Plantation Crops under Trade Liberalisation
Analysis in the context of Indo-ASEAN FTA

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Abstract

Indo-ASEAN FTA is a logical extension of the trade liberalisation process initiated in 1991. Further trade liberalisation in the farm sector should therefore be drawn from the experience during the last two decades of liberalisation policy. The study has tested hypothesis for and against trade liberalisation with respect to three major plantation crops, viz., Natural Rubber (NR), pepper and coffee, grown predominantly in a southern most state in India, Kerala. Price instability, rate of growth in farm income and shift in production base have been analysed employing structural break tool. The study found that NR farmers benefited during liberalisation in comparison with pre-liberalisaiton phase while coffee farmers lost. Pepper farmers did not gain significantly but lost during recession in the international markets. The past trend suggests that these crops stand to loose in the international market as major players of the crop in the international market (in terms of productivity and market share) are members of ASEAN. As two decades of trade liberalisation has not succeeded in furthering agriculture advancement across the board, the scope of further trade liberalisation in the farm sector needs caution in a country with more than 50% of its workforce still depend on the farm sector for survival.

Introduction

India has completed two decades of economic liberalisation in 2010. As a logical extension of trade liberalisation to the farm sector, India signed a Free Trade Agreement (FTA) with Association of South East Asian Nations (ASEAN) in August 2009 and it came into effect on 1 January 2010. Under the FTA, it has been agreed upon to phase out domestic market protection for different commodities within stipulated period. The Indo-ASEAN trade pact encompasses a wide array of 3666 commodities ranging from agriculture to electronics goods. For tariff reduction, commodities have been classed under five tracks: (i) normal; (ii) sensitive; (iii) highly sensitive; (iv) special products; and (v) excluded products. Products in the exclusion list contained 489 commodities, of which 302 are agriculture products, 27 fish products, 81 textile products, 50 automotive products, 17 products from chemical industry and 12 other products. Although the stipulated period of the FTA ends by December 2019, the duration of agreement of the FTA vary across countries within ASEAN. Commodities listed under `normal track' shall be made free of import duty while the Most Favoured Nations Tariff (MFN tariff) of items included under sensitive track shall be phased out to 50% by 2019 for most of the commodities. The `highly sensitive' group of commodities have again been classified into three:(i) commodities with a tariff reduction target to 50%; (ii) tariff

1

reduction target *by* 50%; and (iii) tariff reduction target *by* 25% in 2019. For *Special Products* MFN tariff reduction target vary between 40% and 51% from the base tariff rate prevailed on January 1, 2010. Three major plantation crops in Kerala, *viz.,* (i) Natural Rubber (NR); (ii) coffee; and (iii) pepper have been included under different product groups. The NR is included under *Excluded Products* group, implying no tariff reduction for the commodity while coffee and pepper have been placed under *Special Products.* The applied MFN tariff rate of coffee is scheduled to be reduced *to* 45% on December 2019 from its base rate of 100% in 2010 January. And for pepper, tariff reduction is planned to the tune of 20% from the basic rate of 70% in January 2010 to 50% in the terminal year of the FTA. Differential tariff rates prescribed under the FTA entails crop-region specific analysis to assess the likely impact of Indo-ASEAN FTA on each plantation crop. Region specific analysis assumes significance in the context of observed differences in crop productivity across major producing states within the country. Against the setting, the paper analyses the impact of Indo-ASEAN FTA on three major plantation crops, *viz.,* coffee, pepper and NR grown predominantly in Kerala. The impact is analysed in the light of the response of these crops to trade liberalisation during the last 18 years. The rest of the paper is organised as follows. Section 1 outlines the methodology and data sources. In Section 2, different theoretical postulates of agriculture trade liberalisation are discussed. This section also tests the price instability hypothesis with respect to selected crops during the liberalisation period. Section 3 compares crop-performance in area and productivity during pre liberalisation with liberalisation period. Trends in external trade and the possible outcome of the Indo-ASEAN FTA on chosen crops are discussed in section 4, followed by a conclusion.

Section 1

Methodology and Data

Methodology

Conventionally, response function is fitted with lagged price and dummy variables to capture the impact of policy reforms on area and productivity. Such models supply broad summary measures indicating area and productivity response, regress and (Y), to price and policy changes. Analysis in the present study demands identifying structural shifts in the production base, if any, implying changes in intercept and slope over the period of analysis and such changes are suggestive of the shift in the production base. As the structural change is exogenously induced (due to trade liberalisation and change in economic policy in 1991), break dates in the variable (Y) is presumed to be *apriori* known. The sample series is therefore divided into two sub-periods and run separate OLS for different sub-periods. The parameter stability, $\lambda_1 \neq \lambda_2$ (intercept) and $\beta_1 \neq \beta_2$ (slope coefficients) of regressions in two sub-periods are tested and if parameters are found significantly different, it is concluded that structural change has occasioned in the long run movement of the variable and the pooled regression is therefore spurious. The parameter stability is tested employing the method

2

developed by Gregory Chow in (Gujarati and Sangeetha 2007) known popularly as Chow Test. The Chow Test is applicable under the following conditions:

$U_{1t} \sim N(0, \sigma^2)$ and $U_{2t} \sim N(0, \sigma^2)$

. Also, U_{1t} and U_{2t} are independently distributed.

