

AN ANALYSIS OF CHANGING PATTERN IN AREA, PRODUCTION AND PRODUCTIVITY OF COFFEE AND TEA IN INDIA

GHOLAM ABBAS DARVISHI* ; DR. M. INDIRA**

*RESEARCH SCHOLAR
DEPARTMENT OF STUDIES IN
ECONOMICS AND CO-OPERATION
UNIVERSITY OF MYSORE

**PROFESSOR OF ECONOMICS
DEPARTMENT OF STUDIES
IN ECONOMICS AND CO-OPERATION
UNIVERSITY OF MYSORE

ABSTRACT

Plantation crops are high value commercial crops with greater economic importance and play a vital role in Indian economy. The major plantation crops include coconut, cashew nut, coffee, tea and rubber. Exports of tea, coffee and rubber are contributing 15 percent to the total agricultural export earnings. It is the source of livelihood for millions of small and marginal farmers and provides employment for millions of plantation workers. The export earnings from plantation crops like coffee and tea played a significant role in financing Indian development. Plantation sector has plays an important role in the socio-economic development of the Indian regions.. Being export oriented crops, changes in the trade policies affect the production of these crops much more than any other crops. Trade liberalization polices adopted in India with the introduction of New Economic Policies has greater impact on the area, production and productivity of these crops. The aim of this paper is to study the changing pattern in area, production and productivity of coffee and tea in India during pre and post liberalization period.

KEY WORDS: Plantation Crops, changing pattern, Area, Production, Productivity,

INTRODUCTION

Plantation sector is a part of agriculture sector and plantation crops are export oriented commodities, contributing to foreign exchange earnings. The major plantation crops in India are coconut, cashew nut tea, coffee and rubber. While the development of tea, coffee and rubber come under the Ministry of Commerce, coconut and cashew nut are under the Ministry of Agriculture. Plantation Sector contributes to the employment both directly and indirectly through its forward and backward linkages. According to the estimates of Ministry of commerce more than two million people are engaged in plantation sector directly and another six million are indirectly engaged in plantation sector. In India plantation crops are mainly grown in Kerala, Karnataka, Tamil Nadu, West Bengal and North Eastern states of India. Being export oriented crops, with the growing economic integration among the countries of the world in recent years; the plantation sector of India is exposed to heightened international competition. In an open economy, competitiveness of a product is not only important from export point of view, it is equally important to survive in the domestic market. There is always threat of entry of cheaper

products from the International market into domestic market; same is the case with plantation crops (B.H. Nagoor, 2010).

Given the nature of the plantation crop with a long gestation period supply responsiveness is rigid. It is important to analyse the changes in the area, production and productivity of plantation crops to understand the impact of globalization on these crops to suggest policy measure. Coffee is predominantly an export oriented commodity and over 70 percent of the coffee produced in the country is exported and remain 30 percent is consumed within the country (planning commission, 2007). Coffee is cultivated in the southern states of India. Karnataka is the largest contributor with (56.3%); the other states are Kerala (21%) and Tamil Nadu (7.7%). Non Traditional Areas are contributing 13.7% and 1.2% is being contributed by Eastern Region.

India is the second largest producer of tea. It contributes 19 percent to global area under tea and 24 percent to global production. Tea is cultivated in Assam and West Bengal in the North, Tamil Nadu and Kerala in the South. Tea is also grown in non-traditional area such as Himachal Pradesh, Uttarakhand and Kishanganj district of Bihar. Because Tea is grown from plains to an elevation of nearly 2500 meters, spread over different climate zones of India, it enables to produce different types of tea.

OBJECTIVES

The important objective of this paper is to analyse the trends in area, production and productivity of two major plantation crops exported from India, Viz., coffee and tea before and after the introduction of trade liberalization policies in India and relate it to the changing marketing system.

METHODOLOGY

The analysis is based on time series data consisting of two periods of time from 1970-71 to 1989-90 (Pre – liberalization) and from 1990-91 to 2009-10 (Post – liberalization). Data are obtained from the publications of Directorate of Economics and statistics, Department of Agriculture and co-operation, Tea Board of India, Coffee Board of India, Food and Agriculture organization of united Nation (FAO), and Reserve Bank of India. Compound Growth Rate (C.G.R) was calculated to understand the changes during the pre and post liberalization periods.

REVIEW OF LITERATURE

Recent literature on the plantation crops is mainly concentrated on trade liberalization policies. Some the recent contributions are presented below.

Nagoor (2010) analysed various trade aspects of Indian coffee. It is observed that Indian coffee is becoming more trade oriented after liberalization. The analysis revealed that during 1950s, the production shares of Arabica and Robusta in India was 82.10 percent and 17.90 percent respectively. By the year 2009-10, the share of Arabica decreased to 32.67 percent and the share of Robusta increased to 67.33 percent. The export share of instant coffee and Robusta parchment has increased. It is also observed that between 2006 and 2007 international Robusta group coffee price were lower than that of Indian domestic price of coffee. The author opines that if international prices are not attractive and lower than domestic market price, the exporters will look for domestic market and also imports will increase.

The importance of small and medium growers in coffee productions was analyzed by **Upendranadh (2010)** both in terms of the number of holdings as well as production. According

to the author there is an upward trend in area and production in non-traditional areas and in the traditional areas it has reached a plateau.

