

FACTORS INFLUENCING BUYING BEHAVIOUR OF VEGETABLE CONSUMERS IN NATIONAL LEVEL RETAIL CHAIN STORES IN COIMBATORE CITY

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ABSTRACT

Food retailing is an important business that continues to register significant growth in recent years. It attracts national and international firms to venture into retailing. Fruits and Vegetables is an important segment of concern for national level retailers, in which they do not have experience. Hence, an attempt was made in this study to measure factors influencing buying behaviour of vegetable consumers among the national level retail stores in Coimbatore city. The study was conducted in all retail stores in the city with a store interruption survey method. A total of 240 vegetable buyer and non-buyers were selected for the study. The Probit regression model was applied to measure the factors influencing buyers and non-buyers. The results of the analysis revealed that getting the best price deals, availability of discounts and distance from home and the age of the consumers were the major factors influencing the buyers of national-level retail stores.

KEYWORDS: *Buying Behaviour, National Retail Stores, Vegetables, Probit Regression, India*

INTRODUCTION

Food retailing is a business activity through which everyday food needs of Indian consumers are fulfilled. Though there are many operators in modern retail space, few of them obtained success and few faced difficulties in continuing in the food retailing segment. Though India is the world's second-largest producer of fruits and vegetables after China, fresh produce worth US \$ 440 billion goes into wastage every year due to acute shortage of cold storage and refrigerated transport (ASSOCHAM, 2017). To match the growing production levels, capital infusion of over Rs 55,000 crore is required by 2015-16, which will help in removing supply chain inefficiencies. At the store operations level, grocers have to face logistic costs, high rentals, and other overheads. Maintaining adequate quantity, variety, quality, freshness and competitive pricing are the major bottleneck for modern retailers.

In the vegetable segment, highly volatile supply leads to volatile pricing. The quality of vegetables also varies with time and place of purchase and availability of grading and storage facilities. Retailers have also to deal cost related to sourcing, grading, storage, and wastage of vegetables. Multiple cultures, languages and religions have a huge bearing on the tastes and preferences of the Indian consumer. This poses a great challenge for retailers aspiring to develop a pan Indian strategy. Hence, modern retailers have to develop short term and localized strategy to be competitive in this sector.

Further, understanding and predicting consumer behaviour-related issues (e.g., expectations, satisfaction, store loyalty, repurchase behaviour) in the vegetable segment are the key area to solve the supply chain and store issues. These factors vary from time to time and place to place. These factors are very well captured by traditional retailers due to their long years of operation. However, very scarce empirical evidence is found in different modern retail chains in India since organized retailing is a recent phenomenon. Hence, this paper attempted to study the factors influencing the buying behaviour of vegetables in national level retail chains stores in Coimbatore city.

METHODOLOGY

Coimbatore city was purposively selected for the study to study the consumer buying behaviour of vegetables. Coimbatore city is a second-tier, cosmopolitan and Industrial city in Tamil Nadu which attracts many leading National Corporate Retail Chains. The city had an experience in the first organized retail in the country by Nilgiris retail store. Currently, the city is the host of the major retailer viz., Spar, Big Bazaar, Reliance and Nilgiris. Spar and Big Bazaar are having one retail outlet each and Reliance Fresh and Nilgiris are having six and four retail outlets respectively. These retail outlets are scattered all over the city where different social strata of customers are living. All the retail outlets of the National retail chain store in Coimbatore city were selected for the study. Entire customer database was not available among most of the retailers in the study area. Hence, the convenience sampling method was adopted in this study. Further, the study aimed to understand the overall consumer buying behaviour rather than to find the difference between the consumer behaviour of the national level retail chain stores. Hence, the results were not presented retailer-wise explicitly.

Shoppers were post stratified into buyers and non-buyers of vegetable for the study. A total number of 20 consumers each were selected from each national retail chain store for the study. Thus, the total number of sample consumers accounted for 240. The store interruption survey method was used for the collection of information from the respondents.

Probit Regression Model

Cumulative distribution function was used to explain the behaviour of the dichotomous dependent variable explains the factors influencing vegetable purchase in National level retail outlets. The model that emerges from the normal cumulative distribution function is popularly known as the Probit model, although sometimes it is known as the Normit model. Probit model explains the dichotomous dependent variable (i.e., $Y = 1$, if yes or 0 otherwise). Here standardized normal cumulative distribution function was used to estimate the probability of occurrence of the event i.e., $P(Y=1/X)$ (Gujarati and Sangeetha, 2007). In the present study, this model is employed to estimate the willingness of the sample consumer to purchase vegetables in National level retail chain stores.

