

TIME SERIES ANALYSIS OF MARKET ARRIVALS AND PRICES OF GROUNDNUT

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ABSTRACT

In agriculture, due to the seasonal nature of production, there is a flood of market arrivals, just after harvest and the prices reaches at their lowest level because in agriculture, due to relative in elasticities of both demand and supply of the produce, price vary more with the supply rather than the supply varying with the prices. By studying changes in the time series an idea can be obtained about the changes in the effects of various forces which interact simultaneously.

KEYWORDS: Time Series, trend, Seasonal Components, Arrival, Prices.

INTRODUCTION

Agriculture sector in India employments about 64 % of the labour force, which contributes about 22 % of GDP and accounts for 11.8 % portion of the worth of the country's exports. It supplies loose wage required by non-agricultural zone and raw materials for a huge number of manufacturing industries. Throughout the different plan periods, there has been a significant development in agriculture sector in terms of multiple rise in volume of output. In meanness of this outstanding progress, the country could not increase substantially the economic situation of agriculturists. This mainly on reason of absences in agricultural marketing system such as deficiency of facilities in the market, transport jams, lack of scientific, technical and systematic storage system, lack of competitive situations in the markets, lack of categorising etc.

In agriculture, due to the seasonal nature of production, there is a flood of market arrivals, just after harvest and the prices reaches at their lowest level because in agriculture, due to relative in elasticities of both demand and supply of the produce, price vary more with the supply rather than the supply varying with the prices. By studying changes in the time series an idea can be obtained about the changes in the effects of various forces which interact simultaneously. The effects of these forces can be classified roughly in three major categories, called component of time series. A time series is the result of the combined effects of different categories of forces. These components are as follows-

1. Long period - Secular trend
2. Short Period -

- a) Seasonal variations
- b) Cyclical fluctuations

Irregular or random fluctuations

A time series discloses relationship between two variables. This analysis helps the farmers and traders to know the general trend of market arrivals and prices. It is also helpful to policy makers to frame appropriate price policies and policies to check heavy post-harvest sale of agricultural commodities.

The tendency of post-harvest sale results in low level of prices in peak arrival season while high in the off-season. This fluctuation in the prices overtime between peak and lean marketing season of the year provides opportunity to the traders and middlemen to earn their profit by holding the produce. The knowledge of market arrivals and price behaviour of an agricultural commodity in different months of marketing season along with the relationship between arrivals and prices helps the farmer in taking night decision for sale the surplus at higher prices for their produce.

The time series analysis of market arrivals and prices of groundnut and the relationship between market arrivals and prices of groundnut in Gangapur city market has been discussed in this chapter by using yearly and monthly data of market arrivals and wholesale prices of groundnut pods obtained from the record of Krishi Upaj Mandi Samittee, Gangapur city.

