.7
Nigeria	2.4	7.2	0.1
Rwanda	19.2	66.5	0.5
Sierra Leone	7.6	30.0	0.2
Togo	6.0	18.0	0.1
TOTAL	878.7	3,393.5	27.7

Source - G. Martner Producer-exporters association of Developing Countries 1979 p. 61

As it may be noted from the table IACO altogether accounts for 28 per cent of the total value of world exports.

For some of the member countries e.g. Burundi, Rwanda and Uganda coffee comprised in the 1970s more than 60 percent of the total value of their exports.

The main objective as stated in the state of the organization

> "is the collective study of problems affecting coffee, particularly in production, processing and marketing so as to encourage a steady increase in production and optimum prices, to promote coffee consumption and to disseminate information in order to stimulate demand".(2)

As most other organizations the general assembly is the supreme body and determines the policies to be followed. In addition there is an executive committee elected and a Secretary-General appointed by the general assembly.*

In most cases the general assembly meets once a year at one of the members countries prior to the meeting of the International Coffee Agreement (ICFA) to determine the general framework of the collective position of the African coffee producing countries. The fact that the majority of the members produce robusta, facilitates agreement and striving for a better position in the world market, which is dominated by the Arabica coffee.

One cannot really talk of any significant achievement of IACO, ever since the ICFA came into existence. At times, when the ICFA stops functioning the IACO takes an active role. During other periods, it co-ordinates the production and marketing of coffee in the African continent on the basis of the agreement reached at the annual ICFA meeting. In addition it has arranged numerous conferences and training programmes for different aspects of coffee production and marketing.(3)

4.3 African and Malagasy Organization (OAMCAF)

The second producers and exporters association, which came into existence at the same date as the IACO is OAMCAF.

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* The headquarters of the organization was in Paris until it got transferred to Abidjan, Ivory Coast in 1977.

In fact, it is composed of Franco Phone African countries that also belong to the IACO. The countries that met on 7th of December 1960 to create the organization were Benin, Cameroon, Congo, Gabon, Ivory Coast, Madagascar, Central African Empire and Toga. OAMCAF accounts for 40 per cent of the African coffee exports and about 11 per cent of the total world coffee exports. The objective, the set-up and the function of OAMCAF is no different from that of the IACO that we discussed earlier. The main objective that brought about the formation of the association seems to be the desire to create a forum, where the member countries discuss and establish their collective position in order to have a better bargaining power in the negotiations with France that buys most of their coffee. Moreover, the OAMCAF has the responsiblity to streamline coffee prices and quantity in the French market with the level that has been set by ICFA. In view of that, OAMCAF is looked at more as a co-ordinating type of organization.

The most important achievement of OAMCAF is that it has co-ordinated prices in France with ICFA level. Moreover, it has improved the bargaining power of its members who sell their coffee to France.

4.4 Some Recent Examples of Producers Associations

In 1973, a producersand exporters association named World Coffee came into existence, mainly as a result of the collapse of the International Coffee Organization. The members were Brazil, Angola, Colombia, Ivory Coast and Costa Rica, and together accounted for 80 per cent of world exports. The main objective of the association was to protect prices by means of concerted action. It made direct intervention into the world market. It bought and sold on the market and restricted supplies

by means of export quota in order to maintain demand and keep up prices. However, by 1976 a new ICFA came into effect and above all the severe shortage of supplies as a result of the frost in Brazil in 1975 made the services of the association unnecessary.(5)

In 1978, an association named Bogota Group came into existence. The group includes Brazil, Colombia, Costa Rica, Guatamala, Honduras, Mexico, El Salvador and Venezuela.* It is an open organization for any coffee producing country that is capable to contribute the required capital.(6)

The main objective of the Bogota Group is to halt post 1977 slide in coffee prices. At the beginning it had a capital of only U.S.$140 million and was not able to bring any substantial impact on prices. However, more recently (July 1979) the member nations raised their capital contribution and it is estimated to be in the tune of U.S.$350-400 million, at the present.(7) In 1979 the group enjoyed windfall profit because of frost in Brazil. But this year, it is under pressure because of excess supply.(8)

Finally we shall have a look at the short lived producers association, that was established in February 1974 under the name Cafe Mandel and circumstances forced it to be dissolved some time in July 1975.(9) At the start the member countries were Brazil, Colombia, Ivory Coast, and Portugal on behalf of Angola. They made $400,000 contribution to support prices. In addition, Mexico, Guatemala and Costa Rica, while not making any financial contributions agreed to suspend sales until prices sufficiently recover. In September

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* There was news that Ivory Coast has become a member and contributed $40 million, but it has been denied by the government.

1974 eighteen other producers agreed to follow suit and Venezuela offered the finance required to stock-pile some 16 million bags of coffee. As a result of all this intervention effort, the price increase was only 4 U.S. cents per lb. Consequently the intervention lasted only a few months. In February 1975 the members agreed to withhold 20 per cent of their exports but the severe frost in Brazil in 1975 made the services of the association unnecessary and had to be dissolved.(10)

To date, among the three discussed above, it is only the Bogota Group that exists. This year in particular, it is under pressure becuase of the excess supply that resulted from the high prices during 1975-77. Though it is rather difficult to obtain estimates as to what extent the Bogota Group has managed to support prices, it is believed prices would have been lower without its intervention in the market. It is not either clear what line of action it will take in the future and what status it will have, since consumer countries at the annual ICFA meeting have demanded that it should be dissolved.

4.5 Other Trade Stabilization Attempts

4.5.1 Inter American Coffee Agreement (IACA)

The outbreak of the Second World War in 1939 made the European markets inaccessible to the Latin American coffee producers. With only the North American market as an outlet, coffee supply exceeded demand and prices slided down to lower levels than during the depression. During the same period, due to the world political situation, United States was interested in strengthening its relation with Latin American countries in order to win their strategic and diplomatic alliance in the war.

As a result of the mutual benefits each party would enjoy the IACA was signed between U.S. and fourteen Latin American countries in the year 1940. However the official objective was stated as follows:

> "orderly marketing of coffee with a view to assuring equitable terms of trade for the producers and consumers by adjusting the supply and demand". (14)

The agreement was based on export quotas. Surprisingly, the quota limitation did not refrain itself to the quantity that was to be exported to the U.S., but the total quantity of coffee that was to be exported from the fourteen countries to the rest of the world. An Inter American Coffee Board was established and in the Board U.S. had 12 votes, Brazil 9 votes, Colombia 3 votes and the rest of Latin American countries had one vote each. The Board had the right to increase quotas by no more than 5 per cent. The most serious problem that the IACA faced was on what basis to distribute the quota among the producers. This very problem creeps up every now and then at the annual meetings that take place in the International Coffee Organization in London, at the present decade.

Despite such difficulties the IACA managed to keep prices at a much higher level than would have been the situation in a 'free' play of demand and supply. By 1948 the agreement was dissolved due to the situation of excess demand than supply. The experience obtained from IACA created the principles for a future world wide consumer producer agreement that took place much later under the name of International Coffee Agreement (ICFA).

Due to the exceptional period of low demand in the 1940, since the European economies were war devastated and had a very low per capita income,

coffee trees were destroyed and replaced by other crops. Moreover, a number of European countries imposed tariffs on coffee imports from Latin America with the intention of encouraging coffee production in their colonies in Africa.

However, in the 1950's all these obstacles were overcome and demand started to recover once again. By 1954 coffee prices reached a peak of U.S.$1.00 per lb. for some varieties. Many Latin American coffee producing countries, who were aware that such high prices could trigger another coffee price cycle attempted to reach some kind of agreement to take a co-ordinated action to maintain the high prices. They held several meetings between 1954 and 1956, but were unable to come to any kind of agreement. By 1957, joined by several African coffee producing countries they managed to establish annual coffee quotas. However, the quotas were in excess of demand and in addition, there was no effective way of even controlling the agreed quota system, as importers did not show willingness to co-operate. Consequently, the agreement did not become an effective means to stop the price slide. In fact, prices would have slid further, if Brazil and Colombia would have exported the total amount they were entitled. This and other factors lead to the establishment of ICFA, which we will discuss next.

4.5.2 The International Coffee Agreement (ICFA) of 1962

The ICFA became a reality only after 1961, when President Kennedy announced the formation of 'Alliance For Progress' and detailed a 10-point plan. Point five, which is relevant for commodities runs as follows:

> "the United States is ready to co-operate in serious case by case examination of

> commodity market problems. Frequently, violent changes in commodity prices seriously injure the economies of many Latin nations draining their resources and stultifying growth. Together we must find practical methods of bringing an end to this pattern".(12)*

Based on such commitments by the biggest coffee consumer, the U.N. Secretary-General summoned a meeting of major producers and consumers on May 22, 1962 to discuss difficulties related to coffee. The first agreement went into effect on October 1, 1963.(13)

The most important principle of the 1962 ICFA was to achieve a reasonable balance between demand and supply by employing a quota system. The main intention was to alleviate the serious hardship caused by burdensome surpluses.