Joseph (2012) analysed the planting subsidy scheme introduced by the commodity boards to induce growers to undertake timely replanting and to bring in new areas under cultivation.

Venkatram and Deadhar (2005) analyzed the relative value realization of coffee in post-liberalization period. According to the study prices of coffee have fluctuated a lot since the beginning of the implementation of the WTO agreement. The study showed that price elasticity of demand for coffee is much lower in the short run than in the long run because coffee demand is characterized by habit formation. The temporary price incentive will not have influence. According to the authors, demand for coffee can be increased by non-price factors like improving quality standards, the generic promotion campaigns and brand advertising.

Majumder et.al (2012) analysed the global changes in area and production of tea during the last decade of 20th century. During 1991, tea was cultivated globally in 2563.76 thousand ha which increased to 2661.88 thousand ha with a compound growth rate of 0.42 percent. With the advent of 21st century the world tea industry saw a steady increase in the overall area under tea. During 2001 the area under tea was 2727.42 thousand ha which increased to 3691.89 thousand ha in 2010 with a compound growth rate of 3.42 percent. The production in 1991 was 2631.05 million kg which remained almost same till 1997. However, in 1998 world tea production was 3026.13 million kg but, in 2000, it decreased to 2928.67 million kg. The compound growth rate during the period of 1991-2000 was 1.2 percent. From 2001 onwards production of tea increased steadily and reached 4162.33 million kg with a compound growth rate of 3.48 percent during the period of 2001 -2010.

Nagoor (2009) examined the performance of Indian tea exports and identified the factors influencing the exporters in comparison with the other major tea exporting countries under WTO regime.

Mohan Kumar (2011) analysed the performance of plantation corps under Trade liberalization in the context of Indo – ASEAN – FTA. India signed a Free Trade Agreement (FTA) with Association of South East Asian Nation (SEAN) in August 2009 and it came in to effect on first January 2010.

Ramesh Chand (2005) made an attempt to analyse the trends in international trade in agriculture under WTO regime. The analysis showed that in the post WTO period the ratio of imports to GDP has increased and the ratio of export to GDP for agriculture sector followed small decline. Based on the trends in exports the author showed that India has not been able to maintain steady flow of export of commodities like non-basmati rice, wheat, cotton and sugar cane. It is observed that the export of spices, tea and coffee have been affected adversely.

From the above studies it can be observed that there are studies relating to the marketing and export of tea and coffee. But these studies have not focused on the changes in the area and changes in the productivity. Since both coffee and tea are export oriented crops, liberalization of trade influences area allocation and production of these crops through the influence on prices. Hence an attempt is made to analyse the changes in the area under coffee and tea, production and productivity of these crops during pre and post liberalization period tracing from the share of plantation crops in the overall agriculture.

CHANGING CROPPING PATTERN

In order to understand the changing share of plantation crops in agricultural area under different major crops in Indian during 1970-71 to 2010-11 was analysed (Table – 1). The data shows

considerable shifts in area. The area under plantation crops increased from 0.7 million ha to 4.4 million ha, between 1970 – 71 and 2010-11. In case of food grains, the increase is marginal. It increased marginally from 124.3 million ha to 125.7 million ha in the same period. There is a considerable increase in the area under oil seeds. It increased from 16.6 million ha in 1970 – 71 to 26.8 million ha during 2010-11. Area under groundnut came down from 7.3 million ha in 1970 – 71 to 6.0 million ha in 2010-11. Area under sugarcane increased from 2.6 million ha in 1970 – 71 to 4.9 million ha during 2010-11. Similarly area under cotton increased from 7.6 million ha in 1970-71 to 11.1 ha during 2010-11. Area under jute remained constant. There is a marginal decrease in the area under mesta from 0.3 million ha in 1970-71 to 0.1 million ha during 2010-11 and marginal increase in area under potato from 0.5 million ha to 1.8 million ha during the same period.

Relative share of different crops is presented in table2. The data reveals increasing share of area under plantation crops. The share of plantation crops increased from 0.44 percent during 1970-71 to 2.42 percent during 2010-11. There is a considerable decrease in the percentage share of food grains from 77.35 percent to 69.92 percent. The share of oil seeds increased from 10.33 percent in 1970-71 to 14.75 percent during 2010-11. The share of ground nut decreased marginally from 4.54 percent in 1970-71 to 3.30 percent in 2010 – 11. Sugarcane gained during the analysis period. The share of area under sugar cane increased from 1.62 percent during 1970-71 to 2.70 percent in 2010-11.

While the share of cotton increased from 4.73 percent to 6.11 percent, the share of potato increased marginally from 0.31 to 1.00 percent. Area under jute and mesta decreased from 0.5 percent to 0.44 percent and from 0.18 percent to 0.06 percent respectively.

