EXPORT TRADE PATTERN OF INDIAN SILK GOODS

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Affectionately Dedicated to

My Beloved Parents

Smt. Nagarathna

and

Sri T. Jayarama Bhat

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C E R T I F I C A T E

This is to certify that the thesis entitled **"EXPORT TRADE PATTERN OF INDIAN SILK GOODS"** submitted by Mr. LAXMINARAYANA, T.J. for the degree of **MASTER OF SCIENCE** in **AGRICULTURAL ECONOMICS** of the University of Agricultural Sciences, Bangalore, is a record of research work done by him during the period of his study in this University under my guidance and supervision and the thesis has not previously formed the basis for the award of any degree, diploma, associateship, fellowship or other similar titles

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INTRODUCTION

CHAPTER I

INTRODUCTION

Exports have to be regarded as an integrated part of economic system and an engine of economic growth and technological change. Trade in agricultural goods can play a significant role in promoting economic development especially in less developed countries (LDC). The export of agricultural goods can pay for import of capital goods, technology, manufactured products and other essential commodities for a sustained growth of developing countries. Many LDC's have a comparative advantage in the production of agricultural goods and the export of these goods are the main source of exchange earnings. In an export led growth model of trade it would be to the advantage of LDC's to specialise in the production of those goods where they have comparative advantage and to export the surplus production to earn valuable foreign exchange for their industrialization and economic growth. Such a policy will lead to the use of trade as an engine of growth as well as ensuring rational allocation of resources. India, which is dominantly an agrarian economy is no exception in this regard.

The growing trade deficit of India is a matter of concern for policy makers. The balance of payments situation had deteriorated to a very low level. Despite

sizable borrowings from IMF, the level of foreign exchange reserves of the Reserve Bank of India, at one time, in July 12, 1991 had dipped to as low as US $ 975 million (Rs. 2493 crores). Both orthodox and unorthodox measures had to be resorted in order to overcome the possibility of default payment. The bold decisions by the government in recent economic reforms and trade liberalization have shown some signs of recovery to an otherwise grim situation. The year 1992-93 seemed to be most optimistic as the country witnessed an impressive export growth recording trade surplus for three successive months, February to April. However, the overall outlook for balance of payments, in the medium term still continues to remain grim. Despite several measures taken by the government, exports have failed to pick up in real terms. Trade deficit both in dollar terms and rupee terms has continued to widen. The situation warrants concern in view of the fact that during 1992-93, our outgo in the form of debt service has exceeded the total aid disbursed, thus resulting in net outflow and further widening the current account deficit. Even the high power committee on Balance of Payments under the chairmanship of Dr. C. Rangarajan, recently highlighted that the country would require exceptional financing arrangements of $ 3 billion per year in the medium term. Thus the Indian economy is passing through a difficult phase due to continued pressure on balance of payments. The balance of

trade would continue to be the most important determinant of the capacity of the economy to manage the problem both in the short-term and in the medium term. It is imperative that a strong emphasis is placed on a rapid and sustained growth in the value of exports. The policies necessary to assume such a performance, therefore, must command highest priority. Hitherto, the major growth in India's foreign trade had to come from the manufacturing and service sector. But, the foreign exchange gap could not be met by this sector unless substantial contributions are made by the agricultural sector. Thus, the pressure on the agricultural sector is increasingly felt consequent to the failure of the industrial sector to reduce the external debt burden. Agricultural trade, therefore, can be an influential factor in shaping the pattern and extent of economic growth and development.

The new agricultural policy, therefore, emphasises diversification of agriculture for promotion of farm exports and income and employment generation in rural areas. In this context the export potential of sericulture, especially, silk goods need not be over emphasized. Labour abundant developing country like India can rapidly develop comparative advantage in many agricultural exports, especially in silk goods. Sericulture is primarily an agro-based industry and in developing country like India, high priority is being accorded to it because of its employment

potential, particularly in the rural and semi-urban parts. It is reported that sericulture is practiced in about 59,000 Indian villages, providing employment to more than 50 lakh persons in rural areas, majority of whom belonging to the weaker sections of the society (silk man's companion, 1992). The most important feature of sericulture is that it has very high degree of backward and forward linkages as it encompasses both agriculture and industry. In its production process, sericulture involves a long chain of interdependent, specialised operations like silk worm seed producer, farmer-cum-reeler, twister, weaver, handspinner of silk-waste, trader and exporter. Further, silk as a commodity has an appreciable impact on the economic profile of certain states like Karnataka, which currently accounts for over 60 per cent of the national raw silk output. Tamil Nadu, Andhra Pradesh, Bihar, West Bengal, Assam, Madhya Pradesh and Orissa are the other important silk producing states in India. The current production of mulberry raw silk in India is estimated around 11,487 tonnes and a substantial portion of it (16 per cent) is exported in the form of manufactured silk goods (Jaikumar, 1990).

International trade in silk is conducted in a number of forms including cocoons, reeled raw silk, silk yarn, fabrics, made-up-goods, waste silk etc. Silk exports from India are in the form of either fabric or made-up-goods as exports of raw silk and spun silk are not allowed. Silk

waste is also exported depending on the domestic availability relative to requirements, largely as a means of preventing an excessive build up of stocks when the domestic spun silk industry is unable to process it.

Indian exports both in terms of quantity and value have grown rapidly in the recent years. Indian exports have touched 337.52 lakh square meters in 1989-90 and export earnings from this sector has crossed Rs. 375 crores (Central Sericultural Board, 1990). The contribution of silk exports to the overall foreign exchange has also grown favourably from just 0.5 per cent in 1976-77 to 1.44 per cent in 1989-90, expanding the surplus contribution of silk to the trade balance and enabling increased imports of capital goods for other sectors of the country.

In the global context, China, Romania, India and Japan are the leading producers of silk fabrics accounting for over 90 per cent of the world production during 1982-86 (Table 1). It is significant to note that China alone accounts for nearly half of the world's production of silk fabrics. Japan, another major producer, has however, progressively reduced its output over the years because of labour cost consideration. It is also reported that China would also be curtailing its silk output in future in order to divert scarce land to food production to cater its population. On the other hand, Indian production of silk fabrics has witnessed a gradual escalation over the years

Table 1 : Global production of silk fabrics

(Million Sq. mtrs)

Region/Country	1982	1983	1984	1985	1986
Africa	24.4	27.2	22.1	22.1	27.1
N.America	17.3	16.5	17.0	28.3	38.3
S.America	7.2	8.1	9.0	9.8	10.7
Asia	12,530.0	1,512.9	1,749.6	1,750.9	1,863.7
of which					
China	1,091.8	1,368.8	1,613.9	1,615.6	1,615.6
Hong Kong	2.2	1.6	1.2	1.1	0.9
Japan	136.4	121.8	115.1	114.5	108.2
S.Korea	21.4	19.6	18.4	18.6	22.4
India	85.8	95.0	113.8	117.2	117.2
Europe					
France	5.5	5.5	5.6	5.5	4.5
Switzerland	17.9	22.3	23.8	24.4	26.4
Romania	136.0	129.0	128.0	135.0	138.0
USSR	54.2	56.6	57.2	57.3	62.4
Total	1,519.2	1,782.2	2,016.6	2,037.5	2,175.6

Source : 1. United Nations, Industrial statistics Year book, 1986, Vol II

2. Central Silk Board, Statistical Biennial (for India's figure)

producing 1723 lakh square meters of mulberry silk fabrics in 1992. In the international markets, China, Italy, Republic of Korea and Hongkong are the major suppliers of silk more or less in that order (Table 2). India's major competitors in respect of silk goods in the international markets are China, Japan and South Korea. With the decrease in silk production both in Japan and Korea, the opportunities are clearly favourable for a major export thrust in this sector. As Indian silk goods occupy the lowest price ranges in the international markets, competition with sophisticated manufacturers in Western Europe (particularly Italy), Japan and Korea is extremely limited. However, it is expected that improving the quality and increasing supply of Indian silk with better quality cocoons and improved reeling technologies might bring India into direct competition with China. Therefore, the development of sericulture in India shall not only aim at increasing production and quality but should also consider means of improving its export opportunities. In this context, the Central Silk Board has launched an ambitious National Sericulture Project (NSP) which aims at a quantum jump in silk production, exports and employment generation in the current Plan period. The project will be implemented in the five major sericulture states namely, Karnataka, Andhra Pradesh, Tamil Nadu, West Bengal and Jammu and Kashmir, as well as promoting pilot developments in 12 other

Table 2 : Global Export of Silk Fabrics

(US $ million)

Region/Country	1982	1983	1984	1985	1986
World export	637.05	709.47	616.00	682.99	835.60
Major exporters :					
Italy	177.89	185.34	199.35	215.63	275 47
Korea Rep	117.99	99.57	103.59	104.85	129.97
Hong Kong	43.09	57.77	62.83	82.30	107.75
Japan	60.36	56.80	63.21	69.11	69.60
France	49.31	46.14	49.71	50.80	62.60
India	36.68	41.20	45.98	51.81	57.11
Switzerland	23.12	25.37	27.47	33.86	41.75
F.R. Germany	19.05	20.53	22.02	27.08	34.65

Source : U.N., International trade statistics year book

states. The investment of Rs. 550 crores will be financed through world Bank loan of Rs. 285 crores ($177 million), a grant of Rs. 40 crores from the Swiss government and Rs. 225 crores from the Central and State government development funds. With the implementation of this project, the mulberry silk production is expected to increase by 60 per cent over the present level and exports in silk goods are likely to reach a level of Rs. 850 crores by 1994-95. As regards to the international scenario, increased competition needs to be combated by the silk export council by devising long term action plan for the promotion of silk exports. However, international marketing opportunities are not constant. They keep changing mainly because of various technological and industrial developments in the target markets and the changes in the marketing capabilities of the competing sources of supplies in the third countries. Therefore, the first step in effective export marketing operation involves the assessment of foreign market situation and to evolve a package of an appropriate marketing strategies and policies on a long term basis. This requires the complete understanding of the export market structure and export demand for silk goods. Eventhough, in recent years, the policy makers, analysts and development specialists have shown interest in finding out the potential contribution of sericultural industry to agricultural development, employment expansion and its foreign exchange contributions, still very little research

has been done in the area of export trade in silk products in India. The present study seeks to contribute towards this knowledge, understanding of the export trade pattern of Indian silk goods. The results of the study would be of value to silk export council as well as the government in formulating export policy decisions. Keeping these points in view, the present study was designed specifically to :

1. estimate the growth in trade of Indian silk goods,
2. study the extent of instability and sources of instability in Indian silk goods exports,
3. study the direction of trade of Indian silk goods,
4. analyse the market share and market concentration in export trade for silk goods ; and
5. examine the export demand for Indian silk goods.

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

A brief review of the earlier research work relevant to the present study is provided in this chapter. The literature reviewed are classified and presented under the following headings.

2.1 Growth rates

2.2 Instability in export and related studies

2.3 Direction of trade

2.4 Market share and concentration

2.5 Export demand

2.1 Growth rates

Growth rates are the measures of past performance of economic variables. They are commonly used as summaries of trends in time series data. They are not developed to predict; but to describe the trends in a variable over time. Productivity indices, price indices and output series are usually discussed in terms of the changing growth rates over a period of time. Policy decisions are often based on such growth rates which depend on the nature and structure of the data.

Prahladachar (1976) estimated the growth rates of area under crops in Karnataka from the comparable series of

official index numbers. Accordingly, the area under crops registered a positive compound growth rate of 0.81 per cent during 1952-53 to 1964-65. The growth rate of the area under different crops in the state for the period 1952-53 to 1962-63 was estimated at 1.4 per cent per annum.

Shah (1976) studied growth and inequality in Indian agriculture for the period 1951-1971. It was observed that crop production during this period has increased at an average rate of 2.7 per cent per annum.

Narain (1977) analysed the growth performance of Indian agriculture since independence. He pointed out that eventhough the source of growth had changed overtime, the overall growth rate of agricultural production had failed to get accelerated. Despite technological changes, the growth rate in the 1960's decelerated from the level attained in the 1950's. The principal factor for pulling down the growth rate of agricultural output was the decline in the rate of expansion of cropped area.

Sagar (1977) analysed the growth of agricultural production in Rajasthan in terms of physical components. The factors considered in the analysis were area, level of productivity and prices. For the analysis of the growth of the aggregate farm output, a general model was developed in which besides the 'internal' adjustment in these factors, 'external' movements, viz., changes in the gross cropped

area, changes in the level of productivity and changes in the general level of prices were included. The major focus was on the growth of productivity, which was analysed in terms of internal adjustments, viz., cropping pattern, yield rates and price structure. With the help of these models he attempted to decompose aggregate production as well as productivity in terms of the identified components and their interactions.

Alagh and Sharma (1980) studied the growth of agricultural production from 1960-61 to 1969-70 (period - I) and from 1969-70 to 1978-79 (period - II). The growth for the entire period 1960-79 was also studied. They found that the green revolution had an appreciable effect on the Indian economy only since 1969-70. The estimated growth rates in period - II were generally higher than those for period - I. The growth was more evenly spread in period - II as compared to period - I. The variation around the growth trend was rather high. It was noted that most of the growth rates estimated for the period - II were lower than those which were required for the medium term and the perspective periods to achieve its desired objectives.

Rath (1980) examined the growth rates of agricultural production in India for the period 1955-1978. He observed that the total agricultural production grew at an average rate of 2.48 per cent per year during this period. Growth rate for cereal production was 3.22 per cent

and that for non-food grains 2.70 per cent per annum.

Venkataramanam and Prahladachari (1980) studied the growth rates and cropping pattern changes in agriculture in six states, viz., Punjab, Rajasthan, Uttar Pradesh, Bihar, Maharashtra and Andhra Pradesh during the period 1950-51 to 1974-75. They analysed the growth rates in area, yield and output of major crops and the impact of growth rates of crops on the cropping pattern in these states. They concluded that the favourable factors for growth of some of the food grains production were the use of high yielding varieties (HYV), fertilizers and irrigation.

Chengappa (1981) made a study on growth rates of area, production and productivity of coffee in India. Linear model of the type Yt = a + bt and exponential model of the type $Y_t = ab^t$ were used and the corresponding growth rates were worked out. The exponential function provided a good fit which indicated an annual compound growth rate of 5.68 per cent for Arabica and 7.4 per cent for robusta coffee production and their combined growth rate being 6.1 per cent.

Bandopadyaya (1982) analysed the growth rate of India's share in world tea exports, using the simple linear trend equation. The results revealed that India's share in total world export of tea consistently declined during the period 1964 to 1978. One of the causes contributed for the

shrink in exports was the spurt in demand for tea in the domestic market due to population boom. Other associated attributes were low productivity, high cost of production and scarcity of suitable land and capital.

Dass et al. (1985) studied the trends in the unit values, quantum and export values of coffee exports from India. The analysis was done for two periods ; one pertaining to the period 1956-57 to 1972-73 and the other to 1973-74 to 1982-83. The results showed that the annual compound growth rate of unit value of coffee at 11.33 per cent during the second period was much higher than that of the first period (1.9 per cent). However, the annual compound growth rate for quantum of exports at 9.5 per cent during the first period was much higher when compared to the second period at 5.8 per cent. The annual compound growth rate in the value of coffee exports at 11.4 per cent during the first period was due to increase in the quantum of exports but during the second period the growth rate of 17.2 per cent was mainly due to the increase in unit values.

Fialor (1985) analysed the production pattern and marketing of cocoa in Ghana using the exponential model of the form $Y = ab^{t}E_{t}$ for computing the growth rates of area, production, yield and exports of world cocoa. He pointed out that the rate of growth in acreage under cocoa for the world as a whole had decreased. However, the total

production had increased at 1.4 per cent per annum mainly because of a positive growth rate in productivity at 2.30 per cent per annum. The low growth rate of exports for the world as a whole (-2.30 per cent per annum) reflected that the international trade in cocoa was on the decline.

Prakash (1986) analysed the growth rates of production, consumption, export, world production and imports of Indian coffee. He used a modified exponential growth function of the form $\log Y_t = a + bt + ct^2$, where growth = $b + 2ct$. He indicated that the growth rate in production of Indian coffee increased every year and yielded a compound growth rate of 4.51 per cent per annum during 1962-63 to 1981-82. The consumption growth rate for the period worked out to a paltry 1.69 per cent per annum. Exports, however, had registered a significant increase during the study period which amounted to a compound growth rate of 6.94 per cent per annum.

Indira (1988) studied the rate of growth in internal releases of Indian coffee in comparison to the growth rate in production and exports. The compound growth rates were calculated for two time periods ; period-I ranged from 1953-69 and period-II for 1969-81. Between 1953-69, when production increased at an annual rate of 6.16 per cent, consumption increased at 3.13 per cent per annum, while exports increased at the rate of 9.8 per cent. The annual rate of increase in production, internal releases and

exports for the second period was much smaller relative to the first period. Production increased at an annual rate of 4.32 per cent while internal releases and exports recorded a growth rate of 2.44 per cent and 5.79 per cent respectively. For the entire period, these rates were 4.38 per cent, 2.34 per cent and 7.3 per cent in that order.

