The Dynamics of Production, Consumption and Prices:
A Study on Global Tea Industry

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INTRODUCTION

Tea is grown in about 36 tropical and semi-tropical countries. However, six among them account for 80 per cent of the world tea production. China and India are the two main global producers of tea and are also the two major consumers. Much of the world tea consumption is made up of black tea and green tea. Although produced from the same shrub, the leaves are processed differently. Black tea (which includes varieties such as Assam, Darjeeling, Sikkim, Ceylon, Lapsang, Souchong, Earl Grey, Yunnan and Keemun) makes up 65 per cent of the world output, 67 per cent of consumption and 80 per cent of international trade (The Technical Centre for Agricultural and Rural Corporation, 2011). Eighty-five per cent of the world tea output is sold by a handful of multinational companies, which own plantations and buy crops of small growers.

Tea production and tea trade have historically been dominated by large multinational companies. Tea plantations and world trade in tea were initially controlled by colonial multinationals ever since the days of the Dutch East India Company. The dominance of transnational companies in tea plantations and international trade in tea has continued to the present day. About 85 percent of world production of tea is sold by multinationals. The entire supply chain in tea production and distribution, including production, auction, logistics, international trade and retailing is dominated by multinationals (CTA, 2011). Seven of these control about 90 percent of the Western tea trade. Included among these are Unilver, Associated British Foods, Van Rees, James Finlay and Tata Global Beverages Ltd.

At the global level, four companies dominate the tea trade: Unilever, Van Rees, James Finlay, and Tata Global Beverages (Der Wal, 2008). Unilever is a Europe-based international conglomerate with strong tea brands such as Brooke Bond and Lipton. Unilever is the world's largest tea company, vertically integrated in the value chain from production to commercialisation of tea. It buys 12 per cent of the world's tea production and holds a 10 per cent share of the world tea market (Unilever, 2011; Unilever, 2009). The world's most popular tea brand is Unilever's Lipton Yellow Label, followed by Tetley.

Van Rees, based in Netherlands is a tea trader and blender, supplying to many packers, and is part of the Deli Universal Corporation. James Finlay, based in UK is a tea producer, trader and packer. Tata Global Beverages, which acquired UK's 'Tetley' brand, is a tea producer, trader and packer.

Downstream integration starts with plantations. Tea plantations in many countries are owned by multinational companies. Several tea auction centers are also controlled by transnational corporations. For example, the Jakarta Tea Auction is dominated by Unilever which buys 70 per cent of all tea auctioned, and the Dutch exporter L. Elink Schuurman, which buys up to 20 per cent of the tea sold. Unilever buys around 12 per cent of the world's black tea supply, making it the world's largest purchaser of black tea (Der Wal, 2008).

The retail markets in several countries are also dominated by the multinationals. For example, the top three packers have a 60 per cent share of the tea market in the United Kingdom, 67 per cent in Germany and 66 per cent in Italy. In the Netherlands a single company, Sara Lee, controls 65 percent of the market (Oldenziel, 2006).

The Food and Agricultural Organization states that the decline in the price of tea is attributed to the excess production resulting from the production and supply gap. Thus, FAO insists that tea producing countries reduce their production. Therefore, this paper attempts to analyze factors affecting the global tea market.

The fortunes of the global tea industry have been influenced by several factors. While world production of tea has been increasing, there has been a decline in prices for several decades. The price decline has been attributed to a demand - supply gap. It is also assumed that the production of tea has always been more than demand and consumption. While the cost of production has been increasing, prices have been declining, leading to low wages in the industry and low motivation among farmers. Hence, the objective of this paper is to analyse issues related to global tea production, trends in global tea prices and changes in global tea consumption.

METHODOLOGY

This study is based on the secondary data collected from various sources such as Sri Lanka Tea Board. Data were also obtained from the statistical report of the International Tea Committee. Data were analysed using tables and percentage.

Review of Global Tea Production

Global tea production has been continuously increasing and it reached 3.8 million tons in 2008. Data on global tea production is given in Table 1. World tea production has increased significantly during the 10 year period surveyed, increasing from 2.95 million tons in 1999 to 3.8 million tons in 2008.The annual rate of growth of production was 3.05 per cent Compound Annual Growth Rate and the overall increase in production was 24 per cent. This production trend has continued in subsequent years as well. World tea production was 3.885 million tons in 2009 and 3.9 million tons in 2010.

