

Review Paper

# Export Competitiveness and Price Trend of Basmati Rice

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## ABSTRACT

The present study was undertaken to access the price trend of Basmati rice in domestic and International market and export competitiveness of Basmati rice as it accounts a major share to the export basket of India and generates higher earning due to high value in both international and domestic market compared to other agricultural commodities. The secondary data required to achieve the objectives were collected from the APEDA, DGCIS and Indiastat website for a period of 20 years (1999-2000 to 2018-2019). The trend in domestic and international price was estimated by using different parametric models and Nominal Protection Coefficient (NPC) was used to study the export competitiveness. The trend analysis showed that among all the competitive parametric models, exponential model was best fitted for both domestic and international price. The NPC value concluded that for all the three periods taken into consideration, Basmati rice was highly competitive in global market. Therefore, there is comparative advantage in the export of Basmati rice and concerned efforts must be taken up to effectively utilise its export potential.

## HIGHLIGHTS

- ① Exponential model was best fitted for both domestic and international price.
- ① Basmati rice was highly competitive in global market.

**Keywords:** Exponential Model, NPC, domestic price, international price, APEDA

Indian agriculture is the strength of economy as it is the dominating sector of country's economic activity contributing greatly to foreign exchange and capital formation. Despite the fact that globalisation and liberalisation pose significant difficulties to the Indian economy, India's export basket has enormous potential on the global market. Rice (*Oryza Sativa*) maintains a significant place in India's agricultural economy and food security (Adhikari *et al.* 2016). Basmati, the scented pearl is a novel cereal crop and nature's gift to the Indian sub-continent. The word "Basmati" has been derived from two Sanskrit words "vasay" meaning "aroma" and "mati" connoting "ingrained from the origin" (Siddiq *et al.* 2012). The name "Basmati" is protected under the Geographical Indications (GI) of Goods (Registration & Protection) Act 1999' of India. It is one of the best known varieties of rice all across the world.

This aromatic rice is a significant commodity in India's agricultural export basket accounting to 24.50 per cent of the total agricultural export. During 2018-2019, India produced 7500 thousand tonnes of Basmati rice which is eight times more than that of the production level during 1999-2000. With Indian Basmati rice gaining momentum in the global market and fetching higher returns, the production level has also showed a steady growth in the past years. Around two-thirds of the total Basmati rice production is exported around the world and the remaining is consumed within our country.

Basmati rice constitutes the major share of rice exports from India and captures higher returns as it

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is priced significantly higher than the non-Basmati rice in the international as well as in the domestic markets (Tiwari, 2020). Basmati exports from India attains peak during March-April and November-December. The major export destination of Indian Basmati Rice includes Iran, Saudi Arab, Iraq, United Arab Emirates and Kuwait (APEDA). Exports of Basmati rice could be boosted in the future by expanding cultivation in non-traditional areas and diversifying its market in both domestic and global level (Ray, 2018). To achieve the breakthrough in exports, state and central government must initiate a comprehensive and long-term export planning process. This study attempts to study the trends in domestic and international price and export competitiveness of Basmati Rice in India.

## MATERIALS AND METHODS

Keeping in view, the importance of Basmati rice to the economy, Basmati rice was purposively selected for the study. The nature of data used for the study was entirely derived from secondary sources and the entire country was taken into consideration. The secondary data required to achieve the objectives were collected from the statistical export reports of Agricultural and Processed Food Product Export Development Authority (APEDA), Directorate General of Commercial Intelligence and Statistics (DGCIS) and Indiastat website for a period of 20 years (1999-2000 to 2018-2019).

For the purpose of comparison, the period of study was divided into two sub periods and overall period viz., Period I (1999-2000 to 2008-2009), Period II (2009-2010 to 2018-2019) and Overall period (1999-2000 to 2018-2019). To achieve a meaningful result, the collected data were assembled and processed in MS Excel spreadsheet. Based on the nature of the data, analytical tools such as trend analysis and Nominal Protection Coefficient (NPC) were employed.