The above methodology of dividing the sample series into two sub-periods is based on the critical assumption that break date(s) is known a priori and if the break date is a priori unknown, Chow Test is inappropriate because of arbitrary fixing of a break point in the sample (Balakrishan and Parameswaran 2007; Hatekar and Ambrish 2005). Arbitrarily fixed break date in the sample, whether it is exogenous or endogenous to the sample data, need not necessarily exist or if at all it exists, the true break dates could be a different one (Hatekar and Ambrish 2005). Moreover, critical values of F distribution are inappropriate to test the estimated F value if break point is a priori unknown. For series with unknown breaks, Bai and Perron (Bai and Perron 1998) have suggested an alternative approach to statistically identify multiple structural breaks in a time series. The procedure is as follows-initially the sample series is tested for a single break under the null hypothesis that the series has no break and if the null hypothesis is rejected, identified break point and the corresponding year is considered candidate break year. The sample is divided into two sub-periods around the candidate break year and each sub-period is again tested for structural break. If the null hypothesis that the series does not have a structural break is rejected, sub-samples are formed around the break year and the process is repeated until each sub-sample exhausts its breaks. Selection of lag length between break points is crucial here. Akaike Information Criterion (AIC) can be employed to determine the lag length between break points. The value of AIC is the lowest for AR(5) and therefore the selected lag length is Five year period (ibid). This study adopts the specifications used in Hatekar and Ambrish with a deviation that the regressand Y is used at its level (Hatekar and Ambrish 2005). The specification is similar to the one used in Balakrishnan and Parameswaran (Balakrishnan and Parameswaran 2007). The model is specified as follows:

$$Y_t = \lambda + \theta DU_t + \beta t + \gamma DT_t + \sum_{j=1}^{k} c_i \, y_{t-j} + ut \qquad \text{......................(1)}$$

where Y_t - stands for Area and Productivity under coffee, pepper and NR in the year t. The model (1) is repeated for all break periods identified by the structural change. The year in which the regression parameters marks a shift is represented by T_m and T is the number of observations (n).

The time dummy (DU_t) carries value 1 if $t > T_m$ and `0' if $t < T_{m;}$ and

$DT_t = (t - T_m)$ if $t > T_m$, and $t < T_m = 0$

3

The autoregressive function in the model assumes special significance in the context of the study because of the very characteristics of the variable under scrutiny. Often area and productivity response to price and policy shifts are specified in the literature as given below:

$$At = a + \beta A_{t-1} + ut$$
$$Pt = a + \beta P_{t-1} + ut$$

Above equations under a given price scenario states that area and productivity in the current year is a function of previous year's too.

The above specifications supply information on the presence or absence of the structural shift measured in terms of intercept or slope coefficient. It is crucial to know the direction of the movement of variable against time. The upward or downward movement in area and productivity of selected crops are estimated employing kinked exponential growth function Boyce (1986). The kinked exponential function takes the following form and the model eliminates the discontinuity between the trend line by imposing a liner restriction at the break point $(k)^1$. The final growth equation for a series with 'n' breaks takes the following form:

$$\ln Y_t = \hat{a}_1 + á_1 (d_1 t + d_2 k) + á_2 (d_2 t - d_2 k) + á_{n1} (d_n t + d_n k) + á_{n2} (d_n t - d_n k) + u_t \ \dots\dots\dots (2)$$

Where :
$\ln Y_t$	=	is (natural) logarithmic value of Area and Productivity of NR, Pepper and Coffee;
$\hat{a}$	=	intercept
$á_{1 \text{ to }} á_n$	=	Growth rate for the sub period identified with structural break equation. In this case, $á_n$ varies from 1 to 5.
k	=	Breakpoints (varies between 1-5)
d_1 to d_n =		Dummy variable for 1 to n breaks
u_t	=	Error term

Null hypothesis set in are:
$$Ho = \hat{a}_1 = 0 \ ; á_1 = 0 ;$$

It explains that there is no positive shift in intercept $(\hat{a}_1)$ and solpe coefficients $(á_1)$ after trade liberalization in 1991.

