

# PRICE VARIATION OF CAULIFLOWER IN DIFFERENT SEASONS WITH REFERENCE TO ORGANIZED RETAIL IN RANCHI

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## **Abstract**

Vegetables are the basics of our everyday diet. In India the production of vegetables is in incredible climb. After China, India is the fourth biggest producer of vegetables. As of late the rising costs of vegetables have been a genuine worry in Indian homes. This paper tries to identify the variation in price of cauliflower in different seasons from farmers to end users with reference to organized retail like Big Bazaar or Reliance Smart in the adjoining area of Ranchi. On the off chance you believe that it is just onions whose price is expanding, you are profoundly mixed up. Specialists state that an ascent in fundamental nourishment things in India is principally a direct result of the expanding item costs abroad, increment in fuel costs and manures, which thus influence the neighborhood produce by expanding input costs. With an expansion in the populace, there is additionally an increment in the interest for vegetables. In India's exchanging network, the final result arrives at the shopper in the wake of going through different arbiters or brokers. Every middle person attempts to get benefits by expanding the first expense and the end cost turns out to be extremely higher than the real cost. In this way, it is normal in India that we, as shoppers, follow through on a significant expense and simultaneously the farmers don't get a meriting cost for the vegetables. Thus the result of this paper shows that there is a significant difference in the price of cauliflower in different seasons from the farmers to end user having different intermediaries.

**Keywords: Vegetables, Price, Seasons, Retail**

## **1. INTRODUCTION**

India is the fourth biggest maker of green vegetables after China, there are around 125 cr. Individuals rely upon the green vegetables, as their nourishment stuff. That is the reason this area perceives the outrageous significance as a promotion as well as strategically. Earlier in the year, we have seen diverse political strife and socialization with respect to the value issue of the green vegetables. This is especially unpredictable and there are a few components that decide the value affectability of the green vegetables. Because of the nonappearance of huge scope stockpiling framework, just about 1/3rd of the green vegetables are squandered and discard past human groceries. This is the most significant factor in the value component framework. After that, we can specify that the correct creation framework isn't applied according to the condition and different frill conditions so certainly the creation isn't coordinated in as indicated by their assessed limit. Yet, the line authoritative, utilitarian frameworks are there having three vital focuses which are:

- a. Maker/Farmers
- b. Advertiser/Intermediaries
- c. End buyer

It is particularly came into the perception that the maker/farmers are not understanding their ideal benefitting condition and they gather to hand over their creation to the vested intrigued showcasing bunch who has the key ability to motorize the estimating framework or we can say that this advertiser bunch has a definitive force in deicing the valuing arrangement of the different items (vegetables). So it is especially a center man dependant framework. Then again the customers are constrained to purchase diverse vegetable items according to their market cost. However, according to the present financial framework, there are sure expectation emerges with the activity of the administration. The legislature currently wants to help this framework with trade product with a forward framework, logical help just as creating chain cold stores for potato or onion as well as for all vegetables. We trust that after 2025 the situation will be anchored with the valued instrument may of this item and a reasonable estimating equation with these items.

The essential focal point of this exploration paper is to think about the difficulties and issues of production network of vegetables. And furthermore to discover the variety in vegetables, which emerge because of the nearness of various

delegates and appropriation levels. In this paper the broad writing survey is the base and the idea got from both the essential and auxiliary sources. The exertion is relied upon to give knowledge of the issues and would endeavor to recommend medicinal measures for cost advancement and productivity in the inventory network of vegetables from the maker (Farmers) to the purchaser. The essential issue lies with the production network that climbs the costs of these vegetables. Farmers are not getting essential acknowledgment of value equivalent to their endeavors because of absence of storerooms, poor market data and chaotic broken production network.

There are various vegetable models and writing that exist which bolster that there is a variation in the cost of the vegetables from ranch door to purchaser through the presence of various go-betweens.

This examination additionally expresses that the Farmers don't get the real estimation of their vegetables due to the presence of the mediators know as Mahajan. These individuals arrange the cost from the Farmers and purchase the vegetables in mass and afterward sell those vegetables according to their valuing framework, since there is a capacity issue and a possibility of waste dump the Farmers sell their vegetables as the mediators said cost, because of which they can't charge according to their need and prerequisite.

Then again the Farmers has a legitimate showcasing channel through which they can speak with their clients like retailers, a large number of Farmers produce the vegetables and come to sell in the market yet not ready to sell straightforwardly in a solitary day of activity because of which they need to reclaim the offset vegetable alongside them which result in more expense regarding transportation or harm of the vegetables, so every Farmers need to sell their vegetables around the same time of activity whether in great cost or at normal cost. Hence, with this a middle people exploit and amplify their edge as opposed to giving the worth cost to the Farmers.

Because of the presence of these channel end clients need to pay more for these vegetables in each season whether it is pre-storm, rainstorm or post-rainstorm.

To defeat with this issue, it is delighted structure the examination that huge numbers of the Farmers who would prefer not to put such a large amount of cost underway they essentially give them some bit of land into a contract cultivating and rent, the rest they save for themselves and develop the restricted measure of the vegetables which are later on offered to the particular mandi and from that point the Farmers can gain more when contrasted with other.

