



Research Article

Seasonal indices and price behaviour in agriculture produce market committee, Baramati Dist. Pune (M.S.)

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SUMMARY : A study was carried out during 2010- 2011 to determine seasonality in arrivals and price of selected farm commodities. Seasonality in arrivals and prices indicated that at an overall level of arrival of wheat was highest in summer season (14744 qt.) As compared to rainy and winter seasons, price of wheat was highest in winter season. As compared to summer and rainy seasons in groundnut, it was seen that at an overall level of arrival of groundnut was highest in rainy season (1705.66 qt.) as compared to summer and winter price of groundnut, it was highest in rainy season followed by summer and winter. In case of gram the highest price was in winter season (Rs. 2182/qt) and in case of soybean the highest arrival was in winters (3090qt.) and the highest price in rainy season (1705qt). In case of onion the highest arrival was in summer (2585qt.) and the highest price in winter season (831qt). It was observed that there was no any specific relation between the per quintal price of wheat, gram, soybean, onion and season but there was specific relation between the per qt. price of groundnut with season.

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Key Words :

Seasonality,
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BACKGROUND AND OBJECTIVES

Seasonality in the arrivals and prices of the 5 major commodities was studied critically on the basis of the seasonal average prices *viz.*, rainy (June-September) winter (October-January) and summer (February-May) and seasonal arrivals in the market yard. This was useful to understand the seasonal upward swings in the arrivals and prices of selected five farm commodities. Seasonal variation is those periodic movements in business activity, which occur regularly every year and have their origin in nature of itself. Since, these variations repeat during a period of 12 months they can be predicted fairly accurately. A seasonal variation in the time series is the repetitive, recurrent pattern of change, which occurs within a year and is of small duration. Seasonal price variations resemble a cycle covering a period of 125 months or less. the general pattern of seasonal variation in prices *i.e.* lower prices during the post-harvest month and higher prices during the pre-harvest or off season month is a national feature

for food grains and each reported year after year. This is due mainly to seasonally in supply and factor affecting the stocking decision of the traders Reddy (1995) studied priced behaviour of paddy, maize, groundnut and chillies of Andhra Pradesh. The price analysis made in this study was based on the average monthly wholesale price data price indices, which showed that there were fluctuations in agricultural prices from year to year. The increasing trend in prices of agricultural commodities indicated that the demand was more. An attempt has been made in this paper to study the seasonality in arrivals and prices of selected farm commodities

RESOURCES AND METHODS

The published annual report of APMC, Baramati were scanned for obtaining the relevant data. Regarding the details of arrivals and prices for a selected five commodities *viz.*, wheat, soybean, groundnut, onion and gram from 2005-2006 to 2009-2010. The seasonal pattern is analyzed

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by construction of seasonal index number. Seasonal index number is a month of year being 100th total of index number for twelve month is 1200. The seasonal indices for monthly data were computed by using simple average method.

Most of the phenomena in economics and business show seasonal pattern. When the data are expressed annually, there is no seasonal variation. However, monthly or quarterly data frequently exhibit strong seasonal movements.

Seasonal variation is calculated in terms of seasonal index. The measures of seasonal variation are called seasonal indices and are given as percentages of their averages.

There are many techniques available for computing an index of seasonal variations. The following are some of the methods more popularly used for measuring the seasonal variations. Ratio to monthly averages/method of simple averages (weekly/monthly/quarterly).

Method of simple averages:

The simplest method of calculating seasonal index: In this method ratios are taken on the basis of weekly/monthly or quarterly averages.

$$\text{Seasonal index} = \frac{\text{Quarterly average}}{\text{General average}} \times 100$$

where,

K= Correction factor

S= sum

Upender and Manohara Chary (1996) studied an analysis at market arrival and prices of wheat. In regulated agricultural market, it is well known fact that Indian agriculture is characterized by wide variation in production of major crops which subsequently led to wider fluctuations in market arrival. The study revealed that the empirical knowledge of the relationship between prices of market arrivals of different agricultural products for assessing the degree of responsiveness of market arrivals to price moments is respectively required over a period of time. The findings of the empirical studies not only is useful in understanding the magnitude of the problem, but also useful in formulating

suitable policies.

OBSERVATIONS AND ANALYSIS

Seasonality in the arrivals and prices of the five major commodities was studied critically on the basis of seasonal average prices *viz.*, rainy (June-September), winter (October-January) and summer (February-May) and seasonal arrivals in the market yard. This was useful to understand the seasonal upward and downward swings in the arrivals and prices of selected five farm commodities.

