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Analysis of Price Behaviour of Paddy in Bhandara and Gondia Districts of Vidarbha

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ABSTRACT: *The study intends to examine the price behaviour of paddy in Bhandara and Gondia districts for the period 1995-2011. The study was relied upon the secondary time series data. The required information on market arrivals and prices of paddy were collected from the Annual Administrative Reports of the largest Districts APMC's. The results of the study indicates that the maximum arrival of paddy in Bhandara and Gondia APMC's was in the month of November 198.32 and 115.17 quintal respectively. The cyclical movement of arrivals of paddy in selected market showed that in Bhandara market arrivals cycle peaked from 2003 to 2011 except in the year 2005 and 2009 and in Gondia market peaked arrivals from 1995 to 1997and in the year 2003,2005 and 2007 respectively.*

INTRODUCTION

Rice (*Oryza sativa*) is one of the most important food crop in the world which forms the staple diet of 2.7 billion people. It is grown in all the continent except Antarctica occupying 150 million hectares, producing 573 million tonnes paddy with an average productivity of 3.83 million tonnes per hectare. India is the largest rice growing country (44.6 million hectare), while china is the largest producer of rice in the world. By 2025 the world population is expected to rise to 8.35 billion requiring 60 per cent more rice production as compared to the current production in order to meet the demand created by increasing population. In India, it accounts for more than 40 per cent food-grain production, providing direct employment to 70 per cent people in rural area.

It is said that rains and prices are the enemies of farmers in such situation the price behaviour of commodity will help the producer and policy makers in planning appropriate polices for setting remunerative prices to produce. It is well known fact that Indian agriculture is characterised by wide variations in output of major crops which subsequently lead to wider fluctuations in market arrivals. The extent of fluctuations in market arrivals largely contribute to the price instability of the major crops. In order to device the appropriate ways and means for not only reducing the degree of fluctuations in the prices of agricultural produce but also increasing the quantity of market arrivals, there is a need to have a perfect understanding about the behaviour of prices of different agricultural produce and the responsiveness of market arrivals to price movements over a period of time. In view of above the present study has been under taken with the objectives to study the seasonal indices of paddy and to study the cyclical indices of paddy in Bhandara and Gondia districts of Maharashtra.

METHODOLOGY

Data and Market

The seasonal and cyclical indices of arrivals and prices of paddy were worked out. The study was relied upon the secondary time series data, the required information on market arrivals and prices of paddy were collected from the Annual Administrative Reports of the largest Districts APMC's viz; Tumsar in Bhandara, and Gondia in Gondia districts were selected .The selection of APMC's were based on the availability of required time series data consistently for a long period. The data of monthly arrivals and prices of paddy was collected for the period 1995 to 2011. The seasonal and cyclical indices of arrivals and prices of paddy were worked out.

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Analytical Methods

Seasonal Indices

Seasonal variations are those periodic movements in business activity which occur regularly every year and have their origin in the year itself. Since such variations repeat during a period of 12 months that can be predicted fairly accurately. To obtain a statistical description of a pattern of seasonal variation it will be desirable to first free the data from the effects of trend, cycles and irregular variations. Seasonal index can be calculated in index form as a measure of seasonal variations. Seasonal index for each month was calculated. Thus specific seasonal index refers to the seasonal changes during a particular year. Seasonal indices are given as percentage of their average.

Seasonal monthly indices were computed after removing the trend, cyclical and irregular components from the time series assuming the multiplicative model. Seasonality in arrivals and prices were worked out to indicate the ups and down swings that occur with some regularity during different parts of the year.

Ratio of moving average method also known as percentage of moving average method which is the most widely used method for measuring the seasonal variations was used.

