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Do Store Attributes Discriminate Between Store Formats? A Binary Logistic Approach Using Dummy Variables

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ABSTRACT

It is reported in retail literature that the location of the store and quality of service are considered very important in generating store patronage behavior. A binary logistic model was employed including a few dummy variables like location, empathy, store ambience and fast service. The coefficients for the dummy variables are found to be significant indicating the importance of these variables in ensuring store loyalty. The omnibus test results demonstrate that the fit of the model is quite satisfactory. The pseudo-R square values are also on the higher side signifying that shoppers' can be discriminated adequately based on the set of explanatory variables retained in this study

KEYWORDS :Retail, Logistic Regression, Store Loyalty, Customer, Dummy Variable

Introduction

The projection for the retail industry in India shows high growth potential on grounds of policy reforms, rising disposable incomes and booming consumerism, anticipated strong GDP growth and the introduction of latest technologies in the country. Domestic enterprises have already ventured in the field of multi-brand retailing in the past few years. Even with a decelerating economic growth and a depreciating rupee, there was a stable growth in the retailing industry in 2013. Important factors driving retail growth in India included expanding urbanization, a greater diversity in new stores coming into the picture, and global brands entering the Indian market. Indian retail is dominated by astoundingly large number of small retailers consisting of local *kirana* shops, dairy shops, green grocers, handcarts; pavement vends etc. which together make up the unorganized retail or traditional retail. According to the global firms AC Nielsen and KSA Techno pack, India has the highest shop density in the world having about 14 million outlets. The value sales of these traditional stores accounted for more than 90% of the sales in the year 2011 (Sharma and Mohanty, 2005). The unorganized sector is expected to get bigger due to its proximity, goodwill, credit sales, bargaining, loose items, convenient timings and home delivery. The retail market in India is one of the fastest growing markets in the world, with more than a billion people engaged directly and indirectly. The traditional grocery retail is not only the largest contributor to the total grocery retailing in India, it also accounts for nearly 10% of the total employment in the country. The Indian retail sector, which has been growing at an annual compounded rate of 5.9 percent since 1998 (IBEF, Retail: March 2013) with the current market size of USD 516 billion with expectation to reach USD 866 billion by 2015 (IBEF, Retail: August 2013)..The impressive scale of growth of the organized retail also shows the potential of the untapped sector which grew from USD 290 billion in 2010 (Global Retail Report, 2011) and USD 395.96 billion in 2011, to a likely figure of USD 850 billion by 2020 (FICCI, Retail Sector Profile). During 2012-2016 organized retail is poised to grow at 24 percent or three times compared to the traditional retail, the expansion of which is pegged at 8 percent (A. T. Kearney, GRDI, 2011).

Literature Review

Store loyalty plays a very important role in ensuring success in retail business. Hence, the concept of store loyalty has been extensively probed by researches in the past few decades (Anić and Radas, 2006; Ray and Chiagouris, 2009). There are many researchers who have advocated that trust is a very important factor in developing customer loyalty. Schurr and Ozanne (1985) suggested that high trust can be instrumental in building a more favorable attitude towards loyalty. Trust was found to have a positive effect on customer satisfaction, favorable customer attitudes, purchase intentions, and purchase behaviors (Swan, Bowers, and Richardson, 1999). The results of the study conducted by Nguyen, Leclerc and LeBlanc (2013) demonstrate the mediating role of customer trust between social identity and customer loyalty confirm the significant impact of the chain of

effect identity-image-reputation on customer trust, which in turn affects customer loyalty. As per Kotler and Armstrong (2010), "Customer Satisfaction is the extent to which a product's perceived performance matches a buyer's expectations. If the product's performance falls short of expectations, the buyer is dissatisfied. If performance matches or exceeds expectations, the buyer is satisfied or delighted." Thus, pre-purchase expectations and post purchase perceived performance are the two important characteristics that have been considered here. Grover and Dutta (2011) found that store convenience, appealing value, product offering, and value for money, price and choice availability are the factors which significantly explain the customer satisfaction in an organized retail outlet. Sharma and Prykop (2012) confirmed that there is positive impact of service quality, product quality, and value for money on customer satisfaction and pointed that overall employee satisfaction increases customer satisfaction.

