INDIA'S EXPORT TRADE IN SPICES : AN ANALYSIS OF PERFORMANCE

Dissertation submitted in partial fulfilment of the requirements for the Award of the Degree of Master of Philosophy in Applied Economics of the Jawaharlal Nehru University, New Delhi

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I hereby affirm that the research for this dissertation titled "India's Export Trade in Spices: An Analysis of Performance" being submitted to the Jawaharlal Nehru University for the award of the Degree of Master of Philosophy in Applied Economics was carried out entirely by me at the Centre for Development Studies, Thiruvananthapuram.

Thiruvananthapuram *P.E.Cherian*

Certified that this dissertation is the bonafide work of sri P.E.Cherian and has not been considered for the award of any other degree by any other University.

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CHAPTER 1

INTRODUCTION

Conceptual Framework

The Neo-classical theory of international trade establishes a link between international trade and real national income. The theory is based on classical proposition that countries can mutually gain from trade. The classical doctrine of trade developed by Adam Smith was extended by David Ricardo in his exposition of the principle of comparative advantage in international trade[1]. It was further refined by the trade theorist Eli-Heckscher and Bertil Ohlin. Their formulation state that, if the trade is left free, each country in the longrun tend to specialize on the production of those commodities in which it enjoys a comparative advantage. It exports these commodities while importing those goods for which it possess a comparative disadvantage. Following this, developing countries would produce and export goods that used their relatively plentiful factors, importing goods that were locally scarce, and disadventageous to be produced internally.

The most important factor influencing the economic growth of a developing country is the foreign exchange which determines its capacity to import capital and intermediate goods which are scarce for them and in whose production it has a comparative disadvantage. Since developing countries depends on imported capital equipment for investment in their home

economies,the slow expansion in their export proceeds and hence their import capacity place serious limitations up on increasing its import of capital. This in turn inhibit the volume and rate of growth of investment and therefore real income in the country[2]. In view of Mihir Rakshit, to the extent that imports are limited by the foreign exchange constraints, the foreign trade multiplier in an aggregative frame work is generaly zero[3]. Therefore to initiate the process of faster economic growth, the rate of growth of investment and of therefore the capital goods supplies have to be substantially higher. Since under the Neo-classical concept of the international division of labour, capital goods are almost exclusively imported from industrial countries, the expanding the supplies of these goods means that import capacity has to increase correspondingly .

Similarly Alfred Maizels[4] establishing relationship between external sector and economy's general rate of growth postulate that in primary producing countries, the essential determinant of economic growth is its ability to increase the capacity to import. The mechanism through which it operates is via the supply of imported capital goods which in turn determines the volume of investment in fixed capital assets. The rate of growth of an economy in which this mechanism operates depends on two fundamental ratios..

(1) The degree to which foreign exchange can be transformed into capital assets - known as incremental propensity to invest with respect to capacity to import or investment elasticity

(2) and the degree to which the increase on capital assets can

be transformed to additional output[5] (incremental capital output ratio).

Following this model, given the capital output ratio, the economic growth of a developing country depends largely on its capacity to import which in turn determines the level of investment in the country. Thus, from the above exposition of two theoretical frame works, it is clear that in primary producing countries, acceleration of general economic growth depends on foreign exchange earnings which in turn determines its capacity to import.

However, in a developing country like India, enhancing foreign exchange from exports is important not only to increase its capacity to import but also to correct the growing balance of payment deficit which inhibit the growth of the economy. The 7 % growth rate of export per annum envisaged in the 7th plan was meant to meet both import requirement of 7th plan and also to improve the balance of payment situation[6]. The need to increase import capacity in India is evident from the fact that import of capital goods and intermediate goods (machinary and transport equipments) which's share in total imports was 15 % in the begining of 80's had increased to 30% during 1986-1987[7]. The seriousness of the balance of payment problem in Indian economy has been noted among others by the World Bank in its World Development Report of 1986. The Economic Survey (1989-90) states that "despite the strong performance of exports in the last three or four years, the pressures on balance of payments are expected to continue over the duration of the Eight Plan. Viability of the

balance of payments in the medium —term will critically (be) dependent on rapid and sustained growth in export volume and values. The policies necessary to assure such performance must command the highest priority."[8]

Nature of the Present Study

In view of the dominant role played by exports in the economic growth of a country, its performance with respect to sectors earning sizable contributions to the total export earnings become important. One such sector is agriculture . Agriculture is large and important sector of the Indian economy. Its contribution to Net Domestic Product was 32 percent in 1989-90[9]. Indian agriculture has a vibrant export sector. The major agricultural items in the export basket of India are fruits and vegetables, tea, kashew kernals, coffee, sugar and sugar preparations, tobacco unmanufactured, raw cotton and waste, animal and vegetable oil, and spices. All these agricultural items makes a sizable contribution to India's foreign exchange earnings in absolute value terms. Their share in the total export earnings was 16.95 percent in 1987. Among them, the role of spices is important. They are export oriented commodities in the sense that they are mainly produced for exports. Down the ages, India was known as the land of spices. This region produces around 35 varities of spices. The most important among them are spices like black pepper, cardamom, ginger, chillies, and turmeric. Though these spices are produced and exported in smaller quantities than other crops, they earn a sizable share of foreign exchange, because of higher relative value. The total

export earings from spices amounted to Rs 28199.43 lakhs in 1987. Its share in export earnings was 2.26 percent and in the total agricultural export earnings was 13.32 percent in 1987. Moreover they fit in with the theory of comparative adventage in favour of India. Therefore an analysis of India's export performance in spices acquires importance. The share of export earnings from spices in the agricultural export earings and total export earnings are given the table 1.1.

Table 1.1 Percentage Share of Spices and Agriculture Export Earings in Total Export Earnings

Year	Share of Agrl export In total Export earnings	Share of Spices in Total agrl Export arnings	Share of Spices in Total Export Earnings
1971	23.42	10.85	2.54
1972	23.97	9.34	2.24
1973	21.16	6.95	1.47
1974	17.49	12.22	2.14
1975	29.48	5.20	1.53
1976	28.44	6.26	1.78
1977	19.04	7.65	1.46
1978	22.82	11.11	2.54
1979	18.39	14.06	2.58
1980	19.09	12.08	2.31
1981	20.19	8.63	1.74
1982	15.60	7.56	1.18
1983	15.81	6.82	1.08
1984	17.09	6.65	1.14
1985	10.95	16.25	1.78
1986	17.35	14.92	2.59
1987	16.95	13.32	2.26

Source: Report on Currency and Finance, Reserve Bank of India, Vol.2, Statistical Statements, 1974-75, 1980-81, 1985-86, 1989-90.

It is also observed from the table 1.1 that there is wide fluctuations in the share of export earnings from spices in export earnings from agricultrl commodities and in total export earnings. The wide fluctuations in export earnings from spices

will be substantiated in the later study. It can be observed that India's share in the world market for spices shows a decling trend as shown in the table 1.2.

Table 1.2. India's share in the world markt for spices

Year	India's Share in the world Market for Spices.
1970	20.47
1978	17.48
1979	20.43
1980	17.60
1981	14.88
1982	15.16
1983	10.29
1984	7.90
1985	7.50

Source U.N.Trade Stastistics Year Book, United Nations, Geneva, Vol 2, 1988.

These points also make the study of export performance of India in spices relevant and necessary.

The main focus of the present study is to assess the export performance of major items of spices as a major earner of foreign exchange for India. Therefore an attempt is made to review the factors influencing export performance of agricultural commodities, in general.

Factors Determining Export Performance in Agricultural Commodities

Two schools of thought have been developed in explaining relative stagnant export earnings of developing

countries. One school argues that the relative stagnation was due to a deficiency in demand in the developed/ industrial countries for the traditional export commodities of the developing countries. The other attributes it to a deficiency of their supply from the developing countries.

(1) Demand Deficency Thesis

According to Ragnar Nurkse[10], trade was an engine of growth in the nineteenth century, but in the twentieth century, the engine of growth has not been working as powerfully as in the earlier century. This, according to him, was due to the slowing down in the rate of expansion of demand in the industrial countries for the traditional exports of the developing countries for various reasons. Supporting demand deficiency thesis, Raul Prebisch[11] and R.W.Singer[12] argued that the low income elasticity of demand in the industrial countries for the primary products of developing countries has been responsible for the declining demand of industrial countries for primary products of developing countries. In S.J.Patel's[12] view, stagnation in the export from India in 1950's was associated with a fundamental shift that has taken place in the import demand of the industrial countries.

(2) Supply Deficency Thesis

A.K.Cairncross[14] who supports the supply deficiency thesis argue that it is the internal supply factors for example: high population growth, low elasticity of output, export taxes, import substitution, maintenance of an over valued exchange rate,

rather than slowly increasing external demand, which have caused the lag in the export of the developing countries.

K.S.Dhindsa's[15] study of India's export performance of traditional items like tea, cotton textiles, and jute manufactures, concluded that India's export of these items have not followed the world trends, rather these have been stagnant or even declining and for this internal supply factors rather than external demand deficiency are responsible.

Meanwhile Deepak Nayyar[16] has identified certain domestic or internal factors as well as external factors which affect the supply of and demand for India's exports. On the basis of internal and external factors, there can be different approaches to the analysis of export performance of a country in any commodity, depending upon the variation of the emphasis given.

(3) Internal Factors

(a) Export Price

One such analysis is based upon export price. This approach works on a hypothesis that the competitiveness of a country in the world market is dependent on export price which inturn is closely related to the cost of production in export industries. The main determining costs are the price of input which derive from the structure of costs in the economy and the level of productivity which is a function of the scale of output, the technology in use, managerial efficiency, and labour skills. These determinants of export performance are highlighted in many

works. For instance J.M.Mc Geehan[17] in a recent survey of literature on the subject reports that studies undertaken in many western countries have shown a clear association between price and export performance. He holds that the relative share of individual countries in world export volume are inversely related to their initial level of price. This is subject to changes according to changes in comparative export prices prevailing in the world market. This idea has been further emphaised by E.P.W.Da Costa's[18] study of the export possibilities for Indian spices. He argued that since India has to face competition from other spices producing countries, any strategy of export of Indian spices has to be two pronged; both on the price front and the quality front. This is important because India can loose her share in the world market if her products are not price as well as quality competitive.

(b) <u>Pressure of Domestic Demand</u>

This approach relates to the production of exportables in relation to the domestic absorption of those goods. The role of the pressure of the domestic demand in determining the competitiveness of export of a country in the world market has been emphaised by J.M.Mc Geehan, B.Cohen[19]. According to Deepak Nayyar[20], a large proportion of India's exports mainly agricultural items enter in to domestic consumption and use. Given the relatively slow growth in output, the pressure of domestic demand squeezes the surplus available for exports and worsens the price competitiveness of exports. The factors underlying the pressure of domestic demand are growth in

population and high income elasticity of demand for the produce in the domestic market. This domestic demand pull improves the relative profitability of sales in the home market which adversely affect the export performance.

According to A.J.Singh and R.P.Singh[21] India's agricultural export performance over the period 1970-86, has been unsatisfactory which could be attributed to both internal and external factors. Internal factors include sluggish growth of domestic agricultural production and rise in domestic consumption compared with non price factors such as low quality which adversely affect the competitiveness of our exports. According to them, India is at a disadvantage in the world market because of its higher cost of production which is due to low level of technological and managerial efficency.

(c) Non-Price Factors

This approach emphasizes the role of non-price factors. The competitiveness of exports also depends upon factors which are not reflected in prices as well. Non-price factors such as quality, export marketing operations[22] viz: product development / adaptation to suit the needs of foreign buyers, appropriate pricing acceptable to foreign buyers according to the quality and image of the product, effectiveness of distribution channels facilitating proper placement of products in foreign markets and market promotion measures conducive to generation of more demand for the product, the improvement in designing and packing, the execution of export orders in accordance with promised delivery

dates and the provision of an adequate after sale service etc.

(d) Domestic Policy Measures (Trade and Development Policies)

Export performance may also have been influenced by the policy frame work in its wider context. Trade and development policy can weaken or strengthen the incentive to produce exportable and can determine their accessability in international markets. The sluggish growth of exportable surplus, according to Martin Wolf[23], calls attention not to the case of the export problem, but to the consequences of trade and development policy. A possible explanation for falling share of developing countries' in the world export demand for agricultural commodities can be that particular commodity exports which developing countries specilise in, grow more slowly than do the agricultural commodities exported by the rest of the world. There could also be inroads from synthetic products. The developoing nations themselves affect the quantities of their agricultural exports by their own policies of over valued exchange rate, low producer price, the effects of excessive industry protection and incentive for import substituting industries.

(4) External Factors

Finally, export performance of a country is also determined by external factors where ever that country is a major supplier of goods in the world market. External factors having bearing on export performance are : incidence of protectionism in the industrial countries, a range of non-tariff barriers, subsidies provided by leading industrial countries to stimulate

agricultural production which lead to over-supplies in the world market, the variations in the valuation of foreign exchange rate, and restrictions on inter national trade flows.

The above review shows that several internal and external factors influence export performance of a country in agricultural commodities. The factors such as relative prices, pressure of domestic demand, level of production, and non price factors, in association with demand and supply forces determine export performance of a country in any agricultural commodity. The supply of agricultural commodities to the national and international markets depend up on a variety of factors such as resource position, nature of products, fluctuations in production, the level of technology, the organization of production and trade, marketing strategies, and government policies. The demand for agricultural commodities is determined by a number of factors such as nature of the product (whether substitutes are available or not), purchasing power of main buyers, access to main markets, quality standards of the products exported, and regular supply of products. Therefore agricultural commodities require more specific studies, especially spices which is an important item of Indian agricultural exports.

Obectives of the Present Study

In view of the identification of the major factors from the review of literature, the present study attempts to examine the relative importance of them in determining India's export trade performance in major items of spices. More specifically,

the main objectives of the study include :

(1) Examining export performance, problems, and prospects of Indian export of major items of spices.

(2) Examining instability in export earnings from major items of spices and identifying the sources of instability.

Chapter Outline

The study consists of five chapters including introduction and conclusion. Chapter 11 deals with trends in the composition of Indian export of spices and examine whether the composition of various items of spices are getting concentrated or diversified over the period. The chapter also examines in particular the relative importance of various factors affecting India's export performance in cardamom. It also analyse India's competitive position in the international market for cardamom. Trends in the direction of export of cardamom is also examined.

Chapter 111 deals with India's export performance in pepper. The chapter exmines in detail the relative importance of various factors affecting India's export performance in pepper and examines the competitive position of India in the international market for pepper. Trends in the direction of pepper and its relation with India's competitive position are also examined. Finally it explores the need for market diversification and product diversification in view of trends in the world demand and supply conditions of pepper.

In chapter 1V, the instability of export earnings from spices are analysed. It also identifies the dominant components of earnings instability namely, quantity variations and price variations. The relative importance of supply and demand fluctuations in determining earning instability are also discussed in this chapter. Fianlly, on the basis of the results of the analysis, it provides policy prescriptions to reduce earning instability from spices.

A summary of the findings of the study are presented in the last chapter. There is one appendix. It briefly discusses the meaning of spices and their nature. In this context, we discusses different items of spices and their industrial and house hold uses. We also examine the different types of pepper and cardamom internationaly traded in the appendix.

Sources of Data

The study is mainly based on secondary data, and information collected from various sources. The major sources of information are Spices Board Cochin, The Spices Export Promotion Council, Cochin, Kerala Export Trade Development Council Trivandrum, Directorate of Cocoa, Arecanut and Spices Development Council Calicut.

Besides these organizations, secondary data required for the study were collected from the publications such as Monthly Statistics of Foreign Trade of India by the Directorate General of Commercial Intellegence and Statistics Culcutta, Cocoa, Arecanut and Spices Statistics by the Directorate of

Cocoa, Arecanut and Spices Development Council, Calicut, Pepper Statistical Year Book by International Pepper Community Jakarta, Trade Year Book by Food and Agricultural Organization, International Trade Statistics Year Book by UNO, Reports on Currency and Finance by the Reserve Bank of India, Cardamom Statistics by the Spices Board, Cochin, and Year Book of National Account Statistics by UNO.

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CHAPTER 2

AN ASSESSMENT OF INDIA'S EXPORT TRADE PERFORMANCE IN SPICES

This chapter examines mainly India's export trade performance in spices in general and cardamom in particular for the period 1971-1990. The chapter has been divided in to two sections. Section 1 examines trends in export and the composition of Indian export of spices. Section 2 discusses the factors influencing Indian export of cardamom. Trends in the direction of Indian export of cardamom is also examined in the chapter.

Section 1

Trends in the Export of Indian Spices

Spices are traditionally a major item in india's foreign trade. India produces more than thirty five items of spices of which more than twenty are exported. India is well known for black pepper, cardamom, ginger, chilies and turmeric. Though these spices are cultivated in much smaller quantities compared to food crops, together they constitute a sizable share of the traditional trade.

During the second World War, spices crops in most of the South East Asia were destroyed to a large extent[1]. Being spared from the ravages of war, India was as such placed in an advantageous position in the production and export of spices. The

average annual value of export in 1951-52 to 1953-54 reached the peak level of Rs 2961 lakhs. However production and export from other countries recovered in a few years and Indian export share started declining. In the late fifties, India's export slumped to little more than one third of the aforesaid level. In the sixties, up to the period of rupee devaluation, the export recovered to some extent but failed to regain earlier supremacy. After devaluation in 1966, export earnings from spices began registering a faster growth from 3881.98 lakhs in 1970-71 to 15577.36 lakhs in 1979-80 making a growth rate of 301.37 percent. In the late seventies and throughout eighties a continuous rise in export earnings from spices was marked, which reached a maximum of 29808.03 lakhs in 1987-88.

Considering the whole period from 1955-56 to 1988-89, the share of export earnings from spices in India's total export earnings reached a peak of 2.65 percent in 1961-62. Since then it was subjected to wide variations, and could not reach the maximum level set in 1961-62. The average share of export earnings from spices in the total export earnings in sixties, in seventies and in eighties are 2.30, 2.06, 1.67 percent respectively. This trend indicates that share of export of spices in the total exports has been declining steadily from sixties to the eighties which reveals its poor performance compared to other export items. India's share in the world market for spices has also declined from 20.47 percent in 1970 to 7.5 percent in 1985, though in absolute terms the value and quantity were increasing. This was due to incremental share of competing exporters or due to the failure of Indian export to register in new markets.

Trends in the Composition of Indian Export of Spices

The main items in the export of Indian spices are pepper, cardamom, chilies, ginger and turmeric. A close look at the movements of shares of these items in the total spice export clearly suggest that pepper constituted the single major item in terms of quantity and value. Its share in terms of quantity reached a maximum of 58.35 percent in 1987-88 and the minimum of 14.99 percent in 1978-79 and was fluctuating between these inter ranges over the rest of the years.(Table 2.1). In terms of value its share peaked to the top of 80.71 percent in 1987-88 and a minimum of 18.99 percent in 1978-79.

In the case of cardamom, a sharp decline in the share was observed both in terms of quantity and value. In terms of quantity the share declined from 3.58 percent in 1970-71 to 0.17 percent in 1989-90 and in terms of value it declined from 28.89 percent in 1970-71 to 1.16 in 1989-90.(Table 2.1).

The share of chillies in the total export of spices both in terms of quantity and value increased from 4.35 percent in 1970-71 to 10.73 percent in 1989-90 in terms of quantity and increased from 2.80 percent in 1970-71 to 7.65 percent in 1989-90 in terms of value.(Table 2.1).