Table 1: Area under different major crops in India during 1970-71 to 2010-11
 (Million ha)

Crops	1970-71	1980-81	1990-91	2000-01	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Food grains	124.3	126.7	127.8	121.0	121.6	123.7	124.1	122.8	121.3	125.7
Oilseeds	16.6	17.6	24.1	22.8	27.9	26.5	26.7	27.5	26.0	26.8
Groundnut	7.3	6.8	8.3	6.6	6.7	5.6	6.3	6.2	5.5	6.0
Sugar cane	2.6	2.7	3.7	4.3	4.2	5.2	5.1	4.4	4.2	4.9
Cotton	7.6	7.8	7.4	8.6	8.7	9.1	9.4	9.4	10.1	11.1
Jute	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Mesta	0.3	0.4	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1
Potato	0.5	0.7	0.9	1.2	1.4	1.5	1.6	1.8	1.8	1.8
Plantation crops	0.7	2.3	3.1	3.9	4.22	4.21	4.2	4.2	4.3	4.4
Total	160.7	165.9	176.3	169.4	175.62	176.71	178.4	177.2	174.1	181.6

Source: Directorate of Economics and Statistics, Department of Agriculture and Co-operation
 Food grain included cereals and pulses Oilseeds includes rapeseed, mustard , sesame , linseed ,castor seed,Niger seed Safflower, sunflower, and soya bean. Plantation crops includes, coffee, tea and Rubber

Table 2: Changes in the percentage of area under different major crops India during 1970-71 to 2010-11

rops	1970-71	1980-81	1990-91	2000-01	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Food grains	77.35	76.38	72.49	71.42	69.24	70.00	69.56	69.30	69.67	69.22
Oilseeds	10.33	10.61	13.67	13.46	15.88	14.99	14.96	15.52	14.93	14.75
Groundnut	4.54	4.10	4.71	3.90	3.81	3.17	3.53	3.50	3.16	3.30
Sugar cane	1.62	1.62	2.10	2.54	2.39	2.94	2.86	2.48	2.41	2.70
Cotton	4.73	4.70	4.20	5.08	4.96	5.15	5.27	5.30	5.80	6.11
Jute	0.50	0.54	0.45	0.47	0.46	0.45	0.45	0.45	0.46	0.44
Mesta	0.18	0.24	0.11	0.12	0.06	0.05	0.11	0.06	0.06	0.06
Potato	0.31	0.42	0.51	0.71	0.80	0.85	0.90	1.02	1.03	1.00
Plantation crops	0.44	1.39	1.76	2.30	2.40	2.38	2.36	2.37	2.48	2.42
Total	100	100	100	100	100	100	100	100	100	100

Source: Directorate of Economics and Statistics, Department of Agriculture and Co-operation
 Food grain included cereals and pulses Oilseeds includes rapeseed, mustard , sesame ,
 linseed ,castor seed ,Niger seed Safflower, sunflower, and soyabean., Plantation crops
 includes, coffee, tea and Rubber

CHANGES IN THE AREA UNDER PLANTATION CROPS IN INDIA

Plantation crops are grown in 4.4 million hectares constituting about 2.42 percent of the total area under different crops. Changing pattern of area under different plantation crops is presented in table 3. The data indicates that, except in the case of cashew nut and coconut, there are no major shifts in term of percentage. The percentage share of the area under cashew nut increased from 16.89 percent in 1990-91 to 21.13 percent in 2010-11. In case of coconut, the percentage share of area came down from 47.63 percent in 1990-91 to 41.85 percent during 2010-11. There are only marginal changes in the case of other plantation crops. The percentage of area under cultivation of coffee has increased from 6.92 percent to 7.88 percent. Tea is one of the important plantation crops grown in India. The percentage of area under tea increased from 12.83 percent to 13.09 percent. The share of rubber increased from 14.63 percent in 1990-91 to 15.23 percent during 2010-11. The data shows that, there is a marginal increase in the percentage share of Coffee, tea and rubber and significant change in the case of cashew nut. However there is a considerable decrease in the area under coconut.

Table 3: Percentage of area under plantation crops during 1990-91 to 2010-11

YEAR	Cashew nut %	Coconut %	Coffee %	Tea %	Rubber %	Total
1990-91	16.89	47.63	6.92	12.83	14.63	100
1991-92	16.71	47.59	6.85	12.88	14.89	100
1992-93	16.58	47.18	6.76	13.40	15.01	100
1993-94	16.71	48.09	6.56	12.96	14.66	100
1994-95	16.68	49.28	6.47	12.05	14.54	100
1995-96	17.35	49.79	6.49	11.46	13.99	100
1996-97	17.52	50.04	6.56	11.13	13.86	100
1997-98	18.31	48.46	7.34	11.06	13.93	100
1998-99	18.83	46.55	7.92	11.35	14.42	100
1999-2000	18.26	46.83	8.06	12.38	14.54	100
2000-01	17.95	46.55	7.91	12.58	14.11	100
2001-02	18.43	47.27	7.75	12.06	13.63	100
2002-03	18.86	46.86	7.72	12.03	13.66	100
2003-04	18.96	46.78	7.77	11.93	13.71	100
2004-05	19.65	46.16	7.86	11.77	13.71	100
2005-06	19.82	45.90	7.96	11.63	13.85	100
2006-07	20.27	45.75	8.01	13.22	11.90	100
2007-08	20.21	44.11	7.90	13.24	13.69	100
2008-09	20.22	42.69	7.82	12.90	15.55	100
2009-10	20.63	42.17	7.83	13.20	15.35	100
2010-11	21.13	41.85	7.88	13.09	15.23	100

Sources: Directorate of Economics and Statistics, Ministry of Agriculture, Tea Board of India, Coffee Board of India, Rubber Board of India, Food and Agriculture organization of United Nation (FAO)

TRENDS IN AREA UNDER COFFEE AND TEA IN INDIA

Coffee and tea are two important plantation crops with higher export earnings. While 60 percent of the coffee produced in India is exported, India is the second largest producer of tea. Therefore these crops are expected to be affected by changes in the international trade policies. Introduction of New Economic policy during 1991-92 is a new paradigm shift in Indian International trade policy. It facilitated greater globalization by reducing restriction on exports and imports.

