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AN ANALYSIS OF PRICE LEVELS OF SELECTED FOOD COMMODITIES UNDER MODERN AND TRADITIONAL RETAILING FORMATS IN KOCHI

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ABSTRACT

Modern retail is emerging as the prime factor responsible for changes in food markets mainly due to population expansion and rise in per capita income. The effect of modern retail on food prices and a comparison between modern retails and traditional retail formats with respect to the pricing of selected six commodities in the city of Kochi was studied. Data from 30 modern retail stores and 150 traditional retail stores were collected through primary field survey. Significant price difference existed between traditional and modern retail formats in all the commodities. The difference was most prominent in rice, attributable to the consumer preference for branded rice, mainly sold through modern retails. The quality of the commodity has been found significantly affecting price for potato, apple, rice and coconut oil. The type of the retail format was significant in fruits and processed products. Bargaining by consumers on traditional retails has reduced prices of onion and banana. Modern retails could not provide benefits to customers in the form of lesser price, home delivery, on credit sale etc. in Kochi. The study discerned that modern retails focused more on non-price attributes of products rather than on price attributes.

Keywords: Modern retail, traditional retail, food retail,

Introduction

India has always been a bastion of mom and pop stores (known as 'kirana' stores). There are roughly 12 million retail stores in the country, which boasts the highest density of such stores anywhere in the world (India Retail Reports, 2009). 'Modern retail' also referred to as 'organised retail' first made its appearance in the first few years following liberalization. In

recent times, there is an influx of modern retails with a host of companies from different spheres setting up organized retail outlets. Now, modern trade accounts for nearly 50 percent of all retail grocery and consumables business in the developed markets. India has a long way to go before it reaches this juncture. In 2006, the contribution of modern trade is merely 4.6% of the total retail trade in the country (Brand Marketing India, 2010).

There has also been an outpouring of angst from politicians and others who are of the socialist persuasion about how goliath-like organized retail chains can undermine the livelihood of hundreds of thousands of small 'kirana' stores. In some places in the country, this angst has also manifested itself in the form of attacks on the organized retail stores and forcible closure of some of these outlets. Under these conditions, modern retailers do not have a realistic understanding of the competitive advantages that kirana stores have at their disposal. Moreover, there is a lack of survey based evidence on the differences in price levels of food items. Hence it becomes essential to (i) analyse the price levels of selected food commodities in modern and traditional retails in Kochi, and (ii) to decipher important factors determining the prices of the commodities. The information emanating from this study would help the planners and business men to understand the dynamics of various price levels and responses of consumers across different business formats.

Overview of Modern Food Retailers:

The modern retailers will have to provide large benefits, to attract the customers, for their survival. Some of the benefits that modern retailers have traditionally offered in developed countries are high quality products, good shopping ambience, large format stores that can offer diversified products, hygienic conditions, lower pricing to customers (owing to better bargaining power), etc. Reardon and Gulati (2008) emphasized that lower pricing would be preferred by the consumers especially in developing countries like India. On an average in 2004, Indian consumers spent about 51 percent of their total expenditures on food comprising about 55 percent in rural areas and 42 percent in urban areas as per National Sample Survey (Planning Commission 2004). Most Indians will be very price sensitive because its large rising middle class has income levels much lower than those in developed countries. With a reasonably long history of organized retail, the United States has shown that many organized retailers have been able to hold retail prices down, especially for mass-consumption goods. Fishman (2006) shows that retailers like Wal-Mart have held the U.S. inflation rate down by at least 1 percentage point (normal inflation hovers around 2–4 percent). The "Everyday low prices" and "Saving is my right" slogans of the Subhiksha chain

have been instrumental in wooing customers. In 2007, Safal, the largest organized retail network of fruits and vegetables in India under Mother Dairy, reduced the prices of 13 selected winter vegetables and that price was 50 percent cheaper than those offered by local vendors (Chakravarty 2007). McLaughten (2004) concluded that major factor influencing price formation process of fruit and vegetables in the US were marketing channels, market structure changes, pricing techniques and promotional impacts and retail responses to supply changes. Haese *et al.* (2005) revealed that since late 1990s, the number of supermarkets in South Africa had steadily grown because of a more effective and efficient management and procurement system and reaping benefit from economies of scale and sold food at a relative low price. With an increase in income, the households look for variety and exoticism in their food products, and will most likely find this in the supermarkets, rather than the local stores. Li Lan *et al.* (2006) found out that retailers through mechanism of vertical control exerted a strong influence on upstream suppliers and determined the products offered in their stores. The small scale producers' revenue decreases when retailers use promotional sales as a selling strategy although the consumers were benefited.