Analysis of tea production data for four decades from 1961 to 2001 indicates that there was significant growth in global tea production during the period. The data is provided in Table 2. World production of tea increased from 851 million Kg in 1961 to 3091 million Kg in 2001. The compound annual growth rate in tea production was 5.2 per cent in the ten year period from 1961 to 1971. In the next two decades, the growth rate (CAGR) remained at 3.8 per cent. During the 1990s, however, there was a drastic reduction in the growth rate (1.8 per cent CAGR). The compound annual growth rate during the 40 years period was 3.36 per cent.

Table 1: World Tea Production (1961-2001)
(Production in million kg.)

Year	World tea production	Decadal Growth (CAGR)
1961	851	-
1971	1348	5.24%
1981	1884	3.79%
1991	2639	3.82%
2001	3091	1.77%
CAGR		3.36%

Source: Karmakar and Banergee (2005)

The growth in tea production during the first decade of the 21st century, as shown in Table 2, has been significant and the growth rate with CAGR 3.36 per cent is almost same as the growth rage achieved during the four decades between 1961 and 2001. Only during the 1990s was there a relative decline in growth in tea production.

Review of Global Tea Prices

The real price of tea has been in long-term decline. Tea prices, as measured by the FAO Tea Composite Price, have declined in real terms since the 1970s. Relevant data for selected years are presented in Table 3.

Table 2: Tea Prices (Real Price) for Selected Years

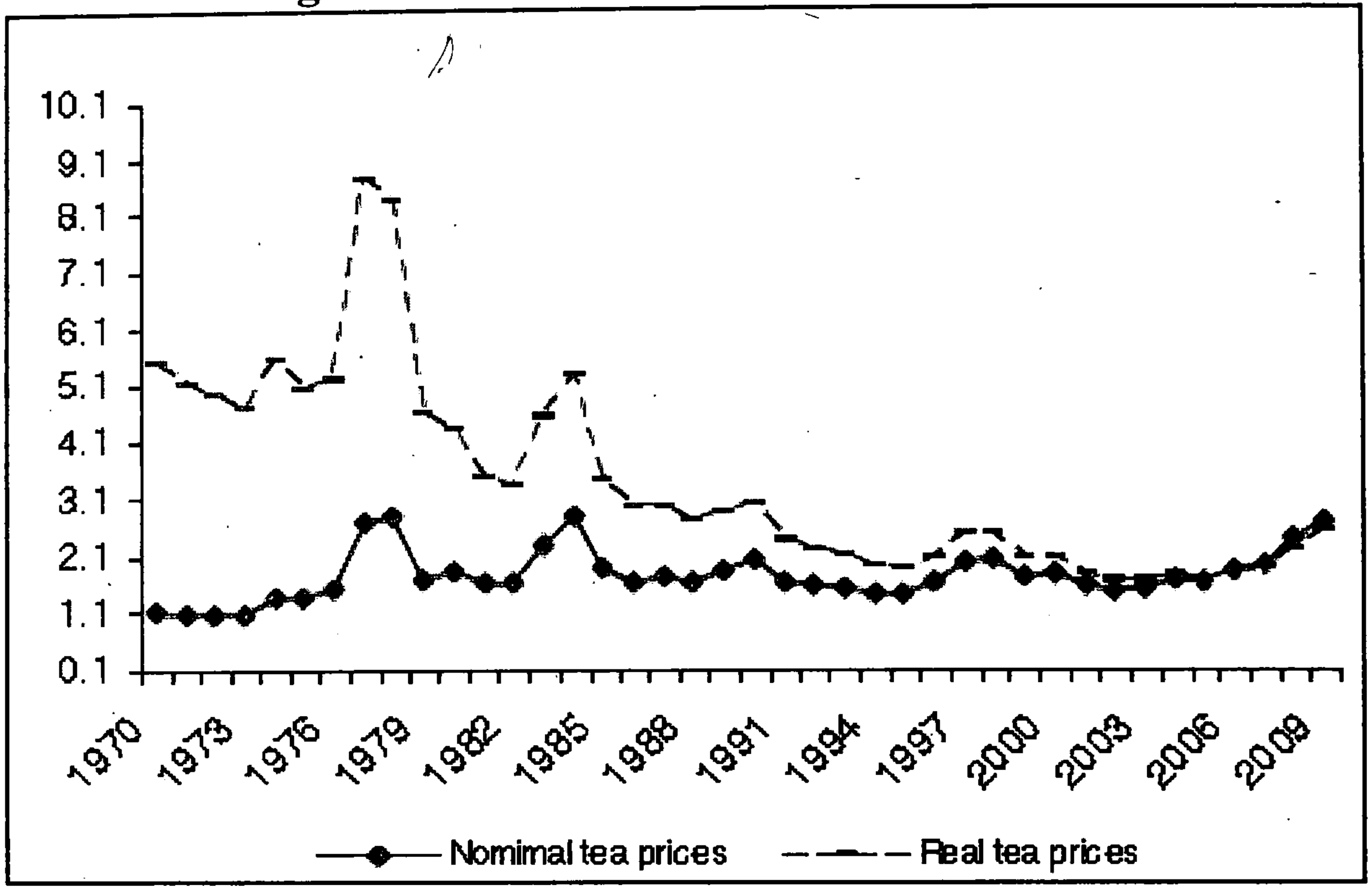
Year	Tea Prices in Real Term US Cents / Kg
1961–63	266
1971–73	159
1981–83	138
1991–93	95
2001–02	88
2000	96.1
2001	89.1
2002	86.0

