

Behaviour of Market Arrivals and Prices of Groundnut in Karnataka - An Economic Analysis

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Abstract : The present study considered the monthly time series data on market arrivals and prices of groundnut for the period between 1960-61 and 1983-84 collected from the regulated markets of Gadag and Hubli for the estimation of indices, trend equations and co-efficient of variation. The pattern of market arrivals of groundnut indicated a seasonal character. The prices of groundnut were found to be a function of the market arrivals only in the short run. The seasonal pattern of market arrivals and the resulting short run instability in groundnut prices could be eliminated by using a package of measures. In the long run, prices are influenced not only by the market arrivals but also by other factors such as the general rise in prices and steady rise in the demand for groundnut products.

Introduction

The instability in the prices of agricultural commodities has been one of the major factors affecting the income levels of Indian farmers. The supply and demand elasticities for most agricultural commodities being very low and the demand for these raising steadily, their price fluctuations are largely attributable to the changes in their output and the consequent changes in the market arrivals. The price instability is often more pronounced in respect of commercial crops such as groundnut and cotton.

In the present paper, an attempt is made to analyse the variations in the market arrivals and prices of groundnut in two principal groundnut

markets in Karnataka, namely, Gadag and Hubli. The specific objectives of the study are to : (1) examine the trends in the market arrivals and prices of groundnut, (2) analyse the relationship between market arrivals and prices of groundnut and (3) study the seasonal variations in the market arrivals and prices of groundnut.

Materials and Methods

The present study is based on the time-series data on the market arrivals and prices of groundnut in the regulated markets of Gadag and Hubli towns in Dharwad district of Karnataka. These two markets together account for about 70 per cent of the total arrivals of groundnut in all the markets of the district.

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Monthly time-series data on market arrivals and prices of groundnut for the period 1960-61 through 1983-84 were collected from the regulated markets of Gadag and Hubli for the estimation of indices, trend equation and coefficients of variation. Indices, compound growth rates and trend equation for market arrivals and prices were worked out in order to examine their trends over time. The prices of groundnut were regressed upon the market arrivals in order to analyse the relation between the two. Coefficients of variation were worked out to study the degree of monthly / seasonal variation in arrivals and prices (Hosamani *et al.*, 1985). An attempt was also made to relate the price trends in the selected markets to the state prices of groundnut over the period under study.

The Ordinary Least Square (OLS) equation used for analysing the trends in arrivals and prices was a semi-log model as it gave a good fit for the data.

$$\log Y = a + bT \quad \text{Where}$$

Y = market arrivals/prices

T = time (years)

a = intercept parameters

b = slope parameter, which also indicated the trend rate.

Double-log regression analysis was attempted to examine the response of the groundnut prices to the changes in market arrivals. The equation fitted for the purpose was :

$$P = aQ^b$$

or $\log P = \log a + b \log Q$

Where, P = prices

Q = market arrivals

a = intercept

b = regression coefficient

Results and Discussion

Trends in prices

The annual indices of market arrivals and prices in the selected markets as well as the output and price indices for the state are presented in Table 1. There has been more or less steady secular increase in the prices of groundnut in the selected markets. The price increase has been quite sharp since the 1972-73. The prices in both the markets have increased in a similar fashion over the entire period under study with compound growth rates at 7.7 and 7.8, respectively, in Gadag and Hubli markets. An important observation in the study was that the prices in both the selected markets moved up in close harmony with the state average price of groundnut over the period under investigation. The prices in Gadag market were slightly higher when compared to those in Hubli market both in long-run and short-run (Tables 1 and 2). The higher prices in Gadag market were however, accompanied by slightly higher coefficients of variation in prices. The lower prices in Hubli market in both the periods were attributed to the erratic nature of arrivals in this market, as the coefficients of variation in arrivals were high as compared to those in Gadag market.

The trend equations for the prices in the selected markets and at the state level price are given below.

$$\log Y = 4.0991 + 0.0832 T \text{ (Gadag market)} \\ R^2 = 0.016, \quad t = 15.484$$

$$\log Y = 3.9686 + 0.0812 T \text{ (Hubli Market)} \\ R^2 = 0.910, \quad t = 14.885$$

$$\log Y = 4.0635 + 0.0804 T \text{ (State)} \\ R^2 = 0.916, \quad t = 15.505$$

The upward trend in groundnut prices are attributed mainly to : (i) the general inflationary pressures and (ii) failure of groundnut production

Table 1. Market arrivals and price indices of groundnut in the selected markets and output and price indices in Karnataka (1960-61 = 100)

Year	Gadag market		Hubli market		Karnataka	
	Arrivals	Prices	Arrivals	Prices	Out-put	Price
1961-62	78.55	105.42	52.52'	100.76	100.19	109.56
1962-63	109.84	93.99	110.51	95.32	111.40	97.77
1963-64	82.16	86.69	193.47	86.09	120.31	102.44
1964-65	35.31	113.0	89.77	108.34	147.70	127.39
1965-66	36.88	143.23	118.97	127.81	96.48	165.78
1966-67	36.87	210.25	134.45	186.60	125.43	227.31
1967-68	34.78	211.78	136.96	177.75	130.83	239.83
1968-69	37.42	149.23	165.98	134.28	141.55	179.33
1969-70	39.29	199.88	174.54	189.00	147.89	228.22
1970-71	40.90	234.28	187.30	207.96	173.85	252.12
1971-72	43.95	199.41	218.70	168.14	170.44	225.65
1972-73	48.09	217.67	205.36	196.33	98.41	227.05
1973-74	40.70	388.46	172.40	350.95	154.89	374.17
1974-75	50.47	389.52	168.90	377.88	164.53	421.27
1975-76	60.19	343.35	181.64	313.02	146.56	356.33
1976-77	48.83	288.81	154.86	256.57	81.77	305.97
1977-78	23.88	420.61	101.99	369.15	122.63	452.04
1978-79	50.63	329.92	101.31	286.85	133.44	337.49
1979-80	44.43	391.40	113.31	333.00	133.22	382.35
1980-81	55.21	475.03	104.36	426.68	105.82	495.69
1981-82	43.56	587.28	124.42	533.25	153.78	611.11
1982-83	48.69	587.75	138.12	561.95	121.22	583.01
1983-84	72.32	592.90	184.90	604.93	159.22	666.53
Growth rates	- 1.34	7.70	2.59	7.79	1.95	8.22
CV	72.48	15.96	127.43	10.86	19.66	55.50