The share of ginger showed a general increasing trend in terms of quantity from 6.6 percent in 1970-71 to 9.15 percent in 1985-86, but it began to decline since then from which it stabilised slightly to 7.32 percent in 1989-90. However its

Table 2.1

PERCENTAGE SHARE OF EACH ITEM OF SPICES IN THE TOTAL EXPORT VOLUME ANN VALUE OF SPICES FROM INDIA.1970-71 TO 1989-1990

Year	Pepper		Cardamom Small		Cardamom Big		Chillies		Ginger		Turmeric		Seed and Other spices		Curry powder		Oils of spiced and Oleorisins	
	(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)	
	Quantity	'Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1970/71	37.15	39.28	3.58	28.89	0.13	0.31	4.35	2.80	6.63	6.72	23.32	9.88	21.09	10.03	3.75	2.09		
1971/72	28.36	40.52	3.16	21.95	0.12	0.46	6.65	5.25	9.94	7.47	20.88	7.94	28.54	14.45	2.34	1.92	0.00	0.04
1972/73	38.63	46.83	2.68	22.40	0.13	0.33	1.52	1.16	11.71	6.87	13.03	5.96	29.24	12.96	2.95	2.47	0.10	1.03
1973/74	50.91	53.11	1.90	20.78	0.15	0.25	0.99	0.74	8.18	4.60	12.74	6.57	22.91	12.27	2.16	1.33	0.04	0.36
1974/75	49.42	55.08	3.05	21.29	0.13	0.15	0.94	0.51	8.78	5.61	17.31	6.62	17.80	8.27	2.50	1.71	0.08	0.76
1975/76	39.10	46.59	3.13	26.65	0.15	0.17	5.70	4.37	7.72	5.64	18.97	5.79	23.00	8.49	2.14	1.54	0.07	0.74
1976/77	32.58	49.59	4.59	18.20	0.17	0.18	4.97	3.53	7.08	7.58	18.72	5.76	29.23	11.41	2.46	1.74	0.20	2.01
1977/78	30.37	33.19	3.40	32.47	0.27	0.29	6.93	3.43	12.01	9.18	13.85	5.56	30.63	13.05	2.38	1.31	0.17	1.52
1978/79	14.99	18.45	2.74	36.97	0.37	0.41	23.49	12.38	13.84	9.07	11.42	7.86	30.82	11.60	2.18	1.53	0.13	1.73
1979/80	18.20	21.52	2.30	31.17	0.32	0.53	8.94	4.96	10.00	4.67	23.17	12.71	34.61	20.70	2.30	1.64	0.18	2.10
1980/81	28.50	32.78	2.53	30.02	0.24	0.46	8.30	4.80	7.36	3.18	15.69	6.81	34.43	17.57	2.76	2.09	0.17	2.30
1981/82	30.14	30.31	3.40	32.71	0.22	0.40	6.81	4.56	6.90	4.28	17.53	5.61	32.08	16.57	2.64	2.17	0.27	3.39
1982/83	30.08	31.65	1.37	17.63	0.21	0.40	17.16	13.31	5.26	6.34	10.11	4.56	31.74	17.75	3.75	3.62	0.32	4.75
1983/84	30.04	37.03	0.30	4.87	0.28	0.56	12.36	7.87	5.39	10.66	12.69	9.90	35.31	21.94	3.37	2.84	0.25	4.34
1984/85	28.51	28.97	2.67	31.00	0.30	0.56	9.23	4.62	8.22	8.96	14.36	8.21	32.85	11.17	3.49	1.86	0.37	4.64
1985/86	50.50	61.16	4.39	18.96	0.51	0.64	1.67	0.72	9.15	3.69	11.49	4.29	18.36	3.98	3.39	1.30	0.54	5.27
1986/87	44.77	71.04	1.75	6.56	0.24	0.34	5.22	1.76	5.85	2.03	23.58	6.80	14.79	4.74	3.27	1.47	0.53	5.26
1987/88	58.35	80.71	0.38	1.14	0.22	0.24	8.71	2.80	3.74	1.64	12.45	3.10	11.89	3.89	3.64	1.47	0.61	5.02
1988/89	38.09	60.01	0.76	3.61	0.57	0.80	7.94	6.84	6.24	3.48	19.03	7.08	23.79	9.51	3.10	1.98	0.49	6.69
1989/90	36.64	58.27	0.17	1.16	0.60	0.93	10.73	7.65	7.32	4.63	16.49	5.73	24.34	11.21	3.11	2.20	0.60	8.21

Source : Appendix 3

share in terms of value showed a general declining trend from 6.72 percent in 1970-71 to 4.63 percent in 1989-90.(Table 2.1). This was due to general decline in the unit price of ginger.

In the case of turmeric, its share declined both in terms of quantity and value. In terms of quantity it declined from 23.32 percent in 1970-71 to 16.49 percent in 1989-90. In terms of value,it declined from 9.88 percent in 1970-71 to 5.73 percent in 1989-90.(Table 2.1).

The share of processed products of spices showed an increasing trend both in terms of quantity and value. As observed from the table 2.1, the share of oils of spices and oleorisins in terms of quantity increased from 0.10 percent in 1972-73 to 8.21 percent in 1989-90.

Table 2.2. Average Share of items of Spices in the total Export of Spices

Years	Major spices	Minor spices	Processed products
1970/71-74/75	73.09	23.92	3.05
1975/76-79/80	67.56	29.92	2.78
1980/81-84/85	63.06	33.28	3.66
1985/86-89/90	77.08	18.64	4.28

Source: Table 2.1

Major items of spices include pepper, cardamom, ginger, turmeric, chillies. Their shares in the total export of spices are relatively high both in terms of quantity and value. Minor spices include coriander seed, cumin seed, celery seed, fennel seed, fenugreek seed, garlic, nutmeg, aniseed, cassia, mace, tajper etc. It has been observed from the table 2.2 that the

average share of major spices constituted 73.09 percent in 1970/71-74/75 which increased to 77.08 percent in 1985/86-89/90. while that of minor spices consisting of about eleven spices whose average share constituted 23.92 percent in 1970/71-74/75 declined to 18.64 percent in 1985/86-89/90. This trend indicates that there is an increasing trendency towards the concentration of spices export into a few major items. This was due to remarkable rise in the production and export of pepper in response to a general rise in unit price of pepper from 1984. This might have resulted in the negligance of other minor spices whose export demand and prices were relatively low when compared to pepper.

Of the major items of spices, pepper and cardamom command prime importance in terms of quanity exported, value earned, international demand and their ability to earn larger foreign exchange. Therefore, in the next section, cardamom will be studied in detail for a period from 1971 to 1990. Export performance of India in pepper will be studied in detail in the next chapter.

Section 2

Factors Affecting Exports of Indian Cardamom

Domestic Market for Cardamom

Elettaria cardamom is an important export oriented commercial crop of India. India's foreign exchange earnings from cardamom exports were 575.03 lakhs in 1989-90.

In India, cardamom is mainly used as flavouring agent in the preparations of sweets, tea, masala, panbeeda, chewing, currys, biriani rice etc. In the northern parts of India cardamom is used with pan masala. In the hotels, cardamom is used for cooking food items, meat preparations etc. In south India cardamom is an essential ingredient in Gheer. Other than usages in food preparations, cardamom is used in Ayurvedic and Allopathic medical preparations as a digestive and flavouring agent. Cardamom flavoured biscuits, coffees, tea and milk are now manufactured and marketed by certain industries in India. There is a tobacco paste called "Kimam" which is made spicy by adding cardamom. In view of its wide range of use, an attempt is made to estimate the trend and extent of demand for cardamom in the domestic market.

It is observed from the table 2.3 that consumption marked a tremendous improvement from 1465 tones in 1970/71 to 2930 tones in 1987/88, while per capita consumption increased from 2.71 grams in 1970/71 to 3.68 grams in 1987/88. This shows that domestic market for cardamom is very strong. During the whole period from 1970/71 to 1987/88, an average of 48.56 percent

of .cardamom production in India was consumed domestically.

Table 2.3. Production,Export and Consumption of Cardamom in India

(Quantity in tonnes)

Year	Production	Export	Consumption	Population in Million	Per capita Consumption (grams)	% Share of Export in Production.
1970/71	3170	1705	1465	541	2.71	54
1971/72	3785	2147	1638	554	2.96	57
1972/73	2670	1384	1286	567	2.27	52
1973/74	2780	1813	967	580	1.67	65
1974/75	2900	1626	1274	593	2.15	56
1975/76	3000	1941	1059	607	1.74	65
1976/77	2400	893	1507	620	2.43	37
1977/78	3900	2763	1137	634	1.79	71
1978/79	4000	2876	1124	649	1.73	72
1979/80	4500	2636	1864	664	2.81	59
1980/81	4400	2345	2055	679	3.03	53
1981/82	4100	2325	1775	694	2.56	57
1982/83	2900	1032	1868	709	2.63	36
1983/84	1600	258	1342	724	1.85	16
1984/85	3900	2383	1517	739	2.05	61
1985/86	4700	3272	1428	754	1.89	69
1986/87	3800	1447	2353	781	3.01	38
1987/88	3200	270	2930	797	3.68	8

Source: Cardamom Statistics 1984-85, Cardamom Board, Cochin, Ministry of Commerce, Government of India, 1986. Spices Board,Cochin.

World Trade in Cardamom and India's Competitive Position

Major producers and exporters of cardamom in the world are India, Guatemala, Srilanka, and Tanzania. Of these countries, the share of Tanzania and Srilanka are negligible, while that of India and Guatemala account for a lions share.It is observed from the table 2.4 that India's share in the world production shows a continuous decline. It fell from 76 percent in 1970/71 to 28 percent in 1987/88 while Guatemala's share increased from 24 percent to 72 percent. During the same period Guatemalan production increased by 710 percent, increasing from 1000 tones

in 1970/71 to 8100 tones in 1987/88. It is thus clear that the loss in India's share has been gained by Guatemala.

Table 2.4. World Production of Small Cardamom and Producing Counyry's Shares

(Quantity in tonnes)

Years	India	Gautimala	Tanzania	Srilanka	World	India + Gautimala (1+2)	3 as % of 6	1 as % of 5	2 as % 5	3 as % of 5	4 as % of 5
	1	2	3	4	5	6	7	8	9	10	11
1970-71	3170	1000	240	300	4710	4170	76	67	21	5	6
1971-72	3785	750	210	280	5025	4535	83	75	15	4	6
1972-73	2670	700	150	325	3845	3370	79	69	18	4	8
1973-74	2780	1250	740	280	5050	4030	69	55	25	15	6
1974-75	2900	1220	820	225	5165	4120	70	56	24	16	4
1975-76	3000	1840	1050	500	6390	4840	62	47	29	16	8
1976-77	2400	2040	620	250	5310	4440	54	45	38	12	5
1977-78	3900	3660	300	130	7990	7560	52	49	46	4	2
1978-79	4000	4650	460	230	9340	8650	46	43	50	5	2
1979-80	4500	3440	400	275	8615	7940	57	52	40	5	3
1980-81	4400	5000	600	250	10250	9400	47	43	49	6	2
1981-82	4100	5030	400	330	9860	9130	45	42	51	4	3
1982-83	2900	6250	450	320	9920	9150	32	29	63	5	3
1983-84	1600	7735	450	230	10015	9335	17	16	77	4	2
1984-85	3900	7370	450	200	11920	11270	35	33	62	4	2
1985-86	4700	7350				12050	39				
1986-87	3800	8100				11900	32				
1987-88	3200	8100				11300	28				

Source: Cardamom Statistics, 1984-85, Cardamom Board Cochin, Ministry of Commerce, Government of India, 1986.
Spices Board,Cochin.

Over the period from 1970/71 to 1987/88, no significant improvement has been made in the productin of cardamom in India. It increased only by 0.95 percent. While Indian production was only about 3170 tones in 1970/71, it went up to 4500 tones in 1979/80 which again declined to 3200 tones in 1987/88.

On the average 51.44 percent of the cardamom produced in India is exported. However the share widely fluctuate between

8 percent and 72 percent (Table 2.5). Cardamom export which was only 1705 tones in 1970/71 reached its maximum of 3272 tones in 1985/86, but declined sharply to 270 tones in 1987/88. India enjoyed the monopoly of supplying cardamom to the world market up to 1975/76, then Guatemala emerged as the leading supplier of cardamom.

Table 2.5. World Export of Cardamom and Exporting Countries Shares

(Quantity in tonnes)

Year	India	Gautimala	Tanzania	Srilaka	World	Ind+Gauti (1+2)	1 as % 6	1 as % of 5	2 as % of 5	3 as % of 5	4 as % 5
	1	2	3	4	5	6	7	8	9	10	11
1970-71	1705	979	215	202	3101	2684	64	55	32	7	7
1971-72	2147	719	189	186	3241	2866	75	66	22	6	6
1972-73	1384	658	136	215	2393	2042	68	58	27	6	9
1973-74	1813	1200	676	186	3875	3013	60	47	31	17	5
1974-75	1626	1472	745	147	3990	3098	52	41	37	19	4
1975-76	1941	1700	987	334	4962	3641	53	39	34	20	7
1976-77	893	1850	570	162	3475	2743	33	26	53	16	5
1977-78	2763	3610	268	84	6725	6373	43	41	54	4	1
1978-79	2876	4585	412	149	8022	7461	39	36	57	5	2
1989-80	2636	3400	362	179	6577	6036	44	40	52	6	3
1980-81	2345	4935	541	164	7985	7280	32	29	62	7	2
1981-82	2325	4406	350	216	7297	6731	35	32	60	5	3
1982-83	1032	4075	400	209	5716	5107	20	18	71	7	4
1983-84	258	4387	400	136	5181	4645	6	5	85	8	3
1984-85	2383	4384	400	117	7284	6767	35	33	60	5	2
1985-86	3272	6172				9444	35				
1986-87	1447	8340				9787	15				
1987-88	270	11600				11870	2				

Source :Cardamom Statistics, 1984-1985, Cardamom Board, Cochin, Ministry of Commerce, Government of India, 1986, Cardamom Board Cochin .

India's share in the world export of cardamom in recent years is insignificant. It declined from 64 percent in 1970/71 to 2 percent in 1987/88, while Guatemala improved its share significantly. (Table 2.5). Decline in India's share in the world

market were on account of decline in its share in the world production, increase in domestic consumption, and high price of Indian cardamom in the international market compared to its competitors. Owing to its higher prices, West Asia, and European countries would prefer to purchase cheaper varieties of Guatemalan cardamom which are comparable to Indian cardamom in quality. The significant price difference has affected Indian exports since the tendency at present in the world market is for buying cheaper cardamom exported by Gautimala.

Table 2.6. Unit Values of Cardamom Exported from major Producing Countries

(Rs/Kg)

Years	India	Guatemala	Tanzania	Srilanka
1970-71	37	42	-	43
1971-72	49	31	20	37
1972-73	64	34	22	63
1973-74	82	47	25	61
1974-75	100	53	23	53
1975-76	157	73	35	105
1976-77	175	106	62	189
1977-78	203	116	76	144
1978-79	184	127	55	163
1989-80	148	99	23	137
1980-81	130	68	-	247
1981-82	159	-	-	234
1982-83	211	-	-	308
1983-84	163	-	-	-
1984-85	128	-	-	-
1985-86	127	-	-	-
1986-87	125	-	-	-

Source: Cardamom Statistics 1984-85, Cardamom Board Cochin, Ministry of Commerce, Government of India, 1986, Cardamom Board,Cochin.

The high price of Indian cardamom was the result of low yield and high cost of cultivation. It is estimated that during 1970-71, the average per hectare yield was about 46 kg and by 1985-86 it increased to 75 kg per hectare, while the yield in Guatemala was estimated to be about 250-300 kg per hectare in 1985-86. There are various estimates of cost of cultivation of

cardamom in India. The United Plantaters Association of South India (UPASI) arrived at a cost of Rs 139 per kg in 1986.

Trends in the Direction of Indian Exports of Cardamom

India exports a substantial quantity of its exportable cardamom to West Asian countries where India's market share ranged between 61 percent in 1974/75 to 90 percent in 1984/85.(Table 2.7). The decline in the market share of India in the West Asian countries in 1983-84 was due to very low production and consequent high prices.

Table 2.7. Trends in India's market Share of Cardamom Exports

(Qut in M T)

Year	West Asian countries	% Share	Indian Export to USSR,Japan, Singapore.	% share
1974-75	1022	63	560	34
1975-76	1607	83	270	14
1976-77	602	67	255	29
1977-78	2491	90	195	7
1978-79	247	86	308	11
1989-80	2202	84	401	15
1980-81	1964	84	343	15
1981-82	1789	77	507	22
1982-83	629	61	382	37
1983-84	8	3	230	89
1984-85	1799	76	540	23

Source : Cardamom Statistics,1984-85, Cardamom Board,Cochin, Ministry of Commerce, Government of India, 1986.

Besides West Asian countries, a good portion of Indian cardamom are exported to USA, Japan, Singapore, and UK. India's share in these countries ranged between 7 to 37 percent during the period between 1974/75 and 1984/85. These markets together with West Asian countries account for 97 to 99 percent of India's total cardamom exports. The average share of Indian export to

West Asian countries was 77 percent while its average share in the USSR, Japan, UK, Singapore together was about 21 percent. These markets together account for about an average of 98 percent. This shows that Indian exports of cardamom was concentrated in few markets. In order to examine the trends towards market concentration, Gini Hirschman concentration coefficients[2] is calculated for the period 1970/71 to 1984/85 using the following formula,

$$Gix = 100 \sqrt{\sum_{s} \left(\frac{X_{sj}}{X_j} \right)^2}$$

where 'X_{sj}' stands for export of country 'J'to 'S' and 'X_j' is the total export of country 'J'. The results are given in the table 2.8.

Table 2.8. Geographical Concentration coefficients

Year	Coefficients	Year	Coefficients
1970-71	47.20	1978-79	53.34
1971-72	44.74	1989-80	50.74
1972-73	46.29	1980-81	50.90
1973-74	52.62	1981-82	47.19
1974-75	45.92	1982-83	47.67
1975-76	49.83	1983-84	66.87
1976-77	45.98	1984-85	44.15
1977-78	53.27		

It is observed from the table 2.8 that the concentration coefficients ranged between 44.74 percent and 53.34 percent. (The value for 1983/84 is not considered because Indian export to West Asia was very small because of the very uncompetitive price resulting from short supply position due to severe drought in the year). The average concentration coefficients for the period was 48.45 percent which shows a

higher geographical concentration of Indian export of cardamom.

Conclusion

India produces and exports many items of spices, of which the major spices are pepper, cardamom, ginger, chillies, and turmeric. In view of their international demand and their ability to earn large amounts of foreign exchange, they are produced mainly for export. Total spice exports over the period 1970-71 to 1989-90 showed an increasing trend both in terms of quantity and value. With regard to the composition of Indian export of spices, an increasing trend towards concentaration in few items of spices are observed in recent years. Though Indian spices are exported in their raw form, the the share of processed spice products in the total spice exports both in terms of volume and value has improved significantly in recent years.

India remained a major exporter of cardamom in the world upto 1975-76. Its share in the world export marked a continuous decline since then. Decline in India's share in world production, high prices etc, account for India loosing its share in the world market. Therefore, the constraints in the export relam of cardamom are low production, dosestic demand pressure, and high cost of production. Indian export of cardamom has been getting converged to few markets.

Notes and References

1. Kalipada Deb, 1976, Export Strategy in India Since Independence, S.Chand and Company, Delhi, P.145.

2. According to Gini-Hirschman coefficent of geographical Concentaration, lower the coefficent, larger is the number countries to which goods are exported and vice versa. The highest possible coefficent is 100, where all exports are directed to one country.(Michael Michaely, Concentaration in International Trade (1962) North Holland Puhblishing Company, P.8. In the estimation of the cofficents of geographical concentration in the case of cardamom, Indian export of cardamom to 27 countries are considered.

CHAPTER 3

INDIA'S EXPORT TRADE PERFORMANCE IN PEPPER

Pepper is the most important item of spices produced in and exported from India. Therefore this chapter examines India,s export trade performance in pepper. In this chapter an attempt is made to examine the relative importance of various factors influencing India's trade in pepper. In this connection, we also examine competitive position of India in the world market for pepper. Trends in the direction of pepper exports, and the need for market diversification and product diversification are also discussed in this chapter.

Factors Affecting Export of Indian Pepper

Among various items of spices exported from India, pepper commands prime importance in terms of earning larger amounts of foreign exchange for the country. It is observed that pepper exported from India registered a substantial increase from 17696 MT in 1970-71 to 20898 MT in 1979-80 and it rose further to 37083 MT in 1986-87. (appendix 2). During the whole period from 1970-71 to 1986-87, the volume of export of pepper grew at an average annual rate of 7.57 percent while export earnings from pepper grew at an average annual rate of 25.72 percent. This wide disparity between trends in volume and value can be explained in terms of steadily growing average unit value of exports.

