

Comparative Study of Retail Prices of Milk and Green Vegetables in Gujarat

S. Martin

*Pandit Deendayal Energy University, Gandhinagar, Gujarat,
Martin.Santhan@pdpu.ac.in*

Ashish Joshi

*Pandit Deendayal Energy University, Gandhinagar, Gujarat,
Ashish.Joshi@sls.pdpu.ac.in*

Abstract

Agriculture and dairy are key businesses in India. In India, rural people depend on agriculture, farming related activities and growing livestock. The paper analyzes the periodical retail selling price of milk and vegetables during the period of 2018-2019 making use of primary and secondary data obtained from authorized sources and through literature survey. It is observed that the prices of milk consistently increase while the prices of greatly fluctuate. The paper makes an attempt at studying the financial welfare of farmers who are affected and de-motivated due to the erratic fluctuating prices. It is found that the fluctuating and the increasing prices are highly favorable to the middlemen, brokers and agents but not the farmers.

Keywords: *Agriculture, Pricing, Fluctuation, Farmers, Milk, Vegetables, Demand & Supply.*

Introduction

Villages comprise 70% of India.¹ Most of the villagers in India are depended on agricultural products and a majority of them produce both milk and agricultural products. Milk and vegetables are part of the basic needs of human beings. Both of these products in high daily demanded and play a vital role in the consumer market. The factors contributing to actual price and the fixation of selling price in both the sectors are poles apart in their nature. Though pricing is a basic business term in relation to the sale of products, the methods of price valuation for both the products have different aspects. This research focuses on the retail sales value of milk and green vegetables for a particular period in India.

As an integral part of agriculture and its related activities, price has always been one of the determinants affecting revenues thereby contributing significantly in bringing about growth and equity in the agriculture sector. Taking the enormity of its importance into consideration, a sound understanding of pricing and the different strategies is essential to this study.

- Price is neutral – Cost plus – The primary character of a good price is cost plus in nature. The selling price of a product or service always includes all direct and indirect costs as well as the margin of the seller. This is called an affordable or comfortable price for the seller and the buyer.
- Prices are market driven – Price must work in sync with the market scenario. A good

price always compares with other available and alternative services or products or bio products. Price concept should not be a barrier to its own sales. It aims at optimum use resulting in potential savings.

- **Prices are flexible – Flexibility in price** is seeking affordable ways to maintain the market stability of a particular product. Price can be fixed with strategies like discount, bonus, premium etc. and this helps in safeguarding the welfare of the producers and to help them survive in the market during times of recession, inflation, poverty, obstacles, economic changes, internal and external impacts and tough competition.

- **Value based price – The commercial value and the quality of a product/service** represent the value of the product. In short, the value and the quality of a product determine its price.

- **Competitive price – In the business world, competition is one of the variables** posing a big challenge to the business world. It is also the highest motivating factor contributing to the life cycle of the business world. The price of a product must be competitive on comparing it with the alternative brands or bio products. The failure in matching the price would be a great barrier to the growth of an organization.

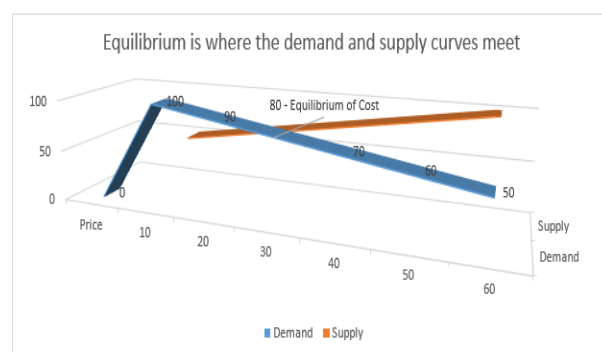
In economic terms, equilibrium is a satisfactory point at which the buyer and the seller are ready for commercial transaction. Before comparing the past pricing in the dairy and vegetable industries, it is good to explain the equilibrium of price in a market. Equilibrium is the mutually accepted price by the buyer and the seller. It is not a forced price. It can be explained with the below given example:

Demand and supply table for finding the equilibrium point (Example)

S. Number	Price	Demand	Supply
		Product (In KGS)	Product (In KGS)
1	10	100	50
2	20	90	60
3	30	80	70
4	40	70	80
5	50	60	90
6	60	50	100

(The Data is provided by the researcher)

As per the given data and the graph given below, Rs. 80 is the highest satisfactory price point for the buyer and the seller to carry out their transaction.



