
Effect of Price Income and Word of Mouth on Demand for Organic Farm Products Among Urban Consumers

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Abstract

Organic farm products are accepted widely and interest towards consuming organically produced food products are increasing throughout the world. Therefore, to predict consumer behaviour regarding the purchase of organic farm products and to evaluate their sensitivity towards change in product price, consumer income and influence of word of mouth communication, a well-established technique termed as “Elasticity of Demand” was used. The objective of the study is to measure the elasticity of demand for organic farm products. Primary data was collected through structured questionnaire from 150 consumers of organic farm products in Coimbatore city. Non-probability sampling method namely convenience sampling was adopted to select the sample respondents. The collected data were analysed using Descriptive Statistics and Analysis of Variance. The results of the study depicts that increase in the price of organic farm products decreases the quantity demanded by the consumers to some extent. The purchase probability of all types of organic farm products was found to be higher in terms of increased consumer’s income and greater word of mouth recommendations.

Keywords: *Price elasticity, Income elasticity, Word of mouth communication, organic farm products.*

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Introduction

The focus of today's consumers is shifted towards ecological conscious consumption. Organic farm products are accepted widely and interest towards consuming organically produced food products is increasing throughout the world. Pathway to eradicate chemical residue in conventional food is the main theme behind organic consumption. The demand for organic produces attains its peak with regard to concerns such as food safety (Gregory, 2000), life values (Aikaterini, 2002), health, animal welfare, environment, quality (Hjelmar, 2011), nutritional concern, improved taste and flavour (Voon, et.al 2011). While, irregular availability of organic farm products is the major problem for organic consumers (Chandrashekar 2014). As supply is low and demand is high, it automatically increases the price of organic farm products. Law of Demand states that, when the price of a product increases, the quantity demanded by the consumers will tend to decrease. Therefore, it is essential to predict consumer behaviour and to evaluate their sensitivity towards change in economic variables such as price and consumer income. Among which Price elasticity of demand is the most commonly used measure that explains the change in quantity demanded by the consumers with change in product price. While income elasticity of demand predicts the change in quantity demanded with the change in consumer's income.

Therefore, in order to meet the higher market demand for organic farm products, organic farming were encouraged, as a result business concerns dealing with organic farm products were witnessed increased sales. In addition, the regular availability of products helps the market players to frame efficient marketing strategies in order to provide the consumers with quality products in specified time period. It establishes a good connect with the existing consumers and makes them engage in word of mouth communication, a personal source of influence that attracts additional consumers towards the purchase of organic farm products.

Review of Literature

Increased price is associated with decreased consumption (Lopez, et.al 2017). Price premium of organic products were increased and found to be less volatile (Cronin, 2015) and it is the most important barrier for purchasing organic food products (Bryla, 2016). The purchase probability of healthy foods can be increased by reducing the price of healthy foods and increasing the price of unhealthy foods (Epstein, et.al 2007). When compared to other food products the price elasticity of demand for organic dairy products are higher (Wier, et.al 2011). Additionally, organic food consumers are more loyal

than the consumers of conventional foods (Marian, et.al 2014). Though demand for the product depends on taste, brand, sales location, price and the desire to gain esteem by product purchase (Niemi, 2009), the demographic profile of the buyers and non-buyers of organic food products differ significantly. Further the perception of organic products was influenced by age, household size, children in household and education level of the consumers (Sangkumchaliang, et.al 2012). Income of the consumers positively influences the demand for organic foods (Chen et.al 2018). Individuals with low income will not tends to purchase organic food products (Aygen, 2012). Consumer tends to consume the product only when they feel good about its word of mouth communication (Yimiao, et.al 2012). Word of mouth communication has a great impact on purchase decision (Felix, et.al 2014). Developing loyal customers by providing trustworthy services influences positive word of mouth communication (Shirsavar, et.al 2012) and there is a significant association that exists between volume of word of mouth and product sales (Davis and Khazanchi 2008). Credibility and word of mouth communication leads to purchase intention of organic products (Pandey and Khare 2017).

Statement of the Problem

Demand for food and agricultural products increases as population continues to grow and expand. The world is facing an ever increasing pressure to adopt another green revolution for several reasons. It includes meeting the food requirements, to feed the population without depleting earth's resources or polluting its environment and to eliminate irreversible damages to the health of ecosystem. There are many technologies that have emerged as promising sustainable agriculture practices that could possibly meet expected demand with improved environmental protection. However, few studies have estimated demand elasticity for organic foods. Demand for organic farm products was mainly influenced by external factors like price and income, but in addition it was identified that word of mouth communication established as a personal source of influence had due impact on increasing the demand for organic products. Hence, the study on demand elasticity of organic farm products is undertaken to analyse the elasticity of demand for organic farm products by comparing it with consumer's income, product price and influence of word of mouth communication.