There is a significant value variety in cost of some chosen vegetables. There is a most extreme variety with respect to tomato, brinjal, beans and jug gourd. The Farmers don't get fitting vale for their produce vegetables. Because of absence of capacity they can't have the option to keep down these vegetables with them for a significant stretch of time after the development due to its perishability in nature, so they need to sell inside a specific timeframe at the middle person's cost. The outcome the Farmers doesn't get legitimate worth and middle people like Mahajan's gain more than the Farmers. These middle people likewise assume a crucial job in fixing the cost of the vegetables and sell in the market or to the retailers as they're advantageous.

There is a variation in price of cauliflower, various seasons in regards to the normal profitability, normal creation cost, normal transportation cost and normal bundling cost. The normal efficiency, normal creation cost, normal transportation cost, and normal bundling cost were established the most noteworthy for all the vegetables during the post rainstorm season which is at standard with the storm season. The normal efficiency during the rainstorm and post storm seasons was altogether higher than a pre rainstorm season.

## **2. LITERATURE REVIEW**

Efforts to develop the agricultural sector in developing countries are now taking place against the background of major structural change in the world agricultural industry. In many developed countries, agricultural production is changing from an industry dominated by family-based, small-scale farms or firms to one of the larger firms that are more tightly aligned across the production and distribution value chain. In addition, the trend of market-orientated reforms, following multilateral trade liberalization and especially structural adjustment programmes in developing countries, has led to the increased integration of world markets. As per the observation of research conducted by Collaborations among companies are common in the business world, but rarely observed among government organizations for agricultural development.

Mighell and Jones (1963) explain that the term includes all the ways of harmonizing the vertical stages of production and marketing. The market-price system, vertical integration, contracting, and cooperation singly or in combination are some of the alternative means of coordination." Within this succinct definition is the notion that vertical coordination encompasses a continuum of possibilities, from open market spot transactions at the one end, through to full vertical integration at the other and including strategic alliances, joint ventures, contracting, etc.

Boehlje and Doering, (2000) concludes that the new conditions have affected the atmosphere in distribution channels encouraging more cooperative relationships.

Iyer and Boas (2003) say that the bargaining power of retailers by concluding that an increase in the relative power of the retailer in the channel reduces double marginalization and promotes channel coordination. Balagtas and Holt's

discussion has contributed to understand market information systems and the functioning of market-based mechanisms for agricultural risk management, including futures, options, and insurance. Though the progress over the decades have been a remarkable journey, Gulati explains the demand for stronger vertical coordination in the food system as a means of satisfying increasingly diverse consumer preferences are changing the landscape facing food supply chain participants. The consolidation trend in the marketing sector seems inexorable, implying that noncompetitive behavior and its effects will remain high on the research agenda.

Michael and Jacobides (2005) found that gains from intra firm specialization set off a process of intra organizational partitioning, which simplifies coordination along parts of the value chain.

Alam et.al. (2007), Reaching the end of the period of 11th Five Years Plan (2007-2012), the support and available infrastructural facilities are in the process of expansion and very soon the 12<sup>th</sup> Five Years Plan (2012-2017) will come up and expecting some positive support to agriculture to work on the road map of the agricultural growth.

Giancarlo et.al. (2008), discusses that the economics of geographical indications (GIs) is assessed within a vertical product differentiation framework that is consistent with the competitive structure of agriculture.

Mangala et.al. (2008), say that strategic interaction between public and private actors is increasingly recognized as an important determinant of agricultural market performance in Africa and elsewhere.

Cole and Kirwan (2009) represent the attempt at exploring the individual, temporal, and regional determinants of participation in agricultural risk management.

To improve small producer's livelihoods Rakesh Singh and H.P Singh (2009) has developed many models. The fresh food retail chains are investing from farm to fork to buy fruits and vegetables directly from farmers and sell them to retail buyers. However, fresh food retail chains are largely found working with only large farmers and exclude small farmers for various reasons.

Jairath and Jairath (2009) indicate that on an average on each rupee invested by the public sector, private sector. The analysis indicates that there is a very strong complementarity between private and public investment. The study suggests that in order to give further fillip to investment in agricultural marketing infrastructure.

Kathryn et.al. (2010) views that with the demand in local labeling programs such as the National Buy Fresh Buy local promotion appearing in increasing numbers, consumers will be seeing many messages about local and fresh produced vegetables. The study has also highlighted the needed effective measures to reduce marketing losses at various stages.

Naresh Singla et al. (2011) says that to improve small producer's livelihoods, linking primary producers with global and national markets through fresh food retail chains is seen as one of the emerging agricultural marketing practices in India.

Douglas E. Hughes et al. (2012) contributes that propositions linking the levers to market-based capabilities are offered to shape new research opportunities in the domain of the marketing and sales interface.

Roberts and Grover (2012) talks that Customer agility captures the extent to which a firm is able to sense and respond quickly to customer-based opportunities for innovation and competitive action.

Rasi & Sheoran, (2015), For sustainable agribusiness improvement an effective promoting framework is basic which influences the maker's pay as well as shapes the buyer's welfare. Market productivity does not depend just on homestead generation cost and yields in any case, on the system, wherein an item reaches to a shopper from the farmer entryway. The elements affecting the market effectiveness incorporate their transient nature, quality, cost and area like Ranchi and its adjoining area assembly markets are situated near farm-gates where vegetables are brought by farmers. Various intermediaries participate as buyers in these markets.

