International Scholars Journals

International Journal of Agricultural Sciences ISSN: 2167-0447 Vol. 14 (9), pp. 001-006, September, 2024. Available online at www.internationalscholarsjournals.org © International Scholars Journals

Full Length Research Paper

Analyzing Price Trends and Behavioral Dynamics in the Indian Poultry Sector with Reference to Egg Production

R. Karthikeyan[1]* and V. R. Nedunchezhian[2]

[1]Anna University – Chennai (Coimbatore Region) Jothipuram, Coimbatore – 641020, India.
[2]KCT Business School, Kumaraguru College of Technology, Coimbatore, India. *Corresponding author. E-mail: karthik_gri@yahoo.com. Tel: 0422-2693605, +919843496216.

Accepted 14 December, 2019

The study made an attempt to analyze the seasonal changes and growth performance in the prices of egg across India. The data on prices of eggs were collected for the period from January 2009 to December 2012 from the various sources of poultry associations. The seasonal index analyses were used to substantiate the results. The results revealed that the average egg prices had grown significantly at 28% from 2009 to 2012. This was mainly due to the increased consumption of eggs across India and the feed cost has increased to a large extent. The consumption of egg during winter season is high and this results in high prices in the market. Also, the demand is high on account of Christmas and New Year, and this attributes to the rise in prices in the months of November and December. The lowest price was observed during the month of April, due to slack in demand for egg in all the market centers of India and the reason includes hot climate during months of March, April and May.

Key words: Poultry, egg, chicken, broiler, animal husbandry.

INTRODUCTION

India is third largest egg production and fifth in chicken meat producer in the world. India has a population of 1.2 billion and 50% of India's workforce is in agriculture. Agriculture accounts for 17.6% of the country's gross domestic product (GDP) and 60% of the labor force. India is expected to overtake China as the world's most populous country in the coming decades. Middle-class households are the fastest growing segment of the population. About 20% of the population is vegetarian, but urbanization people prefer to go for non-vegetarian diets.

The organized sector of poultry industry is contributing nearly 70% of the total output and the rest 30% in the unorganized sector. The broiler industry is well dominated in southern states in our country nearly 60 to 70% total outputs coming from these states. The layer industry once again represented more in southern states especially, Andhra Pradesh, Tamil Nadu and Maharashtra producing nearly 70% of the country's egg production. India's 75% of egg produce is consumed by the 25% population living in urban and semi-urban areas. Presently about 800 hatcheries are operating in the country (Source: www.mofpi.nic.in). The average consumption of eggs in major cities is 170 eggs and smaller cities are 40 eggs. The trend of Indian poultry industry (Table 1) has witnessing progressive growth.

India's per capita consumption is only 54 eggs per year. In the year of 2011 to 2012 as compared to the European Union and the USA where per capita consumption is 230 eggs per annum. The layer segment is worth around 100

Table 1. Trend of Indian poultry industry.

S/N	Items	1993	2000	2010	2020	% annual growth rate (1999-2000)
1	Chicken(MT)	0.25	0.33	0.52	0.81	4.67
2	Egg (Billion No.)	9.62	13.88	24.9	44.06	6.02

Source: http://www.indiastat.com.