Objectives of the Study

The objectives of the study are:

- To analyse the frequency of purchase of organic farm products based on socio economic profile of the respondents, and
- To measure the elasticity of demand for organic farm products.

Development of Hypothesis

As, every consumer is different from one another in terms of selecting a product, purchase behaviour, creating attitudes towards a particular product, etc. it is essential to analyse the demographic factors of the consumers to predict his or her behaviour . The socio economic characteristics of the consumers are one of the most significant factors that determines the purchase behaviour of organic products (Shashikiran & Madhavaiah, 2015). Especially income of the consumers play a vital role in the consumption of organic products (Ceylan, et.al 2012). Consumer's education and knowledge about organic products influence the attitude towards the products and in turn it leads to purchase decision (Nguyen, et.al 2019). Further, it is obvious that the consumption pattern of a family depends on the number of members in the family. According to Olives (2012), compared to men, women shows active interest towards the consumption of organic products. Hence it is hypothesised as;

H1: There is a significant mean difference between the socio economic profile and frequency of purchase of organic farm products.

Research Methodology

The research design adopted in the study is descriptive in nature. Coimbatore city is selected as the study area, as it is an industrial hub and commercially vibrant district in Tamil Nadu. Coimbatore is one of the fastest developing metros in India and it is recognised as a Smart city. Further, the awareness about the ecological life style is widespread among the residents of the city due to the various awareness programmes initiated by the NGO's and other social welfare institutions. The study involves both primary and secondary data. Non-probability sampling technique namely convenience sampling method was used to select the sample respondents. For administrative purpose the city is divided into five zones namely, north, south, west, east and central. In each zone, the number of shops dealing with organic farm products was identified and there were nineteen shops situated at different parts of the city. The sample respondents were selected from the shoppers of organic farm products, 30 consumers from each zone were selected. Interview schedule

method was used to collect primary data from the customers after the purchase of organic farm products, at the exit point of the stores. Secondary data supporting the study were collected from various books, journals, articles and websites. Accordingly, the collected data were analysed using Analysis of Variance and Percentage analysis.

Results and Discussion

The results of the data analysis were presented as follows.

Socio- economic Profile of the Respondents

The assessment of socio-economic profile of the consumer is considered effective in every marketing research. It exerts an enormous impact on framing suitable marketing strategies which brings utmost benefits to the business concern. Therefore, the distribution of respondents based on socio economic profile was analysed. On the basis of age, majority of the respondents (56 %) belong to the age group of 35-55 years, female respondents (52%) constitute the majority, 85.33 percent of the respondents were married , most of the respondents (56.66%) were graduates and about 48 percent of the respondents were employed and earning a monthly income of Rs.1,00,000 to 2,00,000 (54%). With regard to the family of the respondents , majority of the respondents were living in nuclear families (68%) with more than three family members (54%) and two earning (53%) members in their family.

Socio economic Profile of the Respondents and Frequency of Purchase of Organic Farm Products

The socio economic factors play a major role in determining the personality and character of an individual. Environmental beliefs and behaviour of an individual can be explained by his age (Johnson, et.al 2004) and it influences the buying behaviour and buying pattern to a great extent. Every individual's life style is influenced by the socio economic factors including age, gender, educational qualification, family type, occupation, income etc. Therefore, inorder to identify the mean difference between socio economic profile of the respondents and the frequency of purchase of organic farm products one way ANOVA test was applied and the results are presented in table 1.

Table 1
Socio economic Profile of the Respondents
and Frequency of Purchase of Organic Farm

Products

Variables	Frequency of Purchase	
	F	Sig.
Age	.261	.771
Gender	.701	.404
Marital status	6.222	.014*
Educational Qualification	.241	.786
Occupation	3.054	.050*
Monthly household income	.198	.820
Family type	.061	.804
Number of family members	.103	.749
Number of earning members	2.380	.096***

Source: Computed Data

(Note: * 5% level of significance, *** 10% level of significance)

On the basis of frequency of purchase, the variables namely marital status ($p=0.014$), occupation ($p=0.050$) and number of earning members ($p=0.096$) resulted with p values less than the acceptance level of 0.05. Hence the null hypothesis is accepted and it is concluded that there is a significant mean difference that exists between the marital status, occupation, number of earning members and the frequency of purchase of organic farm products.

Further the Duncan multiple range post-hoc test was applied to find out the existing difference within the socio economic variables and the frequency of purchase of organic farm products and the results are presented in table 2.