Methodology

The study is based on the primary data collected from both modern and traditional retails pertaining to the period between 27-12-2010 and 20-1-2011. Purposive stratified random sampling technique was used for the selection of respondents. Firstly, Kochi city, the economic capital of Kerala, was selected purposively for this study on account of relatively faster penetration and expansion of modern retail outlets. Secondly, the city was divided into three strata namely high, medium and low circle rates based on circle rate of real estate. There were two types of business formats operating in the city : modern retail and traditional retail. Since the modern retail outlets are limited in numbers, we have selected all 30 modern retail outlets falling 8 in high, 12 in medium, and 10 in low circle rate zones. Further, two households were selected randomly from each modern outlets and A total number of 60 households were interviewed from the modern retail.

For the selection of respondents from traditional retail format, no formal information was available on the population of traditional retail outlets in all the three zones. Therefore, the local information on concentration of outlets were used and probability

proportional sampling method was followed to select 8, 12 and 10 outlets from high, medium and low circle rate zones, respectively. From high income zone, 3 kirana stores, 2 wet market traders, and 3 pushcarts, from medium zone, 5 kirana, 2 wet market traders and 5 pushcarts and finally, 4 kirana, 2 wet market traders and 4 pushcarts from low zone were selected using proportion probability sampling method. Further, 2 randomly selected respondents were interviewed from each selected outlet prevailing in the study area. Thus, a total sample size 120 respondents were interviewed comprising of 60 respondents from modern and 60 respondents from traditional retail formats.

Descriptive statistics on prices were calculated for all the commodities among a total of 60 retailers. Price comparison analysis between modern and traditional retails was done through the use of a t-test of the product prices to discern whether the difference is significant or not. The technique of regression analysis was used to explain variability in prices. The price per kg of the food commodities was taken as the dependent variable, and the set of independent variables included type of retail outlet, real estate value of the area, bargaining, income of the consumers and quality of the product. The regression model is:

$$P_h = \beta_0 + \sum_{i=1}^k \beta_i X_i + \epsilon$$

Where P_h : price per kg of the selected commodities

X_i : variable corresponding to the i^{th} factor, which are

X_1 : type of retail outlet

X_2 : real estate value

X_3 : bargaining

X_4 : income of the consumer

X_5 : quality of the commodity

The dummies used for the independent variables are:

Type of retail outlet : dummy 1= modern retail and 0= traditional retail

Bargaining : dummy 1 = bargaining allowed and 0= bargaining not allowed

Quality of commodity : dummy 1= excellent quality and 0= fair or poor quality

This regression analysis did not reveal the intensity, direction and significance of the associations between the analyzed variables.

Results and Discussion:

The descriptive statistics on prices of selected commodities is presented in Table 1. Potato from the vegetable group was found to be the cheapest produce, among the six products selected, with the mean price of 23.41 and median price of Rs 24/kg. Its coefficient of variation was found to be 0.05. Onion has a high mean price of 61 and median price of Rs 60/kg during the month of December and January 2010-2011. The high median price of onion imparts a high price variation among the vegetable group as a whole. Fruits show high price diversity between the expensive imported apples and much lower priced domestic bananas. Among the processed food products, coconut oil was the most expensive with a median price of Rs 105/kg, where as the median price of rice was Rs 29/kg. Also rice showed the highest price variation among all products having high coefficient of variation of 0.18. Vegetables are the cheapest of the three categories.

Pair-wise price comparison of selected commodities between modern and traditional retails is presented in Table 2. For 5 out of 16 combinations, modern retails were found to be less expensive compared to the traditional retails, where as it was found to be more expensive

Table 1. Descriptive statistics on prices per kg of selected commodities in Kochi.

