India's Tea Export in the Scenario of Trade Openness:
An Analysis of Trend and Structural Shift

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Abstract: Tea has occupied an important place in India's economy for last several decades. It was the major source of export earnings for India for a long period of time. But in the recent time India's contribution to global tea production and exports are trailing behind. In this paper authors examined the impact of trade openness on the export of tea from India to different countries. The objectives of this study are to examine the relation between changes in the policy regimes during period from 1992–1993 to 2011–2012 and export growth of tea of India and to examine the consequence of trade openness on the export of tea. For this purpose authors follow the Poirier's [1], Spline function approach to divide the entire study periods into two regimes, namely, Regime-1: 1992-93 to 2007-08 and Regime-2: 2007-08 to 2011-12. At the same time authors also examined the instability in the export earnings by using Cuddy-Della Valle [2] index of instability to measure. Finally, the test of stationarity of the time series data is done by considering "Phillips Perron" non – parametric test.

INTRODUCTION

An Overview: Tea is one of the most popular and lowest cost beverages in the world and consumed by a large number of people. The global market for hot beverages (coffee and tea) is forecasted to reach US$69.77 billion in value and 10.57 million tons in volume terms by the year 2015 [3]. Tea cultivation is confined only to certain specific regions of the world due to specific requirements of climate and soil condition. Majority of the tea producing countries are located in the continent of Asia where China, India, Sri Lanka are the major producers. African tea growing countries are located mostly around the tropical regions where Kenya, Malawi, Rwanda, Tanzania, Uganda are major producers. Apart from these regions, some quantities of tea are also being produced in South America (Argentina, Brazil and others), the Near East (Iran and Turkey) and the CIS (Russia and Georgia). Amongst these tea producing countries, the principal producers are China, India, Sri Lanka, Kenya and Indonesia. These five countries account for 77% of world production and 80% global exports.

India is the largest producer of black tea as well as the largest consumer of tea in the world. The tea industry has an important and special place in Indian economy. India was the world's second largest producer (after China) and second largest consumer of tea, with India accounting for 25-27% of world tea production. India is also an important tea exporter, accounting for around 10-12% of world tea export. However, India's share in world's tea export has declined from 21% in 1990, although certain varities of tea (for example, Darjeeling) are grown only in India and are in great demand across the world. Over the last 20 years, India's world ranking as an exporter has come down from number one to number four, in the face of stiff competition from Sri Lanka, Kenya and China. Since last few years, tea industry has been in a perilous position with excess of production, declining prices and falling yield for its producers posed with the threat of severe competition from rest of the world. The rising cost of production with low yield and falling prices is a severe challenge for the plantation owners involved in tea cultivation in India [4].

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Rationale of the Study

Trend of India's tea export: From a leadership position in international markets up to 1991, India has lost market share to Sri Lanka, Kenya and China. A major loss of its market share occurred in the former USSR, where India occupied an almost monopolistic position from the 1960s to 1990. Some recovery in export volume has occurred since the late 1990s, but generally tea exports from India have been on a declining trend over the last three decades. This was mainly due to international competition as well as constrains on supply and enhanced domestic consumption as mentioned earlier.

Exports are essential to earn foreign exchange for the nation and Indian tea had traditionally been a major contributor in this regard. In the early 1980s, Indian tea exports accounted for around 40% of the domestic production. By the end of 1980s, the share fell to 30%. The decline continued till 1994 when exports accounted for only 20% of the domestic production of tea. Thereafter, the proportion of exports improved to around 24% of the domestic production during 2003. However, exports have also shown a declining trend to 19% of production in 2007 and 21% in 2008. Over the last two decades, India's tea exports peaked at around 213 million kg in 1989 but declined to a low of 151 million kg in 1994. Exports subsequently increased to 210 million kg in 1998 before declining to 174 million kg in 2003. India's tea exports have declined at a 10 year CAGR of 0.3% in volume terms during 1999-2008. As per one of the recent reports of Tea Board of India (2011) during the period 1997-2010, the overall production of tea in India has increased by 19%. The domestic consumption of tea has been increasing steadily. However, the export of tea has been stagnant during this period and has shown a sharp declining trend after 2008 which has led to an overall surplus of 56 million kgs in the Indian market as of 2010.

The declining trend in tea shipments from the country to its traditional markets, i.e. the CIS countries, continued following the shift in the consumers to teas of other origins. The world's tea production in 2006 dropped by 33.3 million kg with the Kenyan output showing a drop of 35.5 million kg. Although Indian production was up by 2.8 million kg in 2006 from 95.1 million kg a year ago. The declining trend in tea shipments from the country to its traditional markets; that is, the CIS countries, continued. As against 53.35 million kg valued at Rs. 421.42 crore in 2004, it was 45.27 million kg valued at 363.28 crore in 2005. However, there has been significant improvement in the exports to non-traditional markets such as Iraq, UAE, Pakistan and Iran.