In vegetable markets, agents/mahajans perform work on commission by charging on sales revenue from farmers. They do not provide lodging, boarding, transport, and telephone facilities. Sometime these people purchase the whole from the farmers with least value and sells as per their price. They also fix the price for the vegetables as per the last day market operation. So an efficient marketing system has to be adopted where the farmers get directly in touch with the buyers.

Baba et al. (2015) have suggested that the coverage of technology mission should be expanded to other niche areas of vegetable cultivation.

Rasi & Sheoran (2015), Generally the price is paid by the different marketing agencies regarding the packing, transportation, storage and processing, but in the city like Ranchi the intermediaries or mahajans cut down the price of these variables from the farmers end and lower down their margin, an efficient marketing channel has to be developed through which the farmers can sustain with any losses. An efficient marketing system can reduce the post-harvest losses, enhances the farmers' realization, reduce the consumer price, promote grading and food safety practices, induce demand-driven production, enable higher value addition, and facilitate export.

Demand for stronger vertical coordination in the food system is discussed by (Uma Shankar Singh, Uma Sankar Mishra) as a mean of satisfying increasingly diverse consumer preferences are changing the landscape facing food supply chain participants.

Contracting and other forms of vertical coordination are important parts of the supply chains for many agricultural products. Ramesh Chand has a great contribution academically to provide the solution for a varied range of problems in agriculture sector, and throws light on the future of agriculture and expectation of the industry till 2020.

Berck and Perloff found the gap that retail chain procure only a limited proportion of the grower's crop without any firm commitment and, more so, on a day-to-day basis. It has made no genuine provision for any agriculture-input or other services and does not have any formal contract arrangements with the farmers. The produce not accepted by the RC has to be disposed off by the farmers elsewhere.

Barnett, Mahul, Cramer, G. L. & Jensen, C. W reviewed the research on market structure and performance, vertical coordination arrangements, and institutions for producer collective action has brought a good insight about contributions to empirical modeling of agricultural price determination, and marketing margins are also evaluated, as are innovations in research on spatial market relationships and the role of storage.

William G. Tomek and Robert J. Myers has provided the empirical price analysis, research and concluded that it will face new data challenges in an environment where fewer and fewer transactions are being conducted in open markets, but this creates research opportunities as we seek answers to how different vertical coordination forms coexist and interact with one another. Paying close attention to the time-series properties of commodity market variables will continue to be important, irrespective of whether a structural or nonstructural modeling approach is being used.

A Study conducted by M.S. Jairath to know the extent of investment made in promotion of marketing infrastructure in the country and find out whether private investment induces public investment or vice versa.

## **2.1 SUMMARY OF LITERATURE REVIEW**

The various literatures surveyed regarding the price mechanism and marketing of vegetables states that there is a variation in price of the vegetables from farmers to the consumers and the farmers do not realize an actual income after investment made by them. The above literatures have also stated that due to lack of infrastructure, the farmers cannot hold the vegetables with them for a long span of time due to its perishability in nature and thus the farmers have to sell the vegetables in unwanted prices which in turn make a poor return on their investment and labour. Since the farmers are not very much aware regarding the marketing of the vegetables, so the farmers are unable to approach an appropriate channel for the same. The retailers have a strong bargaining power which leads to provide a price gap from the farmers to the retailers which result the vegetables comes in the market to the consumer with high price.

Some of the literature states that different seasons also play a major role in the variation of price of vegetables. Like in monsoon when the cultivation is good, then the price of the vegetables is stable or less as compared to other seasons like pre-monsoon and post-monsoon and it varies accordingly. On the other hand the various agricultural inputs also play a vital role in the variation in price, especially the irrigation facilities, i.e. in monsoon the farmers have to make less effort regarding the water, but in other seasons they have to bother regarding the same and have to make an arrangement to store at different medium.

## **3. OBJECTIVES AND HYPOTHESES**

### **3.1 OBJECTIVES**

The research study was taken up in Ranchi districts of Jharkhand. In view of highest volume of production of the selected vegetables in this district and due to large scale marketing activity taking place in relation to the vegetables in Ranchi district and in its adjoining areas as they are endowed with relatively highest areas under respective vegetable.

1. To identify the extent of price variation of Cauliflower across different seasons with respect to farmers and organized retailers
2. To understand the price gaps between farmers selling price and organized retailers selling price.

### **3.2 HYPOTHESES**

In order to achieve the desired result, a hypothesis have been formulated, which will be tested and conclusions will be drawn on the basis of the test results. The hypotheses are mentioned below:

Ho: There is no variation in average productivity, average production cost and average transportation cost of cauliflower at different seasons.

H1: There is a variation in the average productivity of Cauliflower at different seasons.

H2: There is a variation in the average production cost of Cauliflower at different seasons.

H3: There is a variation in the average transportation cost of Cauliflowers at different seasons.

## **4. METHODOLOGY**

The process of selecting a portion of the population to represent the entire population is known as sampling (LoBiondo-Wood & Haber 1998; Polit & Hungler 1999).