The procedure agreed upon was to have a meeting in August each year and set the total requirement for the next coffee year, that is, October 1 to September 30. Thereafter, individual exporting member countries were assigned export quotas based on an agreed share of the global total. Prices were not set directly; exporting countries could sell to any country at any price as long as the total amount exported did not exceed the quota that had been alloted to them and as long as the average export price did not go below the "trigger" price. In the event that average prices tend to go below the "trigger" price, uniform percentage will be reduced from all quotas in order to reduce supply and bring prices to the required level.

On the side of importing countries, they agreed not to receive shipments which were not accompanied by a certificate of origin. But, the fact that the

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* It needs to be noted, previous attempts to reach agreement between producers and consumers mainly failed because U.S., a major consumer country, was reluctant to co-operate.

agreement allowed shipments to non-traditional markets at any price undermined its effectiveness.*

When one looks at the performance of ICFA 1962 from a retrospect, there were both important achievements and a number of short comings. To begin with, some producing countries, especially those of Central America and Africa were dissatisfied with the quota system. For instance, Brazil and Colombia obtained 52 per cent of the total quota, but did not always have sufficient production to satisfy the quota. On the other hand, the agreement did not have any provision for other members to fill the short fall. Secondly, because the non-traditional markets did not require any certificates of origin, they were used as an easy means of cheating. As a result, there developed what was known as "tourist coffee". To avoid the control a shipload of coffee would just call to any port of the non-traditional markets, to receive its certificate of origin, before its final destination to one of the traditional markets.

One important achievement that deserves mention is that the International Coffee Organization (ICO) came into existence with headquarters in London, to administer the decisions made by ICFA. The ICO is mainly composed of an international coffee council, which consisted all member countries, an executive board and its staff. Decisions in the organization require a simple majority. Votes are allocated on the basis of a small number of basic votes plus an amount corresponding to the share of imports or exports e.g. U.S. = 353; Brazil = 319.(14)

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* The intention was to promote coffee consumption.

The tasks of the ICO are, to collect and compile information on coffee production, to administer the annual stock estimates which will actually be undertaken by a private company. In addition, it publishes daily indicator prices which will be used as a basis of comparison with the agreed "trigger" price level. It is also the responsibility of ICO to administer funds such as coffee promotion and diversification funds.* It needs to be noted that the agreement had no provisions for a buffer stock arrangement or a compensatory scheme.

4.5.3 The ICFA of 1968

The 1968 ICFA was quite similar to the 1962 ICFA. However, there were a number of improvements that attempted to take into consideration some of the short comings of the previous agreement. First, there was a substantial revision of the quota allocation system that gave a greater share to central American and African countries and the share of Brazil and Colombia had to be reduced. Second, a better system was envisaged to administer and control the system of quotas whereby ICO issued stamps to be affixed to certificates of origin, which eliminated over shipments. Moreover "tourist coffee" shipments were completely prohibited.

The most distinguishing feature of the 1968 ICFA was the fact that it had a separate fund for diversification and development. The fund was raised through a levy of 60 U.S. cents per bag of 60 kgs. in excess of exports of 100,000 bags per annum. There was some hope that the fund raised would be augmented by contributions from consumer countries, but it never materialized.

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* promotion and diversification funds are financed by a tax levy on coffee exports from each country. The rate is set by the council.

The 1968 ICFA functioned satisfactorily until it was suspended in 1972 for the following reasons:- First, the unwillingness of consuming countries to adjust the "trigger" price to the devaluation of the U.S. currency that took place in 1971.* Second, the coffee surplus situation was changing. As pointed out, in the mid 1960's there was a very big coffee surplus. But, as it may be observed from Table 4:2, there had been a gradual decline until 1972 and prices were above the "trigger" level in any case when producers suspended the agreement. During 1973 producers continued to support prices by withholding supplies from the market, and as a result prices soared even to high levels. By 1974 prices started to decline because of excess production and the producers alliance proved to be weak. By 1975 producers started to show a sign of willingness to negotiate another ICFA.(15)

4.5.4 The ICFA of 1976

The 1976 ICFA came into force on October 1, 1976 and will expire in 1982. It comprises 42 coffee producing and 24 coffee importing countries, which account roughly for 99 and 91 percent of the exports and imports of coffee respectively. Since the 1976 ICFA has similarities with the previous ones, for the sake of brevity we shall only refer to those aspects that are particular to it. One, if it is proven beyond doubt that there will be supply shortage the quota system will be abandoned until such time that the supply recovers and prices start to fall to the "trigger" level. Second, a new market sharing formula was worked out. It had two components called fixed and variable. The fixed component, which represents 70

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* The producers demanded .04 U.S. cents adjustment while European countries were willing to offer .02 U.S. cents, the U.S. refused even to consider the matter.

TABLE 4:2

Exports and carryover stocks in exporting countries of the International Coffee Organization (thousand bags at 60 kg per bag)

	1962-3	1963-4	1964-5	1965-6	1966-7	1967-8	1968-9	1969-70	1970-1	1971-2	1972-3
Total	46,275	51,490	41,793	47,878	48,273	54,615	53,523	54,646	50,968	58,460	60,672
	71,707	71,340	69,678	88,796	82,804	78,826	69,182	59,156	48,360	45,243	44,693
Colombian milds	7,135	7,469	6,930	7,364	7,318	8,050	8,167	8,375	7,965	8,238	8,559
	2,789	3,015	3,775	5,115	5,832	5,727	5,612	5,936	6,258	4,946	6,136
Other milds	9,595	9,798	9,311	10,403	10,146	11,206	10,698	10,927	11,092	12,576	14,955
	761	1,279	1,783	2,281	2,466	2,538	2,334	2,933	5,021	5,977	4,370
Unwashed arabicas (Brazils)	17,803	21,192	14,229	16,463	17,659	19,571	20,704	20,411	17,050	21,873	20,687
	64,814	62,291	57,890	74,954	69,203	64,165	53,161	40,556	26,493	22,938	21,229
Robustas	11,742	13,031	11,323	13,668	13,150	15,788	13,954	14,933	14,861	15,773	16,471
	3,343	4,755	6,230	6,446	5,303	6,396	8,075	9,731	10,588	11,382	12,958

Source - C. Payer, "Coffee" in Commodity Trade of the Third World, C. Payer (ed.) 1975 p. 166

Note - The first row of each item are exports and the second are carryover stocks.

percent of the annual global quota is based on the average annual volume exported in 1968-72 or the annual volume of the first year or two of the 1976 ICFA. The variable component, which represents 30 percent is based on the percentage of global coffee stocks held by each producing country.* Finally, the 1976 ICFA stipulated that producing countries who do not report supply short fall 6 months prior to the commencement of the coffee year will be fined. To encourage reporting, 30 percent of the reported short fall will be provided as an additional export quantity over and above the alloted quota level for the year following.(16)

4.6 Conclusions

From the survey of past attempts to form producers and Exporters association, one can detect a feeling of resentment building up on the side of consumer countries as a result of such unilateral intervention actions evidenced as early as 1974. In particular in U.S.A., the activities of the Botota Group has caused considerable suspect, that producers are manipulating prices in their favour. As a result of the mounting pressure from coffee processing companies, the U.S. government has been forced to take action to investigate the activities of producers on the New York coffee market.

It is also the opinion of some, that unilateral actions of producers has undermined the importance of International Coffee Agreement. There has been an allegation by consumer countries that some coffee producing countries intend to form OPEC type of association.

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* The percentage distribution between fixed and variable component may change if supported by the majority.

However, producers justify their actions by pointing out that consumers have so far failed to support any international buffer stock scheme that producers have been demanding, for some time.

Producers have made their position clear through a number of incidents. For instance, Financial Times of November 26, 1979 notes

> "although, after oil, coffee is the worlds most heavily traded commodity, it is not indispensable. Aware of the danger of excessively high prices stability has become the group's watch ward".

In a similar vein, the President of Colombia in a speech that he gave in London on July 1, 1979 pointed

> "If consumers continue to consider it is better to leave matters to the law of supply and demand .... and in that case they (producers) would be obliged to take steps to organize the defence of their coffee economies, using the means appropriate to a market economy" (emphasis added).