Table 3.1. Export Unit Values of Pepper of major Exporting Countries

(In Dollars)

Year	India	Indonesia	Malayasia	Brasil	Madagaskar	Srilanka	Thailand	World
1970	1137	1196	752	909	872	922	429	932
1971	1131	1061	773	863	1100	2489	441	947
1972	925	827	787	889	938	1333	483	853
1973	1056	1118	1104	1232	1236	975	756	1114
1974	1606	1528	1478	1687	1432	1294	756	1556
1975	1630	1500	1389	1627	1554	1781	1000	1525
1976	1698	1525	1383	1627	1684	2435	1196	1532
1977	1951	1974	2013	2229	2200	8406	1784	2085
1978	2882	1854	1851	2001	2208	1866	1440	2035
1979	1918	1856	1711	1886	1793	1667	1090	1819
1980	1758	1688	1557	1713	1721	1733	1526	1678
1981	1502	1385	1234	1246	1500	1314	1800	1320
1982	1443	1235	1131	1081	1279	1331	1443	1194
1983	1340	1154	1445	1144	1044	1461	1369	1245
1984	1620	1900	2048	1972	1413	1676	2222	1868
1985	2480	2991	2985	3053	1865	3401	2872	2853
1986	3202	4631	4157	4201	2882	4522	4478	4315
1987	4792	4940	4546	4703	3517	4825	4706	4281

Source: Calculated from the actual export volume and value collected from FAO Trade Year Book, Rome, 1976, 1981, 1988.

It is worth noting that the rise in the price of pepper was not unique to Indian pepper alone but was merely a reflection of more or less continuous increase in the world price of pepper. It is observed from the table 3.1 that there was continous rise in the price of pepper from 1971 to 1978, then it began to decline from 1979 to 1983. This decline was linked to slow growth in industrial countries since 1979 and consequent decline in world trade on account of rising oil prices. Consequentyly, industrialised coutries' demand for developing nation's exports became sluggish[1]. This along with substantial increase in the world production of pepper in 1980 and 1981 which was due to a bumper crop in Brazil also account for the decline in the price of pepper. Due to excessive supplies and relatively

low export demand, price declined and it continued up to 1983. This resulted in the negligence of pepper production in the pepper producing countries. Consequently, world production of pepper began declining in 1984, 1985, 1987 with an exception in 1986 when world production was high due to high production in India. With decline in world production and with consequent supply shortage, and with general recovery in the world economy, price began rising very rapidly from 1984 onwards. However considering the whole period from 1970 to 1987, there was a general rise in price level which was due to a general rise in the export demand which increased from 87057 tonnes in 1971 to 108393 tonnes in 1987. Over this period import demand for pepper increased by 84.16 percent. Therefore, in order to examine the factors affecting India's export of pepper, it is necessary to examine factors influencing world demand for pepper.

World Consumption of Pepper

Pepper is used for improving taste and aroma of food dishes and for preservation of meat. It has been found that there is little relationship between income and per capita consumption, and price and per capita consumption of pepper. The difference in consumption is attributed to the development of tastes and to other uses of pepper.

The per capita consumption of pepper has varied between 21 grams (Belgium) to 449 grams (Saudi Arabia) during 1981-1985. (Table 3.2). Out of 24 countries importing pepper, only in 13 countries, consumption was between 21 grams and 100 grams and in

seven countries, consumption was between 100 and 200 grams and in three countries consumption was above 200 grams. It can be observed that there is hardly any relationship between per capita consumption and per capita income. In many high income countries, per capita consumption was low and in many low income countries, percapita consumption was high. It may thus be concluded that in future also income may continue to have very little influence on the level of per capita consumption.

Table 3.2. Per capita consumption of pepper in importing Countries (Average of 1981-1985)

Countries	Per capita consumption in grams.	Per capita income in dollars.
25-50 grams		
Spain	41	4290
Japan	47	11270
Belgium	21	8540
Poland	45	2120
U S S R	49	-
50-75 grams		
Italy	52	7690
Egypt	66	640
Yugoslavia	75	2060
Australia	67	11630
Norway	65	14490
Czechoslovakia	71	-
75-100 grams		
U K	81	8470
Sweden	94	11860
100-150 grams		
Canada	111	14140
Denmark	142	11310
Austria	129	9100
U S A	139	16800
150-200 grams		
West Germany	192	10990
France	163	9750
Hungary	158	1940
German D R	178	-
Above 200 grams		
Kuwait	214	15010
S.Arabia	449	8630
Switzerland	212	16290

Source: Calculated from the volume of pepper imports to these countries collected from Pepper Statistical Year Book,IPC, Jakartha, 1988.

The price elasticity of demand[2] for pepper calculated for pepper consuming countries for the period 1971-1985 are given in the table 3.3.

Table 3.3. Price Elasticity of Demand

Countries	Price Elasticity of demand for pepper 1971-1985.
U S A	-0.059
Canada	-0.28
U K	-0.28
France	-0.031
Yugoslavia	-0.59
Belgium	-0.42
Spain	-0.15
Poland	-0.19
U S S R	-0.17
Denmark	-0.17
Japan	-0.27
Netherlands	-0.06
Italy	-0.17

All results are found to be statistically insignificant at 5 percent level.

It is observed from the table 3.3 that in most of the pepper importing countries, the degree of responsiveness of demand for pepper to changes in prices is very low or price elasticity of demand is found to be inelastic. This is because pepper may be a necessary spice item in the domestic life of people in these countries.

The above discussion suggests that the world consumption of pepper is greatly determined by tastes and the food habits of the people. Therefore there is scope for expanding the world consumption of pepper by proper publicity drive to develop a taste for pepper.

World Export of Pepper.

It is observed that the volume of world export of pepper increased from 87057 M T in 1971 to 123061 M T in 1980 but declined to 108393 M T in 1987. During the whole period from 1971 to 1987, world export trade in pepper increased by 25 percent reflecting an increasing demand for pepper. During the same period Indian export of pepper increased by 93 percent indicating that Indian export grew at a faster rate than the rarte at which world demand for pepper had increased. Consequently India could improve her share in the world market from 19.50 percent in 1971 to 30.17 percent in 1987, while the share of Brazil improved rising from 19.90 percent in 1971 to 24.23 percent in 1987. Indonesia maintained her share over this period. The share of Malaysia declined substntially from 30.92 percent in 1971 to 12.92 in 1987.

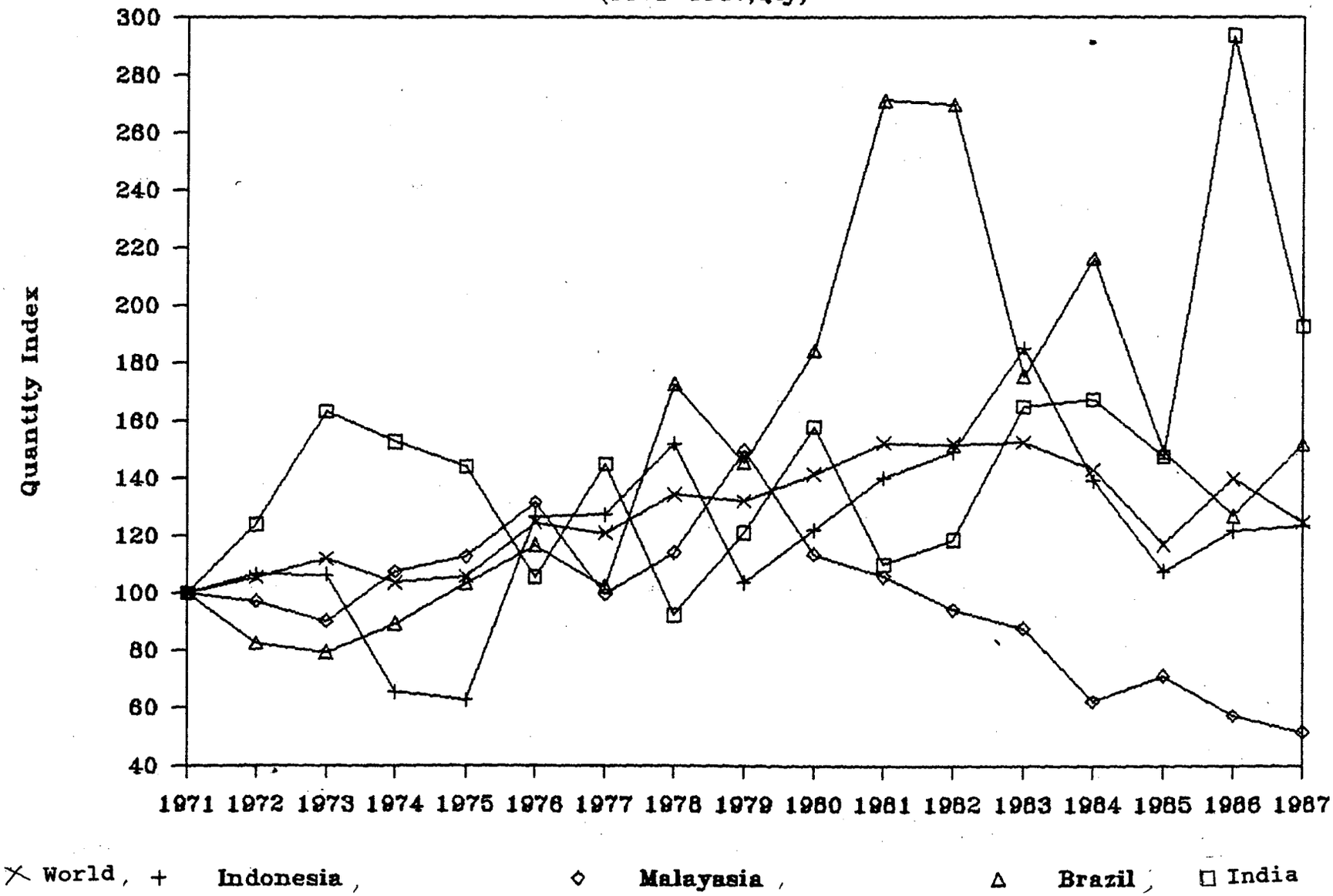
Table 3.4. Exporting countries' Share in the World Exports of Pepper

Year	India	Indonesia	Malayasia	Brasil	Madagaskar	Srilanka	Thailand
1971	19.50	27.95	30.92	19.90	1.65	0.05	0.04
1972	22.92	28.30	28.51	15.57	4.56	0.11	0.03
1973	28.41	26.57	24.93	14.12	3.84	2.10	0.04
1974	28.67	17.62	32.04	17.15	4.10	0.38	0.05
1975	26.52	16.54	32.93	19.47	4.44	0.10	0.00
1976	16.52	28.40	32.61	18.64	3.50	0.08	0.25
1977	23.37	29.43	25.45	16.82	3.80	0.87	0.26
1978	13.43	31.68	26.33	25.62	1.84	1.03	0.07
1979	17.88	21.96	35.09	21.94	2.24	0.76	0.13
1980	21.77	24.12	24.83	25.98	2.52	0.77	0.02
1981	14.07	25.73	21.50	35.47	1.51	1.68	0.03
1982	15.22	27.50	19.16	35.34	1.64	0.98	0.16
1983	21.10	33.99	17.81	22.91	2.44	0.98	0.77
1984	22.83	27.19	13.47	30.15	2.26	2.23	1.87
1985	24.55	25.73	18.78	25.34	2.65	1.19	1.75
1986	40.92	24.29	12.67	18.07	1.51	1.04	1.49
1987	30.17	27.67	12.81	24.23	1.69	1.86	1.57

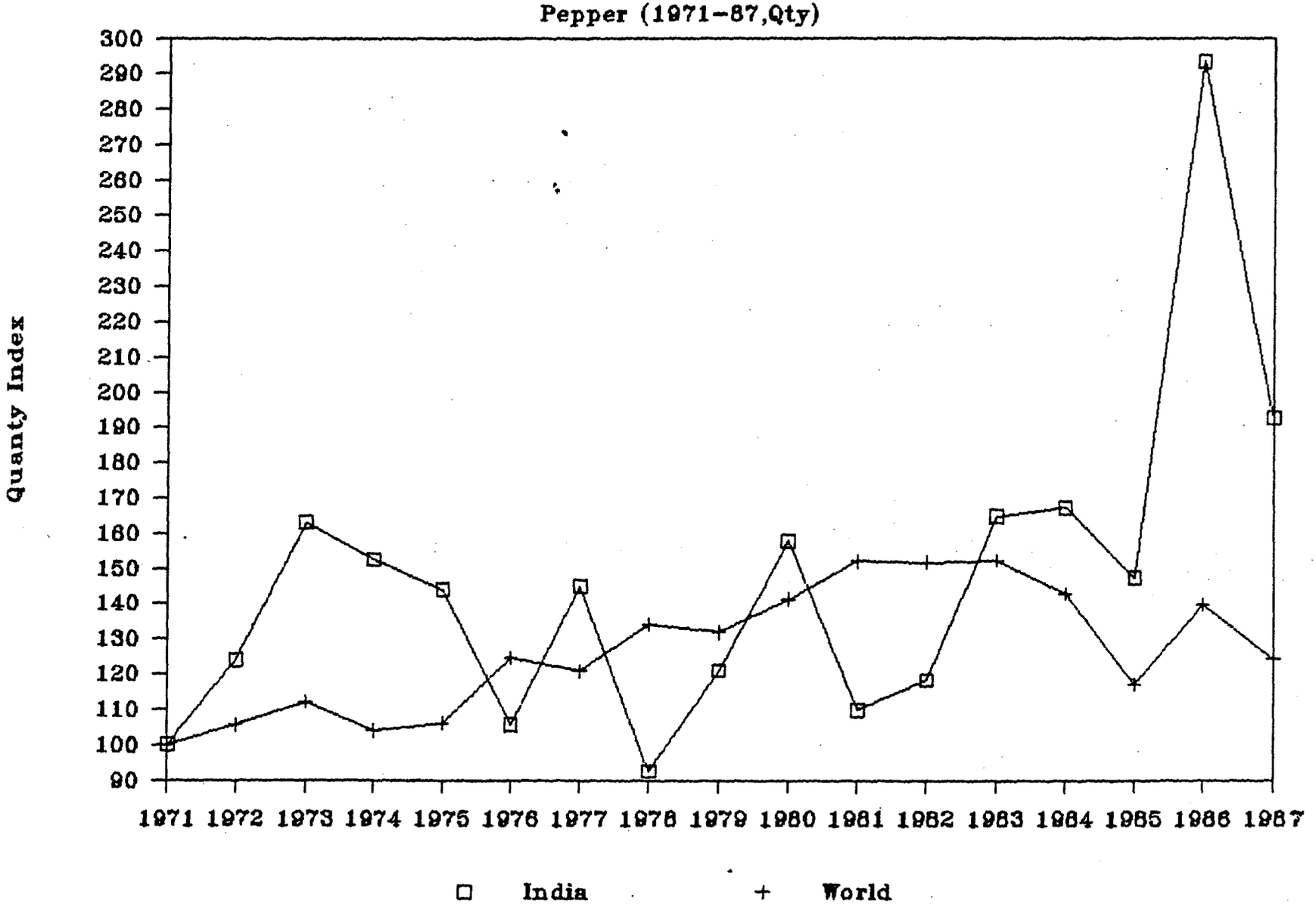
Source:Calculated from the volume of exports of pepper collected from FAO Trade Year Book,Rome, 1976, 1981, 1987.

Index of World Export of Pepper

(1971-1987,Qty)



Index of Indian and World Export of



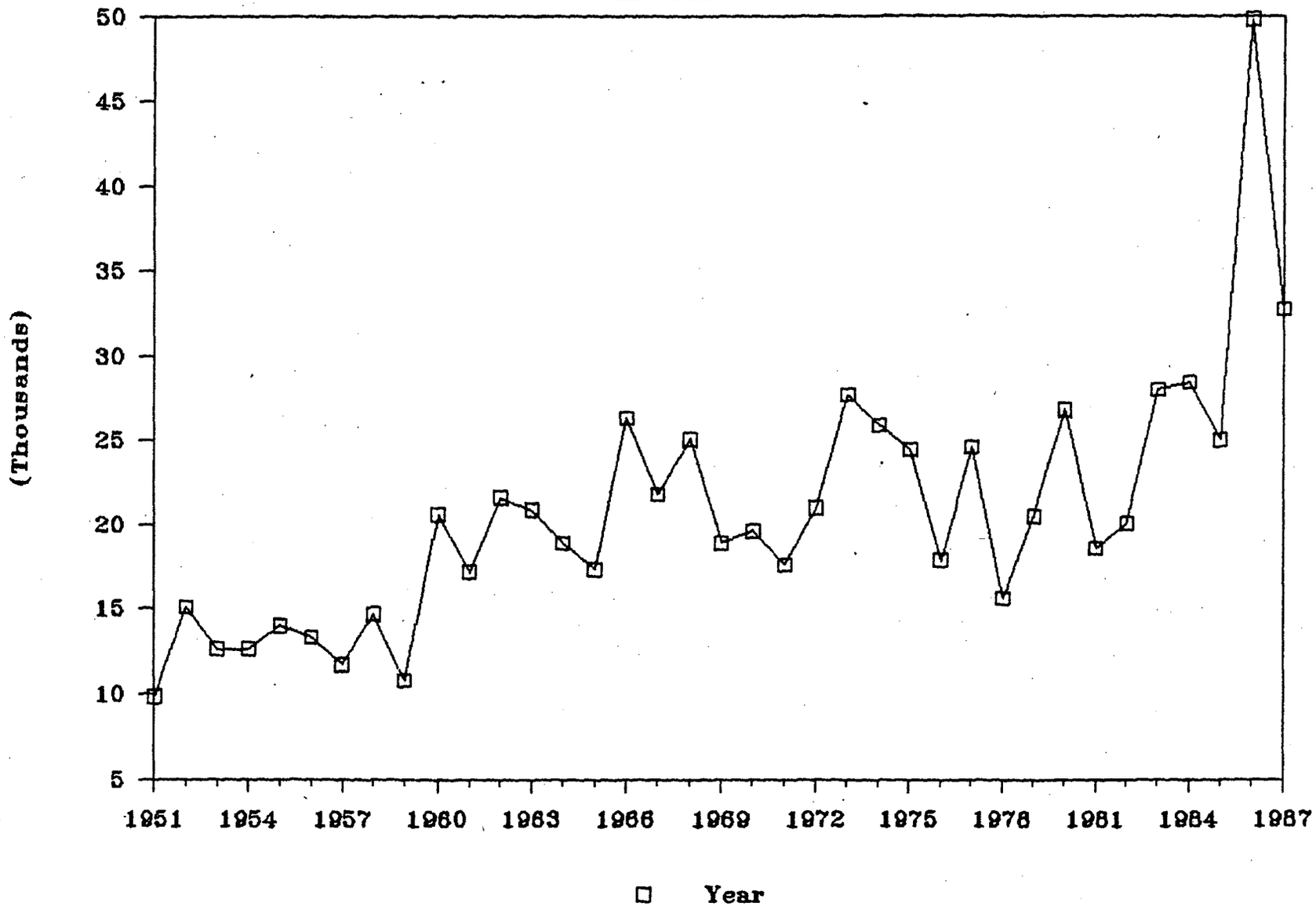
With regard to India's share in comparasion with the shares of other pepper exporting countries, it is observed from the table 3.4 that India's share has been below that of Malaysia during 1971-1982, while that of Indonesia's share has been above India's during 1976-1985. Brazil's has been above that of India during 1978-1985. The better performance of Malaysia and Indonesia was due to certain measures taken by these countries such as to improve quality standards, and to raise the level of output. They included (1) introduction of new marketing system in Indonesia to exercise control on exports and prices, (2) Indonesia expanded the area under cultivation of pepper, and (3) in Malaysia, a pepper marketing board was established to strengthen pepper industry and subsidy was offered for planting[3]. Disease control measures were intensified and rehabilitation programes introduced in major pepper producing countries. India's emergence as the leading exporter of pepper in the world in 1986 and 1987 is attributed to substantial increase in its production coupled with lower production in other pepper producing countries. India's production increased from 27000 M T in 1985 to 65000 M T in 1986. The comparison of India's export share with other exporters during 1971-1985 showed that India's export performance in pepper has not been very satisfactory. Therefore in the next section, an attempt has been made to examine the growth performance and to identify both demand and supply factors determining India's export trade in pepper.