Equilibrium is always a safer zone for the buyer and the seller to be consistent in the market.

Objectives of the Study

In India, dairy and agriculture are carried out by farmers. However, the growth gap between the industries is very wide though it is easier to identify the reasons for the gap. The below stated objectives help in supporting the study:

1. To bring out the price difference between the industries and to emphasize on the corrective actions required and to bring out the crises caused by price fluctuation.
2. To explore the measures taken by government to protect the welfare of the weaker section.

3. To find out new strategies as well as persuade local bodies and government.

4. To explore new strategies of distribution channel for the vegetable sector.

Literature Review and Research Gap

A few books and research articles were reviewed to carry out this comparative study. The review showed that the comparative study for a particular period was not carried out resulting in a scope for the current research to be undertaken. The reviewed articles focus on either the milk industry or the vegetable industry separately. Therefore, this paper attempts to undertake research by comparing both the industries. The summary of the literature reviewed is given below.

Barlett (1949) has studied the price fixation in milk industry in 1950. The author has used secondary data to find if the proposed price of milk is affordable or not. He has observed that customers always prefer to get quality products at low prices and his study focuses on whether the tended price is affordable to the milk producers or not. The research was conducted geographically in Minnesota or Illinois and he has used data from St. Louise market. His study reveals that the milk industry had systematic pricing system even in the 1950s`

Gopal Naik et al. (2014) have talked about the repeated mention about the price hike in each period. It is observed that the price has an upward slope in all economic environments. The paper contains references to the data obtained through the researches undertaken by many authors. It also explains whole salers price index over periods, milk procurement price, monthly per capita income and monthly per capita consumer on milk, decennial growth in milk production in India, annual growth rate in milk production in India and the growth in

per capita availability of milk. Their analysis shows a periodical positive and upward price hike resulting in the industry earning a good income. They emphasize that the increase in price of milk and milk products motivates the farmers to carry on the business which in turn leads to an increase in the number of female bovine animals yielding milk.

Moreover, they have elaborately studied the international price value of milk and milk bio products, SMP exports and their value, milk price and labour cost relations, cost comparison between milk price and cattle feed price and milk price and food grain price and energy cost and variables that contribute to the hike in price of milk and milk products. Finally, they have observed that the domestic price hike is steady and continuous. The large population of India creates higher demand for milk leading to price hike which in turn aids the production growth of the industry. The paper gives enough information to take the current research further in studying the constant price hike.

Deepak has given a detailed report on the co-operative dairying in Maharashtra. He has studied about 25 percentage of the milk cooperatives of the state and has found them to be healthy and economically sound due to efficient management of all aspects. The author uses quantitative and primary data collected from the cooperative societies for his analyses. He has also analyzed the policies and the programs for the development of diary in Maharashtra and elaborates the initial set ups, the growth of the individual cooperatives, management policies comparative growth with each five-year plan and region wise growth rate for the periods of 1985-1986 and 1993-1996. He has studied the procurement pricing, the causes for inefficient function of co-operatives and issues and policy implications.

His study reveals that one of the main reasons for the failure of cooperative is selling the milk to outside traders and villagers for a higher price which is totally understandable since milk is in demand leading to the price being higher than the scaled one. It is learnt that the cooperatives encourage farmers by giving higher procurement prices than the government. It is also justifiable since the price of milk products see constant price hike and demand resulting in the production being of a higher volume. Through this paper, it is understood that the milk industry not only faces constant price hike but also has a higher volume of milk production.

According to reports published in NCRB site, 10349 agriculture farmers took their lives in 2018. As per the official reports, farmers' suicide comprises 7.7% of the total number of 1, 34,516 suicides in 2018. The reason behind their deaths is the failure of crops due to different reasons. Out of the 10349 suicides, 5763 are farmers and 4586 are farm laborers according to reports. Research says that season failure, inappropriate seasons, price fluctuation and poverty due to season failure are some of the reasons behind the suicides and the suicides of for farm laborers suicides may be unemployment due to crop failures.

