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Sumit B Wasnik

M.Sc. (Agril. Econ.) Students,
Department of Agriculture
Economics and Statistics, PGI,
Dr. PDKV Akola, Maharashtra,
India

Sunita N Suryawanshi

Assistant Professor of Agril.
Economics, College of
Agriculture, Department of
Agriculture Economics and
Statistics, Dr. PDKV Akola,
Maharashtra, India

BN Ganvir

Head, Department of
Agriculture Economics and
Statistics, Dr. PDKV Akola,
Maharashtra, India

An analysis of trend and export competitiveness of tobacco in India

Sumit B Wasnik, Sunita N Suryawanshi and BN Ganvir

Abstract

India is the world's second largest producer and exporter of tobacco after china in the global market. India is a leading tobacco exporter with exports of leaf tobacco and tobacco products generating foreign exchange earnings of around Rs. 6,000 crores annually. In total agricultural exports tobacco share is around 2.69 per cent in 2016-17. This paper studied the trend of tobacco export in domestic and international prices and export competitiveness during the period 1987-88 to 2016-17. The domestic price and international price of tobacco were showing exponential trend of growth with increasing at increasing rate. The NPC value of tobacco showed the average value as 0.40 per cent and 0.46 per cent in period I and period II, respectively and the NPC value for overall period was 0.43 per cent. It indicates highly competitiveness in international market. Result shows that the export of tobacco from India is highly competitive.

Keywords: Tobacco, Trend, Export, NPC, Domestic price, International price

Introduction

Agriculture is the keystone for the Indian economy. Agriculture and allied sectors like forestry, logging and fishing accounted for 15.87% of the GDP. In order to boost agriculture export it becomes indispensable to access the competitiveness of agricultural exports. Since pioneer study of N. Patted (2012) [6] have assessed the export competitiveness of tobacco export from India.

Tobacco is cultivated in both tropical and sub-tropical climatic parts of the world. The area under tobacco in the world is 39.60 lakh hectares with a production of 71.70 lakh tonnes and productivity of 1,811 kg/ha. (Agriculture at a glance, FAO Stat 2016). While during 2015 area, production and productivity under tobacco in world was 3,889 thousand hectares, 6,985 thousand tonnes and 1,796 kg/hectare, respectively. The total tobacco export from the world in 1987 was 15,33,894 tonnes in terms of quantity and valued for 6,183.69 Rs. crores, While it was increase to 32,02,963 tonnes during 2016 and valued for 1,16,657.65 Rs. crores. India stands second in production and export of tobacco after china in the world.

According to Directorate of Economics and Statistics, Government of India, Presently, tobacco is being cultivated in an area of 4 lakh hectares in the country with more than 70 species of tobacco. India stands second in production and export of tobacco in the world with an estimated annual production of 805.51 million kg of the different types grown, flue-cured tobacco, country tobacco, burley, bidi, rustica and chewing tobacco are considered important. Tobacco occupies a meager 0.24 per cent of the country's total arable land area. It is grown largely in semi-arid and rain-fed areas where the cultivation of alternative crops is economically unviable. (The Tobacco Institute of India 2016).

In total agricultural exports tobacco share is around 2.69 per cent in 2016-17, Among the different tobacco types cultivated in India, bidi tobacco forms the biggest chunk (36 per cent) followed by Virginia tobacco (16 per cent), Natu tobacco (9.5 per cent) and Hookah tobacco (7.6 per cent), generating 22,737.07crore (during 2016-17) as excise duty and 5,975.08 crore in terms of foreign exchange to the National income, during 2016-17 from all tobacco transaction (Tobacco board AR 2016).

India is a leading tobacco exporter with exports of leaf tobacco and tobacco products generating foreign exchange earnings of around Rs. 6,000 crores annually. (Tobacco Board, Ministry of Commerce & Industry, Govt. of India 2016). Overall tobacco and tobacco product exports during 2016-17 were 2,47,837 Metric tonnes valued at 6,070.33crore in rupee terms and US \$ 891.91 million in dollar terms. Export of tobacco and tobacco products for the period under report have declined by 5 per cent, 1 per cent and 4 per cent in terms of quantity, value in rupees & US dollars, respectively when compared to the exports made during the previous year. (Tobacco Board Annual Report 2016). Tobacco and tobacco products are a large

Corresponding Author:**Sumit B Wasnik**

M.Sc. (Agril. Econ.) Students,
Department of Agriculture
Economics and Statistics, PGI,
Dr. PDKV Akola, Maharashtra,
India

contributor to the Governments tax revenue. The total tax revenue collected from tobacco products is more than Rs. 34,000 crores annually. (Tobacco Institute of India 2016).

As per the statement given by Tobacco Board the exports will surge up in coming years. Currently the situation in global tobacco market is transforming into a favorable market environment for Indian tobacco exports due to various reasons. This paper has studied the trend and export competitiveness of tobacco.