Wheat:

At an overall level, price of wheat was the highest in rainy season as compared to summer and rainy season during the year 2010, the highest price was observed in winter season (Rs. 1412/q) for the year 2005 and 2007 highest price was observed in winter season Rs.1162/q and Rs.1175/q, respectively. However, during the year 2008 and 2009 highest price was received in summer (Rs. 1172/q) and winter (Rs.1365/q) season, respectively and analysis indicated that in case of wheat there was no any specific relation between the per quintal price and the season (Table 1).

Groundnut:

In case of groundnut at an overall level price of groundnut was highest in rainy season in 2009 (Rs.2158/q) as compared to summer and winter season. In 2009 highest price was observed winter season (Rs.2222/q) and in 2010 the highest price of groundnut was observed in winter season (Rs. 2037/q). In case of groundnut there was the specific relation between the per quintal price and the season (Table 2).

Onion:

In case of onion, at an overall level price of onion was highest in 2010 in winter season (Rs. 1462/q), in 2005-2006 price was highest in winter season (Rs. 625/q) and (Rs.411/q), respectively, in 2007 highest price was observed in rainy season (Rs.1045/q), in 2008 highest price was observed in

Table 1: Annual avg. arrivals and prices of wheat in APMC, Baramati

Sr. No.	Years	Rainy season (June-Sept.)		Winter season (Oct.-Jan.)		Summer season (Feb.-May)		Annul avg. arrival	Annual avg. price
		Avg. arrival	Avg. price	Avg. arrival	Avg. price	Avg. arrival	Avg. price		
1.	2005	8459	805	6957	842	21501	757	12305	801
2.	2006	7229	1077	5890	1162	15317	942	9479	1060
3.	2007	5015	1098	5989	1175	8413	1115	6472	1129
4.	2008	13688	1175	10406	1151	22720	1172	15605	1160
5.	2009	6138	1232	5954	1365	16910	1160	9667	1252
6.	2010	3251	1337	2498	1412	3605	1350	36188	1366
	Overall	7296.95	1118.12	6266.20	1184.79	14744.5	1082.9	9441.46	1128.59

Table 2: Annual avg. arrivals and prices of groundnut in APMC, Baramati

Sr. No.	Years	Rainy season (June-Sept.)		Winter season (Oct.-Jan.)		Summer season (Feb.-May)		Annul avg. arrival	Annual avg. price
		Avg. arrival	Avg. price	Avg. arrival	Avg. price	Avg. arrival	Avg. price		
1.	2005	234	1150	2736	1312	471	1215	1147	1225
2.	2006	125	1183	2139	1277	150	1127	801	1196
3.	2007	72	1659	3576	1623	319	1411	1322	1564
4.	2008	414	2143	3700	1720	76	2018	1396	1960
5.	2009	150	2158	3348	2222	361	2167	1286	2183
6.	2010	217	1939	3050	2037	655	1960	1307	1979
	Overall	202.27	1705.66	3090.16	1699	339	1650.2	1210.45	1684.94

winter season (Rs.600/qt.). In case of onion, there was no any specific relation between the per quintal price and the season (Table 3).

Gram:

In case of gram at an overall level price of gram was highest in 2006 in rainy season (Rs.2417/q) in 2005 and 2007 price was highest in rainy season *i.e.* (Rs.1690/q) and (Rs.2222/q), in 2008 price was highest in summer season (Rs.2283/q) in 2009 and 2010 price was highest in winter season *i.e.* (Rs.2056/q) and (Rs. 2182/q), respectively. in case of gram there was no

any specific relation between the per quintal price and the season (Table 4).

Soybean:

In case of soybean at an overall level price of soybean was highest in summer season in 2009 *i.e.* (Rs.2137/q) in 2005 price was highest in winter season (Rs.1312/qt.) in 2006 price was highest in winter season (Rs.1277/q) in 2008 price was highest in rainy (Rs.2143/q) and in 2010 price was highest in winter season *i.e.* (Rs.2037/q). In case of soybean there was no any specific relation between the per quintal price and the

Table 3: Annual avg. arrivals and prices of onion in APMC, Baramati

Sr. No.	Years	Rainy season (June-Sept.)		Winter season (Oct.-Jan.)		Summer season (Feb.-May)		Annul avg. arrival	Annual avg. price
		Avg. arrival	Avg. price	Avg. arrival	Avg. price	Avg. arrival	Avg. price		
1.	2005	1275	575	1917	625	1877	237	1689	479
2.	2006	1508	305	1699	411	1535	176	1581	297
3.	2007	1453	1045	2277	875	2049	666	1926	862
4.	2008	2299	587	2672	600	2555	300	2509	495
5.	2009	2332	712	3161	1012	2971	600	2821	775
6.	2010	2963	800	3574	1462	4522	537	3686	933
	Overall	2971.95	670.08	2550.29	831.04	2585.12	419.54	2369.12	640.47