Liberalization policies have dismantled the restrictive practices both in the internal and international markets. Coffee marketing system is one such institution which was directly affected by those policies and resulted in the removal of controlled pooled marketing system. These changes influence the area, production and productivity of coffee in India. Similarly in the case of tea, globalization resulted in greater competition among the tea producing countries. In this scenario, the trends in the area under these two important plantation crops before and after the globalization are analyzed and the data are presented in Table 4. The data shows that there is a considerable increase in area under coffee after the liberalization of coffee trade. Area under coffee jumped from 221 thousand hectars in 1989 – 90 to 302.23 thousand hectars by 1998-99. Later on area under coffee increased continuously reaching a level of 355,50 thousand hectars by 2009-10. This is being reflected in the 20 years average before and after liberalization. The average area under coffee increased from 181.99 thousand hectars to 293.16 thousand hectars during the

liberalization period. This clearly shows the positive impact for trade liberalization on area under coffee cultivation. But year to year variation expressed by compound growth rate remained constant both in pre and post liberalization period. During both periods the annual growth rate is around 2.3 percent. Same is the case with co-efficient of variation. This is expected in the case of plantation crops with a larger gestation period. It takes minimum three to four years for the plantations to produce output.

In the case of tea also, the area under tea plantation has shown an increase after liberalization. The average area under tea increased from 383.02 thousand hectares during the pre-liberalization period to 487.5 thousand hectares during the post liberalization period. There is an increase in the annual growth rate after liberalization. while area under tea cultivation increased at an annual growth rate of 0.8 percent in pre-liberalization period, it increased by 1.6 percent during the post-liberalization period. Co-efficient of variation also increased from 6.06 percent to 12.83 percent indicating greater variability during the post liberalization period.

Table 4: Changes in area under Coffee and Tea plantation during Pre and Post Liberalization Periods.
 Area : 000 ha

YEAR	Pre-Liberalization		YEAR	Post-Liberalization	
	Coffee	Tea		Coffee	Tea
1970-71	140.00	350.00	1990-91	223.50	415.00
1971-72	140.00	360.00	1991-92	223.50	421.00
1972-73	150.00	360.00	1992-93	223.50	444.00
1973-74	160.00	360.00	1993-94	226.50	448.00
1974-75	160.00	360.00	1994-95	228.50	426.00
1975-76	170.00	360.00	1995-96	242.00	428.00
1976-77	140.00	360.00	1996-97	251.28	427.00
1977-78	150.00	370.00	1997-98	285.65	431.00
1978-79	160.00	370.00	1998-99	302.23	434.00
1979-80	170.00	370.00	1999-2000	308.43	436.00
1980-81	190.00	384.00	2000-01	313.43	500.00
1981-82	190.00	395.00	2001-02	320.73	510.00
1982-83	210.00	396.10	2002-03	320.61	520.00
1983-84	210.00	398.50	2003-04	325.12	520.00
1984-85	210.00	399.90	2004-05	333.33	520.00
1985-86	214.47	411.70	2005-06	341.35	560.00
1986-87	215.50	411.70	2006-07	343.04	570.00
1987-88	218.00	414.20	2007-08	344.50	580.00
1988-89	221.00	414.30	2008-09	350.50	580.00
1989-90	221.00	415.00	2009-10	355.50	580.00
MEAN	181.9	383.02	MEAN	293.16	487.50
S.D	30.84	23.21	S.D	49.79	62.56
C.V	16.94	6.06	C.V	16.98	12.83
C.G.R	0.023	0.008	C.G.R	0.023	0.016

Sources : Directorate of Economics and Statistics ,Ministry of Agriculture , Tea Board of India, Coffee Board of India , Food and Agriculture Organization of United Nation (FAO), RBI.