Instability Index

Instability measures are divergent and often yield contrasting results. The thump rule for any instability measure insists that the measure should satisfy two properties, viz., (i) it should be comparable across data sets with different means; and (ii) it should exclude deviations in the series arising from secular trend (Chand and Raju 2009). Price instability in real term has been checked for pre liberalisation phase (1971-1991) and liberalisation phase (1991-2008

4

and 1995-2008)[2]. Price Instability during the period under liberalisation has been estimated for the entire range from 1991-2 to 2007-08 as well as 1995-96 to 2007 -08. The second period is meant to capture the price instability during the period of global economic crisis driven primary commodity price fall. The following instability index fulfils the above mentioned two criteria. The instability measure takes the following form:

Price Instability = SD of ln (P_t / P_{t-1})

Where

ln	=	Natural logarithm
ln P_t	=	Real price of NR, Pepper and Coffee in the year t
ln P_{t-1}	=	Real price of NR, Pepper and Coffee in the year t_{-1}
SD	=	Standard Deviation

Data

Comparable time series farm gate price in real terms for agricultural commodities is hard to come by because price statistics of plantation crops are compiled by respective commodity boards with little uniformity in the methodology of data collection and compilation. Other methodological issues of price data for plantation crops are: (i) annual average price of plantation crops are not weighted with quantity sold and therefore simple price average need not represent the price that farmers realised. Farm gate price is often at its trough during the peak production season when farmers make the maximum sale of their produce and therefore simple annual price averages over estimate the price realised. The observed pattern was found to be more common for annuals like coffee and pepper; (ii) annual average price are less likely to capture the magnitude of instability as trough and peak get averaged out unless the monthly price is weighted with quantity sold. Among three commodities considered in the present study, coffee and pepper are annuals while NR production is spanned over 12 months with significant intra-year variations. Moreover, coffee and pepper can be stocked for more than a year (if a rich farmer with sufficient liquidity prefers to do so) whereas NR, if stored for more than 60 days, may cause quality deterioration due to fungal infection. However, Instability estimated on current price is less meaningful from farmers side and therefore annual real price instability is estimated. For comparison of instability in real price, annual price for coffee, pepper and NR were derived from the value of output (1999-2000 price series) of National Account Statistics of Central Statistical Organisation (CSO) with the annual production statistics of coffee, pepper and NR. Monthly price data for NR has been culled from Indian Rubber Statistics of the Rubber Board. For uniformity, area, production and yield of the selected crops in India as well as ASEAN member countries were collected from FAO statistics for comparison with ASEAN members. Area and productivity of pepper and NR for Kerala is almost the same as all India as more than 90% of the production of these two crops are concentrated in the state. Respective Commodity Boards' statistics were used to collect area, production and yield of selected

5

crops in Kerala. For structural break analysis, area and productivity data have been used from 1952-53 onwards to detect break in the series.

Selection of Sample Crops

Following factors influenced the selection of these crops for the study: (i) between 80% and 90% of the area under NR and pepper are concentrated in Kerala. (ii) marginal and small farmers account for more than 75% of the total area under the crops chosen, implying the constraints to withstand continuous fall in market price or price volatility, which is inbuilt and inherent in large and unprotected international markets; (iii) major producers of the selected crops are the members of ASEAN and their productivity in the case of pepper and coffee are much higher than in India and for NR it is almost on par with the productivity of the largest producer-Thailand-a member in the ASEAN; (iv) prior to liberalisation drive, these crops had enjoyed adequate protection as the domestic market was insulated from external competition; (v) pepper[3] and coffee are exportable items from India while domestic consumption of NR exceeds its production by 5% to 10%, indicating near total self sufficiency in NR production in India[4]. The selected crops comprise certain common as well contrasting commodity characteristics such as external market orientation (coffee and pepper); total domestic market dependency (NR); and small holder domination with a few large estates. The analysis is focussed on Kerala, as the state shares a fair degree of commonalities in cropping pattern with ASEAN members[5]

Section 2

The debate on Indo-ASEAN FTA is largely fixed on impact assessments, formulated around the theme of gains from trade (Joseph 2009) Protagonists of trade liberalisation in the farm sector argue that Indian agriculture is dis-protected in relation to other sectors and it dissuades investment from agriculture. Trade liberalisation together with the removal of inefficiency breeding state support in input and output markets would transform small farmers and petty producers dominated agriculture sector into a globally competitive and advanced one. Arguments for opening up of the domestic market for farm produce is rooted to the philosophy that subsidies and market protections are major bottlenecks disrupting free play of market forces and efficiency in resource use (Oya 2005:127). The `Law of One Price' asserts that identical goods be sold at identical price, for which elimination of tariffs and non-tariff barriers to cross border trade, together with relaxations in foreign direct investment are inevitable (Donna *et al.* 2009:568). Regional Trade Agreements (RTAs) like Indo-ASEAN FTA is a step towards the ultimate objective of brining in the *Law of One Price,* which rests on the concept of a hypothetical `average representative farmer' and homogeneous peasantry operating under perfect competitive market conditions. For neo-classical, rational farmer is governed solely by the logic of profit maximisation in agriculture as in industry. However, the approach extends a treatment to agriculture and industry alike, negating outright historical differences in agrarian conditions and its structure within as well