Source: Food and Agricultural Organization, 2004

Tea price during 1961-63 was 266 US Cents per kg. This gradually declined over a span of four decades to approximately to 88 cents by 2002.However, exceptional peaks occurred in periods following the oil supply shocks of the 1970s and 1980s.

In nominal terms, however, prices have recorded modest growth during certain periods (Figure 1). However, there was dramatic decline in real price after 1979 until 2006. Since 1980, the real price of tea has fallen by 15 per cent.

Figure 1: Real and Nominal Price of Tea



Source: Reproduced from Food and Agricultural Organization, 2010

Reasons for Decline in Real Prices

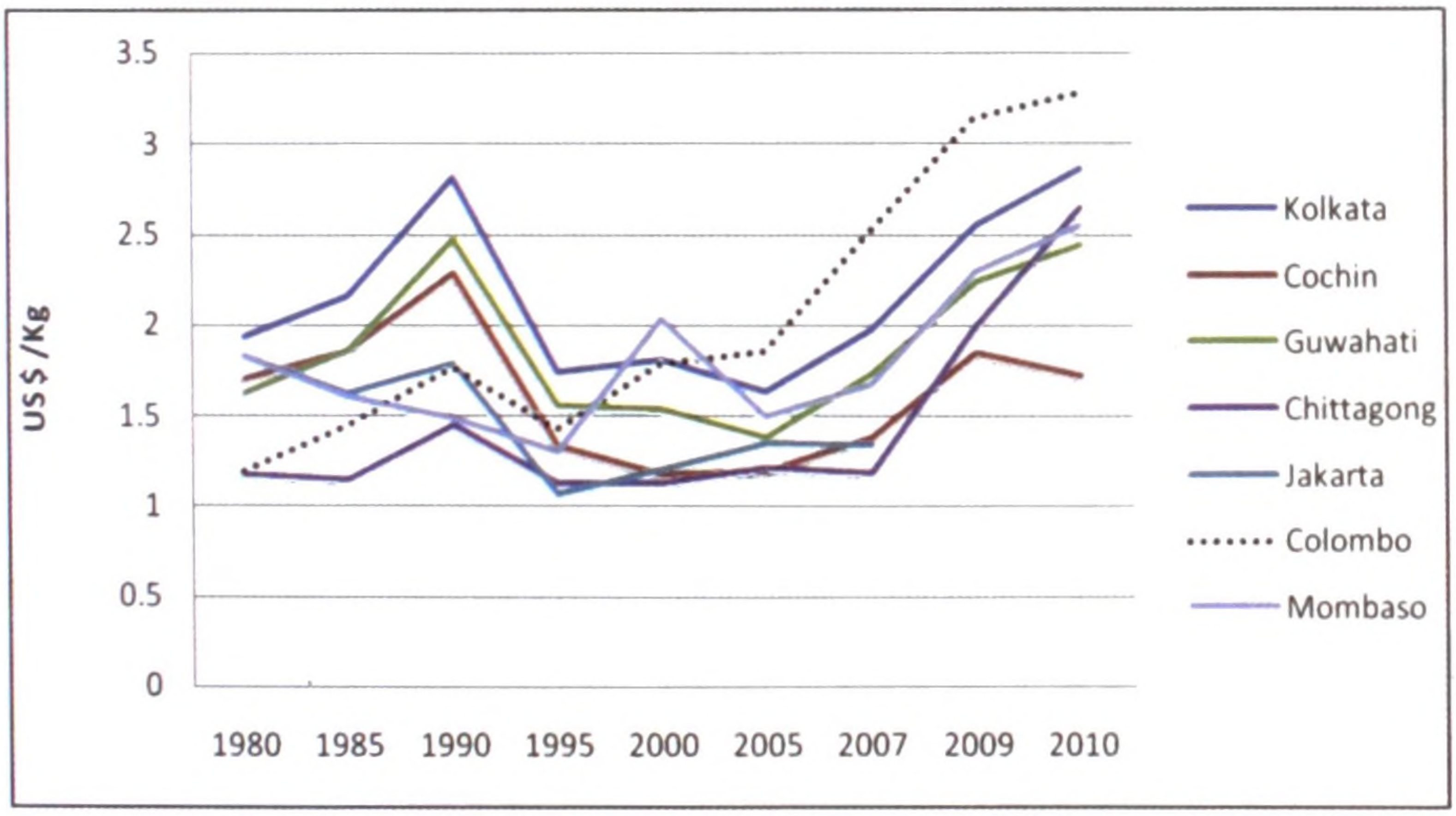
Several reasons have been attributed for the decline in real prices of tea during the past several decades. Intense competition among producing countries for a share of the world market is a major reason for price competition. When a large number of countries produces tea and many of them are big enough to prevent the establishment of a clear monopolistic leader, fierce competition is inevitable. It has been pointed out that growth in demand has been slow, which forces sellers to reduce the price. The general assumption is that tea supply has been greater than demand. Being a perishable commodity, tea expires fairly quickly which makes necessary to cut prices in order to clear stocks.