Table 2
Post Hoc Analysis

Variables		Subset for alpha = 0.05	
		1	2
Occupation	Home makers	1.95	
	Business	2.32	
	Employees		2.43
	Sig.	.039	.614
Number of earning members	2	2.14	
	1		2.31
	3 and above	2.67	
	Sig.	.043	.126

Source: Computed Data

The Duncan multiple range test indicates that among the socio economic profile of the respondents, occupation and number of earning members in the respondent's family varies with frequency of purchase. With regard to occupation, respondents who were doing business and home makers taking care of their families differ significantly with frequency of purchase of organic farm products. On the basis of number of earning members, additional income supports the family to purchase organic farm products. The respondents having two or more earning members purchase organic farm products more frequently than the respondents with only one earning member in the family.

Elasticity of Demand of Organic Farm Products

Price and income are the main determinants of demand (Davis, et.al 2010) but, the influence exerted by price and income on organic purchases appear to contradict each other. In early development of the organic food market, organic sales concentrated in niche markets, such as natural and specialty food stores, which typically serve higher income consumers (Formatz, 2006). Affluent consumers may place high value on the health and environmental benefits of organic foods. Therefore, the willingness to pay premium price does not matter, but income does. Hence, the study analyses the elasticity of demand for organic farm products comparing with income of the consumers, price of the products and also with word of mouth influence by the other customers.

Income Elasticity of Demand for Organic Farm Products

When the income of a family or a nation rises, so does its demand for most goods and services also increase (Syrovatka, 2006). The ratio of the percentage increase in quantity demanded to the percentage increase in income is referred to as the Income elasticity. In this study, the quantity bought by customer is considered to measure the elasticity of demand for organic farm products. It is considered that the product demanded as a function of income earned by the respondents, and is written as follows.

$$Q_x = f(\text{Income}, \text{other factors } x) = f(\text{Income})$$

Where Q_x is the Quantity of purchase of Product x , Income represents the monthly income and other factor x is the other variables (assumed to be fixed here), that can affect the product sales. According to the above function the Income elasticity of demand of the Product x is as follows.

$$E_{\text{Income}} = \frac{\Delta Q_x / Q_x}{\Delta \text{Income} / \text{Income}} = \frac{\Delta Q_x}{\Delta \text{Income}} \times \frac{\text{Income}}{Q_x}$$

Where Q_x is Quantity of the product x , Income is monthly income, $\Delta Q_x / \Delta \text{income}$ shows here Q_x change as income changes. This relation shows how the demand of product X responds to a 1 % change in Income.

Table 3
Income elasticity of demand for organic farm products (in Quantity)

Organic farm products	Increase in income (in %)		
	10-20	20-40	40- 60
Fruits	1.89	4.67	5.79
Vegetables	2.76	6.78	9.43
Dairy products	0.76	3.23	7.65
Ready to eat	0.23	1.57	6.74
Edible oil	1.25	3.97	0.46
Grocery	2.86	5.87	7.86
Beverage	0.94	1.65	3.24

Source: Primary data

Due to increase in income of the consumers at a minimum level of 10-20 percent,

the respondents were ready to buy an additional quantity of grocery (2.86 kgs). Further, if the income increase from 20-40 percent (6.78 kgs) and 40-60 percent (9.43 kgs) the respondents tends to buy an additional quantity of vegetables.

Price Elasticity of Demand of Organic Farm Products

Price elasticity of demand is the most common measure used to indicate consumers sensitivity towards price changes. According to estimates, consumers are willing to pay premiums of up to 100 percent for organic produce. This suggests an inelastic demand for organic products, which means changes in price have no effect on the quantity demanded by the consumer.

In this study, the quantity bought by customer is considered to measure the elasticity of demand for organic farm products. It is considered that the product demanded as a function price of the product, and is written as follows.

$$Q_x = f(\text{Price, other factors } x) = f(\text{Price})$$

Where Q_x is the Quantity of purchase of product x , Price represents the price of the organic products and other factor x is the other variables (assumed to be fixed here), that can affect the product sales. According to the above functions the Price elasticity of demand of the Product x is as follows.

$$E_{\text{Price}} = \frac{\Delta Q_x / Q_x}{\Delta \text{Price} / \text{Price}} = \frac{\Delta Q_x}{\Delta \text{Price}} \times \frac{\text{Price}}{Q_x}$$

Where Q_x is Quantity of the product x , Price is the price of the organic products, $\Delta Q_x / \Delta$ price shows here Q_x change as prices changes. This relation shows how the demand of product X responds to a 1 % change in Price.

