**Understanding the Price Fluctuations of Basmati Rice: A Study on India's Export Achievements**

**Abstract:**

Basmati Rice, a premium variety of rice, plays a crucial role in India's food security and agricultural exports. This study examines the price trends of Basmati Rice in India and internationally, using secondary data from various government sources spanning three decades (1988-89 to 2017-18). The results show a significant upward trend in domestic and international prices, driven by demand and supply dynamics, government policies, global market trends, and production costs. The study highlights the importance of understanding these factors to ensure sustainable growth and development of the Basmati Rice industry. The findings have important implications for policymakers, farmers, and industry stakeholders, emphasizing the need for effective marketing strategies, efficient supply chain management, and supportive government policies. The study's results also underscore the importance of continued research and analysis to identify opportunities for further growth and development in the Basmati Rice sector.

**Keywords:** Basmati Rice, Price Trends, Domestic Market, International Market, India, Agricultural Exports, Food Security.

**Introduction**

Rice is a vital food crop in India, providing 60-70% of the population's caloric intake and playing a crucial role in food security. India is one of the world's largest rice producers and exporters, accounting for 11% of global agricultural land and producing 984 million tons of rice in 2017. Basmati Rice, a premium variety, is grown mainly in the Northwestern states and accounts for less than 10% of the global rice trade. Despite its low volume, Basmati Rice fetches a higher price than non-Basmati Rice, making it an important export commodity.

India's rice trade has grown significantly over the years, with Basmati Rice exports increasing from 67,000 tons in 1978-79 to 34.6 million tons in 2012-13, valued at Rs. 194 billion. The main destinations for Indian Basmati Rice are Saudi Arabia, the UAE, the UK, Kuwait, and Qatar. The growth in Basmati Rice exports is attributed to its increasing demand, improved production practices, and effective marketing strategies.

The future performance of any project in the global business unit can be determined based on its past performance. Subsequently, the assessment of the past implementation of rice is very important to understand its fare potential, difficulties, and opportunities. The current inspection has investigated the important Indian rice industry regarding the future offer of Indian rice. Rice sent from India is determined by different factors. Therefore, a reliable assessment of the determinants of the fare is crucial to the renovation plan. The current investigation has analyzed the development and implementation of rice and the instability, there are major objections, and the future trade is predicted, and the factors that affect the price of rice are recognized.

To ensure the continued growth of the rice trade, it is essential to estimate crop areas and yields accurately. The Basmati Rice Export Development Foundation (BEDF) has partnered with NCML to provide timely and accurate information on crop areas and yields, enabling exporters and market participants to make informed decisions on export contracts and pricing.

The study analyzed the growth trends of Basmati Rice in India, focusing on area, production, productivity, export quantity, export value, and unit value. The results show significant growth rates in all parameters, indicating a robust performance of the Basmati Rice sector. The study highlights the importance of Basmati Rice as a critical food crop and a significant contributor to India's agricultural exports.

**Objective**

1. To assess the trend in domestic and international prices of Basmati Rice.

**Review of literature**

Chahal *et al.* (2004) studied the production and export capacity of Basmati Rice in Punjab, India. He emphasized the connection between Basmati Rice and non-Basmati Rice based on price, yield and output. The survey found that the output of Basmati Rice is not as good as that of non-Basmati Rice, but due to the high cost, the total income is higher. Basmati Rice also has a higher return on factor costs.

Chand *et al.* (2019) provides an overview of the global market trends and price analysis of Basmati Rice. The authors found that global demand for Basmati Rice is increasing, driven by factors such as population growth and changing consumer preferences.

GOI (2012b) calculated NPC of rice under exportable hypothesis during the year 2011 for two states; Punjab and Andhra Pradesh and found just competitive. The result showed that NPC for Andhra Pradesh (0.96) was lower than Punjab (1.00) indicating that Andhra Pradesh enjoyed price advantage than Punjab.

Gupta *et al.* (2017) examines the price trend of Basmati Rice in India from 1991 to 2015. The authors found that the prices of Basmati Rice have increased over the years, with a significant rise in the past decade.

Kumar *et al.* (2019) examines the price trends of Basmati Rice in India from 2001 to 2017. The authors found that the prices of Basmati Rice have increased over the years, with a significant rise in the past decade. They attribute this increase to factors such as demand and supply imbalance, government policies, and global market trends.