A stratified random sampling method was used. In using this method each element in the population has a known and equal probability of being the sample actually selected. The selection of the sample is free from personal bias because

the investigator does not exercise any discretion or preference in the choice of items. For the farmers the self – completed individual questionnaire method was selected where the questionnaire was personally handed. This method helped the respondents to clarify the doubts with the researcher.

The respondents were randomly selected and asked to fill the questionnaire on request. The respondent who gave willingness to participate typically gave better response. The respondent who did not fill the form correctly and completely their forms were rejected. The researcher took all the care that no respondent were repeated. (Sample size - 139 respondents for the study), only those respondents (farmers) we considered who have four acres of land for the cultivation, small farmers were not considered since they do not cultivate so much or do not have the relationship with the retailers, they only produce and sell to the villages.

**5. DATA ANALYSIS AND INTERPRETATION**

After collection of all the data from the source, the data were systematically arranged and tabulated for analysis and interpretation in a spread sheet. Since the price form the farmer and retailer were found as a price gap and variations because there are fixed price from both the side so, in order to test the significant differences between the seasons for Average productivity, cost of production, cost of transportation Cauliflower at different Seasons (Pre Monsoon, Monsoon and Post Monsoon), Analysis of Variance with one way Anova was considered.

**5.1 Price Variation of Cauliflower across the Seasons**

Table 1. Total costs incurred by the farmer, farmers selling price, consumer price and price variation of cauliflower across the seasons.

Seasons	Cost from the farmers Side				Farmers Selling Price in Rs./Tons	Consumer Price in Rs./Tons	Price variation of Vegetables in Rs./Tons
	Production Cost in Rs./Tons	Transportation Cost in Rs./Tons	Packaging Cost in Rs./Tons	Total Cost in Rs./Tons			
Pre-Monsoon	12875.00	3125.00	0.00	16000.00	18000.00	30000.00	12000.00
Monsoon	10675.00	3125.00	0.00	13800.00	15000.00	26000.00	11000.00
Post-Monsoon	10137.00	3125.00	0.00	13800.00	14000.00	18000.00	4000.00

Source: Primary data



Figure 1 Price Variations of Cauliflower at different Season

Interpretation – The table 1 and the figure 1 shows that the price variations of cauliflower across the seasons. In pre-monsoon the production cost is high as compared to the other seasons whereas, in monsoon and post-monsoon the cost of production is near about the same and the farmers also not getting a satisfactory value for their vegetables but there is a maximum difference in price to the consumer end. Cauliflower along with Cabbage is the only vegetable that has no packaging cost and transportation. Farmers get maximum profit while selling the cauliflower in pre-monsoon rather than the other seasons.

**5.2 Percentage of Price Variation and Price Gap from Farmers to Organized Retailers at different seasons.**

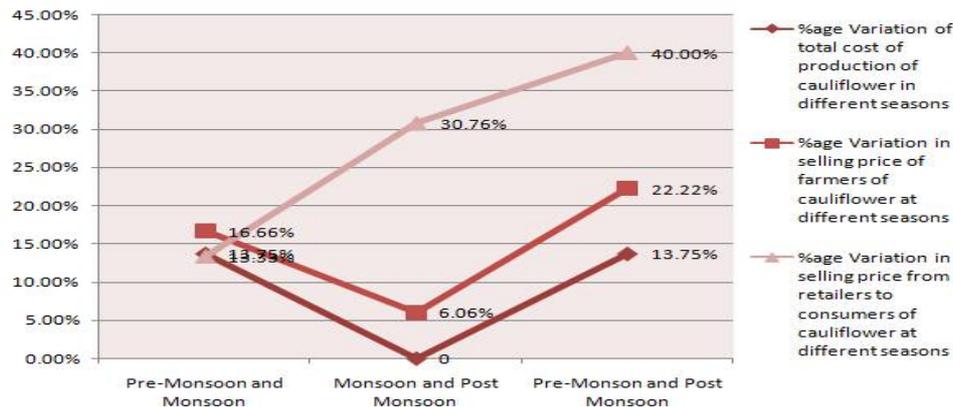


Figure 2. Price variations / Price gap in respect to the total cost of production, farmers selling price, and retailers selling between two different seasons for Cauliflower

Interpretation: The average percentage variation of total cost of production of cauliflower was found 13.75% at pre monsoon season and post monsoon season, which is highest as compared to pre monsoon season and monsoon season i.e. 13.35%. In monsoon season and post monsoon season the percentage of price variation is nil which means there is no variation in total cost of production in these seasons.

The average percentage variation in selling price of cauliflower form farmers was found 22.22% at pre monsoon season and post monsoon season, which is highest as compared to pre monsoon season and monsoon season i.e. 13.35%. In monsoon season and post monsoon season the percentage of variation is minimum as compared to other season which is 6.06%.

The average percentage variation in selling price of organized retailers for cauliflower was found 40.00% at pre monsoon season and post monsoon season, which is highest as compared to monsoon season and post monsoon season i.e. 30.76%. In pre monsoon season and monsoon season the percentage of variation is 13.35% which means these seasons have less variation than other seasons.

