

Seasonality and volatility in arrivals and prices of turmeric in major markets of Marathwada region

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Abstract

The present investigation aims to examine the seasonality and volatility in arrivals and prices of turmeric among selected markets in Marathwada. For the present investigation, the time series data on monthly arrivals and prices of turmeric required for the study were collected from MSAMB, Pune for respective markets viz., Basamat, Hingoli and Nanded. These three major APMCs, from Marathwada region were selected for the period of last 10 years i.e. 2012-2021 to analyse the trends. The result of present investigation shows that the clear pattern of maximum and minimum arrivals and prices. The seasonal indices of turmeric arrivals in selected markets reached their peak during the month of March to June, and in the other months, no distinct trends were seen. While the price indices are moving around the average prices of turmeric. The estimates of intra-year variation revealed that variability in arrivals were greater than variations in prices of turmeric in Marathwada region. In contrast, the inter-year fluctuations in arrivals were greater than the variability in prices of turmeric in selected markets of Marathwada.

Keywords: Turmeric, arrivals, prices

Introduction

Turmeric (*Curcuma longa*) is a significant spice crop belonging to the family zingiberaceae, and it is rhizomatous herbaceous plant which is originated from India. It is used in diversified industries as a flavouring agent, a condiment, a coloured agent, and curry powder. India is referred to as the "Spices Bowl of the World" because many varieties of spices have been grown in the country since ancient times.

Turmeric is produced, consumed, and exported mostly in India. Central and Latin America, Thailand, various Southeast Asian nations, and Taiwan are even significant producers. The annual global production of turmeric is about 11 lakh tonnes. India leads the global production scenario with a contribution of 80 percent, followed by China with 8 percent, Myanmar with 4 percent, and Bangladesh and Nigeria together with 6 percent of the total production.

The area, production and productivity of turmeric was fluctuating during the year 2018-19 to the year 2022-23 in Maharashtra. There is an increase in area from 17.224 thousand ha in 2018-19 to 83 thousand ha in 2022-23. Similarly, the production has increased from 38.310 thousand tons in 2018-19 to 278 thousand tons in 2022-23. The productivity has increased from 2224 kg/ha in 2018-19 to 3349 kg/ha in 2022-23. In the year 2019-20, highest productivity i.e. 5152 kg/ha was noted. The area and production of turmeric has increasing trend from the year 2018-19 to 2022-23.

Materials and Methods

In the state of Maharashtra, this study was conducted. The current study focused on Marathwada region of Maharashtra. For the present study the major markets of turmeric namely Basamat, Hingoli and Nanded were selected from Marathwada region. The time series data on monthly average arrivals and prices of turmeric for the period from 2012 to 2021 were collected from MSAMB, Pune for respective markets and used for present study.

I. Seasonal indices of arrivals and prices of maize

To estimate the seasonal variations in arrivals and prices, seasonal indices were calculated by using twelve months ratio to moving average method.

II. Variation in arrivals and prices

To estimate both intra-year and inter-year in arrivals and prices following formula was used.

$$C.V. (\%) = (SD / \text{Mean}) \times 100$$

Result and Discussion

1) Seasonal Indices of arrivals and prices of turmeric in Marathwada

The seasonal indices of monthly arrivals and prices of turmeric for the period of last 10 years (2012 to 2021) in Basamat, Hingoli and Nanded markets of Marathwada region were calculated and the results are presented in Table 1.

It could be noticed from the table that, the maximum indices of arrivals of turmeric were 190.39 and 169.20 percent, in Basamat and Hingoli markets, respectively and it was observed in the month of May. The highest price indices of turmeric in Nanded market were in the month of April, at 203.20 percent. On the contrary, the lowest arrivals indices were recorded in the months of February, i.e. 37.69 percent (Basamat), 34.34 percent in the month of March (Hingoli) and 22.25 percent in the month of February (Nanded), respectively.

Table 1: Seasonal indices of arrivals and prices of turmeric in Marathwada

Month	Basamat		Hingoli		Nanded	
	Arrivals Indices	Prices Indices	Arrivals Indices	Prices Indices	Arrivals Indices	Prices Indices
Jan	61.74	102.61	70.32	95.89	36.04	94.56
Feb	37.69	102.44	40.07	103.69	22.25	94.04
Mar	43.91	101.22	34.34	103.95	52.59	95.94
Apr	119.39	101.72	163.40	96.09	203.20	95.86
May	190.39	97.20	169.20	83.52	184.55	92.06
June	167.18	96.41	119.44	89.74	163.43	107.14
July	117.05	99.74	105.05	109.95	120.44	101.77
Aug	98.91	100.23	105.86	112.00	117.59	112.67
Sept	108.10	97.73	122.02	106.62	83.16	99.84
Oct	76.55	95.06	101.52	107.42	65.24	97.60
Nov	81.39	101.01	72.63	87.83	89.43	104.20
Dec	97.64	104.57	96.10	103.25	62.03	104.26
	1200	1200	1200	1200	1200	1200

(2012-2021)

The maximum prices index of turmeric in Basamat market was attained in the month of December i.e. 104.57 percent. While in Hingoli market it was attained in the month of August i.e. 112 percent and in Nanded market it was attained in the month of August i.e. 112.67 percent, respectively. The lowest price indices were observed in the month of October for Basamat market i.e. 95.06 percent, while it was 83.52 percent and 92.06 percent in May for Hingoli and Nanded market.