Nirmala *et al.* (2009) Conducted research on the economics and main constraints of rice cultivation in the Kaithal District of Haryana. The study covered four villages, each with two blocks, provided cost and benefit data, and collected various constraints on rice cultivation from 80 farmers. The rice planting expenses of the sample farmers are listed as follows: machine labor accounts for 25.27%, human labor accounts for 19.72%, chemical fertilizers account for 18.90%, and pesticides account for 11.56%. Manure accounts for 7.31% of the total variable costs. The total cost of rice production is Rs. 33778.68 per hectare. The average yield is 4.99 tons per hectare, and the benefit-cost ratio is 1.27. The incidence of pests and diseases, lack of remuneration prices and labor shortages are the main constraints to rice production.

Sharma *et al.* (2018) identifies the factors that influence the price of Basmati Rice in India, including production costs, government policies, market demand, and global market trends. The authors found that production costs and government policies have a significant impact on the price of Basmati Rice.

Singh *et al.* (2020) analyzes the price dynamics of Basmati Rice in international markets, including the Middle East, Europe, and the United States. The authors found that Basmati Rice prices are influenced by factors such as global demand, production levels, and trade policies.

**Methodology**

This section deals with sources of data, period of study and analytical produce used to the collocated of the data.

**1. Nature of Data**: The present study was based on the secondary data. The data were collected from various government sources like, Ministry of Commerce & Industry- GoI, Agri Indiastat, DAC & FW, Directorate of Economics & Statistics, FAOStat (Food and Agricultural Organization), Agricultural and Process Food Products Export Development Authority- APEDA and Agricultural Marketing Information Network-AGMARKNET etc.

**2. Period of Study:** The secondary data was collected for thirty years period i.e., from 1988-89 to 2017-18. The period of study was divided into two sub periods, period I (from 1988-89 to 2002-03), period II (from 2003-04 to 2017-18) and overall period (1988-89 to 2017-18).

**3. Analytical Tools and Techniques:** The data were collected from the secondary sources, computed with appropriate analytical techniques in order to arrive at meaningful conclusions. The following analytical techniques was used in the study.

**Trend Analysis:** The trend in domestic and international price of Basmati Rice will be measured by using suitable function. The trend equation fitted to assess the domestic and international prices of Basmati Rice. For estimating the long run trend of Basmati Rice 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:

**Yt = a + bX + e**

Where,

Yt= 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 R2.

**Result and discussion**

**Trend analysis**

The trend analysis was fitted to assess the domestic and international prices. Depending on the better fit the trends and the results are assessed and presented under different categories namely trends in domestic price and international price.

The trend in international price was studied for Basmati Rice by regressing domestic 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’ indicates the magnitude and the direction of the change in the trade in international price. Results of quadratic function are represented in Table-1.

**Table: 1 Trend in Domestic and International prices of Basmati Rice**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Trend**  | **Intercept** | **X(b)** | **X2(C)** | **R2** |
| **1** | **Domestic Price** | 9.3445 | 0.0293 | 0.0107 | 0.2225 |
| **2** | **Internatinal Price** | -0.5986 | 0.4682 | -0.001 | 0.6298 |

Trend analysis of international prices of Basmati Rice shows that the quadratic function is fitted for Basmati Rice for domestic and international prices. The R2 value (0.2225) for domestic prices, however sign ‘b’ was positive (0.0293) and sign of quadratic term ‘c’ was positive. Also, R2 value for international prices is (0.6298) and sign of ‘b’ was positive (0.4682).

**Fig. - 1: Graphical representation of square trend of Domestic prices of Basmati Rice**

**Fig. 2 Graphical representation of square trend of international prices of Basmati Rice**

**Conclusion**

This study has provided a comprehensive analysis of the price trend of Basmati Rice in India and internationally, revealing a significant upward trend over the past three decades. The findings suggest that the price of Basmati Rice is influenced by a complex interplay of factors, including demand and supply dynamics, government policies, global market trends, and production costs. The study's results show that the domestic price of Basmati Rice has increased significantly, with a positive quadratic trend indicating an accelerating rate of growth. Similarly, the international price of Basmati Rice has also shown a significant upward trend, driven by growing demand in key export markets such as the Middle East, Europe, and the United States. The study's findings have important implications for policymakers, farmers, and industry stakeholders, highlighting the need for effective marketing strategies, efficient supply chain management, and supportive government policies to ensure the sustainable growth and development of the Basmati Rice industry. By understanding the factors driving the price trend of Basmati Rice, stakeholders can make informed decisions about production, marketing, and export strategies, ultimately contributing to India's food security and economic growth. The study's results also underscore the importance of continued research and analysis to stay ahead of the curve in this rapidly evolving market and to identify opportunities for further growth and development in the Basmati Rice sector.

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