On the other hand, as it can be observed, the three ICFA's that have existed so far have more or less managed to stabilize nominal prices, but there is no evidence whether they strive to stabilize real prices, leave along transferring resources (income) to the producing countries. For instance, none of the consuming countries were willing to contribute to a diversification and development fund that was set up during the 1968 ICFA. Experience has also shown that consuming countries are not willing to take into account even significant changes in the prices of industrial goods that the producers import, while determining "trigger" prices. Changes could be due to inflation or devaluation of the currencies of the developed countries. Witness the main cause of the suspension of the 1968 ICFA.

FOOTNOTES

1. Gonzalo Martner, Producers-Exporters Associations of Developing Countries, Geneva, May 1979, p. 60.
2. Ibid.,
3. The Courier, Africa - Caribbean - Pacific - European Community, No. 59, January-February, 1980 p. 64.
4. G. Martner, op.cit., pp. 62-63
5. Ibid., p. 63
6. Financial Times, November 26, 1979.
7. A. Paulson, Marketing and Distribution of Coffee Nov. 2, 1979 pp. 36-37 (unpublished Report prepared for UNCTAD).
8. Ibid.,
9. Ibid.,
10. Karen A. Mingst, "Economic Determinants of International Commodity Regulations" in Journal of World Trade Law Vol. 13. No. 2 March-April 1979 pp. 165-166.
11. A. D. Netta, "Foundations for the Analysis of Brazilian Coffee Problems" in Essays on Coffee and Economic Development, C. M. Peláez (ed.), Fundacao Getulio Vargar Publishing Service, Praia de Botafogo, 186 Rio de Janeiro, GB, Brazil, 1973 pp. 252-253.
12. Development and Change, Volume 7 No. 2 April, 1976 pp. 208-209.
13. Ibid., p. 209
14. A. Paulson, op.cit., p. 28

15. C. Payer, "Coffee", in Commodity Trade of the Third World, C. Payer (ed), MacMillan Press, London 1975 p. 167.

16. A. Paulson, op.cit., pp. 31-34.

CHAPTER V

FUTURE PROSPECTS FOR CARTELISATION OF COFFEE

5.1 Introduction

The main task in this chapter will be to assess whether there are fundamental and inherent obstacles inhibiting the cartelisation of coffee. There are two main sections. The first deals with aspects that are related to the production process. The second deals with marketing and economic strength of the coffee producing countries. An attempt will be made to suggest possible alternatives to overcoming some of the major obstacles.

5.2 Assessment of Structural Problems Related to Production

5.2.1 Possible Impacts of Certain Aspects of the Production Process on Cartelisation Attempts

As indicated in Chapter III coffee can only be properly cultivated in a limited range of altitude around the equator. This particular characteristic of coffee may be seen as an advantage to cartelisation attempts, because it means the production of coffee is more or less limited in and around regions where it is grown at the present. For instance, in the case of Brazil, the problem of frost became more apparent as cultivation expanded further south. This implies that Brazil is limited from expanding her coffee production further south due to such damaging weather conditions. Coffee cannot be grown in a temperate zone unless it is planted in greenhouses, which would make it very expensive. However, in some of the countries where it is produced at the present there is unutilized land that could come under cultivation, but which needs the necessary investment in infrastructure. For the purpose of our argument it is assumed that most coffee producers would be willing to collectively limit production, because the gains

that come as a result of a rise in price is higher than gains that come as a result of an increase in production. The most recent evidence that supports this assertion is the observed trend of coffee prices as a consequence of the supply shortage between 1975 and 1977.* Moreover, even if some individual countries decided to increase production in order to take advantage of the rise in price, it would only have effect on coffee supply after a period of no less than six years. But, there is a probablity that individual countires could refrain from limiting their harvests. However as it can be observed from the experience of the three ICFAS the quota system has been fairly successful. In fact, in the last two ICFAS, since each exporting country is required to provide a certificate or origin and a special stamp that is issued by ICO, a country can hardly manage to export in excess of its own quota. Hence, provided the producing countries come into a collective agreement to restrict the world supply of coffee, it would not be very difficult to work out a procedure that would ensure that each member does not exceed its quota limit. Therefore, even if it is difficult to ensure that each producing country has reduced his harvest or production, insofar as that country cannot export its excess coffee, the world coffee supply will not be affected.

One other important aspect of the production process that will have impact on cartelisation efforts is the size and type of farms. As noted earlier, most of the coffee is produced on small and medium sized farms. Even if one assumes that agreement can be reached at the international level to cartelise coffee, to make it viable, a method should be devised to co-ordinate the production process of the thousands of small farms in each country.

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* For further details refer to page 61

It is also important to note that it is rarely that it is a cash crop of relatively secondary value, in the majority of cases it is the main and often the only cash crop needed for the subsistence of farmers.

The fact that there are a lot of small farms and the fact that coffee is their important source of cash implies that the concerned governments should provide the alternative sources of cash and the necessary storage facilities so that the supply of coffee can be properly regulated and if necessary production can be reduced.

These two main factors are serious drawbacks for coffee and similar agricultural commodities that are traded internationally. In most cases the governments concerned are unable to provide the alternative employment for the people who are dependent on such crops. As compared to oil or the other minerals, these are some of the weaknesses that make attempts to control agricultural commodities rather difficult.

The success of a coffee cartel will depend on the capacity of the members to devise a successful policy of diversifying their economies and raising the necessary capital among themselves to implement such policies. The lesser the dependence of a certain economy on a commodity, the better the chances to regulate the export of that commodity in such a way that it can obtain the highest return. For instance, one of the main reasons why Brazil is capable of regulating her export of coffee is because she has managed to reduce her dependence on the export of coffee to a considerable extent*.

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* In 1974 and 1975 coffee contributed on the average about 10 per cent of Brazil's exports, while in the 1960's it accounted at least 25 per cent of her exports. This point is well argued by Oscar Braun in his exposition of the theory of unequal exchange, under the title International Trade and Imperialism, a translation from 'Comerico Internacional e Imperialismo' by Siglo XXI Argentina Editores S.A. in 1973. Chapter II p. 52-78.

5.2.2 The Effect of Lags and Fluctuation in Production On Cartelisation Attempts

In Chapter III we have pointed out the causes of fluctuations in the production of coffee. It has also been noted that six years lag in coffee production will give ample time both for consumers and processing plants to look for synthetic and natural substitutes. This particular inherent characteristic of coffee will inhibit reaping the full benefit of production restriction. However, this particular obstacle should not be seen as insurmountable. As we have pointed out in section 5.2.1, at least at the beginning, the attempt should not be to limit production, rather the attempt should be to limit the quantity of coffee that enters the world market. In due course attempts will be made to limit coffee production.

The lag in production should not only be seen as an obstacle to cartelisation attempts. It is also an advantage, because supply will be fairly inelastic within the six year period. Assuming that the non-cartel members control a very small percentage, say 10 per cent of the world coffee supply, whatever steps they take within the six year period, they can hardly bring any substantial impact on total world coffee supply. Even after the six year period, to bring a substantial impact on world coffee supply, availability of unutilized land that is suitable for coffee production, availability of capital for infrastructure construction etc. will determine their capacity to increase the world coffee supply.

On the other hand, fluctuations of production caused by weather hazards can hardly be controlled at all. Providing storage facilities at the national and international level would then be necessary, recognizing the fact that it requires heavy capital expenditure. Such provisions will deal more effectively with the year to year fluctuation, but, it will have little impact on

production shortage that comes about as a result of draught, flood or frost as it has been witnessed in 1975. However, from the point of view of producers, supply shortage has never really been a serious problem in the history of coffee, the more acute the shortage, the higher the benefits.

A commodity with unpredictable supply characteristics will create a varied spectrum of problems, which are virtually non-existant in the case of oil or the other minerals. Even though coffee satisfies many of the other characteristics required for cartelisation, these are some of the serious weaknesses that make it difficult to be controlled.

5.2.3 Assessment of the Vertical Integration of Coffee Industry

It has been noted earlier that most of the world coffee is traded in its raw form. It has also been pointed out that coffee producing countries obtain only 14 per cent of the consumer price and the rest is retained by middle men and processing companies. It goes without saying that one of the ways to improve the gains of producing countries is to try to process most of it domestically. Processing coffee into the roasted and the powder forms does not require costly capital investment and seems to be within the capacity of most developing countries and can be handled with little difficulty.

On the other hand, processing coffee into the soluble form requires a more sophisticated technology and costly capital investment. One possible way of overcoming this difficulty is to join the financial and human resources of coffee producing countries and establish the processing industries at strategic points, whereby one country provides service for the other countries in a region. Such a step by itself could considerably improve gains to the producers

of coffee. However, such a move would probably face stiff resistance from coffee importing countries, where most of the coffee is processed at present. It is worth noting that it has already been witnessed in the case of Brazil, when she started to encourage soluble coffee production at home in 1971 and 1972*. However, if all coffee producing countries agree to take collective action such resistance could be easily overcome.