to keep pace with the steadily increasing demand for groundnut products.

Trends in arrivals :

Over the period under study, there was a decline in the arrivals of groundnut in Gadag market while there was a small increase in Hubli

market (Table 1). This is attributed mainly to the stagnating or dwindling production of groundnut in the market hinterlands in the long run. In this context, it is worth noting that even the State's output of groundnut registered poor increase over the period under study. But the yearly fluctuations in arrivals in both the markets were considerable and quite erratic. The yearly fluctuations in ar-

Table 2. Monthly variations in market arrivals and prices of groundnut in Gadag and Hubli markets during 1983-84

Months	Gadag market		Hubli market	
	Market arrivals (Percentage to the total yearly arrivals)	Price (Rs / Qt)	Market Arrivals (Percentage to the total yearly arrivals)	Price (Rs / Qt)
July	0.94	500	0.16	435
August	0.28	556	0.08	425
September	0.63	338	4.21	411
October	25.29	287	55.46	415
November	11.14	336	22.79	405
December	30.09	353	11.00	425
January	12.82	439	3.20	308
February	5.80	428	1.46	370
March	3.00	418	0.28	380
April	3.09	452	0.14	390
May	5.02	474	0.56	40
June	1.90	459	0.66	421
Average price	-	420	-	398.75
CV	121.70	18.54	195.31	8.67

rivals could be attributed basically to the fluctuations in production which, in turn, were mainly due to climatic factors. In this context, it may be mentioned that hinterlands of both the selected markets are rainfed areas where the groundnut production, like that of any other crop is subjected to the variations in rainfall (Ugalvat and Hiremath, 1984).

The temporal behaviour of market arrivals in the selected markets vis-a-vis that of the States' output is elucidated in the trend equations given below :

$$\log Y = 12.8304 - 0.0132 T$$

(Arrivals in Gadag market)

$$R^2 = 0.066, \quad t = 1.246$$

$$\log Y = 10.9628 + 0.0112 T$$

(Arrivals in Hubli market)

$$R^2 = 0.057, \quad t = 1.155$$

$$\log Y = 13.1724 + 0.00727 T$$

(State's Production of groundnut)

$$R^2 = 0.063, \quad t = 1.215$$

The pattern of groundnut arrivals indicated a seasonal character in both selected markets. as Table 2 indicates clearly, the major portion of the annual market arrivals was concentrated during the four month peak season, October-January. The marketing period for groundnuts in the selected markets was split into two sub-periods in order to examine the pattern of arrivals and its impact on prices. The peak period was October-January when majority of the farmers particularly the small farmers rush their produce to the market

Table 3. Coefficients of correlation between monthly market arrivals and prices of groundnut in Gadag and Hubli Markets

Year	Gadag market	Hubli market
1960-61	0.25	- 0.87 **
1961-62	- 0.45	- 0.70 **
1962-63	- 0.58*	- 0.06
1963-64	- 0.52	- 0.52
1964-65	- 0.29	- 0.60 *
1965-66	0.27	0.28
1966-67	- 0.35	- 0.41
1967-68	- 0.48	- 0.32
1968-69	0.22	0.56*
1969-70	- 0.54	- 0.26
1970-71	- 0.80 **	- 0.38
1971-72	- 0.51	- 0.35
1972-73	0.38	0.61*
1973-74	- 0.38	- 0.53
1974-75	- 0.23	- 0.73*
1975-76	- 0.36	- 0.75 **
1976-77	- 0.38	0.02
1977-78	- 0.67 *	- 0.42
1978-79	- 0.009	- 0.16
1979-80	- 0.09	0.29
1980-81	0.19	0.18
1981-82	- 0.33	- 0.26
1982-83	- 0.18	- 0.04
1983-84	- 0.67 *	- 0.41
** Significant at 1% level		
* Significant at 5% level		

soon after the harvest. The remaining part of the year was the lean period when farmers with sound financial position, sold their produce. The

coefficients of variation (Table 1 and 2) in arrivals were very high for both the markets. The coefficients in respect of prices were low when compared to arrivals.

Conclusion

The pattern of market arrivals of groundnut crop indicated a seasonal character. The prices of groundnut were found to be a function of the market arrivals only in the short run. The seasonal pattern of market arrivals and the resulting short run instability in groundnut prices could be eliminated by using a package of measures. These include provision of finance and warehousing facilities to the farmers who are unable to streamline their supply in accordance with the seasonal price trends in the market. In the long run, prices are influenced not only by the market but by other factors such as the general rise in prices and a steady rise in the demand for groundnut products.

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