as across regions. The neo-liberal philosophy driven agricultural trade liberalisation is critiqued on the ground that agriculture and industry, even under an identical full-blown development of production conditions, are not comparable on account of following inherent structural differences: (i) average production conditions exist in the long run in industry (production conditions can be reproduced irrespective of the geographical specificities) whereas soil type, weather conditions, ground water availability and land characteristics are neither changeable at will nor are they transportable (Marx 1984:617-716); (ii) pricing of agricultural commodities is influenced by normal profit as well as cost of production in the poorest soil *and not by average* production conditions as no such average conditions exists in agriculture like industry; (iii) higher demand for agricultural commodities brings more of less fertile land under cultivation enabling the first quality land to earn super profit or higher ground rent. On the contrary, expansion in the demand for industrial product brings cost saving advanced technology into production and therefore average profit prevail in the industry in the long-run. A price fall for agricultural commodities would therefore put pressure on the cost-price of the least fertile land to withdraw from cultivation which in turn transform the petty production character of agriculture from its marginal and small family labour based farms into a full blown market driven agriculture (Marx 1984:671). Often the transformation process is performed by the state on behalf of large industrial houses in order to make available large reservoir of labour force who are free *in double sense:* free to dispose the labour power as his own commodity and deprived of every means of production to expend the labour power (*Ibid*:166). Once the state mediated capitalistic production is established, the system will be reproduced on an expanding scale while perpetuating the separation of labourers from any means. The process of expropriation of the peasantry took different forms under different historical contexts[6]. The neo-liberal state in India, as in the case of other Less Developed and Middle Income countries, has significantly reduced direct state mediated primitive accumulation notwithstanding the fact that the process has been accentuated manifold especially in the 1990s and 2000s. Transfer of the means of subsistence of peasantry (mainly land and cattle) is made possible either by driving down the price of their staples or letting it to be extremely volatile under an unguarded wide international market, where petty commodity producers have little role to play (Lenin 1967:236). Alongside, farming has increasingly been made an unviable proposition for small and marginal farms as the state's withdrawal from the input market pushes up the cultivation cost. Primary objective of such neo-liberal package is to eliminate the small and inefficient ones from the production system or in other words, effectively carry out a variant of the primitive accumulation strategy. In the following sub-section, price instability hypothesis of three selected crops are tested.

Price Instability during Pre and Post Liberalisation Period

It is argued that price volatility is a powerful and self-perpetuating *mechanism to eliminate* non-capitalistic petty producers from the arena of farm production sector. A characteristic

feature of the market based production system is that price instability does ruin certain branches of an industry in a locality while rendering tremendous impetus to certain other branches within or outside the region (Lenin 1967:236). As price of staples are driven down at every settling point in a large and competitive market, small farms especially family labour based ones, unguarded by the state, are compelled to lower their living standards, culminating finally into their extinct, leaving the production sector to be more efficient producers (Byre 2007:87; Lenin 1967:232-237).

Table 1. Instability Index of Real Price of NR, Coffee and Pepper-   (1999-2000 base)

Year	Coffee	Pepper	Natural Rubber
1970-71 to 2006-07	3.18	6.75	11.74
1970-71 to 1990-91	2.39	7.35	14.37
1991-92 to 2006-07	4.04	6.01	7.30
1995-96 to 2006-07	4.08	6.88	2.56

Table 2. Rate of growth in average price (1999-2000 price)

Year	Coffee	Pepper	Natural Rubber
1970-71 to 2006-07	0.12*	0.67**	1.97*
1970-71 to 1990-91	24.83**	-0.099	-0.223**
1991-92 to 2006-07	-12./64**	1.73*	5.08*

Note: **, * significant at 1% and 5% level respectively

Until mid 1990s, no major policy changes were introduced in the farm sector as part of the neo-liberal paradigm barring rupee devaluation and selective and mild cuts in import duty of agricultural products. A volatile price, especially for export oriented products, culminated in consecutive fall persisted in varying levels for different crops for a period form the second half of 1990s to the first half of 2000s. Table 1 compares price instability of coffee, pepper and NR in the pre-libralisation period with liberalisation period. Important observations from Table 1 are: (i) price instability of coffee has doubled during liberalisation period; (ii) for pepper, price instability has marginally declined during liberalisation period (1991-2008) as compared to pre-liberalisation period; (iii) NR price instability during liberalisation period has fallen more than half its level recorded during the pre-liberalisation period. No less important from farmer's side is the rate of growth in real price of crops as a positive rate of growth together with price stability instils confidence in farmers to undertake farming operations on an advanced scale. Growth rate in real price is estimated employing kinked exponential function with an assumed kink (break) in 1991 and 1995. Growth rates in real price (Table 2) revealed the following: (i) NR farmers have benefited from a positive rate of growth in real price to the tune of 5.08% during the liberalisation period (1991-02 to 2007-08) as compared to a negative rate of growth of (-)0.22% in the pre-liberalisation period.

8

Conversely, coffee growers suffered a sizeable downslide in their income growth to the tune of (-) 12.64% in the post-liberalisation phase as compared to pre-liberalisation period. Pepper farmers too have experienced a positive income growth during the liberalisation period, *albeit* negligible as compared to NR growers. In this context it is worth quoting the theoretical postulate offered to explain the development of agriculture in Russia in its fledgling phase of capitalism in the 19th century.