One significant advantage of this particular type of processing is that soluble coffee can be stored for a much longer period without losing its flavour than is the case with roasted and powder coffee. Expanding the processing capacity of developing countries will provide better chances to control the blend and the proportion of chemicals that should be used in the preparation of soluble coffee. It is to be expected that coffee processing plants will start to use a greater proportion of chemicals as prices for coffee beans increase. We should not also overlook that encouraging the development of such processing plants will provide employment and improvement of skills.

5.3 Assessment of Structural Problems Related to Marketing and Economic Strength

5.3.1. Introduction

A brief survey of the pattern of coffee marketing in the different parts of the world has been provided in Chapter III. In this section attempts will be made to assess whether these marketing conditions and the general strength of the economies of coffee producing countries are condusive to the formation of a coffee cartel.

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* For further details refer to section 3.3

As observed earlier attempts to control the international coffee market brought mixed results. However, those that were successful or have achieved their objective to a certain extent are accompanied by production restriction. For instance, Brazil's attempt to raise prices in 1905/06 was a success, while in 1925 it was a complete failure and it had to be abandoned. Disregarding the factors such as good crop year, exceptionally good weather for a number of years, etc. the major difference was that the earlier attempt was accompanied by production restriction, while the later attempt had no such provision. In fact, it encouraged over production by providing credits and high prices for farmers.

5.3.2 Market Concentration and Source Dispersion

The world coffee market is characterized by dispersed supply sources and concentrated consumption centers. For instance, in the present international coffee agreement that came into effect in 1976 there are 42 producer and 24 consumer countries accounting for 99 per cent of the exports and 91 per cent of the imports respectively. A closer scrutiny of the export and import data shows that the market is even more concentrated than it looks. The EEC, U.S. and Japan account for 82 per cent of the consumption, and if we include Canada and the Scandinavian countries it is over 90 per cent. On the supply side, nine countries including Brazil, Colombia, Ivory Coast, Indonesia, El Salvador, Mexico, Uganda, Ecuador and Cameroon account for 65 per cent of the total supply. Moreover, as it can be seen from table 5:2 for some of the above listed countries coffee is a major source of foreign exchange earnings.

The disadvantage of having many suppliers is that it makes it difficult to construct a unified policy. Whereas, on the side of the consumers if two or three countries can reach agreement they can have a big impact on the level of prices. The smaller the number of members the easier it is to reach an agreement and to abide by it. To illustrate the point one need only refer to the experience of Inter American Coffee Agreement that was signed between the U.S. and fourteen coffee producing countries in South America. Despite a relatively low demand for coffee the agreement managed to keep prices reasonably high between 1940-48*. It should not either be forgotten that the International Coffee Agreement became a reality only after President Kennedy announced the formation of 'Alliance for Progress' and detailed a 10 point plan. Such incidents show the importance of the consent of consumer countries. However, it does not mean that producers alone cannot form their own association to control or regulate the market, since there were instances where producers collectively managed to do so in the past. Nevertheless, it is rather difficult to be certain as to what would be the situation in the future.

5.3.3 Economic Strength of Coffee Producing Countries

The ability of any coffee producing country to take a long-term perspective and to be a reliable member of a cartel will, to a considerable extent, depend on the overall economic situation of that country and the extent of its dependence on coffee exports. One measure of a country's economic situation with regard to its foreign trade performance is its foreign reserves position as compared to its import requirement.

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* For further details refer to Chapter IV Section 4.

TABLE 5.1

Gross International Reserve and Estimated Export Coverage in Number of Months (Millions of $U.S.)

	U.S.$Million	U.S.$Million	No. of Months
	1970	1978	1978
Brazil	1190	12.191	6.7
Colombia	207	2.810	8.3
Ivory Coast	119	455	1.5
Indonesia	160	2.676	2.6
El Salvador	63	381	3.5
Mexico	756	2.269	2.0
Uganda	57	-	-
Ecuador	85	762	4.7
Cameroon	81	57	0.5

Source - World Development Report, IBRD, 1980 Page 138-39

Note - According to "World Commodity Outlook" of 1979, the above are considered to be major exporters of coffee for the year 1978. But, production wise the same source gives a different list of countries.

As it can be seen from Table 5.1, in 1978 most of the above countries had a rather weak international reserve position. It is only Brazil and Colombia that had reserves that can at least cover 6 months imports. On the other hand, when one looks at the figures for the oil rich countries for the period prior to 1973 almost all had reserves that can cover 6 months imports, whereas, for countries like Saudi Arabia, reserves were estimated to

cover more than one year's imports. It is interesting to note that the reserve position of the above coffee producing countries could well have been relatively favourable in these years because of exceptionally high world coffee prices in 1976-78, due to the severe 1975 frost in Brazil.

A favourable international reserve position is necessary but, it may not necessarily imply a favourable overall economic situation. For our purpose, it would also be necessary to observe the extent to which these countries are dependent on the export of coffee. If a country obtains most of its foreign trade earnings from coffee and if at the same time its international reserves are low, it is less likely that it will involve itself in a risky venture of cartelisation effort. The greater the dependence on the commodity the higher the risks involved.

TABLE 5.2

Coffee Exports as Percentage of Total Exports 1974-77

	Percentage			
	1974	1975	1976	1977
Brazil	10.9	9.9	21.5	19.1
Colombia	42.1	45.8	55.5	65.7
Ivory Coast	21.9	24.3	34.3	37.5
Indonesia	1.3	1.4	2.8	5.7
El Salvador	41.6	32.9	52.9	63.2
Mexico	4.5	6.8	10.9	11.2
Uganda	73.1	79.4	82.5	89.1
Ecuador	6.0	7.1	18.5	13.1
Cameroon	25.0	24.2	31.7	31.9

Source - A. Paulson, Marketing and Distribution of Coffee 1979 p. 16.

Based on figures for 1974-77, among the major producers, Uganda, Colombia and El Salvador have an excessive dependence on coffee exports. Colombia has a favourable foreign reserve situation. Whereas, El Salvador had a very small international reserve in the year 1978. The IBRD "World Development Report" did not have any figures for Uganda for the year 1978. However, given the state of affairs in that country during the last few years it is less likely that the country had a favourable international reserve position.

It is worth noting that even though Brazil is the source of 1/3 of the total world exports, the share of coffee in the overall export earnings of the country is not that significant. That could also be suggested as one of the explanations why Brazil takes the lead in measures to withhold supplies to maintain demand and to keep up prices. It should also be noted that with an average elasticity of aggregate world demand of 0.25 a country's exports of that particular commodity should exceed 25 per cent of the total world exports to benefit from a unilateral venture of withholding supplies.

From the major coffee producing countries presented in Table 5.1, according to our criteria of international foreign reserves, Colombia, Brazil, Ecuador, El Salvador, Indonesia and Mexico (listed in the order of their foreign reserve position strength) are more likely to participate in a risky venture of cartelisation than are the others. However, if we take another criteria the order could look very different. For instance, if we take coffee exports as a percentage of total exports, assuming that the smaller the percentage the lesser the risk for a country to participate in a cartelisation effort the order will be as follows:- Indonesia, Mexico, Ecuador, Brazil, Cameroon, Ivory Coast, El Salvador, Colombia and Uganda. If a

country depends on coffee for more than 50 per cent of its export earnings it is less likely that it will become a reliable member of a cartel.

5.3.4 Nature of Demand for Coffee*

Unlike oil, coffee is not an indispensable commodity. Because of the central importance of oil in modern economic life, and the fact that energy is a small proportion of the total cost of a certain service or product, energy demand is relatively price inelastic. Consequently oil, as a major source of energy, tends to have an inelastic demand over moderate periods of time. It is also difficult to shift from one source of energy to another in the short-run even if we assume that non-oil sources of energy to be cheaper. However, coffee also tends to have an inelastic demand over moderate periods of time for different reasons. As noted earlier, a survey of 23 econometric models over the last 20 years has shown that the price elasticity of coffee demand ranged from-0.1 to-0.5. A gradual increase in prices does not really affect the consumption level, at least on the basis of the experience in the United States, which still remains to be a major consumer country. As in the case of many other stimulants, consumption does not suddenly decrease when there is slight price rise. Consumption may however decline if consumers manage to find a substitute.