### 5.3 Testing of Hypothesis related to Price Variations in the Average Productivity, Average Production Cost and Average Transportation Cost of Cauliflower in different seasons

#### 5.3.1 H1. There is a variation in the average productivity of Cauliflower in different seasons.

Table 2. Average productivity of Cauliflower in tons in different seasons (Pre Monsoon, Monsoon and Post Monsoon)  
Descriptive Statistics

Seasons	Mean (in Tons)	Std. Deviation
Pre-Monsoon	0.28	0.1527
Monsoon	0.52	0.2738
Post-Monsoon	0.60	0.3785

#### ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between the seasons	1.387	2	0.693	8.607	0.000
Within seasons	5.800	137	0.081		

Interpretation:

The above two table states about the descriptive statistics and analysis of variance. From the table it can be understood in Pre-Monsoon (M = 0.280, S.D = 0.1527), Monsoon (M = 0.52, S.D = 0.2738) and in Post-Monsoon (M = 0.60, S.D = 0.3785).

The analysis of variance table depicts, the value of F = 8.607 and the sig. value is 0.000, for the average productivity of Cauliflower in tons in different seasons.

The analysis of variance states that the average productivity of Cauliflower was found the highest during the post-monsoon season, which is at par with the monsoon season. The average productivity during the monsoon and post monsoon seasons was significantly higher than a pre monsoon season.

For Cauliflower, it has been inferred that the total production is showing an increment of 15.38% from monsoon to post-monsoon and on the other hand the same is showing a reduction of 46.15% from monsoon to pre-monsoon. Hence, the alternative hypothesis has been accepted, which states that, there is a variation in the average productivity of cauliflower in different seasons.

**5.3.2 H2: There is a variation in the average production cost of Cauliflower at different seasons.**

Table 3. Average production cost of Cauliflower in tons in different seasons (Pre Monsoon, Monsoon and Post Monsoon)

Descriptive Statistics		
Seasons	Mean (in Tons)	Std. Deviation
Pre-Monsoon	3605.00	1966.68
Monsoon	5269.78	2775.14
Post-Monsoon	6405.00	4041.48

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between seasons	99168509.44	2	49584254.72	5.331	0.007
Within seasons	669670320.91	137	9300976.67		

**Interpretation**

The above two table states about the descriptive statistics and analysis of variance. From the table it can be understood in Pre-Monsoon (M = 3605.00, S.D = 1966.68), Monsoon (M = 5269.78, S.D = 2775.14) and in Post-Monsoon (M = 6405.00, S.D = 4041.48).

The analysis of variance table depicts, the value of F = 5.331 and the sig. value is 0.007, for the average cost of production of Cauliflower in tons in different seasons.

The analysis of variance states that the average cost of production of Cauliflower was found the highest during the post-monsoon season, which is at par with the monsoon season. The average cost of production during the monsoon and post-monsoon seasons was significantly higher than the pre-monsoon season.

For Cauliflower, it has been inferred that the total production cost is showing an increment of 31.59% from monsoon to post-monsoon and on the other hand the same is showing a reduction of 21.54% from monsoon to pre-monsoon.

Hence, the alternative hypothesis has been accepted, which states that, there is a variation in the average production cost of Cauliflower in different seasons.

**5.3.3 H3: There is a variation in the average transportation cost of Cauliflower at different seasons.**

Table 4. Average transportation cost of Cauliflower in tons in different seasons (Pre Monsoon, Monsoon and Post Monsoon)

Descriptive Statistics		
Seasons	Mean (in Tons)	Std. Deviation
Pre-Monsoon	875.00	477.35
Monsoon	1625.00	855.81
Post-Monsoon	1875.00	1183.10

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between seasons	13541666.66	2	6770833.33	8.607	0.000
Within seasons	56640625.00	137	786675.34		

**Interpretation**

The above two table states about the descriptive statistics and analysis of variance of average transportation cost of Cauliflower. From the table it can be understood in Pre-Monsoon (M = 875.00, S.D = 477.35), Monsoon (M = 1625.00, S.D = 855.81) and in Post-Monsoon (M = 1875.00, S.D = 1183.10).

The analysis of variance table depicts, the value of F = 8.607 and the sig. value is 0.000, for the average transportation cost of Cauliflower in tons in different seasons.

The average transportation cost of Cauliflower was found the highest during the post-monsoon season which is at par with the monsoon season. The average transportation cost during the monsoon and post-monsoon seasons was significantly higher than the pre-monsoon season.

For Cauliflower, it has been inferred that the total transportation cost is showing an increment of 46.15% from monsoon to post-monsoon and on the other hand the same is showing a reduction of 15.38% from monsoon to pre-monsoon.

Hence, the alternative hypothesis has been accepted, which states that, there is a variation in the average transportation cost of Cauliflower in different seasons.

## **6. FINDINGS**

Based on the survey analysis various major findings are made which are listed below.

