

Trends In Arrivals and Prices of Selected Agricultural Commodities in APMC, Erode District

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Abstract

The present study was conducted to access the trends in arrivals and prices of selected agricultural commodities in APMC, Erode. The trends in arrivals and prices of selected Agricultural commodities were worked out by using exponential form of equation. The trends in arrivals and prices for selected commodities in APMC Erode during 2010-2011 to 2020-2021 were depicted. The results indicates that, significant increase in arrivals of gram, turmeric and cotton whereas; significant decrease in arrivals of groundnut was noticed in the APMC, Erode during study period (2010-11 to 2020-21).The prices of all commodities were found to be significantly increased over entire period of study.

Keywords: Trends, CGR, Arrivals, Prices, APMC (Agricultural Produce Market Committee)

Introduction

The price fluctuation in agricultural commodities is a common phenomenon due to seasonal nature of production. Agriculture is characterized by wide variation in the output of crops which subsequently lead to larger variation in market arrivals. Fluctuation in market arrivals largely contribute to price instability and price fluctuation of agricultural commodities, there is needed to have an understanding of the price behavior over time. It is said that next to rains, prices are greatest enemy of the farmer. As per the price theory, prices are function of demand and supply. But demand and supply are independently related to prices mostly



depends on the monsoon, supplies of agricultural commodities which are uncertain and this uncertainty in supply leads to fluctuations in prices. These fluctuations in prices of agricultural commodities are greatest obstacle in the way of agricultural development. The knowledge on the interrelations between the arrival and prices of farm product is required for assessing the extent of prices over time.

The study of arrival and prices helps the farmer to find out the best time for marketing of agricultural commodities to secure higher price for their produce. Thus it helps them to take decision regarding when to sale so as to obtain maximum price. The acreage under paddy, groundnut, gram, turmeric and cotton was substantial in Erode district and the arrival of these commodities was remarkable. However, the fluctuations in arrivals and prices of there commodities were noticed in APMC, Erode. But it is too essential to have stability in the prices and arrivals of these commodities. The present study was undertaken with a view to examine arrivals and prices of selected agricultural commodities in APMC, Erode the agricultural produce marketing committee is established by the state governments of India. The state government provides infrastructural facilities to farmers to sale their produce and get reasonable price. Most of APMC have market yard where traders and other marketing agents are provided godowns and shops for purchase of agriculture produce from farmers. Farmers can sale their produce to agents or traders under supervision of APMC.

Objectives

1. To study the trends in arrivals and prices of selected agricultural commodities.
2. To study the seasonal indices in arrivals and prices of selected agricultural commodities
3. To study the variability in arrivals and prices of selected agricultural commodities

Methodology

The present study has based on the data of arrivals and prices of selected agricultural commodities in APMC Erode for the period of 11 years i.e. from April 2010 to March 2021. The secondary data pertaining to prices and arrivals for paddy, groundnut, gram, turmeric and cotton. The data was collected from selected Agricultural Produce Market Committee, Erode district.

Selection of Commodities

Selection of agricultural commodities in APMC, Erode was really a difficult task. The notified commodities traded in APMC were more than 39. It was proposed to select one

cereal, one oilseed, one pulse crop, turmeric & cotton on the basis of area and volume of commodities traded in the APMC, Erode. The area under selected commodities during 2020-21 is presented in Table 1.

Table 1: Area under Selected Commodities in Erode District (hectares)

S.No.	Particulars	Area
1.	Paddy	28,883
2.	Groundnut	60,108
3.	Gram	30,836
4.	Turmeric	27733.31
5.	Cotton	912.3

Tools of Analysis

Trends in Arrivals and Prices

The time series data pertaining to monthly arrivals and prices of selected agricultural commodities covering the period of eleven years (2010-11 to 2020-21) were collected from APMC, Erode. The compound growth rate of arrivals and prices of selected agricultural commodities was worked out by using an exponential form of equation as below

1. Compound growth rate

$$Y = ab^t$$

Where,

Y = Monthly arrivals /prices

a = Constant

b =Trend Coefficient

t =Time period

2. Annual compound growth rate in percentage was calculated by

$$CGR = [\text{Antilog of } (\log b) - 1] * 100$$

3. Seasonal indices in arrival and prices

By moving average method

$$SI = \text{Monthly avg. of arrival or prices} / \text{avg. of monthly avg.} * 100$$

4. Variability in arrival and prices

$$CV=SD/Mean$$

5. Correlation between arrival and prices

$$r_{xy} = \text{COV } x, y / \sigma_x \sigma_y$$

Results and Discussion

1. Trends in Arrivals and Prices of Selected Agricultural Commodities

The trend is effective tool to judge the behavior of any agricultural commodities in relation to arrivals and prices. For the present study compound growth rates for 11 years (During 2010-11 to 2020-21) were estimated for selected agricultural commodities and presented in Table 2.