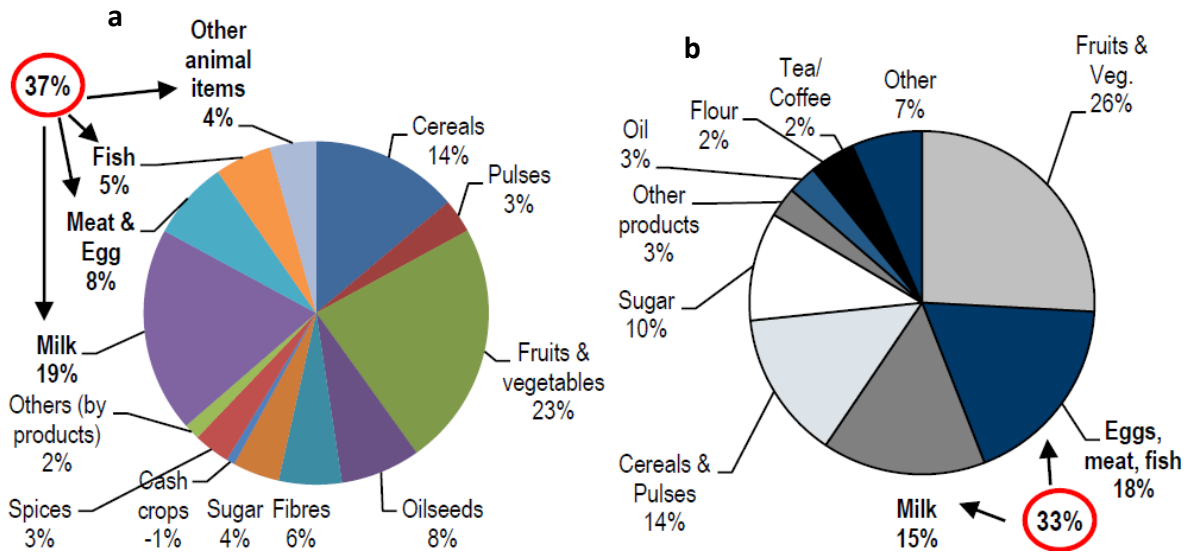

Figure 1. (a) Split of increment agriculture output (2005-2011); (b) Split of incremental food inflation in WPI August 13 over August 08.

billion rupees and 2 million people are employed (directly or indirectly) in this sector.

The animal products relevance the habit of food changes rising in India. 37% of agricultural output growth between 2005 and 2011 (Figure 1a and b) came from animal products like meat and eggs. This is partly a reflection of changing food habits and per capita consumption of food grains is falling whereas that of edible oil, milk and meat is rising. Milk, meat, and egg consumption in India is rising much faster than that of cereals. Animal products have also contributed to 33% of the incremental food inflation over the past five years; as consumption baskets are revised, these could be even higher. Of India's agricultural output, 31% comes from animal products: milk, meat, egg, fish and others such as silk and honey.

Eggs (5.1%) and meat (5.6%) growing faster than milk (4.4%), the Output of eggs and meat in particular has risen faster than that of other animal products like milk and honey. Factors driving the poultry industry's expansion include quickening growth in per capita income, a young and increasingly urban population, and declining real poultry prices. With recent studies suggesting that most Indians do not have strict vegetarian dietary preferences, income and price are likely to continue to influence rising demand.

Literature review

The available literatures relevant to the objectives of the present study was reviewed and are presented here, Sandeep and Gangwar (2008), the study has indicated that the six major wholesale egg markets in the country are cointegrated apparently due to performance of market intelligence functions by the NECC (National Egg Coordination Committee) which helps in transmitting price signals across the length and breadth of the country through print media on day-to-day basis. The high degree of cointegration amongst various markets indicates that these markets are competitive and efficient at the wholesale levels. However, it still remains to be examined whether the poultry farmers and traders at the grass-root level are able to realize the prices declared by the NECC, through primary surveys.

Pandian et al. (2010) study was carried out to analyse the trend, seasonal and spatial variations in wholesale and retail egg prices in major market centres of South

India. The monthly price indices of egg price in various market centres of South India inferred that the price indices of all the observed centres coincide with each other over various months. The monthly egg price index was observed to be the minimum during the months of March and April and started increasing to reach peak during the month of June. Further, it started decreasing and reached lower value during the months of August and September. The seasonal wholesale/retail egg price index was found to be the highest during the month of November and December and the lowest during the month of April.