Figure: 1

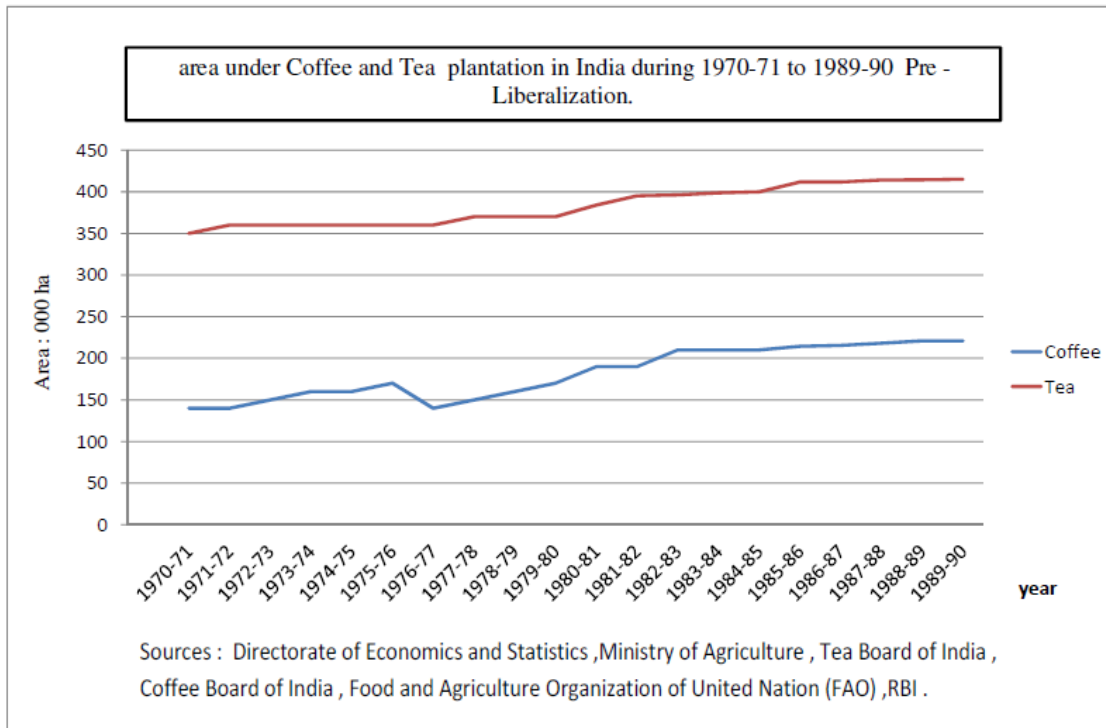
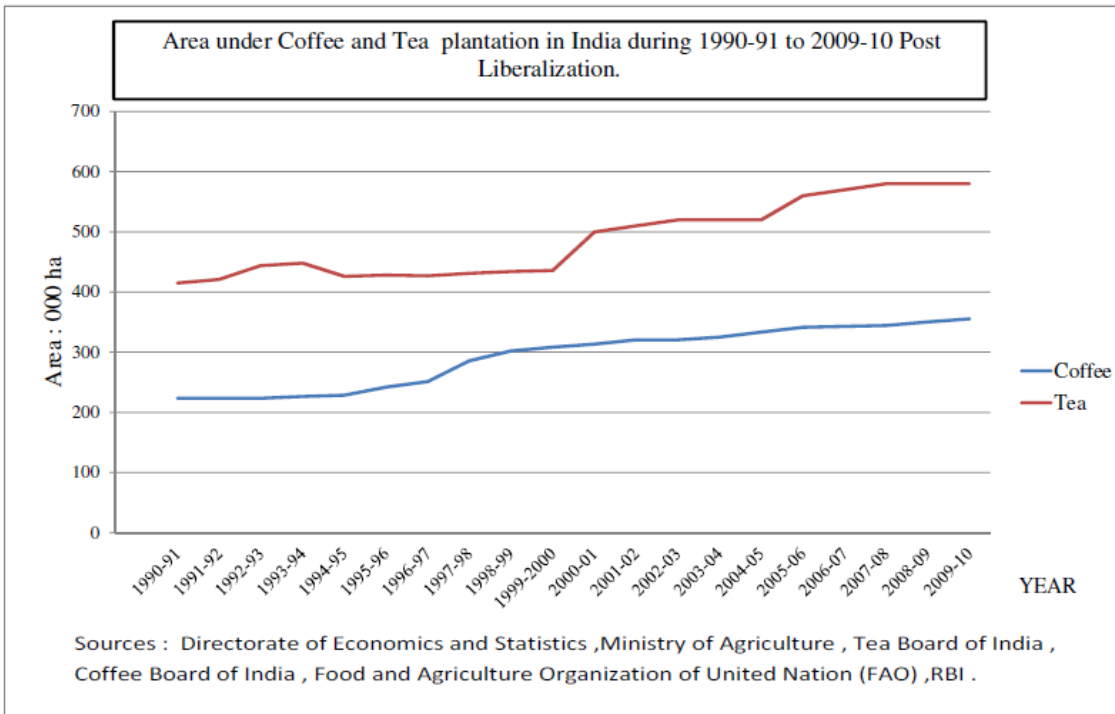


Figure: 2



TRENDS IN PRODUCTION OF COFFEE AND TEA IN INDIA

India is a small player in International market in coffee trade. Therefore it is a price taker. But Indian coffee is preferred for blends. Therefore Indian coffee production is influenced by International prices. India has been producing only around 4 per cent of world output of coffee and exporting around 4.5 percent of world coffee exports. But in the case of tea India has been one of the major producer in the world. Other major producing countries include China, Sri-Lanka, Kenya and Indonesia. During 1951-60 India was producing around 40 percent of world production. It declined to 26 percent during 2004. China and Kenya are able to increase their share in world production considerably.