Sihna (1990) identified some of the parameters relating to growth of Indian silk industry. He concluded that over a 37 year period from 1951-52, silk production in India registered a compound growth rate of 6.6 per cent. In recent years, under the influence of an intensive promotional effort, silk production has grown at over 10 per cent per annum. He also reported that exports have also grown rapidly in recent years, at a growth rate of 12.7 per cent per annum over a 16 year period. While giving the variety wise export performance, he reported that there has been extraordinary growth in the value of readymade-garments exported over the past five years and the value of dress materials has grown with the overall trend. Sarees, by contrast, are contributing a smaller proportion to the overall volume of exports benefitting in the long run as only a very small proportion of the world market is for sarees.

Gemtessa (1991) evaluated the performance of Ehiopian coffee exports during the pre-revolution and post-

revolution periods. The exponential growth model of the form $Y_t = ab^t e^u$ was employed. The results showed that export growth in the pre-revolution period was lower (1.51 per cent) than that in the post-revolution period (1.77 per cent).

2.2 Instability in export and related studies

Harmann (1984) studied the export price instability and producer price instability for the main coffee exporting countries. The method of disaggregating instability based on the variance of the logarithms of income terms of trade data was used. A clearly lower instability of producers prices than of export prices became obvious, especially for African countries. The export price instability for coffee in the Ivory Coast was 12.4 per cent. The export price instability and the producer price instability, for Brazil was 29.5 per cent and 24.1 per cent respectively. Columbia recorded 29.4 per cent for export price earnings and 19.6 per cent for producer prices respectively.

Hazell (1984) analysed the sources of increased instability in cereal production both for India and USA. The results indicated that recent growth in Indian and U.S. cereal production was accompanied by a more than proportionate increase in the standard deviation of production. This study applied variance decomposition

procedures using statewise data on crop production to analyse the sources of increased instability. It was found that the covariance in production between states and crops was high largely because of increased yield variability and a loss in offsetting patterns of variation between crop yields in different states. These changes were associated with variable prices, high yielding technologies and a narrowing genetic base.

Adolf and Manfred (1985) tried to provide factual knowledge about market differences of wheat production instability during the period 1956-81. They found that throughout the world, the agro climate was the main source of wheat production instability. Within a given agro-climatic zone, the larger country showed a tendency to have lower instability. Further, it also suggested that with increased yield level, the grain production had increased in absolute terms and decreased in relative terms.

Achoth et al. (1988) analysed the available data to document the changes that had occurred in pulse production in Karnataka and also to identify the important components of variability during and after the green revolution. The study revealed that production of pulses in Karnataka had registered a significant increase during the decades followed by the green revolution. This increase was explained by the increase in production in Gulbarga district. The instability for the state as a whole has

increased in the decades following the green revolution. Most of this instability was contributed by minor pulse growing districts. The instability induced by the change in the area variances was the single largest component which explained the instability of pulse production in the state.

Pal and Sirohi (1988) examined the growth and instability in the production of five commercial crops viz., sugarcane, groundnut, cotton, jute and potato using Hazell's instability model. The findings showed that the intensity of short fall in yield had increased over time. Groundnut was the worst affected crop. Instability was more prominent in disaggregated production at the state level and even much higher at the farm level. They suggested that concerted efforts should be made to safeguard the farmers from the risk of instability. Yield stabilising policies in groundnut, cotton and potato would bring about greater impact on production stability.

Webster and Williams (1988) analysed the data from 16 wheat growers and 18 Barley growers in South-East England for changes in variability of production and yield between the periods 1964-74 and 1975-84. It was indicated that 16 per cent of the increase in variability of wheat production was due to changes in yield variances and covariances. The increase in variability of barley production was not statistically significant.

Pal and Sirohi (1989) analysed the sources of instability in crop production and yield in different states in India between two periods 1950-1965 and 1966-1984. The empirical findings of this study showed that yield variance contributed largely to variance of production in pulses and oil seeds and the same had increased overtime. After adoption of HYV's, the absolute variance increased on account of increased sensitivity of HYV's to inputs and weather, especially rainfall. The intensive use of irrigation lead to comparatively stable production of food grains.

Singh and Byerlee (1990) analysed the wheat yield variability. The coefficient of variation of wheat yields was estimated for 57 countries from detrended data for two periods between 1951 to 1986. Analysis of variability in wheat yields in India before and after green revolution showed that variability had declined sharply in the decade 1976-86 compared to the earlier period 1966-75. This was reflected by the substantial increase in irrigated area over the past three decades.

Gemtessa (1991) studied the variability in export earnings from Ethiopian coffee over two periods. The first period covered 13 years (1961-74) preceding the revolution and the second period 13 years (1975-88) after the revolution. The change in price variance contributed for

larger share of variance of export earnings. This accounted for 137.97 per cent of the increase in the variance of total export earnings from coffee.

2.3 Direction of Trade

MARKOVIAN analysis can be employed to analyse the structural changes in any system whose progress through time can be measured in terms of single outcome variable. By using transitional probability matrix, we can predict the demand for future years also.

Konandreal and Hurtado (1978) analysed the trade flows in the international wheat market for the period from 1951-56 to 1969-74. They attempted to explain the export performance of major wheat exports and analysed the evolution of trade patterns over time. They concluded that exporters who failed to concentrate their marketing efforts in fast-growing markets performed poorly, whereas others that enjoyed a preferential treatments on major markets and/or managed to overcome trade barriers in fast-growing markets performed quite well.

Atkin and Blandford (1982) studied structural changes in import market-shares for apples in United Kingdom. The changes in composition of United Kingdom apple imports during the period 1963-79 were analysed using a first order markov model. The study indicated that changes in market share had been systematic, stable and of

long duration. The estimated transitional probability matrix could explain the nature of change by indicating the relative competitive strength of different exporters. The large increase in France's market-share was examined and an estimate derived on the effect of U.K. membership of the E.C. for the year 1978-79. The results showed that E.C. membership increased French market-share in the U.K. market by more than 26 percent points and decreased the share of Australia and South Africa by 18 and 10 percentage point respectively.

Libbin (1982) conducted a study to predict farm numbers in USA by size class. Values of size class were chosen to represent size class of farms, ranches and non-land based farming operations. A series of USDA indices were chosen for explanatory variables in the markov problem. Approximately 30 combinations of nine different indices were applied to the Markov model. Model results indicated that the historical decline on farm numbers would continue to a level of about two million farm by 1990. The farm number projections were closely tied to growth of remaining farms. The primary factors causing or allowing firms to grow in size included increased prices for inputs and increased productivity of own labour. The result indicated a continuing trend towards fewer larger firms.

Buckwell et al. (1983) analysed the changes in

the size structure of the dairy industry on the Scottish Milk Marketing Board (SMMB). The projected size distribution of diary herds was combined with simple projections of average herd size and yield, which indicated the outlook for milk production during 1980's. This suggested that secular increase in SMMB milk production might slow down and could even come to an end during the later years.

Erthridge et al. (1983) made an analysis on changes in the structure of the Texas high plain cotton ginning industry. Using Markov chain procedures future industry structure was predicted under conditions of transition probabilities. The projections indicated a decline in the number of active ginning firms especially a large decline in the number of small firms and an increase in the number of large firms.

Mellor (1984) made an attempt to introduce the Markov chain model as a mechanistic model of behaviour in an agricultural setting. The concept of time varying transition probabilities was introduced as a feasible alternative to the standard stationary assumptions. The results supported the view that the basic model was simple and also benefitted from the introduction of explanatory variables influencing the transition probabilities. He also cautioned that neglect of important variables would lead to undesirable consequences, if the model was used for

forecasting purpose.

Edwards et al. (1985) applied Markov analysis to study the changing distribution of farms by size. They had applied the models to longitudinal data set for 1974-78 from the census of agriculture. The model predicted actual changes reasonably well for the period 1978-82. The results indicated that the projected distribution of farms by acres per farm would remain the same based on the previous distributional trend.

Chavas and Magand (1988) developed a time-varying Markov process of the aggregate size distribution of farms in an industry. This was used to specify and estimate an economic model of the regional evolution of the number and size of U.S. dairy farms. The results provided an evidence that economies of size, sunk costs and the market prices played a role in the evolution of the size distribution of dairy farms. It was found that dairy farms having less than 50 cows were not size efficient as their number declined in all regions. The analysis also suggested that a higher output price had a negative impact on the growth of a firm. In general, higher milk prices were found to increase the number of farms in all size categories.

Disney et al. (1988) conducted a study for analysing the structure of the pig meat production industry in the south Atlantic census division. The study indicated

that both total farm numbers and the size distribution of pig meat farms were highly sensitive to the future pig maize price ratio. The set of models presented provided a tool that could be used to evaluate the effects of reductions in maize price support programmes on pig meat distributions. As both maize and pig producers were allowed time to adjust production, the long term relationship was more difficult to determine.

Jaikumar, R. (1990) while analysing the country wise foreign exchange realization by the silk sector revealed that developed markets, notably countries like West Germany, USA, Japan, France and UK, accounted for bulk of India's export sales. Among the traditional markets, UAE, Singapore and South Korea were India's major destinations. However, just ten markets accounted for the bulk in India's exports taking over 75 per cent of the total exports sales of Indian silk products to various countries in 1988-89.

Wilson et al. (1990) studied importer loyalty in the international wheat market by adopting Markov model. Results showed that in general, the United States of America had relatively strong import loyalty compared to others such as Canada and European Community.

Gemtessa (1991) analysed the direction of trade using Markov model. The share of Ethiopian coffee exports in U.S.A. drastically declined during 1979 to 1989.

However, West German market indicated to be the potential market for Ethiopian coffee. Further, the loss in the market share of Ethiopian coffee in USA, France, USSR, and Other Countries was diverted to West Germany's market. It was interesting to note that the Ethiopian coffee exports to Japan, France and Italy had moderately increased. But the share of Saudi Arabia remained stagnant. It was also projected that the market share of Ethiopian coffee export to West Germany would increase to 32 per cent by 2000 A.D. mainly because of West German's preference for Ethiopian mild coffee.

2.4 Market share and concentration

Ajayi and Ojeyide (1973) in analysing Nigeria's export share of cocoa obtained negative value of the direction of trade component vis-a-vis the individual market share component and the all over market share component. The declining market share suggested the need for redistribution of trade and to enter into trade negotiations with the major trading block like EEC as well as to evolve an appropriate strategy for counteracting its influence. Alternatively, some kind of commodity agreement was also suggested.

Kingston (1975) using a simple correlation coefficient between the mean value of export earning for 31

developing countries, investigated the nature and strength of the relationship between the geographic concentration of exports, and the size and growth rate of export earnings. However, the results provided little support for the presumption that the geographic concentration was systematically related to the level of annual export receipts.

Achoth (1985) while studying the structure of tea export trade by means of Hirschman's index and theil's entropy index, indicated that the market concentration has decreased progressively as the distribution of the export trade became more and more equitable. Further, he indicated that after the sixties, a structural change in the export trade had resulted. The share of the four largest exporters had fallen to 71 per cent which further declined to 66 per cent in the later part of the seventies. During these two periods the market had moved towards moderately concentrated oligopoly.

2.5 Export Demand

Johnson (1977) averred that Tweeten's (1967) estimation technique of excess demand is in error. He cautioned that unprecise estimates of elasticity through repetition may become the datum for certain agricultural policy problems. He diferred with Tweeton's method of calculating the elasticity for a market with many

participants and observed that such aggregation perhaps could be done based on quantity summed average and not as a simple sum.

Bredhal et al. (1979) in order to evaluate the export demand response of US cereals, soybean and cotton, reviewed the trade policies of several major importing countries. In case of food grains and wheat, the trade policies of most importing countries insulated the internal price from the US price, thereby the price elasticity of transmission was set equal to zero. Since soybean was freely traded, a price transmission elasticity of 1 was assumed. Three measures of export demand were calculated; they first assumed price transmission elasticity of most of the world as zero, then 1 and finally all transmission elasticities both of demand and supply were set equal to 1.

Hyuha (1982) examined the world demand for coffee with particular reference to East Africa. Since the United States of America was a major consumer, it was used as a proxy for the world market. The world coffee economy was reviewed in a situation that US coffee imports were declining, while non traditional consumers like Japan had increased their import of coffee. The results indicated that East African coffee was tending to income elastic but price inelastic like any other agricultural commodities.

Pandey et al. (1982) computed the elasticity of

aggregate Australian agricultural supply. Annual time series data for the period of 1951 to 1976 were used to estimate the price elasticity of agricultural supply using multiple regression model. The short run elasticity was about 0.3 and the long run elasticity was about 0.6 or close to 1. Furthermore it was revealed that the short run elasticities were incresing by 0.01 annually. The results implied that the elasticity of supply of exports had been increasing over years.

Arnade and Davison (1987) analysed the export demand for US wheat. Annual data for the period 1961-83 was subjected to multiple regression analysis. Estimates of price, income and exchange rate elasticities were 0.31, 0.48 and -0.24 respectively. US exporters were failed to increase revenues with price within short-run. However, long-run responses were different as importers and exporters had time to adjust production, import and export policies.

Renne (1987) estimated the supply, demand and price elasticities for coffee. The model considered four separate producers block, using the annual data from Brazil, colombia and Guatemala between 1952-81 and for the Ivory coast from 1959-81. The major findings of the study included that at low price levels, demand for coffee was price inelastic; the demand for most coffee varieties was also income inelastic and coffee was considered as an inferior good in the USA. Brazil had a significant, but not

an absolute influence in determining world coffee price.

Achoth and Ramanna (1988) analysed the export demand elasticities of tea from India as well as from other major tea exporting countries. Export demand elasticities and market share were calculated for tea from India, Srilanka, Kenya and Indonesia. India's share in world market was progressively diminishing. Except in the USA, demand for Indian tea was inelastic in all the important markets studied. In the UK, the elasticity of demand for Indian tea was higher than that of East African tea. In the USSR, Indian tea had virtual monopoly.

Mazzami and Wang (1988) computed the price and income elasticities of China's international trade to determine the appropriate policy for correcting China's short-run trade deficits and to ascertain the likely pattern of China's net trade position over time. The price elasticities of export and import demands indicated that Marshall-lerner conditions were satisfied in the long-run but not in the short-run. This means that devaluation of the Chinese currency worsened China's trade balance in the short-run and import only in the long-run. In the long-run, the higher income elasticities estimated for import demand implied that China would grow at a lower rate than her trade partners so that she could avoid her deteriorating trade balance.

Islam and Subramanian (1989) estimated price and income elasticities of demand for aggregate agricultural exports for all developing countries taken together as distinct from individual export countries. The results showed that when individual exports of all developing countries were considered, income and price elasticities of demand for tropical commodities such as tea, coffee, cocoa and banana found to be low. Non-traditional exports like pineapple showed higher income and price elasticity. This indicated the importance for diversification of agricultural exports as a vehicle for their future growth.

METHODOLOGY

CHAPTER III

METHODOLOGY

A brief description of distribution of sericulture in India, database, sources, and analytical tools applied in this study are presented in this chapter. This chapter is organised under the following headings;

3.1 Distribution of sericulture in India

3.2 Database

3.3 Analytical tools

3.1 Distribution of sericulture in India

There are several species of silk producing worms yielding numerous varieties of silk-mulberry, tasar, eri, and muga being the main ones. The most important of these is mulberry silk, so called because the worm feeds on leaves of mulberry plant to grow to its full size before spinning it's cocoon from a filament of silk. This species of silk worm is scientifically known as Bombyx. mori L.

Mulberry silk production in India is largely concentrated in southern Karnataka and the adjacent districts of Andhra Pradesh and Tamil Nadu. As much as 90 per cent of production comes from this region. Another 10 per cent of mulberry silk production comes from West Bengal. In the case of tasar silk also, production is highly concentrated in a contiguous forest area covering south

east Bihar, north Orissa and north east Madhya Pradesh. Most of the eri silk and muga silk production takes place in Assam and Meghalaya, and Oak tasar in Arunachala Pradesh. Thus these three small states supply over 95 per cent of this particular variety of silk.

Out of the total 2.42 lakh hectares of land under mulberry cultivation in the country, 1.40 lakh hectares are in Karnataka and another 0.75 lakh hectares in Andhra Pradesh and Tamil Nadu. The area under mulberry cultivation constitutes just 0.15 per cent of total cultivated land in India and 1.20 per cent in Karnataka.

Out of 6,29,000 villages in India, sericulture is practiced in 59,000 villages of which 53 per cent lie in the southern belt and 23 per cent in north eastern states where sericulture is largely a self consumption activity. This study is confined to mulberry silk goods which constitute as high as 90 per cent of the total silk production.

3.2 Database

The data on the various segments of the silk exports were collected for the period 1970 to 1990. This period was chosen since India started exporting various silk goods in significant quantities after 1970 and the latest data available with Central Silk Board was upto 1990.