Srijit (2006) through the study he carried out says that farmers' suicides receive social and public policy attention to a great extent in many Indian states. A short analysis of the problems points to the overly dependence of marginal and small farmers and agricultural labourers on agriculture. These people often are challenged by unavailability of water and uncertainty of yields. Also, linking the national market with international markets has contributed to uncertainty of prices. These factors take a heavy toll on the farmers' produce, price and profit.

Kasturi (2014) carried out research using the primary data available with government sites, newspapers, journals and secondary details availed through trusted journals and publications. The purpose of the study was to find out whether the retail price hike was useful for the farmers' economy and if it met their price satisfaction. He has given a systematic explanation with the help of onion price spikes using data from 2010 - 2013. He has found that most of the onion farmers are small and do not have the necessary facilities to store their produce. Besides the lack of proper storage, most of the farmers depend on seasonal rain cultivation whereby they not able to get good marginal selling price from their sales. Middlemen and traders get more profit by arranging to sell them in market. Storage facilities are possibly arranged by traders only as they are financially strong to construct storages. The author strongly expresses the fact that the benefits of onion price hike are solely reaped by traders and stockiest. His study concludes that effective and strong reforms are needed in the supply chain of vegetables and is a strong proof of the irregularity of procurement and selling prices that exist in the vegetable industry.

Rengasamy (2014) et al. have explained the establishment, structure and operations of farmers markets for trading their own products produced in their own land. The establishment of infrastructure and functional set up are planned by state governments with the help of municipal and local bodies. Farmers are the members of the markets and they bring their own production to the market to be sold to the consumers directly. There is very little involvement of middlemen and traders as the setup is made purely for farmers. The administrative functions are handled by local bodies and the Municipal Corporations.

It is understandable that the majority of these markets function in city centers where villagers get together for buying and selling products in the local markets. Since the transportation cost is high for individual farmers selling products in lesser quantity, it may happen that the selling price of traders becomes competitive to the farmers' market. Through this it is understood that the market does not have the provisions or proposals for storage and distribution lead to excess or unplanned production and seasonal production. Establishing agricultural market will not benefit the farmers and therefore, the focus should be on planned production and establishments of distribution channels.

Akta Khausal (2015) in his article on farmers' suicide says that every thirty minutes, a farmer commits suicide in India. In his study, he cites season failure, over production, price drop and illiteracy, lack of technical support, lack of adequate education and political and social impacts as the reasons for farmers' suicides. He also criticizes the central governments over reliance on Green Revolution as a "way of escape". In the same vein, Sujit Mishra, a renowned researcher on farmer suicide, says that they commit suicide because "the farmer is not able to visualize that a bad monsoon leading to a crop failure or a glut in the market can push him into indebtedness and a crashing of dreams"⁵⁷.

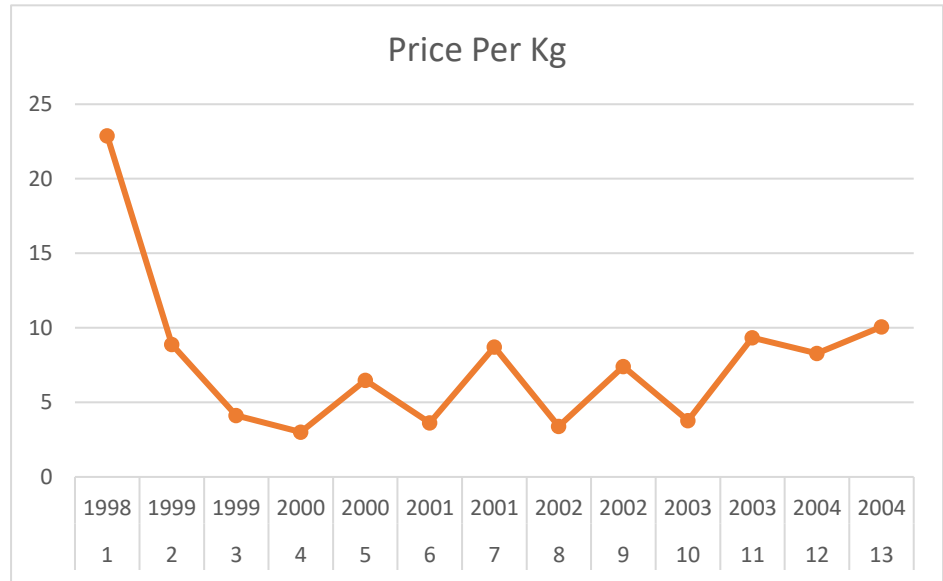
Sudhir (2004) through his extensive study on onion prices has found that the prices of onion fluctuate greatly. In his 2004 article on onion prices, Sudhir states that onion is one among the most important vegetable crops cultivated in India. Onion is grown in nine Indian states that accounts for 90% in terms of area and output. The onions thus produced are used for domestic requirements and exports. However, the major reason for the price fluctuation is that onions are exported only after the domestic