Objectives of the Study: WTO agreement had its own effect on external trade of India along with on tea export just after WTO phase, that means, after 1995-96. It is in this context we have found that after almost two decades also although low but India's tea industry is an essential contributor to the nation's GDP. Therefore, it is important to study the trend of export growth over time and also the export instability due to certain trade policy measure. Keeping in view the above facts, this article intends to study the relation between changes in the policy regimes during period from 1992–1993 to 2011–2012 and export growth of tea of India. This article makes an attempt to provide a comprehensive analysis of the trends in India's external trade in tea. Accordingly, the objectives of the study are as follows:

- To examine the trends in external trade in the tea.
- To will estimate the growth in the exports during the Regime-1 and Regime-2.
- To estimate the effect of trade openness on the export of tea from India to different countries.
- To estimate the product and market concentrations in the external trade.

Literature Review: In this broad conceptual background, this paper makes an attempt to provide a comprehensive analysis of India's tea export in the scenario of trade openness. A considerable number of studies have attempted to explain empirically the nature of relationship between economic growth and export instability.

Chand, R. and Tiwari, S.C. [5], estimated growth and instability of Indian exports and imports of agricultural commodities. Talwar, S., [6], estimated the instabilities of export earnings of selected groups and selected commodities and all the commodities from the period 1974-75 to 1989-90. Goyal, *et al.*, [7], examined the magnitude, causes and effects of instability of agricultural export earnings of India for the period 1979 to 1989.

The analysis of the effects of export earnings instability on economic growth of developing countries has long interested economists for several reasons [8]. A considerable number of studies have attempted to explain empirically the exact nature of the relationship between economic growths and export instability. Mac Bean, A., [9], Knudsen, O.K. and Parnes, A., [10], Lam, N.V., [11], Knudsen, O.K. and Yotopoulos, P.A., [12], Yotopoulos, R. and Nugent, J.B., [13], Saovides, A., [14] find a positive relationship between export instability and economic growth of a country. Whereas Coppock, J.D., [15], Ozler, S. and Harringan, J., [16], Sinha, D., [17] find a

negative relationship between export instability and economic growth. Finally, Cristion, M., [18] and Sinha, D., [17], find no relationship between export instability an economic growth. Piana, V., [19], explained that balance of trade that is the difference between exports and imports of a country is clearly the first to be influenced by export dynamics.

Some other earlier studies attempted to explain the current status of global tea market and Indian tea industry. Banerjee, G.D. and Banerji, S., [20], in their book mentioned the major issues that industries have been facing and the policy implications for solving those bottle necks have been drawn. In various chapters of this book authors explain tea industries of different countries and try to explain their specific problems.

Another book named "Export Potential of Indian Tea" by Banerjee, G.D. and Banerji, S., [21], explores the possibility of further strengthening export market of tea world. Again, Jayasinghe, J.M.J.K. and Toyoda, T., [22], in the article analysed the technical efficiency of organic tea small holdings in the mid country wet zone of Sri-Lanka by using a stochastic frontier analysis. Their results indicate that the production can be increased up to 55 percent by efficient utilization of present technology and labour. This study reveals that Sri-Lanka can be a strong competitor of India even with respect to producing tea. "53rd Annual Report 2006-2007" of "Tea Board of India" indicates some major steps to be taken to develop India's tea export. Alagh, Y.K., [23], Singh, J.P. and Goyal, S.K., [24] and Asopa, V.N., [25], in their articles focused on the competitiveness of tea trade in the World and highlights the importance of Indian tea industry. Dutta, H., [26], in his article investigated about the strengths and weaknesses of Indian tea industry. He also suggested several policy prescriptions for increasing the export of tea from India. Aiello, F., [27], pointed out another reason for the attention development economists have devoted to this line of research is the fact that policy makers, despite the uncertainty surrounding the theoretical framework on this issue, have joined forces with that part of the academic world, which sees instability of earnings from exports as a serious problems. Hicks, A. [28], in his article discussed about the current status of the global tea production. At the same time he also discussed about the future development of global tea production and tea products. Adhikary, M. and Maity, S., [29], in their article identified lower productivity as the major cause of reduction of export of tea from India. Roychowdury, I., [30], discussed about the export potentiality of Assam orthodox tea. Finally, Bedi, C.S.,

Chairman of Indian Tea Association, [31], mentioned that the recent RBI circular with regard to the settlement issue with Iran would hit India's tea exports to that country.