The variables on which information collected were,

1. Mulberry silk export quantity (tonnes)
2. Mulberry silk export value (Rs. crores)
3. Variety wise export of mulberry silk goods in terms of quantity (Lakh square meters)
4. Variety wise export of mulberry silk goods in terms of value (Rs. crores)
5. Country wise export of mulberry silk goods in terms of value (Rs. crores). (Both for traditional and Non-traditional markets)
6. World exports of silk fabrics (Thousand US dollars)
7. Exchange rate (Rs./$)
8. G.N.P of developed countries ($)

Data was collected from the various publications of the Central Silk Board, Food and Agriculture Organisations Trade and Production Year Books, IMF bulletins and United Nations International Trade Statistical Year Book.

To assess the growth of Indian silk exports, growth rates were computed for different types of silk goods both for quantity exported and value realised, for the period 1970 to 1990. In case of carpets, data from 1975 was used because India started exporting this item in sizable quantities only after 1975-76.

The trend rates of growth were extrapolated to the year 2000 AD. and 2010 AD. and the value figures for the year 2000 and 2010 AD. were arrived at.

It would be interesting to see if the increase in the exports of silk was accompanied with stability. For this purpose the variance decomposition procedure developed by Hazell (1984) was employed. Since the change in variance is decomposed over two periods, the study period was divided into two periods,

Period I - 1970-1980

Period II - 1981-1990

Period II represented an accelerated development of sericulture industry which took place due to certain structural reforms like regulation of cocoon markets and setting up of the silk exchanges in Karnataka. Further this was augmented by the state sericulture development programme and the national sericulture project under World bank assistance.

Markov chain analysis was employed to study the changing structure of exports. Estimation of the transitional probability matrix is centered to Markov chain analysis which encapsulates the changing directions of trade. The analysis was carried out for the period 1974-75 to 1989-90 using four year averages.

The major Indian silk importing countries

belonging to non-traditional markets were considered for analysis as these markets account for about 65 to 70 per cent of the Indian total silk exports; the balance imports being from the traditional markets like Singapore, UAE, Saudi Arabia, Somalia, South Oman, Kuwaith, Mauritious, Fiji, Honk Kong etc. Among non-traditional markets, the major countries considered were USA, West Germany, UK, France, Italy and Japan. All other non-traditional markets as well as traditional were included under other countries as a group.

To study the market share and concentration of silk, annual silk fabrics export data for the period 1976 to 1987 was used. Major exporting countries namely Republic of Korea, Italy, Japan and Hong Kong were considered separately, where as the small exports were grouped together under others. Since the parameters under study are not likely to vary much in the short run, averages were worked out for the successive three year period comprising 1976 to 1978, 1979 to 1981, 1980 to 1984 and 1985 to 1987; and the changes were computed.

The export demand elasticity for Indian silk was estimated using annual time series data for a period of 14 years i.e., 1972 to 1986. The variables considered were time trend, GNP of developed countries and Indian export prices for silk goods.

3.3 Analytical tools

The details of the analysis is presented under the following sub headings.

3.3.1 Analysis of growth

3.3.2 Instability in export earnings

3.3.3 Changing directions of trade of Indian silk

3.3.4 Market share and concentration of silk trade

3.3.5 Export demand

3.3.1 Analysis of growth

Growth of the type wise silk exports, was analysed using the exponential growth function of the form,

$$Y = ab^t e^u \qquad (3.3.1.1)$$

Where,

Y = Dependent variable for which growth rate is to be estimated (Quantity exported and value realised)

a = Intercept

b = Regression co-efficient

t = Time variable

e = Exponent term (2.3018)

u = Disturbance term

The estimated form of the equation can be expressed as,

$$\log y = \log a + t \log b \qquad (3.1.1.2)$$

and the compound growth rate (g) is computed from the relationship,

$$g = (b-1) \times 100 \qquad (3.1.1.3)$$

3.3.2 Instability analysis

A variance decomposition procedure developed by Hazell (1984) to measure instability was adopted to study the instability in Indian silk export earnings.

The present study was based on time series data on the quantity of Indian silk exports and unit price realised for different silk fabrics viz., sarees, scarves, dress materials, readymade-garments, carpets and other silk goods and total exports. The data on quantity exported and export prices were first detrended to remove the systematic or trend component, using the linear relationship of the form,

$$Yt = a + bt + ut \qquad (3.3.2.1)$$

Where,

Yt = The dependent variable (Quantity/price)

t = Time period

ut = Random residual with zero mean and variance (σ^2)

The residuals were centered around their respective means for both the periods i.e., pre-development and development periods.

The working series were generated as follows

$$\hat{Y}t = \bar{y} + ut \qquad (3.3.2.2)$$

The export earnings from silk was computed using the equation,

$$E(t) = Q(t) \times p(t) \qquad (3.3.2.3)$$

where,

E = Receipts from silk exports

Q = Quantity of silk exported

P = Export price of silk

t = Time variable.

The export variances and co-variance are decomposed to isolate the sources of change between the pre-defined periods.

The variance in export earnings during the pre-development period (period - I) can be expressed as,

$$V(E1) = \bar{Q}_1^2 V(p_1) + \bar{p}_1^2 V(Q_1) + 2 \bar{Q}_1 \bar{P}_1 Cov_1 (Q_1P_1) - cov_1 (Q_1P_1)^2 + R_1 \qquad (3.3.2.4)$$

Similarly each variable in period II (development period) can be expressed in terms of its counterpart in the period I, plus the change in the variable between two periods. For example,

$$Q_2 = Q_1 + \Delta Q \qquad (3.3.2.5)$$

where,

$$\Delta Q = Q_2 - Q_1 \qquad (3.3.2.6)$$

Table 3 : Components of change in variance of silk export earnings

Source of change	Symbol	Components of change
1. Change in mean price	$\Delta\bar{P}$	$\left[2\bar{Q}_1 \Delta\bar{P} \ \mathrm{Cov}(P_1 Q_1) + 2\bar{P}_1 \Delta\bar{P} + (\Delta\bar{P})^2\right] V(Q_1)$
2. Change in mean quantity	$\Delta\bar{Q}$	$\left[2\bar{P}_1 \Delta\bar{Q} \ \mathrm{Cov}(P_1 Q_1) + 2\bar{Q}_1 \Delta\bar{Q} + (\Delta\bar{Q})^2\right] V(P_1)$
3. Change in price variance	$\Delta V(P)$	$(\bar{Q}_1)^2 \Delta V(P)$
4. Change in quantity variance	$\Delta V(Q)$	$(\bar{P}_1)^2 \Delta V(Q)$
5. Change in quantity price covariance	$\Delta \mathrm{Cov}(PQ)$	$\left\{\left[2\bar{Q}_1\bar{P}_1 - 2\,\mathrm{Cov}(P_1Q_1)\right]\left[\Delta\mathrm{Cov}(PQ)\right]\right\} - \left[\Delta\mathrm{Cov}\ (PQ)\right]^2$
6. Interaction between change in mean price and mean quantity	$\Delta\bar{P} \ \Delta\bar{Q}$	$2(\Delta\bar{P})(\Delta\bar{Q}) \left\{\mathrm{Cov}\ (P_1Q_1)\right\}$
7. Interaction between changes in mean quantity and price variance	$\Delta\bar{Q} \ \Delta V(P)$	$\left\{2(\bar{Q}_1)(\Delta\bar{Q}) + (\Delta\bar{Q})^2\right\}\left\{\Delta V(P)\right\}$
8. Interaction between changes in mean price and quantity variance	$\Delta\bar{P} \Delta V(Q)$	$\left\{2(\bar{P}_1)(\Delta\bar{P}) + (\Delta\bar{P})^2\right\}\left\{\Delta V(Q)\right\}$
9. Interaction between changes in mean quantity and price and changes in quantity - pricecovariance	$\Delta\bar{P} \ \Delta\bar{Q}_1$ $\Delta \mathrm{Cov}(PQ)$	$\left\{2(\bar{P}_1)(\Delta\bar{Q}) + 2(\bar{Q}_1)(\Delta\bar{P}) + 2(\Delta\bar{Q})(\Delta\bar{P})\right\} \Delta\mathrm{Cov}(PQ)$
10. Change in residual	ΔR	$\left[\Delta V(QP)\right]$ - Sum of other components

Table 4 : Components of change in the average export earnings

Description	Symbols	Components of change
1. Change in mean quantity	$\Delta\bar{Q}$	$\bar{P}_1 \times \Delta\bar{Q}$
2. Change in mean price	$\Delta\bar{P}$	$\bar{Q}_1 \times \Delta\bar{P}$
3. Interaction between changes in mean price and mean quantity	$\Delta\bar{Q}\ \Delta\bar{P}$	$\Delta\bar{Q} \times \Delta\bar{P}$
4. Change in co-variances between quantity and price	ΔCOV (QP)	ΔCOV (QP)

Where,

$\bar{P}_i$ = Mean price in period i, i = 1 or 2

$\bar{Q}_i$ = Mean Quantity in period i, i = 1 or 2

$\Delta\bar{P}$ = Difference in mean prices between two periods

$\Delta\bar{P} = \bar{P}_2 - \bar{P}_1$

$\Delta\bar{Q}$ = Difference in mean quantities between two periods

$\Delta\bar{Q} = \bar{Q}_2 - \bar{Q}_1$

Variance measures the extent of variation of variable from its mean

Co-variance measures the extent of variations of two variables, one being the dependent and another being the independent from their respective mean values.

Therefore, the change in variance of silk export earnings between two periods is given by,

$$\Delta V(E) = V(E_2) - V(E_1) \qquad (3.3.2.7)$$

and this can be decomposed into various components as shown in table 3 and 4.

3.3.3 Direction of trade of Indian silk goods

The dynamic nature of the trade pattern was analysed by employing first order Markov process by examining the gains and losses in the export share of Indian silk by the major importing countries. Markov process provides a mechanism for making projections for frequency distribution which are based on past changes observed in the same population or samples.

In the context of the current application, there are eight importing countries. The average export to a particular country is considered to be a random variable following a first order Markov process.

$$E_{jt} = \sum_{i=1}^{r} Ei_{t-1} \; P_{ij} + e_{jt} \qquad (3.3.3.1)$$

Where,

E_{jt} = Exports from India during the year 't' to Jth country

Ei_{t-1} = Exports to ith country during the period t-1

P_{ij} = Probability that exports will shift from i^{th} country to Jth country.

e_{jt} = The error term which is statistically independent of Ei_{t-1}, and

r = Number of importing countries.

The transitional probability P_{ij}, which can be arranged in a (c x r) matrix, have the following properties.

$$0 \leq P_{ij} \leq 1 \qquad (3.3.3.2)$$

$$\sum_{i=1}^{r} P_{ij} = 1 \text{ for all } i \qquad (3.3.3.3)$$

The diagonal elements of the matrix P, indicate the probability that the export share of a particular country will remain from one period to another. The off diagonal or transfer probabilities indicate the probability that the share of exports to a particular country will change to another country over time.

Thus the expected export share of each country during the period 't' was obtained by multiplying the actual exports in the base period by the transitional probability matrix.

The transitional probability matrix is estimated in the linear programming (LP) frame work by a method referred to as minimisation of mean absolute deviation (MAD).

The LP formulation is stated as,

$$\min op^{*} + I_{e} \qquad (3.3.3.4)$$

Subject to,

$$XP^{*} + V = Y \qquad (3.3.3.5)$$

$$GP^{*} = 1 \qquad (3.3.3.6)$$

$$P^{*} \geq 0 \qquad (3.3.3.7)$$

Where,

P^{*} is a vector in which probability P_{ij} are arranged,

O is a vector of zero's,

I is an appropriately dimensioned vector of countries

e is the vector of absolute errors (1 U 1)

Y is the vector of export to each country,

X is a block diagonal matrix of lagged values of y and

V is the vector of errors.

It is a grouping matrix to add the row elements of p, arranged in P^{*} to unity. Using the estimated transitional probabilities the export of silk goods to various destinations were predicted by multiplying the same with the respective market share of the base period

3.3.4 Market share and concentration

The concentration of the market was studied by computing the Hirschman's index (H(x)) and the distribution of market shares among the exporting countries were studied by means of Theil's entropy E(x).

The Hirschman's index H(x) is computed by means of the formula

$$H(x) = \sqrt{\sum_{i=1}^{n} P_i^2} \qquad (3.3.4.1)$$

Where Pi is the share of country i in the world export trade of silk fabrics, n is the number of countries, five is in this case.

$$P_i = X_i / \sum X_i \qquad (3.3.4.2)$$

X_i is the export of silk from country i

$\sum X_i$ is the total world exports

The index which ranges between 0 and 1 helps to identify the structure of markets. An index value of 1 indicates a monopoly and a value of 0 represents perfect competition. Theil's entropy E(x) is a measure of the distribution of the market demand among the various participants in the market. The index points out whether the market is equitably distributed among the exporting countries or concentrated in the hands of a few exporters. Thus,

$$E(x) = \sum_{i=1}^{n} P_i \ln (1/p_i) \qquad (3.3.4.3)$$

P_i and n have been defined earlier. the value of E(x) ranges between o and ln n. An index of ln n indicates that all the exporters have equal shares on the market. hence market concentration is inversely related to the index E(x). Thus, theil suggested a modification.

$$I(x) = \ln n - E(x) \qquad (3.3.4.4)$$

Which ranges between ln n and o, but here I(x) is directly related to concentration. Thus the index I(x) can

be made bounded within the range o and 1 by dividing the index such that,

$$m(x) = I(x) / \ln n \qquad (3.3.4.5)$$

Since m(x) is only an extension of I(x), market concentration is directly proportional to m(x).

3.3.5 Export demand

Multiple regression analysis was used to estimate the export demand elasticities of Indian silk.

The demand for silk exports from developing countries was assumed to depend upon the income of importing countries and relative prices amongst other variables. Therefore following equations was used to find out the export demand elasticity for Indian silk.

$$\ln X^D = \ln a + b_1 T + b_2 \ln P + b_3 \ln Y \qquad (3.3.5.1)$$

Where,

X^D = Demand for Indian silk exports

a = Intercept

T = Trend component

P = Indian silk price expressed in ($/kg)

Y = GNP index of developed market economies.

ln = Natural logarthim

b_i's are the regression coefficients

The regression equation was estimated by the method of ordinary least squares (OLS).

The regression coefficients were tested for significance by the students 't' test. Auto correlation was tested by computing the D.W. Statistic and correcting it wherever present using the Cochrane-Orcutt method.

RESULTS

CHAPTER IV

RESULTS

In consonance with the objectives of the study the results are presented in the following order :

4.1 Analysis of growth of the Indian silk industry

4.2 Instability in export earnings of Indian silk

4.3 Direction of trade

4.4 Market concentration of the silk trade

4.5 Export demand for Indian silk

4.1 Analysis of growth of the Indian silk industry

Rapid growth in Indian silk industry has been witnessed particularly after 1980's and exports are now poised for a major breakthrough. Besides, India has been experiencing a steady increase in the world's market share. Hence, the present study attempts to evaluate the performance of Indian silk with respect to quantity exported and value realised through exports. The silk goods considered for the analysis were sarees, scarves, dress materials, readymade-garments, carpets and other silk exports apart from total silk exports. The study covered the period 1970-71 to 1989-90. However in the case of carpets, the period considered was from 1975-76 to 1989-90 as India started exporting carpets in a sizable quantity only from 1975-76. The details of variety wise export of

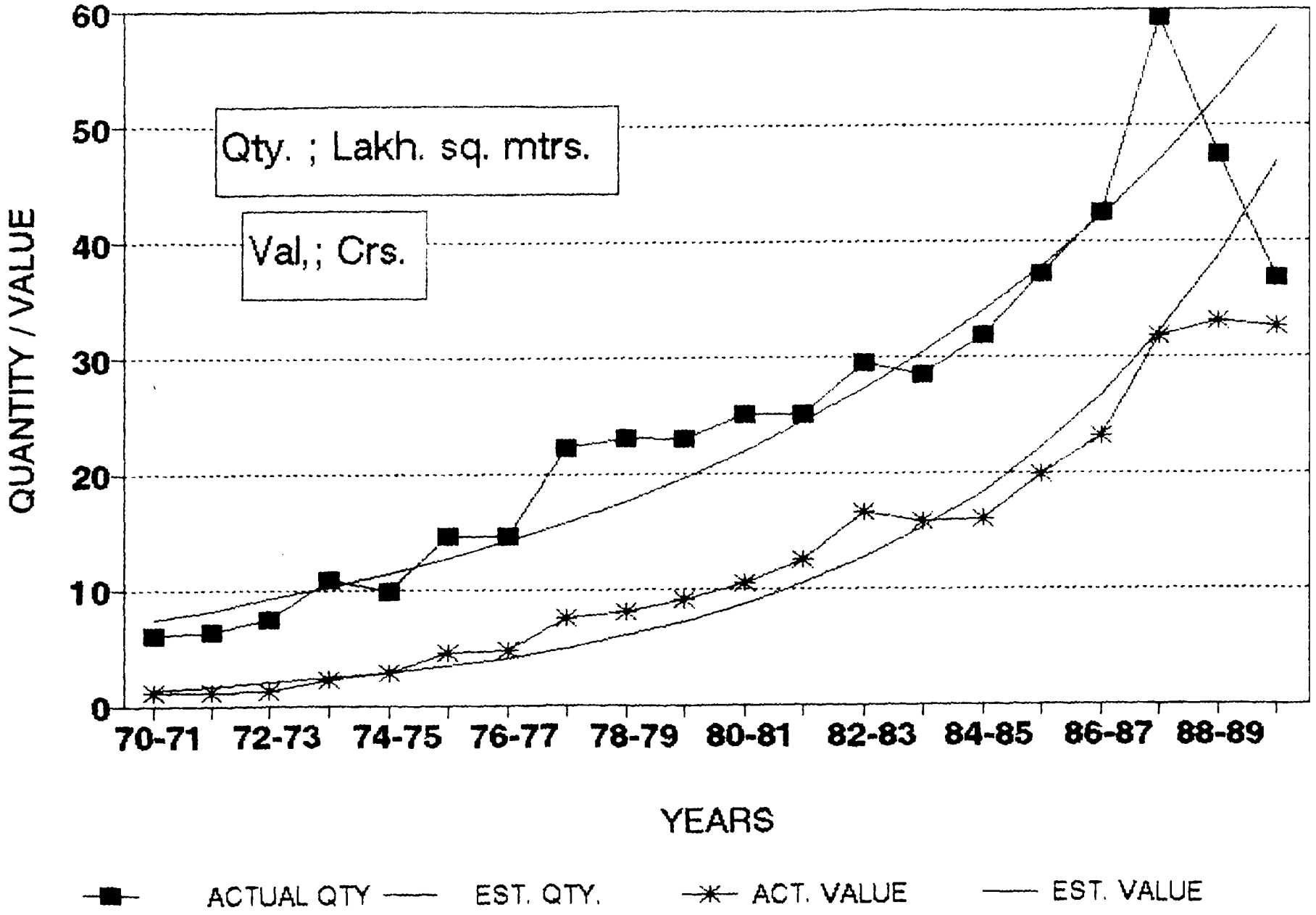
silk are presented in appendix-I.