Given this type of demand characteristic, coffee prices could be raised to a more remunerative level by means of concerted action without any serious negative impact on the long-run demand prospects. However, producers should be aware of their limits to avoid the negative impacts on the level of consumption or its growth

* The discussion in this section closely follows manturas line of argument. Development Studies, Discussion Paper No. 17, March, 1978.

rate. Since there are quite a number of major coffee producers, some with extensive unutilized resources and a big absorption capacity unlike many of the major oil producers, it would be unrealistic to assume all producers will participate in a cartelisation effort. Assuming that not all coffee producers will join the cartelisation effort demand elasticity of the cartelised coffee may be formally stated as follows:-

$$e = eD + S/Q\ (eD + eS)^{*}$$

e - price elasticity of demand for cartelised coffee

eD - price elasticity of demand for coffee in consuming countries

eS - price elasticity of coffee supply outside the cartel

S - coffee supplied by non-cartel members

Q - exports of cartel members

if $S \geqslant 0$ then $e \geqslant eD$

The main purpose of the above equation is to show the relationship of the elasticity of demand for cartelised coffee and the level of world coffee supply that the cartel controls. If the cartel controls the total world coffee supply e = eD, since the expression S/Q(eD + eS) will by definition be equal to zero. However, as it is to be expected, it is less likely that a cartel will manage to control the total supply. Hence, the value of e will be greater than eD and the higher the value of (S) the greater the difference between e and eD. In short it means the price elasticity of cartelised coffee will be much higher than the actual elasticity of coffee observed at the present or in the past if the cartel does not control a good portion of the world coffee supply. However, the elasticity of coffee has been estimated to below 0.5 and if a would be cartel

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* C. Mantura used this relationship to assess the price elasticity of oil exported by OPEC members.

manages to control more than 50 per cent of the world supply the risk will not be that significant.*

However, the possible conseqences of such a cartelisation effort should not be overlooked. Price increase will encourage the ones outside the cartel to increase production and could result in the gradual reduction of the share of the market of those in the cartel. The experience of Brazil in the 60's and 70's might be cited as an example of this. It should anyhow be realized that the impacts of cartelisation on supplies from outside the cartel can bring about a substantial effect only after six years of the commencement of cartelisation assuming that all the necessary infra-structure will be available for expansion.

5.4 Conclusion

Based on the different marketing and production aspects of coffee that we have considered in this chapter, coffee appears to have favourable characteristics from the point of view of it being cartelised. In addition, it should be noted that governments in major coffee producing countries have, as it has been discussed in chapter III, a fairly good control of the coffee produced and exported from their countries. What is lacking is the initiative to bring together all the coffee producing countries and to work a detailed procedure for such a line of action, that is, to form a cartel. This is not a suggestion or an expectation far removed from what is actually being attempted through the good offices of the non-aligned movement. For the last few years, experts of the non-aligned movement have been studying the possible ways of making producers and exporters association more effective and to co-ordinate the objective and function of each association.

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* For a more detailed discussion of this particular point refer to Chapter II, section 2.1.

In the case of coffee the following characteristics may be considered as advantageous for cartelisation:-

- Coffee requires a particular type of climatic condition which is mainly found in a limited range of altitude around the equator.
- Coffee processing does not require very sophisticated technology and can easily be handed by producing countries. Alternative ways of overcoming obstacles that may exist is suggested earlier.
- Demand for coffee is fairly price inelastic
- Export of coffee from all the major producing countries is under the supervision or the control of the government.

The following may be considered as obstacles to cartelisation.

- Coffee is mostly produced by small and medium sized farms and it might be difficult to co-ordinate the production of many small producers (suggestion to overcome such a difficulty is to be found in section 5.2.2)
- Supply of coffee is unpredictable, since it is easily damaged by climatic hazards. However, from the point of view of cartelisation efforts it is not a serious difficulty, since the idea is to reduce production. What is needed is to improve the storage capacity of producing countries.
- The consumption centers are concentrated, while supply sources are relatively dispersed.
- Based on our criteria concerning international reserve position and the extent of a country's dependence on coffee exports, quite a number of countries are less likely to become reliable

members of a cartel. However, those that satisfy the criteria of less dependence on coffee exports control more than 50 per cent of the world coffee supply, which is the minimum quantity that is needed to be controlled for the formation of a cartel.

CHAPTER VI

SUGGESTION, SUMMARY AND CONCLUSION

6.1 An Overview of the Main Theme

The main query that we have attempted to examine is, whether coffee producing countries by taking a concerted action of regulating the production and supply of coffee can improve their gains from trade. For such questions it is difficult to provide clear cut answers. Our main objective was not to provide policy guidelines for coffee exporters but rather to investigate the impact and the difficulties that would be faced in the event of producing countries deciding to take such action and to suggest alternative ways to alleviate the problems. It is worth noting at this juncture that a few months before OPEC recorded its first success, some well known economists 'demonstrated' that an attempt to cartelize oil would be futile.(1)

6.2 The Role of Commodities in the NIEO

One of the main aspects of the New International Economic Order (NIEO) is an attempt to deal with the various problems of primary commodity trade. In particular, the Third World, which is dependent on the production and export of primary commodities provides much support to attempts that are being made to improve the trade position of primary commodity exporters. The numerous resolutions of UNCTAD and Non-aligned states meetings are clear indications of this growing concern. Even though most of the resolutions have not managed to come up with tangible results, we cannot at the same time deny that consciousness of the people of the Third World is growing

and the ground is being cleared, as it were, for the establishment of a different economic order that better fulfills the aspirations of these people.

It should be made clear that the illusionary and simplistic outlook that high foreign exchange earnings such as those experienced in the early 1970s will put an end to the injustices of the present world economic order is not entertained in this paper. But, the basis for and the terms of exchange of commodities in the international market is certainly one of the major components of the present economic order that has to be replaced with a better system. Even if one assumes that the present economic order can be replaced by a NIEO it does not mean that such a move will bring an end to the misery and unfair distribution of income within the Third World countries themselves. However, such a move will provide one of the necessary pre-conditions for such an end.

6.3 The Present Economic Order

The present economic order can be traced back to the 1940s when the dominant powers of the time especially the United States set about to create a new world system out of the disarray that arose as a result of the Second World War. According to K. Griffin these were their main objectives:(2)

Firstly, they wanted to establish a world monetary and trading system that facilitates the free flow of commodities and private capital. The International Monetary Fund (IMF) was formed to maintain order in foreign exchange markets and to provide short-term loans for those countries that face balance of payments problems.

Secondly, it had the intention of providing post-war reconstruction and to contribute to the finance of the

development of the underdeveloped countries. The International Bank for Reconstruction and Development was mainly created for this particular purpose. In addition, they had Marshall Plan, different types of bilateral aid, etc.

Thirdly, their objective was to create a harmonious economic relation and disputes were meant to be resolved through negotiations rather than violence. For this purpose, they created institutions such as the International Court of Justice in The Hague, to handle legal conflicts, for matters concerning food and agriculture (FAO), for education (UNESCO), for health (WHO), etc.

The ideology of the system is capitalist and as a consequence equity is taken to be subservient to productive efficiency. Above all, the system has been maintained and supported financially and politically by the powerful, and by the use of force and the threat of military intervention at times.

During recent years a number of changes can be observed. The hegemony of the United States which is instrumental in maintaining the present order is declining and other contending forces are emerging, e.g. U.S.S.R., China, etc. Equity, unlike in the past, is gaining importance in policy debates and consequently most schools of thought believe or at least accept that the income disparity between countries should be redressed. But, they differ on the means to bring about such a change. In particular, the "Dependency School of Thought", though it has not really provided a realistic alternative path to development for the underdeveloped countries, has drawn the attention of academicians and government representatives to previously neglected issues and causes of underdevelopment - the development of rich countries themselves. It is also interesting to note

that even in international conferences, due to a considerable increase in the number of nations that gained their independence recently, a growing number of resolutions are passed, which are contrary to the interests of the dominant powers, e.g. The Twenty-Ninth General Assembly of the U.N. that took place in 1974 adopted the principles for the establishment of the New International Economic Order against the consent of sixteen developed countries including the U.S. In particular, the U.S. delegation leader remarked that it has reservation about the following points:-

a) permanent sovereignty over natural resources,
b) producer associations,
c) price indexation, and
d) compensation for damage to resources and people.(3)

6.4 Recent Trends in the World Political and Economic Situation

Despite all the above mentioned qualitative changes taking place in the world and the political gains made by the Third World as a whole, there still remains the problem of looking for ways and means to improve the bargaining position of developing countries in order to make substantial economic and political gains for the poor countries. For instance, D. Evans in his paper notes

> "the realities of weak bargaining power of Third World countries have led to negotiations almost exclusively in terms of narrowly defined price objectives".(4)

Given the present world economic and political order, one possible way of improving the bargaining power of the Third World is cartelisation or grouping of

several commodity producers to exert their collective market power. In the above quoted article D. Evans notes, that such a move runs against the conventional views on 'world welfare' and is contrary to the spirit of negotiated consumer-producer UNCTAD/NIEO Agreements advanced by spokesmen of the North. One has also to identify whose welfare such a move will reduce. Leaving aside the question of the distribution of income within the countries, there is no evidence whatsoever that the success of OPEC reduced the welfare of its members. In so far as developed countries' official representatives continue to pay lip-service to the difficulties and misery of the Third World countries, it seems appropriate to search for and implement every means possible that will further their interest. The argument that developing countries will lose the 'goodwill' of the rich countries because of such a move is not that convincing when one takes into consideration points we raised above. The main intention of such an approach is not necessarily to disrupt the economies of the rich countries, unlike how some developed countries' representatives tend to understand such moves, but rather to improve the bargaining power of the poor countries, who lack any significant leverage as observed in many international negotiations.