The Probit equation was fitted to find out the factors influencing the purchasing of vegetables in National level retail chain stores. Assuming that the purchasing behaviour as the dependent variable and factors such as consumer age, gender, number of family members, the distance of the retail store, getting needed vegetable at all times, a wide range of vegetables available, better discount and offers for vegetable and getting best price deal for vegetable in the city were taken as independent variables.

- The Probit function of the following form was used in this study
- $Y_i = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + b_9x_9 + u_i$

- Where
- Y- Vegetable purchase of customer (yes=1, 0 otherwise)
- X₁ - Age of the customer (years)
- X₂ - Gender (male or female)
- X₃ – Education (years)
- X₄ - Number of family members (no's)
- X₅ - Distance of national-level retail store (years)
- X₆ - Availability of wide range of vegetables are available (yes=1, 0 otherwise)
- X₇ - Getting needed vegetable at all times (yes=1, 0 otherwise)
- X₈ - Better discount and offers for vegetable (yes=1, 0 otherwise)
- X₉- Getting best price deal for vegetable in the city (yes=1, 0 otherwise)

RESULTS AND DISCUSSIONS

Decision-Makers of Purchase of Vegetables

Decision-makers in the family could influence the decision on point of purchase, preferred time, quantity of vegetables and frequency of purchase. The details of the decision-maker of the purchase of vegetables are presented in Table 1.

Table 1: Decision Makers of Purchase of Vegetables (Numbers)

S. No	Decision Maker	Buyer	Non-buyer	Overall
1.	Husband	13 (10.83)	19 (15.83)	32 (13.33)
2.	Wife	56 (46.67)	69 (57.50)	125 (52.08)
3.	Both husband and wife	45 (37.50)	32 (26.67)	77 (32.09)
4.	Children	6 (5.00)	0 (0.00)	6 (2.50)
Total		120 (100.00)	120 (100.00)	240 (100.00)
(Figures in the parentheses are percentage to the total)				

It could be inferred from the table that the prime decision-maker of vegetable purchase among the respondents was wives with 52.08 per cent followed by joint decision making with husband was 32.08 per cent. Among the buyer category, the primary decision-maker was also the wives (46.67), followed by both husband and wife with 37.50 per cent. However, among the non-buyers, decision making of the wives was comparatively higher than the buyers. Hence, the retail stores should develop a strategy to impress the female consumers, which could increase the sales.

Responsibility for Purchase of Vegetables

The family member who has the responsibility of purchase could finally be influenced by store factors and promotional programmes. The responsibility for the purchase of vegetables is presented in Table 2.

Table 2: Responsibility for Purchase of Vegetables by the Respondents (Numbers)

S. No	Decision Maker of the Respondents	Buyer	Non-buyer	Overall
1.	Husband	14 (11.67)	20 (16.67)	34 (14.16)
2.	Wife	41 (34.17)	68 (56.67)	109 (45.42)
3.	Both husband and wife	65 (54.16)	32 (26.66)	97 (40.42)
4.	Servant	0 (0.00)	0 (0.00)	0 (0.00)
Total		120 (100.00)	120 (100.00)	240 (100.00)

(Figures in the parentheses are percentage to the total)

It could be inferred from the results that vegetable purchase decision was mostly made by wife among the respondents with 45.42 per cent followed by both husband and wife (40.42). A similar trend of results could also be observed among the non-buyer category with 56.67 per cent by wife followed by 26.67 per cent by both husband and wife. In contrast, among the buyers, the majority of respondents who purchased vegetables were both men and women accounting to 54.16 per cent. Hence, the National level retail stores have to display their vegetables pleasantly for both members of the family.

Expenditure of Vegetables Purchase by the Respondents

Expenditure on vegetables is the most important criteria for a merchandiser to know the purchase pattern of the consumers and it may also be directly related to the quantity of consumption. Hence, expenditure on vegetable purchase by the respondents was collected and the results are presented in Table 3.