......the present agricultural crisis is a capitalist crisis. Like all capitalist crisis, it ruins capitalist farmers and peasants in one locality, in one country, in one branch of agriculture and at the same time gives a tremendous impulse to the development of capitalism in another locality, in another country, in another branch of agriculture (Lenin 1967:232)

Section 3
Area and Productivity Shift under Economic Liberalisation

The extent and dimension of further trade liberalisation of farm products should thrust on the response of selected crops to trade liberalisation measures in the past. Impact of the shift in policy paradigm is gauged by comparing area and productivity response of selected crops during pre liberalisation period with that of liberalisation phase. As mentioned elsewhere, structural changes in intercepts as well as slope coefficients in the long run movement of the variables (area and productivity) could simultaneously be identified with structural change detection method explained in the previous section. To recapitulate, the break in the long run movement of the variable is presumed to be caused by an endogenous factor (trade liberalisation and liberalisation policies in the domestic production sector) in the context of the present study. It is hypothesised that area and productivity of three selected crops have experienced `n' breaks with a positive shift in the production base (intercept) as well as slope coefficients as trade liberalisation is expected to push outward the production possibility frontier. For structural break analysis, time series data on area and productivity from 1952-53 to 2007-08 have been used and the long series permitted to have as many breaks as possible with no restriction imposed. The null hypothesis are:

$$H_0 = \quad \gamma_2 < \gamma_1 \quad .... (a)$$
$$H_0 = \quad \beta_2 < \beta_1 .... (b)$$

The subscripts '2' and '1' represent the liberalisation and pre-liberalisation phases and γ and β stand for intercept and slope coefficients respectively.

Structural Break in Area and Productivity

Table 3 presents the structural break years in area and productivity of NR, coffee and pepper for the period 1952-53 to 2007-08. Following are important observations from structural break analysis in Table 3: (i) area under coffee did not show any significant change (break) during the reference period. It indicates that coffee area has been non-responsive to trade

liberalisation; (ii) coffee productivity experienced a break in 1992-93 and the reported year is too early to attribute to liberalisation measures especially for a perennial annual like coffee. (iii) NR has not registered any break in area during the liberalisation period, which is partly on account of geographical constraints in area expansion of NR as agro-climatically suitable land for NR cultivation in Kerala is rather limited. However, NR cultivation would extend to sub-optimal land where other plantation crops like coffee, pepper and cardamom are grown, under a price scenario favouring NR; (iv) NR productivity witnessed two breaks during liberalisation (1996-97 and 2001-02) period. It is suggestive of the impact of liberalisation on NR productivity; (v) area under pepper experienced a shift in 1995-96 while its productivity remained non-responsive during liberalisation period. For a long time, pepper productivity in Kerala remain more or less statistic and trend down in certain years. The structural change analysis revealed that only productivity of NR, among three important crops considered for the analysis, had responded to trade liberalisation policy in the 1990s and 2000s. Nevertheless, impact of liberalisation related policies on selected crops could be clear only with the sign and magnitude of the slope coefficients estimated for different break periods.

Table 3. Estimated structural break years in area, and productivity-1953-2008

Crop	Coffee	Rubber	Pepper
Area			
1st Break	1963-64	1956-57	1959-60
2nd Break	1976-77	1961-62	1968-69
3rd Break	1990-91	1976-77	1974-75
4th Break	Nil	1982-83	1984-85
5th Break	Nil	1989-90	1989-90
6th Break	Nil	Nil -	1995-96
Productivity			
1st Break	1978-79	1961-62	1969-70
2nd Break	1983-84	1966-67	Nil
3rd Break	1992-93	1972-73	Nil
4th Break	Nil	1977-78	Nil
5th Break	Nil	1987-88	Nil
6th Break	Nil	1996-97	Nil
7th Break	Nil	2001-02	Nil

Table 4. Rate of growth rates in area and productivity during break period

Break points	Coffee	Rubber	Pepper
AREA			
1st Break	3.84** (1953-64)	8.38** (1953-57)	2.45* (1953-60)
2nd Break	6.44** (1965-77)	10.44** (1958-62)	1.45* (1961-69)
3rd Break	3.88** (1978-91)	2.75** (1963-77)	0.58 (1970-75)
4th Break	0.51* (1992-07)	4.10** (1978-83)	0.25 (1976-85)
5th Break	Nil	5.58** (1984-90)	5.54** (1986-90)
6th Break	Nil	0.79 (1991-06)	2.82** (1991-96)
7th Break	Nil	Nil	2.26** (1996-06)
Productivity			
1st Break	0.782* 1953-79	1.03* (1953-62)	-1.78** (1953-70)
2nd Break	-6.26** 1980-84	6.17** (1963-67)	3.61** (1971-06)
3rd Break	1.97 1985-1992	7.62** (1968-73)	Nil
4th Break	5.59** 1993-07	-0.23 (1974-78)	Nil
5th Break	Nil	3.02** (1979-88)	Nil
6th Break	Nil	8.05** (1989-97)	Nil
7th Break	Nil	0.31 (1998-02)	Nil
8th Break	Nil	3.75** (2002-06)	Nil

Note: *-significant at 5%; **-Significant at 1% .