Commodity group	Item	Number	Mean	Median	Standard Deviation	C.V.
Vegetables	Potato	120	23.41	24	1.07	0.05
	Onion	120	61	60	2.45	0.04
Fruits	Banana	120	23.91	25	1.02	0.04
	Apple	120	118.08	118	3.05	0.03
Processed products	Rice	120	29.28	29	5.4	0.18
	Coconut oil	120	105.61	105	4.52	0.04

Source: Primary Field Survey (27/12/2010 to 20/01/2011)

Table 2. Price difference traditional and modern retails in Kochi

S.N	Item	No.	Mean	Std. Error	trl Mean-Mod mean	t-value	P(T<=t)
Potato	modern retail	60	23.43	0.12			
	pushcart	16	24.6	0.22	1.17	4.090	0.001
	grocery	12	24.8	0.44	1.37	4.476	0.001
	fruit&veg stall	16	21.6	1.47	-1.83	-1.408	0.254
	wet market	16	20	0	-3.43	-28.022	0.000
Onion	modern retail	60	63.07	0.15			

	pushcart	16	59.2	0.44	-3.87	-6.013	0.000
	grocery	12	64.4	0.58	1.33	2.913	0.006
	fruit&veg stall	16	56.4	2.4	-6.67	-2.974	0.041
	wet market	16	50	0	-13.07	-27.939	0.000
Banana	modern retail	60	24.55	0.19			
	pushcart	20	23.3	0.62	-1.25	-2.080	0.064
	grocery	12	23.9	0.23	-0.65	-1.971	0.064
	fruit & veg stall	28	22.6	0.71	-1.95	-2.162	0.059
Apple	modern retail	60	117.2	0.6			
	pushcart	20	118.2	1.22	1	0.634	0.539
	grocery	16	116.7	0.75	-0.5	-0.382	0.707
	fruit & veg stall	24	122	3.5	4.8	1.250	0.246
Rice	modern retail	60	34.07	0.31			
	grocery	60	24.5	0.55	-9.57	-14.768	0.000
Coconut oil	modern retail	60	107.62	0.87			
	grocery	60	103.6	0.6	-4.02	-3.439	0.001

Source: Primary Field Survey (27-12-2010 to 20-01-2011)

in the rest of the 11 combinations compared to traditional retails. The price was found to be high in modern retails than kirana stores in the case of both rice and coconut oil, whereas the price of banana was found to be higher in modern retails compared to that of pushcarts, kirana stores and fruit and vegetable stalls. On the other hand, modern retails were less expensive in potato when compared to pushcarts and kirana stores, in onion when compared to kirana stores, and in apple when compared to fruit and vegetable stalls.

Factors influencing price of commodities

Regression analysis

The results of regression analysis, with price per kg of commodities as dependent variable, and dummy of type of retail outlet, real estate value, dummy of bargaining, income of consumers and dummy of quality of the produce as independent variables, are presented in the table 3.

Table 3. The estimated regression model results are:

Commodity	Regression Equation
Potato	$Ph = 22.28 + 3.20 \text{ quality}^* - 0.08 \text{ real estate value}^{***} + \text{error term}$
Onion	$Ph = 64.29 - 6.19 \text{ bargaining}^* + \text{error term}$
Banana	$Ph = 25.45 + 1.001 \text{ type of retail outlet}^{***} - 1.69 \text{ bargaining}^* + \text{error term}$

Apple	Ph = 116.73 – 3.70 type of retail outlet*** + 8.16 quality* + error term
Rice	Ph = 24.21 + 9.10 type of retail outlet* + 1.75 quality*** + error term
Coconut oil	Ph = 101.11 + 4.4 type of retail outlet* + 6.72 quality* + error term

*indicates significant at 1 % level, ** indicate significant at 5% level, and *** indicate significant at 10 % level.