Requirements are fulfilled. Therefore, he strongly advocates for state intervention to neutralize or stabilize the prices of onions to some extent. The special culinary, medicinal, and nutritive and market attributes and value make onions one of the most sought after and consumed vegetables. It is widely grown across the globe and is relished by people belonging to all walks of life. Its pungent taste and unique smell makes onion an integral part of food and masala preparations. Next to China, India is the second largest grower of onions, whereas, in terms of area, India stands first with 4, 90,000 hectares of land used for its cultivation. There has been an exponential increase in the area used for onion cultivation, particularly, after the steep hike in onion prices in 1998. Despite the increase in area for cultivation and onion production, the prices of onion continue to fluctuate.

The world produces about 490 lakh metric tons of onions wherein the contribution of India is 10%. The phenomenal increase in the production of onions is attributed to the increase in area under cultivation. However, Sudhir draws the attention to the fact that increase in acreage does not mean that there is match between demand and supply. The mismatch between demand and supply and periodic shortages could be due to rains, steep hike in demand, etc. The remedy to periodic shortages has always been increased price and imports. However, the increase in onion prices has been seen as electorally important having an adverse effect governments. Sudhir, through these arguments, says that governments have regulated or controlled the price hike either through subsidies or imports. Such interventions help protect the consumers. The table and the graph given below clearly demonstrate the fluctuations.

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Sr.No	Year	Month	Price Per Kg
1	1998	October	22.88
2	1999	January	8.89
3	1999	April	4.13
4	2000	June	3.01
5	2000	December	6.49
6	2001	May	3.64
7	2001	November	8.71
8	2002	May	3.39
9	2002	October	7.42
10	2003	March	3.78
11	2003	November	9.34
12	2004	January	8.3
13	2004	January	10.07



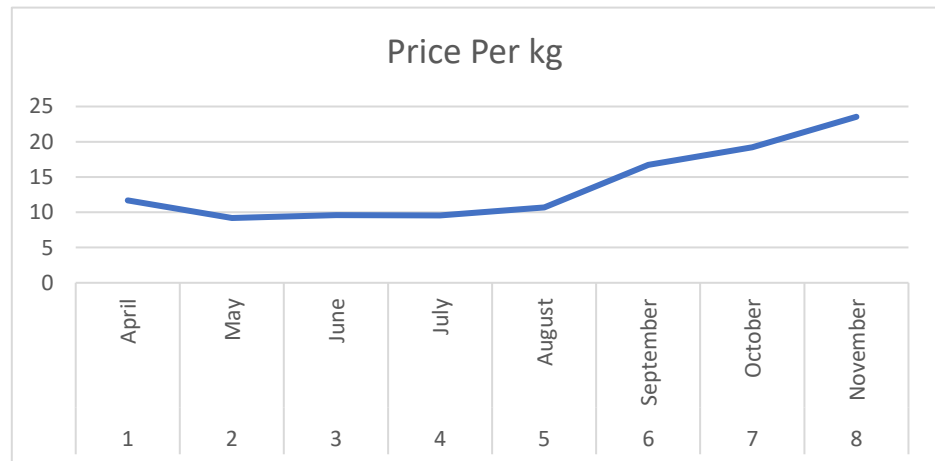
Graph showing the fluctuations in onion prices

(Source: Directorate of Economics and Statistics, Andhra Pradesh.)