Trends in the production of coffee and tea during the pre and post liberalization are analyzed (Table 5). Production of coffee jumped from 118.05 million tonnes in 1989-90 to 265.00 million tonnes in 1988-99. Later the production of coffee increased and reached a level of 300.60 million tonnes in 2001-02 and decreased by 275.30 million tonnes in 2002-03. In 2009-10 production of coffee increased and reached a level of 289.60 million tonnes. This decrease in production is due to replanting of some of the old trees with the liberal assistance provided by Coffee Board during this period. The another reason for the decrease is low prices of coffee in domestic and international market, affected in coffee production during the years, The grower not much attention for plant protection, irrigation, rejuvenation and replanting. The average coffee production increased from 118.05 million tonnes in pre-liberalization to 246.22 million tonnes in post liberalization period. This clearly shows the positive impact of trade liberalization on coffee production. Year to year variation expressed by compound growth rate both in pre and post liberalization is positive. During pre-liberalization period the annual growth rate was around 0.3 percent but during post – liberalization period the annual growth rate is around 2.7 percent, showing a considerable increase in production. Co-efficient of variation did change during pre and post liberalization. While it was high (31.25%) in pre-liberalization period, it decreased considerably during the post – liberalization period (18.58%) showing lesser year to year fluctuations.

In case of tea, the production increased from 684.10 million tonnes in 1989-90 to 855.16 million tonnes in 1998 – 99. It increased continuously reaching a level of 991.18 million tonnes in 2009-10. This is being reflected in the 20 years average of pre and post liberalization. The average tea production increased from 559.32 million tonnes during the pre-liberalization period to 848.01 million tonnes during the post liberalization period. However there is a decrease in the annual growth rate in post – liberalization period. While production of tea increased at an annual growth rate of 2.4 percent in pre-liberalization period, it increased by 1.6 percent during post-liberalization period. However, co-efficient of variation decreased from 15.11% to 10.87% between pre and post liberalization periods indicating greater stability in production during the post liberalization period.

Table:5 Changes in production of Coffee and Tea during Pre and Post Liberalization Periods.

Production :Million Tones					
YEAR	Pre-Liberalization		YEAR	POST-Liberalization	
	Coffee	Tea		Coffee	Tea
1970-71	110.23	419.00	1990-91	169.73	720.34
1971-72	68.95	435.00	1991-92	180.00	754.19
1972-73	91.07	456.00	1992-93	169.40	703.93
1973-74	86.39	472.00	1993-94	212.09	760.83
1974-75	92.51	489.00	1994-95	180.10	752.90
1975-76	83.98	487.00	1995-96	223.00	756.02
1976-77	102.30	512.00	1996-97	205.90	780.14
1977-78	125.14	556.00	1997-98	228.30	835.64
1978-79	110.49	564.00	1998-99	265.00	855.16
1979-80	149.84	544.00	1999-2000	292.00	836.86
1980-81	118.65	569.60	2000-01	301.20	848.43
1981-82	152.10	560.40	2001-02	300.60	851.41
1982-83	129.95	560.70	2002-03	275.30	845.97
1983-84	105.03	581.50	2003-04	270.50	878.65
1984-85	195.11	639.90	2004-05	275.50	906.84
1985-86	122.45	656.20	2005-06	274.00	948.94
1986-87	192.09	624.60	2006-07	288.00	973.07
1987-88	122.71	674.30	2007-08	262.00	987.02
1988-89	214.72	701.10	2008-09	262.30	972.77
1989-90	118.05	684.10	2009-10	289.60	991.18
MEAN	124.58	559.32	MEAN	246.22	848.01
S.D	38.93	84.52	S,D	45.76	92.20
C.V	31.25	15.11	C.V	18.58	10.87
C.G.R	0.003	0.024	C.G.R	0.027	0.016

Sources :Directorate of Economics and Statistics, Ministry of Agriculture, Tea Board of India, Coffee Board of India, Food and Agriculture Organization of United Nation (FAO), RBI.

Figure: 3

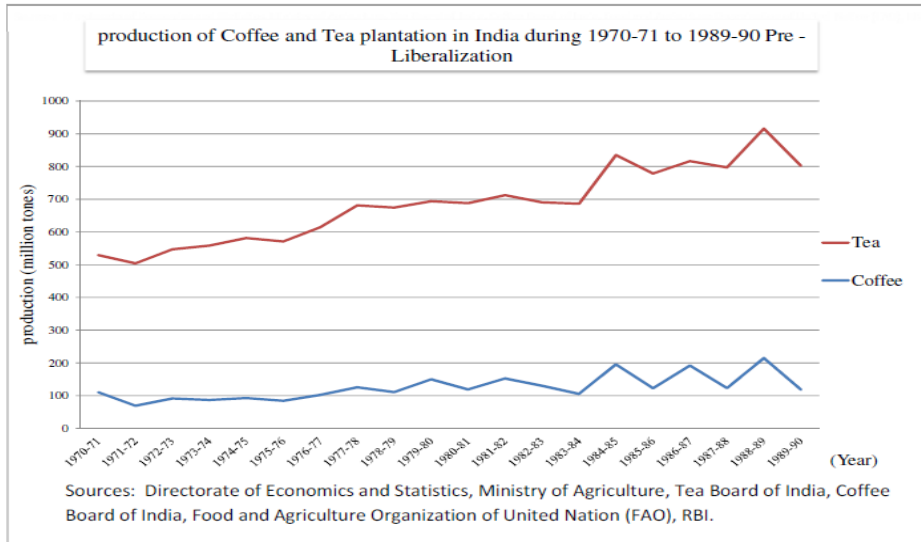
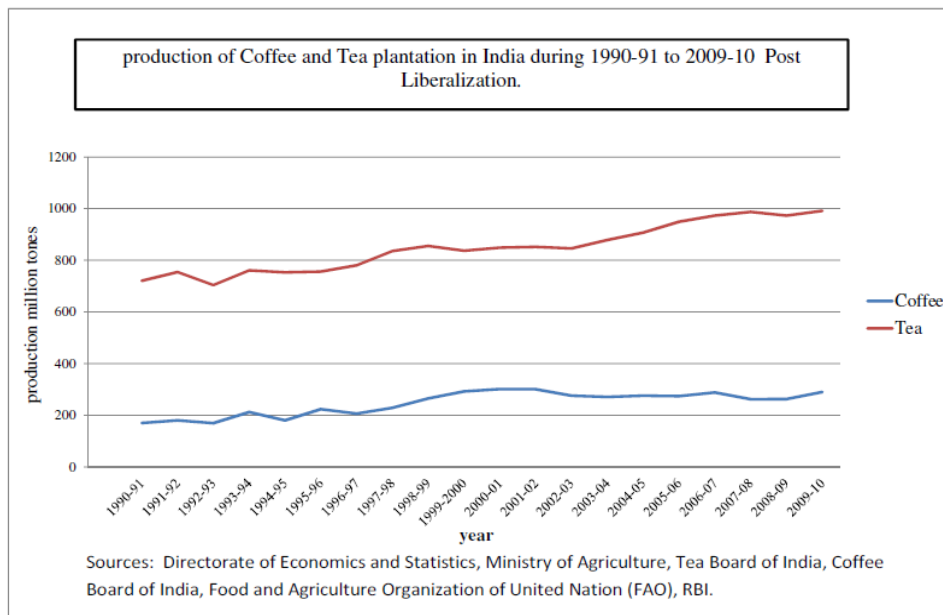