Ravikumar et al. (2001) concluded that in general, arrivals showed mixed trend, whereas prices showed an increasing trend for the selected commodities in Anakapalle regulated market of Andhra Pradesh. There exists an inverse relationship between seasonal indices of arrivals and prices of selected commodities. Therefore, the policy implication lies in encouraging the farmers to dispose their produce at the opportune time to get good remunerative prices. It requires providing finance to farmers and better storage facilities either at village level or at market level so as to spread the arrivals reasonably in the lean months of the year.

Keith et al. (1997) examined seasonal potato price indices for two major wholesale potato markets of Delhi and Kolkata. It was cleared that potato prices typically double between the end of harvest in March and the onset of summer in July and August. The most rapid increase in potato prices occurs in April and May. There was a slight dip in price in the Delhi market in mid summer, which may reflect the arrival of a summer crop. Prices then continue to rise until peaking in September or October when existing stocks are lowest, and just prior to the arrivals on the market of early potatoes in months of November and December.

Agarwal and Sharma (1990) analysed the seasonal indices of pulse crops in Rajasthan during the 1972 to 1987. The results of the study indicated that price indices were the lowest during peak arrival months of April and May months for gram and October and November months for moong and pulse Crops and the highest during sowing months of the crop October and November for gram and June and July for moong. Arhar depicted minimum prices during January, February, months and maximum in the month of October.

Kannan and Chakrabarthy (1983) projected consumer demand for selected food stuffs in India for the period from 1985 to 1986 to 2000 to 2001 on certain assumptions relating primarily to changes in population and consumption expenditures. Estimates were made on the basis of expenditure elasticity as revealed by NSSO household consumption expenditure data (25^{th} round). Population projections were made on the basis of compound growth rate or component method. According to this study, demand for food grains on an average would increase by 16% during each quinquenial period (compared growth rate worked out to 2.5% per annum). The total demand for food grains in 2000 to 2001 was estimated to be between 215.17 and 221.23 million tones. The wheat demand would increase from 20.84 million tones in 1970 to 1971 to 55.13 tonnes in 2000 to 2001 with a growth rate of 3.6% where as the demand for rice would increase from 57.09 million tones in 1985 to 1986 to 90.35 million tones in 2000 to 2001 with an annual growth rate of 2.8%. The demand for milk was found to increase faster at 5% annum than that of sugar (4.3%), meat, fish, eggs (4.1% each) and edible oil (3.9%).

MATERIALS AND METHODS

Objective of the study

1. To study the seasonal trends of egg prices across India,
2. To study the cyclic price variance in the egg markets across India.

Area of the study

The area of study is confined to major egg markets across India including Bhopal, Indore, Jabalpur, Kolkata, Vizag, West Godavari, Ajmer, Allahabad, Delhi, Kanpur, Luknow, Punjab, Varanasi, Bangalore, Chennai, Chittoor, East Godavari, Hyderabad, Mysore, Namakkal, Vijayawada, Warangal, Ahmedabad, Mumbai, Nagpur, Pune, Barwala, Miraj and Raipur. These cities were attached with respective regions namely North, West, South, East and Central. The wholesale prices of the eggs were taken into account for the study. Regions having minimum of 3 cities and upto maximum of 9 Cities.

Sources of data and sample design

The data on monthly average wholesale prices of egg for major market centers across India were taken into account for the study for the period of January 2009 to December 2012 were collected from various sources from National Egg Coordination committee (NECC).

Tools used for analysis

Ratio to moving average method

The ratio to moving average method is used to substantiate the objectives and it is the most widely used method of measuring seasonal variations. The logical reasoning behind this method follows from the fact that 12 months 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 moving average centered to that month, presumably cycle and trend are removed. This may be represented by the following expression:

[(TXSXCXI)/TXC]=SXI

T = Trend, S = Seasonal Component, C = Cyclical Components, I = Irregular Components.