While encouraging such moves, Third World countries should also be aware of the possible side-effects and long-run impacts of such changes. Hans Singer makes this point effectively when he argues:

> "Good prices for their primary commodities ... give to the underdeveloped countries the necessary means for importing capital goods and financing their industrial development, yet at the same time they take away the incentive to do so, and investment, both foreign and domestic,

> is directed into an expansion of primary commodity production ... Conversely, when the prices and sales of primary commodities fall off, the desire for industrialisation is suddenly sharpened. Yet, at the same time, the means for carrying it out are sharply reduced. Here again it seems that the underdeveloped countries are in danger of falling between two stools: failing to industrialise in a boom because things are as good as they are, and failing to industrialise in a slump because things are as bad as they are".(5)

To move away from the traditional international division of labour, it is necessary to make a deliberate and concerted action of restricting the production of primary commodities in such a way that it provides the necessary financial support for diversifying the underdeveloped and primary commodity-based economies. However, high prices, if unaccompanied by production restriction will only strengthen the subservient economic and political relation of peripheral countries with metropolitan centers. If underdeveloped countries do not take the necessary steps to improve their bargaining position, it would not be unrealistic to assume that the outcome of the North-South dialogue will either remain rhetoric for many years to come, or if there is any outcome it will be such that it will assure the privileged position of the developed world.

The outcome of any negotiation will depend on the relative strength of the different parties concerned. It should not also be forgotten that the demand for restructuring the world economy and redressing the income disparity gained importance only after most Third World countries obtained their political independence. When the colonies in the different parts of the Third World

were fighting for their independence, many imperialists mocked them and a great number of them never believed that the colonies would gain political independence. At present, when underdeveloped countries demand economic independence and a better share of the world income, it is regarded by some as something 'unrealistic' and 'irrational'. For others, it is a hope that they live for, without which the future will be bleak.

6.5 Conclusion about Coffee

Since we have already drawn conclusion at the end of each chapter, the main objective in this section will be only to pull together the most important findings, the purpose being to provide a brief and comprehensive view of the arguments that we have developed throughout the paper.

Chapter I enumerated the most important difficulties that arise from heavy reliance on the production and export of primary commodities in general and some of the specific problems related to coffee.

The theoretical framework of the thesis is mainly developed in the second chapter. It has been shown that on theoretical grounds, cartels or monopoly pricing brings higher profits to producers than is the case of free play of demand and supply, taking into consideration the imperfections of the world commodity market. The same chapter also highlights the essential characteristics a commodity should possess to benefit from monopoly pricing or cartelisation.

In addition, in Chapter II, attempts have been made to provide a brief comparison between cartels and the different types of commodity agreements that are suggested for IPC by UNCTAD. The comparison has shown that carteli-

sation can bring better profits and provide better opportunities to transfer resources from the More Developed to the Less Developed countries. However, the theoretical exposition had to be supported by examples from the real world to demonstrate the viability of forming primary commodity cartels and the practical difficulties that can inhibit cartelisation of primary commodities.

Based on such considerations, Chapters III, IV and V analyse the different aspects of coffee production, marketing and international trade. Chapter III considered those characteristics of production, marketing and international trade that are thought to be important for cartelisation, whereas in Chapter IV we considered the past attempts to regulate and control coffee through producers and exporters associations and consumer-producers agreements. As it has been noted earlier, the different schemes brought mixed results. An attempt has been made to identify the possible causes of different outcomes and to show whether or not the causes of the undesired outcomes are due to inherent characteristics of coffee or mismanagement that could possibly be avoided. It is true that coffee, like many other agricultural commodities that are traded internationally, is faced with difficulties that are non-existent in oil or the other minerals. Alternative ways of dealing with these problems have been suggested. However, it is not exhaustive and there is a need for a more detailed study to provide alternative ways of dealing with the problems. Nevertheless, it shows that the obstacles could be circumvented.

In Chapter V, based on the 'balance sheet' of negative and positive points of coffee with regard to cartelisation, we have shown that coffee has a favourable prospect of being cartelised. This implies coffee producers can make

better gains by forming a coffee cartel than through the present arrangement of ICFA.

The last chapter has shown the role of primary commodities in the NIEO or the North-South Dialogue and has argued that although improving prices of primary commodities alone does not necessarily redress the political and economic imbalance in the world but, it is a necessary pre-condition to bring about such a change.

FOOTNOTES

1. Behind the Scenes, Akins Urges Prorationing and a 5% increase per annum, International Currency Review, Vol.11, No.6, 1979, pp.73-80.

2. K. Griffin, The New International Economic Order, ISS 25th Anniversary Conference, 16-20 December 1977, pp.1-2.

3. R.F. Meagher, An International Redistribution of Wealth and Power, A Study of the Charter of Economic Rights and Duties of States, Pergamon Press, New York, 1979, pp.4-7.

4. D. Evans, International Commodity Policy: UNCTAD and NIEO in Search of a Rationale, World Development, Vol.7, 1979, p.259.

5. H.W. Singer, "The Distribution of Gains Between Investing and Borrowing Countries", American Economic Review, Vol.40 (1950), p.482 quoted in C. Payer, "Afterword: Commodity Prices and Third World Poverty" in Commodity Trade of the Third World, C. Payer(ed.), MacMillan Press, London, 1975, p.171.

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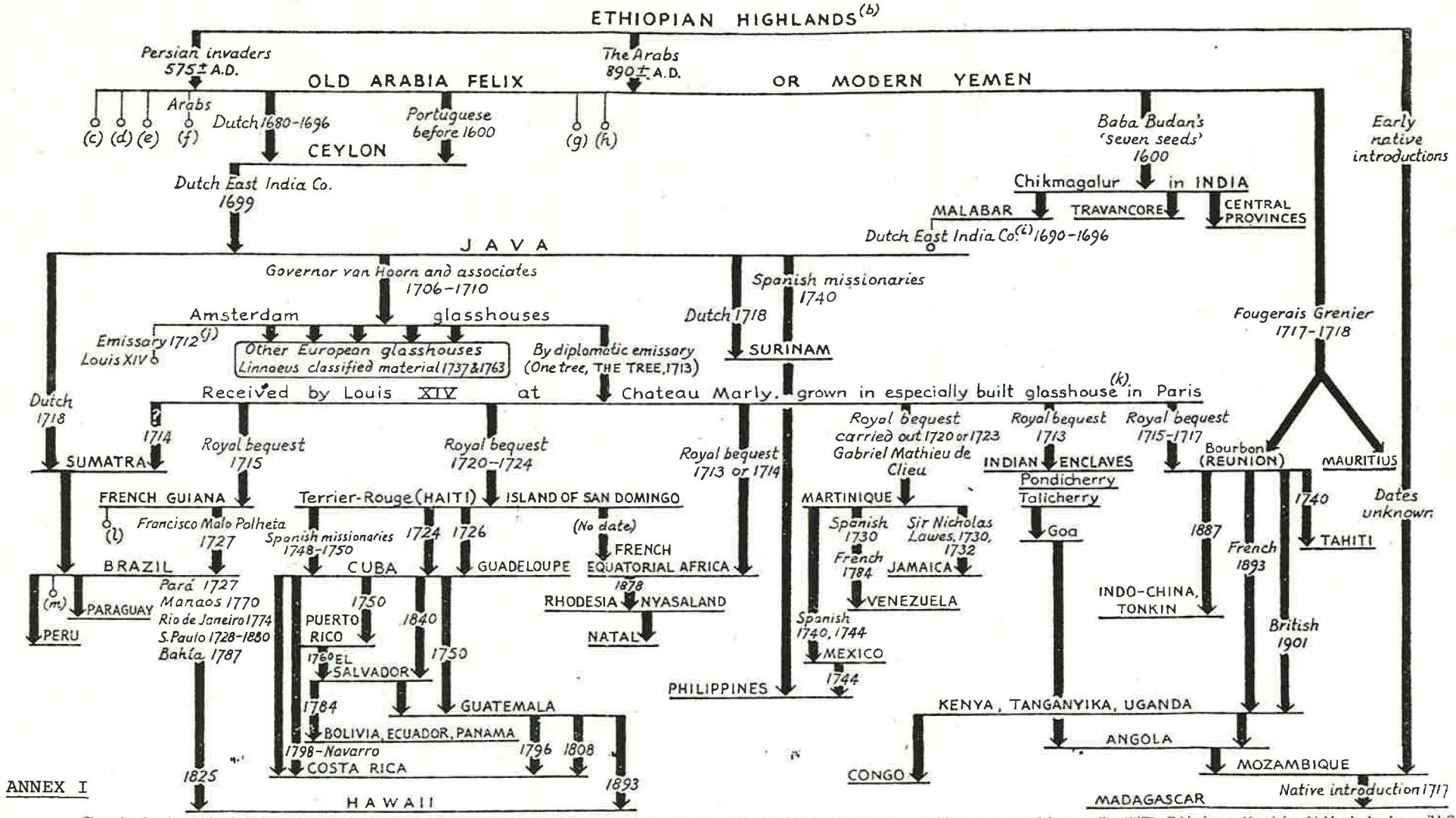