FAO (2010) holds the view that the growth in world production had been largely responsible for the damaging fall in prices. However, the response from producing countries has not been towards restricting supply. A vicious cycle has been created whereby many countries try to compensate for lost export earnings due to lower prices by extending the area devoted to tea and expanding the volumes of their tea exports (Oxfam, 2002).

Auction Prices

Tea auction prices in the last three decades have shown wide fluctuations (Figure 2). There was general increase in auction prices between 1980 and 1990.

Figure 2: Tea Prices at Auction Centers – 1980 -2010



Source: Sri Lanka Tea Board, 2007; Forbes and Walker Tea Brokers, 2010

There was a sudden decline in prices in the next five years. In most auction centers prices remained without much fluctuation during the period 1995 to 2005, except Colombo and Mombasa where auction prices gradually increased. In almost all auction centers, there has been significant increase in auction prices after 2005 up to 2010. The Figure 4.4further shows that the auction tea price at Colombo auction have been the highest in the world market since 2005.

In recent years however, there has been increase in auction prices particularly after 2006 in all major auction centers.

Table 3: Average Auction Prices at Auction Centers – US $ / Kg

Auction Centers	2000	2004	2005	2006	2007	2009	2010
Kolkata	1.8	1.73	1.56	1.73	1.96	2.54	2.85
Cochin	1.16	1.17	1.18	1.22	1.36	1.83	1.71
Guwahati	1.53	1.56	1.37	1.50	1.72	2.23	2.43
Chittagong	1.11	1.09	1.20	1.39	1.37	1.98	2.63
Colombo	1.79	1.79	1.85	1.92	2.52	3.14	3.28
Mombasa	2.02	1.49	1.47	1.93	1.66	2.29	2.54