Keeping all these in mind we now return to our present article, in which I will try to estimate the trend of growth rate of export of tea from India to other countries and as well as we will try to estimate the instability in the export of tea from India to other countries. All these and other research objectives are discussed in the next section.

MATERIALS AND METHODS

Data Collection: This study is exclusively based on secondary data. The analysis is based on the data for the 19 years period (1992-93 to 2011-12) on the value of exports of tea and agricultural and allied products. The data were collected from various issues of "Hand Book of Statistics on Indian Economy." For the comparative analysis the 16 years period from 1992-93 to 2007-08 considered as the Regime-1 where as the 4 years period between 2008-09 to 2011-12 represents the Regime-2. The choice of the study period was guided by the availability of comparable data on the value of exports of tea and agricultural and allied products.

Methodology

Measurement of Growth Rate in Pre and Post WTO Scenario: We have already mentioned the objectives of the study, now to arrive at the objectives, growth rates and instability indices were estimated by the following method. In order to derive a more realistic assessment of the trends, nominal values of tea-export in US million dollars are taken. Following Poirier's [1], Spline function approach, the trend in the growth of several variables of interest is looked into for different regimes. Assuming a linear time trend, the postulated model is

$$\left. \begin{array}{l} \text{Regime 1}: \quad \ln Y_t = \alpha_1 + \beta_1 t + u_t \quad \text{for } 1992\text{-}93 < t \le 2007 - 2008 \\ \text{Regime 2}: \quad \ln Y_t = \alpha_2 + \beta_2 t + u_t \quad \text{for } 2007 - 2008 < t \le 2011 - 2012 \end{array} \right\} (1)$$

Let me define the following variables

$$w_{1t} = t; \quad w_{2t} = \left\{ \begin{array}{l} 0 \\ t - 1995 \end{array} \right. \text{if} \left. \begin{array}{l} t \le 2007\text{-}08 \\ 2007\text{-}08 < t \end{array} \right\} \quad (2)$$

and reparameterise the function as

$$\ln Y_t = \alpha_1 + \delta_1 w_{1t} + \delta_2 w_{2t} + u_t \quad (3)$$

The expression $[\exp(\beta_i)-1]*100$ will yield the percentage growth rate for the *i*-th regime (*i* =1, 2), where $\beta_1 = \delta_1$ and $\beta_2 = \delta_1 + \delta_2$. Equation (3) will be used to compute the growth rates of desired variables for different regimes. The variables that capture the growth rates in the period prior to and posterior to WTO are w_{1t} and w_{2t} respectively.

The growth rate for the entire period 1992-93 to 2011-12 will be computed by using the equation as

$$\ln Y_t = \alpha + \beta t + U_t \tag{4}$$

Measurement of the Effect of Trade Openness on Export of Tea: My indicator of the extent of trade openness is the ratio of the sum of exports and imports to GDP, mentioned as *% TRADE*. In theory, one could think of better indicators such as the differential between the international and domestic real price for tradeable goods, but because of insufficient data for the study period, we could not use that index of trade openness. It is required to be mentioned here that this measure is sometimes criticized for combining the effects of 'natural' openness and trade policy [32]. In my context, however, this is less problematic since we are interested in establishing the effects of actual trade openness on export of tea.

The effect of trade openness for the entire period 1992-93 to 2011-12 will be computed by using the equation as

$$\ln Y_t = \alpha_0 + \alpha_1 \ln(\%TRADE) + \alpha_2 t + U_t \tag{5}$$

Measurement of Instability: This section looks at the measures used to evaluate the export earning and instability in the quantity Indian tea exported abroad. Since, there is no consensus in the literature on how to estimate instability [33, 34], even though export instability is considered to be an unpredictable deviation over the time series compared to its trend [27]. Thus, the instability index should address to the reliability of the results.

Hence for this purpose we use here Cuddy – Della Valle [2] index of instability to measure the instability in export earnings. The Cuddy – Della Valle index is defined as

$$I_X = C.V.\sqrt{1 - \overline{R}^2} \tag{6}$$

where C.V. is the coefficient of variation and $\overline{R}^2$ is the corrected or the adjusted coefficient of multiple determination of the trend function that best fits the series of export earnings. If F–test is significant at 5% level, the index is calculated by selecting trend function (linear or log linear) having the highest $\overline{R}^2$. If $\overline{R}^2 < 0$, then unadjusted R^2 is chosen.