Growth Performance of Indian Export of Pepper

Trends in the total volume of pepper exports from India during 1951 to 1987 (Calender Year) is analysed by fitting trend

Pepper Exported from India

in tonnes



lines using semi logarithamic regression.

During the period between 1951-1987, the pepper exported from India grew by an annual rate of 2.39 percent. The whole period was split up into two periods namely 1951-1971 and 1972-1987, to capture relative growth performance across the periods. It is observed that quantity of pepper exported from India grew by an annual rate of 3.4 percent during 1951-1971, while it grew only by 2.7 percent during 1972-1987. Similar trend behaviour was observed when growth rates were estimated for the period before devaluation and after the period of devaluation of Indian rupee. It is observed that in the first period (1951-1966), it grew by 4.62 percent while it grew by only 2.04 percent after the period of devaluation (1967-1990).

In general, it can be concluded that export of pepper from India shows a growing trend. However, its growth performance was poor in the period after 1971 compared to the period before 1972. This was because the period after 1971 marked the emergence of other countries such as Malayasia, Indonesia, and Brazil, as the major pepper producing and pepper exporting countries. The better growth performance during the period 1979-1990 was due to increase in world demand for Indian pepper and increase in India's pepper production coupled with declining production in other countries.

In view of India's poor growth performance after 1971 and India's poor position in terms of its share in the world market for pepper, the next section attempt to identify the

factors influencing India's export trade in pepper.

Factors Affecting Export of Indian Pepper

Supply of exportable pepper depends on domestic production, consumption and export price competitiveness. The table 3.5 presents trends in the ratio of export to production.

Table 3.5. Export /Output ratio

(Quantity in tonnes.)

Year	Production *	Export	Export/Output ratio.
1971	28000	16973	60.62
1972	34000	21043	61.89
1973	39000	27697	71.02
1974	39000	25900	66.41
1975	38150	24445	64.08
1976	41000	17933	43.74
1977	42000	24600	58.57
1978	36000	15700	43.61
1979	35000	20545	58.70
1980	38000	26795	70.51
1981	40000	18636	46.59
1982	38000	20100	52.89
1983	45000	27980	62.18
1984	38000	28400	74.74
1985	27000	25000	92.59
1986	65000	49807	76.63
1987	45000	32700	72.67

Source: FAO Trade Year Book,Rome, 1986, 1989.
* Trade Estimate of Production, IPSTA, Cochin.

The export/production ratio shows wide fluctuations. It varies from a maximum of 92.59 percent in 1985 to a minimum of 43.61 percent in 1978, while the average for the years from 1971-1987 is 63.38 percent. A better approach to discern the trend in the export out put ratio is to fit a trend function of the type $\ln X = A + B\,t$, where X is export out put ratio ,and t stands for time trend. It is found that there is a positive trend in the

export/ output ratio which is growing at a very low rate of 1.38 percent while production of pepper is growing at very low rate of 1.56 percent during 1971-87.

Domestic consumption can work as another factor determining the supply of exportable pepper. In India pepper is used as a spice as in most other countries. Indian's culinary habits are more spice based and therefore it is expected that per capita consumption in India should be higher than in other countries . However it is not true. Out of the countries listed (Table 3.2 and 3.6), India has the lowest consumption of pepper. Though no details are available about the various uses of pepper in India, it is believed that demand for meat preservation is very low particularly because very small quantities of meat is preserved[4]. Small quantities of pepper is used for preparing Ayurvedic medicines, which is an additional item of cosumption in India.

Indian production, export and estimates of domestic consumption are given in the table 3.6. As no data are available about stock position, changes in stock position from year to year has been ignored. It is observed from the table 3.6 that wide fluctuations in production and exports are reflected in fluctuations in domestic consumption. The average quantity of domestic consumption has increased from 12418 tones in 1971-75 to 17285 tones in 1975-1980, but declined to 13577 tones in 1980-85. This decline can be explained in terms of rise in prices as can be observed from the table 3.7 where average whole sale price index of pepper has increased from 234 in 1975-80 to 243 in 1980-

85,in response to that, consumption declined from 135 to 95 during the same period (Table 3.7).

Table 3.6. Indian Production,Export,and Consumption of Pepper 1971-1985

Year	Production in tonnes	Export in tonnes	Domestic Consumption (2-3)	Population (million)	Per capita Consumption.(Grams)	Value of per Capita consumption at 1971 prices	Per capita NetNational Product at 1971 price	(7) as % (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1971	28000	16973	11027	541	20.38	14.06	632	0.02
1972	34000	21043	12957	554	23.39	16.14	629	0.03
1973	39000	27697	11303	567	19.93	13.75	606	0.02
1974	39000	25900	13100	580	22.59	15.58	626	0.02
1975	38150	24445	13705	593	23.11	15.95	617	0.03
1971-75 Avg	35630	23212	12418					
1976	41000	17933	23067	607	38.00	26.22	659	0.04
1977	42000	24600	17400	620	28.06	19.36	658	0.03
1978	36000	15700	20300	634	32.02	22.09	697	0.03
1979	35000	20545	14455	649	22.27	15.37	717	0.02
1980	38000	26795	11205	664	16.88	11.64	664	0.02
1976-80 Avg	38400	21115	17285					
1981	40000	18636	21364	679	31.46	21.71	698	0.03
1982	38000	20100	17900	694	25.79	17.80	719	0.02
1983	45000	27980	17020	709	24.01	16.56	721	0.02
1984	38000	28400	9600	724	13.26	9.15	763	0.01
1985	27000	25000	2000	739	2.71	1.87	774	0.0024
1981-85 Avg	37600	24023	13577					

Source: Colum (2) Trade estimates, IPSTA,Cochin,1989,
Colum (3) FAO, Trade Year Book, Rome, 1976,1981,1987,
Colum (5) (7) (10) Data Base of Indian Economy, 1990.

In the table 3.6, the per capita consumption has been related to per capita net national product. The expenditure on pepper has increased marginally from 14.06 paise in 1971 to 16.56 in 1983. The substantial decline in cosmption expenducture on pepper in 1984, and 1985 was due to substantial decline in production accompanied by large exports. The percentage of income spent on pepper has remained very low. Therefore it can be concluded that increase in per capita income has hardly any

effect on the proportion of income spent on pepper. This may be because pepper in India is used mainly as an item of food.

Table 3.7. Index of whole Sale Price and Consumption of Pepper

Year	Whole sale Price Index of Pepper	Per capita Consumption Index of Pepper	(3) as a ratio of (2)	Annual % Change in Whole sale Price Index	Annual % Change in Per capita Consumption Index
(1)	(2)	(3)	(4)	(5)	(6)
1971	100.00	100.00	1.00		
1972	89.90	144.76	1.18	-10.10	14.76
1973	81.30	97.82	1.20	-9.57	-14.77
1974	107.00	110.83	1.04	31.61	13.30
1975	164.60	113.40	0.69	53.83	2.32
Avg	108.00	107.36			
1976	177.30	186.47	1.05	7.72	64.43
1977	253.80	137.71	0.54	43.15	-26.15
1978	257.20	157.11	0.61	1.34	14.09
1979	252.30	109.29	0.43	-1.91	-30.44
1980	229.80	82.80	0.36	-8.92	-24.23
Avg	233.00	134.67			
1981	202.70	154.39	0.76	-11.79	86.45
1982	209.30	126.56	0.60	3.26	-18.03
1983	193.10	117.79	0.61	-7.74	-6.93
1984	241.40	65.06	0.27	25.01	-44.76
1985	374.60	13.28	0.04	55.18	-79.59
Avg	243.00	95.42			

Source: Table 3.6

The whole sale price of pepper has fluctuated widely in India between the period 1971-1985. However on the whole there is an upward trend. It has increased from 100 in 1971 to 374 in 1985. However consumption has responded to this price increase negatively only in some cases. As can be observed from the table 3.7, out of the fourteen observations, only six years mark inverse relationship between annual growth rates of consumption index and whole sale price index. For other years, with fall in prices the per capita consumption has fallen and with rise in

prices per capita consumption has increased. This behaviour shows that domestic consumption of pepper is not significantly responsive to domestic price variations or domestic consumption is price inelastic.

Domestic demand function fitted to measure income elasticity and price elasticity of domestic demand for pepper take the following form for the period 1971-1985.

$$\text{Log } C = A + b1 \log P + b2 \log Y.$$

C stands for per capita consumption index, P stands for whole sale price index, Y stands for index of per capita net national product at 1971 prices. The estimated coefficients are :

$$\text{Log } C = \underset{(1.75)}{24.15} + \underset{(0.16)}{0.09} \log P - \underset{(-1.23)}{4.28} \log Y.$$

$R^2 = 0.23$

D W = 1.17

Figures in the brackets are t ratios.

The equation is statistically insignificant. not significant.

The price elasticity of demand for pepper worked out to 0.09 which is considered very insignificant. The main reason for this low price elasticity appears to be the fact that prices are not determined by internal demand and supply conditions. In the case of pepper, impact of external conditions is distinct because pepper is grown mainly for exports.

Since income elasticity and price elasticity of demand for pepper in India are statistically insignificant exports have

not suffered because of the pressure of domestic demand. Therefore other factors have been mainly responsible for India's export trade performance in pepper.

Export Demand Elasticities of Indian Pepper

Among other factors which are likely to have determined India's share in the world market for pepper, one has to look at the export price, export price of its substitutes or competitor's price, world income, non price factors, etc. Therefore, considering the export unit value figures of pepper with respect to India and Brazil[5] and income of the world[6] as independent factors influencing Indian export of pepper over time, an estimate concerning Indian export of pepper in double logarithmic linear equation[7] is computed for the period 1970-1984. The result is as follows.

$$\ln X = \underset{(0.38)}{6.5424} - \underset{(-4.03)}{1.0083} \ln UVIx + \underset{(3.43)}{0.7883} \ln UVBx + \underset{(0.29)}{0.3187} \ln Yw + \underset{(0.14)}{0.0294} \ln t.$$

$R^2 = 0.66$

Durbin Watson stat = 2.4767.

Figures in the brackets are t ratios.

X = Indian export of pepper in tones.

UVIx = Unit value of Indian export of pepper in dollers.

UVBx = Unit values of the Brazilian export of pepper in dollars.

Yw = Real GDP of the world in million dollars (at 1980 prices.)

t = Time period for a proxy for all other variables that

influence the export systamatically.

The estimated coefficients of the constant and elasticity for trend were positive and were found to be insignificant. The export price elasticity for Indian pepper was found to be almost equal to unity with 1.0083 with a negative sign and was found to be significant at 0.005 level of significance. The unitary price elasticity of Indian pepper calls for strong non price incentive measures to increase net export earnings from pepper. Because it is not very much possible to effect a net increase in foreign exchange earnings from pepper exports through price measures alone in view of price elasticity of demand being unity. The responsiveness of Indian export of pepper to Brazilian unit value of pepper was found to be 0.78838 with positive sign and was significant at 0.01 level, indicating that Brazilian pepper remains a substitute for Indian pepper.(India also face competition from Indonesian and Malaysian pepper which are substitutes for Indian pepper.). Therefore India faces strong competition from Brazilian pepper. The income elasticity for Indian pepper was estimated to be 0.3187 with positive sign and was found to be insignificant. This indicates that Indian export of pepper does not respond to increase in the real world income. It is expected that, with increase in the income of the world, pepper consuming countries subsitute Indian pepper which is considered to be of better quality, for pepper of other exporting countries. But the statistical results does not come in conformity with the above theoritical proposition. This is because pepper being a necessary item, only a small portion of income is spent on pepper consumption. Besides, it is

also possible to reach an upper point of satuaration in the use of pepper. Therefore, any increase in income after this saturation point will not lead to any increase in pepper consumption. Thus the analysis highlight that India's share in the world export of pepper is dependent mainly on relative price of pepper.

Attempts were also made to examine India's market share elasticity in the world market for pepper with respect to changes in the real income of the world and unit value of Indian export of pepper relative to export unit value of Brazilian pepper using double logarithmic regression equation for the period 1970-1984. This gives the degree of competitiveness from the rest of the world. The estimated coefficients are as follows.

$$\ln X = \underset{(-0.018)}{-0.385} - \underset{(-3.79)}{1.045} \ln RP + \underset{(0.41)}{0.562} \ln Y - \underset{(-1.33)}{0.334} \ln t.$$

R^2 = 0.71

D W = 2.08

Values in the brackets are t ratios.

X = Share of the Indian export of pepper in the world export.

RP = Unit value of Indian pepper relative to unit value of Brazilian pepper.

Y = Real world income.

t = time for a proxy for all other variables that influence the export systamatically.

The export market share price elasticity was found to be statistically significant at 0.005 level with a magnitude of 1.045, indicating competitive behavior of India's market share.

The income elasticity of demand for pepper in the world market was found to be positive with a magnitude of 0.562 which is found insignificant.

From the analysis of the elasticities of demand for Indian pepper and market share elasticities with respect to price and income, it has been found that Indian export of pepper and India's market share in the world market for pepper are significantly responsive to unit values of Indian pepper and unit values of competing country's pepper and less significantly responsive to real world income. The results also shows that India faces strong competition from other pepper exporting countries. The unitary price elasticity of demand for Indian pepper emphasis the need for non price export incentive measures for effecting net increase in the foreign exchange earnings from pepper exports.

From the analysis of the various factors affecting India's export trade in pepper, it has been found that domestic production, unit value of Indian pepper, and unit value of its substitute, largely influence India's foreign trade in pepper. Therefore, in order to improve India's export performance in pepper and to earn larger foregin exchanges, India is required to increase her production and make it available in the international market at a competitive price. India is also required to take effective non price incentive measures to improve her export performance in view of India's export demand elasticity being unity.

Competitive Position of India in the International Market for Pepper

It has been understood from the above analysis that India faces tough competition in the international market for pepper from the rest of the world. India's main competitors are Indonesia, Malaysia and Brazil. Here an attempt has been made to examine relative changes in the competitive position of India vis a vis other pepper producing countries.

Table 3.8. Competitive Position of India in the international Market for Pepper

Average Unit Values of Pepper of exporting countries.				price of Indian Pepper as percentage of competing country's price.		
Countrie	1971-78	1979-82	1983-87	1971-78	1979-82	1983-87
	1	2	3	4	5	6
India	1609.88	1655.25	2686.80			
Indonesi	1423.38	1528.50	3123.20	113.10	108.29	86.03
Malaysia	1347.25	1408.25	3036.20	119.49	117.54	88.49
Brazil	1519.38	1481.50	3014.80	105.96	111.73	89.12

Source: Tab e 3.1

Table.3.9. Changes in the Export Share of Major Exporting Countries

Countries	1971-78	1979-82	1983-87
	1	2	3
India	22.41	17.24	27.91
Indonesia	25.81	24.83	27.77
Malaysia	29.22	25.15	15.11
Brazil	18.41	29.68	24.14

Source: Table 3.4

It can be observed from the table 3.8 that during the first period (period between 1971-1978) average export unit value

of Indian pepper was higher by at a average of 12.85 percent than other exporting countries. During this period, Indian price relative to Malaysia followed by Indonesia was the highest. Therefore the main competitors with India were Indonesia and Malaysua and Indian pepper was not price competitive during the first period. With their better competitive position in terms of their lower price relative to Indian price, they could maintain higher market share compared to India. In the first period, the market share of Indonesia was 25.81 percent and Malayasia's share was 29.22 percent while it was only 22.41 percent in the case of India.

During the second period between 1979-82, unit value of indian pepper was still higher by at an average of 12.52 percent than other leading exporters. In the second period, Indian price relative to Malaysian followed by Brazlian price was the highest. Therefore, India's competitive position with respect to these countries was weak and the main competitors to India during this period were Malaysia and Brazil. Dring this period, it is seen that India's market share declined substantially from 22.41 percent in the first period to 17.24 percent in the second period. During the same time, Brazil's share substantially improved from 18.41 percent in the first period to 29.68 percent in the second period. Therefore it can be concluded the decline in India's and Malayasia's share have been captured by Brazil. Though Malaysis's price was low relative to India's and Brazil's price, it could not capture India's and Brazil's market share, but its market share declined. This might be because Brazil with its better competitive position, must have followed strong non

price incentive measures to capture large share of international market for pepper. Brazil's capacity to capture the market shares of India, Malaysia, and Indonesia can also be an indicator of Brizil's stock behaviour, because the croping seasons of these countries are different.

Indian pepper was cheaper by an average of 12.53 percent during third period. (1983-1987). Therefore India enjoyed a better competitive position. As a result India's market share improved from 17.24 percent in the second period to 26.60 percent in the third period. This improvement in its market share has been made possible by capturing part of the market share of Malayasia and Brazil whose shares have declined.

India's weak competitive position in the international market during 1971-82 can be attributed to its very low productivity and high cost of production compared to other leading producers. The cost per kg of pepper in India as percent of world cost in 1980 was 139[8].

The improvement in India's competitive position in the third period was due to remarkable improvement in India's production and productivity of pepper. The trends in productivity are shown in the table 3.10. Over the period 1975-1988, productivity of Indian pepper increased by 64 percent. The average productivity of 367 Kg during 1983-1988 was much higher than average productivity of 240 Kg during 1975-1982.

Table 3.10. Productiviy of Pepper Producing Countries

(Kg/Per Ha)

Year	India	Brazil	Indonesia	Malayasia
1975	231	2362	612	3627
1976	228	2271	514	3837
1977	227	2530	527	2734
1978	202	2280	641	3184
1979	254	1323	439	2981
1980	250	1414	525	2139
1981	270	1461	500	1801
1982	263	1145	489	1998
1983	257	1153	501	2060
1984	215	1730	515	1576
1985	507	1605	513	1500
1986	520	1581	463	2946
1987	329	1421	450	1826
1988	379	1571	523	2000

Source: Pepper Statistical Year Book, IPC, Jakarta, 1986, 1988.

It is seen from table 3.10 that productivity estimates of Indian pepper is very low compared to the productiviy estimates of other pepper producing countries. However productivity estimates of Indian pepper need not be very low as the estimates show for various reasons. First, the low productivity of Indian pepper compared to other producing countries was due to the fact that plant population in Indian farm is much less while it is much greater in other pepper producing countries. This is because pepper in India is grown as mixed crop. Monocrop as the percentage of total croped area in India was as low as 1.15 percent[9]. The average number of pepper stands per acre was only 137[10]. Secondly, offical estimates of pepper production which forms the basis of productivity statistics are much lower than actual production[11].