Figure: 4



TRENDS IN YIELD OF COFFEE AND TEA IN INDIA

Changes in yield of coffee and tea in India during 1970 – 71 to 1989-90 and 1990-91 to 2009-10 during pre and post – liberalization period was analyzed and the data are presented in table 6. The data shows that there is considerable changes in yield of coffee. Yield of coffee increased from 534 kg / ha in 1989 -90 to 877 kg/ha by 1998-99. Later the yield of coffee increased continuously and reached a level of 937 kg / ha in 2001 – 02, but it decreased to 826 kg/ha in 2009 – 10. The average yield of coffee increased from 687.25 kg/ha, in pre-liberalization to 838.80 kg/ha during the post liberalization period. This clearly shows the positive impact of trade liberalization in yield of coffee.

Not only there is an increase in the average yield in post liberalization period, the growth rate was also positive. During the pre-liberalization annual fluctuation were high and yield growth registered a negative growth rate and the coefficient variation was also high at 33 percent. This situation has changed in the post-liberalization period. During this period yield has registered a positive growth rate of 0.4% and year to year fluctuation were also low with only 8.12 percent. The better prices received by growers has helped the growers to improve the yield in the case of coffee. But in the case of tea through average yield in the post liberalization increased to 1735.65 kg/ha from 1458 kg / ha, the growth rate was negative. However, there is consistency in the yield in the post liberalization period. Co-efficient of variation declined from 10.04 percent to 3.85 percent.

Table6 : Changes in productivity of Coffee and Tea During Pre and Post Liberalization. Yield : Kg/ha

YEAR	Pre-Liberalization		YEAR	POST-Liberalization	
	Coffee	Tea		Coffee	Tea
1970-71	814	1182	1990-91	759	1727
1971-72	498	1221	1991-92	805	1800
1972-73	620	1271	1992-93	758	1667
1973-74	555	1311	1993-94	936	1796
1974-75	592	1353	1994-95	788	1767
1975-76	490	1341	1995-96	921	1770
1976-77	712	1407	1996-97	816	1809
1977-78	840	1519	1997-98	799	1924
1978-79	706	1528	1998-99	877	1804
1979-80	889	1455	1999-2000	947	1707
1980-81	624	1491	2000-01	959	1682
1981-82	785	1461	2001-02	937	1670
1982-83	646	1422	2002-03	839	1640
1983-84	507	1468	2003-04	831	1691
1984-85	936	1606	2004-05	826	1739
1985-86	571	1641	2005-06	803	1708
1986-87	891	1508	2006-07	840	1716
1987-88	563	1628	2007-08	761	1706
1988-89	972	1693	2008-09	748	1679
1989-90	534	1652	2009-10	826	1711
MEAN	687.25	1457.90	MEAN	838.80	1735.65
S.D	157.53	146.36	S.D	68.11	66.99
C.V	22.92	10.04	C.V	8.12	3.85
C.G.R	-0.021	0.016	C.G.R	0.004	-0.0004

Sources : Directorate of Economics and Statistics, Ministry of Agriculture, Tea Board of India, coffee Board of India, RBI.