Thus, the ratio to the moving average represents irregular and seasonal influences. If the ratios for each worked over a period of

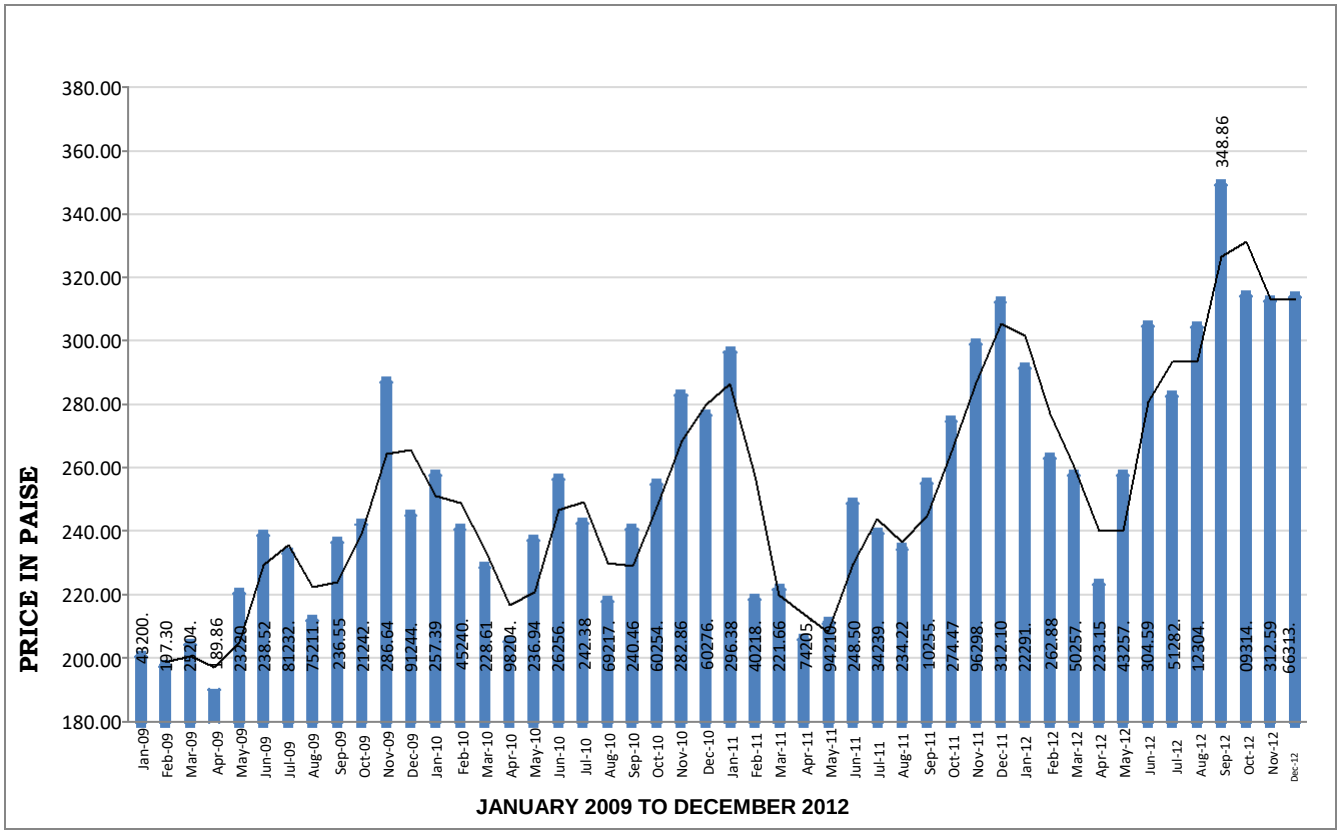

Figure 2. Egg prices in India (January 2009 to December 2012).

years are then averaged most random influenced will usually be eliminated hence in effect:

[(SXI)/I]=S

Hence this method is used to measuring seasonal variations of egg prices across India.

RESULTS AND DISCUSSION

Egg prices in India

The egg prices also follow seasonal pattern along with sizeable variation in prices across geographies as depicted in Figure 2. The average price of an egg in India is increasing 6.5% year on year. The highest average price of an egg was Rs.3.49. This was observed in the month of September 2012 in the last 4 years.