For the purpose of estimation it is required that data should be stationary. Otherwise the estimators will not be reliable for prediction and policy prescription. Therefore we feel that test of stationarity of the time series data used in our analysis is necessary. Therefore we have used the "Phillips Perron" non – parametric test to test the presence of unit root in the time series data and the hypothesis of absence of unit root or non – stationarity has been accepted at 10% level.

RESULTS

External Trade of Tea: In this section we are going to discuss the features of export of tea from India to different countries during 1992-93 to 2011-12. The export of rice is described in Rs. Billion. All these are presented in Table 1.

Table 2 reveals that the percentage share of tea export to total agriculture and allied export shows fluctuating trend during the period from 1992-93 to 2011-12. Its highest percentage is found in 1992-93 while lowest percentage is found in 2011-12. In1998-99, the percentage share of tea export to total agriculture and allied export shows a jump as compared to 1996-97, but again in 2003-04, the percentage share of tea export to total agriculture and allied export came down to a low

Table 1: Present status of Indian tea in global position.

Item	World	India	Rank	Percentage share
Area under tea (Million hectares)	3.94	0.58	2nd	15
Production (Million Kg)	4162	966	2n	23
Yield (Kg/Hectare)	1143	1668	-	-
Export (Million Kg)	1738	193	4th	11
Consumption (Million Kg)	3980	837	2nd	21

Source: Global Industry Analysts GIA, 2011.

Table 2: Export of tea (Rs: Billion).

Year	Export Value of Tea	Total Value of Export of Agricultural and Allied Products	Total Value of Export (Agricultural and Non-Agricultural)	Value of Tea Export as% of Exports of Agricultural and Allied Products	Value of Tea Export as% of Total Export (Agricultural and Non-Agricultural)
1992-93	9.76	90.82	536.88	10.74653	1.817911
1993-94	10.59	126.33	697.51	8.382807	1.518258
1994-95	9.75	132.69	826.74	7.347954	1.179331
1995-96	11.71	203.44	1063.53	5.755997	1.10105
1996-97	10.37	243.63	1188.17	4.256454	0.872771
1997-98	18.76	246.26	1301.01	7.617965	1.441957
1998-99	22.65	253.87	1397.53	8.921889	1.620717
1999-00	17.85	243.01	1595.61	7.345377	1.118694
2000-01	17.89	272.88	2035.71	6.555995	0.878809
2001-02	17.19	281.44	2090.18	6.107874	0.822417
2002-03	16.52	324.73	2551.37	5.087303	0.647495
2003-04	16.37	346.16	2933.67	4.729027	0.558004
2004-05	18.4	380.78	3753.4	4.832187	0.490222
2005-06	17.31	452.2	4564.18	3.827952	0.379258
2006-07	19.7	573.92	5717.79	3.432534	0.344539
2007-08	20.34	742.09	6558.64	2.740907	0.310125
2008-09	26.89	806.49	8407.55	3.334201	0.319832
2009-10	29.44	841.36	8455.34	3.499097	0.348182
2010-11	33.54	1102.96	11429.22	3.040908	0.293458
2011-12	40.79	1795.83	14659.59	2.271373	0.278248

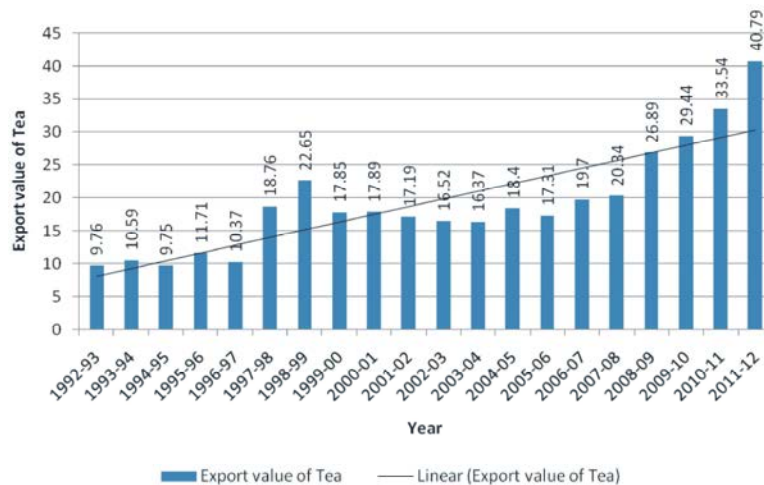Source: Author's Own Calculation based on Different Issues of Handbook of Statistics, RBI

Fig. 1: Export value of Tea

level. After 1998-99, the percentage share of tea export to total agriculture and allied export never exceeded or even could not touch the level as it was in1998-99. This fluctuation may be due to the export of marine products constituting a higher portion till 2006-07 except the year 2004-05 when total tea export was slightly higher than marine product export. Further, the exports of both cotton raw including waste, meat and meat preparations and oil meals have been showing increasing trends and hence, growing share in agriculture and allied export.