Table 4
Price elasticity of demand for organic farm products (in Quantity)

Organic farm products	Increase in Price (in %)		
	10-20	20-40	40- 60
Fruits	1.23	3.46	6.76
Vegetables	1.47	3.48	5.21
Dairy products	2.84	4.65	7.65
Ready to eat	3.78	5.33	9.95
Edible oil	1.79	1.24	2.36
Grocery	0.42	6.61	9.41
Beverage	1.42	2.84	8.64

Source: Primary Data

With regard to the increase in price at a minimum level of 10-20 percent, the respondents were reducing the purchase quantity of ready to eat (3.78 kgs). Further, if the price of the organic farm products increases from 20-40 percent the respondents reduced the purchase quantity of grocery (6.61kgs).With higher increase in the price of 40-60 percent the respondents were about to reduce the quantity of ready to eat items (9.95kgs) .

Word of Mouth Elasticity of Organic Farm Products

Word-of-mouth behavior means the people's conversation about a product experience (Halstead & Diane, 2002), that a considerable proportion of consumers seek product word of mouth from internet or friends before buying goods. Word of mouth can be subjectively measured on the premise that consumers understand their own perceptions and preferences, so firms can estimate product WOM elasticity directly by asking consumer feelings about the word of mouth. In this study, the quantity bought by customer is considered to measure the elasticity of demand for organic farm products. It is considered that the product demanded as a function word of mouth earned by the respondents, and is written as follows.

$$Q_x = f / (\text{WOM}, \text{other factors}_x) = f (\text{WOM})$$

Where Q_x is the Quantity of purchase of Product x , word of mouth represents the reference of other customers and other factor x is the other variables (assumed to be fixed here), that can affect the product sales. According to the above function the word of mouth elasticity of demand of the Product x is as follows.

$$E_{WOM} = \frac{\Delta Q_x / Q_x}{\Delta WOM / WOM} = \frac{\Delta Q_x}{\Delta WOM} \times \frac{WOM}{Q_x}$$

Where Q_x is Quantity of the product x , word of mouth is others references, $\Delta Q_x / \Delta WOM$ shows here Q_x change as WOM changes. This relation shows how the demand of product X responds to a 1 % change in X_s WOM.

Table 5
Word of Mouth elasticity of demand for organic farm products (in Quantity)

Organic farm products	Increase in Word of mouth (in %)			
	10-20	20-40	40- 60	60-80
Fruits	1.66	2.30	4.82	6.11
Vegetables	1.42	2.49	5.47	7.11
Dairy products	1.71	1.62	3.45	4.75
Ready to eat	0.41	1.82	1.91	2.84
Edible oil	0.21	1.23	2.34	4.86
Grocery	1.45	2.42	1.47	5.46
Beverage	1.91	1.76	2.42	4.68

Source: Primary data

The elasticity of demand arising due to increase in the word of mouth references by other customers were analysed for each organic farm products. Due to increase in word of mouth reference at a minimum level of 10-20 percent, the WOM elasticity of demand calculated shows that the respondents were ready to purchase an additional quantity of beverage (1.91 kgs). Further, if the word of mouth references increase from 20-40 percent (2.49 kgs), 40-60 percent (5.47 kgs) and 60-80 percent (7.11 kgs) the respondents were willing to buy additional quantities of vegetables to lead a healthy life style.

It is inferred that when the income of the respondents increases, willingness to buy organic farm products also increases. On the other hand, increase in the product price reduces the quantity demanded by the respondents. Further, the recommendations from the near and dear ones influence the respondents to purchase more and more quantity of organic farm products.

Marketing Implications

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- Organic food producers must do more to position themselves as competitive alternatives to traditional food providers. This means implementing marketing strategies that present organic goods not simply as food, but as a way of improving healthy lifestyle.
 - Consumer sentiment are in favour of naturally grown foods, because of its unique quality of no chemical residue with in it, so manufacturer should be very conscious about the production of organic products in a natural way.
 - Strategies should be framed to increase the supply of organic farm products by encouraging organic farming.
 - Marketers should grasp the customer buying decisions with regards to word of mouth references towards organic farm products.

Conclusion

When a consumer tends to purchase more and more quantity of organic farm products within the limited supply it creates higher market demand for the products. As a result, the product price fixed by the marketers would be higher. Though, change in price does not change the mindset of high income consumers towards organic products consumption, it creates a major impact on quantity demanded by the consumers with lower or middle income. The research result reveals that increase in the price of organic farm products decreases the quantity demanded by the consumers to some extent. The purchase probability of all types of organic farm products was found to be higher in terms of increased consumer's income and greater word of mouth recommendations.

Limitations of the study

- The study excludes the consumers of organic farm products from rural area.
- The impact of select quantitative economic factors namely income and price and the select qualitative factor word of mouth communication were purposely included, keeping other factors constant.

Scope for Future Research

Impact of various factors influencing the demand for organic farm products could

be analysed. Further, the purchase pattern of organic farm products among the people living in rural areas could also be considered.

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