1. There is variation in production, production cost, transportation cost and packaging cost among the seasons.
2. The average productivity, average production cost, average transportation cost and were found the highest for all the vegetables during the post monsoon season which is at par with the monsoon season
3. The average productivity during the monsoon and post monsoon seasons was significantly higher than pre-monsoon season.
4. It has been inferred that the total production is showing an increment of 46.16% for Cauliflower from monsoon to post-monsoon and on the other hand the same is showing a reduction of 15.38% for Cauliflower from monsoon to pre-monsoon.
5. It has been inferred that the total production cost is showing an increment of 31.59% for Cauliflower from monsoon to post-monsoon and on the other hand the same is showing a reduction of 21.54% for Cauliflower from monsoon to pre-monsoon.
6. It has been inferred that the total transportation cost is showing an increment of 46.15% for Cauliflower from monsoon to post-monsoon and on the other hand the same is showing a reduction of 15.38% for Cauliflower from monsoon to pre-monsoon.

## **7. CONCLUSION**

Marketing of vegetables is a complex phenomenon due to their perishable nature, seasonality and bulkiness. It is further compounded by the fact, that farmers have small areas under their cultivation and small marketable quantity. The production and post-harvest losses are higher and as such vegetables require a developed marketing system for their quick disposal. It has also been observed that as the number of intermediaries' increases, the producer's share in consumer price decreases. The net price received by the producers is higher in the channel where they sell the produce directly to the consumers or retailers.

There is a major price gap in price of some selected vegetables. There is a maximum price gap regarding tomato, brinjal, beans and bottle gourd. The farmers do not get appropriate value for their produce vegetables. Due to lack of storage they can't be able to hold back these vegetables with them for a long period of time after the cultivation because of its perishability in nature, so they have to sell within a particular period of time at the intermediary's price. The result the farmer does not get proper value and intermediaries like mahajans earn more than the farmers. These intermediaries also play a vital role in fixing the price of the vegetables and sell in the market or to the retailers as their convenient.

There is a variation in price of Cauliflower at different seasons regarding the average productivity, average production cost, average transportation cost and average packaging cost. The average productivity, average production cost, average transportation cost and average packaging cost were found the highest for all the vegetables during the post monsoon season which is at par with the monsoon season. The average productivity during the monsoon and post monsoon seasons was significantly higher than a pre monsoon season. There is a percentage of variation in total cost of production, selling price of farmers and selling price of the organized retailers in two different seasons.

## **8. THEORITICAL AND PRACTICAL IMPLICATIONS**

The study is important for further research in the area of vegetable pricing, it can be foundation knowledge to understand the various factors contributing to costs incurred at different levels of vegetable supply (from production to retail market).

The study can also be utilized for academic works as a case study of vegetable pricing and its variations with respect to Ranchi District and can be extended to study of pricing of vegetables of other geographical locations like other districts, states or country level study also in case of export and import of vegetables.

The study has huge implications, from this study as they can able to understand the major costing factors as well as profit margins to different stakeholders.

It will help in developing policies, strategies and action plans by Government to manage costs and its important factors, so that farmers can get better profit margins and end – customers can also get right price.

#### **REFERENCES**

- [1] Adeoye, IB, Odeleye, OMO, Babalola, SO and Afolayan, SO (2009). “Economic Analysis of Tomato Losses In Ibadan Metropolis”, Oyo State, Nigeria. African Journal of Basic & Appl. Science, Vol. 1, pp. 87-92.
- [2] Ajayi, M. and Nawalieji, (2010) “Production and Marketing of Vegetable”, Indian Journal of Agricultural Marketing, Vol. 15, No. 3, pp. 34-38.
- [3] Alam, G. and Verma, (2014) “Changes in Traditional Agriculture Ecosystem in Rawain Valley of Uttarakhand State in India”, Ecology and Environmental Sciences, Vol. 2, No. 4, pp.90-93.
- [4] Allen, G. R, (1972) “An Appraisal of Contract Farming”. Journal of Agricultural Economics, Vol. 23, No. 2, pp. 89-98.
- [5] Anderson R.L. (1968), “A Simulation Programme to Establish Optimum Crop Pattern in Irrigated Farms Raised on Pre-Season Estimation of Water Supply”, American Journal of Agricultural Economics, Vol. 50, No. 5, pp.15.
- [6] Anil Kumar, Dr. G.S. Kushwaha,Food (2014) “Supply Chain Management Sustainability: A Review”, Research Journal Of Science And It Management, Vol. 03, no. 10, pp. 30-40.
- [7] Ankita Suvasmita, (2016 ) “Marketing Analysis of Vegetables In Khorda District Under Octmp”, Orissa University of Agriculture and Technology, Bhubaneswar, , pp. 4-15.
- [8] Anonymous, (2006). Postharvest Management of Fruit and Vegetables in the Asia-Pacific Region. Asian Productivity Organization, Japan. ISBN: 92-833-7051-1.
- [9] Ashworth, Suzanne. (2002) Seed to Seed: Seed Saving and Growing Techniques for Vegetable Gardeners. New York: Seed Savers Exchange Inc. pp. 14.
- [10]A, Rasi M & Sheoran (2015), Scope of Supply Chain Management In Fruit And Vegetables, Journal of Food Processing & Technology, Vol. 6, Issue. 3, pp.1-7
- [11]Bachmann, J. and Earles, R. (2000). “Postharvest Handling of Fruits And Vegetables. Appropriate Technology Transfer for Rural Areas”. NCAT Agriculture Specialists. pp. 1-19.
- [12]Basran, G. and Copener, S.S., (1968) “Factors Related To The Acceptance of New Ideas And Techniques In Farming”, Indian Journal of Extension Education, Vol. 4, No. 1&2, pp. 29.
- [13]Ben-Daya M.,Hariga M. and Khursheed S. N., (2008) “Economic Production Quantity Model With A Shifting Production Rate” International Transactions in Operational Research, Vol. 15, No. 1, pp 87-101.
- [14]Bhogle, S.K., (1971) “Factors Affecting Adoption Of New Farm Practices”, Kurukshetra, Vol. 19, No. 11, pp. 8-9.
- [15]Bhople, R.S. and Borker, R.D., (2002) “Bio Fertilizers Farmers Attitude And Adoption”, Agricultural Extension Review, pp. 18-21.
- [16]Bodake, H.D., Gaikwad, S.P. and Shirke, V.S, (2007) “Study of Constraints Faced By The Farmers In Adoption Of Biofertilizers” Asian Journal of Extension Education, Vol. 27, pp. 61-63.
- [17]Boehlje, M.& Doering, O., (2000) “Farm Policy In An Industrialized Agriculture”. Journal of Agribusiness, Vol.18, No. 1, pp. 53-60.
- [18]Bonnen, J.T. & Schweikhardt, D.B., (1998) “The Future of Us Agricultural Policy: Reflections On The Disappearance Of The Farm Problem”. Review of Agricultural Economics, Vol. 20, No. 1 , pp. 2-36.
- [19]Buzby, J. C. and Hyman, J. (2012). “Total and Per Capita Value Of Food Loss In The United States”. Food Policy, Vol. 37, No. 5, pp. 561-570.
- [20]Bijesh Mishra et.al. (2011), “Adoption of Sustainable Agriculture Practices among Farmers in Kentucky, USA”, Environmental Management, Springer, Vol. 5, Issue. 2, pp: 4-9
- [21]Chechani, V.K. and Dr. Gupta, H.C.L. (2003) “Major Pests of Vegetables And Their Management”, Intensive Agriculture, Vol. 1, pp. 9-12.
- [22]Choudhary A.K. and Singh Madan, (1999) “Fertilizer Adoption Behaviour of Contact and Non contact Farmers.” Journal of Research (B.A.U.), Vol. 11, No. 1, pp. 59-61.