Table 3.11. Productivity Index of Pepper in Producing Countries

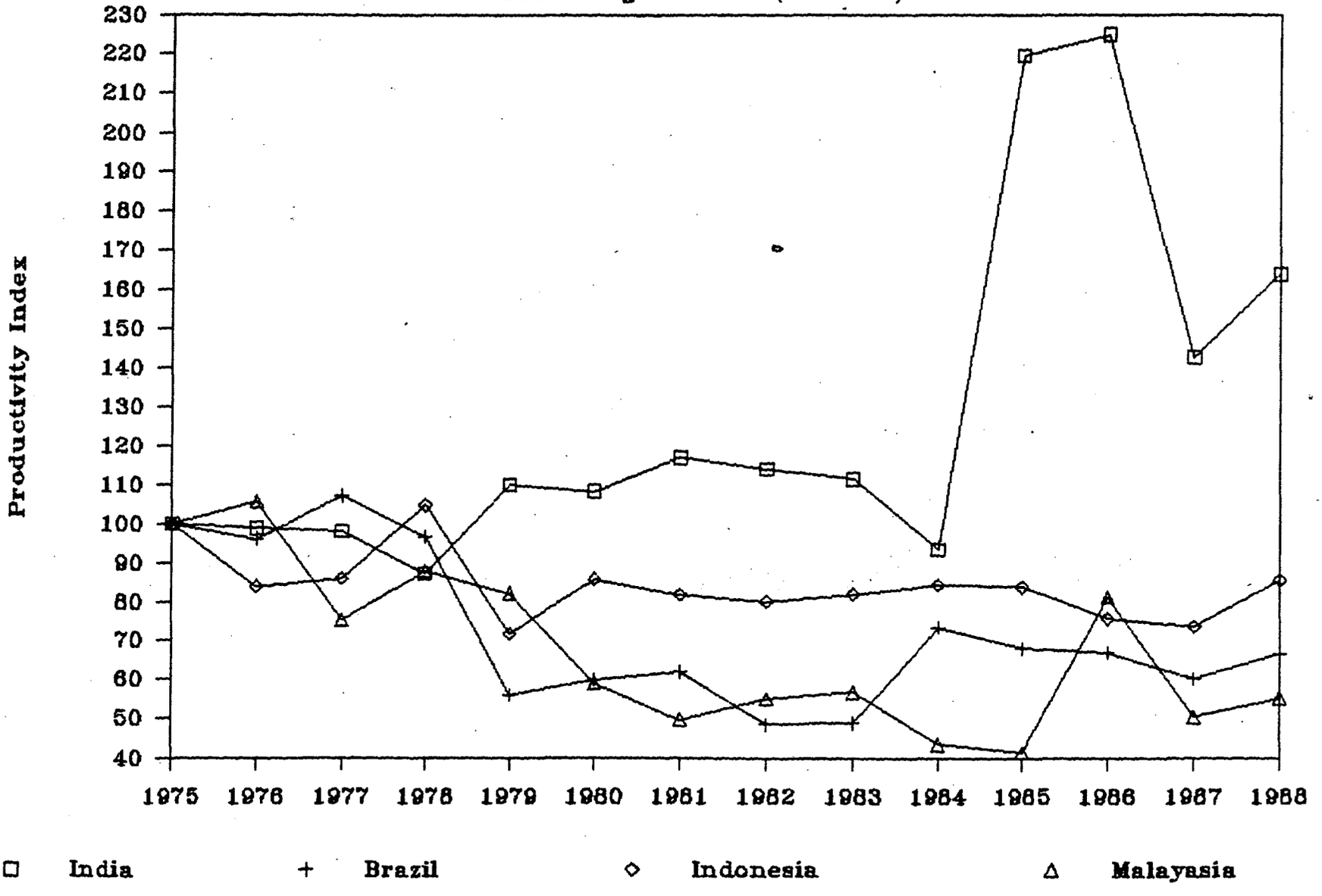
Year	India	Brazil	Indonesia	Malayasia
1975	100	100	100	100
1976	99	96	84	106
1977	98	107	86	75
1978	87	97	105	88
1979	110	56	72	82
1980	108	60	86	59
1981	117	62	82	50
1982	114	48	80	55
1983	111	49	82	57
1984	93	73	84	43
1985	220	68	84	41
1986	225	67	76	81
1987	143	60	74	50
1988	164	67	85	55

Source: Table 3.10

Considering the above mentioned reasonable arguements for low productivity, the productivity growth of Indian pepper was very high during 1975-1988 while that of other countries experienced decline in productivity as seen in the table 3.11. Remarkble improvement in productivity during 1983-1988 has improved India's competitive position. With improvement in her competitive position, India's share in the world market for pepper has significantly gone up from 17.24 percent between 1979-82 to 27.91 percent during 1983-1987. The increase by 61.89 percent while that of Malaysia and Brazil have declined. Decline in the share of Brazil, and Malayia was due to decline in their production and productivity. Continued decline in Brazil's production during the period 1983-1988 was due to Fusarium foot root disease which seriously constrained output. Consequently the expansion of area under cultivation has not led to increase in production[12]. In Malaysia, uncertanity over price developments resulted in limited producer response and hence prevented a more pronounced recovery of production. Wide spread incidence of pests

Productivity Index of Pepper

in Producing Countries(1975-88)



and drought in these countries including Indonesia also resulted in the decline in production[13]. All these substantially reduced productivity also in these countries.

Since pepper is grown in these countries, especially in Brazil and Malaysia, as a monocrop, high input of fertilizers and pesticides which are mostly imported, is needed[14]. This expensive method of production coupled with declining productivity increased cost of production making pepper growing unattractive and unremunarative in these countries. The increased cost of production has made these countries weak competitively in the world market for pepper. During this period (1983-87), there was remarkable improvement in the production and productivity of Indian pepper as Indian farmers responded positively to high prices of pepper.(Table 3.1). Since pepper in India is mostly grown as mixed crop, cost is not very high compared to other pepper producing countries. The substantial increase in production and productivity improved India's competitive position. India improved her share in the international market for pepper during 1983 - 1987. In short it can be concluded that exporting country's price relative to its competitors is an important determinant of a country's export performance. Since there are close substitues for Indian pepper in the world market, the only way to increase India's market share is to reduce its price by reducing cost through yield breakthrough. Therefore attempts to increase production and productivity which reduce the cost of production must assume prime importance in the export realm of Indian pepper. This involves continous interaction between farmers, researchers, and goverments in the pepper

growing areas. Since India's competitive position is linked to India's direction of export of pepper, in the next section, it is examined.

Trends in the Direction of Indian Export of Pepper

It is observed from the table 3.12 that a major portion of Indian pepper was exported to the American zone, USSR and East European countries and only a small proportion was exported to other regions such as West Asia. It is observed that shares of American region, and West European marked a sharp decline over the period 1970/71 -1981/82. Then it started improving. In the case of American region, its share in the Indian export of pepper declined from 29 percent in 1970/71 to 5.34 percent in 1981/82 and then improved to 26.71 percent in 1986/87. The share of West Europe declined from 5.1 percent in 1970/71 to 4.11 percent in 1981/82 and then improved to 10.76 percent in 1986/87. In sharp contrast to these, the share of USSR, and East Europe gained. Their share increased from 59.63 percent in 1970/71 to 83.08 percent in 1981/82, and then declined to 42.09 percent in 1986/87. A rising trend was observed in the case of West Asia. In order to examine clearly the trend of market diversification of Indian export of pepper over periods,Gini Hirschman's[16] geographical concentration coefficients were worked out using the following formula.

$$Gjx = 100 \sqrt{\sum_{s} \left(\frac{X_{sj}}{X_j}\right)^2}$$

where 'Xsj' stands for export of country 'J' to 'S' and 'Xj' is

TABLE 3.12

SHARE OF IMPORTING COUNTRIES IN THE INDIAN EXPORT OF PEPPER

	1970/71 Q	1971/72 Q	1972/73 Q	1973/74 Q	1974/75 Q	1975/76 Q	1976/77 Q	1977/78 Q
U S A	24.27	5.74	12.98	24.44	23.06	15.50	7.21	21.62
CANADA	4.73	3.63	6.48	4.48	5.58	5.18	3.48	4.28
U K	0.09	0.09	0.16	0.28	0.00	0.66	0.22	0.41
FRANCE	0.00	0.00	0.00	1.35	0.16	0.00	0.03	0.26
ITLY	4.25	5.07	6.38	7.33	3.98	5.30	5.53	4.46
NETHERLANDS	0.02	0.01	0.07	0.12	0.23	0.73	0.02	0.03
DENMARK	0.01	0.01	0.01	0.06	0.02	0.02	0.05	0.00
GERMANY F R	0.73	0.08	0.04	1.29	0.23	0.05	0.18	0.43
IRAN	0.00	0.23	0.14	0.63	0.22	0.00	0.03	0.31
IRAQ	0.00	0.00	0.00	0.19	0.32	0.06	1.59	0.32
SADUI ARABIA	0.09	0.04	0.10	0.80	0.73	1.76	0.89	3.02
KUWAIT	0.08	0.03	0.16	0.32	0.32	0.36	0.29	0.56
JAPAN	0.07	0.07	0.16	0.56	3.90	0.11	0.72	0.29
SUDAN	1.24	1.28	0.39	0.45	0.18	0.24	0.77	0.26
U S S R	23.22	47.71	39.62	29.74	28.63	42.29	40.87	40.01
GERMANY D R	5.17	1.06	0.75	1.48	2.11	2.15	3.41	2.51
HUNGARY	5.65	0.00	4.84	3.51	2.80	1.44	3.17	0.84
YOUGOSLAVIA	8.43	5.41	4.14	4.80	1.26	1.74	8.80	3.82
CZECHOSLOVAKIA	5.28	4.76	5.94	2.82	6.00	3.67	4.53	5.29
BULGARIA	1.69	2.08	2.81	2.21	0.00	0.83	2.07	1.06
POLAND	6.39	6.66	5.91	2.51	10.47	6.67	6.84	3.30
RUMANIA	3.79	4.80	2.81	0.21	4.90	4.95	4.10	3.71
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHERS	4.80	11.24	6.12	10.42	4.89	6.28	5.19	3.21
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
East Europian Countries	59.63	72.48	66.81	47.28	56.17	63.73	73.79	60.54
Market Economies	40.37	27.52	33.19	52.72	43.83	36.27	26.21	39.46
American Zone	29.00	9.37	19.46	28.92	28.64	20.68	10.69	25.9
West Europe	5.1	5.26	6.66	10.43	4.62	6.76	6.08	5.59
West Asia	0.17	1.65	0.4	1.94	1.58	2.18	2.77	4.21

Source: Directorate General of Commercial Intellegence Statistics, Culcutta,
Ministry of Commerce, Government of India

TABLE 3.12 CONTINUED

	1978/79 Q	1979/80 Q	1980/81 Q	1981/82 Q	1982/83 Q	1983/84 Q	1984/85 Q	1985/86 Q	1986/87 Q
U S A	3.09	13.90	5.54	2.36	9.43	21.90	4.41	37.21	24.92
CANADA	2.04	4.23	3.84	2.98	2.92	2.81	2.04	2.59	1.79
U K	0.22	0.50	0.14	0.21	0.36	1.25	0.37	1.12	0.66
FRANCE	0.01	0.11	0.27	0.11	0.04	1.95	1.05	2.38	2.98
ITLY	4.08	6.53	4.05	3.40	3.94	5.26	3.76	2.99	3.43
NETHERLANDS	0.00	0.33	0.00	0.07	0.20	1.64	0.06	0.55	0.62
DENMARK	0.05	0.06	0.02	0.05	0.22	0.08	0.11	0.12	0.20
GERMANY F R	0.14	0.42	1.40	0.27	0.30	2.86	0.07	4.20	2.87
IRAN	0.05	0.29	0.46	0.24	0.00	1.65	3.19	0.00	0.00
IRAQ	0.97	0.49	0.33	0.60	0.19	0.41	0.84	0.00	0.00
SADUI ARABIA	0.77	0.23	1.19	0.38	0.46	1.42	0.12	1.09	2.46
KUWAIT	0.32	0.11	0.14	0.20	0.04	0.15	0.01	0.04	0.00
JAPAN	1.02	0.78	0.72	1.26	1.36	1.31	1.29	1.39	0.92
SUDAN	0.00	0.58	1.03	1.41	0.44	0.70	0.16	0.40	0.00
U S S R	48.95	40.67	60.73	71.70	49.05	29.61	58.19	26.33	30.23
GERMANY D R	4.52	3.16	2.09	3.91	4.63	6.01	3.99	3.50	1.81
HUNGARY	0.00	0.00	0.00	0.49	1.33	1.36	3.19	0.13	0.86
YOUGOSLAVIA	5.08	3.67	3.49	3.75	5.06	1.56	2.84	2.02	4.53
CZECHOSLOVAKIA	8.33	1.78	2.72	3.25	4.71	4.17	3.30	2.51	2.72
BULGARIA	1.59	3.01	0.85	0.00	0.88	0.00	0.63	1.25	0.30
POLAND	14.38	9.68	1.52	0.00	4.43	6.24	3.32	3.85	1.52
RUMANIA	0.00	4.37	1.38	0.00	4.43	0.00	1.97	1.33	0.13
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHERS	4.39	5.11	8.09	3.39	5.60	7.66	5.12	4.97	17.06
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
East Europian Countries	82.85	66.33	72.79	83.08	74.50	48.95	77.41	40.94	42.09
Market Economies	17.15	33.67	27.21	16.92	25.50	51.05	22.59	59.06	57.91
American Zone	5.13	18.13	9.38	5.34	12.92	24.71	6.45	39.8	26.71
West Europe	4.5	7.95	5.88	4.11	5.06	13.04	5.42	11.36	10.76
West Asia	2.11	1.12	2.12	1.42	0.69	3.63	4.16	1.13	2.46

the total export of country 'j'.

Table 3.13. Geographical concentration coefficients

Years	Coefficients	Years	Coefficients.
1970/71	37.24	1979/80	45.36
1971/72	49.75	1980/81	61.52
1972/73	44.16	1981/82	72.19
1973/74	40.22	1982/83	51.30
1974/75	39.98	1983/84	38.89
1975/76	46.70	1984/85	59.14
1976/77	44.24	1985/86	46.51
1977/78	46.82	1986/87	40.12
1978/79	52.48		

Source: Table 3.12

It is observed from the table of concentration coefficient (Table 3.13) that there is an increasing trend towards the concentration of Indian export market for pepper from 1970/71 1981/82 and from 1982/83. Then on wards, the trend is towards market diversification. The coefficient has substantially increased from 37.24 in 1970/71 to 72.19 percent in 1981/82 and then declined to 40.12 percent in 1986/87. The increasing trend towards market concentration was on account of substantial increase in the import shares of USSR and East European countries consisting of eight countries in India's total export of pepper. Their shares have increased from 59.63 percent in 1970/71 to 63.73 percent in 1975/76 and rose further to 66.33 percent in 1979/80 and then to 83.08 percent in 1982, while the share of market economies consisting of fourteen countries declined sharply from 40.37 in 1970/71 to 16.92 percent in 1981/82. Expansion of India's trade with East Europe and USSR was primarily due to bilateral trade agreements with these countries.

Relation between Trends in India's Direction of Pepper Exports and India's Competitive Position

In the analysis of the trends in the direction of Indian export of pepper, financial year data are used. But in examining the competitive position of India, calender data are used. Since there does not exist any major differences in the data used and in both cases, analysis has been confined to trend analysis, a comparison of the trend in the direction of exports and competitive position of India over the period are possible. It can provide some meaningful insights.

There seems to exist a close relationship between India's competitive position in the world market for pepper and direction of export of pepper. Indian export market share in the market economies has significantly declined from 40.37 percent in 1970/71 to 16.92 percent in 1981/82, while Indian export share in the Socialist countries where trade is carried out under bilateral trade agreements, increased from 59.63 percent in 1970/71 to 83.08 percent in 1981/82 (Table 3.12). Table 3.14 shows that the average export share of India in the market economies declined from 37.45 percent in 1970/71-77/78 to 23.74 percent in 1978/79-81/82 and then increased to 43.22 percent during 1982/83-86/87. India's average export share in the non market economies increased from 60.99 percent during 1970/71-77/78 to 76.25 percent during 1978/79-1981/82 and then declined to 56.78 percent during 1982/83-86/87.

Table 3.14. Trend of Market Diversification Pattren of Indian Export of Pepper

Period	India's average share in market economies	India's average share in non-market economies.
1971-1978	37.45 %	62.55 %
1979-1982	23.74 %	76.26 %
1983-1987	43.22 %	56.78 %

Source: Table 3.12

India's declining share in the market economies was due to her weak competitive position compared to other leading exporting countries during the period between 1971 and 1978, and between 1979 and 1982 (Table 3.12). During the same period India's export share in the socialist regions increased substantially under bilateral trade, owing to which, other supplies could not easily penetrate into these markets. During the period between 1983-87, India enjoyed a better competitive position in the world market. With the result, India improved its share in the market economies from 16.92 percent in 1981/82 to 42.09 percent in 1986/87, (Table 3.12) and also from the average share of 23.74 percent during 1978/79-81/82 to 43.22 percent during 1982/83-86/87 (Table 3.14), while her market share in the socialist economies declined from 83.08 percent in 1981/82 to 58.70 percent in 1986/87 (Table 3.12) and from average share of 76.26 percent during 1978/79-81/82 to 56.78 percent during 1982/83-86/87 (Table 3.14). An increasing trend towards market concentration was observed when concentration coefficient began rising from 37.24 in 1970/71 to 72.19 percent in 1981/82 and an increasing trend towards market diversification was seen when the coefficients started falling from 72.19 percent in 1981/82 to 40.12 percent in 1986/87. Thus trend in India's direction of

export of pepper is closely linked to India competitive position in the world market.

Need for Market Diversification and Product Diversification of Pepper

Market diversification and product diversification assumes importance in the present context of increased supply capacity of producing countries. The world production of pepper has increased from 126645 tones in 1985 to 197000 tones in 1990, while pepper production in India increased from 27000 tones in 1985 to 65000 tones in 1990. Productive capacity of other pepper producing countries have also increased. This increased availability of pepper in producing countries without having much outlet may depress the pepper economy's growth. This is clear from the recent decline in the price of pepper in the NewYork market from 242.95 Cent per pound in 1987 to 140.23 Cent per pound in 1989.(Table 3.15).

Table 3.15. Trends in World Production and Prices of Pepper in New York Market

Years	World Production In tones +	Indian Production in tones *	Market Price Cents/Pound.+
1981	158095	40000	78.83
1982	141902	38000	70.32
1983	146963	45000	75.03
1984	143436	38000	102.30
1985	126645	27000	172.98
1986	155768	65000	219.30
1987	137250	45000	242.95
1988	182885	65000	183.78
1989	169300	45000	140.23
1990	197000	65000	-

Sources: + Pepper Statistical Year Book,IPC,Jakartha, 1986,1988,
* Trade Estimates by IPSTA, Cochin.

According to FAO projections, the world demand for pepper will be 141000 tones in 1990 and about 162000 tones in 1995. Considering the world supply and world demand, it is observed that supply will out strip demand, depressing price. This would restrict the growth of pepper economy in pepper producing countries, especially in India, which emerged in recent years as the largest producer of pepper in the world. Therefore India will have to look for fresh outlets to dispose the surplus.

In order to find outlets for the additional surplus, there are two major courses of action; market- diversification and product development. As has been seen in the earlier analysis,(Table 3.12) in 1988, 61.04 percent of the Indian export of pepper are directed to two major countries such as USSR and USA and only 38.96 percent are shared by other countries. Therefore it is the need of the hour to diversify the market to dispose the increased production and thereby to save the pepper economy from the crisis.

Pepper is mostly exported from India in raw form. This many limitations. Therefore the application of pepper as an element in food as well as non food item are to be intensified at this juncture for increased consumption of the surplus. In this context, measures are to be taken to identify markets where it is used as an element in food and non food items and for the development of products using pepper as an ingredient item. Pepper products exported from India are shown in the table 3.16.