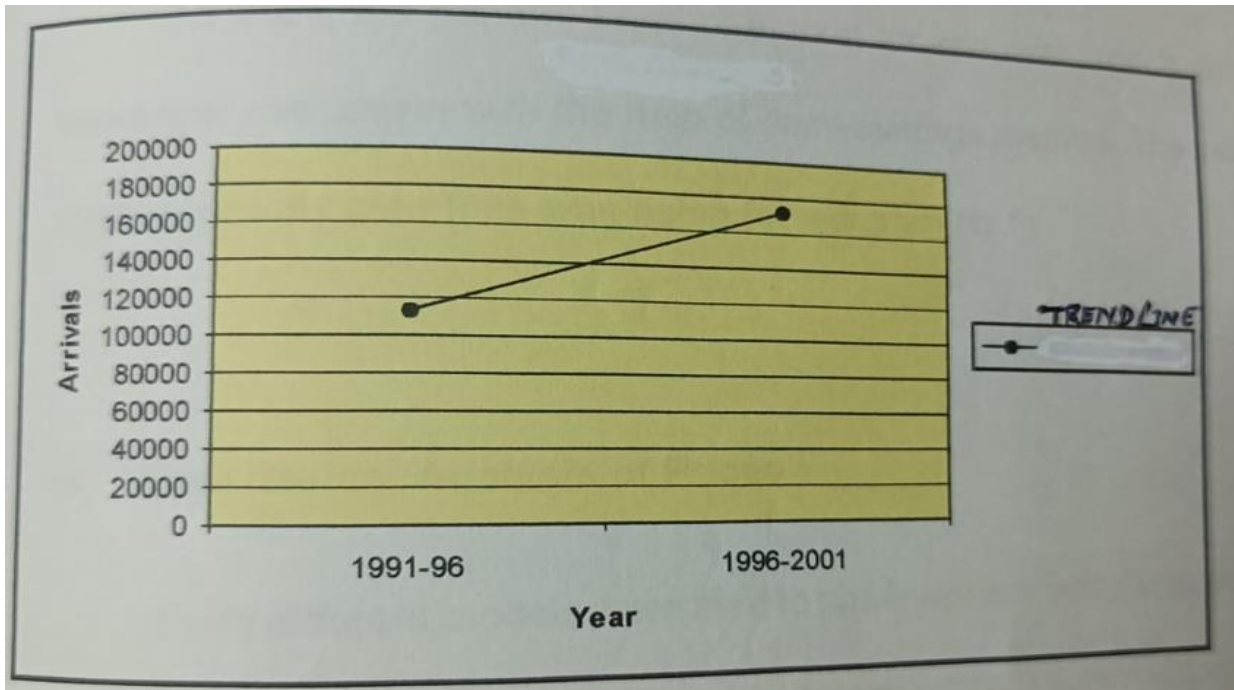
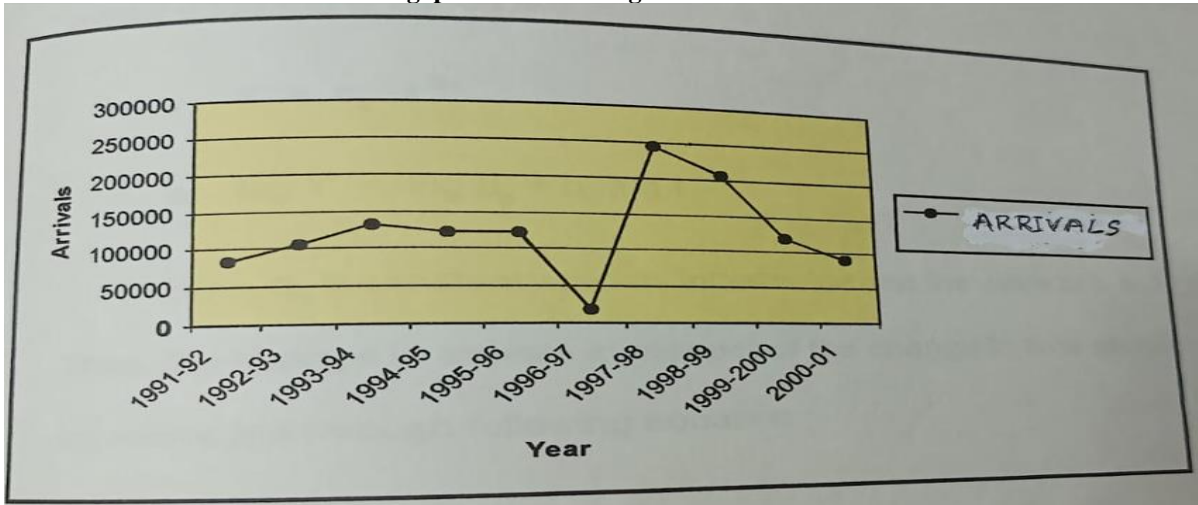
This study of market arrivals and prices is based on the time series data taken from 1991-92 to 2000-01. The semi average and best curve (function) fit technique have

been used for time series analyses and simple correlation technique to express the relationship between market arrivals and wholesale prices in addition to visual observation of data.

The chapter has been presented into following five sections for expressing the results in a systemic manner.