Rate of growth in area and productivity during identified break periods are presented in Table 4. Area under coffee cultivation grew by 0.51% while productivity registered a growth rate of 5.59% during 1993-97. Although area under NR remained non-responsive to liberalisation measures, NR Productivity grew by 3.75% per annum during the period 2002-06. It is worth mentioning in this context that NR productivity has always been positive and

significant as compared to other plantation crops and the particular crop feature can be ascribed to an extent to the heavily protected domestic market characterised by a stable and remunerative price. Area under pepper in Kerala exhibited one moderate turn around in the liberalisation phase with a positive growth rate of 2.20% (1996-06). To cut the story short, only NR did show signs of change in productivity during liberalisation phase.

Section 4

Scope for Further Trade Liberalisation

The scope of further trade liberalisation with respect to the selected crops depends on productivity and volume of trade. Productivity is the proxy for competitiveness and trade volume represents market concentration and power to price determination. Table 5 compares performance in external trade and unit value of selected crops during pre-liberalisation with liberalisation period.

Coffee: India is the sixth largest producer of coffee in the world, with a share of 4.9% in the world market. Kerala is the second largest coffee producing state with 22% of the area and 23% of production in India. Karnataka (58%) and Tamilnadu (8%) are two other major coffee producing states in India. Productivity of coffee in Kerala was 705 kg/hectare and the reported yield is on a lower side as compared to the national average of 826 kg/hectare in 2009-10 (Government of Kerala 2011). The lower yield place the small holders of the crop in a disadvantageous position (average size of holdings of 1.1 hectare) on account of two factors: (i) coffee productivity in the state has declined in relation to other major producing states in India over the years; (ii) coffee farmers in the state has inherited a locational disadvantage, stem from the production of Arabica coffee production (97% of coffee area in Kerala is accounted for by an inferior variety called Robusta) which is ranked second to Arabica variety in the international market. Moreover coffee cultivation is concentrated in Wayanad district in Kerala, implying that the negative impact of trade liberalisation may be centered heavily on farmers in the district. Among ASEAN members, Vietnam is the second largest producer of coffee in the world after Brazil and Indonesia is the 4th largest producer. Other ASEAN members, Thailand, Philippines, and Malaysia too grow and trade coffee in the international market. Table 7 compares coffee yield with India and other ASEAN countries.

Coffee is primarily an export oriented crop, which had an export intensity of 80% in the 1980s and 1990s. India had not imported coffee until 1987 and its imports began with a negligible quantity of 5 tonne coffee in 1988 and reached 13301 tonne in 2007-08. Since then coffee imports grew abound and recorded a rate of growth of 32.40% per annum between 1991-92 and 2007-08. Import price of coffee dropped to US$ 0.40/kg in 2002 from US$ 0.76/kg in 1990 and the rate of growth in import price of coffee turned negative between 2000 and 2005. During recessionary phase (2002-2005) in the international market, Vietnam and Indonesia dumped coffee in the Indian market through Sri-Lenka ports, making use of

12

Indo-Sri-Lenka FTA. It is worth mentioning in this context that coffee export from India has substantially declined and the rate of growth in unit price of export turned negative between 1991-2007 period (Table 5).

Pepper: Vietnam is the largest producer of pepper with 20% share in world production closely followed by Indonesia with 17% share. Other ASEAN members like Malaysia and Thailand do cultivate pepper but their share is relatively small. It is important to note that China is the third largest producer of pepper after Brazil and the FTA between India and ASEAN may be perceived against the context. Conversely, India's (Kerala) position in world pepper market (15%) has dropped from its first position in the 1990s to fourth place in 2008. The export intensity of pepper in India defined in terms of the quantity exported as a proportion of production varied between 30% and 40% in 2001. Unlike coffee, pepper produced in Kerala fetched a premium price in the international market owing to its intrinsic quality. Taking advantage of the provision under Indo-Sri Lankan Free Trade Agreement, low quality pepper was imported into India from other major producing countries, particularly from Vietnam through Sri Lankan ports in the early 2000s when the world market was under recession. In fact, the intrinsic premium quality pepper produced in Kerala used to be mixed with the inferior quality produce imported from other countries to India before being re-exported to the world market (Mohanakumar and Sharma 2006). India's position in pepper production is fourth in the world and pepper productivity in India (Kerala) is 280 kg per hectare whereas productivity in Vietnam is 1966 kg and Indonesia produces 678 kg per hectare (Table 6). Pepper productivity in Malaysia is closer to Vietnam's productivity and these three ASEAN countries depend heavily on the international market for pepper sale. Although pepper is an exportable item from India with an export intensity of around 75% before the introduction of trade liberalisation in 1991, volume of pepper import into India has increased manifold during the last two decades. Pepper export grew negative during liberalisation period while the rate of growth in unit value of imports increased.