India is a traditional exporter of onions (Mathur 2001). India has witnessed a progressive increase in onion exports since its Independence and reaching a peak in 2009-10. It also saw the increase in per unit value of onion. However, the increase in exports also saw an abrupt hike in onion prices in 2010. Despite the surge in the quantum and value of exports, a wide fluctuation in the exports are observed from year to year (Purushottam

Sharma et al, 2011). It is attributed to the fact that exports of onions are not free. They are canalized through National Agricultural Cooperative Marketing Federation (NAFED) and other such agencies resulting in the protection of the domestic consumers and producers against high prices and gluts. It is a little contradictory to Sudhir (2004) who attributed the price hike to restrictions on exports as shown by the following table:

Month	QT (MT)	Price Per kg
April	173845	11.7
May	154356	9.19
June	158283	9.62
July	179554	95.67
August	144860	10.683
September	116167	16.71
October	98370	19.221
November	133263	23.54



Month-wise Exports of Onions during 2010-11 (Source: NAFED)

Irrespective of the reasons for the wide fluctuations seen in the prices of onions, it is observed that these prices are not favorable to farmers in any way (Kannan Kasturi, 2014). These are small farmers who do not have the necessary facility to store their produce as a result of which they do not enjoy the benefits from the increased price. Moreover, prices fall during the next harvest after an increase and this fall in price is very steep. In 2010, the prices fell steeply when compared to 2009 and 2008. A repetition was seen in the prices of 2013 and 2012.

Discussion on pricing in milk industry and vegetable sector

From the observation and analysis of literature review, it is found that price stability and equilibrium are constant while it is unstable for the green vegetable sector and it is also observed that it is sometimes a forced price. Even the price hike is not beneficial to farmers as they do not have proper storage facilities and distribution channel. The points given below are to be noted for the unit cost and its fixation in both the industries.

Pricing concept in milk industry:

- Always the price is marginal and is cost added price.
- The price strategy is incremental in both organized and unorganized sectors and pricing is controlled by internal factors.
- Risk free cost fixation and stable in nature.
- The setup of milk industry is well concentrated with its bio products whereby excess production shall be automatically transferred to bio products like butter milk,

curd, chocolate, milk powder and other dairy products.

- Failure of seasons and rain fall do not affect the business stake holders.
- Less involvement of middlemen.

Pricing concept in vegetable Sector

The price bar greatly fluctuates in a business year. It has no systematic pricing strategy and external factors mostly control its pricing. Though there is no equilibrium of pricing, there are factors that compel the farmers to sell their products in markets through brokers and wholesalers.

- There is always of a higher downfall in pricing.
- Involvement of third parties and middlemen have more influence due to poor infrastructure and logistics problems. The price hike greatly benefits the middlemen.
- Cost and pricing policy are difficult in this sector because it is controlled by external factors.

Failure of seasons, high and low rainfall and natural disaster highly control this sector and losses lead to personal injuries and family suicides in this sector.

Method

This paper uses the method of quantitative analyses to form the basis for the comparative study of the two industries.

1. Primary data: For the collection of data, a direct visit was made to the sales units and farmers to know the sales cost of mild products. A visit was made to Amul Collection Center to know and understand the procurement system

of milk from the partner farmers and from farmers having no tie up with the cooperative.

2. For analyzing the retail cost of vegetables, secondary data of the last one year of the commercial period was collected from trusted websites like the India State.