Figure: 5

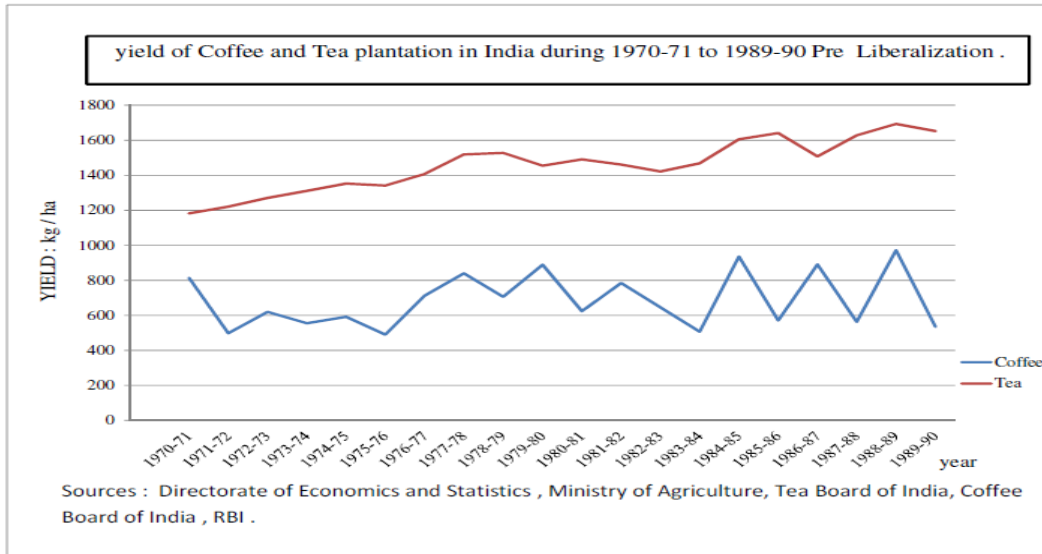
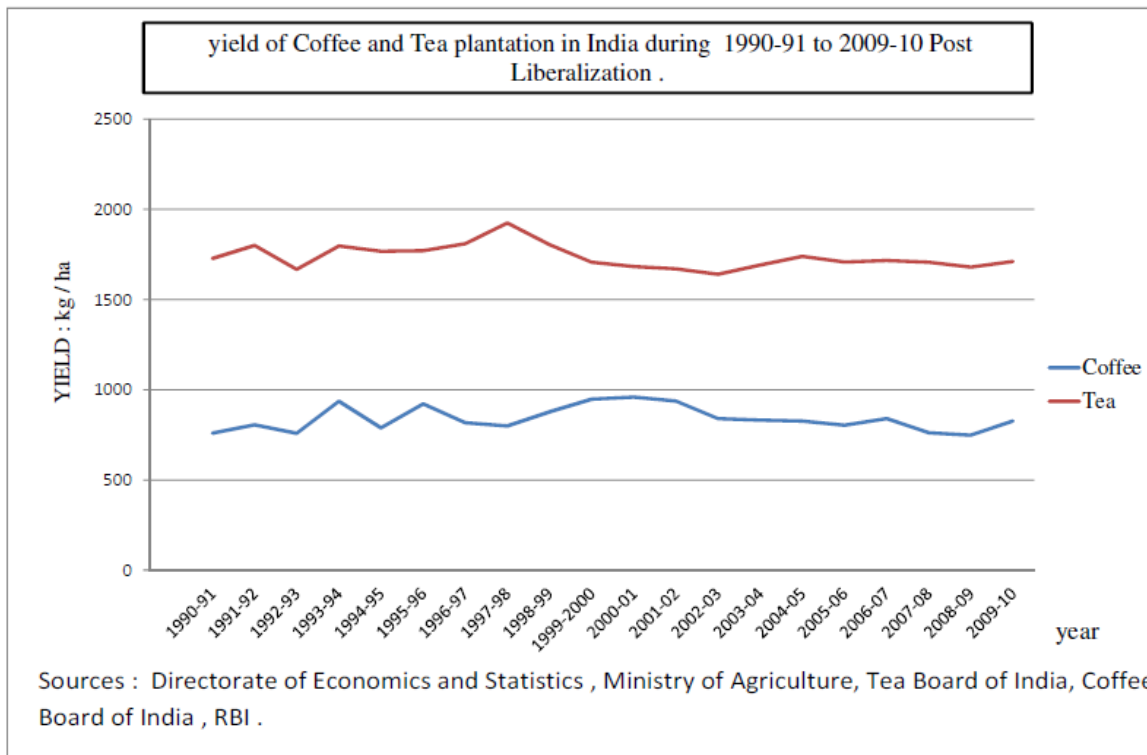


Figure: 6



CONCLUSIONS

Liberalization of trade policies influence the marketing structures, prices received by the growers and other market players. Impact of trade liberalization on agriculture sector can be understood by analyzing the changes in the relative share of various crops, changes in production, yield and

prices. In the present paper an attempt is made to understand changes in the case of two important export oriented plantation crops viz., coffee and tea. The export oriented crops are a likely to be more affected by the trade policies than the other crops. Coffee and tea are two important export oriented plantation crops. The analysis was carried at two levels. At the first level changes in the cropping pattern was analysed and later the share of plantation crops followed by the changes in the selected two plantation crops viz. coffee and tea. The analysis shows that only in the case of area under oil seeds and plantation crops there is a considerable increase. There is stagnancy in the area under food grains. Area under sugarcane and cotton increased marginally. In terms of relative share, the percentage of area under food grains decreased and oil seeds has increased. The share of plantation crops also increased. Among the plantation crops area under cashew nuts increased considerably. The percentage share of coffee and tea in the plantation crops increased only marginally. Through there is not much change in the relative share, area under coffee and tea showed an increase during the post liberalization period. Similarly production and productivity of coffee and tea also increased during the post liberalization period and the variability has declined.

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