Table 3: Expenditure on Vegetables Purchase (Numbers)

S.No	Expenditure (Rs.)	Buyer	Non-buyer	Overall
1.	<1000	13 (10.83)	55 (45.83)	68 (28.33)
2.	1001-1500	30 (25.00)	47 (39.17)	77 (32.08)
3.	1501-2000	30 (25.00)	15 (12.50)	45 (18.75)
4.	>2000	47 (39.17)	3 (2.50)	50 (20.84)
Total		120 (100.00)	120 (100.00)	240 (100.00)

(Figures in the parentheses are percentage to the total)

It could be inferred from the Table that 32.08 per cent of the respondents spent Rs.1001-1500 for vegetable purchase followed by 28.33 per cent spent less than Rs.1000. Among the buyers, nearly 39.17 per cent spent more than Rs.2000 to purchase vegetable. However, only 25 per cent each spent Rs.1001-1500 and Rs.1501-2000 range among the buyers. In contrast, nearly 46 per cent of the non-buyer spent less than 1000 rupees. Thus, the result showed that majority

of the buyers spent more Rs.2000 for their purchase. Hence, the retailers have to develop the right product bundling strategy to improve sales.

Preferred Time of Purchase by the Respondents

The respondents were asked about their preferred time of purchase of vegetables from National level retail chain stores and the data were collected and analysed. The results are presented in Table 4.

Table: 4. Preferred time of purchase of vegetables(N=240)

S. No	Time of purchase	Buyer	Non-buyer	Overall
1.	Morning (6.00 to 11.00 A.M)	38 (31.67)	55 (45.83)	93 (38.75)
2.	Afternoon (12.00 to 3.00 P.M)	20 (16.66)	0 (0.00)	20 (8.33)
3.	Evening (4.00 to 7.00 P.M)	47 (39.17)	55 (55.00)	102 (42.50)
4.	Late evening (7.00-10.00 P.M)	15 (12.50)	10 (8.34)	25 (10.42)
Total		120 (100.00)	120 (100.00)	240 (100.00)

(Figures in the parentheses are percentage to the total)

It could be inferred from the Table that 42.50 per cent of the respondents preferred to purchase vegetables in the evening time followed by morning time (38.75 percent). The same trend was also found among buyers and non-buyers. Since most of the respondents were employed, they could prefer to do purchase vegetables in the evening time. Hence, it is concluded that the National level retail chain stores have to provide adequate services on sale persons, additional merchandise, quick billing and increase the checkout speed in evening hours.

Preferred Day of Purchased of Vegetables

The preference of day of purchase is an important criterion for the retailer to maintain the adequate stock of the vegetables. The respondents were asked about their preferred day of purchase of vegetables from National level retail chain stores and the results are presented in Table 5.

It is evident from the table that 55.83 per cent of the respondents purchased vegetables during the weekends followed by 44.16 per cent of the respondents' purchased vegetables during weekdays. An almost similar trend was found among the buyers and non-buyers. Thus, the National level retail chain stores could have a plan for their services like increased vegetable quantity and varieties, providing special offers and reduction of checkout time during weekends.

Table: 5. Preferred day of Purchased of Vegetables by the Respondent (Numbers)

S. No	Preferred Day	Buyer	Non-buyer	Overall
1.	Weekdays (Monday to Friday)	51 (42.50)	55 (45.83)	106 (44.16)
2.	Weekend (Saturday and Sunday)	69 (57.50)	65 (54.17)	134 (55.83)
Total		120 (100.00)	120 (100.00)	240 (100.00)

(Figures in the parentheses are percentage to the total)

Distance Travelled by the Respondents for Purchase of Vegetables

The distance travelled by the respondents for the purchase of vegetables is one of the important factors that could influence the place of purchase. The distance travelled by the respondents for the purchase of vegetables is presented in Table 6.