Source: Sri Lanka Tea Board, 2007; Forbes and Walker Tea Brokers, 2010

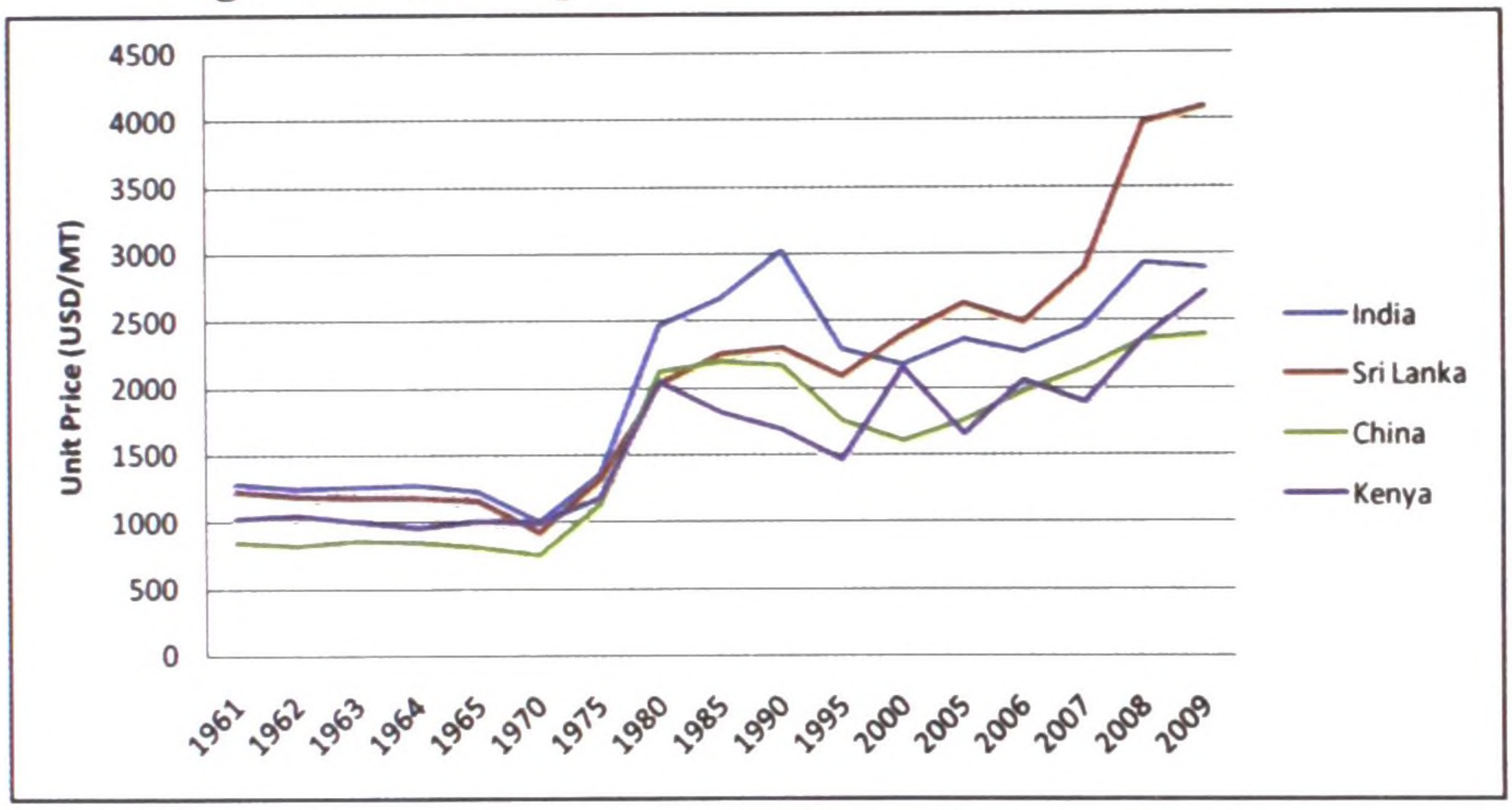
Auction prices at Kolkata increased significantly from 1.96 US$ in 2007 to 2.85 US$ in 2010. Similarly, in Guwahati price increased from 1.72 US$ in 2007 to 2.43 US$ in 2010. There has been a continuous increase in auction prices in almost all auction centers. The highest increase in prices was recorded in Colombo. The price at Colombo auction increased from 2.52 US$ in 2007 to 3.28 US$ in 2010.

Despite the recent increase in auction prices in the world market, even the 2010 auction prices are less than the auction prices of 1990, except in the case of Colombo auction (Figure2). Added to this is the fact that these prices are nominal prices and not real prices. Obviously, there could be substantial decline in tea auction prices in real terms since 1990.

Export Prices

Data on export prices of tea for the four major exporting countries for the past five decades are provided in Figure 3. The data reveal that there has not been significant price increase after 1980. Only the Sri Lankan export prices of tea have recorded substantial growth. The prices given are nominal prices. Any increase in prices shown by the data will be offset if the real prices are considered.

Figure 3: Tea Export Prices for Selected Countries



Source: Food and Agricultural Organization, 2009

Export prices of tea from leading exporting countries reveal that there has been a decline in price during the 1960s (Figure 3). During the 1970s there was modest increase in the nominal price. From 1980 to 2005 the export prices of tea remained without much increase, except in the case of Indian export price. However, there was increase in prices since 2006.