The seasonal indices of arrivals were maintained above 100 during the month of April to July in Basamat market and April to October in Hingoli market. In Nanded market the period could be defined during April to August. A distinct pattern of price indices above 100 was noticed for all the markets in *Marathwada* region starting from April to August.

2) The intra-year variation in the arrivals and prices of turmeric in Marathwada

The intra-year variation in the arrivals and prices of turmeric in Basamat, Hingoli and Nanded markets over a period of 10 years (2012 to 2021) are given in Table 2.

Table 2 revealed that, in *Marathwada* region, the complete range of variation in prices for turmeric in Basamat, Hingoli, and Nanded markets were 20.47, 23.46, and 22.21 percent, respectively. However, the variations in arrivals were much higher at 65.81, 57.78, and 74.44 percent, respectively.

Table 2: Intra-year coefficient of variations in arrivals and prices of turmeric in Marathwada (2012-2021) (%)

Month	Basamat		Hingoli		Nanded	
	Arrivals	Prices	Arrivals	Prices	Arrivals	Prices
January	55.41	23.86	50.09	23.85	80.5	23.38
February	48.89	21.86	57.29	21.44	106.93	23.56
March	57.37	22.28	71.04	21.91	62.68	25.51
April	42.43	24.2	49.48	15.63	63.59	25.05
May	50.59	21.71	50.36	27.28	52.75	23.68
June	95.47	20.05	30.52	19.13	56.83	22.16
July	70.48	15.6	65.59	24.84	72.7	18.64
August	78.01	14.16	73.2	20.93	69.64	17.07
September	81.36	17.38	42.51	22.75	72.33	18.07
October	79.21	19.51	47.2	24.07	91.77	21.35
November	64.78	22.6	94.55	33.36	91.09	23.11
December	83.53	22.5	61.58	26.43	72.53	24.95
Mean	65.81	20.47	57.78	23.46	74.44	22.21

The monthwise analysis over the whole study period shows that, the estimates of arrivals were varied between 42.43 (April) to 95.47 (June) percent in Basamat market, while variation in prices were varies between 14.16 (August) to 24.2 (April) percent. In case of Hingoli market, the variation in arrivals and prices of turmeric ranged between 30.52 (June) to 94.55 (November) percent and 15.63 (April) to 33.36 (November) percent, respectively. In Nanded market, the variation in arrivals of turmeric ranged between 52.75 (May) to 106.93 (February) percent and variation in prices ranges from 17.07 (August) to 25.51 (March) percent, respectively. It is interesting to observe that there was a larger difference between the magnitudes of variation in arrivals of turmeric than variation in prices of turmeric in Marathwada region.

3) The inter-year variability in the arrivals and prices of turmeric Marathwada Region

The inter-year variability in the arrivals and prices of turmeric in Basamat, Hingoli, and Nanded market during the period 2012 to 2021 are estimated in Table 3.

Table 3: Inter-year variations in arrivals and prices of turmeric in Marathwada (%)

Year	Basamat		Hingoli		Nanded	
	Arrivals	Prices	Arrivals	Prices	Arrivals	Prices
2012	82.05	15.67	65.03	14.82	129	18.44
2013	49.71	12.1	48.24	12.08	59.34	19.18
2014	59.88	7.26	88.69	5.08	106.1	7.73
2015	47.88	10.1	75.42	14.2	92.69	6.88
2016	65.39	11.22	74.34	7.81	120.7	9.68
2017	64.93	8.96	95.82	11	88.25	12.1
2018	52.55	4.52	85.59	6.03	92.4	11.2
2019	54.49	5.4	50.4	6.58	99.29	12.24
2020	75.89	2.49	45.47	4.13	97.81	11.3
2021	57.2	7.8	44.09	9.74	108.95	8.37
Mean	60.99	8.55	67.3	9.14	99.45	11.71

It could be observed from the table that, the minimum variation in arrivals of turmeric (47.88%) in Basamat market were noticed in 2015, while maximum variation of 82.05 percent was observed in 2012. The variations in prices were varied between 2.49 to 15.67 percent in Basamat market. In case of Hingoli market, the coefficient of variations in arrivals and prices were ranged between 44.09 to 95.82

percent and 4.13 to 14.82 percent, respectively. The arrivals of turmeric varied in the range of 59.34 to 129 percent in case of Nanded market. On the other hand, the annual variation was observed between 6.88 to 19.18 percent, respectively in the per quintal prices of Nanded market.

Conclusions

1. With few exceptions, the seasonal indices of turmeric arrivals in selected markets reached their peak during the month of March to June, and in the other months, no distinct trends were seen. While the price indices are moving around the average prices of turmeric. With certain exceptions, an inverse relationship between arrivals and prices was found.
2. The estimates of intra-year variation revealed that variability in arrivals were greater than variations in prices of turmeric in Marathwada region. In contrast, the inter-year fluctuations in arrivals were greater than the variability in prices of turmeric in all eight selected markets of the Marathwada region.
3. The estimates of intra-year variation revealed that variation in arrivals were greater than variations in turmeric prices in Marathwada region. However, in all eight markets of the Marathwada region examined inter-year variability in arrivals exceeded those in prices.

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