Research Methodology

The study explores the various determinants of store loyalty and their relative importance in recruitment and retention of customers. The broad objective of the study was to develop a relationship framework by considering store loyalty as the dependent variable and a set of independent variables such as store ambience, location, fast service and empathy in the context of the consumers drawn from the four metros, New Delhi, Mumbai, Kolkata, and Chennai. Some tier I, II and III cities from different parts of the country were also considered to make the study more representative and lend it a pan-Indian character that included Bangalore, Hyderabad, Pune, Ahmedabad, Bhubaneswar, Ranchi, Guwahati, Jodhpur, Siliguri, and Darjeeling. The location, empathy and fast service and store ambience measured through dummy variables have been incorporated in the Binary Logistic Model as because these variables are found to be relevant in distinguishing unorganized store shoppers from the organized store shoppers. A brief profile of the respondents (n=411) is given below:

Table –I

Demographic Profile of Sample Respondents

Age Group:	Frequency	Percentages
Below 30 Years	59	14.4
31 to 40 Years	146	35.5
41 to 50 Years	139	33.8
Above 50 Years	67	16.3
Occupation:		
Executives	209	50.9
Non- Executives	106	25.8
Businessmen with:		
No of Employees 1 to 9	65	15.8
No of Employees 10 +	31	07.5
Education:		
Below Graduate	04	01.0
Graduate	108	26.3
Post-Graduate	299	72.7

Objectives of the Study

Based on the discussions presented above this study proposes to investigate the following questions:

1. Is there any association between perceived relation between convenient location and store loyalty?
2. Is there any influence of fast service quality on store loyalty?
3. Do display and ambience have any effect on store loyalty?
4. Can store loyalty be predicted incorporating empathetic behavior of store personnel?
5. To integrate the above findings in order to comment on the managerial implication and application.

Results and Discussion

In this section, an attempt has been made to classify respondents into two groups based on their preference towards organized and unorganized stores along with few important explanatory variables namely location, ambience, empathy and fast service. The results of binary logistic regression demonstrate that these explanatory variables may be considered to classify respondents into two groups. The regression model could classify accurately more than 89% of the sample members with a small margin of error. The pseudo-R square values, chi square values and the coefficients of regression are found to be significant (Table II).

Table - II

Omnibus Tests of Model Coefficients (Overall)

		Chi-square	Df	Sig.
Step 1	Step	609.164	4	.000
	Block	609.164	4	.000
	Model	609.164	4	.000

Note: -2 Log likelihood=530.370 Cox & Snell R Square=0.523 Nagelkerke R Square=0.698

If the H-L goodness-of-fit test statistic is greater than .05, the null hypothesis that there is no difference between observed and model-predicted values cannot be rejected, implying that the model's estimates fit the data at an acceptable level. Thus, models having good fit show non-significance on the H-L goodness-of-fit test. This desirable outcome of non-significance indicates that the model prediction does not significantly differ from the observed values. It is observed from Table III that the Hosmer and Lemeshow test is highly insignificant indicating goodness of fit of the model. The classification table (table -IV) demonstrates that almost 90% of the shoppers can be properly classified by the model.

Table - III

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	4.193	8	.839

Table- IV

Classification Table (overall)

			Predicted		
	Observed		STORETYPE		Percentage Correct
			0	1	
Step 1	STORETYPE	0 (unorganized)	357	54	86.9
		1 (organized)	47	364	88.6
	Overall Percentage				87.7
Note: The cut value is .500					

As already mentioned that location, empathy and fast service are quantified by dummy variables where 1 represents organized retail outlet and 0 represents retail outlets in the unorganized sector, the coefficients of the logistic regression reveal that ambience is the most

important variable (Table -V) in classifying the shoppers into two groups and the Exp (B) value is substantially higher. Here, one could draw a parallel inferences made by Jayasankaraprasad (2014). Apart from that, location, empathy and fast service are much better in the unorganized retail sector as supported by Verma and Verma (2013) while researching on CRM.