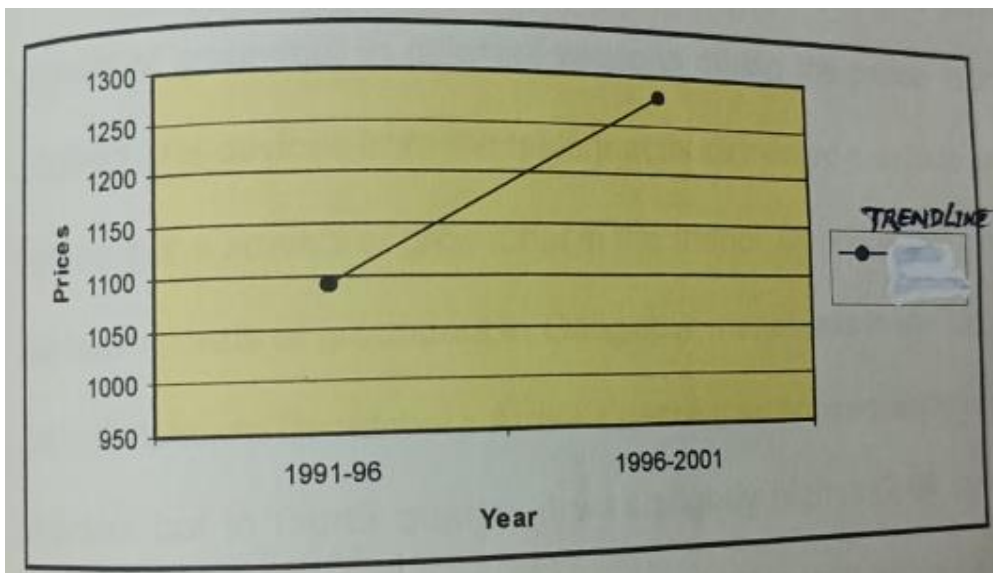
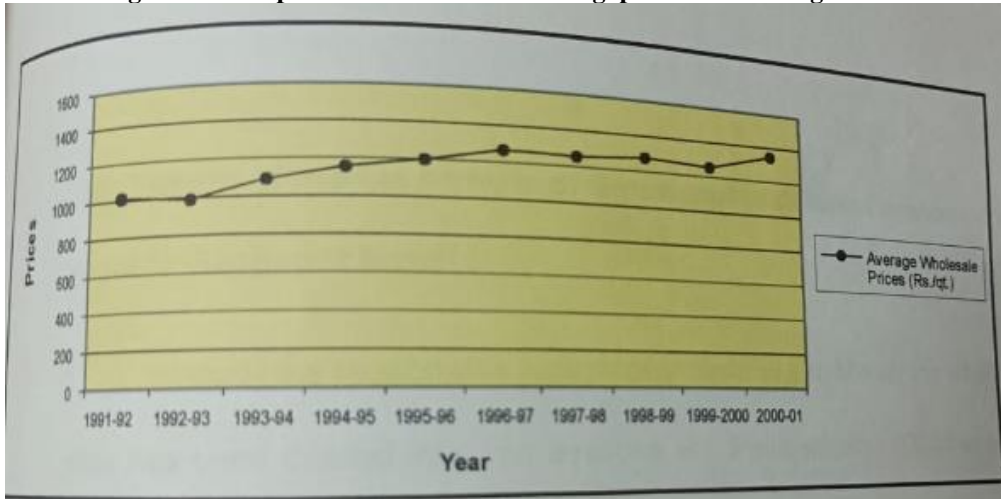
- i. Time series analysis of market arrivals.
- ii. Time series analysis of prices.
- iii. Pattern of market arrivals of groundnut in different seasons of the year in market under study.

Trend of Arrivals of Groundnut in Gangapur mandi During 1991- 92 to 2000-01.



Among the above tried models Linear function is best fit where the value of coefficient of determination is highest (0.890) i.e. the variation from the observed data is lowest.

Trend of Annual Average wholesale prices of Groundnut in Gangapur mandi during 1991-92 to 2000-01



$Y = 981.649 + 37.1214 t$

The semi-average method was used to drawn the general trend line. The general trend of prices was noticed rising over time (see diagram no. 2)

Pattern of market Arrivals of Groundnut in different seasons of years in Gangapur Mandi

To study the season-wise arrivals of groundnut into Mandi, the whole year has been divided into four seasons viz. Peak season (October to December), mid-season (January to March), lean season (April to June) and off-season (July to September). Table no. 5.3 presents the market arrivals of groundnut in different seasons during the period 1991-92 to 2000-01. It is obvious from the table that there existed a definite seasonal pattern in the arrivals of groundnut in the mandi. Overall 84.25 per cent of the total arrivals of groundnut in Gangapur mandi was in the first quarter (from October to December). Arrivals decreased subsequently in next two quarters but in fourth quarter it was slightly higher (2.06 percent) in comparison of third quarter (0.66 percent). The total arrival in first and second quarter (from October to

March) commanded 97.28 percent of the total arrival of the year in Gangapur Mandi.