In the year 2009, the average price of egg was Rs.1.90. As far as past four years, data concerned with the average price of egg was very low in the every month of April. In 2010, the price of egg was Rs. 2.05 and 2011, the price was 2.06 and the 2012 price was Rs. 2.23.

India's eggs production and consumption details

The egg production of India is increasing at the rate of 7% year on year at the same time the per capital consumption also increasing at the rate of 5% year on year. The increase in population of the country leads to more consumption of cheap protein rich diet like egg (Figure 3). The per capita consumption has been increased from 30 to 54 within the twelve year of time (From 2000 to 2012).

Seasonal variations in egg price

Seasonal variations of egg prices across India has been examined and the details are tabulated for the five regions that includes Central, East, North, South and West. The typical price of egg during the month of April is 81% that of the average price during a particular year and the December sales are 118.09% of those of the average month in Central Region. Sales percentage during the month of April is 85.19 that of the average sales during a particular year and November sales are 113.23% of those of the average month in the case of East Region.

The percentage of the month of April is 81.73 and the December month average is 119.27% in North Region. In the East Region, the average sales percentage of the April month is 85.19% and the November sales percent is 113.23. The percent belongs to West region in the month of April is 83.80 and 115.55% for November month. The surveillance of all these regions, we can observe the

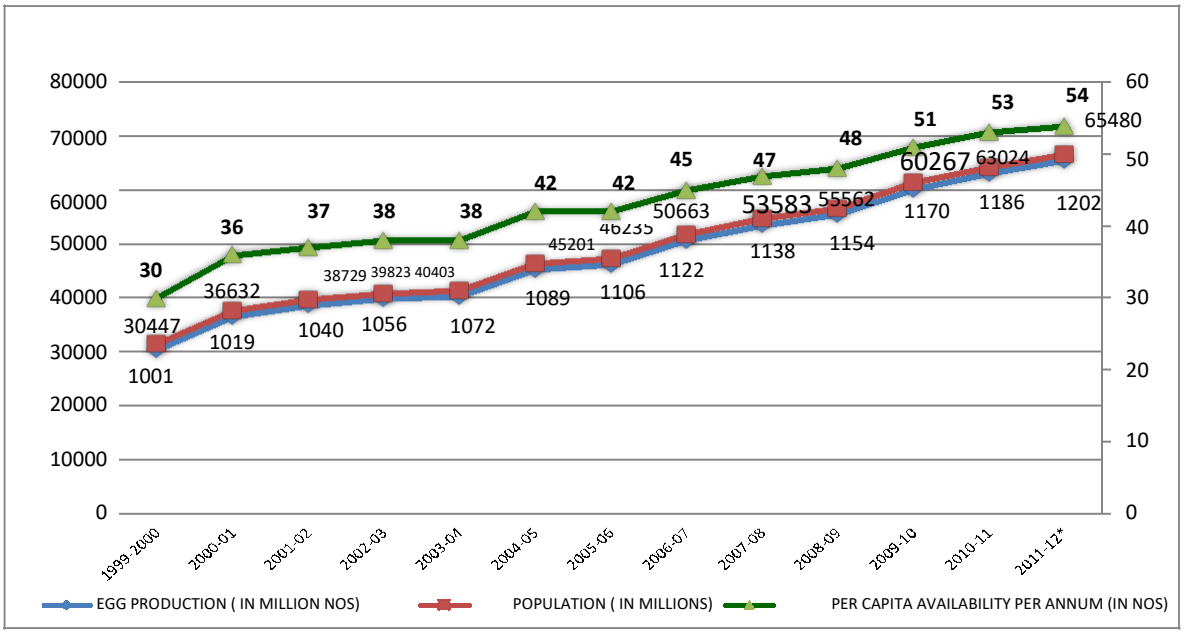

Figure 3. India's eggs production and consumption (1999 to 2012).