- [23] Cooper M. C. and L. M. Ellram. , (1993) “Characteristics of Supply Chain Management and the Implications for Purchasing and Logistics Strategy, "International Journal of Logistics Management, Vol. 4, No. 2, pp. 13-24.
- [24] Egharevaba, R.K.A. (1995). “Physiology Of Fruits And Vegetables”. Journal of Tropical Postharvest, Vol. 2, pp. 51-73.
- [25] Frank, S. D. & D. R. Henderson. (1992) “Transaction Costs as Determinants of Vertical Coordination in the US Food Industries”, American Journal of Agricultural Economics, Vol. 74, pp. 941-950.
- [26] Gupta, H.C., Singh, J. and Kathuria, O.P. (2000). “Methodological Investigation on Postharvest Losses”, Journal of Indian Society Agriculture Statistics, Vol. 53, No. 2, pp. 161-171.
- [27] Geoff Kuehne et.al. (2017), “Predicting Farmer Uptake of New Agricultural Practices: A Tool For Research, Extension and Policy”, Agricultural Systems, Vol. 156, pp: 115-125.
- [28] Halder, P., and Pati, S., (2011) “A Need for Paradigm Shift to Improve Supply Chain Management of Fruits and Vegetables in India”, Asian Journal Agriculture Rural Development, Vol. 1, No. 1, pp. 1-20.
- [29] Hodges, R.J., Buzby, J.C. and Bennett, B. (2011). “Post-harvest Losses And Waste In Developed And Less Developed Countries: Opportunities To Improve Resource Use”. Journal of Agricultural Science, Vol. 149, pp. 37-45. .
- [30] Ilic, Z., Fallik, E. and Dardic, M. (2009). Harvest, Sorting, Packaging and Storage of Vegetables. Agriculturae Conspectus Scientificus, Vol. 77, No. 1, pp. 1-4.
- [31] Jacob, Paulrajan & Fatima(2010). Business Models of Vegetables Retailers in India. Great Lakes Herald, 4 (1), 36-41
- [32] Joon, S. and Singh, K.N., (1969) “High Yielding Varieties Acceptance By Farmers”, Kurukshetra, Vol. 18, No. 3, pp.26.
- [33] K.P. Mangala and P.G. Chengappa, (2008) “A Novel Agribusiness Model For Backward Linkages With Farmers: A Case of Food Retail Chain”, Agricultural Economics Research Review, Vol. 21, No. 8, pp. 1-8.
- [34] Kader, A.A. and Rolle, R.S. (2004). The Role of Postharvest Management in Assuring the Quality and Safety Horticultural Crops. Food and Agriculture Organization. Agricultural Services Bulletin, pp. 152: 52. .
- [35] K. Kalida et.al. (2017), “Vegetable supply chain management in Kerala International”, Journal of Commerce and Business Management, Vol. 10, Issue 2, pp- 250-254
- [36] Kanaujia, S.P. and Narayan, R., (2003) “Bio Fertilizers For Sustainable Vegetable Production”, Intensive Agriculture, pp. 15-19.
- [37] Kishor Kumar, D. Basavaraja, H. and Mahajanshetti, S.B. (2006) “An Economic Analysis of Post Harvest Losses in Vegetables in Karnataka”, Indian Journal of Agricultural Economics, Vol. 61, No. 1, pp. 134-146.
- [38] Kitinoja, L., Saran, S., Roy, S.K. and Kaderc, A.A. (2011). “Post Harvest Technology For Developing Countries: Challenges And Opportunities In Research, Outreach And Advocacy”. Journal of Food Science and Agriculture, Vol. 91, pp. 597–603. .
- [39] Kledal, P. R. & Sulitang, T, (2007) “The Organization Of Organic Vegetable Supply Chains In China: Flexible Property Rights And Different Regimes Of Small Holder Inclusion”, EAAE Pro-poor Development In Low Income Countries: Food,-54-Agriculture Trade.
- [40] Kotur & Kumar S. (1976) “Effect of Molybdenum on Cauliflower.” South Indian Horticulture, Vol. 24, No. 4, pp. 145.
- [41] Krishnamurthy, A.T., Sanathkumar, V.B. and Basvaraju, (2007) “A Study on Awareness Of Soil And Water Testing And Adoption Level Of Dry Land, pp. 2.
- [42] Kumar, M.P, (2012) “A Study On Problems Of Marketing Vegetables In Farmers Market”. International Journal Rural Development Management Studies Vol. 6. No. 1, pp. 241-251.
- [43] Lee Hau L., and Corey Billington, (1995) “The Evolution of Supply-Chain-Management Models and Practice at Hewlett-Packard. Interfaces”, Vol. 25, pp. 42-63.
- [44] Lee, S.K. and Kader, A. A. (2000). “Pre Harvest And Postharvest Factors Influencing Vitamin C Content Of Horticultural Crops”. Postharvest Biology and Technology, Vol. 20, pp. 207–220.