Data and Methodology

The study is based on secondary data. The secondary data on export of tobacco were collected from FAO, Agmarknet and various government publications like Tobacco Board of India, Ministry of Commerce & Industry"- Government of India for the period of 1987-88 to 2016-17. The period has been divided into two sub-period: period-I 1987-88 to 2001-02 and Period -II 2002-03 to 2016-17. The statistical techniques used were trend analysis in domestic and International prices, for analyzed the export competitiveness and nominal protection coefficient.

Trend Analysis

The trend equation fitted to assess the domestic and International prices of tobacco. For estimating the long run trend of tobacco export, the method of ordinary least squares estimate was employed. This method of ascertaining the trend in a series of data involves estimating the coefficient of intercept (a), and slope (b) in the linear functional form. The equation adopted for this purpose was specified as follows,

$$Y_t = a + bX + e$$

Where,

Y_t = Trend values at time t

a = Intercept parameter

X = Period in years

b = Slope parameter

e = Error.

The goodness of fit of trend line to the data was tested by compounding the coefficient of multiple determinations which is denoted by R^2 .

Table 1: Trend in domestic and international prices of tobacco

Sr. No.	Trend	Intercept	X (b)	X ² (c)	R ²	F Value
1	Domestic Price	1358.32	-25.76	11.05	0.73***	36.89
2	International Price	3328.79	160.27	15.66	0.92***	151.77

(*** - denotes Significance at 1% level.)

The analysis of trends of international prices of tobacco shows that the quadratic function fitted for tobacco for domestic prices and international prices. The R^2 value (0.73 per cent) was statistically significant for Domestic prices. However sign of 'b' was negative (-25.76) and sign of quadratic term 'c' was positive (11.05). This was indicated that trends in domestic prices of tobacco was decreasing at slowly increasing rate. Similarly, Yeledhalli and Kulkarni

Export Competitiveness

Competitiveness is the objective of a nation to grown, successfully to maintain the share world trade. The export competitiveness was studied using Nominal Protection Coefficient (NPC).

Nominal Protection Coefficient (NPC)

NPC was computed to determine the extent of competitive advantage enjoyed by the commodity in the context of free trade. The coefficient shed light on whether a country has comparative advantage in the export of that commodity in the free trade scenario or not. The domestic price used in this computation could either be the procurement price or the farm get price, while the world reference price is the international price adjusted for transportation cost, packing cost, port clearing charge, insurance, etc. Symbolically,

$$NPC = \frac{P_d}{P_b}$$

Where,

P_d = Domestic Price of Commodity

P_b = World reference price or border price of the commodity

If $NPC > 1$, the commodity is protected, compared to the situation that would prevail under free trade,

If $NPC < 1$, the commodity is taxed and liberalization would raise the domestic price or commodity is disprotected, Under exportable hypothesis: an efficient export substitute and

If $NPC = 1$, there is no protection given to the commodity its domestic price is equal to its border price.

Result and Discussion

Trends of tobacco export in market

The trend international price was studied for tobacco by regressing domestic price and international price with time as the variable. The quadratic function was fitted to the data and sign and significant of the quadratic coefficient 'c' indicate the magnitude and direction of the change in the trade in international price. The results of the quadratic function are presented in Table 1.

(2009) observed that domestic prices received by farmers were below the international prices in India. Also for international prices value of R^2 (0.92) was statistically significant and the sign of 'b' was positive (160.27) and sign of quadratic term 'c' was positive (15.66) this was showed that trends in international prices of tobacco was increasing at increasing rate.

Table 2: Data of Domestic & International Prices 1987-88 to 2016-17.

Year	India's Domestic Price (Rs./Quintal)	Border Price (International) in (Rs./Quintal)	X	X ²
1987-88	1136.59	1763.12	1	1
1988-89	1453.64	2074.44	2	4
1989-90	1843.05	2291.87	3	9
1990-91	2769.40	2604.03	4	16
1991-92	1601.06	6220.68	5	25
1992-93	1498.33	6101.32	6	36
1993-94	1841.80	6838.58	7	49
1994-95	1644.30	7075.52	8	64
1995-96	2138.89	7586.87	9	81
1996-97	2490.60	8805.63	10	100
1997-98	1254.99	8287.51	11	121
1998-99	2065.45	8551.99	12	144
1999-00	2435.21	9324.62	13	169
2000-01	2856.49	9215.21	14	196
2001-02	2521.17	9250.91	15	225
2002-03	3069.74	9622.97	16	256
2003-04	2813.17	9654.13	17	289
2004-05	3470.34	9921.99	18	324
2005-06	3461.41	10177.99	19	361
2006-07	5889.47	10999.81	20	400
2007-08	4845.47	11022.43	21	441
2008-09	8037.94	13026.59	22	484
2009-10	9419.38	14071.04	23	529
2010-11	12234.75	13933.57	24	576
2011-12	7189.73	15418.97	25	625
2012-13	8201.05	19769.70	26	676
2013-14	6636.33	23063.50	27	729
2014-15	13038.85	22646.61	28	784
2015-16	9419.10	21580.23	29	841
2016-17	5982.84	21545.38	30	900

Source: Data compiled from Agmarknet and faostat.