Table 3.16 Value in lakhs

EXPORTS OF PEPPER PRODUCTS FROM INDIA 1973-74 TO 1984-85 Quantity in tonnes

	Pepper Olerisins		Pepper Oil		De hydrated green Pepper		Green Pepper in Brine		Green Pepper Pickle		White Pepper	
	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V
1973/74	21.21	1710.53	0.506	131.03			10.82	96.02			65.19	767.5
1974/75	38.08	3995.31	1.134	202.78			10.37	166.58			11.1	174.5
1975/76	43.74	4773.43	1.005	205.07	0.506	26.06	96.89	1098.06			0.85	34.15
1976/77	110.54	13612.49	4.134	543.98	59.8	3538.17					1.15	
1977/78	114.8	16531.2	1.6	363.1	118.7	4134	139.2	1616	62	588	5.74	220
1978/79	95.26	13420	4.18	654.51	34.99	2297.26	76.87	844.25	98.92	581.43	58	1914
1979/80	123.2	17522.58	7.44	1135	47.02	2148.25	82.55	990.17	187.23	1988.8	6.15	202.59
1980/81	104.69	14901.8	5.53	755.61	58.73	2442.01	193.11	1871.77	169.86	1876.96	3.31	115.72
1981/82	110.28	16057	8.6	1636.1	448.8	2129.5	33.75	4162.9			7.67	274.3
1982/83	117	16245	15	3162	58	2503	143	1928	80	923	2	62
1983/84	104	14942	23	3636	147	5056	129	1747	238	1075	2	83
1984/85	169	32182	11	3945	127	5832	284	3773	99	972	11	386

Source: 1 Cocoa,Arecanut,and Spices Statistics.1970-83.1983-86.
Directorate of Cocoa, Arecanut and Spices Development, Calicut,
Ministry of Agriculture and Rural Development, Govt.of India,
2 Cardamom Statistics 1984-85, Cardamom Board, Cochin.
3 1985/86 to 1989/90, From Spices Board, Cochin

Conclusion

Pepper is the most important spice among various items of spices exported from India. The once favourable world market enjoyed by India for its pepper had been increasingly declining because the external buyers are less and less willing to buy them. The emergence of other countries both in the production and export of pepper at lesser price compared to India has affected India's international trade. Though Indian pepper is superior in quality, the price differecnce are looked up on as considerable. On accuont of it, India remained a weak competitor in the world market for pepper. With the result, her share in the world market for pepper products declined drastically, though a little improvement has been observed in India's share in the world market for pepper in recent years. The unitary price elasticity of export demand for Indian pepper, emphasise the need for strong non price incentive measures along with price incentive measures to effect net increase in foregin exchange earnings from pepper. India has been unable to increase production of pepper substantially and more importantly at a lesser cost. Therefore yield breakthrough assumes prime importance in India's efforts to improve her performance in the export of pepper.

Indian export of pepper is increasingly getting converged to a few regions in the world. It has been observed in the analysis that there exist a close relation between India's trends in the direction of pepper exports and its competitive position. With improvement in her competitive position in the case of pepper, India's market share in the market economies has

greatly improved, while her share in the Socialist countries have declined after 1982. The need for Product diversification and market diversification are felt urgent. Indian export of pepper is under several constraints. The major costraints are high price, low production, high cost of production, market concentaration etc. On account of these, India's position in the market has not been very satisfactory.

Notes and References

1. The World Bank, 1980, World Development Report 1980, PP.3.

2. Elasticity of demand has been calculated using double logarithamic regression equation in which log values of total quantity imported to the countries are considered dependent variable and the log values of the price of pepper in the New York market which is the major international market for pepper is considered independent variable.

3. Economic and Scientific Research Foundation, 1986, Agricultural Exports Strategy, Problems and Pro spects. Radiant Publications, Delhi, P 95.

4. National Council of Applied Economic Research, 1965, Export Prospects of Pepper, NCAER, Delhi, P 17.

5. In the analysis, Brazil has been cosidered the major competitor with India, because in recent years, Brazil has emerged as the largest producer and exporter of pepper in the world.

6. Income of the world represents the real G D P of only those countries to which pepper is exported by the pepper exporting countries. GDP of the countries at current prices in doller terms are collected from Year Book of National Account Statistics, Statistical Year Book of the United Nations Publication, and World Development Reports, and for estimating real GDP of each country, GDP at current prices are deflated by the index of GDP deflators (1980 = 100) of each country collected from Year Book of National Account Statistics of the United Nations Publication.

7. H.K.Sandhu, 1982, " An Econometric Analysis of Indian Export Shares of Cashew Kernala in the World Trade", Indian Journal of Agricultural Economics, July-September, Vol.XXXV11, No.3, PP.300-305.

8. P.S.George, K.N.Nair and K.Pushpangadan, 1989, The Pepper Economy of India, Centre for Development Studies Occasional Papper Series, Oxford Publishing Co.PVT.LTD, New Delhi, P. 8.

9. Ibid, P.8.

10. Ibid, P.9.

11. 8th Five Year Plan Workshop on Agricultural development 6-10-1988, Trivandrum, P.56.

12. Food and Agricultural Organisation, 1987, Commodity Review Outlook, 1986-1987, PP.39-41.

13. Ibid, PP.39-41.

14. Ibid, PP.39-41.

15. According to Gini-Hirschman coefficent of geographical Concentaration, lower the coefficent, larger is the number countries to which goods are exported and vice versa. The highest possible coefficent is 100, where all exports are directed to one country, Michael Michaely, 1962, Concentaration in International Trade, North Holland Publishing Company, Amsterdam, In the estimation of the coefficents of geographical concentration in the case of pepper, Indian export of pepper to 22 countries are considered.

CHAPTER 4

INSTABILITY IN EXPORT EARNINGS FROM SPICES

The purpose of this chapter is to examine the instability of export earnings, prices and volumes of India's spices exports and to examine the relative importance of supply and demand factors in contributing to earning instability.
The chapter has been devilded in to three sections. Section 1 examines changes in instability of export earnings from spices for the period 1970/71 to 1989/90. Analysis of export earning instability at the aggregate level as well as individual commodity level has also been attempted in this section. Section 2 tries to identify the sources of instability; demand and supply or both. Section 3 discuss policy implications for stabilising export earnings.

Export instability has been a major concern among economists as it affects less developed countries . Fluctuations in less developed country's export earnings generate domestic instability (with a consequence of welfare loss). It also complicates the task of development planning and reduce the efficiency with which investment are used [1]. The effect of export instability on less developed country's development processes are very severe because the export baskets of these countries consist mainly of primary commodities which are more volatile to fluctuations than manufactured goods.

Demand and supply factors can be the sources of earning instability from spices in general. Therefore, one need to

examine the factors affecting supply and demand for spices. In the case of the most items of spices, supply fluctuations arise from pests, plant disease, and weather variability, price variations etc. Since spices are produced mainly for exports, shift in foreign demand can also be a major source of fluctuations in export receipts. Short run shifts in demand may arise from changes in prices of competing goods or from cyclical changes in incomes.

Section 1

Definition and Measurements of Instability

Export instability is defined as short term fluctuation in export earnings corrected for trend[2]. In constructing an export instability index, it is necessary to eliminate the trend. Other wise, if exports of one sub period is growing rapidly compared to the other period, it will score high on the instability scale. Instability measure is generally defined as an average of the trend eliminated values of a time series. A number of measures of instability of export earnings have been proposed in the literature[3], the major differences among them are in the method of trend elimination from data base. In this analysis , the method used by David Murray[4] in his study of instability levels and sources of instability of developed and developing countries, would be followed. For constructing an instability index, we have used Mac Bean index (MBI)[5] which is measured as the average percentage deviations of the value of export proceeds,price, and quantities from their five year moving

average. This method has the disadvantage of losing two years at the beginnings and at the end of the time series. Comparison of the instability for products is based on mean values of two sub periods. The Mac Bean index of instability is defined as,

$$MBI = (100/n-4) \sum_{t=3}^{n-2} (|X_t - MA_t| / MA_t),$$

where,

'MA_t' is a five year moving averag of the'Xt'.
Xt is values of export earnings, prices or volumes,
'n' is the number of observations, and |Xt-MAt| is absolute value of deviation from moving averages.

Results

Levels of Instability

Mean instability index of spice exports from India in terms of value and quantity for the successive periods namely 1970-71 to 1979-80 and 1980-81 to 1989-90 are given in the table 4.1.

Table 4.1. Mean Macbean Instability Indices of Spices Exports from India

Products	Value	Quantity.	Price
Total Exports			
1970-71 to 1979-80	18.51	7.19	13.78
1980-81 to 1989-90	23.87	6.32	25.64
Change	+ 29 % (Increase)	- 12 % (decrease)	+ 86 % Increase

Source: Appendix 3

Figure for the total exports have been calculated by adding the weighted values of the individual products.

It can be seen that average level of instability of earnings has been higher in the second period than in the first period, while it has been less in the second period for the quantities of spices exported from India. In this case, the average earning instability has increased by 29 percent, while average instability of quantities of spices exported from India declined by 12 percent. Therefore, increase in earning instability was due to substantial increase in price instability.

Average levels of instability of earnings, quantities, and prices for individual items of spices trade are given in table 4.2. It can be seen from the table 4.2 that mean instability index of earning has increased from period 1 to period 2 in the case of pepper (65%), cardamom (2%), ginger (5%), turmeric (6%) and other spices[6] (13%), except chllies (9%).

(Figures in the brackets reprecents percentage shares of each of these item in the total export earnings form spices in 1990). This increase was very high in the case of cardamom and pepper.

When it increased by 235 percent in the case of cardamom, it increased by 54 percent in the case of pepper. It can be observed that earning instability has declined only in the case of chilies (9%) by 27 percent. Mean instability index of quantities decreased from first period to second period by 41 percent in the case of pepper and by 38 percent in the case of chilies, while it increased for spices such as cardamom, in whose case it marked the highest increase by 342 percent, and ginger. Turmeric and other spices in whose case, it increased by 159 percent. Mean instability index of prices for commodities such as pepper, chilies, and ginger, increased while it decreased for commodities such as cardamom, turmeric and other spices.

In general, it is clear that mean instability index of earnings from spices such as pepper, cardamom, ginger, turmeric and other spices have been higher in the second period than in the first period. While mean instability index of quantities of spices such as cardamom, ginger, turmeric and other spices exported from India have been higher in the second period, mean instability index of prices have been higher in the second period only for three commodities such as pepper, chilies, and ginger.

Table 4.2. Mean MacBean Instability Indices of Individual items of Spices Exported from India for period 1 and period 2

Products	Value	Quantity	Price
Pepper.			
Period 1	18.52	13.34	11.41
Period 2	28.59	7.86	20.84
Change	+ 54 % (Increase)	- 41 % (Decrease)	+ 83 % (Increase)
Cardamom.			
Period 1	21.42	12.98	24.85
Period 2	71.69	57.43	19.74
Change	+ 235 % (Increase)	+ 342 % (Increase)	- 21 % (Decrease)
Chilies.			
Period 1	54.26	53.97	10.24
Period 2	39.40	33.41	18.17
Change	- 27 % (Decrease)	- 38 % (Decrease)	+ 77 % (increase)
Ginger.			
Period 1	25.33	16.37	20.15
Period 2	35.74	28.79	26.52
Change	+ 41.09 % (increase)	+ 75.87 % (increase)	+ 31.61 % (increase)
Turmeric.			
Period 1	21.86	16.09	24.31
Period 2	29.12	26.37	16.85
Change	+ 33 % (Increase)	+ 64 % (Increase)	- 31 % (Decrease)
Other Spices.			
Period 1	22.35	11.62	23.24
Period 2	29.40	30.10	10.03
Change	+ 32 % (Increase)	+ 159 % (Increase)	- 57 % (Decrease)

Source: Appendix 3

The Association between Earning Instability with Price and Quantity Instability

Here an attempt is made to see whether there is any tendency for relative levels of earnings instability to be

correlated with relative levels of price or quantity instability. Table 4.3 shows the correlation coefficients for various combinations of these variables.

Table 4.3. The Association of Earning Instability with Price and Quantity Instability

	Earning / Quantity	Earning / Price	Price / Quantity
Period 1 Macbean Index	0.9893 *	0.5818	0.6473
Period 2 Macbean Index	0.8839 *	0.1956	0.0564

Source: Table 4.2

* = Significant at 5 percent level.

The results suggest stronger association of instability of export earnings with quantity than price in both periods. In both periods, correlation coefficients of earning instability and quantity instability are found to be statistically significant at 5 percent level. This suggests that the explanation for earning instability is likely to be found in an examination of the sources of quantity fluctuations.

Section 2

Measurement of Sources of Instability

Instability in export earnings can arise due to either fluctuations in quantity, price or both quantity and prices. In order to find out the relative contribution of price and quantity

fluctuation to earning instability, the components of variance of the logarithm of earnings around an exponential trend are examined. Given the identity of

$$E = P \cdot Q \qquad (1)$$

Where E = export earings, P = the price, Q = the quantity.

$$\text{then} \quad \text{Log } E = \text{Log } P + \text{Log } Q \qquad (2)$$

and the variance of log E around trend line is given by,

$$\text{Var (log E)} = \text{Var (logP)} + \text{Var (log Q)} + 2\ \text{Cov (logP,logQ)} . (3)$$

The term on the right hand side are calculated from the price and quantity indexes. They are divided through by their sum and expressed as percentages. The term -

$$C_p = \frac{100\ \text{Var (log P)}}{\boxed{\text{Var(log P)} + \text{Var(log Q)} + 2\ \text{Cov (log P,log Q)}}}$$

may be expressed as the contribution of the (trend corrected) variance of price to the (trend corrected) variance of earnings. C_p is an indicator of the proportional contribution of price instability to earnings instability. Similarly relative contribution of quantity fluctuation to earning instability is defined by,

$$C_q = \frac{100\ \text{Var (logQ)}}{\boxed{\text{Var (log P)} + \text{Var (log Q)} + 2\ \text{Cov (log p, log Q)}}}$$

Results

The table 4.4 shows the contribution of price and quantity fluctuations to earnings instability for the period 1971 to 1990, using the method outlined earlier.

Table 4.4. Components of Variance of Earnings from the Spices Exported from India for Period 1971 to 1990

Products	Var (log E)	Var (log Q) as % of Var (log E)	Var (log P) as % of Var (log E)	2 Cov(log Q,log P) as % of Var (log E)	Dominant Variable
Pepper	0.191	20.94	50.79	28.27	P
Cardamom	0.736	43.61	25.79	30.71	Q
Chilies	0.783	106.90	4.85	-11.75	Q
Ginger	0.257	66.15	60.70	-26.85	Q
Turmeric	0.194	54.64	51.03	-5.67	Q
OtherSpices	0.202	95.54	16.34	-11.88	Q
Total Export	0.093	38.71	86.02	-24	P

Source: Appendix 3

It can be seen from the table 4.4 that, in the case of commodities such as cardamom, chilies, ginger, turmeric, and other spices, the contribution of quantity instability to earning instability was the dominant factor and only in the case of pepper, price instability was dominant contributor to earning instability. This result supports the conclusion of the correlation analysis, which showed that there is a stronger association between earning instability and volume instability.(Table 4.3).

The analysis of the components of variance of earnings from individual commodities has been carried out for the two sub periods 1971-1980 and 1981-1990, in order to find out whether

there is any change in the relative importance of price andquantity variance.

Table 4.5. Components of variance of Earnings of spices Exported from India for the period 1 and period 2

Products	Var(logE)	Var(logQ) as % of Var(log E)	Var(logP) as % of Var(log E)	2 Cov(logP,logQ) as % of Var(log E)	Dominant Variable
Period 1.					
Pepper	0.076	55.26	42.11	2.63	Q
Cardamom	0.130	39.23	100.76	-40.	P
Chilies	0.920	103.26	3.15	-6.41	Q
Ginger	0.124	87.09	124.19	-111.29	P
Turmeric	0.135	72.59	58.52	-31.11	Q
Other Spices	0.089	100.00	51.69	-51.69	Q
Total Export	0.039	66.67	115.38	-82.05	P
Period 2.					
Pepper	0.172	10.47	51.16	38.37	P
Cardamom	0.706	64.45	10.48	25.07	Q
Chilies	0.405	112.59	7.41	-20.00	Q
Ginger	0.241	45.64	71.78	-17.43	P
Turmeric	0.143	67.83	64.34	-32.17	Q
Other Spices	0.123	130.89	8.94	-39.84	Q
Total Export	0.067	25.37	137.31	-62.69	P

Source: Appendix 3

It can be seen from the table 4.5 that in the period 1970/71-79/80, quantity variations were the dominant components in four commodities such as pepper, chilies, turmeric, and other spices, while price variations were the dominant component in the case of cardamom and ginger. In the second period (1981-1990), also quantity were found to be the dominant component in the case of commodities such as cardamom, chilies, turmeric, and other spices. In the case of three commodities such as chilies, turmeric, and other spices, quantity variations dominated in both periods, while price fluctuations dominated only in the case

of ginger in both periods. In the case of pepper and cardamom, there was a change in the dominant variable. It changed from quantity to price in the case of pepper, and from price to quantity in the case of cardamom. The result suggests that in most of the commodities of spices, quantity variations were the dominant contributor to export earning instability.

It is also observed from table 4.4 and 4.5 that though variations in quantities were the dominant components of the earnings instability in the case of most of the items of spices, variations in prices has been the dominant component in the instability of total export earnings from spices for the whole period taken together (1971-1990), and for the first period (1971-1980) and for the second period (1981-1990) taken separately. This was because of the strong influence of price variations which is the dominant component of instability in earnings from pepper whose share in the total export earnings from spices is very high about 65 percent in 1990. In the case of pepper, variations in prices has been dominant component of instability for the whole period 1971-1990, and also in the second period 1981-1990, and in the case of ginger price variations were the major contributor to earning instability in both periods.

The Importance of Supply and Demand Variations in Earning Instability

Fluctuations in prices and quantities reflects changes in demand and supply. The sign of the covariance term indicate

whether above trend values of prices are associated with above or below trend values of quantities ."If demand tends to change in relatively unstable manner, while supply changes steadily, we would expect price and quantity to be both above or both below, trends in any particular year which would tend to result in a positive covariance term. If demand has relatively stable growth path and supply is the less stable growth variable, we expect above trend values of price to be associated with below trend values of quantities and vice versa resulting in a negative price/quantity covariance"[5] . Therefore a positive covariance term indicate that demand fluctuations have been the dominant cause of instability, while supply fluctuations will be the dominant source if the covariance term is negative. This idea can be made clear with following figures.

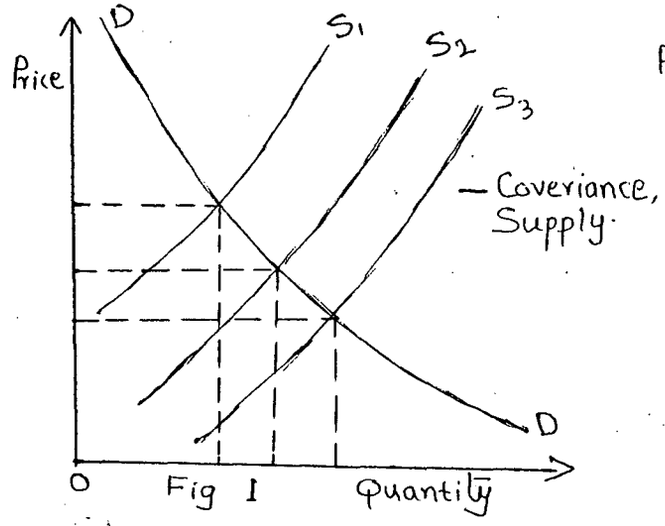


Fig 1

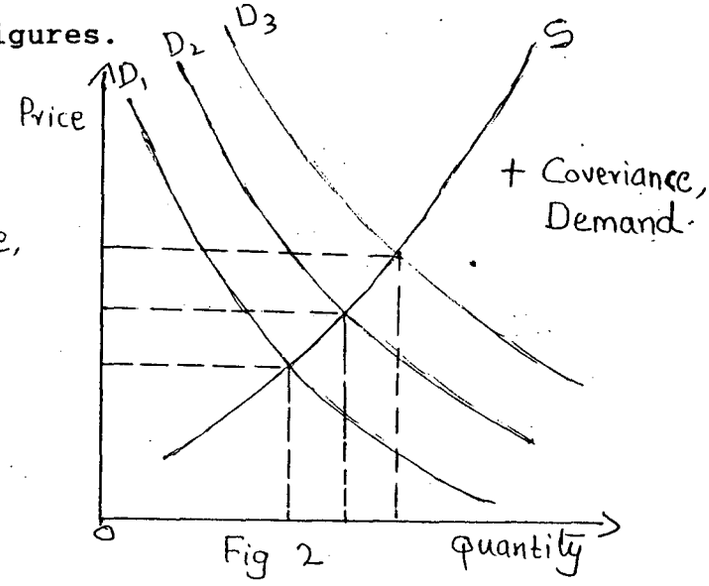


Fig 2

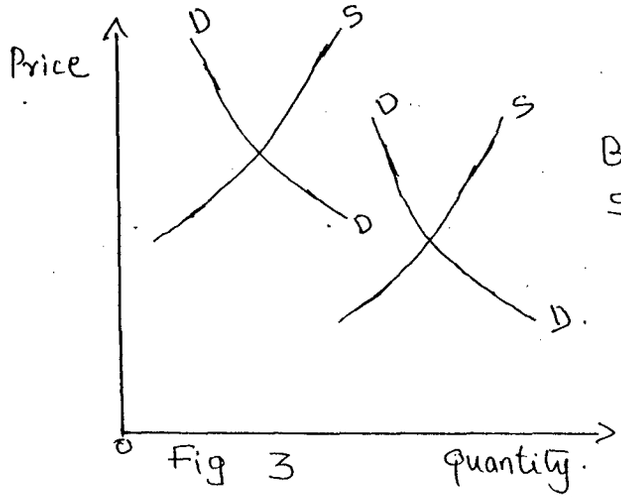


Fig 3

Figure 1 establishes a negative relationship between price and quantity, when demand remains stable while supply changes. Consequently value (Price × Quantity) fluctuate. Similarly, figure 2 establishes a positive relationship between price and quantity, when demand fluctuate, while supply remains stable. As a result, value (Price × Quantity) fluctuate. In the figure 3 both demand and supply remain unstable. Consequently, relationship between price and quantity can be either negative or positive. In either case, the value (Price × Quantity) fluctuate. The significance of supply/demand relationship are examined by testing whether there is a degree of correlation between the variables which is statistically significantly different from zero at 5 percent level of significance. The table 4.6 shows the covariance contribution in percentages for various commodities of spices exported from India across the period and also for the whole period from 1970/71-1989/90.