The exponential form of the function was employed to estimate the growth rates. Growth rate in unit value in terms of rupees for variety-wise export was arrived at by subtracting per cent growth rate in quantity from per cent growth rate in value. Growth rate in unit value in terms of dollars was arrived at by subtracting the growth in exchange rate from the growth rate of value of exports in terms of rupees. The results of estimated growth rates are presented in table 5. Intercept, slope and R^2 values are presented in appendix-II and the trends in export of various silk varieties including total exports are shown in figures 1 to 7.

4.1.1 Growth in silk goods exports

The export of sarees has increased from 6.02 lakh square meters (LSM) to 36.71 lakh square meters during the period under study, while the value increased from Rs. 1.09 crores to Rs. 32.54 crores. Export of sarees exhibited a compound growth rate of 11.56 per cent per annum, while the value registered a compound growth rate of 20.59 per cent. Both the co-efficients were statistically significant at one per cent level of significance. The unit value growth in rupees registered 9.03 per cent growth rate per annum and in terms of dollars it was 3.58 per cent per annum.

FIG:1 TRENDS IN EXPORT OF SAREES (1970-90)



Scarves export has increased from 34.33 lakh square meters in 1970-71 to 70.43 lakh square meters in 1989-90. Value realised by exporting scarves has increased from Rs. 4.48 crores to Rs. 31.46 crores during the same period. Scarves export registered a lower growth rate of 4.46 per cent per annum and value grew at 9.67 per cent per annum. These co-efficients were statistically significant at one per cent level of significance. Unit value in terms of rupees registered 5.21 per cent growth rate per annum and that in terms of dollar registered a negative growth rate of -0.24 per cent per annum.

Export of dress materials has increased from 11.54 lakh square meters to 139.31 lakh square meters during the period under study exhibiting a growth rate of 16.30 per cent per annum while the value increased from rupees 2.25 crores to Rs. 143.88 crores registering 26.54 per cent increase per annum. Both the co-efficients were statistically significant at one per cent level of significance. While its unit value in terms of rupees registered 10.24 per cent growth rate per annum, in dollar terms it grew at only 4.79 per cent per annum.

Export of readymade-garments has increased from 2.37 lakh square meter in 1970-71 to 62.51 lakh square meter in 1989-90, while the value increased from Rs. 0.62 crore to Rs. 77.61 crores during the same period. It registered a compound growth rate of 18.74 per cent per annum in quantity

FIG:2 TRENDS IN EXPORT OF SCARVES (1970-90)

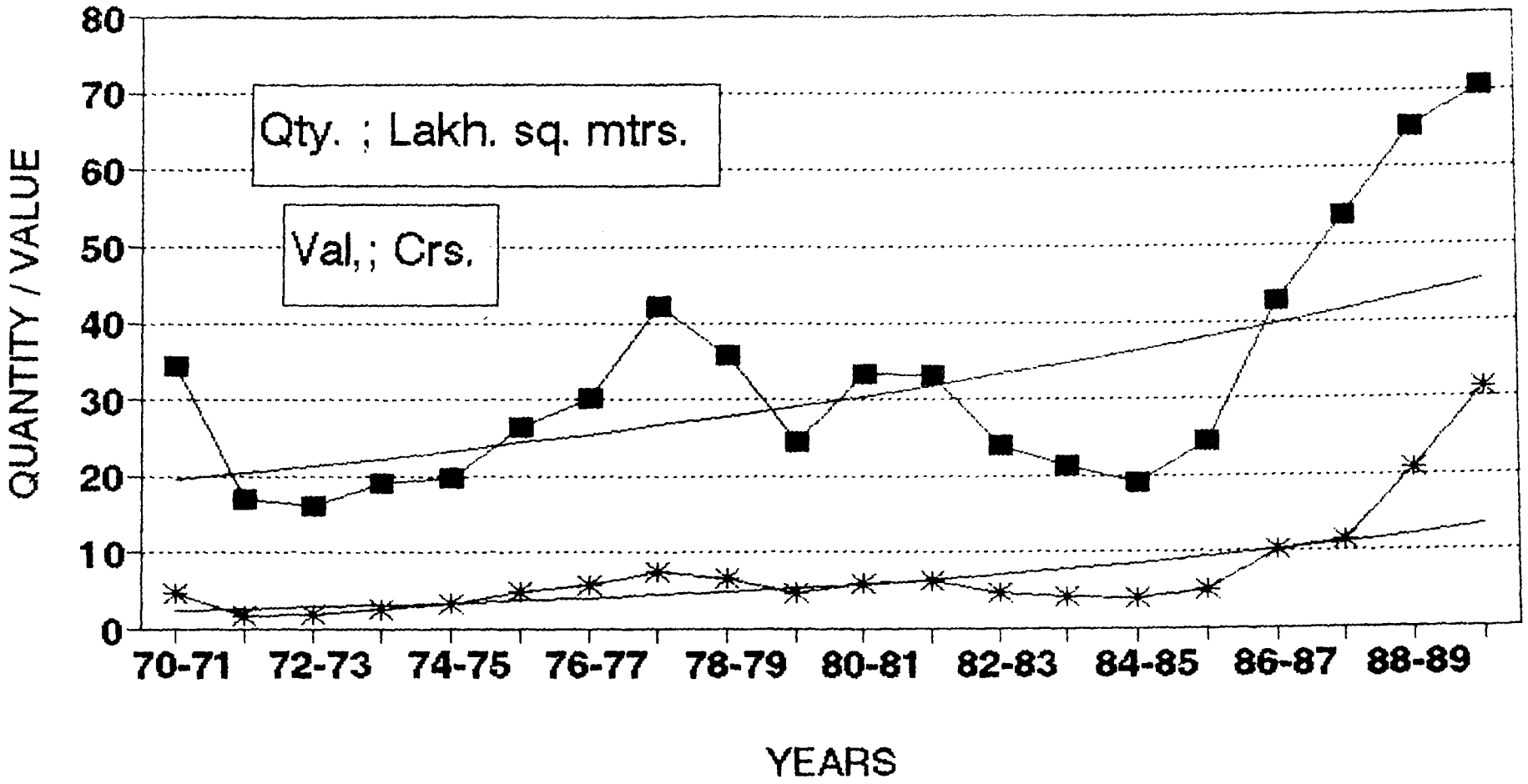
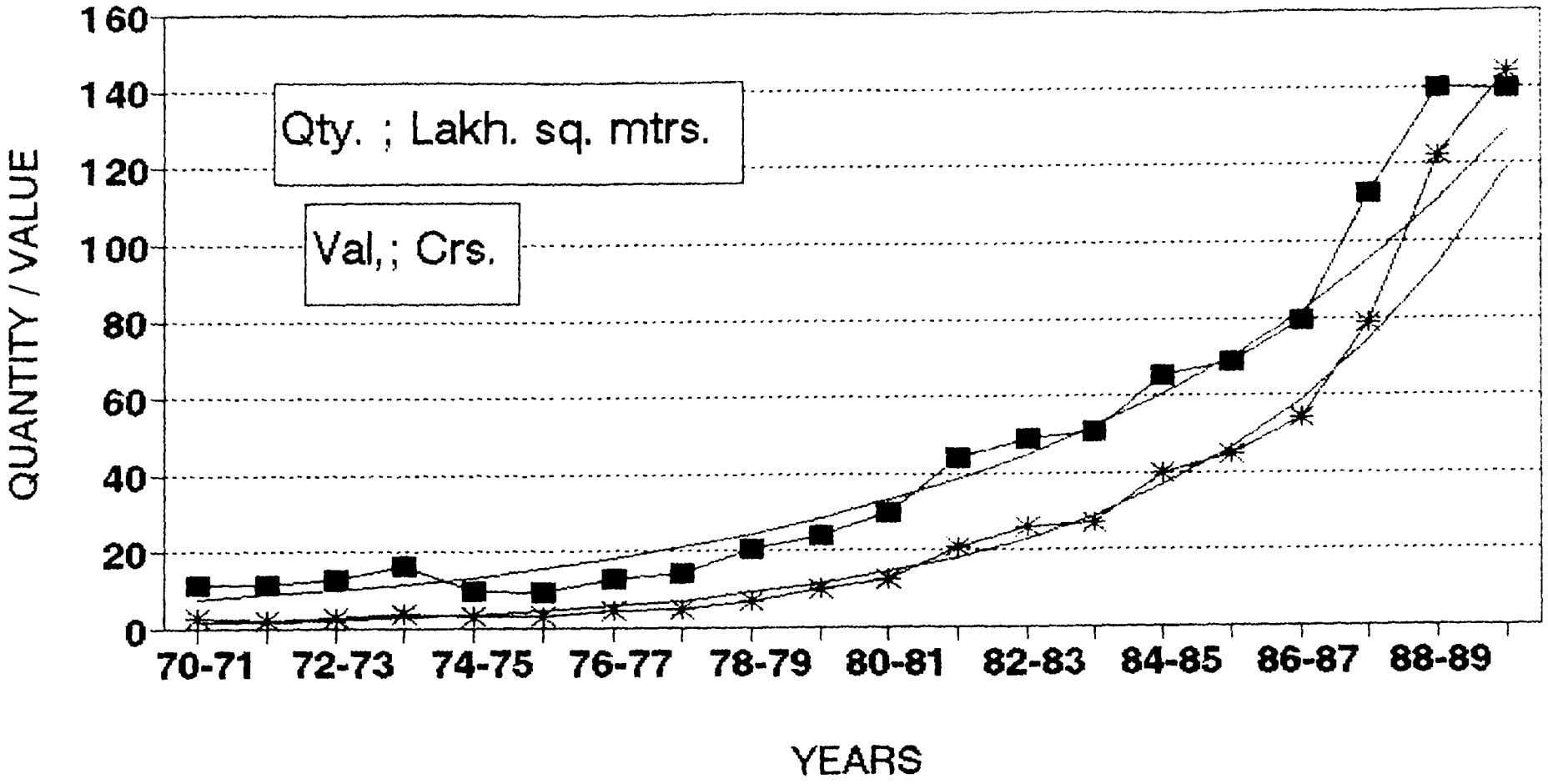


FIG:3 TRENDS IN EXPORT
OF DRESS MATERIALS (1970-90)



and the value grew at a significantly higher rate of 33.98 per cent per annum. These co-efficients were statistically significant at one per cent level of significance. Unit value in rupees registered a 15.25 per cent growth rate per annum which in terms of dollars was 9.79 per cent per annum.

India started exporting carpets in sizable quantity only after 1974-75. It's export has increased from negligible quantity of 0.03 lakh square meter in 1974-75 to 1.05 lakh square meter in 1989-90 while the value increased from Rs. 0.66 crore to Rs. 51.39 crores during the same period. Export of carpets exhibited a growth rate of 27 per cent per annum, while the value registered 28.20 per cent growth rate per annum. Both the co-efficients were statistically significant at one per cent level. While, its unit value in terms of rupees registered a mere 1.20 per cent growth rate per annum, in terms of dollars it declined by -4.20 per cent per annum.

Export of other silk goods has increased from 1.26 lakh square meters to 27.51 lakh square meters during the period under study while, the value increased from Rs. 0.40 crore to Rs. 38.75 crores. Export of other silk goods exhibited a growth rate of 23.67 per cent per annum with the value registering 30.08 per cent growth rate per annum. Both the co-efficients were statistically significant at one per cent level of significance. While, in rupees the unit

FIG:4 TRENDS IN EXPORT
OF READY MADE GARMENTS (1970-90)

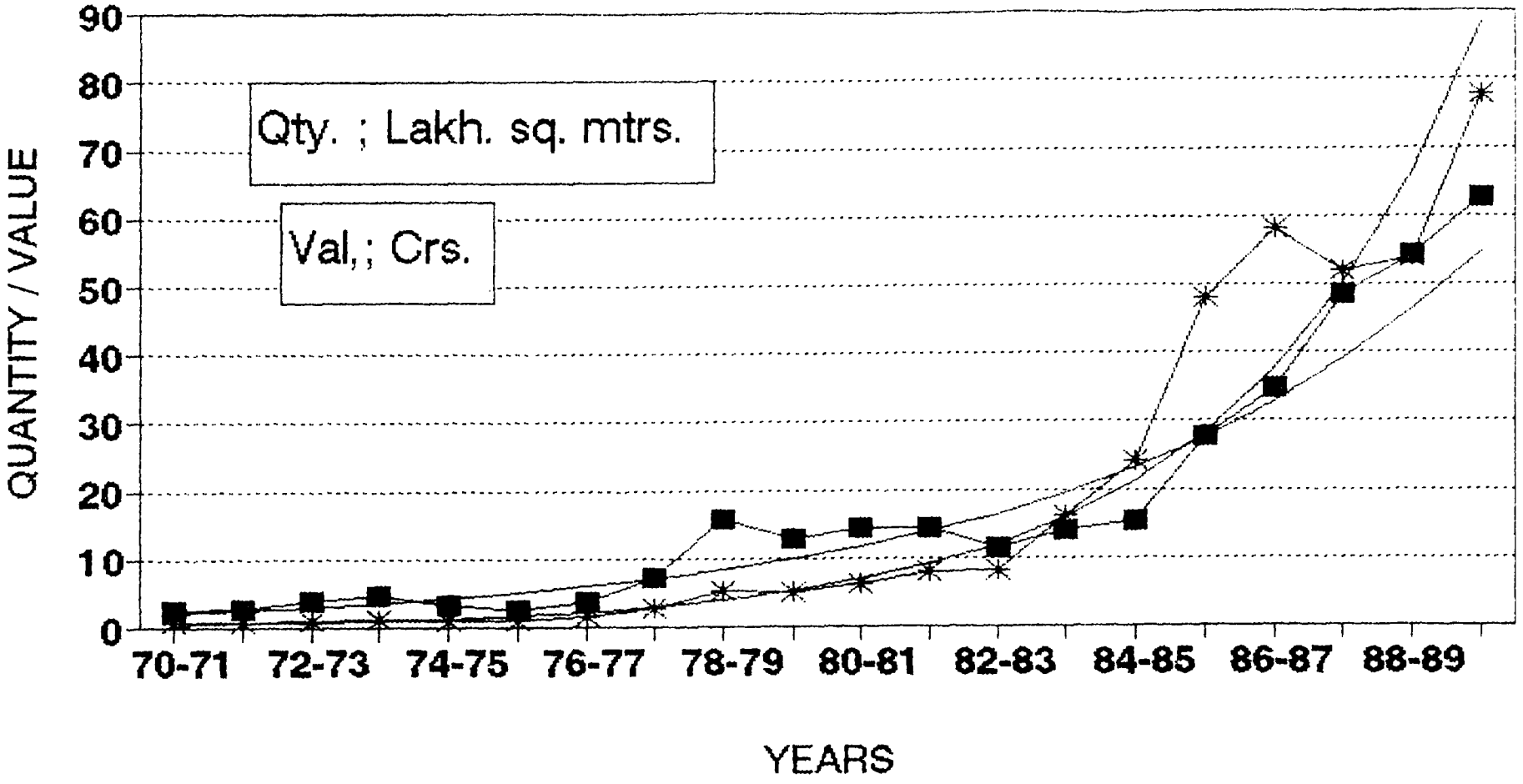


FIG:5 TRENDS IN EXPORT
OF CARPETS (1975-90)