Table 2: Trends in Arrivals and Prices of selected agricultural commodities

S. No.	Crops	Arrivals		Prices	
		CGR (%)	't' value	CGR (%)	't' value
1.	Paddy	0.53 NS	0.14	5.09***	6.53
2.	Groundnut	-13.54***	2.57	6.52***	4.19
3.	Gram	9.83**	2.34	11.52***	6.61
4.	Turmeric	14.67***	3.00	7.65*	1.96
5.	Cotton	7.59**	3.23	7.80***	3.58

(***, **, * indicates significance at 1, 5, 10 per cent level of significance)

Paddy

As per the reference from Table 2, the annual compound growth rate of arrivals in case of wheat was found positive but non- significant. The magnitude of CGR was 0.53, indicated that result cannot be used for prediction as the 't test' turn out non- significant. The CGR for prices were positive and highly significant at 1 per cent level of significance. It indicates that prices of paddy increased by 5.09 per cent per annum during period under study. It can be observed from the above result that the prices of paddy at Erode market have been increasing rapidly over the span of 11 years at faster rate. This might be on account of general rise in prices and failure of supply to keep pace with the increased demand due to human consumption.

Groundnut

Table 2 revealed that, the annual compound growth rate of arrivals in case of groundnut was found negatively significant. It indicates that annual arrival of soybean decreased during the

study period. Whereas prices have been increased by 6.52 per cent per annum during study period.

Gram

The annual compound growth rates of arrivals of gram were found positive and significant during the period under the study. The arrival of gram increased by 9.82 per cent per annum and price of gram was found positive and highly significant means prices have been increased by 11.52 per cent per annum during study period.

Turmeric

The magnitude of annual compound growth rate of arrivals of Turmeric was positive and highly significant at 1 per cent level of significance during the period of study. It shows that the arrivals of turmeric increased by 14.67 per cent per annum. The annual compound growth rates of prices of turmeric was also positive and significant at 5 per cent level of significance it shows that prices of turmeric increased by 7.65 per cent per annum during study period.

Cotton

In case of cotton, the annual compound growth rate was found positive for both arrivals and prices and significant during the study era. The magnitudes of CGR were 7.59 and 7.80 for arrivals and prices, respectively. This implies that the arrivals of cotton increased by 7.59 per cent per annum and prices increased 7.80 per cent per annum under the study era. The arrivals and prices of Gram, turmeric and cotton increased over a period of time as per the result mentioned in above table, hence the hypothesis that arrivals and prices of selected commodities is increasing over a period of time is accepted.

1. Projected Arrivals of Selected Agricultural Commodities

The estimated values of CGR can be used for prediction of future value. The result of projected arrivals of selected agricultural commodities for the period from 2019-20 and 2022-23 based on CGRs for 11 years data were estimated and presented in Table 3

The result of the Table 3 clearly indicates that there will be increase in arrivals of gram turmeric and cotton and arrivals of groundnut decrease. Overall groundnut arrivals will be 12704.00 qtls and 7958.89 qtls in the year 2019-20 and 2022- 23 respectively. In case of gram projected arrivals will be 37620.00 qtls and 49830.62 qtls in the year 2019-20 and

2022-23 respectively. Turmeric arrivals will be 1560449.00 qtls and 2316591.00 qtls in the year 2019-20 and 2022-23. In case of raisins arrivals will be 612516.00 qtls and 762126.00 qtls in the year 2019-20 and 2022-23 respectively. This result will be helpful for the APMC management to cope with increased arrivals and also guide to farmers to take decision for undertaking production.

Table 3: Projected Arrivals of Selected Agricultural Commodities in APMC

Years	Groundnut		Gram		Turmeric		Cotton	
	Actual (qtl)	Projected (qtl)	Actual (qtl)	Projected (qtl)	Actual (qtl)	Projected (qtl)	Actual (qtl)	Projected (qtl)
2007-08	46431.00	82492.65	5845.00	22221.82	186706.00	321255.00	152916.00	255554.00
2012-13	37177.00	37835.00	8728.00	19524.94	1284283.00	620654.00	526452.00	367844.00
2017-18	6715.00	17353.00	23507.00	31192.00	1132118.00	1199084.00	344454.00	529475.00
2019-20		12704.00		37620.00		1560449.00		612516.00
2022-23		7958.89		49830.62		2316591.00		762126.00

Table 4 Seasonal indices of arrivals and prices of Paddy, Groundnut, Gram Turmeric and Cotton in APMC Erode (2007-08 to 2020-21)

Crop	Paddy		Groundnut		Gram		Turmeric		Cotton	
	Arrival	Price	Arrival	Price	Arrival	Price	Arrival	Price	Arrival	Price
April	67.16	99.45	101.47	102.99	263.38	93.92	317.20	107.54	170.14	106.48
May	76.28	99.52	76.04	108.9	204.28	95.64	203.22	106.15	102.34	100.03
June	75.14	99.82	23.28	108.7	81.01	94.98	84.77	95.16	96.95	97.66