Table 6. Distance travelled by the respondents for purchase of vegetables(Numbers)

S. No	Distance (Kms)	Buyer	Non-buyer	Overall
1.	<1	16 (13.33)	15 (12.50)	31 (12.92)
2.	1-2	28 (23.33)	34 (28.33)	62 (25.83)
3.	2-3	32 (26.67)	24 (20.00)	56 (23.33)
4.	3-4	25 (20.84)	24 (20.00)	49 (20.42)
5.	4-5	15 (12.50)	11 (9.17)	26 (10.83)
6.	>5	4 (3.33)	12 (10.00)	16 (6.67)
Total		120 (100.00)	120 (100.00)	240 (100.00)

(Figures in the parentheses are percentage to the total)

It could be inferred from the results that 25.83 per cent of the respondents were travelled 1-2 km to purchase vegetables followed 23.33 per cent of the respondents travelled by 2-3 km. A similar trend of results was observed among the buyers and non-buyers' category. It could be concluded that most of the buyers were living within a radius of five kilometres. Hence, retailers may have a strategy accordingly to establish new retail outlets.

Mode of Travel for Purchase of Vegetables

Respondents were asked about the preferred mode of travel to visit the retail shop. Since the National level retail chain stores were mainly concerned about pedestrian traffic, the preferred mode of travel by the consumers was analysed and results are presented in Table 7.

It is concluded from the results that the majority of consumers were preferred two-wheelers (42.92 per cent) for their travel to purchase of vegetable followed by car (34.58 per cent). An almost similar trend was found among the buyers and non-buyers. Hence, it is suggested that the proper parking facility would increase the consumer walk-ins, while the plan for a new store, the right location may be selected by considering the results.

Table 7: Mode of Travel to Purchase of Vegetable by Sample Respondents (Numbers)

S. No	Mode of Travel	Buyer	Non-buyer	Overall
1.	Walk	18 (15.00)	20 (16.67)	38 (15.84)
2.	Bus	0 (0.00)	11 (9.17)	11 (4.58)
3.	Car	42 (35.00)	41 (34.17)	83 (34.58)
4.	Two-wheelers	56 (46.67)	47 (39.16)	103 (42.92)
5.	Others	4 (3.33)	1 (0.83)	5 (2.08)
Total		120 (100.00)	120 (100.00)	240 (100.00)

(Figures in the parentheses are percentage to the total)

Time Spent in National Level Retail Chain Stores

Consumers were asked about time spent on purchase at National level retail chain stores. It is considered to be a significant influential factor which may lead the consumers to choose the right product. If the customer spent more time spent in the stores, they may induce to view of signages and offers. The time spent in National level retail chain store is presented in Table 8.

Table 8: Time Spent in National Level Retail Chain Stores (Numbers)

S. No	Time spent (minutes)	Buyer	Non-buyer	Overall
1.	<15	0 (0.00)	6 (5.00)	6 (2.50)
2.	15-30	29 (24.17)	50 (41.67)	79 (32.91)
3.	30-45	40 (33.33)	53 (44.17)	93 (38.75)
4.	45-60	28 (23.33)	5 (4.16)	33 (13.76)
5.	>60	23 (19.17)	6 (5.00)	29 (12.08)
Total		120 (100.00)	120 (100.00)	240 (100.00)
(Figures in the parentheses are percentage to the total)				

It could be concluded from the results that about 38.75 per cent of overall respondents were spending 30-45 minutes for purchasing the groceries and other items. Further, around 33 percent of respondents spent 15-30 minutes followed by 13.76 per cent spent 45-60 minutes. However, comparatively a greater number of respondents under non-buyer category spent 15-30 minutes (41.67 per cent) and 30-45 minutes (44.17 per cent) periods than the buyers. It is revealed that majority of the respondents spent more than 30 minutes in retail stores to purchase vegetables.

Mode of Purchase of Vegetables

The data on the mode of purchase by the sample consumers were collected, analysed and the results are presented in Table 9.

Table 9: Mode of Purchase of Vegetables by the Sample Respondents(Numbers)

S. No	Mode of Purchase	Buyer	Non-buyer	Overall
1.	Cash	79 (65.83)	113 (94.17)	192 (80.00)
2.	Credit	41 (34.17)	7 (5.83)	48 (20.00)
Total		120 (100.00)	120 (100.00)	240 (100.00)
(Figures in the parentheses are percentage to the total)				

It could be concluded from the results that the majority of the respondents purchased by cash (80 per cent) and followed by credit (20 per cent). In contrast, around 95 percent of non-buyers purchased through cash than the buyers (65.83 per cent). Hence, the retailers may have a strategy to promote debit cards transaction for easy payment mode to

convert non-buyers into buyers.