The biological reasoning being, this method follows from the fact that 12th moving average can be considered to represent the influence of cycle and trend C x T. If the actual value for any month is divided by the 12 month presumably cycle and trend are removed.

$$Seasonal\ index = \frac{Actual\ data\ for\ the\ given\ month}{Moving\ average\ for\ that\ month} \times 100$$

Cyclical index

The term cycle refers to the recurrent variation in time series data that usually last longer than a year and are regular neither in amplitude nor in length. Cyclical index were calculated for arrivals and prices of paddy from the multiplicative model of time series.

$$cyclical\ index = \frac{Pt}{\hat{P}t} \times 100$$
$$= \frac{T \times C \times I}{T} \times 100$$

Where,
Pt = Original price (yearly)
$\hat{P}_t$ = Estimated trend value

RESULT AND DISCUSSION

Seasonal indices of monthly arrivals and prices in selected markets

Seasonal variation in arrivals and prices were worked out to indicate the ups and down swings that occur with some regularity during different year is given in Table 1

From the Table 1. it is revealed that seasonal indices showed maximum arrivals of paddy in Bhandara and Gondia APMC's from the month of November i.e. 198.32 and 115.76. In Gondia APMC's it was 114.04 in the month of June. The arrival found decreasing from the month of February (98.72) to October (84.87) in Bhandara district APMC's. In Gondia APMC's it was observed decreasing from March (87.19) to October (50.29). In Bhandara district, the prices of paddy rises from the month of June (102.12) to November (100.09) and it was the highest in the month of September (107.34). In rest of the months the prices were the normal.

In Gondia APMC's maximum prices were during the month of July (102.46) to October (100.41). In the month of April the prices was observed (100.75) and in the remaining months the prices were observed normal.

From the Table 2, it is revealed that Cyclical movement of arrivals of paddy in selected market showed that in Bhandara market arrivals cycle peaked from 2003 to 2011 except in the year 2005 and 2009 and in Gondia market peaked arrivals was from 1995 to 1997and in the year 2003,2005 and 2007.

The price cycle was peaked from 1995 to 2000 and 2010 & 2011 in Bhandara market and in Gondia market it was peaked from 2008 to 2011.

Table 1
Seasonal indices of monthly arrivals and prices of paddy in selected markets (1995 to 2011)

Month	*Bhandara APMC*		*Gondia APMC*	
	Arrival (q)	*Prices (Rs)*	*Arrival (q)*	*Prices (Rs)*
January	160.97	93.4	181.06	98.60
February	98.72	94.57	136.84	97.63
March	64.59	95.70	87.19	94.90
April	57.75	96.84	75.79	100.75
May	72.01	99.58	73.31	97.72
June	77.10	102.12	114.04	97.15
Jul	43.06	102.31	74.32	102.46
August	45.98	105.49	57.46	104.35
September	95.43	107.34	66.30	108.26
October	84.87	102.88	50.29	100.41
November	198.32	100.09	115.76	99.22
December	237.19	99.63	167.64	98.54

Table 2
Cyclical indices of monthly arrivals and prices of paddy in selected markets (1995 to 2011)

Year	*Bhandara*		*Gondia*	
	Arrival (q)	*Prices (Rs)*	*Arrival (q)*	*Prices (Rs)*
1995	97.10	130.06	160.81	68.57
1996	99.62	142.17	113.66	69.59
1997	65.75	133.88	106.33	78.13
1998	93.34	128.27	95.09	77.83
1999	76.39	107.84	85.38	89.13
2000	80.62	107.56	78.93	86.58
2001	88.70	94.04	95.95	77.53
2002	90.51	84.77	75.95	84.92
2003	102.99	81.63	114.09	88.82
2004	111.02	77.53	81.99	89.96
2005	93.91	70.25	120.37	87.91
2006	131.13	71.37	89.65	95.07
2007	124.76	70.39	135.67	89.04
2008	118.83	75.23	71.35	122.84
2009	90.69	93.41	90.02	140.68
2010	119.63	117.37	98.14	144.96
2011	115.01	114.22	86.58	208.41

CONCLUSIONS

- The monthly seasonal indices for paddy arrivals were found the highest immediately after harvest in the market. The price indices of paddy were lower during the peak arrivals months and vice-versa.
- Cycles variation in arrivals exhibited peak during 2003-2011 except 2005 and 2009 in Bhandara and 1995-97, 2003, 2005, 2007 in Gondia APMCs.
- In prices peaks were observed during 1995-2000 and 2010-2011 in Bhandara and 2008-2011 in Gondia.

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