The percentage of tea export to total export also demonstrated falling trend which may be because of non-tariff barrier imposed by the exporting countries. In order to show the falling trend of the tea export from India to different countries over time authors present the data related to export value of tea in Fig. 1 and value of tea export as a percentage of total export of agricultural and allied products in terms of Fig. 2.

Fig. 1 reveals that there is a significant fluctuation in the export of tea from India. But more or less it shows an upward trend. However there are certain years where the
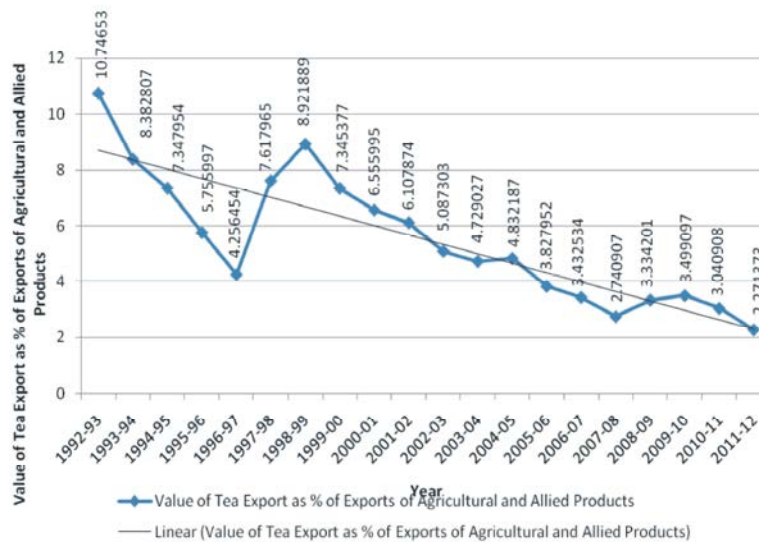
Fig. 2: Value of Tea Export as % of Exports of Agricultural and Allied Products

exports of tea from India fail to catch the overall trend line. In 1994-95 and then again in 1996-97 India's tea export fails to catch the trend line. But what is more alarming is that during a long period of time from 2001-02 to 2008-09 India's tea exports were lower than the trend. Even in 2008-09 the export of tea from India was only touch the trend line. The figure identifies India as a worst performer in the word tea market. From the figure we can observe that the lowest export value is obtained for the year 1994-95 and highest export value is obtained for the period 2011-12.

Fig. 2 describes the changing trend of India's tea export as a percentage of total export of agricultural allied products. Fig. 2 shows a declining trend as compared with Fig. 1 where we observed an increasing trend. Fig. 2 shows a sharp declining trend from 1992-93 to 1996-97. But after that we were able to get an increasing trend for the next two consecutive years, namely, 1997-98 and 1998-99. But during the period 1998-99 to 2007-08 we got the same declining trend. During the period 2007-08 to 2011-12 we got a U-shaped performance curve. Overall trend here is declining.

By comparing Fig. 1 and 2 we can say that India is switching to other export item from tea, although once tea was the highest foreign currency earning export item for India. This may because in international arena India is facing stiff competition from other tea exporting countries like, China, Kneya and most importantly from Sri-Lanka. Another thing forcing India to lag behind in the international tea market is the non-tariff barrier imposed by most of the developed tea importing countries who are importing tea from India.

Mean and Consistency of Rice Export: In this section authors are going to discuss the mean and consistency of tea export of India over time as well as for different countries over time in terms of Table 3 and Table 4. First we consider Table 3.

Table 3 provides the mean level of exports and consistency in India's level of exports of tea over time. For the very purpose mean, standard deviation and coefficient of variation has been calculated for the two level of data: total value of export of tea over the years and the share of export of tea in total agricultural and allied products export for the same period.

The mean value of exports of tea from India shows a wide fluctuation. Table 3 shows that the average export of tea was lowest in the year 1994-95. After 1996–1997, it shows more or less an increasing trend. It also follows from the table that the highest mean value of tea export was obtained in the year 2006-07 which is very high than other periods. The increase in export of tea from India during 2006-07 was mainly attributable to the increase in export to Iraq, Afghanistan, Kenya, Pakistan and Egypt etc. during the financial year. A marginal improvement was also noticed in the countries like Ireland, Uzbekistan and Turkey during 2006-07 as compared to the corresponding period of 2005-06 (53rd Annual report, 2006-07, Tea Board of India). Lower the value of C.V. more consistent will be the result. Table 3 reveals that the values of C.V.s are very high that indicate inconsistency in the value of export of tea.