FAO Composite prices also (Table5) show the recent increase in international tea price. Between 2006 and 2009 tea prices recorded a slow but steady growth.

Table 4: FAO Composite Price for Tea

Year	FAO Composite price (US$)	Annual Growth Rate
2006	1.83	-
2007	1.95	6.6%
2008	2.39	22.6%
2009	3.18	33.1%

Sources:Tea Board Kenya, 2010,

As reported by Food and Agricultural Organisation, this is on account of strong demand for tea worldwide, particularly in emerging economy markets. The growth rate in tea prices accelerated in 2008 and 2009, first due to the civil disturbance in Kenya, and later due to prolonged droughts in Kenya, India, and Sri Lanka, which tightened supplies at the global level. Another factor is that after a long period of sustained growth, tea production actually declined by 0.64 percent from 2007 to 2009. At the same time, consumption increased by 0.21 percent at the global level during the same period. As a result, FAO composite price increased from US$ 1.95 per kg averaged in 2007 to US$ 2.39 in 2008 and reached a recorded level of US$ 3.90 in 2009. Further, labour disputes in Sri Lanka and appreciation of local currencies against the US Dollar controlled the supply of tea and it also led to an increase in price in the world market (FAO, 2010).

Review of Global Tea Consumption

Many sources (FAO, 2010; Oxfam, 2002; Der Wal, 2008) suggest that the reason for tea price decline in the international market has been the high growth in tea production and the stagnation or slow growth in tea consumption. For example the Oxfam (2002) study reported as follows: "The growth in world production has been largely responsible for the damaging fall in prices, but the response from producing countries has not been towards restricting supply.... The strong growth in production levels has not been matched by consumption." Sources such as FAO (2010) have been advocating that tea producing countries should reduce tea production in order to prevent decline in tea prices.

However, analysis of global tea consumption data for 20 years (Table 6) indicates that there was substantial growth in tea consumption.

Table 5: Global Tea Consumption – 1987 - 2006

Year	Consumption ('000 MT)	Growth rate for different periods (CAGR)
1987	2311	
1988	2472	
1989	2394	
1990	2505	2.72%
1991	2597	
1992	2464	
1993	2551	
1994	2543	
1995	2516	2.72%
1996	2678	
1997	2761	
1998	2968	
1999	2920	
2000	2886	2.78%
2001	3006	
2002	3020	
2003	3153	
2004	3200	
2005	3332	2.92%
2006	3437	
2007	3638	
2008	3707	
2009	3714	2.75%
Growth (CAGR)		2.18%

Source: International Tea Committee, 2007 and 2010

The rate of growth was rather consistent with a five year compound growth rate of around 2.7 percent throughout the 20 year period, except for the period 2000 to 2005 when it was little higher with 2.9

per cent. The overall growth rate for the 20 year period was 2.18 per cent.

Rate of Growth in Tea Production and Consumption – Comparative Analysis

Data on comparative growth rates in global tea production and tea consumption for the 20 year period 1987- 2006 are given in Table 7.

Table 6: Comparison of Growth in Global Tea Production and Consumption -1987- 2006

Year	Consumption ('000 MT)	Growth rate for different periods (CAGR)	Production ('000 MT)	Growth rate for different periods (CAGR)
1987	2311		2341	
1988	2472		2476	
1989	2394		2445	
1990	2505	2.72%	2538	2.73%
1991	2597		2581	
1992	2464		2438	
1993	2551		2572	
1994	2543		2523	
1995	2516	2.72%	2525	-0.10%
1996	2678		2679	
1997	2761		2763	
1998	2968		3026	
1999	2920		2945	
2000	2886	2.78%	2940	3.09%
2001	3006		3064	
2002	3020		3085	
2003	3153		3203	
2004	3200		3312	

2005	3332	2.92%	3429	3.13%
2006	3437		3533	
2007	3638		3795	
2008	3707		3864	
2009	3714	2.75%	3861	3.01%
Growth (CAGR)	-	2.18%	-	2.30%

Source: Author's comparison using data of the International Tea Committee Reports

The comparison reveals the following:

- The rate of growth in production and consumption were almost the same during the period 1987-1990, with 2.72 percent in consumption and 2.13 per cent in production.
- During the five year period from 1991 to 1995, growth in production was negative (-0.1 per cent) while growth in consumption was 2.72 percent. Obviously, rate of growth in consumption was more than in production during the period from 1987 to 1995.
- The stagnation in production during the period 1991-1995 is offset by a modest increase in production in subsequent years, compared to consumption. During 1995- 1999 while consumption grew at the rate of 2.8 per cent, production grew at 3.1 percent. From 2000 to 2004, consumption grew at the rate of 2.9 per cent and production increased at the rate of 3.1 percent. From 2005 to 2009, while consumption increased at the rate of 2.8 per cent, production increased at the rate of 3.0 percent.
- The overall growth in consumption during the 20 year period was 2.2 percent while the rate of growth in production was 2.3 per cent. The difference of 0.1 per cent is not significant.