- [45] M Raja Krishna Murthy, GP Reddy, KH Rao, (2012) "Estimating Market Efficiency & Price Mechanism In Retailing Of Fresh Vegetables In Andhra Pradesh". Radix International Journal Of Research In Marketing, Vol. 1, No. 11, pp. 1-2.
- [46] Pan Liu, Jinggui Ma, (2015), "The Impact of the Rise in Vegetable Prices on Vegetable Producer Behavior–Based on the survey of vegetable producers in Jiayu, Hubei Province", SHS Web of Conferences, pp-2-6.
- [47] Planning Commission, (1964), "Criteria for Appraising the Feasibilities of Irrigation Projects", Government of India, New Delhi, pp.7.
- [48] Praduman Kumar and Mruthyunjaya, (1995) "Demand For Fruits And Vegetables In India", Agriculture Economics Research Review, Vol. 8. No. 2 , pp.7-17.
- [49] Roy L.B., Rheen W.V., Abraham T. and Habte A. (1999), "Farmers Participation And The Hare Irrigation Project", Integrated Development for Water Supply and Sanitation, 25th WEDC Conference, Addis Ababa, Ethiopia, pp. 252.
- [50] Samuel et. al, (2014), "Price Volatility of Selected High Value Vegetables In Cordillera Administrative Region, Philippines", Asian Journal Of Management Research, Vol. 5, Issue. 3, pp- 261-280.
- [51] S.H. Baba, M.H. Wani, S.A. Wani and Shahid Yousuf, (2010) "Marketed Surplus And Price Spread Of Vegetables In Kashmir Valley", Agricultural Economics Research Review , Vol. 23, pp. 115-127.
- [52] Sandeep Sachdeva, Tilak R Sachdev, Ruchi Sachdeva, "Increasing Fruit And Vegetable Consumption: Challenges and Opportunities", Indian s, Vol. 38, No. 38, pp. 192-197.
- [53] Sanjai Bhagat James A. Brickley Ronald C. Lease, (1985) "Incentive Effects Of Stock Purchase Plans", Journal of Financial Economics, Vol. 14, No. 2, pp. 195-215.
- [54] Sandeep Sachdeva, Tilak R Sachdev, Ruchi Sachdeva, (2013) "Increasing Fruit And Vegetable Consumption: Challenges and Opportunities", Indian Journal for Community Medicine, Volume 38, Issue 38, pp. 192-197
- [55] Sanaullah Noonari et.al. (2015), "Price Flexibility and Seasonal Variations of Major Vegetables in Sindh Pakistan", Journal of Food Processing & Technology, Vol. 6, Issue. 12, pp-2-8
- [56] Tara Shankar and K.M. Singh, (2016) "An Analysis of Marketed Surplus and Price Spread of Cauliflower in S. Chotanagpur (Jharkhand) for Sustainable financial inclusion of Tribal Farmers", Munich Personal RePEc Archive (MPRA), Vol. 1, pp. 1-10.
- [57] Tara et.al. (2017), "An Analysis on Problems of Vegetables Marketing in Farmers, Market of Jharkhand: A Case Study in Ranchi District", Economic Affairs Vol. 62, No. 1, pp. 175-183.

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