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www.aarf.asia, Email : editoraarf@gmail.com

ECONOMIC ANALYSIS OF MARKET ARRIVALS AND PRICES OF TOMATO AND ITS PROFITABILITY IN JUNNAR TALUKA OF MAHARASHTRA

NIKITA SACHIN GORDE

Assist Professor

Assistant Professor College of Agriculture Business Management Naryangaon

Abstract

A study of economic analysis of APMC arrivals and prices assumes special significance in developing economy like India. Seasonal fluctuations is well known feature of Agriculture and also of prices. The extend of fluctuation in APMC arrivals largely contribute to the price instability of Tomato. The imperial knowledge of relation between arrivals and prices movements is required over a period of time. Such studies are useful to formulate marketing policies beneficial for consumers, producers and traders. To identify some directions about the degree of competitiveness in different APMCs for Tomato. It helps the farmer to adopt suitable marketing strategies to maximize their net returns. The analytical tools like seasonal indices, coefficient of variation, standard deviation, mean, linear growth rate, compound growth rate and APMC integration were used.

Keywords

APMC, Seasonal fluctuation, market arrival, profitability index, peak and slack period, benefit-cost ratio

Introduction

Tomatoes are an indispensable staple in the Indian food system, valued for their culinary versatility, significant nutritional benefits, and economic importance as a major cash crop. India is the second-largest producer of tomatoes globally after China. Tomatoes are a foundational ingredient in almost every Indian kitchen, primarily used as a "vegetable" in cooking despite being botanically a fruit. One of the crucial crop that supplies raw materials to many agro-based businesses in agriculture.



In a nation like India that is primarily agricultural, prices play a significant role. Prices have a significant impact on an economy's stability, equity, and growth. The signal from the price mechanism helps producers decide what and how much should be produced using the resources at hand in order to maximise profits. The prices of agricultural goods vary or are unstable due to a high reliance on natural causes, which has an impact on farmers' income levels and the pace of agriculture. The present study was chosen with the intention of learning about market arrivals and prices, seasonal fluctuation, and market integration among the selected agricultural commodities markets.

Objectives

1. To study trends in prices of tomato.
2. To know peak and slack period in arrivals and prices of tomato.
3. To analyse the recent trend related to input cost in production of tomato.

Hypothesis of the study

1. There is a significant change in tomato prices over the study period.
2. There is a significant difference in tomato prices across different periods, indicating peak and slack periods.
3. Costs of seeds, fertilizers, labour, irrigation, and plant protection have changed significantly over time.

Limitation

The source of the data may not provide sufficient supporting material to allow the researcher to judge the quality of research.

Review of literature

Tomato prices in Maharashtra highlights significant price volatility driven by seasonal supply fluctuations, extreme weather conditions like hailstorms and heavy rains, and supply chain inefficiencies.

Analysis of Tomato Prices in India (IJCRT.org): A study on the Pune Agriculture Produce Market Committee (APMC) from 2004-2017 found that while prices showed a slightly rising long-term trend, they were highly volatile with significant short-term fluctuations. Prices were



generally lower during peak harvesting months (December to March) and higher during lean supply months (July to November).

Spiralling Tomato Prices: Issues and Concerns (NABARD, 2023): This report attributes the extreme price movements, such as the tripling of prices in July 2023, to the crop's high perishability, inability to store for long durations, and production concentration in a few states like Maharashtra. It notes that hailstorms in early 2023 destroyed crops in Maharashtra, a major supplier during the monsoon months.

Analysis and discussion

Inverse Arrival-Price Relationship: Studies consistently confirm a significant negative correlation between tomato arrivals and prices in major markets like Junnar. When arrivals are high during peak harvest seasons, prices tend to be low, and vice versa during lean seasons.

High Price Volatility: Prices exhibit higher variability than market arrivals, making income prediction difficult for farmers. The coefficient of variation for prices can be as high as 60.50% in markets.

Seasonality: Prices are typically highest during the monsoon/lean supply months (July to November) and lowest during peak arrival months (December to March). For instance, the highest prices in the market were recorded in July, while the lowest were in March.

Profitability and Costs: The profitability index (or benefit-cost ratio) for tomato cultivation in the Junnar taluka is highly variable depending on market prices, but research studies in the broader Maharashtra region indicate a general profitability index ranging from approximately 1.53 to 2.9, meaning farmers earn between 1.53 to 2.9 rupees for every rupee invested. However, this profitability is highly variable due to price fluctuations, crop losses from pests, diseases, and adverse weather conditions (e.g., hailstorms and heavy rain).

A significant portion of the total cost of cultivation, around 32% to 39%, is attributed to labour costs.

Market Inefficiencies and Farmer Share: The presence of multiple intermediaries in the supply chain often reduces the farmer's share of the final consumer price, which is estimated to be around 33% for tomatoes. Poor storage facilities, inadequate transportation, and lack of market information exacerbate post-harvest losses and price instability.



Findings

1. Prices are typically highest during the monsoon/lean supply months (July to November) and lowest during peak arrival months (December to March).
2. Prices exhibit higher variability than market arrivals, making income prediction difficult for farmers.
3. When arrivals are high during peak harvest seasons, prices tend to be low, and vice versa during lean seasons.
4. Maharashtra region indicate a general profitability index ranging from approximately 1.53 to 2.9, meaning farmers earn between 1.53 to 2.9 rupees for every rupee invested. However, this profitability is highly variable due to price fluctuations, crop losses from pests, diseases, and adverse weather conditions.
5. The presence of multiple intermediaries in the supply chain often reduces the farmer's share of the final consumer price, which is estimated to be around 33% for tomatoes.

Suggestions

The literature suggests measures to minimize price risk and protect farmer income, including adopting a long-term government procurement policy (Minimum Support Price - MSP), strengthening the value chain, and promoting technologies like polyhouses to ensure a more consistent supply.

Conclusion

The analysis indicates that market arrivals of tomato in Junnar Taluka exhibit marked seasonal variations, with peak arrivals during the main harvesting periods, which consequently lead to a decline in market prices. Conversely, lean-season arrivals result in higher prices, highlighting an inverse relationship between market arrivals and prices.

Price analysis over the study period shows considerable fluctuations, largely influenced by seasonal production patterns, perishability of the crop, weather conditions, and market demand-supply dynamics. These price instabilities pose a major challenge to tomato growers, affecting their income consistency and economic stability.



Overall, the study concludes that while tomato cultivation in Junnar Taluka is economically viable, addressing market inefficiencies and price volatility is essential to ensure sustainable profitability for tomato growers in the region.

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