Table 4 considers the inter-country variation in the export of tea and the corresponding consistency. It provides the mean level of exports and consistency in

Table 3: Exports of Tea in different years (From India to Different Countries) (Rs. Billion)

	Item		
	Share of Export of Tea in Total Export of Agricultural and Allied Products		
Year	Mean	Standard Deviation	Coefficient of Variation
1992-93	96.29091	102.7061	106.6623
1993-94	88.78182	99.20294	111.7379
1994-95	88.67273	84.02881	94.76285
1995-96	106.4636	137.1127	128.7883
1996-97	94.30909	95.74938	101.5272
1997-98	170.5818	211.0949	123.75
1998-99	157.4527	234.2657	148.7848
1999-00	129.3691	199.2889	154.0468
2000-01	126.8073	142.5256	112.3954
2001-02	122.28	117.2656	95.89925
2002-03	111.1045	108.3253	97.49857
2003-04	104.2773	97.9324	93.91536
2004-05	120.1309	90.04431	74.95516
2005-06	103.9845	90.91199	87.42841
2006-07	9.845455	17.4342	177.0787
2007-08	1.849091	1.811035	97.94191
2008-09	2.445455	2.221236	90.8312
2009-10	2.678182	2.32388	86.7708
2010-11	3.049091	2.670964	87.5987
2011-12	3.708182	3.706167	99.94566

Source: Author's Own Calculation based on Different Issues of Handbook of Statistics, RBI

Table 4: Export of Tea and Share of Export of Tea in Total Export of Agricultural and Allied Products to Different Countries from India (Rs. Billion)

	Item		
	Export of Tea from India to Different Countries		
Country	Mean	Standard Deviation	Coefficient of Variation
Germany	64.456	46.35957	71.92437
Iran	27.9855	31.73201	113.3873
Iraq	46.1065	63.77322	138.3172
Japan	33.7795	26.11098	77.2983
K'than	45.415	48.45482	106.6934
Poland	46.063	40.51125	87.94748
Russia	292.0355	256.076	87.6866
U.A.E.	131.9	105.6859	80.12578
U.K.	126.879	87.28162	68.79123
U.S.A.	14.587	21.64024	148.3529
Others	75.038	112.2195	149.5502

Source: Author's Own Calculation based on Different Issues of Handbook of Statistics, RBI.

the level of exports of tea from India to other countries. There we found that mean value of export of tea form India to other countries varies widely from one country to other. The highest mean value of tea export from India is obtained in case of Russia followed by Iraq and Kazakhastan and the corresponding C.V.s of tea export are 43.25for Russia, 363.60% for Iraq and 311.66% for Kazakhastan. The C.V.s are not consistent for the last mentioned two countries. The smallest value of tea export is obtained for Japan and C.V. Is 44.43%. In case of Germany the mean value of tea export is 1.04 and C.V. Is 32.23% (the lowest value of the table), which indicates consistency in the export of tea from India to Germany. In case of UK, the mean value and C.V. of export of tea are 2.25 and 40.71%, respectively that means export of tea is relatively more consistent in case of UK.

Following reasons can be shown on this inconsistency of tea export from India to various countries. It has been found from various reports on tea export that India's tea exports have primarily been

Table 5: Growth rate and instability of export tea from India to different countries

Country	Rate of Growth of Export of Tea from India to Different Countries			Measure of instability of the export of Tea from India to different countries			
	Regime – 1 (1988 to 1995-96)	Regime – 2 (1996 to 2005-06)	Entire Regime (1988 to 2005-06)	Impact of trade openness	$\bar{R}2$	Coefficient of Variation	I_x Cuddy – Della Valle Index
Germany	-16.7594**	-48.8979***	-21.7921*	-8.25151*	0.500566	32.2262	50.82942
Iran	-10.8432***	-31.3543	-13.7734*	-5.8687**	0.320141	100.6538	93.49187
Iraq	-6.80126	-81.7159**	-30.9765**	-20.4767*	0.232914	363.6041	121.143
Japan	-14.9873**	-47.1115***	-19.9913*	-8.6102*	0.444219	44.43561	57.62644
K'than	4.761903	-60.4483***	-8.62452	-10.6734**	0.011265	311.6698	106.0907
Poland	-25.7878*	-43.7596	-28.3721*	-8.44293*	0.687091	48.90022	49.1963
Russia	-22.013*	-43.8838***	-25.2257*	-8.24*	0.604381	43.25548	55.15334
U.A.E.	-12.8949***	-50.4993	-18.965*	-9.10317*	0.382426	43.6345	62.96755
U.K.	-17.3388*	-43.8957**	-21.3337*	-7.65505*	0.534532	40.71301	46.93296
U.S.A.	-24.0499*	66.94747*	-16.0058*	9.309415*	0.371883	65.72605	117.5754

Source: Author's Own Calculation based on Different Issues of Handbook of Statistics, RBI.