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July	67.16	99.45	33.59	103.9 1	48.87	104.42	32.13	97.68	143.43	99.51
August	76.28	99.52	36.44	105.3 5	49.75	104.77	34.22	96.51	125.59	101.1 8
September	75.14	99.82	255.90	95.37	39.97	105.88	17.60	90.40	113.91	103.5 3
October	72.99	98.80	353.37	91.17	43.38	102.93	16.64	84.27	25.52	101.4 7
November	68.84	100.6 9	97.66	94.25	50.45	105.98	13.56	90.38	42.66	98.19
December	176.7 2	98.95	63.40	94.52	60.01	99.31	9.65	94.16	91.68	96.35
January	178.7 8	98.95	39.19	97.46	45.75	99.89	22.42	106.1 7	72.47	97.07
February	90.30	98.53	23.66	97.25	72.61	97.05	140.34	112.0 8	97.78	97.94
March	177.6 0	100.8 4	59.50	100.0 1	223.18	95.20	308.18	119.4 6	117.49	100.5 3

Paddy arrivals are more in the month of December (176.72 qtl) and January (178.78 qtl). For groundnut arrivals are more in the month of October (353.37 qtl). For gram arrivals are more in the month of April (263.38 qtl). For Turmeric arrivals are more in the month of April (317.20qtl) and for cotton arrivals are more in the month of July (143.43 qtl). It shows in Table 4.

Table 5. Seasonal Indices of Arrivals and Prices (2010-11 to 2020-21):

Year	Paddy		Groundnut		Gram		Turmeric		Cotton	
	Mean	CV (%)	Mean	CV (%)	Mean	CV (%)	Mean	CV (%)	Mean	CV (%)

2010-11	1495.81	3.25	1739.58	15.02	2208.33	8.05	2706.25	23.71	6808.32	5.68
2011-12	1458.32	3.67	2154.16	15.60	2100.00	7.16	3943.75	22.31	7166.75	8.05
2012-13	1783.35	12.44	2118.33	10.96	2131.25	6.91	8562.5	31.37	7575.00	6.85
2013-14	1925.12	5.12	1950.00	10.30	2147.91	8.48	14737.5	6.25	10154.00	6.93
2014-15	1851.14	1.38	2234.58	5.81	2891.66	14.41	7052.42	28.67	10679.00	7.19
2015-16	1962.96	4.25	3309.66	14.07	4025.58	14.39	5862.42	24.55	11259.00	20.45
2016-17	2082.82	2.84	3445.75	6.92	3048.83	5.43	6672.33	19.29	11438.00	6.03
2017-18	2241.52	2.40	3534.66	13.76	3166.66	7.06	7738.42	17.84	18797.00	9.56
2018-19	2521.52	5.02	3567.58	5.93	4302.16	9.13	9634.92	8.72	14640.00	7.56
2019-20	2352.36	1.74	3375.91	15.88	6703.51	20.34	9127.83	13.68	13065.00	3.51
2020-21	2294.43	2.21	3165.16	9.68	5033.41	7.24	8549.08	11.93	12514.00	5.67

Inter year variability of Prices agricultural commodities in APMC, Erode (2010-11 to 2020-21). Inter year variability of Prices in Paddy, groundnut, gram, turmeric and cotton was high in the year (2012-13) CV 12.44%, (2019-2020) CV 15.88%, (2019-20) CV 20.34%, (2014-2015) CV 28.64% and (2015-16) CV 20.45% respectively.

Correlation between arrival and prices

S.No.	Commodities	Correlation Coefficient

1.	Paddy	-0.11 ^{NS}
2.	Groundnut	-0.77***
3.	Gram	-0.81***
4.	Turmeric	0.72***
5.	Cotton	0.17 ^{NS}

(***, **, * indicates significance at 1,5,10 per cent level.)

Conclusions

- The significant increase in arrivals of gram, turmeric and cotton whereas; significant decrease in arrivals of groundnut was noticed in the APMC, Erode during study period (2010- 11 to 2020-21).
- The district has significant area under groundnut but the arrivals of groundnut decreases in APMC Market due to the private oil mill owners may collect this produce from farmer's field.
- The prices of paddy, groundnut, Gram, turmeric and cotton increased significantly during the period under study.
- The estimated future projections of arrivals for agricultural commodities traded in APMC, Erode showed that there will be increase in arrivals of gram, turmeric and cotton. The officials of the APMC, Erode must frame appropriate policies to cope with this increased arrival.

Policy Implication

The APMC, Erode considering the consistent arrival and prices in turmeric and can be go a step further for processing and export.

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