Chart showing the distribution of the growing of *Coffea arabica*. [a] There are hazy references in the Old Testament and in the Koran, which are interpreted by some as pertaining to coffee. (b) The Ethiopian, or Abyssinian, highlands that have wild *C. arabica* extending for a short distance into the south-east corner of the Sudan. (c) Introduction into Persia, 1500 to 1510. Failed to grow permanently. (d) Introduction into Syria, 1500 to 1510. Failed to grow permanently. (e) Introduction into Turkey, 1554. Failed. (f) Introduction into fields in Ceylon by Arabs before 1505. Failed. (g) Introduction into fields in Holland by Dutch in 1616. Failed. (h) Introduction into fields in France by French in 1620. Failed. (i) Introduction into fields in Java by Dutch. Failed from earthquake and floods. (j) First attempted gift of tree for Louis XIV; it died in transit. (k) On receipt by Louis XIV, the first glasshouse in France was constructed on royal order especially for The Tree. It was Louis's will that seeds from this Tree be distributed to all his tropical empire. This was carried out even after his death. (l) Attempts to obtain the tree were made in Brazil before 1727. All failed. (m) Seeds taken to Chile. Failed.

Source: F.L. Wellman - Coffee, Botany, Cultivation and Utilization
Inter Science Publishers Inc., New York, 1961, p.26.

ANNEX II TABLE I

SUMMARY OF ELASTICITY OF DEMAND CALCULATIONS

Commodity	Parameters				Elasticity of Demand +
	S	η	ε	σ	ηc
Copper					
CIPEC	0.39	0.2	0.3	∞	1.0
	0.39	0.2	0.3	10	0.9
	0.33	0.2	0.3	∞	1.2
	0.33	0.2	0.3	10	1.1
Bauxite					
Jamaica	0.23	0	<0.30	∞	<1
	0.23	0	<0.34	10	<1
Jamaica, Guyana					
and Surinam.....	0.41	0	<0.69	∞	<1
	0.41	0	<0.84	10	<1
Coffee					
Brazil.....	0.34	0.35	0.65	2	1.0
Bananas					
UPEB	0.66	>1	-	-	>1

+ Solution to $\eta c = \dfrac{\varepsilon[(1-S)\sigma + S\eta] + \sigma\eta}{S(\sigma - \eta) + \eta + \varepsilon}$

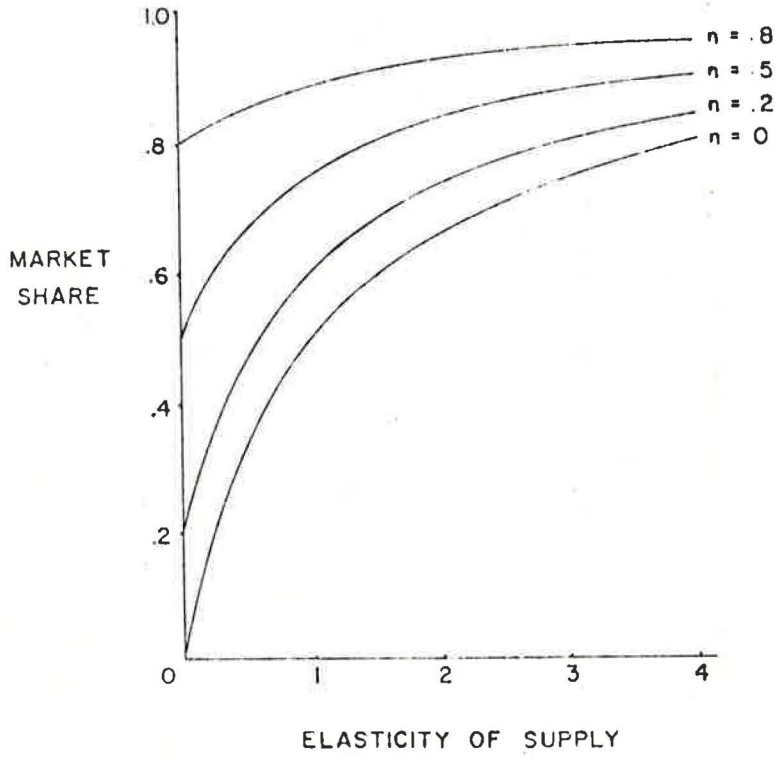
when $\sigma < \infty$

Solution to $\eta c = \dfrac{\eta}{S} + \dfrac{(1-S)}{S}\varepsilon$

when $\sigma \longrightarrow \infty$

Source: Carl Van Duyne - Commodity Cartels and the Theory of Derived Demand, Kyklos Vol.28, 1975, pp.597-612.

ANNEX II FIGURE I



Source: solution to the equation

$$\eta_c = \frac{\eta}{S} + \frac{(1-S)}{S}\varepsilon = 1$$

Source: Carl Van Duyne - Commodity Cartels and the Theory of Derived Demand, Kyklos Vol.28, 1975, pp.597-612.

ANNEX III TABLE I : EXPORTS OF GREEN COFFEE BY TYPE FOR PRINCIPAL PRODUCERS, 1972-77 (000 bags+)

Exporter	1972	1973	1974	1975	1976	1977
TOTAL	55,728	60,110	52,535	55,787	55,672	44,743
Colombian Milds	8,490	8,979	8,731	10,085	8,425	7,441
Colombia	6,517	6,751	6,860	8,128	6,184	5,148
Kenya	1,041	1,239	1,183	1,104	1,262	1,534
Tanzania	932	989	688	853	979	759
Other Milds	12,661	14,765	13,981	15,358	16,055	14,248
Burundi	403	378	354	421	366	282
Costa Rica	1,276	1,394	1,488	1,274	1,067	1,112
Dominican Republic	459	578	504	400	581	668
Ecuador	904	1,153	973	1,055	1,518	904
El Salvador	2,056	2,438	2,511	3,002	2,649	2,989
Guatemala	1,828	1,888	2,198	2,128	2,093	2,149
Haiti	403	327	306	315	419	289
Honduras	544	664	515	812	722	599
India	723	947	832	978	817	888
Jamaica	13	13	14	19	17	16
México	1,549	2,149	1,913	2,297	2,573	1,692
Nicaragua	580	615	556	660	802	809
Panama	41	30	24	26	25	19
Papua New Guinea	498	614	597	595	799	626
Peru	915	973	442	720	703	741
Rwanda	177	359	478	428	606	282
Venezuela	292	245	276	228	298	183
Unwashed Arabicas	18,997	19,381	12,481	14,134	14,720	9,505
Bolivia	69	74	54	86	78	78
Brazil	17,503	17,856	11,424	13,035	13,424	8,531
Ethiopia	1,356	1,403	936	914	1,167	833
Paraguay	69	48	67	99	51	63 1/
Robustas	15,580	16,985	17,342	16,210	16,472	13,549
Angola	2,985	3,648	3,690	2,665	1,395	1,039
Ghana	74	54	47	44	61	54
Guinea	74	124	17	55	17	33
Indonesia	1,398	1,632	1,797	2,168	2,106	2,515
Liberia	88	93	59	69	70	165
Nigeria	73	42	4	20	91	40 1/
OAMCAF	(5,957)	(6,439)	(7,352)	(7,067)	(8,684)	(6,184)
Benin	38	9	28	37	30	4
Cameroon	1,116	1,422	1,669	1,623	1,641	1,159
Central African Emp.	205	161	144	166	145	134
Congo	29	15	8	12	29	30
Gabon	21	8	4	2	4	3
Ivory Coast	3,427	3,469	4,253	4,005	5,440	3,910
Madagascar	932	1,090	1,069	1,089	1,216	844
Togo	189	265	177	133	179	100
Sierra Leone	238	192	53	106	52	153
Trinidad and Tobago	38	33	13	49	29	27
Uganda	3,307	3,632	3,121	2,943	2,552	2,200
Zaire	1,348	1,096	1,189	1,024	1,415	1,139

\+ one bag = 60 kg.