Natural Rubber (NR): Kerala accounted for 80.63 % of area and 91.27% of NR production in 2007-08. Agro-climatic specificities required for NR plantation limits the area expansion to other parts of the country on any significant scale. Area under NR in Kerala has increased from 0.07 million in 1952 to 0.512 million hectares, which accounted for 15% of the gross cropped area in the state in 2007-08. Domestic market for NR as well as for NR based products, tyres and rubber products have greatly contributed to its area expansion and yield increase (Mani 1993). Although NR productivity in India is the highest in the world, the yield difference between the world leader-Thailand and India is insignificant- these two factors place India(Kerala) in a disadvantageous position. More than 70% of farms under NR cultivation are marginal or small implying that farmers staying power in the wake of a consecutive fall in price is rather limited.

13

Table 5. Trend growth rates of export, import and unit values -1980-2001

Year	1980-1991	1992-2007
Pepper		
Quantity imported	12.70	17.20
Quantity exported	2.60	-2.10
Unit value of imports	0.30	2.90
Unit value of exports	2.10	-0.40
Coffee		
Quantity imported	NIL	32.40
Quantity exported	4.80	3.40
Unit value of imports	NIL	-0.20
Unit value of exports	-5.60	-1.20
Natural Rubber		
Quantity imported	10.20	10.10
Quantity exported	Nil	29.00
Unit value of imports	6.50	20.50
Unit value of exports	NA	NA

Source: 1. FAO statistics

2. Indian Rubber Statistics

It is worth mentioning that India's share in world NR production has declined from 9% to 8% while Indonesia and Vietnam have pushed up their relative share over the years. The observed fall in India's share in production, *albeit*, marginally, assume special significance as NR consumption in India grew at the rate of 4.70% against a growth rate of 4% in production between 2000 and 2008. The mismatch in growth in the production and consumption of NR may be viewed in the light of following other factors too: (i) there exist agro-climatic constraints on area expansion under NR cultivation in India; (ii) three major ASEAN members, *viz.*, Thailand (33%) Indonesia (29%), and Malaysia (19%) together accounted for more than 80% of the world NR production in 2008; (iii) rate of growth in NR production in Thailand, which accounted for more than 30% of the world NR production, registered a growth rate of 5.34% per annum against India's 5.19% and the growth performance of Vietnam (10.95%) was almost double the rate of growth of India during 2000-08 period. The observed differences in production-consumption gap and India's falling share may be read along with production-consumption gap in other major NR producing countries. Thailand consumes only 12% of its production and Indonesia absorbs 14% of NR production. Though NR consumption in Malaysia is a little higher than other two major NR producers, only 37% of its production is made use of in the country, leaving the rest for exports. It implies that the first three major producers of NR in the international market has sufficient surplus for exports and the vast domestic market in India with a production deficit may be set against the backdrop outlined.

14

External trade in NR has significantly increased over the years in spite of the fact that domestic demand for NR exceeds its production between 5% and 10%. The increase in the volume of export is in part due to subsidy driven distress export to clear the glut in the domestic market for six years from 1998 to 2003. During the world recession in the second half of 1990s through the first half of 2000s, decline in the demand for NR in the domestic market led to excess supply. Unlike other crops in Kerala, NR farmers in the state is better organised mostly under the regional caste-based political party, the faction ridden Kerala Congress. The farmers succeed in exerting power as each outfit of the Kerala congress along with other main stream political parties in the state compete to win the support of NR farmers concentrated mostly in south and central Travancore.

Table 6. Pepper productivity in India and ASEAN (kilogram/hectare)

Year	Indonesia	Malaysia	Vietnam	Kerala	Kerala's as ratio Vietnam
1991	825	2581	1302	276	0.21
1992	855	2600	1590	282	0.18
1993	809	1977	1455	268	0.18
1994	765	1558	1780	269	0.15
1995	825	1526	1729	314	0.18
1996	680	1640	1827	311	0.17
1997	617	1767	3316	311	0.09
1998	808	1667	2234	313	0.14
1999	775	1758	2290	317	0.14
2000	691	1919	1828	301	0.16
2001	684	2123	1598	299	0.19
2002	694	1765	1566	283	0.18
2003	698	1522	2242	296	0.13
2004	699	1481	1445	314	0.22
2005	699	1418	1635	320	0.20
2006	668	1574	1627	357	0.22
2007	656	1543	1845	280	0.15
2008	678	1817	1966	280	0.14

Source: FAO statistics

15

Table 7. Coffee productivity in Kerala, Indian and major ASEAN members

Year	Thailand	Indonesia	Malaysia	Vietnam	Kerala	India	Kerala's as ratio of India	Kerala's as ratio of Vietnam
1991	704	563	559	1686	278	600	0.46	0.16
1992	1076	551	621	1779	239	720	0.33	0.13
1993	972	542	758	1901	306	640	0.48	0.16
1994	1118	565	758	1693	528	760	0.69	0.31
1995	1210	541	758	1406	562	655	0.86	0.40
1996	1157	504	750	1554	546	731	0.75	0.35
1997	1236	513	741	2411	570	682	0.84	0.24
1998	1206	607	757	1914	610	754	0.81	0.32
1999	843	583	745	2050	731	863	0.85	0.36
2000	1235	440	751	1683	719	945	0.76	0.43
2001	1299	433	755	1868	833	962	0.87	0.45
2002	798	497	754	1488	786	951	0.83	0.53
2003	809	480	755	1652	761	874	0.87	0.46
2004	871	463	754	1683	754	871	0.87	0.45
2005	858	463	755	1512	711	866	0.82	0.47
2006	681	696	618	1982	669	856	0.78	0.34
2007	819	698	576	1798	703	755	0.93	0.39
2008	811	699	574	1989	675	675	100	0.34