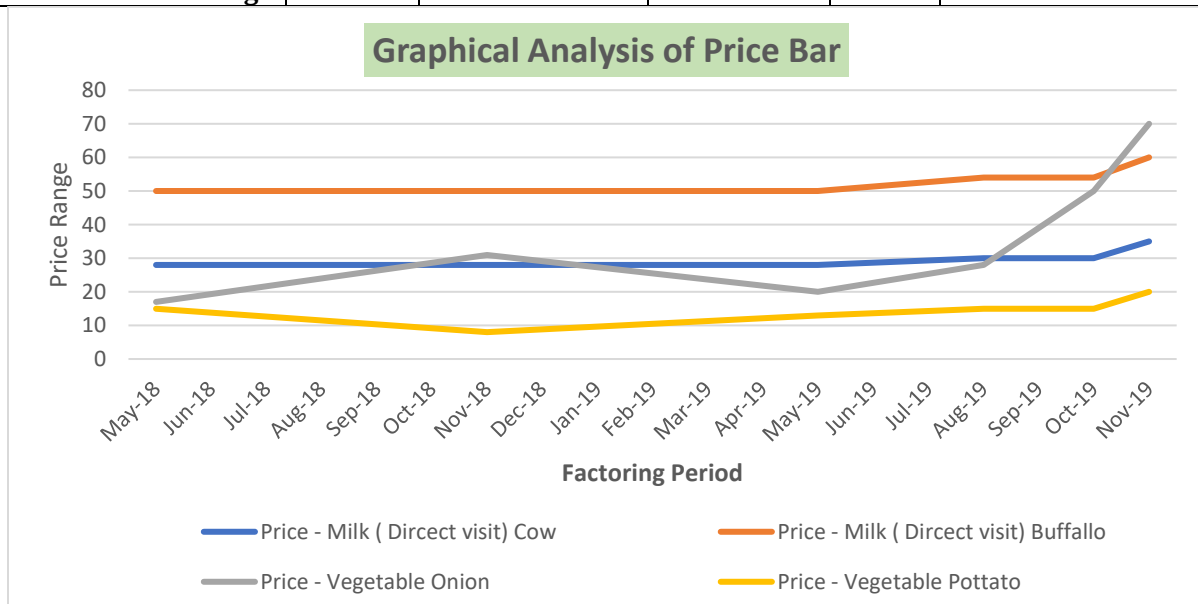
The method is used to make a comparative analysis which will result in knowing where the price is highly flexible or less flexible.

Hypotheses:

H1: The common retail price variable does not have equal importance in both the industries.

H2: The retail price/selling price of green vegetables shows unfair fluctuation while compared to the retail pattern of milk industry.

Statistical Analysis of Price variable						Remarks
S. No.	Period	Price – Milk (Direct visit)		Price – Vegetable		Material supported by
		Cow	Buffalo	Onion	Potato	
1	May-18	28	50	17	15	Onion Price and Potato - India Stat
2	Nov-18	28	50	31	8	
3	May-19	28	50	20	13	Milk Price - Personal visit to the center
4	Aug-19	30	54	28	15	
5	Oct-19	30	54	50	15	
6	Nov-19	35	60	70	20	
Range		7	10	53	12	



Data Analyses:

H1 – The common retail price variable does not have equal importance in both the industries is accepted as the data analysis proves that the milk price bar has constant and periodical hike in its selling price showing an upward curve but at the same the price of onion and vegetables

has price flexibility and periodical fluctuations in retail selling price.

H2 – The retail price/selling price of green vegetables shows unfair fluctuation while compared to the retail pattern of milk industry is also accepted as the retail price of milk has positive progress over the period but the price

of vegetables is subjected to fluctuations. Even the price hike of onion from August 2019 to November 2019 is a positive price hike but it is not beneficial to farmers as the farmers who lack storage facilities and therefore, they sell their products to agents and middlemen in the market who have their own storages (Kasturi 2014).

Conclusion

As per the graphical chart, it is seen that the price of vegetables highly fluctuates when compared to the price of milk retail price. Milk prices continuously show progressive changes; on the contrary, vegetable products have both minus and plus changes in the same period. It is understood that the fluctuation does not affect the middlemen or brokers but it directly affects the farmers' income. Price fluctuation or price rise does not benefit farmers and it is attributed to the reason that these farmers are small-time farmers without the facilities to store their produce. The middlemen or brokers benefit greatly from price rise because, unlike the farmers, they have storage facilities in the onion supply chain. This enables them to benefit from the price rise every year between the rabi and kharif harvest. The storage facility allows the middlemen and the brokers to sell the onions at higher prices in the retail market during the lean months. Though onion prices are of great concern for state governments and onions prices are linked to political fortunes, nothing concrete or substantial has been done to stabilize the prices. On the other hand, the wholesale price index of milk and its products has shown consistent rise according to the data provided, analyzed and discussed in this paper.

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