Gap between Production and Consumption

The gap between tea production and consumption for the 20 year period is given in Table 10 and in Figure 4.

Data shows that gaps between production and consumption for the various years are rather modest, ranging from one to four percent. During certain years, production was less than consumption. A small difference between production and consumption is natural in any given year for various reasons, including the fact that all the output of a particular year cannot be consumed in that year.

It is pertinent to note that a 3-4 percent difference in production and consumption occurred only during the last few years of the period under consideration. It is during this period that the international tea prices increased significantly. In fact, if the 3-4 per cent 'over supply' is a serious issue, the prices should have declined, not increased. Evidently, decline in prices was not on account of the supposed excess production, which has not happened.

Table 7: Global Production and Consumption Gap (Values are in 000' MT)

Year	Production	Consumption	Production minus consumption	Production minus consumption as % of production
1987	2341	2311	30	1.28
1988	2476	2472	4	0.16
1989	2445	2394	51	2.09
1990	2538	2505	33	1.30
1991	2581	2597	-16	-0.62
1992	2438	2464	-26	-1.07
1993	2572	2551	21	0.82
1994	2523	2543	-20	-0.79

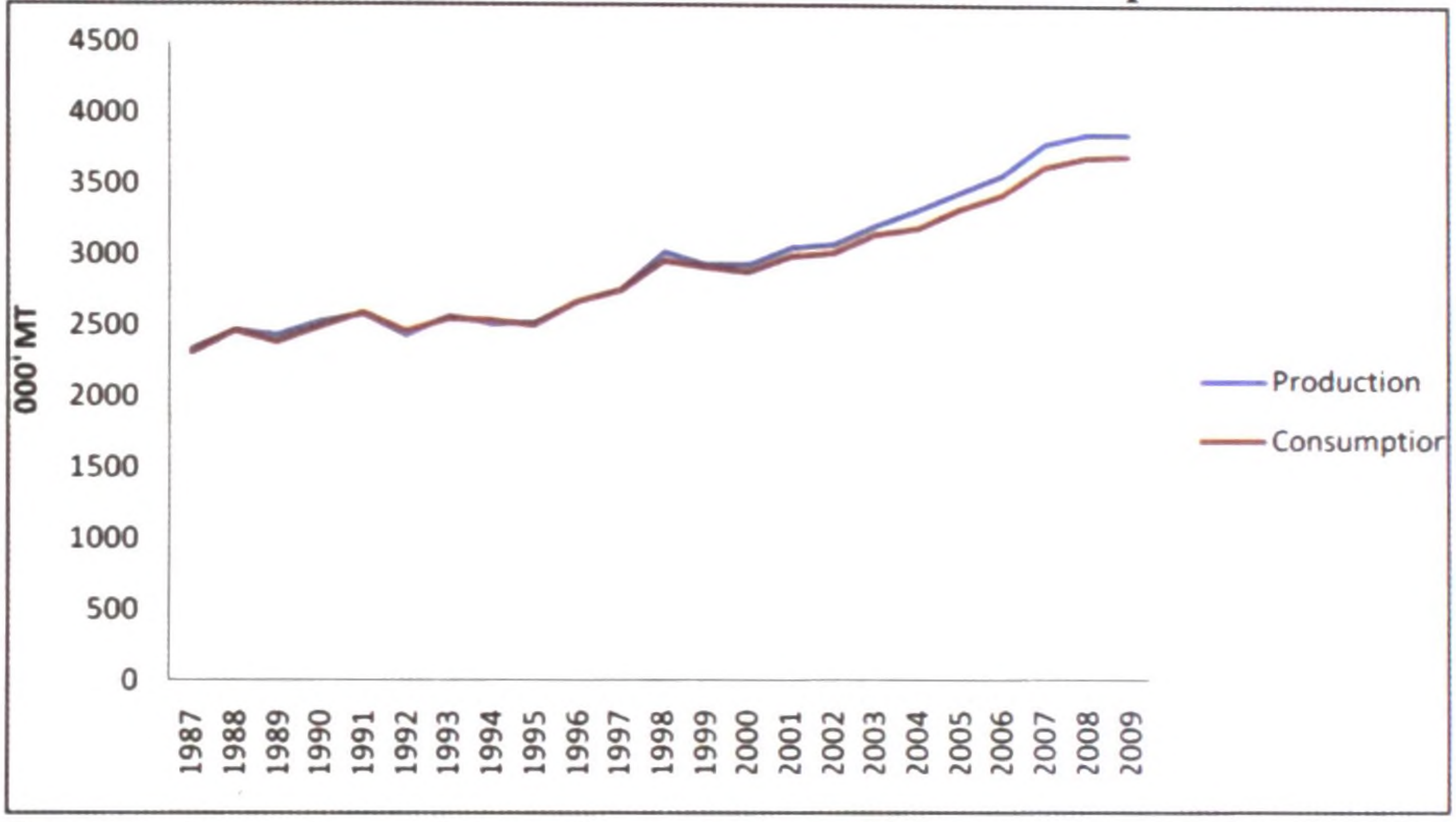
1995	2525	2516	9	0.36
1996	2679	2678	1	0.04
1997	2763	2761	2	0.07
1998	3026	2968	58	1.92
1999	2945	2920	25	0.85
2000	2940	2886	54	1.84
2001	3064	3006	58	1.89
2002	3085	3020	65	2.11
2003	3203	3153	50	1.56
2004	3312	3200	112	3.38
2005	3429	3332	97	2.83
2006	3533	3437	96	2.72
2007	3795	3638	157	4.14
2008	3864	3707	157	4.06
2009	3861	3714	147	3.81
CAGR	2.30%	2.18%	-	