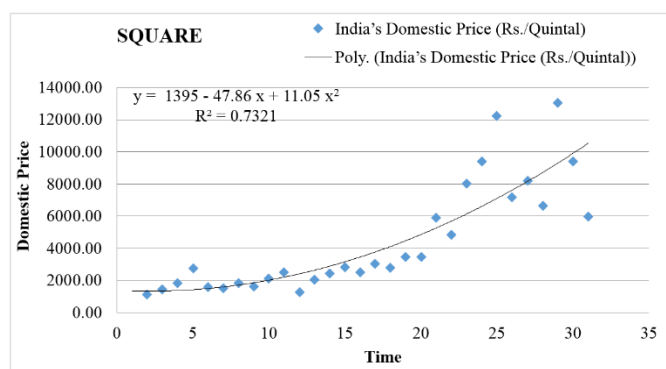


Fig 1: Graphical presentation of square trend in domestic price of tobacco

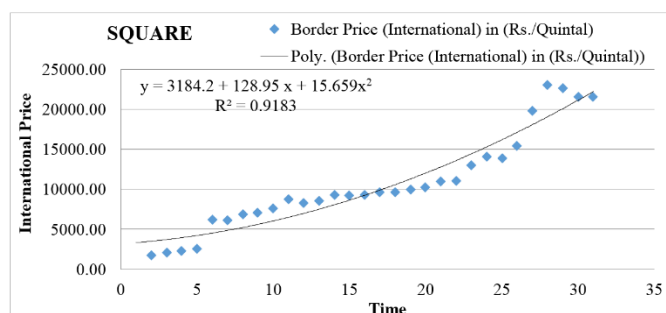


Fig 2: Graphical presentation of square trend in international price of tobacco

Export competitiveness of tobacco

The export competitiveness of tobacco was analyzed by using nominal protection co-efficient. The competitiveness of

market depends upon NPC ratio. When NPC ratio is less than 0.5, market is highly competitive, when NPC ratio is in between 0.5 to 1, the market is moderately competitive and when NPC ratio is greater than one, then market is non-competitive and it is presented in Table 3.

Table 3: Export competitiveness of tobacco

Sr. No.	Particulars	NPC (Pd/ Pr)
1	Period I (1987-88 to 2001-02)	0.40
2	Period II (2002-03 to 2016-17)	0.46
3	Overall Period (1987-88 to 2016-17)	0.43

It is revealed from the table that at an overall level the NPC value of tobacco export was worked out to 0.43, it is indicating highly export competitiveness of tobacco in international level and proves commodity is protected in international market but when it was analyzed for the two different periods in period I and period II. It was observed that the crop was during the period I and period II average NPC values was 0.40 and 0.46, respectively which also indicates highly export competitiveness for both the period I and period II. Result shows that export of tobacco from India is highly competitive and has great potential in international market as similar result observed by the M. Meena (2018) [5] for analysis of their export competitiveness. Similarly, N. Patted (2012) [6] has observed highly competitive result regarding export of different tobacco products from India to the different markets.

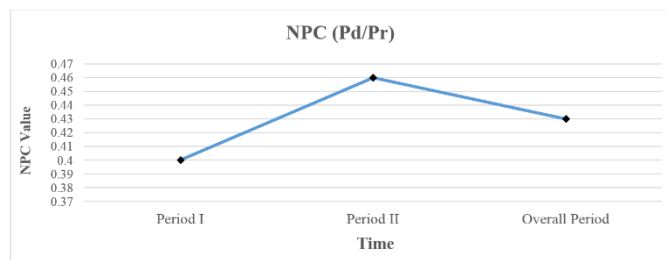


Fig 3: Export competitiveness of tobacco

Conclusions

The analysis of trends of tobacco shows that the quadratic function fitted for tobacco for domestic prices and international prices. Trend in domestic price of tobacco was decreasing at slowly increasing rate. Trend in international price of tobacco was increasing at increasing rate. R^2 was statistically significant for domestic prices and international prices at one per cent level of significance.

The NPC values of tobacco export was worked out to 0.43, it is indicating highly export competitiveness of tobacco in international level and proves commodity is dis-protected in international market but when it was analyzed for the two different periods in period I and period II it was observed that, the crop was during the period I and period II average NPC values was 0.40 and 0.46, respectively which also indicates highly export competitiveness for period I and period II.

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