Table 4.6. Components of Variance of Earnings around Trends in Whole and Sub Periods

Covariance Contribution. %			
Products	Whole period 1970/71-1989/90	Period 1 1970/71-1979/80	Period 2 1980/81-1989/90
Total Products	-24.73	-82.05 *	-62.69
Individual Products			
Pepper	28.27 *	2.63	38.37 *
Cardamom	30.71 *	-40.00 *	25.07 *
Chilies	-11.75	-6.41	-20.00
Ginger	-26.85	-111.29	-17.43
Turmeric	-5.67	-31.11	-32.17
Other Spices	-11.88	-51.69 *	-39.84 *

Source: 4.4, 4.5 and Appendix 3
* = statistically significant at 5 percent level.

It has been found in the table 4.6 that the covariance terms obtained for pepper and cardamom were found to be significant at 5 percent level of significance respectively for the period 1970/71-1989/90. Considering the positive sign of the covariance term of both commodities, it can be concluded that demand variations were the major cause of instability of export earnings from pepper and cardamom. For all other commodities such as chilies, ginger, turmeric, and other spices, the covarince terms were found to be statistically insignificant at 5 percent level. These results irrespective of their sign indicate that instability in export earnings from these items of spices, were due to a combination of both demand and supply factors.

Covariance terms estimated for various items of spices for both periods (1970/71-1979/80) and (1980/81-1989/90) are also given in the table 4.6. It is observed that, for cardamom and other spices, the covariance terms are found to be statistically significant at 5 percent levels respectively in the period 1 indicating that supply variations were the major cause of instability of earnings from these spices, while other items such as pepper, chilies, ginger, and turmeric are found to be statistically insignificant at 5 percent level of significance indicating that combination of both demand and supply variations has been the cause of instability in earnings from these spices in the period 1. Considering the sign of the covariance terms, it is concluded that in the case of pepper and cardamom, variations in demand were the major cause of earning instability in the period 2, while variations in supply the major cause of instability of earnings from other spices. Similarly, For other

commodities like ginger, turmeric, and chilies, combinations of both demand and supply remained the major cause of earning instability.

The covariance term for total products for the entire period 1970/71-1989/90, and second period 1980/81-1989/90 are found to be statistically insignificant at 5 percent level. This indicate that the combination of both demand and supply were the major cause of earning instability. But in the period 1, the covariance term with negative sign was found to be statistically significant, indicating that supply variations were the major cause of earning instability for all items of spices.

In general, it can be concluded that, in the case of pepper, there was a shift in the sources of earning instability from the combinations of both demand and supply in the first period to demand as the major cause of earning instability in the second period, while in the case of cardamom, there was a shift in the source of instability from supply in the first period to demand in the second period. For other spices, supply remained the major cause of instability in both periods. For other items of spices such as chilies, ginger, and turmeric, the combination of both demand and supply remained the major sources of instability of earnings in both periods.

Section 3

Policy Implications of the Results and Conclusion

Level of instability of export earnings from spices has increased across the period. while instability of the quantities of spices exported from India across the period has decreased, the instability of prices has increased. Individual commodity analysis showed that levels of instability of export earnings from spices such as pepper, cardamom, ginger, turmeric and other spices have increased across the period. The percentage increase was very much more for pepper and cardamom.

For the whole period of analysis, for the total items of spices exported from India, the price was the major contributor to increase in instability. In the sub periods, when total spices exported was considered, fluctuations were caused by prices. When exports of individual items were considered for the whole period, fluctuations in the case of pepper were caused by price, but in the cases of spices such as cardamom, chillies, ginger, turmeric and other spices, quantity fluctuation was the major contributor to increase in instability. In the sub periods, individual items such as chillies, ginger, turmeric, and other spices exported from India, showed a continuity of experience, where quantity was the main contributor to fluctuations in earnings. But in the case of pepper and cardamom, there was shift in the major contributor which caused instability from quantity (period 1) to price (period 2) in the case of pepper, and from price to quantity in the case of cardamom.

Sources of fluctuations in earnings from total spices for the whole period and for the second period were due to a combination of both demand and supply factors. Sources of fluctuations in earnings from pepper and cardamom for the entire period and for the second period was due to demand factors, while in the case of other spices, variations in supply was the major sources of earnings instability in both sub periods. In the case of export earnings form spices such as chillies, ginger, and turmeric, a combination of both demand and supply factors were the main sources of earning instability across the sub periods and for the entire period.

From the analysis, it emerges that variations in demand mainly contributed to fluctuations in export earnings from pepper and cardamom. From demand side, quality standards of these spices exported, fluctuations in their consumption in the importing countries, changes in the price of their competing goods, and competition form other exporting countries would have mattered. Competition from Guatemala in the case of cardamom must have contributed to variation in demand which increaseed instability of export earning from that spice. Therefore any attempt to reduce the fluctuations in export earnings from these items, must be directed towards stabilizing demand for Indian pepper and cardamom. This involves formulation of policies to improve the quality of pepper and cardamom exported from India, policies to promote consumption of pepper and cardamom abroad, policies to improve the competitive position of India in the international market for pepper and cardamom which involves reducing the relative price of Indian pepper and cardamom by reducing cost of

production by improving productivity. Export of value added items of can also reduce fluctuation in export earnings.

In the case of other spices, variations in supply were the major source of earning instability. From supply side, short run fluctuation in supply arise from cobb web effect in the case of annual spices, and due to pests, plant diseases and weather variability, fluctuations in domestic consumption for both annual as well as perennial spices. Therefore policy measures are to be adopted to stabilize the supply of these items in the national level. This implies the formulation of policies to stabilize the price of these commodities in the domestic as well in the international markets, promotion of research and development to combat various plant diseases, and also to develop high yielding varieties of spices, policies to expand irrigational facilities, and also to expand the cultivation of these crops.

In the case of spices such as chilies, ginger, and turmeric which are annual crops in nature, demand and supply factors led to fluctuations in export earnings. Therefore the policy measures to be adopted should stabilize supply in the national level and demand in the international level. It has also been understood from the analysis that both demand and supply factors have led to fluctuations in export earnings from all spices. Therefore any attempt to stabilize export earnings has to be two pronged, both on the demand side and supply side.

Notes and References

1. Benton F Massel, 1970, "Export Instability and Economic Structure", The American Economic Review, September, Vol.LX, No.4, PP 618-630.

2. Alasdair I Macbean, 1966, Export Instability and Economic Development, George Allen and Unwin, Ltd, London, P 34.

3. These include deviations from various trend lines. Linear and Exponential trend lines are used by Massel in "Export Concentration and Fluctuations in Export Earnings", and "Economic Structure". Kenen and Voivadis rely on the supposition that total export proceeds can be described by a first order autoregressive scheme or midified random walk in their " Export Instability and Economic Growth ". Kykols, 25, 1972, PP 791-804.

4. David Murray, 1978, "Export Earning Instability : Price, Quantity, Supply, Demand ", Economic Development and Cultural Change, Vol.XXV11, No.1, PP 61-73.

5. Ibid, PP.61-73.

6. Other Spices include Coriander Seed, Cumin Seed, Celery Seed, Frnnel Seed, Fenugreed Seed, Garlic, Nutmeg, Aniseed, Cassia, Mace, Tejpet, and Misc.Spices.

CHAPTER 5

SUMMARY AND CONCLUSIONS

Spices are traditional items in the export basket of India. An important feature of various items of spices is that they are produced mainly for exports. Spices are noted for their capacity to fetch larger export earnings with smaller export volumes. In the present study, our endeavour has been to analyze the spice exports from India giving special emphasis to examining relative importance of various factors influencing India's export performance in major items of spices such as pepper and cardamom. In this context, we have analyzed export performance, identified problems and finally examined fluctuations in export earnings form various items of spices.

In the second chapter, we have analysed export trade performance of India in spices. With regard to the composition of Indian export of spices, an increasing trend towards concentration of Indian spices in few items such as pepper, cardamom, chillies, ginger and turmeric are observed. Since pepper and cardamom are the major items of spices exported from India, the study is confined to the analysis of these two items in detail. The chapter extends its analysis to the examination of the export performance of cardamom. It has been found that domestic demand for cardamom acted as a constraint on the export of cardamom. Percapita domestic consumption of cardamom showed an increasing trend during 1971-1987. Continuous decline in India's share in the world export of cardamom is attributed to continuous decline in India's share in the world production of cardamom,

rising domestic consumption and India's higher price relative to its competitors price.

In the third chapter we have analyed the export trade performance of India in pepper. In the analysis, it has been found that export earnings form pepper has increased at a faster rate than the rate at which export volume of pepper has increased during the period 1970-71 to 1989-90. This was due to substantial increase in the world price of pepper. It has been found that world consumption of pepper does not respond significantly to world income and price. But it depends entirely on tastes and food habits of the people. Therefore attempts at increasing world demand for pepper requires developing tastes for pepper through publicity drive.

India's export performance in pepper in terms of world market share analysis made clear that (1) India's share in the world market for pepper has been below its competitors such as Brazil (1978-85), Indonesia (1976-85), and Malaysia (1971-1982). Better performance of these countries were attributed to promotional and incentive measures taken for increasing production and export of pepper. It has also been seen that (2) growth rate of Indian export of pepper in volume during 1972-1990 was less than that for the period 1951-1971. Identification of these two features of Indian export of pepper led the analysis further to the examination of relative importance of various factors influencing Indian export trade in pepper.

It has been found that the ratio of export to output

has been growing at a very low rate of 1.38 percent during 1971-85. During the same period, pepper production increased only by 1.56 percent. Estimates of price and income elasticities of domestic demand for pepper showed that domestic consumption of pepper is not significantly responsive to income and prices. Therefore, Indian export of pepper has not suffered due to domestic demand pressures. This findings led the analysis further to the examination of other factors affecting Indian export of pepper. In this context, estimation of income, price and cross elasticities of demand for Indian export of pepper showed that export demand for Indian pepper is significantly responsive to its export price and export price of its competitors. The significant positive cross elasticity of demand for Indian pepper implied that India faces competition from rest of the world. Therefore, for improving India's export trade performance in pepper requires attempts at reducing India's export price. This is possible only through increased production and through a yield break through. The price elasticity of demand for Indian pepper was found to be unitary. This unitary price elasticity of demand for Indian pepper suggests the need for launching strong non price incentive measures along with price incentive measures, if India wants to improve its export performance and to effect a net increase in foreign exchange earnings from pepper exports. Non price measures important for improving India's export trade performance in pepper are quality control, attractive packing, assured supply, wide publicity drive to develop tastes for pepper abroad etc. World income does not seem to influence Indian export of pepper. This is because pepper may be a necessary item and that it is possible to reach an upper point of saturation in the

pepper consumption. After this point, any increase in income may not lead to increase in pepper consumption.

It has been understood form the analysis of the competitive position of India in the world market for pepper that India remained a weak competitor in the world market during the period 1971-78, and 1979-82, owing to its higher price relative to its competitors. However its competitive position improved much during 1983-87 due to its lower price relative to its competitors. This advantageous position is attributed to substantial improvements in the production and productivity of Indian pepper coupled with other unfavorable factors which affected the production, productivity and cost of production in competing countries. Thus it is understood that relative price is an important determent of India's export trade performance in pepper.

With regard to the examination of direction of Indian export of pepper, it has been seen that Indian export of pepper was getting converged to few regions during 1971-1982. This was mainly because of substantial portion of Indian export of pepper was directed to East European countries where trade has carried out under bi-lateral trade agreements. After 1983, a trend towards market diversification of Indian pepper was observed.

The trends observed in the direction of Indian export of pepper is very closely associated with competitive position of India in the world market. The period 1971-1982 when Indian export of pepper was converging to few markets, its competitive

position was very weak. Aa a result it could not penetrate in to market economies, but confined to East European countries where trade was carried out under bi-lateral trade agreements. But after 1983, with improvements in India's competitive position, it has slowly penetrated into market economies, consequently, a trend towards market diversification was observed. In the context of many countries emerging as the leading producers and exporters of pepper, and therefore world supply exceeding world demand for pepper as evident from world demand projections by FAO, the survival and better export performance of pepper export industry in India depends on market diversification and product diversification.

In short it can be concluded that the major constraints in the Indian export of major items of spices especially pepper and cardamom are high prices, low production, high cost of production, marketing problems, etc. Therefore, to improve India's export performance in spices, India is to take measures to increase production, productivity and reduce export price by reducing cost of production. India should also initiate non price incentive measures and must make efforts at market diversification and product diversification.

In the fourth chapter, we have analyzed export earning instability from major items of spices. It has been found that instability in total export earnings from spices has increased from period 1 (1970/71-1979/80) to period 2 (1980/81-1989/90) by 29 percent. In the case of the individual items of spices, instability of export earnings from pepper, cardamom, ginger,

turmeric and other spices have increased across the period. The percentage increase was highest in the case of pepper by 54 percent and cardamom by 235 percent. From the analysis of the sources of earning instability for individual items for the period 1970/71 to 1989/90, it has been observed that contribution of quantity instability to earning instability was the dominant factor in the case of cardamom, ginger, chillies, turmeric and other spices, while the dominant contributor in the case of pepper was price instability. The same analysis for the individual items across the periods (1970/71-1979/80 and 1980/81-1989/90) showed that quantity variations were the dominant factor in the case of chillies, turmeric, and other spices in both periods, while price variations were the major contributor to earning instability in the case of ginger in both periods. But in the case of pepper and cardamom, there was a shift in the major factor across the periods from quantity to price in the case of pepper and from price to quantity in the case of cardamom.

Since fluctuations in prices and quantities reflects changes in demand and supply, importance of demand and supply in earning instability are analyzed. The results showed that variations in demand mainly contributed to fluctuations in export earnings from pepper and cardamom. Therefore policies to stabilize export demand for these items are to be formulated to reduce earning instability. Since supply factors are the major source of earning instability in the case of other spices, policies to stabilize supply are required to reduce earning instability. In the case of spices such as chillies, ginger, and turmeric, a combination of both demand and supply led to earning

instability. Therefore, the policy measures formulated should stabilize supply in the national level and demand in the international level.

APPENDIX 1

SPICES : DEFINITION AND END USES

India produces more than thirty five spices, of which more than twenty are exported. She produces spices like black pepper, cardamom, ginger, turmeric, chilly and a host of other spices like cumin, coriander, fennel, fenugreek, garlic, tejpet, cassia, aniseed, nutmeg, mace, and saffron. These spices are confined to different states for eg: black pepper is produced in Kerala, Karnataka and Tamil Nadu while major cardamom growing states are Kerala, Karnataka, Tamil Nadu and Sikkim. Turmeric is mostly grown in Andra Pradesh and Tamil Nadu. Like wise Andra Pradesh, Maharashtra, Orisa and Tamil Nadu are the major chilly growing states. Ginger is mainly produced in Kerala and Karnataka. These spices are contributing much to the socio economic development of the country and are earning a substantial amount of foreign exchange which is the dire need of the day.

Meaning of Spices

Spice are strongly flavored or aromatic vegetable products usually dried and used for seasoning and preserving food stuff. In general they consist of volatile and non volatile oils, protein, fibre, starch, mineral catter, tannis etc. The flavoring, preservative and antiseptic properties of certain spices are due to the presence of volatile oils. Spices play a very important part in the human dietory and although they are not classified as food because they contain little of nutritive value, they give an agreeable flavour and aroma to food and add

greatly to the pleasure of eating. Generally speaking when the aromatic or fragrant vegetable products used to flavour food or beverages is from plants of tropical origin, it is considered a spice[1].

Consumption Pattern and End Uses of Spices

The total consumption of spices in both developing and industrialized countries is influenced by the size of population, income, the state of economy and culinary and social habits[2]. On the other hand per capita consumption of all spices as a whole and for individual spices varies widely from one area to another area within individual countries.

In the developing countries, spices are consumed chiefly in the house hold sector where as in the industrialized countries, large amount of spices are absorbed by the industrial sector, mainly in food processing. However in both industrialized and developing countries particularly those of working and eating appear to be the main determinants of the over all levels of per capita consumption of spices. Among the industrialized countries, the industrial and the retail sector are the main users of spices.

Spices are used in most segments of the food processing industries of industrialized countries particularly in the processing of meat, fish, vegetable products, bakery goods and other prepared and convenience foods. In most cases the meat industry is by far the largest user of a wide range of spices.

The consumption of spices in non food industries such as the pharmccutical and perfumery sectors is not in general appreciable and is unlikely to have and significant effect on over all demand. Certain spices such as aniseed, badian and juniper are predominantly used in distilleries in the manufacture of alcoholic beverages. With these exceptions the other spices are consumed almost entirely by the food processing industries. Pepper out ranks all other spices in the house hold consumption although nutmeg cinnamon paprika and vania are also widely used. In addition to the main user sectors of industrial and house hold sectors, small quantities of spices are also absorbed by the institutional sectors eg: restaurants, canteens, hospitals and schools.

From the variety of uses of spices in various sectors of the economy of any country, it can be assumed of a perpetual demand for spices in the world.

Pepper

Though India with varied climate and soil is the natural home of spices, she is the dominant supplier of pepper known as" spice king" and" spice queen" cardamom in the international market. Therefore the present study has confined to India's export trade in pepper and cardamom.