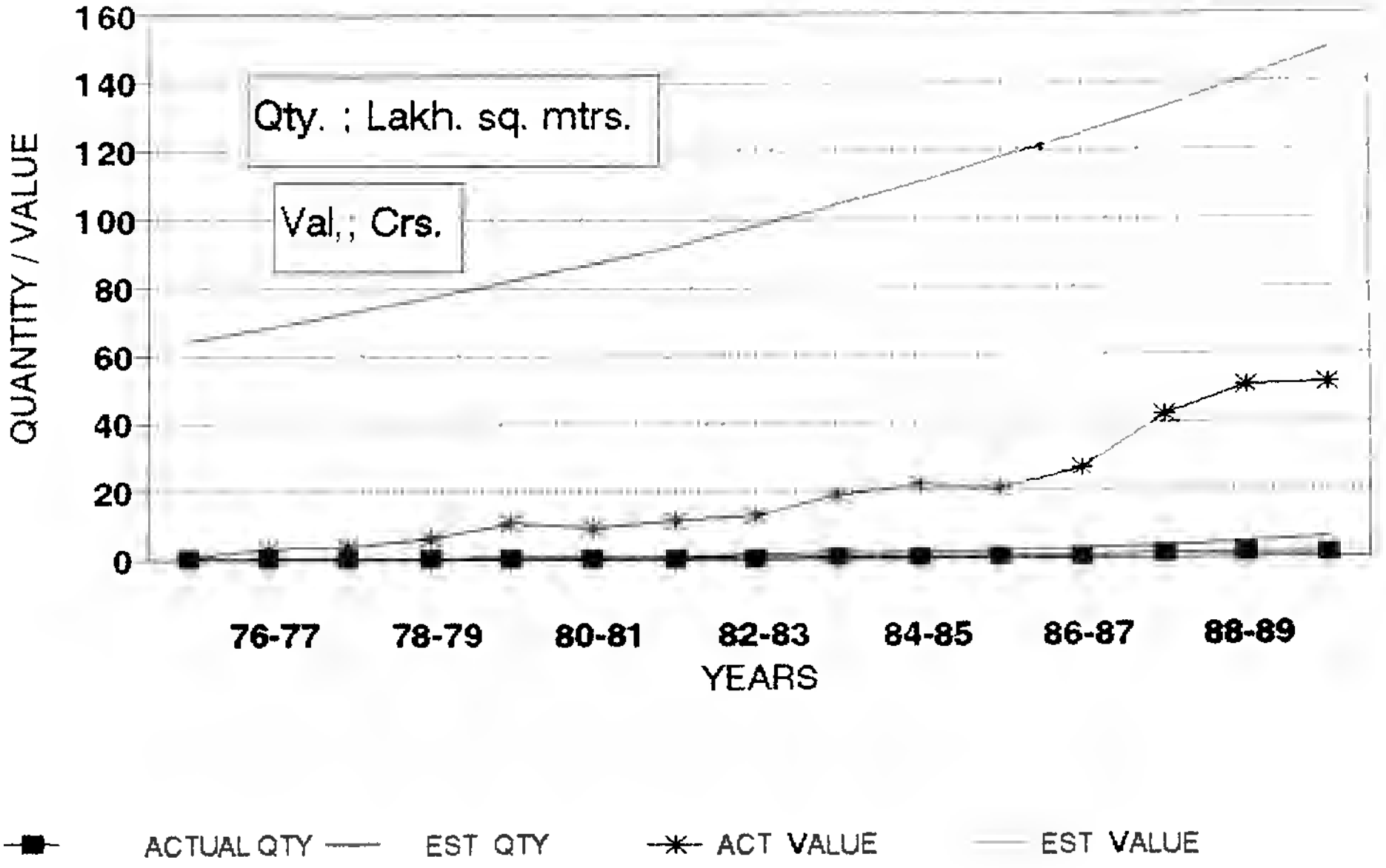


FIG:6 TRENDS IN EXPORT
OF OTHER SILK GOODS (1970-90)

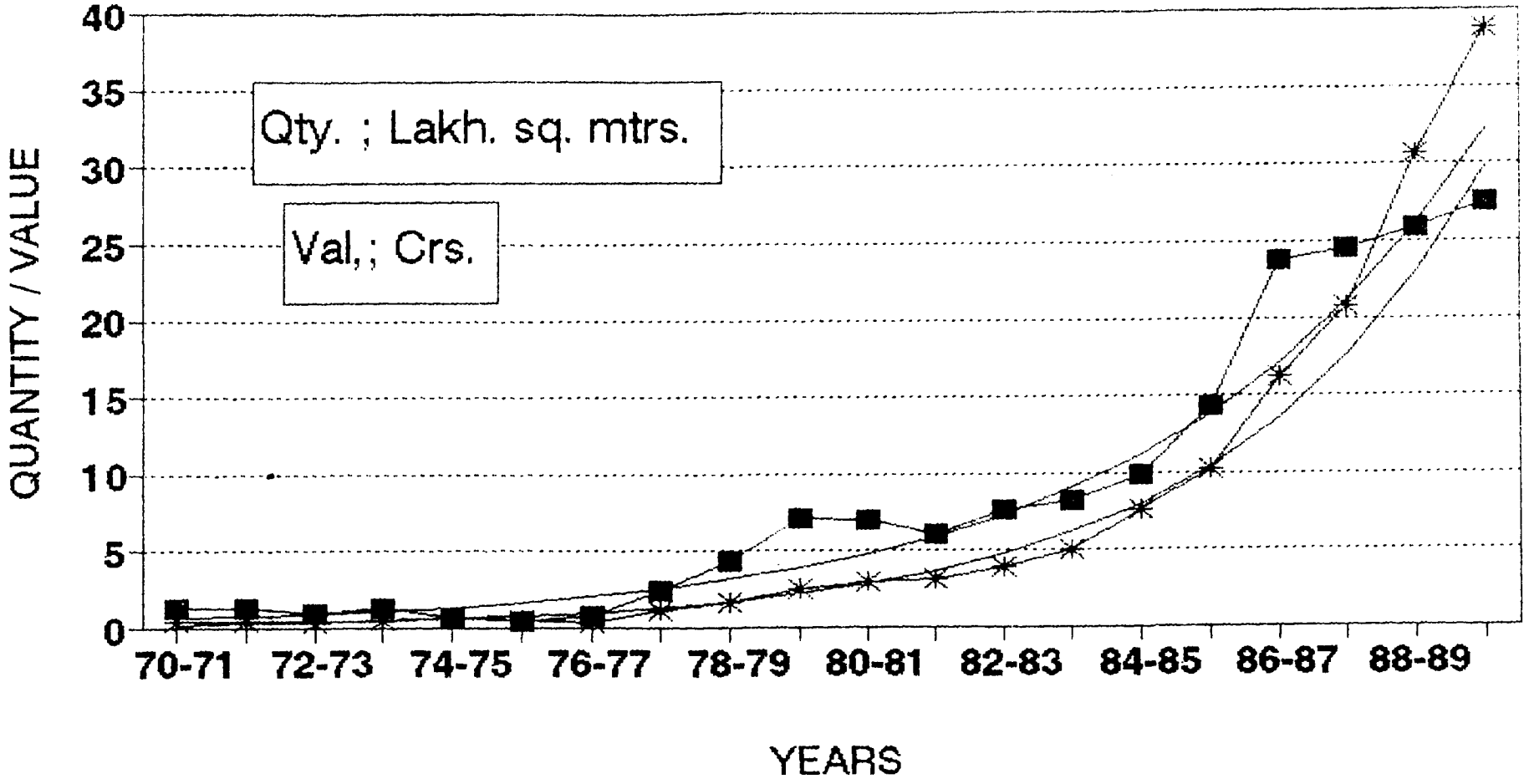


Table 5 : Growth rate of Indian Silk Goods Export
(1970-90)

Type	Growth rate in value (%)	Growth rate in quantity (%)	Growth rate in unit value Rs	$
Sarees	20.59	11.56	9.03	3.58
Scarves	9.67	4.46	5.21	-0.24
Dress materials	26.54	16.30	10.24	4.79
Ready made garments	33.98	18.74	15.24	9.79
Carpets	28.25	27.00	1.25	-4.20
Others	30.08	23.67	6.41	0.96
Total exp	24.81	12.02	12.79	7.34

price grew at the rate of 6.41 per cent per annum, but in terms of dollars it was only 0.96 per cent.

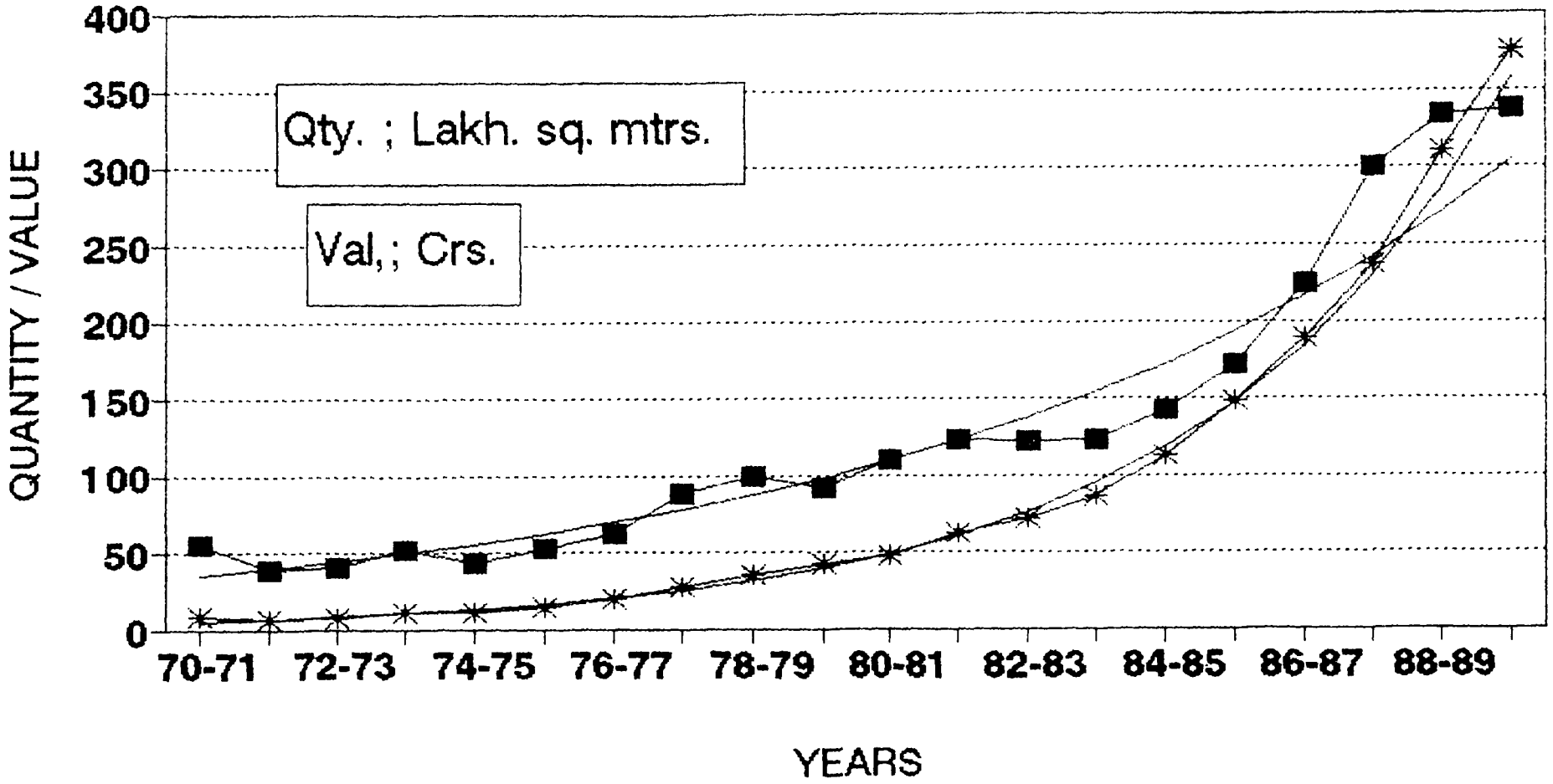
As far as the total mulberry silk export is concerned, it has increased from 55.51 lakh square meters to 337.52 lakh square meters during the study period in quantitative terms, and the export earnings increased from Rs. 8.86 crores to Rs. 375.33 crores. The growth rate of total mulberry silk exports was 12.02 per cent per annum with the value registering a marked growth rate of 24.81 per cent per annum. The regression co-efficient was statistically significant at one per cent level. The unit value in terms of rupees registered a 12.79 per cent growth rate per annum and in terms of dollars it grew at 7.34 per cent per annum.

4.1.2 Export projections

Since the growth rate follows an exponential trend, growth rates were extrapolated to 2000 and 2010 A.D. The projections are presented in table 6.

It can be observed from table 6 that the export of sarees would be 174.81 lakh square meters by 2000 A.D. and 522.20 lakh square meters by 2010 A.D. In case of scarves it would be 70.72 and 110.53 lakh square meters by 2000 and 2010 A.D. respectively. Export projections for dress materials, readymade-garments, carpets and others are expected to grow at a high rate. The exports of these items

FIG:7 TRENDS IN EXPORT
OF MULBERRY SILK (1970-90)



are expected to increase to 581.37, 304.51, 18.64, 269.74 lakh square meters respectively by 2000 A.D. and 2632.05, 1696.73, 203.47 and 2258.12 lakh square meters respectively by 2010 A.D.

Export projections for total mulberry silk export is also presented in the Table 6. which indicates that the quantity of exports is expected to touch 944.89 lakh square meters by 2000 AD and 2941.16 lakh square meters by 2010 AD as against the present quantity of 337.52 lakh square meters (1990/91) if the same rate of growth is to be sustained.

Export projections in terms of value were also calculated by extrapolating the export value growth rates and are presented in Table 6.

Export value of sarees is expected to touch Rs. 303.80 crores mark by 2000 AD and Rs. 1976.74 crores by 2010 AD and that of scarves is expected to touch Rs. 33.33 crores by 2000 AD and Rs. 83.87 crores by 2010 AD. The projected export of dress materials by 2000 and 2010 AD would be Rs. 1247.82 crores and Rs. 13,131.26 crores respectively, and that of readymade-garments would be Rs. 1527.57 crores and Rs. 26,450.37 crores respectively. Export earnings from carpets is expected to be Rs. 820.15 crores by 2000 AD and Rs. 9869.72 crores by 2010 AD.

Export value projection for other silk goods

Table 6 : Projected figures of mulberry silk exports

Type	Qty - Lakh sq. mts. Value - Rupees crores 2000 A.D	2010 A.D
Sarees	174.81 (303.80)	522.20 (1976.74)
Scarves	70.72 (33.33)	110.53 (83.87)
Dress materials	581.37 (1247.82)	2632.05 (13131.26)
Ready made garments	304.51 (1527.57)	1696.73 (26450.37)
Carpets	18.64 (820.15)	203.47 (9869.72)
Others	269.74 (412.65)	2258.12 (5725.46)
Total exports	944.89 (3280.95)	2941.16 (30096.88)

Figures in the parenthesis indicates the projected values of mulberry silk exports.

indicated that the earnings would be Rs. 412.65 and Rs. 5,725.46 crores respectively by 2000 and 2010 AD.

Total foreign exchange earnings from mulberry silk export is expected to be of the order of Rs. 3280.94 crores by 2000 AD and a staggering Rs. 30,096.88 crores by 2010 AD.

4.2 Instability in Indian silk export earnings

To estimate the variability in export earnings of Indian silk, two periods were considered. The first period was 1970-71 to 1979-80 which was termed as pre-development period and the period from 1980-81 to 1989-90 was the development period. The analysis was carried out for different types of silk goods exported from India. The goods considered were sarees, scarves, dress materials, readymade-garments, carpets, other silk goods, total exports and value realised from these exports. The sources that accounted for the changes in the variance of export earnings are presented in Table 7. (For convenience all interaction terms pooled together and put under change in interaction term).

An examination of Table 7 reveals that, of the increase in variability during the latter period over the first period, 44.55 per cent was attributed to the change in price-quantity covariance. Change in interaction term and change in mean quantity export components accounted to 34.47

per cent and 19.37 per cent respectively. Change in the interaction term contributed the most to the export earning instability of dress materials and ready-made garments accounting for 170.57 per cent and 13.62 per cent respectively. But the change in interaction term contributed most to the stability in export earning of carpets accounting for 69.90 per cent. Change in mean price contributed most to the export earning instability in carpets. Change in price quantity co-variance contributed most to the instability in other silk goods accounting for 31.26 per cent.