### Trend Analysis

Different competitive trend models, such as linear equation, quadratic equation and exponential equation models were utilised to determine the variation. The equations used to work out the trend are as follows:

$$Y_t = a + bt$$

$$Y_t = a + bt + ct^2$$

$$Y_t = ab^t$$

Where,

$Y_t$  = Domestic/ International Price

$a$  = Intercept

$t$  = Time

$b$  &  $c$  = Partial Regression Coefficient

Among the competitive trend models, the best model was choose based on the goodness of fit (determined by computing the coefficient of multiple determinations ( $R^2$ )) and significance of the coefficients. R statistical software which is an open access was used for evaluating the trend as the programming is simple and precise.

### Nominal Protection Coefficient

The Nominal Protection Coefficient (NPC) is defined as the ratio of the domestic price to the world reference price of the particular commodity taken into consideration (Srikalaa *et al.* 2017).

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

Where,

$P_d$  = Domestic price of Basmati rice

$P_r$  = World Reference price/ International price of Basmati rice

### World Reference Price/ International Price

International Price was worked out by dividing the value of exports by their respective quantities.

### Domestic Price

The domestic price was determined by the wholesale price received by farmers in Amritsar market for Basmati rice during the harvest.

## RESULTS AND DISCUSSION

### Trend analysis of domestic and international price of Basmati rice

To assess domestic and international pricing, trend equations were fitted. Depending upon its better fit, data was analysed using the production

function, which includes linear, quadratic and exponential trends and the results were appraised and presented under two categories namely trends in domestic price and international price. The data over the period from 1999-2000 to 2018-2019 were considered to access the trend in domestic and international price. The domestic and international prices of Basmati rice during the period of study are presented in Table 1 and the results of the trend analysis of domestic and international price are presented in Table 2.

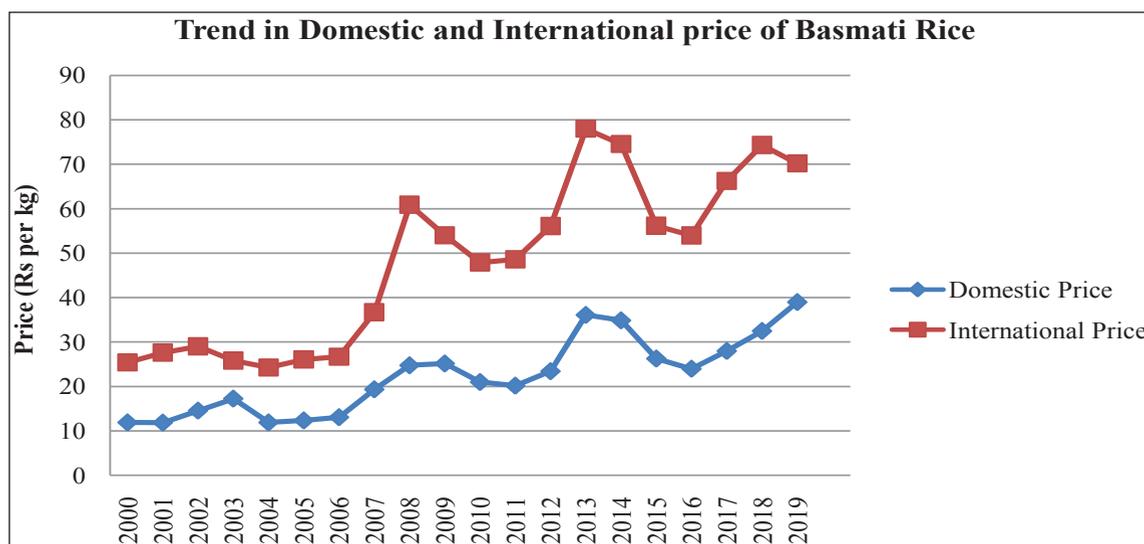
Fig. 1 represents the domestic and international price of Basmati rice during the study period (1999-2000 to 2018-2019). There was steady fluctuation in the price of Basmati rice in both domestic and international market however there was an overall increase in the price of Basmati rice over time. Price of Basmati rice in Amritsar market increased from ₹ 11.92/kg in 2000-01 to ₹ 39/kg in 2018-2019. The lowest price received by the farmers during the study period was ₹ 11.88/kg. In international market, the price of Basmati rice increased from ₹ 25.43/kg in 1999-2000 to ₹ 70.17/kg in 2018-2019 while the highest price received by the farmers was ₹ 77.98/kg in the year 2012-2013 and the lowest price received by the farmers was ₹ 24.28/kg in 2003-2004. Based on the overall performance, path was defined using competitive parametric models and among them the best fitted model was chosen based on the  $R^2$  value along with the significance of coefficient. Trend analysis showed that the exponential model was best fitted for both domestic and international