1/ estimated

Source: ICO cited by A. Paulson, Marketing and Distribution of Coffee, 1979, p.128.

ANNEX III Table II - Direction of Trade in Green and Roast Coffee, 1975 (Volume)

(amount in thousand metric tons)

Origin \ Destination	Australia	Austria	Belgium - Luxembourg	Canada	Denmark	Finland	France	F.R. Germany	Greece	Iceland	Ireland	Italy	Japan	Netherlands	New Zealand
(Total imports)	25.1	31.4	88.2	89.9	65.1	59.1	299.8	373.4	17.2	2.3	0.4	201.6	109.7	161.6	5.5
of which: (from Africa)	7.0	3.6	7.5	17.1	3.2	8.0	197.3	96.1	4.8	-	0.1	72.7	44.5	41.3	2.3
(from Asia)	7.2	0.8	6.6	1.7	9.9	0.1	5.6	5.3	1.2	-	0.1	9.1	11.4	8.6	0.8
(from Lat.Ame.	1.4	25.5	39.9	42.7	48.3	50.9	91.2	264.5	10.9	2.2	0.1	119.3	50.1	97.4	1.4
Angola	0.1	0.9	0.4	0.2	0.7	-	3.1	6.0	0.1	-	-	2.8	4.9	6.3	-
Brazil	1.1	7.9	15.2	13.7	38.7	9.1	58.8	29.7	9.8	2.0	-	100.6	16.3	11.3	1.3
Burundi	-	-	0.9	-	0.1	-	2.5	8.4	-	-	-	0.1	-	0.3	-
Cameroon	-	0.3	2.7	2.9	0.2	-	29.4	15.0	0.3	-	-	6.0	3.9	8.4	-
Colombia	0.1	5.2	6.3	10.1	5.5	20.4	11.0	103.5	0.2	-	-	3.4	8.3	42.3	-
Costa Rica	0.1	1.6	2.9	0.7	0.8	10.2	3.1	12.8	0.1	0.1	-	1.8	3.2	5.3	-
Dominican Republic	-	-	0.9	1.3	-	-	0.7	-	-	-	-	0.8	-	-	-
Ecuador	-	1.4	0.1	2.1	0.1	0.3	1.7	5.1	0.6	-	-	1.5	-	0.1	-
El Salvador	-	2.2	1.9	4.5	0.4	1.9	0.6	48.2	-	-	-	1.4	2.7	2.8	-
Ethiopia	0.1	0.3	0.1	0.6	0.1	2.2	1.7	2.8	0.3	-	-	1.6	5.9	-	0.1
Guatemala	-	2.6	4.6	2.0	1.6	6.7	2.7	29.2	0.1	-	-	1.4	8.6	6.1	-
Haiti	-	-	2.6	0.2	0.5	-	4.3	0.1	-	-	-	3.5	0.1	0.2	-
Honduras	-	1.8	-	0.5	-	0.3	0.7	14.1	-	-	-	0.2	2.7	0.6	-
India	1.5	0.4	0.4	1.3	0.3	-	0.7	1.0	0.8	-	-	2.8	0.2	0.4	0.3
Indonesia	5.6	0.4	3.8	0.4	8.9	0.1	4.6	3.8	0.2	-	-	6.1	11.1	8.4	0.3
Ivory Coast	0.1	0.2	0.1	-	0.3	-	101.9	7.7	0.6	-	-	14.6	9.1	15.2	-
Jamaica	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	-
Kenya	0.1	1.0	1.4	2.2	0.2	5.2	1.3	24.6	0.5	-	-	1.9	0.8	5.0	0.3
Liberia	-	-	-	-	1.3	-	-	-	-	-	-	-	-	-	-
Malagasy Republic	-	0.1	-	0.8	-	-	25.4	3.3	0.9	-	-	5.9	1.0	0.8	-
Mexico	-	1.2	1.1	5.2	0.2	0.6	5.0	7.1	-	-	-	1.0	1.0	1.1	-
Nicaragua	-	2.4	6.2	0.6	0.1	0.4	1.3	12.7	-	-	-	1.4	1.3	2.4	-
Papua N.G.	n.a.	-	-	-	-	-	-	n.a.	-	-	-	-	n.a.	-	-
Peru	-	0.1	-	1.5	-	-	0.1	1.2	-	-	-	1.2	4.2	-	-
Rwanda	-	-	-	-	0.1	-	2.1	1.5	-	-	-	0.1	0.2	-	-
Tanzania	0.4	0.3	0.2	1.2	-	0.2	0.7	13.8	1.0	-	-	2.1	2.3	1.5	0.1
Uganda	6.1	0.2	0.3	2.0	0.1	-	9.1	7.3	0.9	-	-	6.5	16.2	0.8	1.8
Venezuela	-	0.1	-	0.2	0.3	-	0.7	0.2	-	-	-	-	-	-	-
Zaire	0.1	-	0.6	5.9	0.2	-	11.1	2.3	0.1	-	-	28.1	0.1	0.2	0.1

ANNEX III Table II cont'd

Origin \ Destination	Norway	Portugal	Spain	Sweden	Switzerland	Turkey	U.K.	U.S.A.	Total EEC	Total OECD
(Total imports)	37.5	15.0	81.7	111.1	66.6	4.0	92.9	1233.8	1283.1	3173.0
of which: (from Africa)	1.6	14.5	41.5	17.4	16.0	-	47.4	341.8	465.6	985.6
(from Asia)	2.2	0.5	-	0.9	10.1	-	1.6	63.2	47.1	147.2
(from Lat.Am.)	33.4	-	39.9	92.7	39.4	4.0	34.1	813.0	694.8	1902.2
Angola	0.3	14.2	13.8	0.7	6.7	-	1.5	72.1	20.7	134.7
Brazil	22.8	-	11.6	53.2	14.9	4.0	29.5	228.3	281.8	677.9
Burundi	-	-	-	0.7	0.1	-	-	16.3	12.2	29.4
Cameroon	-	-	7.4	-	1.3	-	1.2	9.7	63.0	88.8
Colombia	3.7	-	16.0	25.5	2.9	-	1.8	205.5	173.8	469.7
Costa Rica	1.6	-	0.3	8.9	4.6	-	0.3	12.3	27.2	71.5
Dominican Republic	-	-	0.1	-	0.1	-	0.1	27.1	2.6	31.3
Ecuador	0.2	-	0.7	0.7	1.5	-	0.1	41.6	8.7	57.8
El Salvador	1.0	-	0.2	0.5	2.7	-	0.3	61.1	80.7	157.6
Ethiopia	0.3	-	-	0.8	0.8	-	0.2	32.0	6.2	49.4
Guatemala	1.6	-	0.6	3.8	5.6	-	0.3	52.5	46.0	130.0
Haiti	0.2	-	-	-	0.8	-	-	4.9	11.3	17.4
Honduras	0.2	-	-	-	0.8	-	0.1	24.0	15.7	46.1
India	1.1	-	-	0.2	1.5	-	0.4	15.5	6.1	29.0
Indonesia	0.9	-	-	0.7	8.5	-	0.9	45.9	36.6	110.6
Ivory Coast	-	0.2	9.1	0.1	1.9	-	5.9	57.9	145.8	225.0
Jamaica	-	-	-	-	-	-	-	-	-	0.9
Kenya	0.4	-	-	7.6	2.7	-	6.9	13.9	41.2	76.0
Liberia	-	-	-	-	-	-	-	2.8	1.3	4.1
Malagasy Republic	-	-	0.9	-	-	-	-	19.1	35.1	57.9
Mexico	1.6	-	4.6	-	2.5	-	0.1	102.7	15.6	135.0
Nicaragua	0.5	-	-	0.2	1.4	-	0.3	4.3	24.5	35.7
Papua N.G.	-	-	-	-	-	-	n.a.	n.a.	n.a.	n.a.
Peru	-	-	-	-	1.1	-	-	31.8	2.6	41.5
Rwanda	-	-	-	0.1	-	-	1.1	20.6	5.0	25.9
Tanzania	0.5	-	-	4.5	1.1	-	1.4	16.6	19.9	48.1
Uganda	0.1	-	6.4	2.6	0.2	-	23.6	57.5	47.6	141.5
Venezuela	-	-	-	-	-	-	-	10.9	1.2	12.5
Zaire	-	-	0.5	-	0.8	-	0.6	17.9	43.6	69.1

Source: ICO cited by A. Paulson, Marketing and Distribution of Coffee, 1979. p.129