The export earnings from sarees and scarves were stable and did not contribute to the instability of export earnings of silk.

The growth in export earnings during the development period over the pre-development period was analysed to identify the sources contributing to this growth. The results are presented in Table 8.

Perusal of Table 8 reveals that for total exports, 55.37 per cent of the increased variation in export earning is due to the interaction between price and quantity exported during the development period. This tendency is observed in scarves, sarees, carpets and other silk goods export and to some extent in dress material also. In respect of readymade-garments the increase in the unit value

Table 7 : Sources of change in the variance of export earnings from Indian silk (1970-1990)

(Per cent)

Source of change	Sarees	Scarves	Dress materials	Ready made garments	Carpets	Others	Total exports
1. Change in mean quantity of exports	0.05	0.33	3.41	0.25	-10.84	0.45	19.37
2. Change in mean price	0.00	0.02	0.90	4.83	61.89	1.58	7.51
3. Change in quantity variance	0.07	0.00	0.16	2.31	-0.20	0.00	0.17
4. Change in price variance	0.17	0.04	0.23	2.35	0.00	0.00	8.26
5. Change in price-quantity co-variance	1.30	0.87	8.16	12.60	-69.39	31.26	44.55
6. Change in interaction term	1.15	0.88	170.57	13.62	-69.90	-0.14	34.47
7. Change in residual	-0.83	1.16	4.19	-9.91	7.83	1.24	-14.33
8. Total change in variance	0.60	2.49	17.44	11.47	-11.30	78.34	100.00

Table 8 : Components of change in average Indian silk export earnings 1970-1990.

(value in Rs.crores)

Components of change	Sarees	Scarves	Dress materials	Ready made garment	Carpets	Others	Total exports
1. Change in mean quantity	3.61 (21.34)	1.63 (26.92)	4.06 (7.73)	1.15 (3.23)	-19.02 (-87.95)	-1.17 (-10.44)	8.46 (5.8)
2. Change in mean price	7.25 (42.89)	3.65 (60.29)	14.69 (28.02)	31.4 (80.30)	-66.1 (-305.72)	-0.79 (-7.07)	50.27 (34.45)
3. Interaction between change in mean quantity and mean price	8.33 (49.23)	13.02 (215.32)	20.44 (38.99)	7.97 (32.41)	99.00 (457.89)	19.29 (171.55)	80.29 (55.37)
4. Change in covariance between quantity and price	-2.28 (-13.48)	-12.25 (-202.53)	13.25 (25.25)	-4.96 (-13.55)	7.73 (35.77)	-6.08 (-54.04)	6.4 (4.38)
Total	16.51 (100)	6.05 (100)	52.44 (100)	33.26 (100)	21.61 (100)	11.25 (100)	145.42 (100)

Figures in parenthesis are percentage to the total

realised has been the major contributor to the growth in export earnings.

4.3 Direction of trade

Major destinations of Indian silk exports are subdivided into traditional and non-traditional markets on the basis of the importance of traditional silk products (such as sarees) imported from India. The main markets for Indian silks have undergone a change in recent years with the USA, West-Germany and United Kingdom accounting for 57 per cent by value in 1989-90. Despite the recent increase in growth in the economies of some of traditional markets such as UAE, Singapore and Hongkong, the importance of non-traditional markets has continued to grow at a relatively slower rate.

The direction of trade as well as the changing pattern of Indian silk export was analysed by employing first order Markov process by examining the gains and losses in the export share of Indian silk by the major importing countries.

The major importing countries considered for the analysis were USA, West Germany, United Kingdom, France, Italy and Japan, with the remaining importing countries having lesser importance grouped under others. India's additional exports were also considered for the analysis.

4.3.1 Changing pattern of Indian silk exports

The transitional probability matrix presented in Table 9 provides an insight into the switching behaviour of Indian silk exports between various importing countries over a period of time. This would help in describing the changing direction of trade so that appropriate marketing strategies can be planned in view of the anticipated changes.

The row elements in the transitional matrix provide the information on the probability of retention in the volume of trade and the loss in trade on account of diversion of trade to other competing countries. Similarly, the column elements depict the probability of retention of trade and the gains in the volume of trade from other competing sources.

A transitional probability of unity in the diagonal element for USA reveals that the exports to USA is very stable and the market will remain highly loyal to Indian silk goods. In addition, the probability that the per cent exports to United Kingdom, West Germany and Japan would switch over to the US is unity indicating that entire quantities of export to these countries would drift to the US over a period of time.

West Germany's imports are sustained by the

additional exports of silk goods each year. About 29 per cent of the additional exports of silk fabrics from India finds its way to West Germany.

France which imports on a fairly regular basis from India appropriates about 56 per cent of the previous exports from Italy with a probability of retaining 37 per cent of the earlier exports from India and losing remaining 63 per cent of previous share to other countries.

United Kingdom lost its full share to United States. However it gained 64 per cent share of the Indian silk exports to other countries.

Italy has also not retained its previous year's market share and lost its share to France to the tune of 56 per cent and the remaining 44 per cent to Japan.

Japan, however, lost its entire share to USA and gained about 44 per cent of the Italy's share.

Other countries which included traditional markets also, imports traditional goods from India on a fairly regular basis retained about 29 per cent of the previous import. It also appropriates about 62 per cent of the exports to France.

The growth prospects of silk garment exports is captured by the diagonal element of the additional exports which indicates that each year, the additional export would

Table 9 : Transition probability matrix of Indian silk exports (1974-75 to 1989-90)

Importing Country	USA	W.G	U.K	France	Italy	Japan	Others	New exports
USA	1	0	0	0	0	0	0	0
W.G	1	0	0	0	0	0	0	0
U.K	1	0	0	0	0	0	0	0
France	0	0	0	0.371	0	0	0.629	0
Italy	0	0	0	0.566	0	0.434	0	0
Japan	1	0	0	0	0	0	0	0
Others	0	0	0.645	0	0.069	0	0.286	0
Exports	0.025	0.285	0	0	0.039	0	0.44	0.212

take place to the tune of 21 per cent.

4.3.2 Projections of Indian silk export earnings from major importing countries

Using the transitional probability matrix, projections of Indian export earnings from major importing countries were computed upto 2001 AD. The actual and projected export earnings of Indian silk from major importers in terms of rupees (crores) are presented in Table 10.

Table 10 shows that the actual export earnings from USA has increased from Rs. 1.80 crores to Rs.70.37 crores between 1974 - 1989. Accordingly, the estimated export earnings from USA increased from Rs.8.58 crores in 1974 to Rs. 485.31 crores in 1989. The projection of export earnings to the USA indicated that, earnings are expected to double from Rs. 485.315 crores in 1989 to Rs. 930.24 crores by the year 2001 AD.

The actual export earnings from West Germany increased from Rs. 2.89 crores in 1974 to Rs. 57.98 crores in 1989, while the estimated export earnings also followed the same trend (Rs8.05 crores in 1974 to Rs. 37.57 crores in 1989).The projected earnings from Indian silk exports to West Germany indicates an increase from Rs. 37.57 crores in 1989 and further to Rs. 74.56 crores by 2001 AD.

The actual and estimated export earnings from United Kingdom are presented in Table 10. The actual and estimated export earnings have increased from Rs. 2.67 crores to Rs. 34.98 crores and Rs. 4.36 crores to Rs. 219.86 crores respectively between 1974 to 1989. The export earnings are expected to increase from Rs. 219.86 crores in 1989 to Rs. 432.81 crores by 2001 AD.

The actual and estimated export earnings of silk from France have increased from Rs. 1.99 crores and Rs. 1.33 crores to Rs. 10.49 crores and Rs. 30.54 crores respectively during 1974 to 1989. Earnings of Indian silk from France would increase from Rs. 30.54 crores in 1989 to Rs. 59.10 crores by 2001 AD.

The actual and estimated export earnings from Italy has increased from Rs. 1.04 crores and Rs. 1.55 crores to Rs. 8.89 crores and Rs. 28.49 crores in that order during 1974-1989. Considering the same trend, the projected export earnings of Indian silk from Italy is expected to increase from Rs. 28.47 crores in 1989 to Rs. 56.16 crores by 2001 AD.

The actual and estimated export earnings from Japan have increased from Rs. 0.51 crore and Rs. 0.45 crore in 1974 to Rs. 7.94 crores and 14.83 crores respectively in 1989. The projected export revenue from Japan is expected to increase from Rs. 14.83 crores to Rs. 29 crores between 1989-2001 AD.

Table 10 : India's silk export earning from major importing countries

Figures in (Rs crores)

Year	USA		W.G		U.K		France		Italy		Japan		Others		New Exports	
	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P
1974/77	1.80	8.58	2.90	8.05	2.67	4.36	1.99	1.33	1.05	1.55	0.50	0.45	6.76	15.61	12.76	6.09
1978/81	8.50	21.60	8.05	1.73	5.38	10.06	2.76	1.37	2.92	1.30	1.12	0.67	17.20	7.99	28.25	1.31
1982/85	37.61	210.91	16.08	15.27	11.04	91.52	2.68	13.03	3.35	11.81	1.27	6.35	32.44	72.29	58.63	11.54
1986/89	70.37	485.31	57.98	37.57	34.98	219.86	10.49	30.54	8.90	28.49	7.93	14.83	87.13	174.59	173.20	28.40
1990/93	-	745.79	-	59.22	-	344.64	-	47.27	-	44.70	-	23.12	-	273.65	-	44.76
1994/97	-	872.87	-	69.79	-	405.41	-	55.44	-	52.60	-	27.13	-	321.90	-	52.75
1998/2001	-	930.24	-	74.56	-	432.81	-	59.10	-	56.16	-	29.00	-	343.57	-	56.35

Note : A is the actual export earnings
P is the projected export earnings

The actual and estimated export earnings from other importers have increased from Rs. 6.76 crores and Rs. 15.61 crores in 1974 to Rs. 87.13 crores and Rs. 174.59 crores in 1989 respectively. The projected Indian silk export earnings from other importers is expected to increase from Rs.174.59 crores in 1989 to Rs. 343.57 crores by 2001 AD.

The actual additional export earnings as indicated in Table 10, has increased from Rs. 12.75 crores in 1974 to Rs. 173.20 crores in 1989. The estimated figures are also followed a similar trend from Rs. 6.09 crores in 1974 to Rs. 28.39 crores in 1989. The projected export earnings from additional export is expected to increase from Rs. 28.39 crores in 1989 to Rs. 56.35 crores by 2001 AD.

4.4 Market share and concentration

The market structure and concentration were studied by means of the Hirschman's index and Theil's entropy index and the results are presented in Table 11 and exports of silk fabrics are presented in Appendix-V.

From the results in Table 11, it is evident that the market concentration has declined progressively from 1976-78 to 1985-87. The world trade in silk more or less approximates an oligopoly, and the Hirschman's index had declined from 0.54 in 1976-78 to 0.48 in 1985-87, suggesting

Table 11 : Market concentration indices

	Percentage Share of the 4 largest exporters	Hirschman's Index	Theil's entropy
1976-78	80.32	0.54	0.25
1979-81	73.15	0.49	0.13
1982-84	62.48	0.51	0.16
1985-87	69.78	0.48	0.11

that the markets have become more competitive. The Theil's entropy index indicated that the distribution of the export trade has tended to become more equitable, evidenced by reduction in the index M(x) from 0.25 in 1976-78 to 0.11 in 1985-87. In the begining of seventies the export trade in silk was a concentrated oligopoly as the largest 4 exporters viz., Republic of Korea, Italy, Japan and Hong Kong accounted for over 70 per cent of the world trade in silk. This was the case during first two sub-periods encompassing the period 1976 to 1981. Following 1980, the share of the largest four has fallen to less than 70 per cent. During subsequent two periods the market has changed to become a moderately concentrated oligopoly.

4.5 Export demand for Indian silk

An understanding of the nature of export demand and factors influencing the demand for silk in the international market will be of great value in planning export strategies for silk as well as in policy decisions such as in setting tariff and exchange rate. Therefore an attempt is made to estimate the price and income elasticities of demand for Indian silk in the non-traditional markets (developed countries together) and to identify the factors influencing the demand for Indian silk using regression analysis.

Several variables were considered in the analysis

such as export of readymade-garments, export of dress material, trend, gross national product, export prices and the world exports. However, the variables that best explained the variation in India's silk exports were captured by trend, gross national product and unit price of silk in the export market. The GNP index for developed countries and annual exchange rate of US dollar in terms of Indian rupees are presented in Appendix III and IV respectively. Results of the regression analysis is presented below.

$$\ln X^D = -2.2087 + 0.2\ T - 0.11 \ln P + 1.38 \ln Y$$

$$(14.44)\quad (0.76)\quad (3.04)$$

$R^2 = 0.99$

Dw Statistic = 1.72

(Figures in parenthesis are calculated 't' values)

where T = Trend component

P = Export price expressed in $/kg

Y = Per capita income ($) of developed countries

ln = Natural logarithm

Presence of auto-correlation was tested by computing the Dw-statistic and was corrected using the Cochrane-Orcutt method. Auto correlation of third degree was found to exist which was corrected and the final Dw statistic value of 1.72 was found to be non-significant.

The results of regression equation indicated that

demand for Indian silk goods were increasing at the rate of 20 per cent per annum keeping other things constant as indicated by the trend coefficients of 0.20.

Surprisingly demand for silk goods was not sensitive to changes in the export prices of silk as evidenced by a non-significant regression coefficient of 0.11. Thus for a one per cent increase in the export price there is no significant decrease in the quantity exported. The coefficient had a negative sign.

The fact that the income of the importing country had a strong bearing on exports was brought out by the highly elastic regression coefficient of 1.38 for income which indicated that for every one per cent increase in the per capita income, a more than proportionate increase in the demand for Indian silk would result. The coefficient was found to be highly significant.

The adequacy of the fitted model was vindicated by the high R^2 value of 0.99 which implies that 99 per cent of the variation in exports is explained by the variables included in the model.

DISCUSSION

CHAPTER V

DISCUSSION

The findings of the present study presented in the previous chapter are discussed here under the following headings.

5.1 Analysis of growth

5.2 Instability in export earnings of Indian silk

5.3 Changing direction of trade of silk fabrics

5.4 Market concentration of the silk trade

5.5 Export demand for Indian silk

5.1.1 Analysis of growth

The government of India provided considerable facilities and services for the promotion of export of silk goods - including silk fabrics and readymade-garments. Since 1980, the promotion of silk goods export has been co-ordinated by the Indian Silk Export Promotion Council. Because of the vigorous promotional efforts, there has been an accelerated growth in the silk goods export. This has resulted in the rapid growth of different types of mulberry silk exports viz., sarees, scarves, dress materials, readymade-garments, carpets and other silk goods from India.

The annual growth in saree export and the value realised were 11.56 per cent and 20.59 per cent,

respectively between 1970-71 and 1989-90. Both these growth rates were statistically significant at one per cent level. Growth rates of unit value in terms of rupee and dollars worked out to 9.03 and 3.58 per cent, respectively.

The growth rates of exports of scarves and the value realised through export during the study period were 4.46 per cent and 9.67 per cent, respectively. These growth rates were statistically significant at one per cent level of significance. In value terms, the growth has been at the rate of 5.21 per cent in rupees and -0.24 per cent in terms of dollars.

The export of dress materials have increased at a fairly rapid rate of 16.30 per cent during the period between 1970-71 and 1989-90, Whereas the growth rate of value was 26.54 per cent during the same period. Both these growth rates were statistically significant at one per cent level. The growth in unit value of dress material in rupees and dollars were 10.24 and 4.79 per cent, respectively.

Growth rate of readymade-garments export was 18.74 per cent during the period under study and value growth has been high at 33.98 per cent. Both these growth rates were statistically significant at one per cent level of significance. In case of the unit value realised it recorded a growth rate of 15.24 per cent in terms of rupees and 9.79 per cent in terms of dollars.

Export quantity of carpets have grown at the rate of 27 per cent between 1975-76 and 1989-90 and its value growth rate was 28.25 per cent during the same period. Both these growth rates were statistically significant at one per cent level of significance. In real terms, it has increased at the rate of 1.25 per cent in terms of rupee and decelerated at 4.20 per cent in terms of dollars.

The export growth rate of other silk goods and the value realised during the period under study were 23.67 per cent and 30.08 per cent respectively. Both these growth rates were statistically significant at one per cent level of significance. While, in rupees the unit price increased at 6.41 per cent per annum, in terms of dollars, it was only a 0.96 per cent growth.