Factors Influencing the Consumer Buying Behaviour of Vegetables

The Probit model was used to explain the factors influencing the consumer buying behaviour of vegetables from National level retail chain stores. The results of factors influencing the consumer buying behaviour of vegetable from the National level retail store through Probit models are presented in Table 10. The details on the influence of the relevant variable on the purchase decision of vegetables in National level retail chain stores and their significance are explained by the estimated coefficients of the model. The marginal effects of the variable explain the probability of influence of vegetable purchase for a unit increase in the independent variable.

It could be inferred that among the age, distance, availability of best discounts and get best price deals of vegetable in the city were most influencing factors for the purchase of vegetables in National level retail chain stores at various levels of significance. Age was influencing the purchase of vegetables in National level retail stores significantly at 10 per cent level. The marginal effects of age inferred that one-year increase in age of the sample respondents over the mean value, the probability of purchase of vegetables would increase by 1.1 per cent. This could be due to the elderliness, to avoid congestion, health and sanitary consciousness of the respondents. The marginal effect of the distance to the retail store indicated that one km increase in the consumer home to National level retail chain stores from the mean level would result in 0.0003 per cent increase in the probability of purchase of vegetables from retail chain stores. However, the probability of an increase in the sale was very meagre. This variable clearly showed that customers were not from the nearby places of the five-kilometre radius of the store as concluded previously, but they were also from more than five kilometres. Hence, the results were different from the normal expectation. This could be due to any one of the factors like promotional programmes, parking facility, as a weekend trip, consciousness to purchase quality vegetable.

Table 10: Factors Influence for Consumer Buying Behaviour of Vegetables from the National Level Retail Stores Probit Model

S. No	Variables	Coefficients	Standard Error	T-Ratio	Marginal effect of the variables
1.	Age (years)	0.276 E ⁻⁰¹	0.154 E ⁻⁰¹	1.789*	0.110 E ⁻⁰¹
2.	Gender (male=1, female =0)	-0.317	0.250	-1.268	-0.126 E ⁻⁰¹
3.	Education (years)	-0.269 E ⁻⁰¹	0.614	-0.438	-0.107 E ⁻⁰¹
4.	Family size (Nos)	-0.590 ⁻⁰¹	0.981 E ⁻⁰¹	-0.602	-0.235 E ⁻⁰¹
5.	Distance from home (Kms)	0.853 E ⁻⁰⁵	0.360 E ⁻⁰¹	2.368**	0.340 E ⁻⁰⁵
6.	Availability of wide range of Vegetables (Y=1, N=0)	-0.478 E ⁻⁰¹	0.880 E ⁻⁰¹	-0.543	-0.190 E ⁻⁰¹
7.	Availability of needed vegetables (Y=1, N=0)	0.384	0.270	1.422	0.153
8.	availability of best discounts (Y=1, N=0)	0.625	0.249	2.504**	0.249
9.	Getting best price deal (Y=1, N=0)	2.400	0.274	8.741***	0.958

(Note: *** 1% significance level; ** 5% significance level & * 10 % significant level)

The coefficient of availability of discount showed positive and encouraging results. If the National level retail chain stores would increase the discount programme, the probability of purchase of vegetables would increase by 24 per cent. Similarly, the best price deals also significantly influenced the purchase of vegetable by the respondent. If there could

be a competitive price for vegetable, the vegetable purchase would increase by 95 per cent. Hence, it could be concluded that the competitive pricing of vegetables could be the key strategy for the success of vegetable marketing in the city. Hence, the retail stores have to concentrate on sourcing and sustainable supply of vegetable supply would give a competitive edge in the vegetable retail market.

CONCLUSIONS

It is concluded from the study that the purchase decision, as well as the responsibility of the purchase of vegetables, were resting with the wives and joint responsibility of husband and wife. Hence, the retailers have to display the vegetables as well as appeal the customers accordingly. Further, the majority of customers purchased the vegetables in the evening hours and during the weekends. They visited the shops by travelling more than two to five kilometres, mostly by car, spent 15-45 minutes in the shop and purchased vegetable through cash. It is concluded from the Probit analysis that the availability of discounts and best price deals are the major factors influencing the purchase of the vegetables from the national level retail stores in Coimbatore city. Hence, the retailers have to develop appropriate pricing strategy to increase the sale of vegetables in the city.

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