*1%, **5% and ***10% level of significance.

dominated by loose Black Tea, which accounts for around 73% of exports in volume terms and 71% in value terms [35]. However, the share of loose BT has declined, even as the share of packet tea and Green Tea has increased. The exports of loose BT have declined largely because of a significant decline in exports to Russia, which till 2004, was the largest market for India's tea exports. India mostly exports Black tea to the United Kingdom. However, Green tea consumption shows large growth in the UK at the cost of black tea and this is one area in which Indian exports can suffer as our green tea exports to the UK are minimal. Consumption of conventional black tea is slowly decreasing in the UK. Producers in developing countries who want to sell black tea to the UK market will have to show some different alternatives in order to compete in the market, for example organic black tea.

Structural Break: For the choice of switching point, we could have used Chow Test ["Test of Equality between sets of Coefficients in Two Linear Regressions". Econometrica vol. 28, no. 3, 1960] but it suffers from the arbitrariness. It must be noted that switching point should be selected by some statistical criteria. Thus in order to identify the structural break authors has conducted CUSUM and CUSUMQ test. The test indicates that there is a break in the year 1995-96. So I we can consider the effect of W.T.O on India's of export of tea.

Table 2 provides the aggregate level of composition and trends in the external trade in Tea and the instability measure by Cuddy – Della Valle Index.

Growth Rate and Instability of Export of rice from India: This section is most valuable section of this research work as in this section authors are going to discuss their major findings of the econometric model in terms of Table 5. Table 5 shows growth rate of rice export and measure of instability of the export of rice from India to different countries.

At this juncture it is important to understand the growth rate and stability of export of tea from India to different countries during twenty years period and the time periods comprises 1992-93 to 2007-08 and 2007-08 to 2011-12 phases. Table 5 provides the summary of rate of growth of export of tea from India to different countries for two regime separately and for the entire regime and the instability measure by Cuddy– Della Valle Index. The growth rate shows a decreasing trend for the entire period for Germany and all the other major ten countries. It is rather paradoxical to note that the growth rate of export of tea form India to different countries showed a significantly declining and negative trend for all the countries for the entire 20 years period.

The value of instability indices helps the policy makers to formulate export promotion and investment policies. The instability in export discourages investment in the production of the commodity, limits the economic horizon and destroys the sense of continuity, which is necessary for planning production [5]. Appropriate instability indices for export of tea, based on the criterion discussed in methodology section are presented below. It is clear from the table that instability indices for export

of tea from India to other countries were highest in case of Iraq (121.14%) followed by U.S.A. (117.58%), Kazakhasthan (106.09%) and Iran (93.49%) indicating that Iraq was most vulnerable importer of tea from India. Germany, Poland, Russia, U.K. Showed rather better stability in tea export. On an average it can be concluded that irrespective of the importer country of Indian tea developed or underdeveloped, rate of growth of export of tea from India to them is negative and declining over the entire study period. Regarding instability it can be said that that developed countries showed better stability than their underdeveloped counter part in the export of tea in the total export of agricultural and allied products.

DISCUSSION

From the analysis of the research results we found that the Indian tea industry faces the problem of declining trend of export growth rate and instability. In this section, we try to find out the reasons behind this.

The total production of tea in India shows an increasing trend from 1999; and though the trend fluctuates from year to year, the production has moved positively upward. In 1998, tea production was 874 million kilograms, whereas it sharply declined to 825.9 million kilograms in 1999. In 2010, Country produced 966 million kg of tea. Since late 1990s this industry is passing through a crisis stage [36]. The main problem of Indian tea industry is low productivity. According to report of All India Estimation, the per-hectare productivity of tea during 1990–1991 was 1,794 kg whereas it reduced to 1,673 kg per hectare during 2000–2001 and further to 1,668 kg per hectare in 2010. Existence of higher percentage of ageing bushes is a major problem faced by the industry. It leads to low rate of production and degradation in quality. 'Tea Board of India' mentioned that more than 38% tea plants of Indian tea estates are more than 50 years of age and 47% tea plants are in between 41 years and 50 years of age and only 10% tea plants are in the age of 10 years to 30 years. They recognized this as the major cause of lower productivity of the Indian tea industry. However it should be noted that total cropping area under tea was increased from 315,656 hectares in 1950 to 0.58 million hectares in 2010. Emergence of new growers (like Vietnam, Indonesia and Kenya) in international market results oversupply of tea and thus Indian tea is facing tough competition. Indian tea is losing its position in the export market on account of higher production cost and poor quality. Another reason in this context is tea is mostly sold through auction. But this is one sided operation which is manly controlled by brokers. Proper price realization is doubtful in this system because it is said that brokers have a good cooperation with big buyers in auction to keep the price low [37].