There has been a significant increase in the growth rates of export of all silk varieties both in terms of quantity and value during the study period. The reason is not far to seek. This is because of tremendous increase in the production of silk under the influence of an intensive promotional efforts such as increasing the area under mulberry cultivation, improving the productivity and also by improving the technology in silk reeling and weaving. Area under mulberry has increased from 98,248 hectares in 1970-71 to 2,94,241 hectares in 1989-90. The production of raw silk has increased 2258 tonnes in 1970-71

to 10,905 tonnes in 1989-90. Thus the overall silk production has increased at more than 10 per cent per annum.

Even in real terms, the growth rates of most of the fabric prices were high indicating improvement in price realisation both in dollar and rupee terms.

Sarees have been growing at a slower rate when compared to other fabrics because of low growth in demand for these traditional silk in the international markets and only small proportion of the world silk market is for sarees. Sinha (1990) made a similar observation. Eventhough the quantity of sarees exported during the period between 1975-76 and 1989-90 has increased from 14.50 lakh square meters to 36.71 lakh square meters and that of value increased from Rs. 4.69 crores to Rs. 32.43 crores during the same period, their share in export during the same period has decreased from 27.43 per cent to 10.87 per cent in case of quantity ; and 32.60 per cent to 8.86 per cent in terms of value. Even the share of traditional markets such as UAE, Singapore and Hongkong which import traditional silk products like sarees in total export earnings has decreased substantially from 25.71 per cent in 1975-76 to 11.20 per cent in 1989-90. This trend is likely to benefit in the long run since the non-traditional Indian silk products have a growing demand in the main textile markets in the importing countries.

On the other hand, scarves have been growing at the lowest rate among the silk fabrics exported by India. Scarves once constituted the largest item of exports of silk goods from India. But of late the styles and designs of scarves have improved considerably and hence India is not able to make a break through in the exports of this item.

Dress materials and readymade-garments have grown at the rapid rate because of the growing demand for these products in the international markets, since these goods are preferred mostly in fashion-conscious non-traditional markets like USA, West Germany, France, etc. Sinha (1990) also made a similar observation. Total foreign exchange earnings from these non-traditional market has increased from Rs. 10.46 crores in 1975-76 to Rs. 333.27 crores in 1989-90 and the share also following the similar trend (From 74.28 per cent in 1975-76 to 88.79 per cent in 1989-90).

The ready made garment export was the fastest growing segment. The value realised in dollar terms is increasing at the rate of 10 per cent per annum which is indicative of a growing demand in the world market as well, perhaps reflects a change in the fashion and consequently a switch in the Indian exports from sarees to readymade-garments. This higher growth rate of ready made garment is a positive trend as it enhances the value added within India for a given quantity of silk and augments more employment opportunities as well (Sinha, 1990).

Higher growth rate of 28.25 per cent with respect of carpets reflects the increase in the demand for carpets as a status symbol among affluent western society where it is considered as connoisseurs item.

Total silk exports have also grown rapidly in recent year, reaching 2200 tonnes of raw silk equivalent in 1987-88 at a growth rate of 12.02 per cent per annum over a 20 years period. In value terms exports have grown at an annual rate of 24.81 per cent at nominal prices over the past two decades. Even in real terms, growth has been high at the rate of 12.79 per cent because of the improvement in price realisation at the rate of nearly 6 per cent per annum. Higher growth rate in total silk export is because of the intensive promotional activities both in terms of production and exports taken up by the government.

5.1.2 Export projections

The future value of silk exports from India during the years 2000 and 2010 AD are estimated. Since the exponential functions better explained the growth in export of silk goods as indicated by the high R^2 values, the export projections for the year 2000 and 2010 were obtained by extrapolation.

The export of sarees are expected to touch 174.81 lakh square meters by 2000 AD and 522.20 lakh square meters

by the year 2010. Their exports are expected to earn Rs. 303.80 crores and Rs. 1976.74 crores respectively for 2000 AD and 2010 AD at the present rate of growth.

Scarves export would reach 70.72 lakh square meters by 2000 AD and 110.53 lakh square meters by 2010 AD. Its value is expected to touch Rs. 33.33 crores by the turn of this century and Rs. 83.87 crores by 2010 AD. This projected value can be improved considerably, if India could improve the technology and design to gain wider acceptance in the world market.

Dress material export will continue to be dominant among the silk goods which is expected to reach 581.37 lakh square meters by 2000 AD and 2632.05 lakh square meters by 2010 AD. This value is higher than the readymade-garments whose export is expected to be 304.51 lakh square meters by 2000 AD and 1696.73 lakh square meters by 2010 AD. But in terms of export earnings, readymade-garments is likely to take the number one position among silk goods. Its export earnings of Rs. 1527.57 crores by 2000 AD and Rs. 26,450.37 crores by 2010 AD is little higher than the export earnings from dress material whose export earnings are expected to be of the order of Rs. 1247.82 crores by 2000 AD and Rs. 13,131.26 crores by the year 2010 AD. Eventhough, the export of dress material is expected to be higher than the ready made garment, its export earnings is expected to be less than that of readymade-garments because of the steep

rise in unit value of readymade-garments which may contribute to increase in the export earnings.

The export of carpets and other silk goods is likely to be 18.64 lakh square meters and 269.74 lakh square meters respectively by 2000 AD and 203.47 lakh square meters and 2258.12 lakh square meters by 2010 AD in that order. Their export earnings is also expected to increase from the present level to Rs. 820.15 crores by 2000 AD and Rs. 9869.72 crores by 2010 AD in case of carpets and Rs. 412.65 crores by 2000 AD and Rs 5,725.46 crores by 2010 AD in case of other silk goods.

Export of mulberry silk is expected to reach 944.89 lakh square meters by 2000 AD and 2941.16 lakh square meters by 2010 AD at the present rate of growth in exports. The export earnings from mulberry silk is expected to cross Rs. 3000 crore mark by the turn of this century and Rs. 30,000 crores by the turn of first decade of next century. The export projection using the Markov chain model puts the figure at Rs. 1981.75 crores by 2001 AD. But considering the present tempo in the growth of production of mulberry silk through world Bank aided projects as well as intensive export promotional activities taken up by the government of India, and also export growth of 12 per cent in the last ten years period, makes the exponential projection figure of Rs. 3,280.94 crores by 2000 AD appears well within the realm of possibility.

5.2 Instability in Indian silk export earnings

The unstable export earnings affect the growth of silk industry because of fluctuating income to the domestic producers which in turn causes uncertainty on investment decisions. Therefore, an attempt is made to measure the extent of instability and sources of instability in export earnings and the results are discussed in this section.

In case of total export 44.55 per cent of the increase in silk export earning variability was attributed to the change in price quantity covariance. Change in interaction term and change in mean quantity export components accounted to 34.47 per cent and 19.37 per cent, respectively. Further, change in interaction term contributed the most to the export earning instability of dress materials and readymade-garments accounting for 170.57 per cent and 13.62 per cent, respectively. But the change in interaction term contributed the most to the stability in export earnings of carpets accounting for 69.90 per cent. Change in mean price contributed most to the export earning instability in carpets. However the change in variability of sarees was negligible and contributed to stability in export earnings of silk. The same is true of scarves and other silk goods.

Further, decomposition analysis indicates that in all the varieties of silk, export earning instability was

contributed largely by the interaction between the change in mean quantity and mean price, except in readymade-garments whose export earnings instability was contributed by change in mean price.

The increased instability in sarees export earnings was contributed by change in mean price to the extent of 42.89 per cent followed by 21.34 per cent of the change in mean quantity. In case of scarves change in mean price and mean quantity components contributed 60.29 per cent and 26.92 per cent respectively. In case of dress materials change in mean price and change in mean quantity components contributed 28.02 per cent and 7.73 per cent, respectively.

In case of readymade-garments change in mean price contributed 94.39 per cent towards export earnings instability, whereas change in mean quantity component contributed towards instability to the extent of 3.34 per cent.

In case of carpets, change in mean price and change in mean quantity contributed to stability, whereas the interaction between change in mean price and mean quantity contributed 457.89 per cent towards instability followed by change in co-variance between quantity and price contributing about 7.73 per cent.

Decomposition of the sources of change of export value into 4 components indicated that change in mean price contributed 34.45 per cent towards increase in export earnings of total silk export followed by change in mean quantity component which contributed to about 5.80 per cent.

In all the silk varieties, except readymade-garments the growth in export earnings was mainly caused by the interaction between the change in mean quantity and mean price. This is due to increased quantum of exports as well as the increased price realised by these silk good in the second period. Further, as the interaction component is the product of change in mean price and change in mean quantity, it can be explained that the increase in export earning was caused by the change in mean price than the change in mean quantity barring carpets and other silk goods. This is because, the export prices have grown more rapidly than the export quantity in the development period.

5.3 Direction of trade

In this section the changing direction of trade of Indian silk among major importing countries and projection of Indian silk exports upto 2001 AD are discussed.

5.3.1 Changing pattern of Indian silk exports

The dynamics of changes in the export trade of Indian silk is studied through the estimation of a Markov

transition probability matrix. The probability of retaining the previous period market share, gain or loss is interpreted by studying the diagonal and off-diagonal elements of the transitional probabilities matrix.

A transitional probability matrix of unity indicated by the diagonal element for USA (Table 9, Ch. V) explains that exports to USA is very stable and will not decline in the future course of time. There will not be any switching over or diversion of the present exports to USA to other destinations. This implies that the American market will remain highly loyal for Indian silk goods. In addition, the entire share of West Germany, United Kingdom, Japan were also transmitted to the USA. This highest share of USA was due to the largest export proportion of Indian silk in the eighties to this market.

Further, the export potential to USA is high because it is the second largest importer of the silk next only to Japan in the international market and its average share of world consumption in 1981-82 was 10.4 per cent after Japan and China having 38 per cent and 16.8 per cent respectively.

Similarly, France has retained one third of the previous period market share and lost two third of the share to other countries. However, France has made good of its market share by gaining to the extent of 57 per cent of

Italy's import share to sustain its market. This may be due to increasing demand for silk by Fashion-conscious French people. Silk consumption in France has increased over the years. According to some estimates, silk consumption in France has increased one and half times just within a span of one year. It has increased from 480 tonnes in 1980 to 750 tonnes in 1982. (Green Halgh, 1986).

Other countries which include traditional markets, import traditional goods from India on a fairly regular basis retaining about 29 per cent of the previous period import. Losses in its share to United Kingdom and Italy were made good by taking about 62 per cent market share of France. It also appropriates about 44 per cent of the new exports. The traditional preference for silk goods in developing countries have sustained the demand for silk in these countries.

With regard to the export of Indian silk goods to Italy and Japan, the probability that India retain its exports is nil. However, there is 0.07 per cent probability that export to other countries will switch over to Italy and 0.43 per cent of Italy's share will be diverted to Japan. Since both these countries are the major producers of silk fabrics, they can not absorb much of the Indian silk fabrics. Italy was the pre-eminent supplier of silk fabrics to the world markets followed by Republic of Korea,

Hongkong, Japan more or less in that order. In 1986 these countries exported silk fabrics to the tune of 275.47 US $ million, 129.97 US $ million, 107.75 US $ million, 69.60 US $ million respectively. (U.N. international trade statistics year book, 1986).

India could not retain its previous market shares to West Germany and United Kingdom. The market shres held by them show a tendency to drift over to the USA. However, about 28 per cent of India's additional exports will go to West Germany and there is 64 per cent probability that other countries market share will switch over to the United Kingdom. The possibility of total decline in Indian exports to these countries may be due to competition from high quality Japanese and China silk in these markets.

The growth prospects of silk fabrics export is captured by the diagonal element of the new exports which indicates that the possibility of increase in Indian silk exports is to the extent of 21 per cent per annum.

5.3.2 Projections of India's silk export earnings from major importing countries

Using the transitional probability matrix, projections of Indian export earnings from major importing countries were computed upto 2001 AD and are discussed below.

The estimated export earnings from all the importers considered in the study has increased during the study period. In case of USA, the estimated export earnings has increased from Rs. 8.58 crores to Rs. 485.31 crores during the study period. The export earnings from USA are expected to reach Rs. 930.24 crores by 2001 AD.

The estimated export earnings from West Germany has increased from Rs. 8.05 crores to Rs. 37.57 crores between the period 1974-1989 and the export earnings from West Germany will be of the order of Rs. 74.55 crores by 2001 AD if the present trend were to continue.

The estimated export earnings from United Kingdom has increased from Rs. 4.36 crores in 1974-77 to Rs. 219.86 crores in 1986-89. The export earnings from United Kingdom is expected to attain Rs. 432.80 crores by 2001 AD.

Exports to France followed an increased trend both in actual and estimated values and its contribution to India's silk export earnings is projected at Rs. 59.09 crores by 2001 AD.

The estimated export revenue in case of Italy has increased from Rs. 1.55 crores to Rs. 28.49 crores during the study period. Its contribution to India's silk export earnings would be Rs. 56.16 crores by 2001 AD.

Japan also follows the increased trend both in

actual and projected export revenue contribution to India. The estimated export earnings from Japan has increased from Rs. 0.45 crore to Rs. 14.82 crores during the study period. The export earnings from Japan is expected to be Rs. 29 crores by 2001 AD.

The estimated export earnings from other importing countries has increased from Rs. 15.61 crores to Rs. 174.59 crores during the study period. The export earnings from other countries are expected to touch Rs. 343.57 crores by 2001 AD.

The addition to export earnings from silk to India has increased from Rs. 12.75 crores to Rs. 173.20 crores during the study period. The additional exports by 2001 AD is likely to be of the order of Rs. 56.35 crores.

However, it is important to note that the projected figures may not be highly realistic in view of the wide variations between the observed and estimated values, but it could explain the overall trend of the Indian silk export earnings. The highest export earnings from USA both in actual and projected terms, reveal that there is much scope for exploiting the US market (Thimmaiah, G. and Nagabhushana, C.S., 1985). The results also indicate that export earnings from other countries like UAE, Kuwait and Oman are expected to be higher by 2001 AD. So there is much scope for exploiting these middle east markets who are

India's traditional importers. In West European countries, the imports are almost stagnated except in U.K.

5.4 Market share and concentration

Based on the analysis of market structure, it is evident that the export trade in silk is concentrated, though, the degree of concentration has tended to decline over the years. Till mid seventies, the market was identified as concentrated oligopoly as evidenced with an index of 0.54. About 4-5 major exporters dominated the market. Subsequent to 1980's, there has been a decline in the concentration lending the structure to a moderately concentrated oligopoly. The reduction in concentration was the obvious greater degree of equitable distribution of market shares which is reflected by the reduced index (Theil's entropy) for the recent years.

The reason for this is not far to seek. Prior to mid seventies the export trade in silk was virtually in the strong hold of R. Korea, Japan and Italy. These three countries together controlled 82 per cent of the world exports during 1976. Their shares have been progressively fallen to about 54.62 per cent during 1987. In eighties, countries like France, Hongkong and India have increased their supply significantly. Further, there was a decrease in the export share of Japan, Italy and R. Korea because of stagnated production. These countries bedeviled by the

acute scarcity of labour, high production costs and lack of adequate incentives for sectors like sericulture. Therefore other countries like France, India, Hongkong, West Germany and Switzerland have been able to corner a fairly large share of world market in a short span of one decade. These countries have benefitted from the fact that the quantity consumed within each country is meager, leaving most of their production for export.

5.5 Export demand for Indian silk

Much concern has been given about the need for appropriate price and exchange-rate policies for promoting India's agricultural exports. The relative importance of price and non price factors has been debated. Although supply constraints rather than external demand constraint has often been considered an important factor in inhibiting the growth of silk exports from India, much of the debate on these issues hinges on the adequacy of empirical evidence on the quantitative significance of various factors affecting demand for silk in overseas market. The magnitude of income elasticity of demand determines whether growth of income in developed countries can provide a boost to the exports of India; the size of price elasticity of demand determines how shifts in export supply will affect export revenues.

The demand for developing country exports is held to depend on the incomes of importing countries (in our

context the developed countries) and on the relative prices of the exports of developing countries in the markets of importing countries. Thus, the export demand elasticity for Indian silk was analysed for developed countries using multiple regression and results are discussed below.

The result indicated that for a per cent increase in the total world export because of the general trend, the demand for Indian silk increases by 20 per cent every year following the general increase in the export of silk goods in the world market. This component captures the factors affecting the demand for silk goods other than the income and price. The factors which influence the demand other than price and income are, population growth, income distribution and the taste and preferences. Further, countries like Japan, South Korea and Hongkong have reduced their export share, in future there will be grater demand for Indian silk goods.

Further, estimation of price elasticities of demand indicate that for a per cent increase in the export prices of Indian silk, the demand decreases by a little over 0.10 per cent i.e., for a 10 per cent increase in the export price of Indian silk, the demand would decrease by one per cent. The coefficient was statistically non-significant which implies that the demand for silk is not sensitive to its own price.

Estimation of income elasticity of demand indicated that demand is highly income elastic. For a per cent increase in the income of developed countries, there will be more than proportionate increase in the demand for Indian silk. i.e., the per capita income of the developed countries increases by one per cent, then the demand for Indian silk increases by 1.38 per cent. The coefficient was found to be significant. Thus the export demand for Indian silk is highly sensitive to income.