The Wald statistic and associated probabilities provide an index of the significance of each predictor in the equation. The Wald statistic has a chi square distribution. The simplest way to assess Wald is to take the significance values and if less than 0.05, the null hypothesis is rejected as the variable does not make significant contribution. The Exp (B) presents the extent to which raising the corresponding measure by one unit influences the odds ratio. We can interpret EXP (B) in terms of the change in odds. If the value exceeds 1 then the odds of an outcome occurring increase; if the value is less than 1, any increase in the predictor leads to a drop in the odds of the outcome occurring.

Table -V

Variables in the Equation (Overall)

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper
Step 1ᵃ	LOCATION	1.592	.271	34.469	1	.000	4.912	2.887	8.357
	AMBIENCE	30514	.235	223.688	1	.000	33.592	21.195	53.241
	EMPATHY	1.881	.236	63.498	1	.000	6.558	4.129	10.415
	FASTSERVICE	.228	0.51	20.265	1	.000	1.256	1.137	1.386

Note: a. Location, Ambience, Empathy, Fast service.

It is reported in retail literature that the location of the store and quality of service are considered very important in generating store patronage behavior (Shukla and Babin, 2013). A binary logit model employed including a few dummy variables like ambience, location, empathy and fast service amply demonstrate the functional relationship between the dependent variable and a set of explanatory variables. The coefficients for the dummy variables are found to be significant indicating the importance of these variables in ensuring store loyalty. The omnibus test results demonstrate that the fit of the model is quite satisfactory (Table -II). The pseudo-R square values are also on the higher side. The Hosmer and Lemeshow statistic is not significant indicating goodness of fit (Table -II). The classification of respondents is found to be nearly 88% which is substantially high (Table IV). The variables ambience, location, empathy and fast service represented by dummy variable indicating '1' for organized sector and '0' otherwise signify that all these variables are important in predicting store loyalty behavior (Table -V). This finding is corroborated by a similar study in the context of impact of service quality on customers' purchase intention by Hassan, Hashmi and Sarwar (2014).

Conclusions and Managerial implications

An attempt was made to classify respondents into two groups based on their preference towards organized and unorganized stores along with a few important explanatory variables namely location, ambience, empathy and fast service. The results of binary logistic regression demonstrate that these explanatory variables may be considered to classify respondents into two groups. The logistic regression model could classify accurately more than 89% of the sample members with a small margin of error. It was observed that the Hosmer and Lemeshow test is highly insignificant indicating goodness of fit of the model. The classification table demonstrated that almost 88% of the shoppers can be properly classified by the model. The coefficients of the logistic regression reveal that ambience is the most important variable in classifying the shoppers into two groups. Apart from that, location, empathy and fast service are also decisive factor to influence the store loyalty behavior.

The findings of this study may probably have significant implications for India's retailing industry. Store affect can be orchestrated by factors like store atmosphere and merchandise value equity which are

amenable to control. As retailers can control store physical setting, for instance store atmosphere, they are able to use their resources to perk it up and achieve enhanced retail outcome (Ray and Chiagouris, 2009). To help create nice store atmosphere which catch the attention of customers, encourage them to make repeated shopping trips, expend larger share of wallet and time at the store, retailers should ensure impressive shopping experience by devoting resources in environment esthetics in order to look different from competitors (Pine and Gilmore, 1999). Retailer need to focus on loyalty boosting strategies for engendering store loyalty, like increasing merchandise value perceptions and improving store atmosphere providing fast and personalized service.

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