JANUARY 2009 TO DECEMBER 2012

Table 2. Seasonal variations in egg price.

Month	Central	East	North	South	West
	Seasonal indices				
January	109.39	108.01	109.77	107.78	108.43
February	95.44	95.06	97.81	95.59	96.39
March	89.60	93.69	91.57	93.05	92.30
April	81.00	85.19	81.73	86.40	83.80
May	89.56	90.11	86.20	91.84	90.41
June	106.83	103.95	101.86	107.04	106.60
July	99.08	99.28	96.24	100.31	99.07
August	90.00	93.92	92.42	91.58	90.38
September	99.55	101.98	100.19	99.66	99.41
October	103.57	104.60	104.79	103.91	103.73
November	117.90	113.23	117.65	114.88	115.55
December	118.09	110.98	119.77	107.96	113.91

improvement of sales percentage in every month of every region.

The monthly price indices of egg in various market centers of India are depicted in Table 2. It has been inferred that, the monthly price indices of egg in all the observed centers in India coincide with each other over various months. The monthly egg price index was observed to be the minimum during the month of April and the same starts increasing to reach its peak during the month of June. Further, it starts decreasing and reaches its lower value during the month of August. The monthly price index was found to increase to reach higher index value during the months of November to December.

The seasonal wholesale egg price index was found to be the highest during the month of November and December due to many religious festivals like Diwali, Bakrid, Christmas and New Year. And also, it observes that, the lowest prices was during the month of April in all the market centers. The reasons like hot climate across India, the school and college examinations during months of March and April, might indirectly slack down the demand for egg. In India psychologically, it is perceived that egg consumption results more body heat production.

The price index was observed to increase from April to June due to existence of summer holidays; the major reason is due to the state government's noon meal scheme. As far as this scheme is concerned, the

government supposes to provide two eggs per week. Due to summer holidays for the children, the procurement of eggs will be reduced by the Government and also in the case of Colleges too. This could be one of the main factors for low egg price in the market in the months of April and May.

This also clearly indicates that the seasonal variations in egg price index are almost similar irrespective of the location and type of the market. The reason for uniformity in price behavior might be due to the organized egg marketing method and uniform price fixation procedures by National Egg Coordination Committee.

Conclusion

The research findings concluded that, the trend in the egg prices are fluctuating across the Indian egg markets. The monthly price indices of egg price in various market centers of India inferred that the price indices of all the observed centers coincide with each other over various months. The consumption of egg during winter season is high and this results in high prices in the market. Also, the demand is high on account of Christmas and New Year, and this attributes to the rise in prices in the months of November and December. The lowest price was observed during the month of April in all the market centers of India and the reasons include hot climate across India during months of March, April and May.

REFERENCES

Agarwal NL,Sharma KC(1990).Price behaviour of pulse crops in Rajasthan. Indian J. Agric. Mark. 4(2):128-139.

Kannan R, Chakrabarty TK (1983). Demand Projections for Selected Food Items in India, 1985-86 to 2000-01. Econ. Polit. Wkly. 18(52/53):24-31.

Keith V, Khatana VS, Ilangantileke SG, Jagpal, Kumar D (1997), Economics of Potato Storage in Northern India. Working paper, Int Potato Centre, 5:1-23.

Pandian ASS, Kumar GS, Prabu M, Selvakumar KN, Saraswathi S (2010). Time Series Analysis of Wholesale and Retail Egg Prices in Major Market Centres of South India. Indian J. Anim. Res. 45(1):38-42.

Ravikumar KN, Raju VT, Sreelakshmi K(2001), Determinants of prices of agricultural commodities in the regulated markets of Andra Pradesh. Agril. Mark. 43(1):19-22.

Sandeep S, Gangwar LS (2008). Analysis of Spatial Cointegration amongst Major Wholesale Egg Markets in India. Agric. Economics Res. Rev. 21(2):259-263.