price among the three selected models.  $R^2$  value of domestic price (0.78) and international price (0.79) were statistically significant at one per cent level of significance and sign of the Coefficient (b) was also positive and significant at one per cent level of significance for both domestic and international price. The findings can be correlated with the findings of Jeetu (2012) and Mittal *et al.* (2018).

**Table 1:** Domestic and International price of Basmati rice from 1999-2000 to 2018-2019

Year	Domestic Price (₹/kg)	International Price (₹/kg)
1999-2000	11.92	25.43
2000-2001	11.88	27.62
2001-2002	14.58	29.04
2002-2003	17.28	25.83
2003-2004	11.92	24.28
2004-2005	12.36	26.09
2005-2006	13.09	26.7
2006-2007	19.36	36.71
2007-2008	24.77	60.89
2008-2009	25.18	53.99
2009-2010	21.01	47.89
2010-2011	20.19	48.61
2011-2012	23.44	56.09
2012-2013	36.11	77.98
2013-2014	34.88	74.54
2014-2015	26.29	56.15
2015-2016	24.00	53.98
2016-2017	28.00	66.24
2017-2018	32.50	74.31
2018-2019	39.00	70.17

Source: indiastat.



**Fig. 1:** Trend in Domestic and International price of Basmati rice

**Table 2:** Trends in Domestic and International Prices of Basmati Rice (2000-2019)

Sl. No.	Particulars	Function	Intercept	X(b)	X <sup>2</sup> (c)	R <sup>2</sup>	Adjusted R <sup>2</sup>
1.	Domestic Price	Linear	9.14	1.26		0.75***	0.74
		Quadratic	9.79	1.08	0.008	0.75	0.72
		Exponential	2.41	0.06		0.78***	0.77
2.	International Price	Linear	18.39	2.83		0.77***	0.76
		Quadratic	15.42	3.64	-0.038	0.78*	0.75
		Exponential	3.12	0.06		0.79***	0.78

\*\*\* and \* denotes significance at 1% and 5% level, respectively.

### Export competitiveness of Basmati rice from India

The Nominal Protection Coefficient (NPC) was used to access the export competitiveness of Basmati rice. NPC ratio determines the degree of export competitiveness of the commodity in the market. When the NPC ratio is less than 0.5 it indicates that the market is highly competitive, NPC ratio between 0.5 to 1 indicates that the market is moderately competitive in nature and NPC ratio greater than 1 indicates that the market is non-competitive in nature. The results of the analysis are presented in Table 3.

**Table 3:** Export Competitiveness of Basmati Rice

Sl. No	Particulars	NPC(Pd/Pr)
1	Period I	0.48
2	Period II	0.46
3	Overall Period	0.47

During the overall period, the NPC values for Basmati rice was observed to be 0.47 indicating that the commodity was highly competitive in global market but not protected in the domestic market as farmers received lower price than the global price. In period I (1999-2000 to 2008-2009) and Period II (2009-2010 to 2018-2019), the NPC value was found to be 0.48 and 0.46 respectively, which indicates that both the periods were also highly competitive in nature. When compared to period I and overall period, Period II (0.46) was having higher competitiveness indicating that there was a rise in the international price of Basmati rice in the global market compared to the domestic price during this period. The results obtained are in close agreement with the findings of Dastagiri *et al.* (2013) and Makama *et al.* (2016).

### CONCLUSION

The present study concluded that Basmati rice is an important cereal crop owing to its importance in the economy of the country. Based on the R<sup>2</sup> value and the significance of coefficients for both domestic and international price, the present study found that the exponential model was the best fit of all the selected parametric models. Over the last few years, the price of Basmati rice has been fluctuating both domestically and internationally. The NPC value of Basmati rice indicated that Basmati rice is highly competitive in global market. As India is the world's largest producer of Basmati rice, it should make the most of this opportunity by standardising the product and simplifying the export regulations.

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