Source: FAO statistics

Conclusion

Indo-ASEAN FTA is a logical extension of the trade liberalisation process and the scope for further trade liberalisation in the farm sector should therefore be drawn from crops' response to two decades of liberalisation policies. The debate on trade liberalisation on the farm sector in India centred primarily around two issues- (i) gains from trade may effect a positive shift in production base manifesting in area expansion and productivity increase; (ii) price instability (emerging from market widening) of farm produce may prove to be detrimental to small and marginal farmers. Productivity and market control are two important factors influencing competitiveness in the international market and these two variables of the selected crops in Kerala have been compared with major players of ASEAN. The hypothesis for and against liberalisation are tested employing structural change analysis and instability index.

The study found that the price instability, measured in terms of value of output in real terms of coffee had increased during the liberalisation phase. On the contrary, price instability of NR and pepper registered a fall during liberalisation as compared to pre-liberalisation phase. Coffee price declined by (-)12.64% per annum while NR price grew by 5.08% and the rate of growth in pepper price was positive but not very significant during liberalisation. Trade liberalisation is intended to improve resource use efficiency and it should manifest a shift in the production base in terms of area expansion and productivity enhancement. Area under NR and coffee did not change during liberalisation while area under pepper experienced a positive break by the mid 1990s. Pepper productivity did not experience any significant break while coffee productivity took a shift in 1992-93. However, the year is too early to attribute to trade liberalisation as the shift in economic policy was occasioned in the farm sector by mid 1990s only. NR productivity did break up from its past trend to attain a higher and positive growth path in the first half of 2000s. The NR is not an export oriented products like coffee or pepper and therefore the productivity shift is more logical to be attributed to the domestic price stimulants on account of its complementary crude oil based products price hike in 2000s. Analysis of the impact of Indo-ASEAN trade pact on three crops considered in the study indicated that major producers of crops on which Kerala compete in the International markets are also the major crops of ASEAN members. For pepper and coffee, the productivity of ASEAN countries are significantly higher than that of Kerala. Although Kerala commands marginal advantage over Thailand in NR Productivity, the declining India's share in world production on the one hand and production-consumption gap in the domestic sector leave little scope for turning productivity gain into the advantage of farmers in Kerala on any significant scale. Broadly, the study concludes that the liberalisation measures for the last 18 years have not provided sufficient supportive evidence for further trade liberalisation in the farm sector with respect to NR, coffee and pepper.

Notes

[1] For a detailed description of application of Kinked exponential growth function, see Pushpangadan (2003)

[2] Although India became a signatory of WTO only in April 1, 1995, neo-liberal reforms has been initiated by early 1990s. For example, deregulation of fertilizer price, floating exchange rates, devaluation of rupee, partial withdrawal of the government from market interventions, reduction in customs tariff, among others, have been introduced since early 1990s. All such policy measures have left its impact on agricultural sector in myriad ways. The division of the period from 1991 and before is therefore justifiable. For a detailed discussion of the methodology of structural break, see Balakrishnan and Parameswaran, 2007; Hatekar and Ambrish 2005.

[3] Other than Kerala, pepper is cultivated in Tamilnadu (3700 hectare) and Karnataka (12000 hectare) and in North Eastern States (Nagaland) and Andaman Nicobar Islands.

[4] Indian Rubber Statistic, 2008. The rest of the area under the crop is situated in North Eastern states, mainly in Tripura (6.48%) and Assam (2.7%). In the south, Kanyakumari district in Tamilnadu (3.05%) and certain parts of Karnataka (4.53%) grow NR

[5] It is important to note that cash crops, particularly perennial crops like NR are likely to take a time-lag to respond to the policy shift, which will be reflected in area and productivity. It implies that the statistically detected shift or break points in area and yield in the early 1990s, even if the growth rate is positive, is not attributable to policy shift.

[6] Under the colonial rule, the imperialist state mediated the appropriation of the peasantry and their separation from the means of production using coercion and plunder such as land appropriation from indigenous population, slavery and slave plantation (Byre, 2005:84). The second half of 1940s in Less developed countries gave way to domestic primitive accumulation by the developmentalist state, for which the state adopted distributive land reforms and tenurial relations (land was transferred to the landless through non-market means) to facilitate the development of a land market. In the absence of other protective measures such as adequate supply of rural credit, market, price protection and public investment in infrastructure, peasants were left with little option but get rid of with their tiny strip of land to join the workforce for livelihood.

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18

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