From the above discussion it can be concluded that there is a high income elasticity of demand for India's exports, and export price has a negligible effect on the exports of silk goods from India.

Insignificance of demand to change in price can be best explained by the fact that the limited substitution possibility of silk by selected goods. Silks have practically no close substitutes. Hence the inelastic relationship with price.

The significance of income in influencing demand clearly reflects the luxury nature of silk goods. Silk is considered as a premier good and hence preferred by the high income group. Thus with the growth of income and change in the structure of income distribution, the demand for silk good is bound to grow.

SUMMARY AND CONCLUSION

CHAPTER VI

SUMMARY AND CONCLUSION

Trade in agricultural goods can plays an important role in promoting economic development especially in less developed countries (LDC). India, being an agrarian economy has an advantage to specialise in the production of those goods where it has comparative advantage and to export the surplus production to earn valuable foreign exchange for its economic growth.

The growing trade deficit of India is a matter of concern for policy makers. Despite the trade liberalization policies initiated by the Government of India, exports have failed to pick up in real terms. Trade deficits both in rupee terms and dollar terms continue to widen. Thus the Indian economy is passing through a difficult phase due to continued pressure on balance of payments. Thus a strong emphasis should be given on a rapid and sustained growth in the value of exports. Agricultural trade can, therefore play an important role in economic development by supplementing the contribution of industrial sector to reduce the external debt burden. In this context, the export potential of sericulture, especially, silk goods needs emphasis.

Sericulture is primarily an agro-based industry

ideally suited to countries like India because of its high potential for income and employment generation. The most important feature of sericulture is that it has a very high degree of backward and forward linkages as it encompasses both agriculture and industry. Further, silk as a commodity has an appreciable impact on the economic profile of states like Karnataka. The current production of mulberry raw silk in India is estimated around 11,487 tonnes and substantial portion of it (16 per cent) is exported in the form of manufactured silk goods.

Indian exports have touched 337.52 lakh square metres in 1989-90 and export earnings from this sector has crossed Rs. 440 crores (Silk Man's Companion, 1992). The contribution of silk exports to the over all foreign exchange contribution has also grown favourably from just 0.5 per cent in 1976-77 to 1.44 per cent in 1989-90, expanding the surplus contribution of silk to the trade balance. In view of the high potential of sericultural sector for income, employment and export contribution, the Central Silk Board has launched an ambitious National Sericulture Project (NSP) aiming at quantum jump in silk production, exports and employment generation in the current plan period. Even though, much interest has been shown in potential contribution of sericultural industry to agricultural development, employment expansion, and its foreign exchange contributions yet little research has been

done in the area of trade in silk products in India. In the international market, the competition in respect of silk goods is increasing because of intense competition by other exporting countries such as China, Japan and South Korea. This increased competition has to be combated by the Silk Export Council by divising long-term action plan for the promotion of silk exports. This requires the complete understanding of the export market structure and export demand for silk goods in the international market. Keeping this in view, the present study was designed specifically to;

1. estimate the growth in trade of Indian silk goods,
2. study the extent of instability and sources of instability in Indian silk goods export,
3. study the direction of trade of Indian silk exports,
4. analyse the market share and market concentration in export trade for silk goods; and
5. examine the export demand for Indian silk goods.

Different analytical tools were employed to analyse the two segments of the silk exports both in terms of quantity and value. Secondary data published by Central Silk Board, FAO trade and production year books, IMF bulletins and UN international trade statistic year books were used for the study.

To assess the growth of Indian silk exports the

exponential growth function was used. Variance decomposition procedure developed by Hazell (1984) was followed to measure the export instability and to identify the sources of instability. Markov chain analysis was employed to study the dynamic structure of exports. Market share and market concentration were examined by computing Hirschman's Index (H(X)) and Theil's entropy respectively. Multiple regression analysis was used to estimate the export demand elasticities of Indian silk.

The salient finding of the study.

The export of sarees have been growing at a slower rate when compared to other fabrics because of low demand for these traditional silk items in the international market as identified by a small proportion of the world silk market for sarees. The growth rates of saree export and value realised were 11.56 per cent and 20.59 per cent respectively. The unit value growth rates were 9.03 per cent in terms of rupees and 3.58 per cent in terms of dollars.

Scarves have been growing at the lowest rate of 4.46 per cent in terms of quantity and 9.67 per cent in terms of value among the silk fabrics being exported by India. Because of the change in taste and designs of scarves, India is not able to make a break through in the export of this item. The growth in unit value realisation

has been at the rate of 5.21 per cent in terms of rupees and -0.24 per cent in terms of dollars.

Dress materials have grown at a fairly rapid rate of 16.30 per cent with its value growing at the rate of 26.24 per cent per annum, yielding a growth in unit value of 10.24 per cent in terms of rupees and 4.29 per cent in terms of dollars. Similarly readymade-garments have also grown at a rapid rate of 18.74 per cent and the growth in value realised was 33.98 per cent. The unit value growth rates were 15.24 per cent in terms of rupees and 9.79 per cent in terms of dollars. Rapid growth rates were attained both in the case of dress materials and readymade-garments because of the increased demand for these products in the fashion conscious non-traditional markets like USA, West Germany, France, etc.

Higher growth rate seen in carpets, of about 27 per cent in quantity and value reflects the increase in demand for carpets as a status symbol among affluent western society where it is considered as connoisseurs item. However, the price realisation has been stagnated and in dollar terms it is decreasing at the rate of 4.26 per cent per annum.

Other silk goods have grown at the rate of 23.67 per cent with its value growing at the rate of 30.08 per cent per annum. In real terms the growth rate as 6.41 per

cent in terms of rupees, 0.96 per cent in terms of dollars.

Total silk export has grown at the rate of 12.02 per cent per annum with its value growing at an annual rate of 24.81 per cent at nominal prices. Even in real terms, growth has been high at the rate of 12.79 per cent because of the improvement in price realisation at the rate of nearly 6 per cent per annum. Significant increase in the growth rates of export of all the silk varieties both in terms of quantity and value is because of tremendous increase in the production of silk under the influence of an intensive promotional efforts such as increasing the area under mulberry cultivation, improving the productivity and also by improving the technology in silk reeling and weaving.

The estimation of export projection by extrapolating the trend growth put the total export quantity at 944.89 lakh square metres by 2000 AD and 2941.16 lakh square meters by 2010 AD. The corresponding export earnings are expected to be in the region of Rs. 3000 crores by 2000 AD and Rs. 30,000 crores by 2010 AD and major share both in terms of quantity and value is expected to come from dress materials and readymade-garments. However, the export projections using the Markov chain model puts the figure at Rs. 1981.75 crores by 2001 AD. But considering the present tempo in growth of production of mulberry silk through world bank aided projects and also the intensive export

promotional activities taken up by the Government of India, also export growth of 12 per cent in the last ten years period, makes the exponential projection figure of Rs. 3280.94 crores by 2000 AD appear well within the realm of possibility.

The analysis of the export earning instability for all the varieties of silk and total silk exports indicates that, the instability in export earning was mainly caused by the interaction between the change in mean quantity and mean price. This was due to increased quantum of exports as well as the high price realised by these silk goods in the development period. It can also be noticed that, the price has grown faster than the quantity. Thus export earning instability in all the silk goods was apparently price led. That is price has increased more rapidly than that of quantity in the development period.

The analysis of the direction of Indian silk exports showed that USA, France and other countries which include countries like UAE, Singapore, Saudi-Arabia, Swaziland, Kuwait, South Oman, Somalia, Mauritious, Figi, Hongkong etc. are the most important markets for Indian silk.

The results of the Markov-chain analysis has indicated that USA is the most stable market for Indian goods as it has shown 100 per cent import loyalty. France

and other countries listed above as a group has shown a moderate degree of loyalty with transitional probabilities of 37 per cent and 29 per cent respectively. Further it was also revealed that the entire flow of silk goods export from India to Republic of Germany, United Kingdom and Japan are likely to be diverted over to USA. From this, it was evident that USA would emerge as the largest export market for Indian silk, while the markets like Germany, U.K. and Japan would almost be lost. The highest share of USA is because of higher consumption. In case of other countries as a group, the traditional preference for silk goods have sustained the demand in these countries.

India could not retain its share to countries like West Germany, U.K., Japan and Italy. Because silk is being produced in these countries on large scale and also because of competition due to the high quality Japanese and/ Chinese silk in some of these markets.

The actual as well as estimated export revenue from all the importers have increased over the years. The highest export earning both in actual and estimated terms comes from USA. The projected export earnings for 2001 AD is also highest from USA. The export earnings from other countries like UAE, Kuwait, Oman, were expected to increase by 2001 AD. In case of European countries, the imports were almost stagnant except in U.K.

Analysis of market share and concentration showed that international markets have become more competitive as indicated by the decline in the Hirschman's index from 0.54 to 0.48 during the period under study. The reduction in concentration was the obvious grater degree of equitable distribution of market share partly because of significant increase in their supply of silk goods by countries like France, Hongkong, India and partly because of decrease in export share of Japan, Italy, R. Korea, as a result of stagnated or decline in production.

Analysis of the export demand for Indian silk goods have shown that, the demand for Indian silk goods increases 20 per cent every year in response to general increase in the demand for silk in the international markets. This is because of the change in taste and preferences, increase in the population etc.

Result of price elasticity of demand indicates that demand for Indian silk good is not sensitive to the change in its export price. However, the coefficient had a negative sign. This is because of the limited substitution possibility of silk by selected goods since silks have practically no close substitutes.

The result of income elasticity of demand indicates that demand is highly income elastic i.e., export demand for Indian silk is highly sensitive to income. This

reflects the luxury nature of silk goods. Since silk is considered as a premier good and preferred mostly by the high income groups, with the increase in the income the demand for silk good is bound to grow.

The implications of the study

The increased growth rate of all types of silk exports have been a result of increased production as well as the intensive export promotional efforts taken up by the Government of India and also increased international demand for silk goods. The government should give more importance to export of readymade-garments which not only help in value realisation but also help in generating much needed employment in the rural sector. Further, there is much demand for these goods in the fashion conscious western society who are our potential buyers.

India is likely to lose its export markets in some of the developed countries like Germany, U.K. and Japan and there is likely concentration of exports to USA. Relying on a single international market would increase the trade risk in the long run. Therefore appropriate export promotional strategies have to be evolved to diversify the geographical concentration.

Demand for Indian silk is highly sensitive to the per capita income of the developed countries. Whereas it is not same with the export price as demand is insensitive to

change in export price. This gives an indication that India should strive to increase its exports to the countries whose gross national products are fast rising.

Since the change in prices are contributing more towards instability in export earnings from silk, the government should stress more on policies which will help in stabilizing the prices.

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CHAPTER VII

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ANNEXURES

Appendix - 1 : Variety-wise exports of mulberry silk goods

Qty : Lakh sq.mts.
Value : crores

Year	Sarees		Scarves		Dress Material		Ready made Garments		Carpets		Others		Total	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
1970-71	6.02	1.09	34.33	4.48	11.54	2.25	2.36	0.62	-	-	1.26	0.40	55.51	8.86
1971-72	6.35	1.03	16.93	1.69	11.16	2.09	2.75	0.59	-	-	1.27	0.42	38.46	5.84
1972-73	7.41	1.25	16.01	1.88	12.85	2.55	3.87	0.82	-	-	0.95	0.31	41.09	6.83
1973-74	10.89	2.24	18.95	2.60	16.31	3.86	4.69	1.13	-	-	1.27	0.54	52.11	10.39
1974-75	9.86	2.69	19.68	3.20	9.76	2.85	3.17	0.95	-	-	0.62	0.60	43.09	10.32
1975-76	14.50	4.60	26.35	4.77	9.10	2.74	2.45	0.80	0.03	0.66	0.48	0.49	52.86	14.08
1976-77	14.59	4.74	30.19	5.56	12.78	4.30	3.68	1.37	0.09	2.86	0.77	0.29	62.10	19.15
1977-78	22.75	7.54	42.14	7.36	14.12	4.59	7.09	2.71	0.09	3.84	2.34	1.07	84.03	27.14
1978-79	23.00	7.95	35.62	6.61	20.09	7.04	15.72	5.20	0.14	6.08	4.33	1.62	98.90	34.54
1979-80	22.92	9.04	24.35	4.46	23.99	9.81	12.96	4.98	0.20	10.39	7.08	2.46	91.47	41.13
1980-81	25.09	10.38	33.15	5.86	29.41	12.18	14.30	6.17	0.18	9.22	6.98	2.90	109.41	46.74
1981-82	25.10	12.91	33.00	6.01	43.96	20.46	14.48	7.95	0.27	11.40	6.01	3.06	122.82	61.32
1982-83	29.48	16.48	23.82	4.63	48.74	25.99	11.26	8.02	0.35	12.73	7.59	3.81	121.24	71.69
1983-84	28.40	15.70	21.13	4.08	50.54	26.74	13.88	16.07	0.58	18.38	8.17	4.92	122.70	85.91
1984-85	31.88	15.97	19.10	3.79	64.97	39.70	15.35	24.13	0.71	21.41	9.82	7.60	141.89	112.62
1985-86	37.17	19.86	24.26	5.03	68.64	44.83	27.65	47.90	0.71	20.22	14.23	10.14	172.86	148.01
1986-87	42.50	23.19	42.46	10.21	79.36	54.05	34.51	58.09	0.88	26.59	23.69	16.19	233.40	188.39
1987-88	59.25	31.74	53.76	11.51	112.29	78.42	48.36	51.89	1.01	42.09	24.49	20.73	299.16	236.41
1988-89	47.48	32.99	65.19	20.84	139.59	122.17	54.13	53.98	1.12	50.43	25.85	30.56	333.26	311.00
1989-90	36.71	32.54	70.43	31.14	139.31	143.88	62.51	77.61	1.05	51.39	27.51	38.75	337.52	375.33

Source : Central Silk Board, Statistical Biennial.

Appendix - II Intercept, slope, R2, and 't' values of export growth

Type		Intercept (log a)	Slope (log b)	R^2	't' value
Sarees	Q	1.8806	0.20	0.9170	14.10
	V	0.0979	0.19	0.9511	18.71
Scarves	Q	2.9195	0.04	0.3716	3.26
	V	0.7382	0.09	0.5906	5.09
Dress Materials	Q	1.8350	0.15	0.9186	14.36
	V	0.0683	0.23	0.9681	23.39
Ready Made Garments	Q	0.5655	0.17	0.9064	13.20
	V	-1.2233	0.28	0.9660	22.61
Carpets	Q	-3.0507	0.24	0.9312	13.27
	V	0.4906	0.25	0.8905	10.28
Others	Q	-0.7770	0.21	0.8532	10.32
	V	-1.8675	0.26	0.9427	17.21
Total	Q	3.4450	0.11	0.9376	16.45
	V	1.4470	0.22	0.9870	36.97

Appendix - III GNP index for developed countries

Year	Index
1971	64.60
1972	67.80
1973	71.80
1974	73.20
1975	73.50
1976	77.00
1977	80.10
1978	83.50
1979	86.50
1980	88.40
1981	89.90
1982	90.00
1983	92.00
1984	96.50
1985	100.00
1986	103.00
1987	106.70
1988	106.70

Source : Annual report, 1990,
International monetary fund.

Appendix - IV Average annual exchange rate of US dollar in terms of indian rupee

Year	Exchange rate (in rupees)
1971	7.462
1972	7.587
1973	7.692
1974	8.130
1975	8.333
1976	8.928
1977	8.771
1978	8.196
1979	8.130
1980	7.870
1981	8.620
1982	9.380
1983	10.100
1984	11.363
1985	12.453
1986	13.110
1987	12.980
1988	13.790
1989	16.020
1990	17.400

Source : FAO, Trade year book (Various issues)
Food and agricultural organisation, Rome.

Appendix V : Export of silk fabric

(in thousand US dollar)

Year	World	R.Korea	Italy	Japan	France	Hergleong	India	Germany	Switz	Others
1976	327707	175097	74817	21517	16284	5404	8606	6450	7249	12283
1977	361940	137371	107280	33686	25749	8190	12799	9665	9435	17666
1978	513429	191560	138613	41579	36618	31141	15597	12640	13468	32313
1979	591338	195328	169087	49575	48413	39407	20784	15581	14215	38948
1980	512848	129997	147670	45645	55353	40615	21826	17803	15478	38468
1981	592459	141565	170043	59274	48975	52969	34006	16502	18826	50299
1982	657417	133231	177897	60331	49314	43088	41796	19037	23118	109575
1983	715100	99569	185337	56797	46145	57772	41656	20530	25374	533180
1984	616778	103495	199348	63213	44713	62835	46638	22021	27467	46949
1985	689553	104845	215629	69111	50805	82304	55458	27083	33862	5456
1986	838362	929975	275472	69596	62684	107752	61259	34649	41747	55228
1987	1034527	180392	320937	65891	69005	166267	81594	39793	42603	68045

Source : UN, International trade statstical year book, various issues.