The main problem of Indian tea industry is low productivity. According to report of All India Estimation, the per-hector productivity of tea during 1990-91 was 1,794kg where as it reduced to 1,673kg per hector during 200-01. "Tea Board of India" mentioned that more than 38% tea plants of Indian Tea Estates are more than 50 years of age and 47% Tea plants are in between 41 years to 50 years of age and only 10% Tea plants are in the age of 10 years to 30 years. They recognized this as the major cause of lower productivity of Indian Tea Industry. However it should be noted that total cropping area under tea was increased from 3,15,656 hectors in 1950 to 5,10,492 hectors in 2001. The total amount of tea exports in 1980-81 was 24,20,73,000 kgs and then it increase to 85,37,10,000 kgs and then it declined to 17 crores kgs. There could be many reasons for this such as – Globalization, Import price, Quality problem Unhealthy competition etc. More over Indian Tea industry faces major problem when Russia reduce their amount of import. Then increase in cost of production, existence of intermediaries and for the last decay the establishment of new "Bought Leaf Companies" enhance the problems of Indian Tea Industry (Note: 'Bought-Leaf Companies': The seller of tea who has no Tea Estate).

Another problem of Tea Industry is the continuous fall in the World-Tea price. Tea prices are mainly determined at auctions in major producing countries. Major auction included Colombo, Mombassa, Kolkata, Chittagong and Jakarta. Prices vary among auctions as well as within auctions because of the differences in origin and quality. The relative rigidity of short-term supply coupled with low price elasticity of demand in consuming countries and the long gestation period of the crop (between 4-6 years), cause alternating short periods of booms and long periods of abundant supply with depressed market prices.

Moreover another problem has recently been developed for Indian Tea Industry is that Indian Tea has banded by major exporting countries like, Germany, USA and UK on the ground of presence of pesticides (germicides) (more than recommended limit) on Indian Tea, like, "Pepsi-Cola" as mentioned by "Joint Central Committee". This again reduces the amount of export to developed countries. According to tea importers it is nothing but "non-tariff barrier" to Indian tea Because of this among 34 Tea producing countries, India accounts

for about 16% of exports (between 1990-2000). Whereas Sri Lanka the largest export, (total production is half of India's total production of tea) accounts for about 20% of world exports, Kenya (18%), China (17%) and Indonesia (8%).

CONCLUSION AND POLICY PRESCRIPTIONS

In the changing scenario of the Indian tea industry, this study tried to understand how tea export from India to different countries during the period 1992-93 to 2011-12 takes its path. During the whole twenty years study period Indian economy has experienced the liberalization phase and WTO agreement. The study did not reveal any positive sign for tea industry of the trade openness and WTO agreement rather surprisingly, during post-WTO the rate of growth of tea exports in the total export of agricultural and allied products along with tea from India to different countries have declined than pre-WTO period. We have already mentioned the challenges and crisis of the Indian tea industry of tea in various sections above. Now at this juncture some recommendations and feasible interventional options as mentioned in various reports are given below:

- Initiatives should be taken to increase sales through the Auction sale by creating some mechanism to increase participation of buyers from different segments. The movement from development agencies and the consumer campaigns may build the direct linkages with buyers and small tea growers which may create awareness and increase demand for their tea at the Auction.
- Intensify various schemes for generic promotion of tea with wide varieties of tea products. It is important to introduce a variety of tea outlets/accessibility of quality tea with the joint venture of various stakeholders.
- Initiate institutional reforms to create awareness and provide sale promotional schemes to retailers to provide better quality to consumers. This will also make buyers and retailers more conscious about social and economic issues in the tea gardens.
- Initiate the participation of non-profit organizations and other stakeholders as at present; intervention of various stakeholders is limited at the retailer and consumer level.
- Introduce outlets of various-priced and various varieties of tea where consumers, irrespective of class get access to good quality. Urban-centered

outlets only provide access to a minor portion of consumers otherwise. This would also provide linkages with the production sector and consumers. The promotional programmes and studies need to address the different segments of society irrespective of purchasing power and behaviour of customers and social groups. This also creates a situation where consumers can choose their own tea in various retailers rather than focusing on very few classes of consumers in urban areas.

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