Among the different years of the study period, the arrivals of the groundnut in first quarter was the highest (91.05 percent) during year 2000- 01 and the lowest (76.17 percent) during year 1998-99. The arrivals during second quarter of different years under study ranged between 7.54 percent in 1993-94 and 21 percent in 1998-99. Arrivals of groundnut during third and fourth quarter of the year were very low which focused the poor retention capacity of the producer. Arrivals during fourth quarter ranged between the lowest 0.54 percent during 1999-2000 and the highest 4.72 percent during 1991-92 while there was no much difference in terms of percentage of total in case of the arrivals during third quarters of the years under study i.e. it was between the lowest 0.41 percent in 1992-93 and the highest 1.07 percent during 1996-97.

Thus, the study revealed that there is more or less a similar trend has been observed in arrival pattern

throughout year in Gangapur Mandi during a period of ten years from 1991-92 to 2000-01.

The seasonal index of I quarter was very high (336.99) and it was lowest of III quarter (2.65). In quarter II & IV it were 52.11 and 8.24 respectively.

Price Behaviour of Groundnut

(A) Seasonal Price Behaviour of Groundnut

Generally, a seasonal trend of fluctuations in the prices of agricultural Commodities is observed. Table no. 5.4 exhibits the average wholesale prices of groundnut in different seasons (quarters) of the years during the period 1991-92 to 2000-01 in Gangapur Mandi. It can be inferred from the table that overall average prices of groundnut were lowest in the peak season (during October to December and then increased subsequently in the mid, lean and off-season.

The overall average prices increased at higher rate in third quarter (16.2 percent) over second quarter than in any other respective quarters. Comparatively higher prices were noticed during the last two quarters of the years (during April to September). The highest fluctuations in the average wholesale prices have been seen during year 1996-97 where the prices in third quarter of the year increased by 38.22 percent over the prices of previous quarter while in the fourth quarter of this year the prices got down by 14.66 percent in comparison of the prices in its previous quarter.

(B) Monthly Price Behaviour of Groundnut

To know the monthly price behaviour of groundnut the monthly average wholesale prices (average of monthwise wholesale prices during year 1991-92 to 2000-01) and percent deviation of prices from the mean price have been presented in table no. 5.5. The overall average of monthly average wholesale prices of groundnut of the year under study was Rs. 1185.31. If a comparative view of percent deviation of monthly prices from the overall mean is taken, it was negative in the month of October, November, December, January and February which indicates quite low- prices during these months in comparison of mean price. In November, December and January the percent deviations from mean were higher than in the month of October and February which remarks much lower prices in November, December and January. From March to September percent deviation from mean were positive indicating higher wholesale prices in comparison of mean whole sale price. The high degree of percent.

It can be concluded from the table that maximum arrival (97.28 percent of the total) was during October to March. The average wholesale price during these months were noticed lower than the average wholesale prices during the another next six months (from April to September) where the arrivals were quite low. The maximum arrival (31.55 percent of the total) was in the month of November and the average wholesale price was lowest

(Rs. 998.80/qt) in this month. On the opposite side the minimum arrival was in the month of April (0.18 percent) where average wholesale price was quite high (Rs. 1253 per quintal). It found from the analysis that prices increase with the decrease in arrivals and vice-versa.

To examine the relationship between monthly arrivals and average wholesale prices of groundnut in the corresponding months and between monthly arrivals and average wholesale prices in subsequent months, the correlation coefficients were calculated. To know the effect of arrivals on prices, the arrivals were treated as independent variable and wholesale prices as dependent.

The correlation coefficient between monthly arrivals and average wholesale prices in corresponding months was estimated -0.78215, which indicates that there is negative and high degree of correlation exists between both the variables, i.e. the average wholesale prices in corresponding months came down when monthly arrival increased.

The correlation coefficient between monthly arrivals and average wholesale prices in subsequent months came to -0.81105, which also refers to the negative and high degree of correlation between both variables.

CONCLUSION

The review uncovers that the cost of groundnut in Odisha stays consistent. Ranchers are prompted for improved region distribution to expand their return. Determining the costs of groundnut for the whole season will surely assist ranchers with taking proper choices during pre-planting (whether to go for higher region assignment) and post-reaping (to store or deal promptly with the gathered harvest). Fundamental advances ought to be taken by Government for opportune dispersal of estimated value at ranchers' finish to cause the ranchers to receive the greatest reward. The review region is bound to the Odisha locale. Future examination work can be taken to anticipate cost on a month-to-month premise as well as a consistent schedule. Gauging costs of a few transitory and durable farming wares should be possible by applying this strategy. The examination might be finished to lay out relations among business sectors across various states in the country to lay out regardless of whether the business sectors are coordinated.

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