Table 4: Annual avg. arrivals and prices of gram in APMC, Baramati

Sr. No.	Years	Rainy season (June-Sept.)		Winter season (Oct.-Jan.)		Summer season (Feb.-May)		Annul avg. arrival	Annual avg. price
		Avg. arrival	Avg. price	Avg. arrival	Avg. price	Avg. arrival	Avg. price		
1.	2005	1349	1690	843	1666	3392	1470	1861	1608
2.	2006	1127	2417	598	2250	3975	1906	1900	2191
3.	2007	1011	2222	1030	1975	2151	2163	1397	2120
4.	2008	1519	2275	1181	1940	5002	2283	2567	2166
5.	2009	1470	1800	824	2056	2999	2000	1764	1952
6.	2010	950	2036	533	2182	1515	1921	999	2046
	Overall	1238.12	2073.63	835.08	2011.66	3172.70	1957.65	1748.63	2014.3

Table 5: Annual avg. arrivals and prices of soyabean in APMC, Baramati

Sr. No.	Years	Rainy season (June-Sept.)		Winter season (Oct.-Jan.)		Summer season (Feb.-May)		Annul avg. arrival	Annual avg. price
		Avg. arrival	Avg. price	Avg. arrival	Avg. price	Avg. arrival	Avg. price		
1.	2005	234	1150	2736	1312	471	1215	1147	1225
2.	2006	125	1183	2129	1277	150	1127	801	1196
3.	2007	72	1659	3576	1623	319	1411	1322	1584
4.	2008	414	2143	3700	1700	76	2018	1396	1960
5.	2009	150	2158	3348	2222	361	2137	1286	2183
6.	2010	217	1939	3050	2037	655	1960	1302	1979
	Overall	202.27	1705.66	3090.16	1699	339	1650.02	1210.45	1684.94

season (Table 5).

In case of groundnut it was observed that seasonal index was highest on the 3 Quarter in 2010 (125) which indicated strong seasonal variation in prices of groundnut (Table 6).

Table 6: Seasonal index of groundnut

Years	1 Quarter	2 Quarter	3 Quarter	4 Quarter
2005	92	98	106	102
2006	84	99	106	110
2007	90	100	109	98
2008	95	113	106	84
2009	87	99	103	109
2010	82	96	125	95

In case of wheat, it was observed that seasonal index was highest on the 1 Quarter in 2007 (117) which indicated strong seasonal variation in prices of wheat (Table 7).

Table 7: Seasonal index of wheat

Years	1 Quarter	2 Quarter	3 Quarter	4 Quarter
2005	99	94	100	105
2006	87	92	103	116
2007	117	85	98	101
2008	100	100	99	99
2009	97	92	101	108
2010	103	97	97	101

In case of soybean, it was observed that seasonal index was highest on the 4 Quarter in 2007 (173) which indicated strong seasonal variation in prices of soybean (Table 8).

Table 8: Seasonal index of soybean

Years	1 Quarter	2 Quarter	3 Quarter	4 Quarter
2005	105	103	97	93
2006	93	96	97	112
2007	75	75	77	173
2008	101	110	105	83
2009	98	102	96	102
2010	104	95	98	111

In case of onion, it was observed that seasonal index was highest on the 4 Quarter in 2010 (181) which indicated strong seasonal variation in prices of onion (Table 9).

Table 9: Seasonal index of onion

Years	1 Quarter	2 Quarter	3 Quarter	4 Quarter
2005	85	44	117	152
2006	94	71	112	121
2007	93	78	127	100
2008	72	66	128	132
2009	119	76	102	102
2010	75	50	93	181

In case of gram, it was observed that seasonal index was highest on the 3 Quarter in 2006 (112) which indicated strong seasonal variation in prices of gram (Table 10).

Table 10: Seasonal index of gram

Years	1 Quarter	2 Quarter	3 Quarter	4 Quarter
2005	85	96	106	111
2006	75	100	112	111
2007	93	105	105	95
2008	100	102	106	90
2009	106	79	99	113
2010	97	90	102	109

Thaur and Shandil (1993) and Wadhvani and Bhogal (2002) had also studied the market arrivals and seasonality of agricultural commodities.

Conclusion:

The analysis of seasonality in arrivals and price in case of wheat, soybean, onion, gram and groundnut, indicated that there was no any specific relation between the per quintal price and season. But there was specific relation between the per quintal price of groundnut with season.

Policy implications:

Considering the seasonality in prices, particularly for wheat, onion, gram, soybean and groundnut, farmers should adjust their sowing season to take advantage of higher prices according to demand and supply through the season.

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