Source: International Tea Committee, 2007 and 2010

The data furnished in Table 9 and Table 10 do not support the widely held view that global tea production is not matched by global tea consumption. The analysis reveals that production has been matched by consumption and that there has been a steady increase in consumption without any fluctuation.

The marginal difference of 0.1 per cent growth in production over consumption during the 20 year span does not explain the fall in real prices of tea in the international market. The reason for the price decline has to be sought elsewhere.

Figure 4: Global Production and Global Consumption of Tea



Source: International Tea Committee, 2010

CONCLUSION

Findings state that the world production of tea is growing at 3.36% compound annual growth rate. Analysis reveals that the largest tea producer in the world is China with 31% of share of production. This study has also generally found that Turkey and Vietnam are emerging potential competitors in the global tea industry.

The findings of this study suggest that real price of tea declined since 1970s. The reason for the decline in the real price of tea was competition on price for capturing world market share by producing countries. In the case of auction price of tea, study indicates that among tea auction centers in the world, Colombo recorded the highest price since 2005.

It was found that although many studies pointed out that reason for the decline in tea prices attributed to the growth in tea production and the stagnation or slow growth in tea consumption, analysis in this study reveals that there was substantial growth in tea consumption.

Comparative analysis between tea production and consumption in this study suggest that there was no significant difference between tea production and consumption of tea in the world market. Therefore, this study does not support the widely held view that global tea production is not matched by global tea consumption. Thus, this study also found that production of tea matched by tea consumption and that there was steady growth in consumption of tea.

These large companies have power to influence the demand for tea as well as price. Their operations are both horizontally and vertically integrated from plantations and processing factories to controlling the transport companies and shipping agencies. Obviously, these transnational companies have their presence at almost all stages in the journey of tea from tea bush to the consumer.

The few multinational corporations that dominate the tea industry play a critical role in determining the price of tea. International organization such as FAO insists that there is a gap between production and supply and that decline in price is on account of excess production. However, the data analysed here point to the conclusion that there is hardly any gap between production and consumption. The price decline is obviously not based on demand - supply gap.

This study also contributes to the future studies on the consumption of value added tea products. Findings show that consumption of tea in the world market steadily increasing. Hence, further researches have to be carried out on the value added tea products that mostly consumed in the world market. Accordingly, tea producing countries have to tap the country markets by studying the pattern of consumption of value added tea products.

Taken together, these findings provide strong recommendation to the industry that increasing production of tea in tea producing countries is paramount and that will not attribute to the price decline in the world market due to the steady growth in the consumption.

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