The two significant variables affecting the price per kg of potato identified were quality of the produce and real estate value. Except quality of the produce which has positive sign, all the other coefficients were negatively affecting the selling price. This means that excellent quality potato fetch higher price in market than fair and poor quality potato, and this is true for all types of retail outlets. The quality of potato in wet-markets and fruits and vegetable stalls were found to be fair or poor and so they are able to sell at lower prices, whereas quality was found to be excellent every time in modern retails. Truly they will be able to sell only at higher price. The negative coefficient of real estate value implies that as the real estate value (Rs per sq.ft) of the area increases, the price per kg of potato decreases. Simply, due to an increase of Rs 1000 in real estate value, the price per kg of potato increases by Rs. 0.08. The reason for these lower prices in higher real estate value area may be the high concentration of wet market traders in the centre of Koch where real estate value is very high. Onion is a very important vegetable as far as the consumers are concerned. Bargaining was the only factor identified to affect the price per kg of onion. The negative sign of the bargaining coefficient means that when bargaining was allowed, the price of onion would decrease significantly. Two factors viz. type of retail outlet and bargaining significantly affected price per kg of banana. Except for the type of retail outlet, the coefficients of all other variables have negative sign. In case of apple, two factors viz. type of retail outlet and quality were identified significantly affecting selling price per kg of apple. The coefficient for the retail outlet has a negative sign whereas the sign of the coefficient for quality is positive. The value for the coefficient of type of retail outlet was got as -3.695 which indicate that the price in the modern retail outlets are less than the price in traditional outlets by Rs 3.70. The value of the coefficient suggests that the price of excellent quality apple is higher than the fair and poor quality apple by Rs 8.16. Also the imported apple has higher demand among the consumers in Kochi. Since apple is a high priced and a high valued commodity, consumers usually go for the high quality produce. Since high quality apple is available at lower prices in modern retails, these retails are able to do good business in apple and other imported fresh fruits. The procurement mechanism of the modern retails is far better than the traditional

retailers who procure apple from Ernakulum wholesale fruit market. In case of processed products, two factors having significant impact on price per kg of rice and coconut oil were viz. type of retail outlet and quality of produce. The coefficients of both these variables have positive sign. The value of the type of retail coefficient was 9.01, thus the price of rice per kg in modern retail is higher than its per kg price in traditional retails by Rs 9.01. The coefficient value of quality apple is 1.75 which means that excellent quality rice is charged a higher price than fair and poor quality rice, the increase in price being of Rs 1.75. Similar findings are in case of coconut oil. The value of the coefficient for retail outlet implies that the price per litre of coconut oil is higher in modern retails than the traditional retails by Rs 4.4. From the value of the quality coefficient we can infer that the price per litre of excellent quality coconut oil is higher than the fair and poor quality coconut oil by Rs 6.72. The major reason for this high price in modern retails may be that they sell only branded products. It has been observed that many modern retails have their own exclusive brand products and the advantage of this branding is the assurance of a specified quality level. These modern retails take pain to ensure that the produce sold by them is graded, branded and packaged, they charge a higher price. The changing behavior of consumers' preference in favor of branded products may be the reason why the modern retails offer high quality branded products with higher price. The consumers are assured of quality and other attributes demanded by consumers in branded product. Consumers usually agree on slightly higher prices for the branded products offered by the modern retails. According to statutes, if any fraud or risk in food item is detected then it becomes easy and quick to fix the issue. The owner of the brand would be held liable for food scam. Therefore, chances of fraudulence are less.

Conclusions

India has been a bastion of mom and pop stores having the highest density of such stores in the world. Legal and economic environments were created by GOI after introduction of liberalization, privatization and globalization policies. This has attracted the inflow of modern retails with a host of companies from different spheres setting up organised retail outlets. Now, competition between modern and traditional retailers, for survival, through large benefits given to customers to attract them has become visible. In vegetable group, price of potato will increase as its quality increases and excellent quality potato fetches higher prices in markets than fair and poor quality in all formats. Bargaining to some extent plays an important role in reducing price in traditional retailers. In case of onion, bargaining affects the price but price of onion increases as consumer moves from traditional retail to modern retail. Though the quality of onion is low in traditional retails, but modern retailers

are not able to compete with the traditional retailers on price front. In banana, price becomes higher when one moves from traditional to modern retails. Interestingly, price of apple in modern retail is less than that of traditional retail but price of excellent quality apple is more than fair or poor quality apple. Prices of processed products (rice and coconut oil) in modern retails were higher than the price in traditional retails because of sale of branded products. Advantage of this branding is the assurance of a specified quality level. Moreover, excellent quality of products is charged higher prices than fair and poor quality products. The emergence and establishment of brand and modern outlets have brought a change in the buying behaviour of consumers according to their convenience. The results provide insight to researchers and business men to devise suitable business strategies to lead in agri-retail-business in country in general and Kochi of Kerala in particular.

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