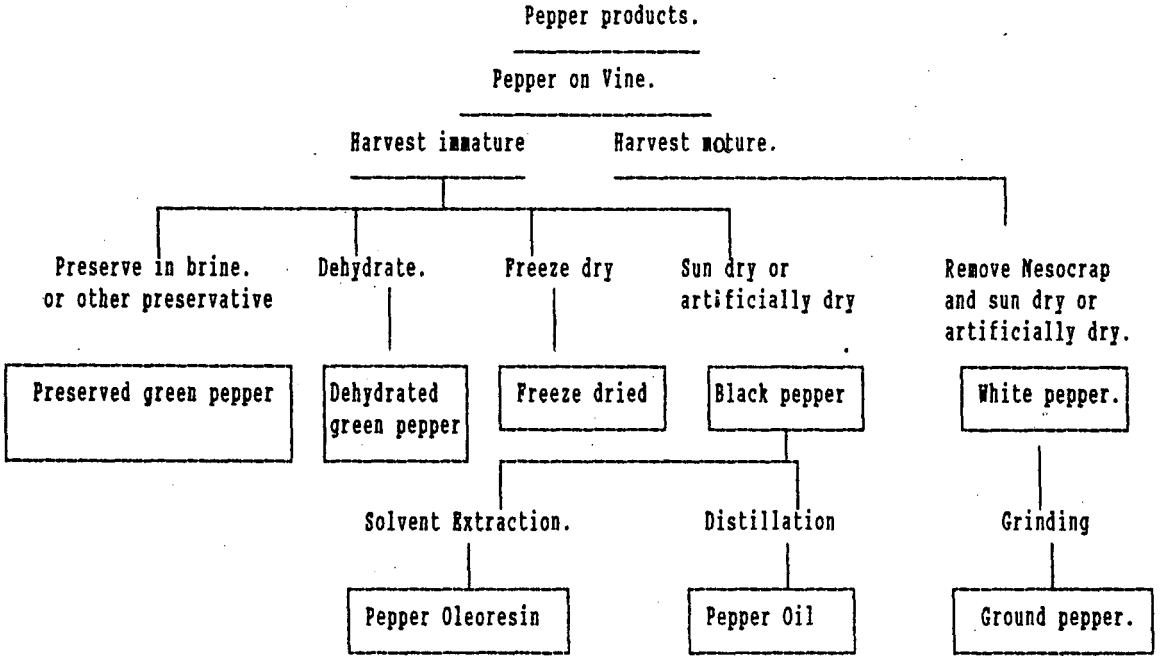
Pepper is one of the oldest and world's important spice. It is the small berry of the pepper vine" piper nigrum"

belonging to the family piperaceae which is grown in tropical countries mainly in India, Indonesia, Sarawak, Brazil, Madagascar, Ceylon which supply a lion's share of the global output of pepper. Piper nigrum is perennial glabrous woody climber to 10 m or more in hight and under best cultivation when the height is restricted the mature vine had a bushy columnar appearance and is about 4 m height and 1.5 m diameter. It requires a heavy and well distributed rain fall and high temperature. It has been cultivated successfully as far as 20 north and south of the Equator but most of the commercial crops is grown closer to the equator. A rainfall of 2500 m m or more per annum is considered desirable. In the major pepper growing areas of Kerala the annual average rainfall is over 3000 m m distributed in 8-10 months with day temperature ranging from 28-35 c.

The ideal soil for pepper is a well drained alluvial soil with a high humus content[3]. According to Waard de the degree of success of pepper cultivation depends on the following properties of the soil: good drainage adequate water holding capacity friable structure, low acidity, nutrient serves[4]. Pepper is grown in India on a variety of soils such as red loans, sandy loans, clay loans, and red lateritic soils, but the best plantations are on the humus rich virgin soil of the hillslope of the western ghats. In Kerala much of the pepper cultivation is on lateritic or sandy loans along the alluvial banks of rivers.

Products and End Uses of Pepper

The two major primary products of pipermigrum internationally traded are black pepper and white pepper. Black pepper is the dried unripe fruit of the plant, white pepper which has the flavour of black pepper but is less pungent is obtained from the ripe or unripe fruit by soaking and treating the bury before drying and thus removing the mesocrap. Green pepper comes from unripe but fully developed pepper berries. Pink pepper which has entered the market is not true pepper but is probably the dried fruit of" schinus molle" the pepper tree which is originated in latin America. The different products obtainable from the pepper berry are shown in chart 1.



The major uses of black pepper and white pepper on a world wide basis is for domestic culinary proposes while in the industrialized western countries both forms find extensive use in flavoring of process foods. Black pepper is employed in a very wide range of food stuffs particularly in meat products while white pepper is used primarily in cases where dark particles are undesirable such as in light colored sauces mayonnaise and cream soups. Some of the pepper is used whole but the greater volume of both form is comminuted before use either for domestic culinary purposes or for seasoning processed foods. Pepper oleoresin is obtained by solvent extraction of black pepper and is prepared both is certain industrialized western countries and in some of the spice producing countries. This product process the full organoleptic properties of the spice and is mainly used for the flavoring of processed foods. A very small quantity of pepper oleoresin is used in certain pharmaccutial formulations .Black pepper oil is distilled in relatively small quantities in the major spice importing countries and in some of the spice producing countries. This product posscess the aroma and flavour of the spice but lacks the pungency. It finds application in food flavoring and in perfumery.

The Major Types of Black and White Pepper Internationally Traded

The trade in black pepper is dominated by India, Indonesia, Sarawak, and Brazil. Both black and white pepper are normally marketed on a basis of geographical origin that is according to area of production or the port of shipment. The physical and chemical characteristics of both forms differ from

one producing country to another and preferences as to the origin of the spice are expressed by certain users in certain applications.

Indian Black Pepper

The spice is grown mainly in Kerala. The vernacular names used for the various types of Indian pepper entering trade were derived from the ports of shipment. Malabr, Mangalore, Tellichey, and Aleppey. Indian pepper is normally of a high grade, clean, free from dust and foreign matter. Indian pepper is noted for its excellent aroma, flavour and pungency. It is used for the domestic and industrial seasoning of food. Indian peppers are highly demanded by certain oleoresin extractors and oil distillers since they give high non volatile solvent extract and steam volatile oil yields.

Lampong Black Pepper

This pepper takes its name from the lampomg districts of South eastern Sumatra, the principal center of pepper production in indonesia. They compare well with Indian pepper in flavour but are more pungent and are highly demanded by Oleoresin extractors and oil distillers.

Sarawak Black Pepper

The Malaysian pepper crop is grown almost entirely (96%) in Sarawak. It is relatively milder in odor, flavour and

pungency than the Indian and Indonesian peppers and provides lower yields of solvent extract and steam distilled essential oil. Most of this pepper goes to British common wealth countries where it is used as a pickling spice and for the seasoning of foods.

Brazilian Black Pepper

This pepper is grown in the neighbor of Belem in the state of Para. It has relatively lower contents of volatile oil and extractive than Indian and Indonesian peppers and possess a characteristic rather than bland flavour.

Muntol White Pepper

This pepper is produced on the island of Bangka, Indonesian and is exported from the port of Muntok. It has a good appearance of characteristic aroma and as with the white pepper in general is considered to have a relatively mild flavour. The other types of white peppers are Sarawak white pepper and Brazilian white peppers.

CARDAMOM

Cardamom is the seed contained in the capsular fruit of the plant Elettaria cardamomum belonging to the ginger family Zingiberacease. The fruit is green in color and the seed is hard and black. India produces several types of small cardamom for which there are a number of grades for exports. Guatemala produces a cardamon similar to the Indian quality known as

Alleppy green. Ethiipia also produces a wild fruit similar in aroma to cardamom but it is assumed some temporary importance in markets only when world cardamom prices were very high. Large cardamom is produced in Nepal, Bhutan and Sikkim.

Cardamom are grown in the western ghats in India at altitudes between 760 m and 1400 m in areas with an annual rainifall of 10-35 c. Cardamom plantations are established on evergreen forests land which supplies the most favorable soils for crop. Such soils usually owe more to the climate and their vegetative cover than to their mineral content. Thus cardamom can be cultivated on chocolate colored forest loan extending to a considerable depth below the humus layer, to white quartz gravel with only a shallow zone of humus accumulation. Cardamom require good drainage and can not tolerate water logging. The crop thrives best under moderate natural shade.

Products and End Uses of Cardamom

True cardamom is used directly as flavoring material in three forms: whole, decorticated seeds, and ground. The spice is also processed on an industrial scale to prepare the distilled essential oil and the solvent extracted oleoresin. The major use of true cardamoms on a world wide basis is for domestic culinary purposes in the whole or ground form. International trade in the true cardamom is dependent on the demand created by specialized applications which have evolved in two distinct markets namely the Arab countries of the middle east and in Scandinavia. In the middle east countries cardamom has been traditionally used for

flavoring of coffee called" gahawa coffee" in Saudi Arabia, Kuwait and other gulf countries. Drinking cardamom coffee is social custom in these countries and form part of the Arab tradition of hospitality. In the middle east, cardamom is used in sweets and confectionery. In Scandinavia, It is used for flavoring a range of baked goods, including cakes, buns, pastries and bread. In European countries and in North America, the spice is used mainly in the ground form by the food industries as an ingredient in curry powder, sausage products, soups, canned fish and to a small extent in the flavoring tobacco. The cardamom oil finds its main application in the flavoring of processed foods, but it is used also in certain liquid products such as cordials, bitters and liquors and occasionally in perfumery.

Main Types of Cardamom Internationally Traded

The four forms in which the spice is supplied to the market and in the usual order of decreasing value are whole green cardamom, whole bleached cardamoms, whole straw colored cardamoms and decorticated seeds.

Indian Cardamoms

Indian exports are mainly comprised of mysore type green cardamoms with a smaller proportion of bleached cardamoms and relatively little decorticated seed. Indian green and bleached cardamoms and decorticated seeds are graded in to a number of catagories.

Guatemalan Cardamoms

These consist of green cardamoms and decorticated seed. Guatemalan green cardamom have achieved a good reputation for quality which is considered comparable to that of Indian products.

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4. Ibid, P.29.

APPENDIX 2 INDIA'S EXPORT OF SPICES 1949-51 to 1969-70

Quantity tonnes
Value in lakhs Rupees

	Pepper		Cardamom		Chillies		Others		Total	
Year	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1949-51 (Avg)	2700	1253	800	115	5500	228	19000	700	33900	2186
1952-54 (Avg)	20300	1738	900	156	10800	230	7800	837	39800	2961
1955-57 (Avg)	14100	503	1000	203	4800	93	15000	249	34900	1048
1958-60 (avg)	15400	450	1600	321	3300	60	15400	185	35700	1016
1960-61	17200	850	2000	367	8400	176	19600	268	47200	1661
1961-62	21600	807	2300	356	11500	219	28800	369	64200	1751
1962-63	20700	653	2300	272	4900	95	22600	358	50500	1378
1963-64	18500	575	2200	319	12000	281	20900	427	53600	1602
1964-65	17300	675	1900	284	11700	251	22400	436	53300	1673
1965-66	26300	1110	1400	439	1000	249	33400	511	62100	2309
1966-67	21800	1266	1600	830	6100	280	22700	538	52200	2914
1967-68	25100	1310	1500	712	7200	210	17800	492	51600	2714
1968-69	19000	974	1400	687	9200	227	19700	626	49300	2514
1969-70	22300	1619	1200	902	2000	91	16100	837	41600	3449

Source: Marketing Research Corporation of India, New Delhi:Survey of India's Export Potential of Spices 1968, Vol.1, Statistical Appendix.

APPEXDIX 3

EXPORT OF SPICES FROM INDIA:1970-71 TO 1989-1990
(Quantity in M.T.,Value in Rs./lakhs)

Year	Pepper		Cardamom small		Cardamom Big		Chllies		Ginger		Turmeric		Coriander seed		Cumin seed		Celery seed	
(1)	(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)	
	Quantit	Value	Quantity	Value	Quantity	Value	Quantity	value	Quantity	Value	Quantity	Value	Quantity	value	Quantity	Value	Quantity	Value
1970/71	17696.70	1524.84	1705.00	1121.60	59.60	11.90	2073.20	108.66	3156.20	260.94	11109.30	383.47	392.50	9.74	2362.70	82.62	3137.90	202.02
1971/72	19247.50	1482.49	2146.60	803.07	79.10	16.66	4509.90	192.22	6746.00	273.31	14172.60	290.42	680.30	15.51	7702.80	235.91	2911.90	124.40
1972/73	19958.20	1430.99	1384.40	684.65	67.60	10.18	785.70	35.31	6050.50	209.94	6731.30	182.06	930.10	20.40	2179.40	91.98	1830.10	75.80
1973/74	31648.10	2953.08	1183.40	1155.28	94.80	13.91	617.10	61.02	5083.30	255.93	7921.40	365.08	896.70	30.23	3366.30	245.68	2914.10	135.55
1974/75	26341.40	3447.62	1626.40	1332.32	70.30	9.49	499.10	31.62	4681.30	351.27	9227.20	414.41	669.40	27.95	1404.40	120.53	1921.90	118.55
1975/76	24226.00	3388.36	1940.60	1938.37	91.70	12.26	3532.04	318.06	4785.70	410.49	11754.90	421.19	755.30	34.59	2492.80	201.54	2243.40	114.72
1976/77	20527.00	3823.54	2892.90	1403.14	105.60	14.21	3128.90	272.23	4460.90	584.32	11796.00	443.79	2903.80	206.79	1334.98	137.25	2735.30	154.57
1977/78	24677.50	4950.80	2762.50	4843.63	217.90	42.69	5627.10	511.49	9761.80	1368.99	11253.00	829.94	9561.00	653.72	887.90	131.20	2738.40	218.66
1978/79	15719.40	2911.72	2875.60	5835.36	391.70	63.94	24630.40	1954.59	14514.60	1431.72	11977.50	1241.24	10840.10	448.89	2113.40	317.59	3283.10	203.65
1979/80	20898.50	3352.25	2636.10	4855.81	366.60	82.42	10262.80	773.02	11486.00	726.96	26609.80	1980.61	4325.10	166.98	17730.50	2120.69	3153.50	192.65
1980/81	26363.70	3794.87	2344.70	3475.39	225.20	53.13	7681.60	555.59	6810.90	367.97	14517.20	788.24	2161.20	125.56	8778.00	974.26	3197.90	156.35
1981/82	20607.90	2798.37	2325.90	3019.69	152.80	36.90	4659.20	420.60	4717.80	395.23	11985.90	517.41	1729.20	123.33	6405.40	685.31	1668.10	111.70
1982/83	22591.80	2938.70	1032.10	1636.90	160.40	37.46	12888.40	1235.44	3954.70	588.49	7594.80	423.54	7378.50	445.94	1731.00	311.00	2029.50	140.70
1983/84	25787.30	4134.70	258.10	544.23	237.40	62.36	10610.50	878.27	4629.00	1190.16	10891.90	1105.50	11045.40	595.00	3992.90	696.86	2389.70	237.11
1984/85	25420.10	6054.37	2383.30	6480.53	265.00	116.53	8226.90	966.54	7328.90	1872.75	12801.60	1715.70	6930.40	398.57	3869.00	537.76	1911.90	324.43
1985/86	37620.00	17248.47	3272.00	5345.99	383.00	181.05	1241.00	202.03	6816.00	1039.35	8562.00	1209.44						
1986/87	37083.00	20033.01	1447.00	1849.53	195.00	96.69	4327.00	495.80	4843.00	571.16	19529.00	1918.31						
1987/88	41011.00	24057.78	270.00	340.03	155.00	70.22	6122.00	833.45	2628.00	488.99	8747.00	922.72						
1988/89	38020.00	16420.24	760.00	988.00	570.00	219.46	7926.00	1872.28	6228.00	953.15	18996.00	1937.57						
1989/90	36601.00	15987.74	171.00	319.41	598.00	255.62	10713.00	2098.76	7315.00	1271.53	16468.00	1572.42						

Source: 1 Cocoa,Arecanut,and Spices Statistics.1970-83,1983-86,
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Ministry of Agriculture and Rural Development, Govt.of India,
2 Cardamom Statistics 1984-85, Cardamom Board, Cochin.
3 1985/86 to 1989/90, From Spices Board, Cochin

APPENDIX 3 CONTINUED

Year	Fennel seed		Fenugreek seed		Garlic		Nutmeg		Aniseed		Cassia		Mace		Tejpet	
	(11)		(12)		(13)		(14)		(15)		(16)		(17)		(18)	
	Quantity	Value	Quantity	value	Quantity	value	Quantity	value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1970/71	794.60	27.26	1041.90	14.58	1633.70	27.82			2.90	0.08	649.20	24.78			31.90	0.46
1971/72	1590.50	34.46	1893.00	27.14	1978.00	23.69			26.40	0.64	638.20	23.48	5.10	0.24	70.40	1.78
1972/73	724.40	25.45	1203.10	20.92	1229.10	8.25			23.40	0.73	652.40	33.03			23.00	0.20
1973/74	1821.70	93.61	1112.40	37.64	408.70	18.12			63.90	2.39	1146.70	69.97	1.40	0.07	538.50	3.57
1974/75	553.50	39.58	1101.40	35.79	79.20	7.00			41.40	2.09	1335.00	80.39			611.80	3.23
1975/76	615.00	55.71	1540.90	39.82	930.50	25.49			27.60	1.18	457.30	23.93			1142.50	7.43
1976/77	1288.80	81.38	1873.00	44.24	2911.50	58.33	1.20	0.07	23.10	0.90	1079.90	53.11			1333.20	9.58
1977/78	982.10	65.56	3727.70	125.86	2529.70	96.84	6.30	0.25	78.70	438.30	505.70	22.91			1040.00	7.70
1978/79	1188.10	86.98	5255.90	188.86	5188.40	308.80			103.60	7.32	361.20	19.53	0.50	0.05	2212.60	15.02
1979/80	1911.60	124.88	4798.30	156.62	3380.10	153.99	1.40	0.17	172.30	13.29	957.20	48.73	10.60	0.13	1269.10	12.84
1980/81	1416.10	107.24	4461.50	173.44	7397.90	228.24	3.70	0.30	30.40	1.90	576.90	53.09	2.00	0.30	2044.90	17.23
1981/82	1033.40	88.74	3241.50	113.92	6106.70	265.06	0.30	0.10	1.00	0.08	567.60	72.90			87.70	2.59
1982/83	505.60	71.18	3966.80	168.36	5795.40	292.90	5.00	0.27			731.50	105.23	3.50	1.03	104.50	2.87
1983/84	1551.60	218.85	3739.50	219.56	5090.20	300.15	2.10	0.33			378.70	40.31	1.00	0.33	114.90	3.08
1984/85	3711.30	322.43	5544.60	274.32	5264.40	274.80	0.10	0.02	21.00	3.61	347.60	50.66			108.60	3.19
1985/86																
1986/87																
1987/88																
1988/89																
1989/90																

APPENDIX 3 CONTINUED

Year	Misc.spices		Seed and other Spices		Curry Powder		Oils of spices and Oleoresins.		Total	
	(19)		(20)		(21)		(22)			
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1970/71			10047.30	389.36	1785.20	81.21			47632.50	3881.98
1971/72	1874.00	41.45	19370.60	528.70	1590.70	70.17	3.30	1.39	67866.30	3658.43
1972/73	6310.90	119.20	15105.90	395.96	1526.50	75.52	51.90	31.40	51662.00	3056.01
1973/74	1974.20	45.56	14244.60	682.39	1344.90	73.92	25.50	19.92	62163.10	5560.53
1974/75	1767.80	82.42	9485.80	517.53	1332.60	107.33	41.70	47.66	53305.80	6259.25
1975/76	4045.00	113.32	14250.30	617.73	1324.70	112.11	45.60	53.92	61951.54	7272.49
1976/77	2933.40	133.71	18418.18	879.93	1552.20	134.28	124.10	155.15	63005.78	7710.59
1977/78	2828.40	185.50	24885.90	1946.50	1929.90	195.25	139.10	226.67	81254.70	14915.96
1978/79	1776.00	234.49	32322.90	1831.18	2288.40	241.80	140.30	272.53	104860.80	15784.08
1979/80	2042.60	232.85	39752.30	3223.82	2644.30	255.63	201.30	326.84	114857.70	15577.36
1980/81	1775.00	195.83	31845.50	2033.74	2550.30	241.58	161.80	265.85	92500.90	11576.36
1981/82	1097.00	66.06	21937.90	1529.79	1805.00	200.18	183.70	312.83	68376.10	9231.00
1982/83	1588.90	108.47	23840.20	1647.95	2815.90	336.08	238.50	440.85	75116.80	9285.41
1983/84	2003.90	138.00	30309.90	2449.58	2891.80	317.24	218.80	484.16	85834.70	11166.20
1984/85	1580.20	145.90	29289.10	2335.69	3109.50	389.67	331.00	970.43	89155.40	20902.21
1985/86			13678.00	1122.33	2527.00	366.36	402.00	1487.04	74501.00	28202.06
1986/87			12248.00	1337.87	2712.00	414.01	443.00	1483.05	82827.00	28199.43
1987/88			8359.00	1159.97	2559.00	438.10	428.00	1496.77	70279.00	29808.03
1988/89			23746.00	2602.54	3093.00	541.64	487.00	1829.74	99826.00	27364.62
1989/90			24312.00	3074.36	3107.00	602.47	601.00	2253.77	99886.00	27436.08

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